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National Electric Power Regulatory Authority
Registrar Office

No: NEPRA/R/TRF-100/MEPCO/12786

August 27, 2015

Subject: Petition for Determination of Consumer-end Tariff for FY 2015-16 to 2019-20 under Multi-Year Tariff Regime in respect of Multan Electric Power Co. Ltd.

Please find enclosed herewith the subject tariff petition submitted by MEPCO, vide letter dated 25.08.2015, received on 26.08.2015 for determination of consumer end tariff for FY 2015-16 to 2019-20 under Multi-Year Tariff Regime.

2. The subject tariff petition is required to be examined to check submission of documents / information required under Rule 3(2) & (8) of NEPRA Tariff (Standards & Procedure) Rules 1999 ("Tariff Rules") as well as NEPRA Guidelines for Determination of Consumer End Tariff (Methodology and Process) 2015 ("Tariff Guidelines") notified vide SRO 34(I)/2015 dated 16.01.2015 which, inter alia, contain the Minimum Filing Requirements (Part 3 read with Part 5, 7 and 8 of the Guidelines and the Forms for minimum filing requirements attached with Guidelines) to be provided by distribution licensees alongwith petition filed for determination of consumer end tariff.

3. The Senior Advisor (Tariff-I), Senior Advisor (Tech) and Legal Advisor (LLP) are requested to provide their comments that whether the provided information / documents by MEPCO are complete as per the requirements of Tariff Rules and the Guidelines for admission or highlight / mention the shortcomings, if any, which may cause non-admission of the subject petition.

4. In view that this is the first petition to be processed under the newly formulated Tariff Guidelines, therefore, all concerned are requested to offer their comprehensive and clear comments with regard to admission of the case or otherwise.

5. The deficient information in the petition, if any, shall be classified that it is required under a specific requirement of Tariff Rules and /or the Tariff Guidelines or an additional information is required under Rule 4(2) of the Tariff Rules and para 12 under Part 3 of the Tariff Guidelines.

6. The requisite comments may kindly be provided by 31.08.2015 for further necessary action in the matter, please.

27/8/15
(Iftikhar Ali Khan)
Deputy Registrar

1. SA (Tech)	} (Along with hard copies of full package received)
2. SA(T-I)	
3. LA (LLP)	
4. Regulatory Economist	
5. SES to Registrar	
6. Mr. Zainullah Shah, O.S (to update status)	
7. Mr. Rizwan Ali Piracha (to scan the petition)	

CC:

1. Chairman
2. Vice Chairman / Member (CA)
3. Member (Tariff)
4. Member (M&E)
5. Member (Licensing)



MULTAN ELECTRIC POWER COMPANY LIMITED

MULTIYEAR TARIFF PETITION

F.Y. 2015-16 through F.Y. 2019-20

DISTRIBUTION LICENSE NO.06/DL/2002

24th August 2015

MULTAN ELECTRIC POWER COMPANY LTD (WAPDA)
FINANCE DEPARTMENT

FDM/Cashier/No. 60611

Date: 25/08/2015

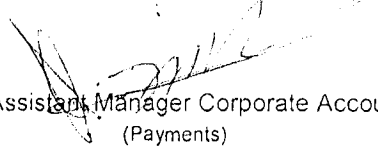
M/S National Electric Power Regulatory Authority (NEPRA)
Ataturk Avenue (East) G-5/1
Islamabad
Phone: 051-2013200

SUBJECT: DEDUCTION CERTIFICATE

A statement showing the deduction made from your(Tarrif Petition Fee)
Bill For The year 2015-16 is given below:

Reference No.	Amount of Bill	LD	Income Tax	20% GST	Payment vide cheque No. & date	Net Amount Paid
	839,856		67,188		71747503	772,668
					Dt. 25/08/2015	-
						-
						-
	839,856	-	67,188	-		772,668

DA/Cheque


Assistant Manager Corporate Accounts
(Payments)



MULTAN ELECTRIC POWER COMPANY LIMITED

Phone #: 061-9220095 P.B.X #: 061-9210380
Fax #: 061-9220116 Ext. #: 2058

No. /FDM/BS/Tariff/ *5808*

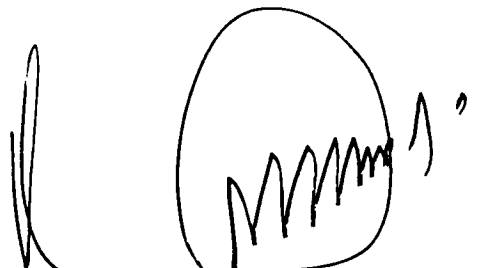
Finance Department
MEPCO Complex,
Khanewal Road, Multan
Dated: *24/08/2015*

The Registrar,
National Electric Power Regulatory Authority,
NEPRA Tower, Atta Turk Avenue,
Sector G- 5/1,
Islamabad.

Subject: MULTIYEAR TARIFF PETITION FOR F.Y. 2015-16 THROUGH F.Y. 2019-20 – MEPCO (LICENSE # 06/DL/2002)

We are enclosing Multiyear Tariff Petition for the F.Y. 2015-16 through F.Y. 2019-20. MEPCO is also enclosing Distribution Integrated Investment Plan (DIIP) prepared under the guidelines of the Authority. It is therefore, requested to admit attached petition for determination of consumer end tariff of the company for the financial years 2015-16 – 2019-20.

It may please be acknowledged.



Engr. Muzaffar Ali Abbasi
Chief Executive Officer

DA/ 1. Affidavit in original (one page)

2. Tariff Petition (12 Pages)

3- " " Formats (67-Pages)

4- Dim Assumption Annex-II (15 Pages)

5- Reply of Directions (08 Pages)

6- Demand Draft No. 11660824

7- Income Tax deduction certificate

8- Board's Resolution

- **Base Year**, in this application, FY 2014-15, means the year on which the annual or multiyear tariff projection is being made.
- **Tariff Control Period** for Multiyear Tariff means a period of assessment under multiyear tariff regime, i.e. 2015-16 to 2019-20
- **Test Year** means the first year of tariff control period in multiyear tariff regime i.e. FY2015-16

7. RELIEF OR DETERMINATION SOUGHT

7.1. Objectives of the Petition

The aim of this petition is to obtain approval for the implementation of cost reflective tariffs to yield MEPCO's required revenues for the tariff control period i.e. 2016-2020 effective July 1, 2015. Additionally, this multi-year tariff petition sets out required revenues and timetable for rebalancing tariffs in MEPCO's distribution area according to the mechanisms defined by the Tariff Guidelines and will ensure to achieve the objectives of the multi-year tariff petition.

The implementation of cost reflective tariffs and associated periodic adjustments will benefit consumers and MEPCO as it will:

- Enable to improve service quality and reliability
- Provide adequate funds for the operation, maintenance and expansion of distribution network
- Ensure the financial sustainability of MEPCO
- Ensure timely recovery of determined revenue requirement i.e. power purchase cost & distribution margin
- Provide signals for efficient usage of distribution network and investment
- Give price signal for efficient use of electricity

7.2. MEPCO's Distribution Margin

NEPRA in its determination dated March 27, 2015 has allowed distribution margin for financial year 2015 @ Rs. 1.10 / kWh sold. The distribution margin covers MEPCO's O&M costs, depreciation, other income and return on regulatory asset base. The detail of distribution margin allowed is as follows:

Distribution Margin: The sum of the O&M Cost, Depreciation, RORB reduced by other Income in MEPCO's distribution margin. Dividing this by the total units to be sold yields the average distribution margin (per kWh). Accordingly, the distribution margin for test year 2016 of tariff control period comes at Rs. 25617 Million or Rs. 2.13 / kWh sold. The Distribution Margin is discussed in detail in financial assumption attached as Annex 1 to this tariff petition.



The following formula in accordance with the NEPRA Tariff Guidelines 2015 has been used to calculate the Distribution Margin:

$$DM_D = RB_D * RORB_D + D_D + E_D + t_D \pm ORC_D$$

Where:

DM_D is the eligible distribution company's Distribution Margin

RB_D is the eligible distribution company's rate base

$RORB_D$ is the eligible distribution company's cost of capital

D_D is the eligible distribution company's depreciation expense

E_D is the eligible distribution company's expenses including but not limited to operation, maintenance and human resources

T_D is the eligible distribution company's federal and provincial taxes (allowed as pass through)

ORC_D is the eligible distribution company's other regulatory costs including other income

The O&M component of the Distribution Margin will be indexed with CPI subject to adjustment for efficiency gains (X factor) and accordingly the O&M will be indexed every year according to the following formula as per NEPRA tariff guidelines:

$$O\&M_{Rev} = O\&M_{Ref} * [1 + (\Delta CPI - X)]$$

Where:

O&M (Rev) = Revised O&M Expense for the Current Year.

O&M (Ref) = Reference O&M Expense for the Reference Year

ΔCPI = Change in Consumer Price Index published by Pakistan Bureau of Statistics latest available on 1st July against the CPI as on 1st July of the Reference Year in terms of percentage.

X = Efficiency factor

It is pointed out that MEPCO Pay & Allowance, historically, is linked with Federal Government pay scale and accordingly the major component of operating expenditure is subject period adjustments based on GOP notification hence is difficult to predict. It is, therefore, suggested for the consideration of Authority that except for pay increases the other O&M expensed may be considered for period adjustment based on CPI, network system and establishment of new offices for better services to consumers and annual pay increased be trued up based on notification issued GOP for pay increase, during the tariff control period.



Further, it is pointed out that MEPCO is filing multiyear tariff without considering the X factor because historically various costs have not been allowed by NEPRA and MEPCO actual expenses are always higher than the allowed expenses due to its system requirements.

As per formula given above it is submitted that the reference O&M will be the first year or reference year, O&M approved by the authority and which will be adjusted by CPI, which has been adjusted by an efficiency factor as determined by the authority, to arrive at revised O&M for next year. This adjustment has three main issues which need to be addressed by Authority in determination of instant petition.

The first issue is that change in CPI or inflation available for adjustment will be backward looking and in this way petitioner may suffer as the CPI/Inflation will be of last year and Company will be bound to bear O&M with inflation of last year, which may adversely impact the Company and in this regard it is suggested that any change in Δ CPI allowed and actual may be adjusted through PYA.

The second issue is the application of only Δ CPI for adjustment of O&M, whereas MEPCO is fully owned by GOVT Company and all Company employees' salaries and pensions are governed according to BPS and Government decisions, which may or may not surpass the Δ CPI/Inflation impact. It is therefore suggested that for Salaries and Pensions all Government and or PEPCO decisions be allowed to MEPCO instead of confining to Δ CPI/Inflation like other DISCO's.

The Third and last but not the least issue is the efficiency factor X in the formula, which needs utmost care so that it does not affect the quality of service and it captures the industry efficiency rather than Company specific. The fact that most significant efficiency /cost factor is T&D Losses and incentive for investment to promote capacity expansion should be ensured.

7.3. Power Purchase Price (PPP)

As per the tariff methodology prescribed in the NEPRA Tariff Guidelines 2015, the following formula is used to evaluate the power purchase cost:

$$PPP = PP(EC) * Q(p) + PP(cc) + TC$$

Where:

PPP is the Power Purchase Price

PP(EC) is the energy charge part of PPP

Q(p) is quantity purchased by the company

PP(cc) is the capacity charge part of PPP

TC is the transmission cost

MEPCO pays a Power Purchase Price (in Rs/kWh) for the electricity it procures from CPPA-G or from other sources on behalf of CPPA-G, which would include the generation and transmission charges (regulated by NEPRA). This Power Purchase Price, adjusted for MEPCO's

distribution losses, would then be simply added to MEPCO's overall distribution margin to work out retail tariffs. Thus, the cost of the purchased electricity would be "passed through" to consumers through the retail tariff, *without affecting MEPCO's distribution margin*.

While passing through the PPP, it is recognized that all distribution companies experience some level of distribution losses, defined as the percentage of the difference between the units received by the company and the units invoiced to the consumers. The PPP should thus be adjusted such that MEPCO would be compensated for some losses, without hindering the incentive to eliminate the total losses.

$$PPP = \frac{\text{Unadjusted PPP}}{1-L}$$

Where;

- Unadjusted PPP is the cost of electricity supply charged by CPPA or any other source at any given time;
- L is the target T & D losses for the year, defined as a percentage of purchased units, in accordance with a schedule established for the control period.

For the tariff control period, the following target of Transmission & Distribution losses is proposed for the consideration of the Authority:

Year	T&D Losses
2014-15	16.80%
2015-16	16.22%
2016-17	15.76%
2017-18	15.60%
2018-19	15.60%
2019-20	14.88%

Based on the above formula, the compensation for T&D losses would be automatically adjusted for any changes in the power purchase cost. The schedule of target losses, however, would be maintained for the whole of the tariff control period regardless of the actual T&D losses incurred by MEPCO. Thus, if MEPCO were not able to meet the target loss reduction, it would be penalized by not being able to recover the cost of extra units lost from the retail tariffs. If, on the other hand, MEPCO's actual loss reduction outperformed the target level, it would be able to gain extra revenues from the loss adjustments to the PPP.

The working of the power purchase cost for the Tariff Control Period would be projected and approved by NEPRA based on the information provided by CPPA-G, NTDC & DISCOs with regards to generation plan (including existing plants and future plants), target of transmission and distribution losses and assumptions based on fuel prices, dollar devaluation and



local and international CPI etc. The main factors as mentioned in the guidelines are summarized below

- Forecasts and/or projections of fuel expenses
- Variable O&M of generation companies
- Forecasted and /or projected Generation Capacity Charge Component of the power purchase price
- The Transmission Charges of NTDC
- The quantum of generation is also projected from each generation plant for each test year keeping in view the upcoming generation facilities and ongoing power sector constraints such as circular debts etc.

For a multi-year tariff following periodic adjustments as per the NEPRA Tariff Guidelines 2015, have been proposed for the tariff control period based on the periodic performance of the distribution companies evident in actual results:

For adjustments with regards to the power purchase cost:

- Quarterly/Bi-Annual PPP Adjustments the scope of which would be limited to:
 - i. The adjustments pertaining to the capacity and transmission charges.
 - ii. The impact of T&D losses.
 - iii. Adjustment of Variable O&M.
- Monthly Fuel Adjustments
 - i. The adjustments on account of variation in fuel cost component of PPP would be done on monthly basis. This adjustment reflects in the consumers' monthly bill as Fuel Adjustment Charge.
 - ii. In view of any abnormal changes the Authority may review these references along with any quarterly adjustment. Here it is pertinent to mention that PPP is pass through for all the DISCOs (variable cost) and its monthly references would continue to exist irrespective of the financial year, unless the new Schedule of Tariff (S01.) is notified by the GOP.

Under the proposed tariff-setting methodology, the average retail tariff would consist of: (i) the Power Purchase Price (PPP), which would be passed through to the end users in the retail tariff, and (ii) the average distribution margin, which would be set on the formula-based methodology.

8. CONSUMER-END TARIFF

For the year 2016, MEPCO's existing tariff will be adjusted to incorporate revenue requirements consisting of cost of power purchased and distribution margin required and for remaining financial years of tariff control period the periodic adjustment as per the mechanism provided in tariff methodology and guidelines coupled with the changes proposed as above.

9. NON PAYMENT OF UOSC

MEPCO is situated in an area where major thermal generation of country takes place and NTDC does not evacuate all power directly from these power plants resultantly MEPCO transmission assets are used and for this service MEPCO has been allowed use of system charges but regrettably the UoSC claims by MEPCO has not been catered for by other Companies despite the fact that these are also the licensee of NEPRA. The regulator while allowing 15% target duly supported by studies acknowledges this loss impact of 1.1% and decided that its compensation will be made through these payments but these payments never materialize. MEPCO currently has issued UoSC claims amounting to Rs. 9442(m) for the period from F.Y. 2009-10 to F.Y. 2013-14 (March 2014). It is therefore again requested to resolve this long outstanding issue of MEPCO.

10. INADEQUATE WHEELING CHARGES

NEPRA has allowed private to private sale of power where MEPCO will only act as transporter of power for the power generator. MEPCO raised number of issues in this regard, however the issue of just and adequate wheeling charge for this transaction needs to be decided through NEPRA determination and MEPCO did bring this issue up in its tariff review motion but the same has not been addressed in review motion determination. Therefore, the same is again submitted before regulator so that MEPCO does not suffer any loss in this regard.

11. The current wheeling charges formula does not cover the losses incurred by power wheeler in wheeling of power as evident from formula already given by NEPRA. Whereas NEPRA has been allowing these losses for general consumers but the same has not been allowed for this arrangement. Furthermore, it has been observed that in countries other than Pakistan where this arrangement is allowed, losses in wheeling of power have been allowed to power wheeler. Therefore, it is submitted that technical losses for each level (i.e 132 kv and 11 kv for wheeling of power may also be allowed to save MEPCO from loss in this regard. It is therefore submitted that following formula be applied instead of the current, as it will safeguard companies against loss of power on wheeling.



12. PROPOSED CHANGES IN EXISTING TARIFF

For the year 2016, MEPCO's existing tariff will be adjusted to incorporate revenue requirements consisting of cost of power purchased and distribution margin required. The proposed customer-end tariff is provided as per the format # 27.

13. SUMMARY OF EVIDENCE

That the summary of evidence giving brief particulars of data, facts and evidence in support of this petition forms an integral part hereof and is as under:-

A. Copy of Resolution of Board of Directors MEPCO	(Annex-I)
B. Standard Petition Formats	(Annex-___)
C. Distribution Integrated Investment Plan (DIIP) formats	(Annex-___)
D. Category wise units sold, proposed tariff and revenue for test year	(Annex-___)
E. Comparative Schedule of Tariff	(Annex-___)
F. Financial Statements (Three years comparison)	(Annex-___)

That in view of the grounds and facts mentioned above, it is respectfully prayed that while admitting and allowing this petition, the multiyear tariff of MEPCO for the FY 2015-16 to FY 2019-20 may very graciously be determined as estimated hereinabove by allowing the following reliefs:-

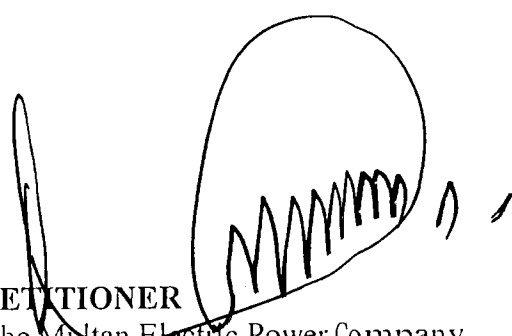
- a. Proposed tariff be allowed and made applicable immediately upon admission of this petition subject to an order for refund for the protection of consumers during the pendency of this petition in terms of Sub-Rule 7 of Rule 4 of NEPRA (Tariff Standards and Procedure) Rules, 1998;
- b. Multiyear Distribution Margin for FY 2015-16 to FY 2019-20 to be determined and allowed;
- c. Investment plan of including consumers' contribution to be approved for FY 2015-16 to 2019-20 as per petition format 21A Table 10;
- d. Post Retirement reduction made by Authority during last three years reduction in the O & M Expenses will be allowed in the FY 2015-16 as prior period adjustment as MEPCO has created Pension Fund in compliance to Authority's Direction. It is further respectfully, prayed that MEPCO may be allowed such expenses in O&M so that MEPCO after collecting the same through tariff would be able to deposit the same into the funded created for the purpose.
- e. Allow the new hiring cost against existing vacant position of Rs.1101 million and further new hiring cost of Rs. 236 million may also be allowed for expansion related new offices including the sustainability related costs of project implemented through USAID-PDP in MEPCO.
- f. Allow the True-up mechanism for O&M as proposed in section 7.2.

- g. Financial viability of the petitioner for the reliable supply of electricity to its 5.1 million consumers be ensured;

UoSC (wheeling Charges)= $DM + \{ \text{Difference of PPP(wheeled power)adjusted for loss allowed at level (power is being supplied) i.e } (PPP-PPP/(1-L)) \} * \text{kwh wheeled(difference of input and output).}$

Where L will of the level at which power is being supplied like at 132kv, 11kv and or of both.

14. Any other relief.



PETITIONER
The Multan Electric Power Company
Ltd.

Through:
Muzaffar Ali Abbasi
Chief Executive Officer MEPCO

Dated: 10-08-2015

STANDARD PETITION FORMATS FOR DISTRIBUTION COMPANIES
MULTAN ELECTRIC POWER COMPANY LIMITED
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(Intentionally left blank to eliminate the total losses)

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FORM - 1
MEPCO
Company Statistics

	Actual	Projected	Projected	Projected	Projected	Projected			
Peak demand during FY	3258	3323	3475	3662	3870	4091			
Number of Consumers	5116072	5256252	5480023	5705613	5931165	6156119			
Area	105505	105505							
Circles	8	9	9	9	9	10			
Divisions	35	37	37	37	38	39			
Sub Divisions	159	162	168	174	180	186			
Length of Feeders	71101	71811	73135	74696	76341	78112			
Average Length of Feeders	68	67	65	63	62	60			
Maximum Length of Feeder	338.9	338.9							
Minimum Length of Feeder	1.8	1.8							
Target for new connections	218300	227322	223771	225590	225552	224954			
Length of High Voltage Transmission lines (132 kV)	3286	3317	3591	3781	4118	4315			
Length of STG lines (66 and 11 kV)	71302	71915							
Length of Low Voltage Distribution lines (400 V)	46866	47189	47723	48323	48963	49663			
Number of HV transformers									
Number of burned down HV transformers									
Number of STG transformers	255	259	267	277	286	296			
Number of burned down STG transformers									
Number of LV transformers	149368	150333	151779	153400	155118	156981			
Number of burned down LV transformers	2858	3007	3036	3068	3102	3140			
A	Strength		Cost		Strength		Strength		
	Period 2015 Actual	Period 2016 Projected	Period 2015 Actual	Period 2016 Projected	Period 2017 Projected	Period 2018 Projected	Period 2019 Projected	Period 2020 Projected	
	Number of Employees								
	Qualified Professionals								
	Engineers	264	324			371	371	371	371
	Others	203	233			256	256	256	256
		467	557			627	627	627	627
	Staff								
	Technical	11931	13167			14176	14176	14176	14176
	Clerical	801	1210			1543	1543	1543	1543
B	Non Technical	3279	5425			7182	7182	7182	7182
		16011	19802	11399	13094	22901	22901	22901	22901

FORM - 2

MEPCO

Profit & Loss Statement

		Determined	Base Year	Projected	Projected	Projected	Projected	Projected
Power Balances								
Units Received	[MkWh]	13,887	14,076	14,368	15,164	16232	17482	18690
Units Lost	[MkWh]	2,083	2,365	2,331	2,390	2,533	2,728	2781
Units Lost	[%anel]	15.00%	16.80%	16.22%	15.76%	15.60%	15.60%	14.88%
Units Sold	[MkWh]	11,804	11,711	12,036	12774	13699	14754	15909
Revenue								
Sales Revenue	[Min Rs]	134,014	117,401	168,549	171709	185323	199823	214170
Subsidy	[Min Rs]	-	45,419	-	-	-	-	-
Fuel Price Adjustment	[Min Rs]	-	-	-	-	-	-	-
Total Sales Revenue	[Min Rs]	134,014	162,820	168,549	171,709	185,323	199,823	214,170
Rental & Service Income	[Min Rs]	282	258	276	289	304	319	335
Amortization of Def Credits	[Min Rs]	1,938	1,877	2,047	2219	2374	2516	2654
Other Income	[Min Rs]	1,576	1,530	307	350	350	350	350
Total Revenue	[Min Rs]	137,810	166,485	171,179	174,568	188,350	203,009	217,508
Operating Cost								
Power Purchase Cost	[Min Rs]	141,120	130,818	133,817	140832	150053	160706	171251
Adjustment of Cr. Advice by CPPA on a/c of PPP of previous years	[Min Rs]	-	-	-	-	-	-	-
O&M Expenses	[Min Rs]	9,226	14,521	17,334	20268	22446	24617	26912
Depreciation	[Min Rs]	3,106	3,231	3,835	4423	4941	5444	5905
Amortization	[Min Rs]	-	-	-	-	-	-	-
Provision for Bad Debt	[Min Rs]	-	-	-	-	-	-	-
Total Operating Cost	[Min Rs]	153,452	148,570	154,986	165,523	177,441	190,766	204,068
EBIT	[Min Rs]	(15,642)	17,915	16,193	9,045	10,909	12,242	13,440
Financial Charges	[Min Rs]	-	669	1,098	2548	3190	3913	4123
EBT	[Min Rs]	(15,642)	17,246	15,095	6,497	7,719	8,329	9,317
Tax	[Min Rs]	-	-	5,283	2274	2702	2915	3261
EAT	[Min Rs]	(15,642)	17,246	9,812	4,223	5,017	5,414	6,056
WPPF	[Min Rs]	-	-	491	211	251	271	303
Profit for the period	[Min Rs]	(15,642)	17,246	9,321	4,012	4,766	5,143	5,753
			(22,379)	(5,133)	4,188	8,200	12,966	18,109

FORM - 3
MEPCO

Profit & Loss Statement (F.Y. Base Year 2014-5)

		Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Power Balances																	
Units Received	(MAWH)	1,511	1,553	1,366	4,430	1,248	949	904	3,101	844	820	868	2,532	1,097	1,461	1,455	4,012
Units Lost	(MAWH)	419	350	229	998	214	66	43	323	70	52	142	264	180	298	301	780
Units Lost	(%)	27.70%	22.54%	16.75%	22.52%	17.16%	6.95%	4.80%	10.43%	8.28%	6.33%	16.36%	10.42%	16.45%	20.41%	20.71%	19.43%
Units Sold	(MAWH)	1,093	1,203	1,137	3,433	1,034	883	860	2,777	774	768	726	2,269	917	1,162	1,153	3,233
Revenue																	
Sales Revenue	(Min Rs)	11,617	13,038	12,714	37,370	11,024	9,423	8,500	28,947	5,856	7,534	5,186	18,577	7,259	12,607	11,641	32,507
Subsidy	(Min Rs)	4,566	5,023	4,692	14,281	4,226	3,397	2,915	10,538	2,712	2,652	2,644	8,008	3,537	4,681	4,314	12,592
Fuel Price Adjustment	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Sales Revenue	(Min Rs)	16,183	18,061	17,406	51,650	15,250	12,820	11,416	39,485	8,569	10,187	7,830	26,585	10,796	17,289	16,015	45,099
Rental & Service Income	(Min Rs)	22	21	22	65	22	24	23	69	21	20	20	61	21	21	22	64
Amortization of Def Credits	(Min Rs)	151	152	153	456	154	155	156	465	157	158	158	473	160	161	163	484
Other Income	(Min Rs)	291	(397)	219	113	324	247	155	727	138	63	142	343	114	115	117	346
Total Revenue	(Min Rs)	16,648	17,837	17,800	52,285	15,749	13,246	11,750	40,745	8,885	10,427	8,149	27,462	11,090	17,586	17,317	45,993
Operating Cost																	
Power Purchase Cost	(Min Rs)	14,636	13,850	12,860	41,346	12,573	8,966	9,226	30,765	11,704	7,079	8,506	27,289	9,797	11,173	10,448	31,417
O&M Expenses	(Min Rs)	1,221	1,017	1,079	3,316	1,018	1,101	957	3,076	1,010	1,130	986	3,126	990	2,006	2,007	5,003
Depreciation	(Min Rs)	229	232	242	704	242	251	237	730	236	232	237	705	232	230	631	1,093
Amortization	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provision for Bad Debt	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	(Min Rs)	16,086	15,099	14,181	45,366	13,833	10,318	10,420	34,571	12,950	8,441	9,728	31,119	11,019	13,409	13,085	37,513
EBIT	(Min Rs)	562	2,738	3,619	6,919	1,916	2,928	1,330	6,174	(4,064)	1,987	(1,579)	(3,657)	71	4,177	4,231	8,479
Financial Charges	(Min Rs)	1	1	137	188	1	1	133	135	1	0	0	2	114	115	115	344
EBT	(Min Rs)	561	2,737	3,432	6,731	1,915	2,927	1,197	6,039	(4,066)	1,986	(1,579)	(3,659)	(43)	4,062	4,116	8,135
Tax	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EAT	(Min Rs)	561	2,737	3,432	6,731	1,915	2,927	1,197	6,039	(4,066)	1,986	(1,579)	(3,659)	(43)	4,062	4,116	8,135
WPPF	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Profit for the period	(Min Rs)	561	2,737	3,432	6,731	1,915	2,927	1,197	6,039	(4,066)	1,986	(1,579)	(3,659)	(43)	4,062	4,116	8,135
									12,769				9,111				

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Profit & Loss Statement (Projected* T Year 2015-16)

Power Balances																
Units Received	(MWh)	1,542	1,587	1,396	4,525	1,275	970	922	3,167	861	836	885	2,583	1,119	1,490	1,484
Units Lost	(MWh)	418	351	227	996	214	63	37	314	68	47	139	252	177	295	298
Units Lost	(%)	27.13%	22.09%	16.26%	22.01%	16.75%	6.50%	4.05%	9.91%	7.85%	5.60%	15.71%	9.75%	15.79%	19.78%	20.09%
Units Sold	(MWh)	1,123	1,237	1,169	3,529	1,062	907	884	2,853	795	790	746	2,331	943	1,195	1,186
Revenue																
Sales Revenue	(Min Rs)	15,731	17,317	16,368	49,417	14,867	12,699	12,386	39,952	11,138	11,058	10,450	32,646	13,198	16,734	16,603
Subsidy	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Sales Revenue	(Min Rs)	15,731	17,317	16,368	49,417	14,867	12,699	12,386	39,952	11,138	11,058	10,450	32,646	13,198	16,734	16,603
Rental & Service Income	(Min Rs)	23	23	23	69	23	23	23	69	23	23	23	69	23	23	69
Amortization of Def Credits	(Min Rs)	171	171	171	512	171	171	171	512	171	171	171	512	171	171	512
Other Income	(Min Rs)	26	26	26	77	26	26	26	77	26	26	26	77	26	26	77
Total Revenue	(Min Rs)	15,950	17,536	16,587	50,074	15,087	12,918	12,605	40,609	11,357	11,277	10,669	33,303	13,418	16,954	16,822
Operating Cost																
Power Purchase Cost	(Min Rs)	14,931	14,151	13,139	42,221	12,846	9,158	9,413	31,417	11,941	7,223	8,678	27,842	9,995	11,399	10,942
O&M Expenses	(Min Rs)	1,445	1,445	1,445	4,334	1,445	1,445	1,445	4,334	1,445	1,445	1,445	4,334	1,445	1,445	1,445
Depreciation	(Min Rs)	320	320	320	959	320	320	320	959	320	320	320	959	320	320	959
Amortization Leased Assets	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provision for Bad Debt	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	(Min Rs)	16,695	15,915	14,903	47,514	14,610	10,922	11,177	36,709	13,705	8,987	10,442	33,135	11,759	13,163	12,706
EBIT	(Min Rs)	(745)	1,621	1,684	2,560	477	1,995	1,428	3,900	(2,348)	2,290	227	168	1,658	3,790	1,115
Financial Charges	(Min Rs)	-	-	-	-	-	-	-	399	-	-	-	-	-	-	-
EBT	(Min Rs)	(745)	1,621	1,684	2,560	477	1,995	1,029	3,501	(2,348)	2,290	227	168	1,658	3,790	1,115
Tax	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EAT	(Min Rs)	(745)	1,621	1,684	2,560	477	1,995	1,029	3,501	(2,348)	2,290	227	168	1,658	3,790	1,115
WPPF	(Min Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Profit for the period	(Min Rs)	(745)	1,621	1,684	2,560	477	1,995	1,029	3,501	(2,348)	2,290	227	168	1,658	3,790	1,115

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Profit & Loss Statement (Projected 2016-17)

Power Balances																		
Units Received	[MkWh]	1,628	1,676	1,473	4,777	1,346	1,023	973	3,341	909	882	934	2,725	1,181	1,573	1,567	4,321	15,164
Units Lost	[MkVh]	436	364	231	1,031	218	60	34	312	65	45	142	252	181	305	309	795	2,390
Units Lost	[%age]	26.79%	21.72%	15.70%	21.59%	16.20%	5.88%	3.51%	9.34%	7.12%	5.06%	15.23%	9.23%	15.31%	19.40%	19.71%	18.40%	15.8%
Units Sold	[MkV.h]	1,192	1,312	1,241	3,745	1,128	963	938	3,029	844	838	792	2,473	1,000	1,268	1,258	3,526	12,774
Revenue																		
Salas Revenue	[Min -Rs]	16,022	17,637	16,687	50,346	15,157	12,946	12,615	40,717	11,344	11,263	10,643	33,249	13,442	17,044	16,910	47,396	171,709
Subsidy	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Sales Revenue	[Min Rs]	16,022	17,637	16,687	50,346	15,157	12,946	12,615	40,717	11,344	11,263	10,643	33,249	13,442	17,044	16,910	47,396	171,709
Rental & Service Income	[Min Rs]	24	24	24	72	24	24	24	72	24	24	24	72	24	24	24	72	289
Amortization of Def Credits	[Min Rs]	185	185	185	555	185	185	185	555	185	185	185	555	185	185	185	555	2,219
Other Income	[Min Rs]	29	29	29	88	29	29	29	88	29	29	29	88	29	29	29	88	350
Total Revenue	[Min Rs]	16,260	17,878	16,925	51,061	15,395	13,184	12,853	41,432	11,582	11,501	10,881	33,964	13,681	17,282	17,148	48,111	174,568
Operating Cost																		
Power Purchase Cost	[Min Rs]	15,736	14,912	13,830	44,478	13,520	9,620	9,899	33,038	12,563	7,591	9,126	29,280	10,520	11,997	11,519	34,036	140,832
O&M Expenses	[Min Rs]	1,689	1,689	1,689	5,067	1,689	1,689	1,689	5,067	1,689	1,689	1,689	5,067	1,689	1,689	1,689	5,067	20,268
Depreciation	[Min Rs]	369	369	369	1,106	369	369	369	1,106	369	369	369	1,106	369	369	369	1,106	4,423
Amortization Leased Assets	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provision for Bad Debt	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	[Min Rs]	17,793	16,970	15,888	50,651	15,577	11,677	11,957	39,211	14,620	9,648	11,184	35,453	12,578	14,051	13,577	40,209	165,523
EBIT	[Min Rs]	(1,533)	906	1,037	410	(182)	1,507	896	2,221	(3,038)	1,852	(303)	(1,489)	1,103	3,228	3,572	7,902	9,045
Financial Charges	[Min Rs]	-	-	-	-	-	-	1,274	1,274	-	-	-	-	-	-	-	1,274	2,548
EBT	[Min Rs]	(1,533)	906	1,037	410	(182)	1,507	(378)	947	(3,038)	1,852	(303)	(1,489)	1,103	3,228	2,297	6,628	6,497
Tax	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EAT	[Min Rs]	(1,533)	906	1,037	410	(182)	1,507	(378)	947	(3,038)	1,852	(303)	(1,489)	1,103	3,228	2,297	6,628	4,223
WPPF	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	211
Profit for the period	[Min Rs]	(1,533)	906	1,037	410	(182)	1,507	(378)	947	(3,038)	1,852	(303)	(1,489)	1,103	3,228	2,297	6,628	4,012

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Profit & Loss Statement (Projected*2017-18)

Power Balances																		
Units Received	[MkWh]	1,742	1,793	1,579	5,114	1,442	1,096	1,041	3,579	972	944	999	2,916	1,263	1,683	1,676	4,623	16,232
Units Lost	[MkWh]	467	386	247	1,099	233	62	34	329	87	45	150	262	191	324	328	843	2,533
Units Lost	[%age]	26.79%	21.50%	15.62%	21.49%	18.12%	5.70%	3.24%	9.18%	6.86%	4.79%	14.99%	8.98%	15.15%	19.25%	19.56%	18.24%	15.6%
Units Sold	[MkWh]	1,275	1,408	1,332	4,015	1,210	1,033	1,007	3,250	905	899	850	2,654	1,072	1,359	1,349	3,780	13,699
Revenue																		
Sales Revenue	[Mln Rs]	17,253	19,046	18,019	54,318	16,367	13,979	13,622	43,968	12,249	12,182	11,493	35,904	14,502	18,388	18,243	51,133	185,323
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Sales Revenue	[Mln Rs]	17,253	19,046	18,019	54,318	16,367	13,979	13,622	43,968	12,249	12,182	11,493	35,904	14,502	18,388	18,243	51,133	185,323
Rental & Service Income	[Mln Rs]	25	25	25	76	25	25	25	76	25	25	25	76	25	25	25	76	304
Amortization of Def Credits	[Mln Rs]	198	198	198	593	198	198	198	593	198	198	198	593	198	198	198	593	2,374
Other Income	[Mln Rs]	29	29	29	88	29	29	29	88	29	29	29	88	29	29	29	88	350
Total Revenue	[Mln Rs]	17,505	19,298	18,271	55,075	16,619	14,232	13,874	44,725	12,502	12,414	11,745	36,661	14,755	18,640	18,495	51,890	188,350
Operating Cost																		
Power Purchase Cost	[Mln Rs]	16,787	15,905	14,763	47,455	14,428	10,222	10,536	35,186	13,380	8,069	9,713	31,163	11,212	12,771	12,267	36,251	150,053
O&M Expenses	[Mln Rs]	1,871	1,871	1,871	5,612	1,871	1,871	1,871	5,612	1,871	1,871	1,871	5,612	1,871	1,871	1,871	5,612	22,446
Depreciation	[Mln Rs]	412	412	412	1,235	412	412	412	1,235	412	412	412	1,235	412	412	412	1,235	4,941
Amortization Leased Assets	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provision for Bad Debt	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	[Mln Rs]	19,069	18,187	17,045	54,301	16,710	12,505	12,818	42,032	15,662	10,352	11,996	38,009	13,495	15,054	14,549	43,098	177,441
EBIT																		
EBIT	[Mln Rs]	(1,564)	1,111	1,226	773	(91)	1,727	1,056	2,693	(3,160)	2,062	(251)	(1,349)	1,260	3,586	3,946	8,792	10,909
Financial Charges	[Mln Rs]	-	-	-	-	-	-	1,595	1,595	-	-	-	-	-	-	1,595	1,595	3,190
EBT	[Mln Rs]	(1,564)	1,111	1,226	773	(91)	1,727	(539)	1,097	(3,160)	2,062	(251)	(1,349)	1,260	3,586	2,351	7,197	7,719
Tax	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,702
EAT	[Mln Rs]	(1,564)	1,111	1,226	773	(91)	1,727	(539)	1,097	(3,160)	2,062	(251)	(1,349)	1,260	3,586	2,351	7,197	5,017
WPPF	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	251
Profit for the period	[Mln Rs]	(1,564)	1,111	1,226	773	(91)	1,727	(539)	1,097	(3,160)	2,062	(251)	(1,349)	1,260	3,586	2,351	7,197	4,766

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Profit & Loss Statement (Projected 2018-19)

Power Balances																		
Units Received	[MkWh]	1,876	1,932	1,700	5,508	1,553	1,180	1,121	3,854	1,047	1,017	1,076	3,140	1,361	1,813	1,805	4,979	17,482
Units Lost	[MkWh]	503	415	266	1,184	250	67	36	354	72	49	161	282	206	349	353	908	2,728
Units Lost	[%age]	26.79%	21.50%	15.62%	21.49%	16.12%	5.70%	3.24%	9.18%	6.86%	4.79%	14.99%	8.98%	15.15%	19.25%	19.56%	18.24%	15.6%
Units Sold	[MkWh]	1,374	1,516	1,435	4,324	1,303	1,113	1,084	3,500	975	968	915	2,858	1,155	1,464	1,452	4,071	14,754
Revenue																		
Sales Revenue	[Min Rs]	18,603	20,536	19,429	58,568	17,647	15,073	14,688	47,408	13,208	13,113	12,392	38,713	15,637	19,826	19,670	55,134	199,823
Subsidy	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Sales Revenue	[Min Rs]	18,603	20,536	19,429	58,568	17,647	15,073	14,688	47,408	13,208	13,113	12,392	38,713	15,637	19,826	19,670	55,134	199,823
Rental & Service Income	[Min Rs]	27	27	27	80	27	27	27	80	27	27	27	80	27	27	27	80	319
Amortization of Def Credits	[Min Rs]	210	210	210	629	210	210	210	629	210	210	210	629	210	210	210	629	2,516
Other Income	[Min Rs]	29	29	29	88	29	29	29	88	29	29	29	88	29	29	29	88	350
Total Revenue	[Min Rs]	18,868	20,801	19,694	59,364	17,913	15,339	14,953	48,205	13,473	13,379	12,657	39,510	15,902	20,092	19,936	55,930	203,009
Operating Cost																		
Power Purchase Cost	[Min Rs]	18,012	17,062	15,825	50,900	15,462	10,909	11,272	37,543	14,328	8,621	10,393	33,341	12,018	13,668	13,135	38,821	160,706
O&M Expenses	[Min Rs]	2,051	2,051	2,051	6,154	2,051	2,051	2,051	6,154	2,051	2,051	2,051	6,154	2,051	2,051	2,051	6,154	24,617
Depreciation	[Min Rs]	454	454	454	1,361	454	454	454	1,361	454	454	454	1,361	454	454	454	1,361	5,444
Amortization Leased Assets	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provision for Bad Debt	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	[Min Rs]	20,517	19,567	18,330	58,415	17,967	13,414	13,778	45,159	16,833	11,126	12,898	40,857	14,523	16,173	15,640	46,336	190,766
EBIT	[Min Rs]	(1,649)	1,234	1,364	949	(54)	1,924	1,176	3,046	(3,359)	2,253	(241)	(1,347)	1,380	3,918	4,296	9,594	12,242
Financial Charges	[Min Rs]	-	-	-	-	-	-	1,957	1,957	-	-	-	-	-	-	1,957	1,957	3,913
EBT	[Min Rs]	(1,649)	1,234	1,364	949	(54)	1,924	(781)	1,090	(3,359)	2,253	(241)	(1,347)	1,380	3,918	2,340	7,638	8,329
Tax	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,915
EAT	[Min Rs]	(1,649)	1,234	1,364	949	(54)	1,924	(781)	1,090	(3,359)	2,253	(241)	(1,347)	1,380	3,918	2,340	7,638	5,414
WPPF	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	271
Profit for the period	[Min Rs]	(1,649)	1,234	1,364	949	(54)	1,924	(781)	1,090	(3,359)	2,253	(241)	(1,347)	1,380	3,918	2,340	7,638	5,143

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Profit & Loss Statement (Projected*2019-20)

Power Balances																			
Units Received	[MkWh]	2,006	2,065	1,819	5,890	1,661	1,282	1,198	4,120	1,119	1,087	1,151	3,357	1,455	1,938	1,930	5,323	18,690	
Units Lost	[MkWh]	525	429	271	1,225	255	62	29	346	68	43	164	278	210	360	364	934	2,781	
Units Lost	[%age]	26.17%	20.77%	14.92%	20.80%	15.34%	4.91%	2.42%	8.39%	6.08%	3.99%	14.28%	8.21%	14.44%	18.57%	18.88%	17.55%	14.9%	
Units Sold	[MkWh]	1,481	1,636	1,548	4,665	1,406	1,200	1,169	3,775	1,051	1,044	986	3,081	1,245	1,578	1,566	4,388	15,909	
Revenue																			
Sales Revenue	[Min Rs]	19,933	22,025	20,838	62,796	18,927	16,151	15,738	50,816	14,152	14,051	13,278	41,482	16,755	21,244	21,077	59,076	214,170	
Subsidy	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fuel Price Adjustment	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Sales Revenue	[Min Rs]	19,933	22,025	20,838	62,796	18,927	16,151	15,738	50,816	14,152	14,051	13,278	41,482	16,755	21,244	21,077	59,076	214,170	
Rental & Service Income	[Min Rs]	28	28	28	84	28	28	28	84	28	28	28	84	28	28	28	84	335	
Amortization of Def Credits	[Min Rs]	221	221	221	663	221	221	221	663	221	221	221	663	221	221	221	663	2,654	
Other Income	[Min Rs]	29	29	29	88	29	29	29	88	29	29	29	88	29	29	29	88	350	
Total Revenue	[Min Rs]	20,212	22,303	21,116	63,630	19,205	16,429	16,016	51,651	14,431	14,329	13,556	42,316	17,033	21,522	21,355	59,911	217,508	
Operating Cost																			
Power Purchase Cost	[Min Rs]	19,214	18,198	16,883	54,296	16,481	11,601	12,005	40,086	15,268	9,173	11,068	35,506	12,811	14,558	13,994	41,363	171,251	
O&M Expenses	[Min Rs]	2,243	2,243	2,243	6,728	2,243	2,243	2,243	6,728	2,243	2,243	2,243	6,728	2,243	2,243	2,243	6,728	26,912	
Depreciation	[Min Rs]	492	492	492	1,476	492	492	492	1,476	492	492	492	1,476	492	492	492	1,476	5,905	
Amortization Leased Assets	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Provision for Bad Debt	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Operating Cost	[Min Rs]	21,949	20,933	19,618	62,500	19,216	14,335	14,739	48,290	18,000	11,907	13,803	43,711	15,546	17,293	16,728	49,567	204,068	
EBIT	[Min Rs]	(1,737)	1,370	1,498	1,130	(11)	2,094	1,277	3,360	(3,570)	2,422	(246)	(1,394)	1,488	4,229	4,627	10,344	13,440	
Financial Charges	[Min Rs]	-	-	-	-	-	-	2,062	2,062	-	-	-	-	-	-	2,062	2,062	4,123	
EBT	[Min Rs]	(1,737)	1,370	1,498	1,130	(11)	2,094	(785)	1,299	(3,570)	2,422	(246)	(1,394)	1,488	4,229	2,565	8,282	9,317	
Tax	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,261	
EAT	[Min Rs]	(1,737)	1,370	1,498	1,130	(11)	2,094	(785)	1,299	(3,570)	2,422	(246)	(1,394)	1,488	4,229	2,565	8,282	6,056	
WPPF	[Min Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	303	
Profit for the period	[Min Rs]	(1,737)	1,370	1,498	1,130	(11)	2,094	(785)	1,299	(3,570)	2,422	(246)	(1,394)	1,488	4,229	2,565	8,282	5,753	

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MEPCO

Balance Sheet [in million Rupees]

Description	Projected Qrt/ FY as on June 30, 2015	Projected Qrt/ FY as on June 30, 2016	Projected Qrt/ FY as on June 30, 2017	Projected Qrt/ FY as on June 30, 2018	Projected Qrt/ FY as on June 30, 2019	Projected Qrt/ FY as on June 30, 2020
Intangible Fixed Assets						
Net Fixed Assets in Operations	65,753	74,971	87,340	97,198	106,116	113,380
Total Net Fixed Assets in Operations	65,753	74,971	87,340	97,198	106,116	113,380
Capital Work in Progress	6,769	8,496	11,555	9,924	9,567	8,591
Long Term Loans to Employees	75	94	114	136	156	173
Deferred Cost & Long Term Deposits	0.05	0.06	0.06	0.06	0.06	0.06
	6,844	8,590	11,669	10,060	9,723	8,764
Current Assets						
Stores & Spares	3,981	4,589	5,321	5,883	6,426	6,898
Trade Debts	21,190	21,190	34,127	37,833	41,830	46,113
Advances, Prepayments, Other Receivables	3,257	3,555	3,795	4,215	4,555	4,565
Tariff Subsidy (Receivable from GoP)	44,282	32,663	26,233	26,196	25,970	25,962
Receivable from Associated Companies	2,893	4,421	4,151	4,108	4,246	4,505
Cash & Bank Balances	4,120	14,277	7,118	6,209	6,693	8,227
Total Current Assets	79,723	80,695	80,745	84,445	89,720	96,270
Total Assets	152,319	164,256	179,754	191,703	205,558	218,415
Subscribed Equity	43,332	43,332	43,332	43,332	43,332	43,332
Unappropriated Profit	(5,133)	4,188	8,200	12,966	18,109	23,863
Total Equity	38,199	47,520	51,532	56,298	61,442	67,195
Long Term Liability						
Security Deposits	5,962	6,562	7,212	7,832	8,482	9,077
Employee Retirement Benefits	26,608	29,365	32,397	35,733	39,402	43,438
TFCs & SUKUK	39,729	42,332	45,034	47,063	48,626	49,894
Deferred Credits	9,023	9,065	16,193	18,835	22,107	23,207
Total Long Term Liability	81,322	87,324	100,836	109,462	118,617	125,615
Current Liability						
Current Maturity on Long Term Loans	1,530	1,540	1,639	1,696	1,768	2,058
Subsidy Received in Advance from GoP	-	-	-	-	-	-
Provision for Taxation & WPPF	13,096	12,218	12,181	11,258	10,520	10,002
Receipt Against Deposit work	12,106	10,309	7,503	7,420	7,426	7,432
Payable to NTDC/CPPA	6,537	5,345	6,063	5,568	5,785	6,112
Creditors, Accrued and Other Liabilities	33,269	29,412	27,386	25,943	25,499	25,604
Total Current Liability	33,269	29,412	27,386	25,943	25,499	25,604
Total Liabilities and Commitments	114,591	116,735	128,222	135,405	144,116	151,220
Total Liabilities and Equity	152,790	164,255	179,754	191,703	205,557	218,415

MEPCO							
Cash Flow Statement [in million Rupees]							
			Projected	Projected	Projected	Projected	Projected
			for (T) Year ending	for Qrt/FY ending	for Qrt/FY ending	for Qrt/FY ending	for Qrt/FY ending
			June 30, 2016	June 30, 2017	June 30, 2018	June 30, 2019	June 30, 2020
Description							
Average Monthly Demand Index (MDI)	[MW]		3,323	3,475	3,662	3,870	4,091
Units Purchased	[GWh]		14,368	15,164	16,232	17,482	18,690
Transmission Losses (132 kV)	[GWh]						
Distribution Losses	[GWh]						
Units Sold to Customers	[GWh]		12,036	12,774	13,699	14,754	15,909
Average Tariff Required	[Rs/unit]		14,003	13,442	13,528	13,544	13,462
Average Tariff Existing	[Rs/unit]		14,003	13,442	13,528	13,544	13,462
Tariff Difference	[Rs/unit]		0.000				
Revenue from Sales			168,549	171,709	185,323	199,823	214,170
Collection from Required	[%]		98%	98%	98%	97.8%	98.2%
Inflows from Operations							
Collection from Current Sales			165,094	167,650	181,512	195,373	210,341
Prior Year Recovery			6,142				
Total Inflows from Operations			171,236	167,650	181,512	195,373	210,341
Outflow from Operations							
Payment for electricity (to CPPA)			134,472	145,057	151,554	160,706	171,251
Distribution Service Cost (=DMC)			14,588	17,334	20,268	22,446	24,617
Total Outflow from Operations			149,060	162,391	171,822	183,152	195,868
Surplus/Deficit from Operations			22,176	5,259	9,691	12,221	14,473
Inflows from Other Sources							
Capital Contributions			4,358	5,183	3,903	3,770	3,769
Consumer Security Deposits			700	600	650	620	650
Other Incomes			583	639	654	669	685
GOP Subsidy (Actual and Estimated)			-	-	-	-	-
Long Term Loan / Redeemable Capital			42	7,128	2,642	3,272	1,100
Total Inflows from Other Sources			5,683	13,550	7,849	8,331	6,204
Outflow Others							
Financial Charges			669	3,646	2,548	3,190	3,913
Repayment of Long Term Loans			1,530	1,540	1,639	1,696	1,768
Investment Program			14,781	19,844	13,166	14,002	12,198
Working Capital/other Changes			722	939	1095	1,179	1265
Total Outflow Others			17,702	25,969	18,448	20,067	19,144
Surplus/Deficit Others			(12,019)	(12,419)	(10,600)	(11,736)	(12,940)
Total Inflows (Operations + Others)			176,919	181,200	189,361	203,704	216,545
Total Outflows (Operations + Others)			166,762	188,360	190,270	203,219	215,012
Opening Balance			4,120	14,277	7,118	6,209	6,693
Surplus/Deficit for Fiscal Year			10,157	(7,160)	(909)	485	1,533
Deficit from Financing/Loans							
Closing Balance			14,277	7,118	6,209	6,693	8,227

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MEPCO

Power Purchase (Actual T-Year 2014-15)

		Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Demand & Energy														
Units Received	(MWH)	1,511	1,553	1,366	1,248	949	904	844	820	866	1,097	1,451	1,455	14,076
MDI	(MW)	2,743	2,878	2,775	2,831	2,358	2,437	2,612	2,329	2,307	2,641	3,065	3,258	2,686
Energy Purchase Price	(Rs/ MWh)	7,7372	7,0106	7,0252	7,3644	4,8149	6,5893	9,5747	4,8862	6,3329	6,5992	5,0472	5,047	6,476
Capacity Purchase Price	(Rs/ MW/ M)	989,981	926,970	1,073,979	1,092,374	1,762,280	1,239,739	1,283,068	1,216,669	1,202,061	885,142	1,137,702	936,060	1,127,932
Transmission Charge	(Rs/ MW/ M)	102,430	102,426	102,430	102,430	102,430	102,430	102,430	102,430	102,430	102,430	102,430	102,430	102,430
		9,663	8,918	9,418	10,075	9,449	10,208	13,861	8,632	9,800	8,928	7,650	7,183	9,294
Power Purchase Cost														
Energy Charge	(Mn Rs)	11,695	10,880	9,595	9,190	4,569	5,955	8,085	4,007	5,497	7,241	7,372	7,064	01,158
Capacity Charge	(Mn Rs)	2,660	2,668	2,981	3,093	4,156	3,021	3,352	2,834	2,773	2,285	3,487	3,050	36,356
Transmission Charge	(Mn Rs)	281	295	284	290	242	250	268	239	236	271	314	334	3,302
Adjustment **	(Mn Rs)	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	(Mn Rs)	14,638	13,850	12,860	12,573	8,966	9,226	11,704	7,079	8,506	9,797	11,173	10,446	130,818

9,293,771

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MEPCO

Power Purchase (Projected F.Y. 2015-16)

Demand & Energy														
Units Received	[MWh]	1,542	1,587	1,396	1,275	970	922	861	836	865	1,119	1,490	1,484	14,368
MDI	[MW]	2,800	2,938	2,833	2,890	2,407	2,487	2,867	2,377	2,355	2,696	3,129	3,326	2,742
Energy Purchase Price	[Rs/ kWh]	7,737	7,011	7,025	7,364	4,815	6,589	9,575	4,886	6,333	6,599	5,047	5,047	6,498
Capacity Purchase Price	[Rs/ kW/ M]	970	927	1,074	1,092	1,782	1,240	1,263	1,217	1,202	865	1,138	936	13,706
Transmission Charge	[Rs/ kW/ M]	102	102	102	102	102	102	102	102	102	102	102	102	1,229
		9,685	8,916	9,413	10,072	9,443	10,211	13,864	8,635	9,802	8,930	7,652	7,376	9,314
Power Purchase Cost														
Energy Charge	[Min Rs]	11,929	11,127	9,806	9,392	4,670	6,074	8,246	4,087	5,607	7,386	7,519	7,488	93,332
Capacity Charge	[Min Rs]	2,716	2,723	3,043	3,157	4,242	3,084	3,421	2,893	2,830	2,333	3,560	3,113	37,114
Transmission Charge	[Min Rs]	287	301	290	296	247	255	273	244	241	276	320	341	3,370
Adjustment **	[Min Rs]													
Total Operating Cost	[Min Rs]	14,931	14,151	13,139	12,846	9,158	9,413	11,941	7,223	8,678	9,995	11,399	10,942	132,817

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MEPCO

Power Purchase (Projected F.Y. 2016-17)

Demand & Energy

Units Received	(MWh)	1,628	1,876	1,473	1,346	1,023	973	909	882	934	1,181	1,573	1,567	15,164
MDI	(MW)	2,927	3,071	2,962	3,022	2,517	2,601	2,788	2,486	2,462	2,819	3,271	3,478	2,867
Energy Purchase Price	(Rs/ MWh)	7,737	7,011	7,025	7,364	4,815	6,589	9,575	4,886	6,333	6,599	5,047	5,047	8,496
Capacity Purchase Price	(Rs/ MW M)	970	927	1,074	1,092	1,762	1,240	1,283	1,217	1,202	865	1,138	936	1,126
Transmission Charge	(Rs/ MW M)	102	102	102	102	102	102	102	102	102	102	102	102	102
		9,865	8,897	9,392	10,048	9,402	10,179	13,826	8,602	9,771	8,909	7,626	7,352	9,287

Power Purchase Cost

Energy Charge	(Min Rs)	12,657	11,751	10,345	9,909	4,927	6,408	8,700	4,312	5,915	7,792	7,940	7,908	98,503
Capacity Charge	(Min Rs)	2,939	2,847	3,181	3,301	4,426	3,224	3,577	3,024	2,959	2,439	3,722	3,255	36,805
Transmission Charge	(Min Rs)	300	315	303	310	258	266	286	255	252	289	335	356	3,524
Adjustment **	(Min Rs)													
Total Operating Cost	(Min Rs)	15,738	14,912	13,830	13,520	9,620	9,899	12,563	7,591	9,128	10,520	11,997	11,519	140,832

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FORM - 6 (A)

MEPCO

Power Purchase (Projected F.Y. 2017-18)

Demand & Energy

Units Received	(MkWh)	1,742	1,793	1,579	1,442	1,096	1,041	972	944	999	1,263	1,683	1,676	16,232
MDI	(MW)	3,085	3,237	3,122	3,185	2,652	2,741	2,938	2,620	2,595	2,971	3,448	3,665	3,021
Energy Purchase Price	(Rs/kWh)	7,737	7,011	7,025	7,364	4,815	6,589	9,575	4,886	6,333	6,599	5,047	5,047	6,496
Capacity Purchase Price	(Rs/kW M)	970	827	1,074	1,092	1,762	1,240	1,283	1,217	1,202	865	1,138	936	1,128
Transmission Charge	(Rs/kW M)	102	102	102	102	102	102	102	102	102	102	102	102	102
		9,636	8,868	9,352	10,003	9,328	10,124	13,762	8,546	9,720	8,874	7,587	7,317	9,244

Power Purchase Cost

Energy Charge	(Min Rs)	13,478	12,573	11,090	10,822	5,276	6,857	9,309	4,614	6,329	8,338	8,496	8,461	105,444
Capacity Charge	(Min Rs)	2,992	3,000	3,353	3,479	4,674	3,396	3,770	3,187	3,110	2,570	3,922	3,131	40,896
Transmission Charge	(Min Rs)	316	332	320	326	272	281	301	268	266	304	353	375	3,714
Adjustment **	(Min Rs)													
Total Operating Cost	(Min Rs)	16,787	15,905	14,763	14,428	10,222	10,536	13,380	8,069	9,713	11,212	12,771	12,267	150,053

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MEPCO

Power Purchase (Projected F.Y. 2018-19)

Demand & Energy

Units Received	(MkWh)	1,876	1,932	1,700	1,553	1,180	1,121	1,047	1,017	1,076	1,361	1,813	1,805	17,482
MDI	(MW)	3,260	3,421	3,299	3,366	2,803	2,897	3,105	2,768	2,742	3,139	3,643	3,873	3,193
Energy Purchase Price	(Rs/ kWh)	7,737	7,011	7,025	7,364	4,815	6,589	8,575	4,686	6,333	6,599	5,047	5,047	6,496
Capacity Purchase Price	(Rs/ MW/ M)	970	927	1,074	1,092	1,762	1,240	1,283	1,217	1,202	865	1,138	936	1,128
Transmission Charge	(Rs/ MW/ M)	102	102	102	102	102	102	102	102	102	102	102	102	102
		9,601	8,834	9,308	9,953	9,244	10,058	13,683	8,477	9,656	8,832	7,539	7,275	9,193

Power Purchase Cost

Energy Charge	(Min Rs)	14,516	13,541	11,944	11,440	5,683	7,385	10,026	4,969	6,816	8,980	9,150	9,113	113,563
Capacity Charge	(Min Rs)	3,162	3,171	3,543	3,677	4,940	3,591	3,984	3,368	3,296	2,718	4,145	3,525	43,216
Transmission Charge	(Min Rs)	334	350	338	345	287	297	316	284	281	322	373	397	3,925
Adjustment **	(Min Rs)													
Total Operating Cost	(Min Rs)	18,012	17,062	15,825	15,462	10,909	11,272	14,326	8,621	10,393	12,016	13,668	13,135	160,706

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FORM - 6 (A)

MEPCO

Power Purchase (Projected F.Y. 2019-20)

Demand & Energy

Units Received	(MWh)	2,006	2,065	1,819	1,661	1,262	1,198	1,119	1,087	1,151	1,455	1,938	1,930	18,890
MDI	(MW)	3,447	3,616	3,488	3,558	2,863	3,062	3,283	2,927	2,899	3,319	3,852	4,095	3,376
Energy Purchase Price	(Rs/ kWh)	7,737	7,011	7,025	7,364	4,815	6,569	9,575	4,886	6,333	6,599	5,047	5,047	6,496
Capacity Purchase Price	(Rs/ kW/ M)	970	927	1,074	1,092	1,762	1,240	1,283	1,217	1,202	865	1,138	936	1,126
Transmission Charge	(Rs/ kW/ M)	102	102	102	102	102	102	102	102	102	102	102	102	102
		9,580	8,813	9,281	9,924	9,195	10,020	13,638	8,437	9,619	8,807	7,512	7,250	9,163

Power Purchase Cost

Energy Charge	(Min Rs)	15,518	14,476	12,780	12,230	6,075	7,894	10,717	5,312	7,287	9,600	9,781	9,741	121,411
Capacity Charge	(Min Rs)	3,343	3,352	3,746	3,887	5,222	3,796	4,212	3,561	3,485	2,872	4,382	3,833	45,691
Transmission Charge	(Min Rs)	353	370	357	364	304	314	336	300	297	340	395	419	4,149
Adjustment **	(Min Rs)													
Total Operating Cost	(Min Rs)	19,214	18,198	16,883	16,481	11,601	12,005	15,268	9,173	11,069	12,811	14,558	13,994	171,251

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* Where actual figures are available, these should be replaced by the actual figures
 ** In case of actual figures, adjustment should show monthly fuel adjustment separately and under the month to which it relates

FORM - 6 (B)

Quarterly Adjustments - Qrt-1

EPP Adjustment			
EPP - 1st month of the Qrt			
Reference -	7 0622		
Actual	7 7373		
Disallowed			
Fuel Price Adjustment Allowed	-0 2977	0 6751	
EPP - 2nd month of the Qrt			
Reference -	7 0755		
Actual	7 0106		
Disallowed			
Fuel Price Adjustment Allowed	-0 3157	-0 06490	
EPP - 3rd month of the Qrt			
Reference -	6 2493		
Actual	7 0252		
Disallowed			
Fuel Price Adjustment Allowed	0 3229	0 9128	

1st month of the Qrt	Target Losses for the quarter	15%			
	1st month of the Qrt				
	Units Received (MkWh)	1,511	1,511		
	Units to be sold (MkWh)	1,285	1,285		
	Units without Life line and Agricultural (MkWh)		998		
	Adjustment already given (Min Rs)	(297)	(297)	(297)	(349)
	Adjustment that should have been with allowed costs only (Min Rs)			674	792
	Impact of disallowed costs (Min Rs)				
	Remaining adjustment for the quarter only allowed (Min Rs)			971	
	Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			971	(1,142)
2nd month of the Qrt	2nd month of the Qrt				
	Units Received (MkWh)	1,553	1,553		
	Units to be sold (MkWh)	1,320	1,320		
	Units without Life line (MkWh)		1,064		
	Adjustment already given (Min Rs)		(336)	(395)	(56)
	Adjustment that should have been with allowed costs only (Min Rs)			(81)	
	Impact of disallowed costs (Min Rs)				
	Remaining adjustment for the quarter only allowed (Min Rs)			314	
	Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			314	(14)
	3rd month of the Qrt				
3rd month of the Qrt	3rd month of the Qrt				
	Units Received (MkWh)	1,366	1,366		
	Units to be sold (MkWh)	1,161	1,161		
	Units without Life line (MkWh)		1,105		
	Adjustment already given (Min Rs)		357	420	
	Adjustment that should have been with allowed costs only (Min Rs)			1,187	1,396
	Impact of disallowed costs (Min Rs)				
	Remaining adjustment for the quarter (Min Rs)			767	
	Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			767	
	Total Adjustment on account of EPP allowed only (Min Rs)			2,052	209
	Total Adjustment on account of EPP allowed and disallowed (Min Rs)			2,052	209

FORM - 6 (B)

Quarterly Adjustments - Qrt-2

EPP Adjustment			
EPP - 1st month of the Qrt			
Reference -	7 5462		
Actual	7 3644		
Disallowed			
Fuel Price Adjustment Allowed	0 7577	-0 0018	
EPP - 2nd month of the Qrt			
Reference -	7 4167		
Actual	4 8149		
Disallowed			
Fuel Price Adjustment Allowed	0 332	-2 6018	
EPP - 3rd month of the Qrt			
Reference -	9 5328		
Actual	6 5893		
Disallowed			
Fuel Price Adjustment Allowed	1 0103	-2 9435	

Target Losses for the quarter	15%		
1st month of the Qrt			
Units Received (MkWh)	1,242	1,242	
Units to be sold (MkWh)	1,061	1,061	
Units without Life line and Agricultural (MkWh)		1,004	
Adjustment already given (Min Rs)			
Adjustment that should have been with allowed costs only (Min Rs)			
Impact of disallowed costs (Min Rs)			(215)
Remaining adjustment for the quarter only allowed (Min Rs)			
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			
2nd month of the Qrt			
Units Received (MkWh)	949	949	
Units to be sold (MkWh)	807	807	
Units without Life line (MkWh)		745	
Adjustment already given (Min Rs)			
Adjustment that should have been with allowed costs only (Min Rs)			
Impact of disallowed costs (Min Rs)			
Remaining adjustment for the quarter only allowed (Min Rs)			
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			
3rd month of the Qrt			
Units Received (MkWh)	904	904	
Units to be sold (MkWh)	768	768	
Units without Life line (MkWh)		697	
Adjustment already given (Min Rs)			
Adjustment that should have been with allowed costs only (Min Rs)			
Impact of disallowed costs (Min Rs)			
Remaining adjustment for the quarter (Min Rs)			
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			
Total Adjustment on account of EPP allowed only (Min Rs)			
Total Adjustment on account of EPP allowed and disallowed (Min Rs)			

CPP ADJUSTMENT			(947)
Ref for the 1st month of the Qrt	2.0032		
1st month of the Qrt			
Actual CPP per kWh	1.7600		
Delta CPP per kWh	(0.2432)	(0.2861)	
Adjustment Required for the Month (Min Rs)	(243)	(285)	(285)
Ref. for the 2nd month of the Qrt	1.7200		
2nd month of the Qrt			
Actual CPP per kWh	1.8166		
Delta CPP per kWh	0.10	0.11	
Adjustment Required for the Month (Min Rs)	103	121	121
Ref. for the 3rd month of the Qrt	2.09		
3rd month of the Qrt			
Actual CPP per kWh	2.18		
Delta CPP per kWh	0.09	0.11	
Adjustment Required for the Month (Min Rs)	104	122	122
Total Adjustment on account of CPP (Min Rs)	(36)	(43)	
UoSC ADJUSTMENT			
Ref for the 1st month of the Qrt	0.188		
1st month of the Qrt			
Actual UoSC per kWh	0.19		
Delta UoSC per kWh	(0.00)	(0.00)	
Adjustment Required for the Month (Min Rs)	(2)	(2)	(2)
Ref. for the 2nd month of the Qrt	0.1756		
2nd month of the Qrt			
Actual UoSC per kWh	0.19		
Delta UoSC per kWh	0.01	0.02	
Adjustment Required for the Month (Min Rs)	15	18	18
Ref. for the 3rd month of the Qrt	0.2215		
3rd month of the Qrt			
Actual UoSC per kWh	0.21		
Delta UoSC per kWh	(0.01)	(0.02)	
Adjustment Required for the Month (Min Rs)	(15)	(17)	(17)
Total Adjustment on account of UoSC (Min Rs)	(1)	(2)	
Total Adjustment for the quarter allowed costs only (Min Rs)		2.007	2.007
Total Adjustment for the quarter allowed & Disallowed costs only (Min Rs)		2.007	2.007

Impact of Extra or Less Purchases

Ref Unit Purchased (MWh)	
1st month of the Qrt	1319
2nd month of the Qrt	1318
3rd month of the Qrt	1178
	3815
Actual Unit Purchased (MWh)	
1st month of the Qrt	1449
2nd month of the Qrt	1496
3rd month of the Qrt	1423
	4368
Difference (MWh)	
1st month of the Qrt	130
2nd month of the Qrt	178
3rd month of the Qrt	245
	553
PPP Ref (Per kWh)	
Ref PPP (per kWh)	
1st month of the Qrt	7.281
2nd month of the Qrt	7.282
3rd month of the Qrt	6.452

Impact of extra/Less Purchases (Rs. Millions)

3821.873 948.530

CPP ADJUSTMENT			2.4168
Ref for the 1st month of the Qrt	2.4168		
1st month of the Qrt			
Actual CPP per kWh	2.4800		
Delta CPP per kWh	0.0632	0.07	
Adjustment Required for the Month (Min Rs)		75	
Ref. for the 2nd month of the Qrt	2.9309		
2nd month of the Qrt			
Actual CPP per kWh	4.3800		
Delta CPP per kWh	1.4491	1.70	
Adjustment Required for the Month (Min Rs)		1,271	
Ref. for the 3rd month of the Qrt	3.27		
3rd month of the Qrt			
Actual CPP per kWh	3.34		
Delta CPP per kWh	0.07	0.08	
Adjustment Required for the Month (Min Rs)		85	
Total Adjustment on account of CPP (Min Rs)		1,400	
UoSC ADJUSTMENT			
Ref for the 1st month of the Qrt	0.2547		
1st month of the Qrt			
Actual UoSC per kWh	0.2324		
Delta UoSC per kWh	(0.0223)	(0.03)	
Adjustment Required for the Month (Min Rs)		(36)	
Ref. for the 2nd month of the Qrt	0.2554		
2nd month of the Qrt			
Actual UoSC per kWh	0.2545		
Delta UoSC per kWh	(0.0009)	(0.0011)	
Adjustment Required for the Month (Min Rs)		(1)	
Ref. for the 3rd month of the Qrt	0.28		
3rd month of the Qrt			
Actual UoSC per kWh	0.28		
Delta UoSC per kWh	(0.00)	(0.00)	
Adjustment Required for the Month (Min Rs)		(1)	
Total Adjustment on account of UoSC (Min Rs)		(26)	
Total Adjustment for the quarter allowed costs only (Min Rs)			
Total Adjustment for the quarter allowed & Disallowed costs only (Min Rs)			

Impact of Extra or Less Purchases

Ref Unit Purchased (MWh)	
1st month of the Qrt	1124
2nd month of the Qrt	1053
3rd month of the Qrt	875
	3052
Actual Unit Purchased (MWh)	
1st month of the Qrt	1233
2nd month of the Qrt	1001
3rd month of the Qrt	963
	3198
Difference (MWh)	
1st month of the Qrt	109
2nd month of the Qrt	-52
3rd month of the Qrt	88
	146
PPP Ref (Per kWh)	
Ref PPP (per kWh)	
1st month of the Qrt	7.724
2nd month of the Qrt	7.190
3rd month of the Qrt	8.115

Impact of extra/Less Purchases (Rs. Millions)

1156.006 839.792

FORM - 8 (B)

Quarterly Adjustments - Qrt-3

EPP Adjustment

EPP - 1st month of the Qrt

Reference -	11 3605	
Actual	9 5747	
Disallowed		
Fuel Price Adjustment Allowed	2 2424	-1 7858

EPP - 2nd month of the Qrt

Reference -	8 9972	
Actual	4 8852	
Disallowed		
Fuel Price Adjustment Allowed	-0 265	-4 111

EPP - 3rd month of the Qrt

Reference -	9 6341	
Actual	6 3329	
Disallowed		
Fuel Price Adjustment Allowed	-1 0148	-3 3012

Target Losses for the quarter 15%

1st month of the Qrt

Units Received (MkWh)	844	844	
Units to be sold (MkWh)	718	718	
Units without Life line and Agricultural (MkWh)		634	
Adjustment already given (Min Rs)			1,422.63
Adjustment that should have been with allowed costs only (Min Rs)			-1332.887
Impact of disallowed costs (Min Rs)			
Remaining adjustment for the quarter only allowed (Min Rs)			(2,755.52)
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			(2,755.52)

2nd month of the Qrt

Units Received (MkWh)	820	820	
Units to be sold (MkWh)	697	697	
Units without Life line (MkWh)		454	
Adjustment already given (Min Rs)			(120.34)
Adjustment that should have been with allowed costs only (Min Rs)			-2196.37
Impact of disallowed costs (Min Rs)			
Remaining adjustment for the quarter only allowed (Min Rs)			(2,076.03)
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			(2,076.03)

3rd month of the Qrt

Units Received (MkWh)	898	868	
Units to be sold (MkWh)	738	738	
Units without Life line (MkWh)		513	
Adjustment already given (Min Rs)			(520.21)

Adjustment that should have been with allowed costs only (Min Rs)	-1991.30
Impact of disallowed costs (Min Rs)	
Remaining adjustment for the quarter (Min Rs)	(1,471.09)
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)	(1,471.09)
Total Adjustment on account of EPP allowed only (Min Rs)	(8,303)
Total Adjustment on account of EPP allowed and disallowed (Min Rs)	(6,303)

CPP ADJUSTMENT

Ref for the 1st month of the Qrt 3 7137

Quarterly Adjustments - Qrt-4

EPP Adjustment

EPP - 1st month of the Qrt

Reference -	8 9297	
Actual	6 5992	
Disallowed		
Fuel Price Adjustment Allowed	-1 4824	-2 3305

EPP - 2nd month of the Qrt

Reference -	8 3413	
Actual	5 0464	
Disallowed		
Fuel Price Adjustment Allowed	-0 8199	-3 2940

EPP - 3rd month of the Qrt

Reference -	7 0467	
Actual	4 8565	
Disallowed		
Fuel Price Adjustment Allowed		-2 1902

Target Losses for the quarter 15%

1st month of the Qrt

Units Received (MkWh)	1 097	1 097	
Units to be sold (MkWh)	933	933	
Units without Life line and Agricultural (MkWh)		717	
Adjustment already given (Min Rs)			(1,062.77)
Adjustment that should have been with allowed costs only (Min Rs)			(965.64)
Impact of disallowed costs (Min Rs)			
Remaining adjustment for the quarter only allowed (Min Rs)			(1,902.87)
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			(1,902.87)

2nd month of the Qrt

Units Received (MkWh)	1 461	1 461	
Units to be sold (MkWh)	1 242	1 242	
Units without Life line (MkWh)		971	
Adjustment already given (Min Rs)			(786.15)
Adjustment that should have been with allowed costs only (Min Rs)			-936.646
Impact of disallowed costs (Min Rs)			
Remaining adjustment for the quarter only allowed (Min Rs)			(140.50)
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)			(140.50)

3rd month of the Qrt

Units Received (MkWh)	1 455	1 455	
Units to be sold (MkWh)	1 236	1 236	
Units without Life line (MkWh)		1 007	
Adjustment already given (Min Rs)			

Adjustment that should have been with allowed costs only (Min Rs)	(2,205.23)
Impact of disallowed costs (Min Rs)	
Remaining adjustment for the quarter (Min Rs)	(2,205.23)
Remaining adjustment for the quarter with allowed & disallowed (Min Rs)	(2,205.23)
Total Adjustment on account of EPP allowed only (Min Rs)	(3,249)
Total Adjustment on account of EPP allowed and disallowed (Min Rs)	(3,249)

CPP ADJUSTMENT

Ref for the 1st month of the Qrt 4 5468

20

1st month of the Qrt	
Actual CPP per kWh	3 9700
Delta CPP per kWh	0 2563
Adjustment Required for the Month (Min Rs)	216

Ref. for the 2nd month of the Qrt	3 2464
2nd month of the Qrt	
Actual CPP per kWh	3 4800
Delta CPP per kWh	0 2136
Adjustment Required for the Month (Min Rs)	175

Ref. for the 3rd month of the qrt	4 1881
3rd month of the Qrt	
Actual CPP per kWh	3 1900
Delta CPP per kWh	(0 9981)
Adjustment Required for the Month (Min Rs)	(866)

Total Adjustment on account of CPP (Min Rs) (475)

UoSC ADJUSTMENT

Ref for the 1st month of the Qrt 0 3124

1st month of the Qrt	
Actual UoSc per kWh	0 3189
Delta UoSc per kWh	0 0045
Adjustment Required for the Month (Min Rs)	4

Ref. for the 2nd month of the Qrt	0 2665
2nd month of the Qrt	
Actual UoSc per kWh	0 2909
Delta UoSc per kWh	0 0244
Adjustment Required for the Month (Min Rs)	20

Ref. for the 3rd month of the qrt	0 3562
3rd month of the Qrt	
Actual UoSc per kWh	0 2722
Delta UoSc per kWh	(0 0840)
Adjustment Required for the Month (Min Rs)	(73)

Total Adjustment on account of UoSC (Min Rs) (49)

Total Adjustment for the quarter allowed costs only (Min Rs) (8,826)
Total Adjustment for the quarter allowed & Disallowed costs only (Min Rs) (8,826)

Impact of Extra or Less Purchases

Ref Unit Purchased (MWh)	
1st month of the Qrt	827
2nd month of the Qrt	969
3rd month of the Qrt	1002
	2694

Actual Unit Purchased (MWh)	
1st month of the Qrt	874
2nd month of the Qrt	841
3rd month of the Qrt	928
	2643

Difference (MWh)	
1st month of the Qrt	47
2nd month of the Qrt	-24
3rd month of the Qrt	-74
	-51

PPP Ref (Per kWh)

Ref PPP (per kWh)	
1st month of the Qrt	9 847
2nd month of the Qrt	8 090
3rd month of the Qrt	10 173

Impact of extra Purchases/less Purchased (Rs. h -488 018 460 465
-191 182
-757 302
-488 018

1st month of the Qrt	
Actual CPP per kWh	2 0800
Delta CPP per kWh	(2 4668) (2 90)
Adjustment Required for the Month (Min Rs)	(2,081)

Ref. for the 2nd month of the Qrt	3 0833
2nd month of the Qrt	
Actual CPP per kWh	2 3900
Delta CPP per kWh	(0 8933) (0 82)
Adjustment Required for the Month (Min Rs)	(792)

Ref. for the 3rd month of the qrt	2 7146
3rd month of the Qrt	
Actual CPP per kWh	2 1000
Delta CPP per kWh	(0 8148) (0 72)
Adjustment Required for the Month (Min Rs)	(728)

Total Adjustment on account of CPP (Min Rs) (3,601)

UoSC ADJUSTMENT

Ref for the 1st month of the Qrt 0 4038

1st month of the Qrt	
Actual UoSc per kWh	0 2465
Delta UoSc per kWh	(0 1573) (0 19)
Adjustment Required for the Month (Min Rs)	(133)

Ref. for the 2nd month of the Qrt	0 2796
2nd month of the Qrt	
Actual UoSc per kWh	0 2149
Delta UoSc per kWh	(0 0647) (0 08)
Adjustment Required for the Month (Min Rs)	(74)

Ref. for the 3rd month of the qrt	0 2821
3rd month of the Qrt	
Actual UoSc per kWh	0 2295
Delta UoSc per kWh	(0 0526) (0 06)
Adjustment Required for the Month (Min Rs)	(62)

Total Adjustment on account of UoSC (Min Rs) (269)

Total Adjustment for the quarter allowed costs only (Min Rs) (7,118)
Total Adjustment for the quarter allowed & Disallowed costs only (Min Rs) (7,118)

Impact of Extra or Less Purchases

Ref Unit Purchased (MWh)	
1st month of the Qrt	912
2nd month of the Qrt	1093
3rd month of the Qrt	1135
	3140

Actual Unit Purchased (MWh)	
1st month of the Qrt	1016
2nd month of the Qrt	1230
3rd month of the Qrt	1404
	3651

Difference (MWh)	
1st month of the Qrt	104
2nd month of the Qrt	137
3rd month of the Qrt	269
	511

PPP Ref (Per kWh)

Ref PPP (per kWh)	
1st month of the Qrt	10 230
2nd month of the Qrt	8 606
3rd month of the Qrt	7 721

Impact of extra/less Purchases (Rs. Millions) 4332 092 1067 184
1181 439
2083 470
4332 092

FORM - 7

MEPCO

Line Losses (T-Year) F.Y. 2014-15

		Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Power Balances														
Units Received	[MkWh]	1,511	1,553	1,366	1,248	949	904	844	820	868	1,097	1,461	1,455	14,076
Units Sold	[MkWh]	1,093	1,203	1,137	1,034	883	860	774	768	726	917	1,162	1,153	11,711
Units Lost	[MkWh]	419	350	229	214	66	43	70	52	142	180	298	301	2,365
Units Lost	[%age]	27.70%	22.54%	16.75%	17.16%	6.95%	4.80%	8.28%	6.33%	16.36%	16.45%	20.41%	20.71%	16.80%
Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Administrative Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11 kV Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LT Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



Line Losses * (Projected F.Y. 2015-16)

Power Balances

Units Received	[MkWh]	1,542	1,587	1,396	1,275	970	922	861	836	885	1,119	1,490	1,484	14,368
Units Sold	[MkWh]	1,123	1,237	1,169	1,062	907	884	795	790	746	943	1,195	1,186	12,036
Units Lost	[MkWh]	418	351	227	214	63	37	66	47	139	177	295	298	2,331
Units Lost	[%age]	27%	22%	16.3%	17%	6%	4%	8%	6%	16%	16%	20%	20%	16.22%
Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Administrative Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Technical Losses at Different Levels

Transmission Losses 132 kV	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11 kV Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LT Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

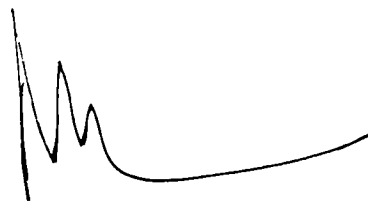


Power Balances

Units Received	[MkWh]	1,628	1,676	1,473	1,346	1,023	973	909	882	934	1,181	1,573	1,567	15,164
Units Sold	[MkWh]	1,192	1,312	1,241	1,128	963	938	844	838	792	1,000	1,268	1,258	12,774
Units Lost	[MkWh]	436	364	231	218	60	34	65	45	142	181	305	309	2,390
Units Lost	[%age]	27%	22%	15.7%	16%	6%	4%	7%	5%	15%	15%	19%	20%	15.76%
Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Administrative Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Technical Losses at Different Levels

Transmission Losses 132 kV	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11 kV Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LT Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



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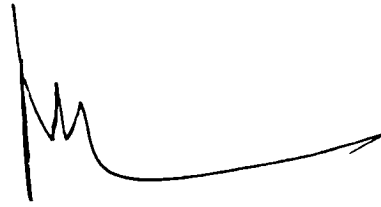
Line Losses * (Projected F.Y. 2017-18)

Power Balances

Units Received	[MkWh]	1,742	1,793	1,579	1,442	1,096	1,041	972	944	999	1,263	1,683	1,676	16,232
Units Sold	[MkWh]	1,275	1,408	1,332	1,210	1,033	1,007	905	899	850	1,072	1,359	1,349	13,699
Units Lost	[MkWh]	467	386	247	233	62	34	67	45	150	191	324	328	2,533
Units Lost	[%age]	27%	21%	15.6%	16%	6%	3%	7%	5%	15%	15%	19%	20%	15.60%
Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Administrative Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Technical Losses at Different Levels

Transmission Losses 132 kV	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11 kV Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LT Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



MEPCO

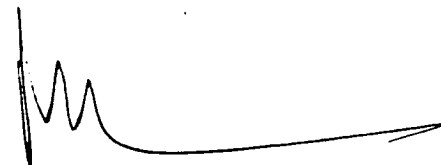
Line Losses * (Projected F.Y. 2018-19)

Power Balances

Units Received	[MkWh]	1,876	1,932	1,700	1,553	1,180	1,121	1,047	1,017	1,076	1,361	1,813	1,805	17,482
Units Sold	[MkWh]	1,374	1,516	1,435	1,303	1,113	1,084	975	968	915	1,155	1,464	1,452	14,754
Units Lost	[MkWh]	503	415	266	250	67	36	72	49	161	206	349	353	2,728
Units Lost	[%age]	27%	21%	15.6%	16%	6%	3%	7%	5%	15%	15%	19%	20%	15.60%
Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Administrative Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Technical Losses at Different Levels

Transmission Losses 132 kV	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11 kV Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LT Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



Power Balances

Units Received	[MkWh]	2,006	2,065	1,819	1,661	1,262	1,198	1,119	1,087	1,151	1,455	1,938	1,930	18,690
Units Sold:	[MkWh]	1,481	1,636	1,548	1,406	1,200	1,169	1,051	1,044	986	1,245	1,578	1,566	15,909
Units Lost	[MkWh]	525	429	271	255	62	29	68	43	164	210	360	364	2,781
Units Lost	[%age]	26%	21%	14.9%	15%	5%	2%	6%	4%	14%	14%	19%	19%	14.88%
Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Administrative Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Technical Losses at Different Levels

Transmission Losses 132 kV	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11 kV Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LT Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Technical Losses	[%age]	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



FORM - 8

MEPCO

Operational and Technical Information

DISCO load factors on yearly basis	2014-15 (B Year)	63%

NTDC/DISCO Delivery Points metering accuracy	98.00%

<u>DISCO metering accuracy</u> For all customers (residential, commercial, industrial, etc.)	96.00%

Estimated High Voltage Transmission lines losses (132 kV)	3.50%



Projected 2016

FORM - 9 MEPCO

**Average Rate per Unit Purchased and Sold
- Weighted Average Cost per Unit Sold to Customers**

10.01 Use of System Charges (NTDC)			
10.02 Estimated Average Rate	(Table 11 - 11.16)	[Rs/kW/Month]	112.67
10.03 Estimated Maximum Demand Indicator (MDI)	(Table 11 - 11.17)	[MW]	2,742
10.04 Number of Months (Fiscal Year)		[#]	12
10.05 Estimated Use of System Charges = $(10.02 \times 10.03 \times 10.04)$		[,000,000 Rs]	3,707
10.06 Fixed/Capacity Charge			
10.07 Estimated Average Rate	(Table 11 - 11.33)	[Rs/kW/Month]	1,127.93
10.08 Estimated MDI	Form 6 (A)	[MW]	2,742
10.09 Number of Months (Fiscal Year)		[#]	12
10.10 Estimated Capacity Charge = $(10.07 \times 10.08 \times 10.09)$		[,000,000 Rs]	36,777
10.11 Energy Charge			
10.12 Estimated Average Energy Charge	(Table 11 - 11.33)	[Rs/kWh]	6.4960
10.13 Estimated Energy Purchase for Fiscal Year		[GWh]	14,368
10.14 Estimated Energy Charges = (10.12×10.13)		[,000,000 Rs]	93,332
10.15 Estimated Power Purchase Price = $(10.05 + 10.10 + 10.14)$		[,000,000 Rs]	133,817
10.16 Average Rate per Unit Purchased = $(10.15 / 10.13)$		[Rs/kWh]	9.3138
10.17 Estimated Energy Sold		[GWh]	12,036
10.18 Average Energy Rate per Unit Sold = $(10.15 / 10.17)$		[Rs/kWh]	11.1176
10.19 Distribution Margin		[,000,000 Rs]	25,487
10.20 Distribution Margin per Unit Sold = $(10.19 / 10.17)$		[Rs/kWh]	2.1174
10.21 Total Cost per Unit Sold to Customers = $(10.20 + 10.18)$		[Rs/kWh]	13.2350
10.22 Estimated Revenue from Energy Sold $(10.15 + 10.19)$		[,000,000 Rs]	159,303
10.23 Prior Period Adjustment (Uncovered Costs)		[,000,000 Rs]	9,246
10.24 Required Estimated Revenue from Energy Sold $(10.22 + 10.23)$		[,000,000 Rs]	168,549

While submitting Quarterly Petitions, this form should be submitted with actual amounts of previous quarters and projected figures of next quarter.

Figures in the forms should be substantiated with the forms below.

FORM - 9 (A)

Table 11 - CPPA Charges: Use of System, Capacity and Energy

11.01 Use of System Charges (NTOC)

	Month	Year	Demand [kW]	Fixed Use of System Rate [Rs/kWh]	Fixed Use of System Charges [Rs]	Energy [kWh]	Variable Use of System Rate [Rs/kWh]	Variable Use of System Charges [Rs]	Sum Use of System Charges [Rs]
11.02	1	2	3	4	5 = 3 x 4	6	7	8 = 6 x 7	9
11.03	Jul	15	2,799,602	112.673	315,439,605	1,541,728,940			315,439,605
11.04	Aug	15	2,937,530	112.673	330,381,293	1,557,243,672			330,381,293
11.05	Sep	15	2,833,180	112.673	319,222,844	1,395,839,424			319,222,844
11.06	Oct	15	2,890,350	112.673	325,664,459	1,275,378,328			325,664,459
11.07	Nov	15	2,407,158	112.673	271,221,732	969,842,230			271,221,732
11.08	Dec	15	2,487,463	112.673	280,269,967	921,829,080			280,269,967
11.09	Jan	16	2,866,571	112.673	300,450,537	861,256,380			300,450,537
11.10	Feb	16	2,377,406	112.673	267,669,461	836,492,820			267,669,461
11.11	Mar	16	2,354,657	112.673	265,306,318	865,303,900			265,306,318
11.12	Apr	16	2,896,105	112.673	303,778,195	1,119,257,220			303,778,195
11.13	May	16	3,128,773	112.673	352,528,294	1,489,761,000			352,528,294
11.14	Jun	16	3,326,067	112.673	374,757,998	1,483,644,060			374,757,998
11.15			32,904,867	112.673	3,707,489,705	14,367,575,054			3,707,489,705
11.16									
11.17			Avg per month [MW]			Avg per month [MWh]			
			2,742,072			1,197,287,921			

11.18 Capacity and Energy

	Month	Year	Capacity Charge [Rs]	Energy Charge [Rs]	Sum of all Charges [Rs]	Use Of System Rate per kWh [Rs/kWh]	Capacity Rate per kWh [Rs/kWh]	Energy Rate per kWh [Rs/kWh]	Final Rate per kWh [Rs/kWh]
11.19	1	2	11	12	13 = 9 + 11 + 12	14 = 9 / 6	15 = 11 / 6	16 = 12 / 6	17 = 13 / 6
11.20	Jul	15	2,715,562,069	11,928,685,800	14,959,687,474	0.2046	1.761377	7.7372	9.7032
11.21	Aug	15	2,723,002,875	11,127,484,900	14,181,467,869	0.2035	1.715554	7.0106	8.9347
11.22	Sep	15	3,042,775,217	9,806,054,230	13,168,052,291	0.2237	2.179889	7.0252	9.4338
11.23	Oct	15	3,157,342,590	9,392,399,730	12,875,406,779	0.2553	2.475613	7.3644	10.0954
11.24	Nov	15	4,242,085,826	4,669,700,938	9,183,008,500	0.2797	4.373996	4.8149	9.4686
11.25	Dec	15	3,083,804,205	6,074,228,520	9,438,302,692	0.3040	3.34531	6.5893	10.2387
11.26	Jan	16	3,421,391,736	8,246,269,560	11,968,111,833	0.3489	3.972559	9.5747	13.8961
11.27	Feb	16	2,892,515,584	4,087,232,820	7,247,617,875	0.3202	3.457908	4.8862	8.6643
11.28	Mar	16	2,830,440,786	5,606,508,540	8,702,255,643	0.2997	3.19714	6.3329	9.8297
11.29	Apr	16	2,332,514,259	7,386,225,960	10,022,518,414	0.2714	2.083984	6.5992	8.9546
11.30	May	16	3,559,611,030	7,519,065,660	11,431,204,984	0.2366	2.389384	5.0472	7.6732
11.31	Jun	16	3,113,400,240	7,488,192,471	10,976,350,709	0.2526	2.098482	5.0472	7.3982
11.32			37,114,446,230	93,332,049,129	133,816,985,064	0.2580	2.5832	6.496	9.3138
11.33									
11.34			Avg Cap. Charge =	1127.93					

FORM - 10
MEPCO

DEMAND (Actual and Calculated) and Number of Customers

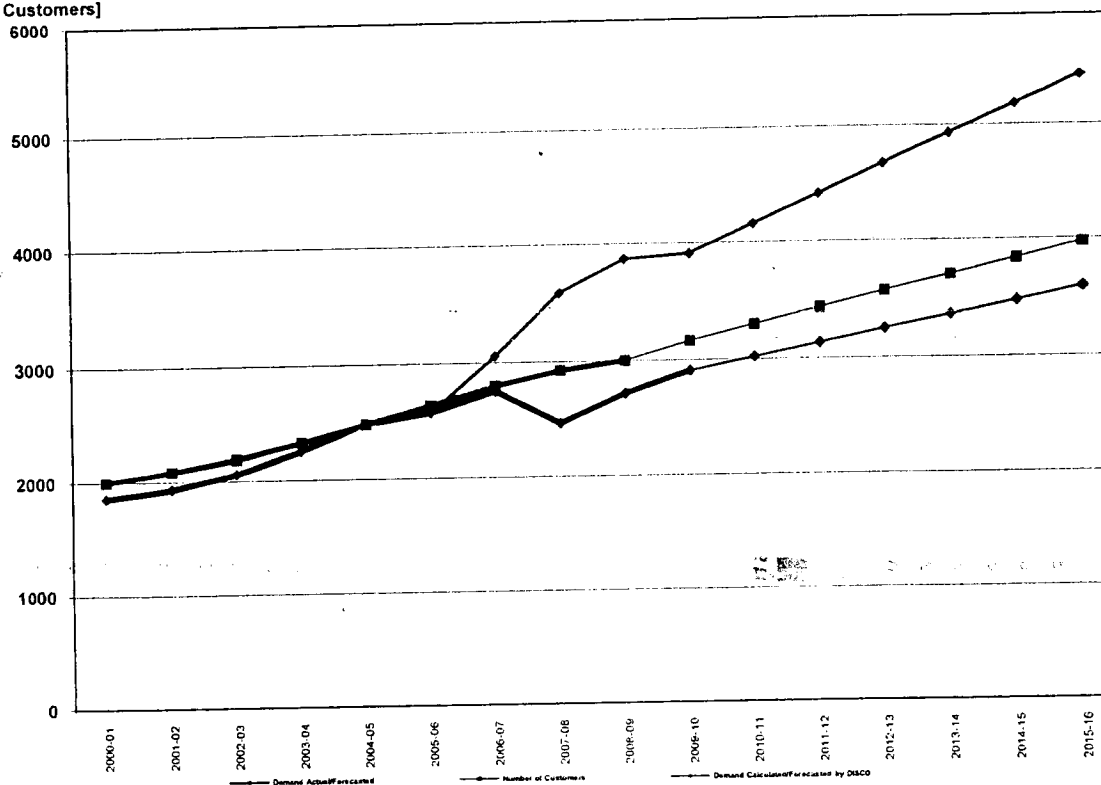
A. Actuals for Demands and Number of Customers

B. Forecasted Demands and Number of Customers using regression analysis

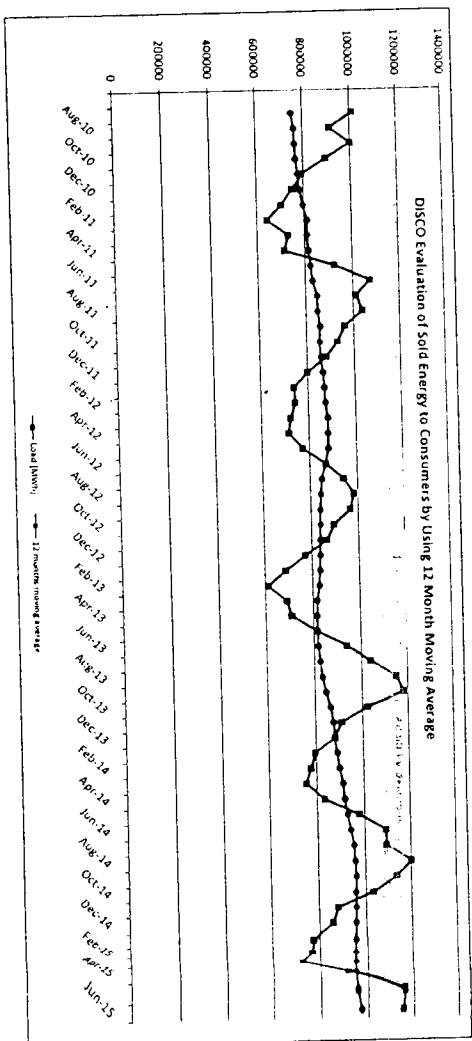
Fiscal Year	Demand Actual /Forecast [,000 kW]	change	Demand Calculated /Forecast [,000 kW]	change	Number of Customers [,000]	change
12.01	2000-01	1,318	1,318			
12.02	2001-02	1,382	1,382	4.9%	2,181	
12.03	2002-03	1,453	1,453	5.1%	2,308	
12.04	2003-04	1,531	1,531	5.4%	2,503	
12.05	2004-05	1,618	1,618	5.7%	2,758	
12.06	2005-06	1,721	1,721	6.4%	3,046	
12.07	2006-07	1,831	1,831	6.4%	3,371	
12.08	2007-08	2,218	2,218	21.1%	3,666	
12.09	2008-09	2,412	2,412	8.7%	3,842	
12.10	2009-10	2,988	2,373	-1.6%	4,041	
12.11	2010-11	2,949	2,503	5.5%	4,260	
12.12	2011-12	3,022	2,634	5.2%	4,497	
12.13	2012-13	3,360	2,764	4.9%	4,674	
12.14	2013-14	3,570	2,895	4.7%	4,860	
12.15	2014-15	3,258	3,025	4.5%	5,116	
12.16	2015-16	3,323	3,258	7.7%	5,256	
12.17	2016-17	3,475	3,475	6.7%	5,480	
12.18	2016-18	3,662	3,662	5.4%	5,705	
12.19	2016-19	3,870	3,870	5.7%	5,931	
12.2	2016-20	4,091	4,091	5.7%	6,156	

[MW; Nu000 of Customers]

Demand Actual/Forecasted and # of Customers



Table/Graph 14 - Solid Energy Evaluation and Setting up Solid Energy Average

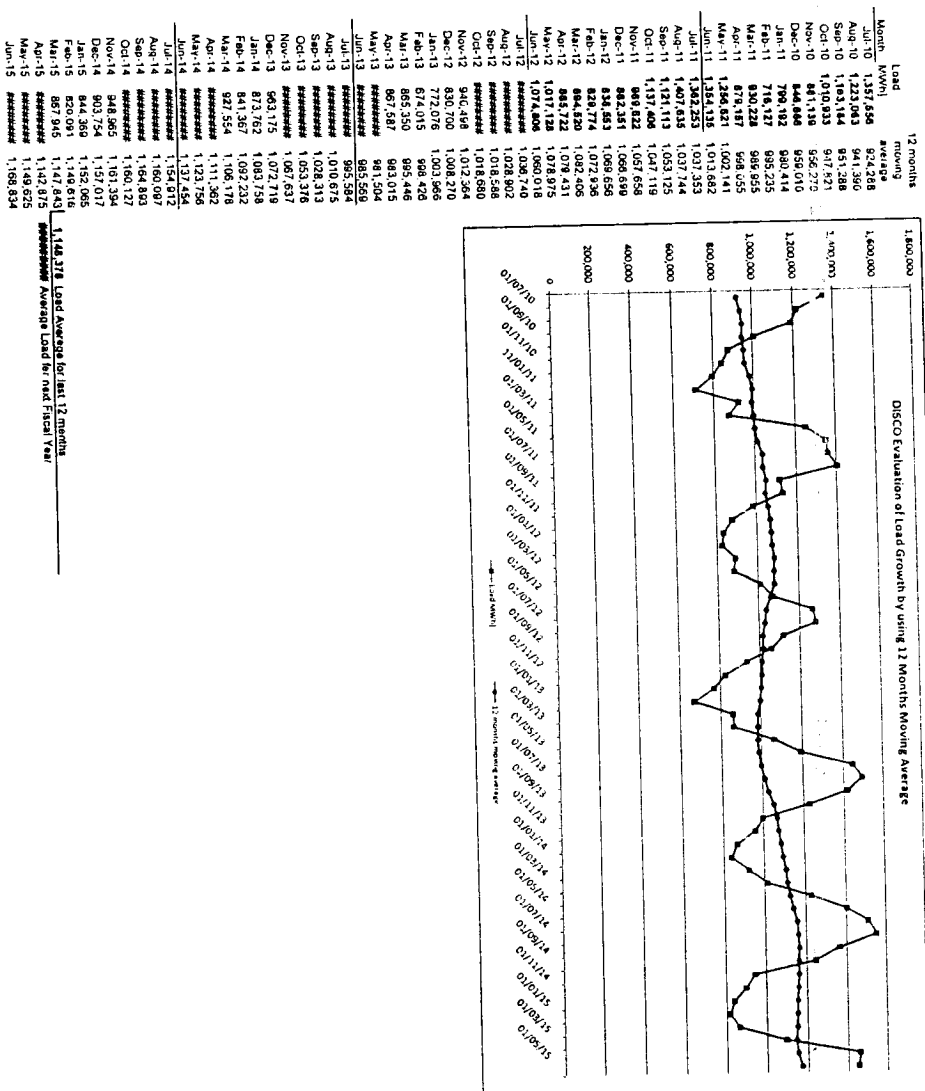


Month	Load (kWh)	12 months moving average
Jun-10	1,031,765	753,290
Aug-10	817,733	763,145
Sep-10	1,003,293	763,335
Oct-10	898,791	768,527
Nov-10	795,566	775,766
Dec-10	732,955	780,951
Jan-11	706,017	795,915
Feb-11	645,269	812,384
Mar-11	733,808	811,303
Apr-11	716,492	816,939
May-11	928,239	823,463
Jun-11	1,076,586	829,964
Jul-11	1,015,109	849,043
Aug-11	1,042,374	869,213
Sep-11	964,564	859,642
Oct-11	933,447	856,416
Nov-11	854,147	859,304
Dec-11	802,423	866,686
Jan-12	742,074	870,808
Feb-12	748,428	873,863
Mar-12	726,950	882,293
Apr-12	717,049	881,698
May-12	773,303	889,773
Jun-12	869,540	851,519
Jul-12	944,922	845,612
Aug-12	968,632	840,925
Sep-12	969,677	841,349
Oct-12	899,936	838,557
Nov-12	869,486	837,335
Dec-12	774,854	835,038
Jan-13	689,839	830,643
Feb-13	614,330	819,635
Mar-13	691,864	816,786
Apr-13	711,621	816,344
May-13	617,696	820,042
Jun-13	942,120	826,091
Jul-13	1,042,041	834,184
Aug-13	1,150,869	847,870
Sep-13	1,180,849	865,468
Oct-13	1,027,497	876,098
Nov-13	913,679	879,781
Dec-13	883,179	888,807
Jan-14	798,604	897,863
Feb-14	777,433	911,455
Mar-14	756,993	916,881
Apr-14	825,158	927,176
May-14	980,033	940,705
Jun-14	1,080,820	953,105
Jul-14	1,092,603	967,335
Aug-14	1,202,973	961,677
Sep-14	1,137,052	958,027
Oct-14	1,033,602	958,552
Nov-14	883,002	955,986
Dec-14	860,389	954,097
Jan-15	774,461	952,085
Feb-15	786,173	951,313
Mar-15	726,809	948,723
Apr-15	916,652	955,531
May-15	1,162,484	970,726
Jun-15	1,153,339	

944,912 Average Solid Energy for last 12 months
11,386,947 Assumed Average Load for next Fiscal Year

[Handwritten signature]

Table/Graph 13 - Load Growth Evaluation and Setting up Load Average



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FORM -13

Asset register as the year ended at date June 30, 2014 (Year)
(To be updated)

Asset register as the year ended at date June 30, 2014 (To be updated)									
No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30.
		As at July 01.	Addition/ deletions	As at June 30. 0	As at July 01.	Charge during the year	Adjustments	As at June 30.	
A. Land									
1	Freehold	181,232,255	0	181,232,255		0			181,232,255
2	Leasehold	2,277,338	0	2,277,338	790,164	0		790,164	1,487,174
	Total	183,509,593	0	183,509,593	790,164	0	0	790,164	182,719,429
B. Buildings									
1	Residential Buildings	1,022,636,361	24,317,915	1,046,953,266	241,251,795	4,733,453		245,985,248	800,968,018
2	Non-Residential Buildings	663,647,171	89,316,842	642,904,113	115,772,312	42,227,703		158,000,015	484,904,098
3	GSD Residential Buildings	744,961,968		744,951,958	328,739,251			328,739,251	416,212,707
4	Non-GSO Residential Buildings	9,661,245		9,661,245	2,351,794			2,351,794	7,309,451
	Total	2,330,835,725	113,634,857	2,444,470,582	688,115,152	46,961,156	0	735,076,308	1,709,394,274
C. Sub Transmission									
1	132 KV Sub Transmission Lines	4,212,289,686	1,827,949,134	6,040,238,820	1,906,301,440	157,008,886		2,063,310,326	3,976,928,494
2	66 KV Sub Transmission Lines	203,244,902	0	203,244,902	161,712,114	7,097,373		168,809,487	34,435,415
3	33 KV Sub Transmission Lines	0	0	0	0	0		0	0
	Total	4,415,534,588	1,827,949,134	6,243,483,722	2,068,013,554	164,106,259	0	2,232,119,813	4,011,363,909
D. Grid Station									
1	132 KV Grid Station	7,606,883,381	1,169,832,161	8,775,715,532	1,158,873,227	375,348,206		1,534,221,432	7,241,494,100
2	66 KV Grid Station	3,826,604,201	0	3,526,504,201	1,420,488,916	18,346,659		1,438,835,575	2,087,668,626
3	33 KV Grid Station	0	0	0	0	0		0	0
	Total	11,132,387,582	1,169,832,161	12,302,219,733	2,579,362,143	393,694,864	0	2,973,857,007	9,329,162,726
E. 11 KV Distribution Equipments									
1	11 KV Poles	6,380,066,966	383,393,191	5,763,459,147	1,865,081,933	194,230,690		2,059,312,523	3,704,146,624
2	11KV Line	11,440,909,026	730,783,867	12,171,662,113	3,758,517,544	411,287,625		4,169,815,170	8,001,846,943
3	Distribution Transformer	17,606,066,641	1,721,934,991	19,326,991,532	4,262,068,221	643,687,381		4,905,765,602	14,421,225,930
	Total	34,426,031,533	2,835,081,259	37,262,112,792	9,885,667,698	1,249,225,597	0	11,134,893,295	26,127,219,497
F. LV Distribution Equipments									
1	LV Poles	4,686,432,497	326,866,964	4,912,299,461	1,495,702,912	166,769,211		1,661,462,123	3,250,837,338
2	440 LV Distribution Line	0	0	0	8	0		0	0
3	220 LV Distribution Line	9,640,810,699	488,424,383	7,025,935,082	2,035,216,909	236,819,971		2,272,036,880	4,753,898,202
4	KWh Meters & Service Cable	3,901,676,026	788,941,232	4,691,617,258	964,034,505	169,492,788		1,123,527,293	3,568,089,965
5	Misc. Equipment	10,322,090,379	482,148,426	10,844,748,796	3,458,999,187	366,736,496		3,824,735,683	7,020,013,113
	Total	25,410,219,592	2,064,381,005	27,474,600,597	7,953,953,513	927,808,466	0	8,881,761,979	18,592,838,618
G. Vehicles									
1	132/66/33 KV GSD Vehicles	123,406,908	0	123,406,908	42,155,450	4,447,575		46,603,025	75,803,883
2	Vehicles	588,181,130	169,018,964	758,200,094	524,848,112	29,729,770		554,577,882	203,622,212
	Total	712,588,038	169,018,964	881,607,002	567,003,562	34,177,345	0	601,188,907	280,426,095
H. Detail of General Plant Assets									
1	Computer Equipment	110,335,745	60,666,329	171,002,074	77,696,932	6,474,413		84,171,345	86,830,729
2	Furniture/Work shop/Misc Equip.	267,036,790	20,835,696	287,872,386	206,947,924	16,631,362		223,479,306	64,393,080
3	Workshop Equipment	0	0	0	0	0		0	0
4	Laboratory Equipment	240,360		240,350	14,020			14,020	226,330
5	Misc. Equipment	30,612,613		30,512,613	25,512,613			25,512,613	5,000,000
	Total	408,125,498	81,501,925	489,627,423	310,171,489	23,005,795	0	333,177,284	156,450,139
J. O&M Equipments									
	Total	79,019,232,149	8,262,399,295	87,281,631,444	24,053,077,275	2,838,979,482	0	26,892,056,757	60,389,574,687

FORM -13

Asset register as the year ended at date June 30, 2015 (Projected)

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at June 30, 2014	Additions/deletions	As at June 30, 2015	As at July 01, 2015	Charge during the year	Adjustments	As at June 30, 2015	
A. Land									
1	Freehold	181,232,265	32,688,500	213,920,755		0			213,920,755
2	Leasehold	2,277,338		2,277,338	790,164	0		790,164	1,487,174
	Total	183,509,593	32,688,500	216,198,093	790,164	0	0	790,164	215,407,929
B. Buildings									
1	Residential Buildings	1,046,963,266	58,323,104	1,105,276,370	245,985,248	22,105,527		268,090,775	837,185,595
2	Non-Residential Buildings	642,904,113	285,012,916	927,917,029	156,000,015	18,558,341		176,558,356	751,358,673
3	GSO Residential Buildings	744,461,958		744,451,958	328,739,251	14,899,039		343,638,290	401,313,668
4	Non-GSO Residential Buildings	8,661,245	25,097,792	34,759,037	2,351,794	695,181		3,046,975	31,712,062
	Total	2,444,470,582	368,433,812	2,812,904,394	735,076,308	56,258,088	0	791,334,396	2,021,569,998
C. Sub Transmission									
1	132 KV Sub Transmission Lines	6,040,238,820	1,792,746,970	7,832,985,790	2,083,310,326	228,488,531		2,291,798,857	5,541,186,933
2	66 KV Sub Transmission Lines	203,244,902		203,244,902	168,809,487	6,707,082		175,516,569	27,728,333
3	33 KV Sub Transmission Lines	0		0	0	0		0	0
	Total	6,243,483,722	1,792,746,970	8,036,230,692	2,232,119,813	235,195,613	0	2,467,315,426	5,568,915,266
D. Grid Station									
1	132 KV Grid Station	9,776,716,632	2,191,135,186	10,966,850,718	1,534,221,432	350,939,223		1,885,160,655	9,081,690,063
2	66 KV Grid Station	3,626,604,201	400,565	3,526,904,766	1,438,835,575	114,624,405		1,553,459,980	1,973,444,786
3	33 KV Grid Station	0		0	0	0		0	0
	Total	12,392,219,733	2,191,535,751	14,493,755,484	2,973,057,007	465,563,628	0	3,438,620,635	11,055,134,849
E. 11 KV Distribution Equipments									
1	11 KV Poles	6,783,469,147	364,883,713	6,128,342,860	2,059,312,523	202,235,314		2,261,547,837	3,866,795,023
2	11KV Line	12,171,662,113	791,180,546	12,962,842,659	4,169,815,170	391,292,386		4,806,241,636	8,156,601,023
3	Distribution Transformer	19,326,891,832	1,406,777,309	20,933,768,841	4,905,785,602	840,347,487		5,546,113,089	15,387,655,752
	Total	37,262,112,792	2,762,841,568	40,024,954,360	11,134,893,295	1,233,875,188	0	12,813,982,563	27,411,051,797
F. LV Distribution Equipments									
1	LV Poles	4,912,299,461	217,319,111	5,129,618,572	1,661,482,123	169,277,413		1,830,739,536	3,298,879,036
2	440 LV Distribution Line	0		0	0	0		0	0
3	220 LV Distribution Line	7,026,935,082	362,482,244	7,388,417,326	2,272,036,880	210,817,772		2,727,988,732	4,660,428,594
4	KWh Meters & Service Cable	4,691,617,268	842,171,819	5,534,275,464	1,123,527,293	523,427,546		1,646,954,839	3,887,320,625
5	Misc. Equipment	10,844,748,796	572,657,444	11,417,406,240	3,824,735,683	351,065,703		4,175,801,386	7,241,604,854
	Total	27,474,600,587	1,994,630,618	29,469,717,602	8,881,761,979	1,254,586,434	0	10,381,484,493	19,088,233,109
G. Vehicles									
1	132/66/33 KV GSO Vehicles	123,408,908	2,965,812	126,372,720	46,803,025	12,837,272		59,240,297	67,132,423
2	Vehicles	758,200,084	49,011,943	807,212,037	554,577,882	79,968,907		634,546,789	172,665,248
	Total	881,607,002	51,977,755	933,584,757	601,380,907	92,806,179	0	693,787,086	239,797,671
H. Detail of General Plant Assets									
1	Computer Equipment	171,002,074	25,873,876	196,875,950	84,171,345	19,667,595		103,858,940	93,017,010
2	Furniture/Work shop/Mis.Equip.	287,872,386		287,872,386	223,479,306	28,767,239		252,266,545	35,605,841
3	Workshop Equipment	0		0	0	0		0	0
4	Laboratory Equipment	240,360		240,360	14,020	24,035		38,055	202,295
5	Misc. Equipment	30,512,813	24,105,274	54,617,887	25,512,813	5,439,240		30,951,853	23,666,034
	Total	469,627,423	49,979,150	539,606,573	333,177,284	53,938,108	0	387,115,392	152,491,181
J. O&M Equipments									
	Grand Total	87,281,631,444	9,244,834,124	96,526,951,955	26,892,056,757	3,392,025,238	0	30,774,350,155	65,752,601,800

FORM -13
Asset register as the year ended at date June 30, 2016 (Projected)

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30, 0	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	Land								
1	Freehold	213,920,765	146,372,089	360,292,844	0	0		790,164	360,292,844
2	Leasehold	2,277,338		2,277,338	790,164	0		790,164	1,487,174
	Total	216,198,093	146,372,089	362,570,182	790,164	0	0	790,164	361,780,018
B.	Buildings								
1	Residential Buildings	1,106,274,370	60,000,000	1,155,276,370	268,090,775	23,105,527		291,196,303	864,080,067
2	Non-Residential Buildings	827,917,029	100,000,000	1,027,917,029	176,558,356	20,558,341		197,116,696	830,800,333
3	GSO Residential Buildings	744,961,958	30,000,000	774,951,958	343,638,290	15,499,039		359,137,329	415,814,629
4	Non-GSO Residential Buildings	34,769,037	10,000,000	44,759,037	3,046,975	895,181		3,942,155	40,816,882
	Total	2,812,904,394	190,000,000	3,002,904,394	791,334,396	60,058,088	0	851,392,484	2,151,511,910
C.	Sub Transmission								
1	132 KV Sub Transmission Lines	7,832,886,790	841,820,847	8,474,906,757	2,291,798,857	254,247,203		2,546,046,060	5,928,860,697
2	66 KV Sub Transmission Lines	203,244,802		203,244,802	175,516,569	6,097,347		181,613,916	21,630,986
3	33 KV Sub Transmission Lines	0		0	0	0		0	0
	Total	8,036,230,692	841,820,847	8,678,151,659	2,467,315,426	260,344,550	0	2,727,659,976	5,950,491,683
D.	Grid Station								
1	132 KV Grid Station	10,868,860,718	5,144,629,602	16,111,380,320	1,885,160,655	483,341,410		2,368,502,065	13,742,878,255
2	66 KV Grid Station	3,628,904,766		3,526,904,766	1,553,459,980	105,807,143		1,659,267,123	1,867,637,643
3	33 KV Grid Station	0		0	0	0		0	0
	Total	14,493,755,484	5,144,629,602	19,638,285,086	3,438,620,635	589,148,553	0	4,027,769,187	15,610,515,899
E.	11 KV Distribution Equipments								
1	11 KV Poles	6,128,342,860	168,433,656	6,296,776,515	2,261,547,837	188,602,295		2,450,151,133	3,836,625,382
2	11KV Line	12,962,642,658	827,194,690	13,790,039,259	4,806,241,636	413,701,178		5,219,942,814	8,570,096,445
3	Distribution Transformer	20,933,768,641	214,609,845	21,148,378,486	5,546,113,089	634,451,355		6,180,564,444	14,967,814,042
	Total	40,024,954,360	1,200,239,900	41,225,194,260	12,613,802,563	1,236,755,828	0	13,850,658,391	27,374,535,869
F.	LV Distribution Equipments								
1	LV Poles	6,128,918,672	444,158,325	6,573,776,897	1,830,739,536	172,787,084		2,003,526,620	4,570,250,277
2	440 LV Distribution Line	0		0	0	0		0	0
3	220 LV Distribution Line	7,388,417,326	1,012,254,950	8,400,672,276	2,727,988,732	260,420,841		2,988,409,572	5,412,262,704
4	KWh Meters & Service Cable	6,634,275,444	1,844,439,713	7,480,715,177	1,646,954,839	709,804,939		2,356,759,778	5,123,955,399
5	Misc. Equipment	11,617,406,240	1,919,812,606	13,337,218,846	4,175,801,386	361,849,887		4,537,651,373	8,799,567,473
	Total	29,469,717,602	5,322,665,594	34,792,383,196	18,381,484,493	1,504,862,850	0	11,886,347,343	22,906,035,853
G.	Vehicles								
1	132/66/33 KV GSO Vehicles	126,372,720	67,000,000	183,372,720	59,240,297	17,787,154		77,027,451	106,345,269
2	Vehicles	807,212,037	323,000,000	1,130,212,037	634,546,789	109,630,568		744,177,356	386,034,681
	Total	933,584,757	380,000,000	1,313,584,757	693,787,086	127,417,721	0	821,204,807	492,379,950
H.	Detail of General Plant Assets								
1	Computer Equipment	196,675,960	12,624,722	209,300,672	103,858,940	20,950,067		124,809,007	84,691,665
2	Furniture/Work shop/Misc Equip.	287,872,386	15,000,000	302,872,386	252,266,545	30,287,239		282,553,783	20,318,603
3	Workshop Equipment	0		0	0	0		0	0
4	Laboratory Equipment	240,350		240,350	38,055	24,035		62,090	178,260
5	Misc. Equipment	54,817,887		54,817,887	30,951,853	5,461,789		36,413,641	18,204,246
	Total	539,586,573	27,624,722	567,231,295	387,115,392	56,723,130	0	443,838,522	123,392,773
J.	O&M Equipments								
	Grand Total	96,526,951,955	13,053,352,873	109,580,304,828	30,774,350,155	3,835,310,719	0	34,609,660,874	74,970,643,954

FORM -13
Asset register as the year ended at date June 30, 2017 (Projected)

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30, 0	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A. Land									
1	Freehold	360,292,844	88,134,384	448,427,228	0	0		790,164	448,427,228
2	Leasehold	2,277,338		2,277,338	790,164	0		790,164	1,487,174
	Total	362,570,182	88,134,384	450,704,566	790,164	0	0	790,164	449,914,402
B. Buildings									
1	Residential Buildings	1,166,276,370	60,000,000	1,215,276,370	291,196,303	24,305,527		315,501,830	899,774,540
2	Non-Residential Buildings	1,027,917,029	108,000,000	1,132,917,029	197,116,696	22,858,341		219,775,037	913,141,992
3	GSO Residential Buildings	774,861,988	20,000,000	794,951,988	359,137,329	15,899,039		375,036,368	419,915,590
4	Non-GSO Residential Buildings	44,789,037	10,000,000	54,789,037	3,942,155	1,095,181		5,037,336	49,721,701
	Total	3,082,984,394	198,000,000	3,197,904,394	851,392,484	63,958,088	8	915,350,572	2,282,553,822
C. Sub Transmission									
1	132 KV Sub Transmission Lines	8,474,908,787	2,478,268,108	10,951,171,864	2,546,046,060	328,535,156		2,874,581,216	8,076,590,649
2	66 KV Sub Transmission Lines	203,244,902		203,244,902	181,613,916	6,097,347		187,711,263	15,533,639
3	33 KV Sub Transmission Lines	0		0	0	0		0	0
	Total	8,678,151,689	2,478,268,108	11,154,419,766	2,727,659,976	334,632,503	8	3,062,292,479	8,092,124,288
D. Grid Station									
1	132 KV Grid Station	16,111,388,320	2,227,680,608	18,338,968,828	2,368,502,065	550,168,825		2,918,670,899	15,420,289,938
2	66 KV Grid Station	3,628,904,766		3,526,904,766	1,659,267,123	105,807,143		1,765,074,266	1,761,830,500
3	33 KV Grid Station	0		0	0	0		0	0
	Total	19,638,285,086	2,227,680,608	21,865,865,594	4,027,769,187	655,975,968	0	4,683,745,155	17,182,120,439
E. 11 KV Distribution Equipments									
1	11 KV Poles	6,286,776,616	350,182,408	6,636,958,915	2,450,151,133	199,103,767		2,649,259,900	3,987,699,015
2	11KV Line	13,790,039,269	1,447,468,000	15,277,507,259	5,219,942,814	458,325,218		5,678,268,032	9,599,239,227
3	Distribution Transformer	21,144,378,488	631,821,608	21,680,200,086	6,180,564,444	650,409,003		6,830,970,446	14,849,229,640
	Total	41,225,184,260	2,369,472,000	43,594,656,260	13,850,658,391	1,307,839,988	0	15,158,498,379	28,436,167,881
F. LV Distribution Equipments									
1	LV Poles	6,673,776,897	423,088,000	5,996,862,897	2,003,528,620	179,905,887		2,183,432,507	3,813,430,390
2	440 LV Distribution Line	8		0	0	0		0	0
3	220 LV Distribution Line	8,400,672,276	1,846,448,000	18,267,118,276	2,988,409,572	308,013,548		3,296,423,121	6,970,695,155
4	KWh Meters & Service Cable	7,480,716,177	1,047,600,000	8,548,315,177	2,356,759,778	802,062,784		3,158,822,562	5,389,492,615
5	Misc. Equipment	13,337,218,346	6,313,368,000	18,650,586,346	4,537,651,373	506,748,811		5,044,400,185	13,606,184,661
	Total	34,792,383,196	8,670,498,000	43,462,881,196	11,886,347,343	1,796,731,830	8	13,683,078,374	29,779,802,822
G. Vehicles									
1	132/66/33 KV GSO Vehicle	183,372,720	74,000,000	257,372,720	77,027,451	25,737,272		102,764,723	154,607,997
2	Vehicles	1,130,212,037	466,000,000	1,796,212,037	744,177,356	179,621,204		923,798,560	872,413,477
	Total	1,313,584,757	740,000,000	2,053,584,757	821,204,807	205,358,476	0	1,026,563,283	1,027,021,474
H. Detail of General Plant Assets									
1	Computer Equipment	209,600,672	16,000,000	224,500,672	124,809,007	22,450,067		147,259,074	77,241,598
2	Furniture/Work shop/Mis. Equip.	302,872,388	18,160,670	318,022,956	282,553,783	31,802,296		314,356,079	3,666,877
3	Workshop Equipment	8		0	0	0		0	0
4	Laboratory Equipment	240,360		240,360	82,090	24,035		86,125	154,225
5	Misc. Equipment	54,617,887		54,617,887	36,413,841	5,451,789		41,875,430	12,742,457
	Total	567,231,295	30,160,670	597,381,865	443,838,522	59,738,187	0	503,576,708	93,905,157
J. D&M Equipments									
	Grand Total	109,580,304,828	16,797,100,570	126,377,405,398	34,609,660,874	4,424,234,239	0	39,033,895,113	87,343,510,285

FORM -13
Asset register as the year ended at date June 30, 2018 (Projected)

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30.
		As at July 01.	Addition/ deletions	As at June 30, 0	As at July 01.	Charge during the year	Adjustments	As at June 30.	
A. Land									
1	Freehold	448,427,228	90,339,968	538,767,196		0		790,164	538,767,196
2	Leasehold	2,277,338		2,277,338	790,164	0		790,164	1,487,174
	Total	450,704,566	90,339,968	541,044,534	790,164	0	0	790,164	540,254,370
B. Buildings									
1	Residential Buildings	1,216,276,370	70,000,000	1,285,276,370	315,501,830	25,705,527		341,207,358	94,069,012
2	Non-Residential Buildings	1,132,917,029	95,000,000	1,227,917,029	219,775,037	24,558,341		244,333,377	983,583,652
3	GSD Residential Buildings	794,961,968	25,000,000	819,951,958	375,036,368	16,399,039		391,435,408	428,516,550
4	Non-GSO Residential Buildings	64,789,037	15,000,000	69,759,037	5,037,336	1,395,181		6,432,517	63,326,520
	Total	3,197,904,394	205,000,000	3,402,904,394	915,350,572	68,058,088	0	983,408,660	2,419,495,734
C. Sub Transmission									
1	132 KV Sub Transmission Lines	10,961,171,864	2,321,118,839	13,272,290,703	2,874,581,216	348,168,721		3,222,749,937	10,049,540,766
2	66 KV Sub Transmission Lines	203,244,902		203,244,902	187,711,263	6,097,347		193,808,610	9,436,292
3	33 KV Sub Transmission Lines	0		0	0	0	0	0	0
	Total	11,154,416,766	2,321,118,839	13,475,535,605	3,062,292,479	354,266,068	0	3,416,558,547	10,058,977,058
D. Grid Station									
1	132 KV Grid Station	18,338,940,828	2,567,610,194	20,906,571,021	2,918,870,889	577,197,131		3,495,868,020	17,410,703,001
2	66 KV Grid Station	3,626,904,766		3,526,904,766	1,765,074,266	105,807,143		1,870,881,409	1,656,023,357
3	33 KV Grid Station	0		0	0	0	0	0	0
	Total	21,865,845,594	2,567,610,194	24,433,475,787	4,683,745,155	683,004,274	0	5,366,749,429	19,066,726,359
E. 11 KV Distribution Equipments									
1	11 KV Poles	6,636,958,916	391,646,170	7,028,605,085	2,649,259,900	210,864,153		2,860,124,053	4,168,681,032
2	11KV Line	16,277,607,288	1,894,719,300	17,172,226,559	5,678,268,032	515,169,797		6,193,434,829	10,978,791,730
3	Distribution Transformer	21,680,200,086	869,640,030	22,349,740,116	6,830,970,446	670,492,203		7,501,462,650	14,848,277,466
	Total	43,694,866,280	2,956,105,500	46,650,771,760	15,158,498,379	1,386,523,153	0	16,555,021,532	29,995,750,228
F. LV Distribution Equipments									
1	LV Poles	6,996,842,897	432,731,550	7,429,594,447	2,183,432,507	192,887,833		2,376,320,340	5,053,274,107
2	440 LV Distribution Line	0		0	0	0	0	0	0
3	220 LV Distribution Line	10,267,118,276	1,994,719,300	12,261,837,576	3,298,423,121	367,855,127		3,666,278,248	8,597,559,328
4	KWh Meters & Service Cable	8,646,318,177	1,946,660,000	10,516,965,177	3,158,822,562	981,856,518		4,140,519,080	6,376,446,098
5	Misc. Equipment	18,680,684,846	1,745,411,550	20,395,996,396	5,044,400,185	581,064,102		5,625,484,286	14,770,512,110
	Total	43,462,861,196	5,141,512,400	48,604,393,596	13,683,078,374	2,123,523,580	0	15,806,601,954	32,797,791,642
G. Vehicles									
1	132/66/33 KV GSO Vehicles	267,372,720	60,400,000	307,772,720	102,764,723	30,777,272		133,541,995	174,230,725
2	Vehicles	1,796,212,037	453,600,000	2,249,812,037	923,796,560	224,981,204		1,148,779,764	1,101,032,273
	Total	2,053,684,757	504,000,000	2,557,684,757	1,026,561,283	255,758,476	0	1,282,321,759	1,275,262,998
H. Detail of General Plant Assets									
1	Computer Equipment	224,600,672		224,500,672	147,259,074	22,450,067		169,709,142	54,791,530
2	Furniture/Work shop/Mis Equip.	318,022,956	13,263,163	331,276,119	314,356,079	33,127,612		347,463,691	(16,207,572)
3	Workshop Equipment	0		0	0	0	0	0	0
4	Laboratory Equipment	240,360		240,350	88,125	24,035		110,160	130,190
5	Misc. Equipment	54,617,887		54,617,887	41,875,430	5,461,789		47,337,219	7,280,668
	Total	597,381,865	13,263,163	610,635,028	603,676,708	61,063,503	0	564,640,211	45,994,817
J. O&M Equipments									
	Grand Total	126,377,405,398	14,798,940,063	141,176,345,461	39,033,895,113	4,942,197,141	0	43,976,092,254	97,200,253,207

FORM -13

Asset register as the year ended at date June 30, 2019 (Projected)

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Additions/ deletions	As at June 30, 0	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A. Land									
1	Freehold	638,767,196	76,261,180	615,018,376	0	0		790,164	615,018,376
2	Leasehold	2,277,338		2,277,338	790,164	0		0	1,487,174
	Total	641,044,534	76,261,180	617,295,714	790,164	0	0	790,164	616,505,550
B. Buildings									
1	Residential Buildings	1,285,278,370	36,000,000	1,320,278,370	341,207,358	26,405,527		367,612,885	952,663,485
2	Non-Residential Buildings	1,227,917,029	126,000,000	1,352,917,029	244,333,377	27,058,341		271,391,718	1,081,525,311
3	GSO Residential Buildings	819,961,958	30,000,000	849,951,958	391,435,408	16,999,039		408,434,447	441,517,511
4	Non-GSO Residential Buildings	68,789,037	15,000,000	84,759,037	6,432,517	1,695,181		8,127,698	76,631,339
	Total	3,402,904,394	206,000,000	3,607,904,394	983,408,660	72,158,088	0	1,065,566,747	2,542,337,647
C. Sub Transmission									
1	132 KV Sub Transmission Lines	13,272,290,703	3,804,933,891	17,077,224,594	3,222,749,937	419,030,399		3,641,780,336	13,435,444,258
2	66 KV Sub Transmission Lines	203,244,902		203,244,902	193,808,610	5,097,347		199,905,957	3,338,945
3	33 KV Sub Transmission Lines	0		0	0	0		0	0
	Total	13,475,535,605	3,804,933,891	17,280,469,496	3,416,558,547	425,127,745	0	3,841,686,293	13,438,783,203
D. Grid Station									
1	132 KV Grid Station	20,906,671,021	2,683,829,429	23,590,500,450	3,495,868,020	611,719,875		4,107,587,895	19,482,912,555
2	66 KV Grid Station	3,826,904,766		3,826,904,766	1,870,881,409	105,807,143		1,976,688,552	1,850,216,214
3	33 KV Grid Station	0		0	0	0		0	0
	Total	24,733,575,787	2,683,829,429	27,417,405,216	5,366,749,429	717,526,817	0	6,084,276,447	21,333,128,789
E. 11 KV Distribution Equipments									
1	11 KV Poles	7,028,805,085	360,329,485	7,379,134,570	2,860,124,053	221,374,037		3,081,498,090	4,297,636,480
2	11KV Line	17,172,226,659	1,712,864,200	18,885,090,759	6,193,434,829	566,555,723		6,759,990,551	12,125,200,208
3	Distribution Transformer	22,348,740,116	898,707,515	23,247,447,631	7,501,462,850	595,167,093		8,096,629,743	15,150,817,888
	Total	46,550,771,760	2,971,901,200	49,522,672,960	16,555,021,532	1,383,096,853	0	17,938,118,384	31,584,554,576
F. LV Distribution Equipments									
1	LV Poles	6,428,684,447	400,984,775	6,830,569,222	2,378,320,340	204,917,437		2,583,237,777	4,247,341,445
2	440 LV Distribution Line	0		0	0	0		0	0
3	220 LV Distribution Line	12,261,837,678	1,721,666,660	13,983,504,338	3,884,278,246	419,502,097		4,083,780,345	9,899,723,993
4	KWh Meters & Service Cable	10,816,965,177	2,168,650,000	12,985,615,177	4,140,519,080	1,268,561,518		5,409,080,597	7,576,534,580
5	Misc. Equipment	20,395,996,396	679,851,775	21,075,848,171	5,825,484,288	832,279,345		6,257,763,632	14,818,084,539
	Total	49,604,393,596	4,971,184,200	54,575,577,796	16,806,601,954	2,525,260,396	0	18,331,862,350	36,243,715,446
G. Vehicles									
1	132/66/33 KV GSO Vehicles	307,772,720	17,000,000	324,772,720	133,541,995	32,477,272		166,019,267	158,753,453
2	Vehicles	2,249,812,037	17,000,000	2,266,812,037	1,148,778,764	226,881,204		1,375,460,967	891,351,070
	Total	2,557,584,757	34,000,000	2,591,584,757	1,282,321,759	259,158,476	0	1,541,480,234	1,050,104,523
H. Detail of General Plant Assets									
1	Computer Equipment	224,800,672	7,000,000	231,800,672	169,709,142	23,150,067		192,859,209	38,941,463
2	Furniture/Work shop/Misc. Equip.	331,278,119	7,819,425	339,097,544	347,483,691	33,889,554		381,373,245	(42,276,147)
3	Workshop Equipment	0		0	0	0		0	0
4	Laboratory Equipment	240,360		240,360	110,180	24,035		134,195	106,165
5	Misc. Equipment	84,817,887		84,817,887	47,337,219	5,481,789		52,799,008	32,018,879
	Total	640,636,028	14,819,425	655,455,453	367,647,241	62,525,445	0	627,165,656	27,778,807
J. O&M Equipments									
	Total	141,176,345,461	14,361,619,425	155,537,964,886	43,976,092,254	5,444,853,821	0	49,420,946,075	106,117,018,811

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Asset register as the year ended at date June 30, 2020 (Projected)

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30, 0	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	Land								
1	Freehold	616,018,376	120,318,960	735,337,335	0	0	0	790,164	735,337,335
2	Leasehold	2,277,338		2,277,338	790,164	0	0	790,164	1,487,174
	Total	617,295,714	120,318,960	737,614,673	790,164	0	0	790,164	736,824,509
B.	Buildings								
1	Residential Buildings	1,320,276,370	46,000,000	1,365,276,370	367,612,865	27,305,527		394,918,412	970,357,958
2	Non-Residential Buildings	1,362,917,029	116,000,000	1,467,917,029	271,391,718	29,358,341		300,750,058	1,167,166,971
3	GSO Residential Buildings	849,861,956	30,000,000	879,951,956	408,434,447	17,595,039		426,033,486	453,918,472
4	Non-GSO Residential Buildings	84,789,037	10,000,000	94,759,037	8,127,698	1,895,181		10,022,878	84,736,159
	Total	3,607,904,394	200,000,000	3,607,904,394	1,055,566,747	76,158,088	0	1,131,724,835	2,676,179,559
C.	Sub Transmission								
1	132 KV Sub Transmission Lines	17,077,224,894	2,201,963,778	19,279,178,372	3,641,780,336	488,437,015		4,130,217,351	15,148,961,021
2	66 KV Sub Transmission Lines	203,244,902		203,244,902	199,905,957	6,097,347		206,003,304	(2,758,402)
3	33 KV Sub Transmission Lines	0		0	0	0		0	0
	Total	17,280,469,496	2,201,963,778	19,482,423,274	3,841,686,293	494,534,362	0	4,336,220,655	15,146,202,619
D.	Grid Station								
1	132 KV Grid Station	23,800,200,460	2,439,087,262	25,939,287,712	4,107,587,695	668,240,295		4,795,827,990	21,143,459,722
2	66 KV Grid Station	3,626,904,788		3,526,904,766	1,976,688,552	105,807,143		2,082,495,695	1,444,409,071
3	33 KV Grid Station	0		0	0	0		0	0
	Total	27,027,105,216	2,439,087,262	29,466,192,478	6,084,276,246	794,047,438	0	6,878,323,685	22,587,868,794
E.	11 KV Distribution Equipments								
1	11 KV Poles	7,379,134,670	374,189,600	7,753,324,170	3,081,498,090	232,569,725		3,314,097,815	4,439,226,355
2	11KV Line	18,686,190,769	1,913,612,000	20,798,702,759	6,759,990,551	534,022,747		7,294,013,298	13,504,689,461
3	Distribution Transformer	22,948,447,731	643,065,400	23,591,514,131	8,096,629,743	817,807,086		8,714,436,829	14,877,077,302
	Total	49,212,773,060	2,930,766,000	52,143,541,060	17,938,118,384	1,384,429,558	0	19,322,547,942	32,820,993,118
F.	LV Distribution Equipments								
1	LV Poles	6,830,581,222	418,014,000	7,248,595,222	2,581,237,777	217,457,857		2,798,695,633	4,449,899,589
2	440 LV Distribution Line	0		0	0	0		0	0
3	220 LV Distribution Line	13,883,403,226	1,913,784,000	15,897,187,226	4,083,780,345	476,915,817		4,560,695,961	11,336,491,265
4	KWh Meters & Service Cable	12,686,816,177	2,116,660,000	14,802,265,177	5,409,080,597	1,479,176,475		6,884,657,073	7,917,608,104
5	Misc. Equipment	21,075,978,171	783,064,000	21,854,043,611	6,257,763,632	855,621,308		6,913,384,940	14,940,658,671
	Total	54,575,577,796	5,231,512,000	59,802,091,236	18,331,862,350	2,629,171,256	0	21,157,433,608	38,644,657,628
G.	Vehicles								
1	132/66/33 KV GSO Vehicles	324,772,720	17,000,000	341,772,720	166,019,267	34,177,272		200,196,539	141,576,181
2	Vehicles	2,266,812,037	17,000,000	2,283,812,037	1,375,460,987	228,381,204		1,603,842,171	679,969,866
	Total	2,591,584,757	34,000,000	2,625,584,757	1,541,480,234	262,558,476	0	1,804,038,710	821,546,047
H.	Detail of General Plant Assets								
1	Computer Equipment	231,600,872	6,000,000	236,500,672	192,859,209	23,650,067		216,509,276	19,991,396
2	Furniture/Work shop/Mis Equip	338,695,544	6,465,118	345,381,662	381,373,245	34,538,166		415,911,411	(70,529,749)
3	Workshop Equipment	0		0	0	0		0	0
4	Laboratory Equipment	240,360		240,350	134,193	24,035		158,230	82,120
5	Misc. Equipment	54,617,887		54,617,887	52,799,005	5,461,789		58,260,796	(3,642,909)
	Total	625,254,453	11,465,118	636,740,571	627,165,656	63,674,057	0	690,839,714	-54,099,142
J.	D&M Equipments								
	Grand Total	155,537,964,686	13,169,126,118	168,702,092,444	49,420,946,075	5,904,573,236	0	55,321,919,312	113,380,173,132

FORM - 14

Actual (B- Year) FY ending June 30, 2015

Aging of Accounts Receivables as on 30th June 2015

Outstanding for current year	Rs In Million	10,160
Outstanding for more than 1 year	Rs In Million	8,637
Outstanding for more than 2 years	Rs In Million	1,084
Outstanding for more than 3 years	Rs In Million	2,352
Outstanding for more than 4 years	Rs In Million	
Outstanding for more than 5 years	Rs In Million	
Agency Balance	Rs In Million	5818
Total Receivables as on June 30, 2015	Rs In Million	28,053



Projected Energy Sales by Tariffs

Category	Voltage Level	Energy Purchased 0	Energy Sales (B) Year 0	Distribution Losses	Sales Growth rate	Projection 1	Sales Growth rate	Projection 2
A1 Domestic								
Flat Rate Fala	LV		925.47		15.04	1,006		
Upto - 50	LV		899.78		1.74	2,541		
1 - 100	LV		2,856.53		1.02	1,959		
101 - 300	LV		928.34		1.03	469		
301 - 700	LV		307.84		0.35	113		
above 700	LV		1.01		10.00			
Temporary Domestic	LV		94.57		15.30	97		
A1 (TOD)	LV							
Summary			6,013.54		3.68	6,185.90		
A2 Commercial								
A2 - A	LV		360.67		0.93	371		
> 20 kW	LV		0.63		15.80			
A2(2) TOD	LV		294.41		1.88	302		
Temporary Commercial	LV		1.68		3.28			
Summary			657.39		1.39	672.84		
Industry								
B-1 400 V Upto 40 kW	LV		38.56		15.98	39		
B1 (TOD)	LV		270.83		15.35	278		
B-2 400 V Upto (41-500 kW)	LV		2.64		15.48	3		
B-2 400 V (TOD)	LV		885.19		1.15	910		
B-3 11/33 KV	HV		-		-			
B-3 11/33 KV (TOD)	HV		1,437.64		7.00	1,477		
B-4 66/132/220 KV	STG		-		-			
B-4 66/132/220 KV (TOD)	STG		435.69		4.25	447		
Summary			3,070.55		5.78	3,153		
Bulk Supply								
C-1(a) upto 20 kW	LV		2.14		10.22	0		
C-1(b) above 20 kW	LV		28.57		8.97	31		
C-2 11/33 KV	HV		3.48		2.02	3		
C2 (TOD)	STG		134.74		0.12	138		
C-3 (66/132/220 KV)	STG		-		-			
C3 (TOD)	STG		31.29		1.94	32		
Temporary (E2-iiia, E2iib, E2iic)	HV							
K(A) - AJK	HV							
K(B) - KESC (Billing)	STG							
K(C) Rawat Lab	HV							
Summary			200.22		0.74	204		
Tubewells								
D-1 Scarp	LV		3.99		(30.27)	4		
D-1 (TOD)	LV		1,648.11		1.40	1,789		
D-2 (i) Punjab & Sind	LV							
D-2 (ii) NWFP & Balochistan	LV							
AGRI T&W D-2 (1)STOD	LV		92.91		(15.58)			
D-2 (ii) STOD	LV							
D-2 (1) TOD								
D-2 (II) TOD								
Summary			1,745.01		1.21	1,793		
Others								
G-1 Public Lighting	LV		16.16		1.75	17		
G-2 Public Lighting	LV				1.93			
H-1 Residential Colonies	HV		8.20		1.77	8		
H-2 Residential Colonies	HV				0.42			
I-Traction	HV							
J-Co-Generation	HV							
Summary			24.36		1.51	25		
Total			11,711.07		3.66	12,035		

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MEPCO

Operating Cost

		Determined	Actual	Projected				
A Power Purchase Cost								
Energy Charge	[Mln Rs]	104,405	91,158	93,332	98503	105444	113563	121411
Capacity Charge	[Mln Rs]	33,683	36,358	37,114	38805	40896	43218	45691
Transmission Charge	[Mln Rs]	3,032	3,302	3,370	3524	3714	3925	4149
Adjustment *	[Mln Rs]	-	-	-				
Total Power Purchase Cost	[Mln Rs]	141,120	130,818	133,817	140,832	150,053	160,706	171,251

* Provide the detail of adjustment

B Operation & Maintenance *

Employees Cost **

Salaries, Wages & Benefits	[Mln Rs]	5,649	6,266	7,448	9,093	10,251	11,304	12,368
Retirement Benefits	[Mln Rs]	1,000	3,833	4,216	4,638	5,102	5,612	6,173
Wapda Pensioners-Payments		-	1,300	1,430	1,573	1,730	1,903	2,094
Total Employees Cost	[Mln Rs]	6,649	11,399	13,094	15,304	17,083	18,819	20,635
Admin Expenses	[Mln Rs]	-	-	-	-	-	-	-
Repair & Maintenance	[Mln Rs]	835	1,531	1,912	2,477	2,671	2,881	3,111
ERP-		-	-	26	-	-	-	-
Travelling	[Mln Rs]	600	618	795	835	877	921	967
Transportation	[Mln Rs]	307	319	366	421	483	556	639
Management Fee	[Mln Rs]	-	28	40	45	50	55	60
Misc./Other Expenses	[Mln Rs]	835	994	1,101	1,187	1,282	1,386	1,501
Total O&M	[Mln Rs]	9,226	14,890	17,334	20,268	22,446	24,617	26,912

C Depreciation & Amortization

Depreciation	[Mln Rs]	2464	3392	3835	4423	4941	5444	5905
Amortization of Leased Assets	[Mln Rs]							
Total	[Mln Rs]	2,464	3,392	3,835	4,423	4,941	5,444	5,905

OPEX relating to DIIP and Sustainability of USAID PDP projects already implemented/or in progress of implementation

		Period 2015	Period (B-Year) 2015	T-Year 2016	Period 2017	Period 2018	Period 2019	Period 2020
B-1 Operation & Maintenance *								
Employees Cost **				7.68	505	740	907	1,063
Salaries, Wages & Benefits	[Min Rs]							
Retirement Benefits	[Min Rs]							
Wapda Pensioners Payments				8	505	740	907	1,063
Total Employees Cost	[Min Rs]	-	-	-				
Admini Expenses	[Min Rs]							
Repair & Maintenance	[Min Rs]			63	200	204	204	204
1. DIIP - Commercial	[Min Rs]			75	232	232	232	232
2. DIIP - HR	[Min Rs]			29	42	43	46	48
3. DIIP - Communication	[Min Rs]			28	28	28	28	28
4. DIIP - Finance	[Min Rs]			33	122	125	129	133
5. DIIP - Safety	[Min Rs]				69	104	126	145
Travelling	[Min Rs]							
Transportation	[Min Rs]							
Management Fee	[Min Rs]							
Misc./Other Expenses	[Min Rs]							
Total O&M	[Min Rs]			236	1,198	1,476	1,673	1,854

OPEX relating to normal induction

		Period 2015	Period 2016	Period 2017	Period 2018	Period 2019	Period 2020
B-2 Operation & Maintenance *							
Employees Cost**							
Salaries, Wages & Benefits	[Min Rs]		986	1,066	1,153	1,248	1,351
Retirement Benefits	[Min Rs]						
Wapda Pensioners Payments							
Total Employees Cost	[Min Rs]	-	986	1,066	1,153	1,248	1,351
Admin Expenses	[Min Rs]	-					
Repair & Maintenance	[Min Rs]						
ERP							
Travelling	[Min Rs]		115	121	127	133	140
Transportation	[Min Rs]						
Management fee	[Min Rs]						
Misc / Other Expenses	[Min Rs]						
Total O & M	[Min Rs]		1,101	1,187	1,280	1,381	1,490



B-3 Operation & Maintenance *

Employees Cost **

Salaries, Wages & Benefits

Retirement Benefits

Wapda Pensioners Payments

Total Employees Cost

Admin Expenses

Repair & Maintenance

ERP

Travelling

Transportation

Management Fee

Misc./Other Expenses

Total O&M

	Period 2015	Period (T-Year) 2015	Period 2016	Period 2017	Period 2018	Period 2019	Period 2020	Period 2021
[Min Rs]	5,649	6,266	6,454	7,522	8,359	9,149	9,954	
[Min Rs]	1,000	3,833	4,216	4,638	5,102	5,612	6,173	
		1,300	1,430	1,573	1,730	1,903	2,094	
[Min Rs]	6,649	11,399	12,100	13,733	15,191	16,664	18,221	
[Min Rs]	-	-	-	-	-	-	-	
[Min Rs]	835	1,531	1,684	1,853	2,008	2,242	2,466	
[Min Rs]	-	-	26	-	-	-	-	
[Min Rs]	600	618	680	714	750	787	827	
[Min Rs]	307	319	366	421	483	556	639	
[Min Rs]	-	28	40	45	50	55	60	
[Min Rs]	835	994	1,101	1,187	1,282	1,386	1,501	
[Min Rs]	9,226	14,890	15,997	17,952	19,794	21,690	23,713	

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Distribution Margin Comparison:

	2011	2012	2013	2014	(B-Year) 2015	T-Year 2016	Proj 2017	Proj 2018	Proj 2019	Proj 2020
O&M Expenses	8,574	10,748	11,274	14,890	14,890	17,334	20,268	22,446	24,617	26,912
Increase in %	14.440	20.2%	4.9%	32.1%	0.0%					
Depreciation	2,039	2,241	2,504	3,328	3,392	3,835	4,423	4,941	5,444	5,905
RORB	3,176	3,868	4,222	4,947	4,947	6,225	8,106	9,815	11,063	12,176
Interest on Loans of PHPL										
Interest on short term Loan (working Capital)						722	939	1095	1179	1265
Income Tax										
Other Income	(3,387)	(3,595)	(3,595)	(2,803)	(2,507)	(2,630)	(2,859)	(3,027)	(3,185)	(3,339)
Distribution Margin	10,402	13,262	14,405	20,362	20,722	25,487	30,877	35,269	39,118	42,919
Energy Sold	10,189	10,218	9,913	11,437	11,711	12,036	12,774	13,699	14,754	15,909
DM per unit	1.02	1.30	1.45	1.78	1.77	2.12	2.42	2.57	2.65	2.70
DM per unit increase		0.28	0.16	0.33	-0.01	0.35	0.30	0.16	0.08	0.05

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MEPCO

Financial Charges



	Determined	Actual	Projected	Projected	Projected	Projected	Projected
A Long Term Loans	-	-	-	-	-	-	-
GOP loans	-	135	135	135	135	135	135
Foreign Loans	-	473	698	2167.35	2913	3328	3304
Bonds	-	-	-	-	-	-	-
TFCs	-	-	-	-	-	-	-
Others	-	-	225	300	375	355	325
Total	-	608	1,058	2,602	3,423	3,818	3,764
B Short Term Loan	-	-	-	-	-	-	-
Running Finance	-	-	722	939	1095	1179	1265
Short Term Loan	-	-	-	-	-	-	-
Others (PHPL)	-	-	-	-	-	-	-
Total	-	-	722	939	1,095	1,179	1,265
C Total Financial Charges (A+B)	-	608	1,780	3,541	4,517	4,997	5,029

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MEPCO

RORB Calculation



		Determined	Actual	Projected	Projected	Projected	Projected	Projected
		Two years						
A	Gross Fixed Assets in Operation - Opening Bal	[Mln Rs]	87,282	87,282	96,527	109,580	126,372	141,171
B	Addition in Fixed Assets	[Mln Rs]	8,346	9,245	13,053	16,792	14,799	14,362
C	Gross Fixed Assets in Operation - Closing Bal	[Mln Rs]	95,628	96,527	109,580	126,372	141,171	155,533
D	Less: Accumulated Depreciation	[Mln Rs]	29,997	30,774	34,610	39,033	43,974	49,417
E	Net Fixed Assets in Operation	[Mln Rs]	65,631	65,752	74,971	87,340	97,198	106,116
F	Add: Capital Work In Progress - Net of D.Work	[Mln Rs]	8,755	4,574	6,593	9,391	8,259	8,211
G	Investment in Fixed Assets	[Mln Rs]	74,386	70,326	81,564	96,731	105,457	114,327
H	Less: Deferred Credits	[Mln Rs]	54,751	39,729	42,332	45,034	47,063	48,626
I	Regulatory Assets Base	[Mln Rs]	19,635	30,597	39,232	51,697	58,394	65,701
J	Average Regulatory Assets Base	[Mln Rs]	18,388	28,581	34,915	45,464	55,045	62,047
	Rate of Return	[%age]	17.31	17.31	17.83	17.83	17.83	17.83
	Return on Rate Base	[Mln Rs]	3,183	4,947	6,225	8,106	9,815	11,063
								12,176

FORM - 20

MEPCO

Revenue Requirement

		Determined	Base Year	Test Year	Projected	Projected	Projected	Projected	
A	Power Purchase Price	(Min Rs)	141,120	130,818	133,817	140832	150053	160706	171251
B	DM								
	O&M	(Min Rs)	9,226	14,890	17,334	20,268	22,446	24,617	26,912
	Depreciation	(Min Rs)	3,106	3,328	3,835	4,423	4,941	5,444	5,905
	RORB	(Min Rs)	3,183	4,947	6,225	8,106	9,815	11,063	12,176
	Other Income	(Min Rs)	(2,512)	(2,803)	(2,630)	(2,859)	(3,027)	(3,185)	(3,339)
	Interest on Loan (PHPL) circular Debt								
	Working Capital			722	939	1,095	1,179	1,265	
	Impact of Disallowed Losses	(Min Rs)							
	Total DM	(Min Rs)	13,003	20,362	25,487	30,877	35,269	39,118	42,919
	Sales Mix				3,104				
	Prior Period Adjustment	(Min Rs)	(20,109)		6,142				
C	Revenue Requirement (A+B)	(Min Rs)	134,014	151,180	168,549	171,709	185,323	199,823	214,170
D	Less/ (Excess) Recovery	(Min Rs)	-	-	-	-	-	-	-
E	Total Revenue Requirement (C+D)	(Min Rs)	134,014	151,180	168,549	171,709	185,323	199,823	214,170

FORM - 20 (A)

Revenue Requirement (per unit sold)

		Determined	Base Year	Test Year	Projected	Projected	Projected	Projected	
A	Power Purchase Price	(Rs/ kWh)	11.96	11.17	11.12	11.03	10.95	10.89	10.76
B	DM								
	O&M	(Rs/ kWh)	0.78	1.27	1.44	1.59	1.64	1.67	1.69
	Depreciation	(Rs/ kWh)	0.26	0.28	0.32	0.35	0.36	0.37	0.37
	RORB	(Rs/ kWh)	0.27	0.42	0.52	0.63	0.72	0.75	0.77
	Other Income	(Rs/ kWh)	(0.21)	(0.24)	(0.22)	(0.22)	(0.22)	(0.22)	(0.21)
	Interest on Loan (PHPL) circular Debt				-				
	Working Capital			0.06	0.07	0.08	0.08	0.08	0.08
	Impact of Disallowed Losses	(Rs/ kWh)		-	-				
	Total DM	(Rs/ kWh)	1.10	1.74	2.12	2.42	2.57	2.65	2.70
	Sales Mix			0.26					
	Prior period Adejsutment		(1.70)	-	0.51	-	-	-	-
C	Revenue Requirement (A+B)	(Rs/ kWh)	11.35	12.91	14.00	13.44	13.53	13.54	13.46
D	Less/ (Excess) Recovery	(Rs/ kWh)	-	-	-	-	-	-	-
E	Total Revenue Requirement (C+D)	(Rs/ kWh)	11.35	12.91	14.00	13.44	13.53	13.54	13.46

FORM - 21 (A)
MEPCO
Investment



		Actual (Audited)	Determined	Actual/ Revised	Projected	Projected	Projected	Projected	Projected
A Investment Plan									
DOP	[Mln Rs]	455		456	476	1444	1447	1531	1466
ELR	[Mln Rs]	980		551	588	2167	2170	2297	2324
STG (energy efficiency, capacitors)	[Mln Rs]	2835		2934	7106	5513	4044	5933	4076
Village Electrification/Deposit Work	[Mln Rs]	2619		937	1689	2514	1234	1101	1100
Others (Capital receipts)	[Mln Rs]	1778		2300	2669	2669	2669	2669	2669
Vehicles (Utility & Others)	[Mln Rs]				380	740	504	34	34
Line T&P	[Mln Rs]								
Other Functional Investment	[Mln Rs]			306	30	60	410	60	160
1. DIIP - Commercial					1027	2542	119	81	81
2. DIIP - HR					95	371	14	28	14
3. DIIP - Communication					4	15	0	0	0
4. DIIP - Finance					0	45	0	0	0
5. DIIP - Safety					717	1770	557	270	270
Total	[Mln Rs]	8667	8697	7484	14781	19851	13168	14004	12193
B Financing Arrangement									
Local Loan	[Mln Rs]					1500	500	500	500
Foreign Relent Loan	[Mln Rs]			1670	6686	8668	4281	4968	2868
PSDP / Own Resources	[Mln Rs]			2270	3737	4500	4484	4766	5056
Grant (USAID)	[Mln Rs]			306	689				
Consumer Contribution	[Mln Rs]			2300	2669	2669	2669	2669	2669
Others (Please Mention) Deposit work	[Mln Rs]			937	1000	2514	1234	1101	1100
Total	[Mln Rs]			7483	14781	19851	13168	14004	12193

Sr. No.	Work Order	IT Proj		Head	Mode	Circle	No. of V			Actual Cost (M Rs)	Anticipated saving (MKWH)	Completion of work	Annual Saving Per Month				Multiplying factor	Accumulative savings	Accumulative savings
		11KV Feeder / Proposal	Grid Station				New Line (KM)	Recond (KM)	Total				MKWH	Rs. /KWH	MRs	%Age			
1	33-50025	Jhangi Wala	132 KV Baghdad-Ul-Jadid	ELR (WB)	Bifurcation	Bahawal Pur	0.433	1.826	2.259	13.392	1.769	07/2014	0.147	8.35	1.231	9.192	11	1.622	
2	34-50016	Scarp-10	132 KV R.Y.Khan-I	ELR	Bifurcation	R.Y.Khan	0	0.450	0.450	3.298	0.282	7/2014	0.024	8.35	0.196	5.950	11	0.259	
3	33-50050	Dehar	132 KV WAPDA Town	DOP	Rep.of Cond.	Multan	0.503	0.450	0.953	0.577	0	7/2014	0.000	8.35	0.000	0.000	11	0.000	
4	34-50043	Manthar	132 KV Sadiq Sabad	DOP	Recond:	R.Y.Khan	0.000	15.016	15.016	10.652	0	07/2014	0.000	8.35	0.000	0.000	11	0.000	
5	34-50034	Kandh Sharif	132 KV Dammar Wala	ELR	Recond:	M/Garh	0.000	16.900	16.900	7.471	0.180	08/2014	0.015	8.35	0.125	1.676	10	0.150	
6	34-50050	Jhuggi Wala & Baidani	132 KV Jatoli & 132 KV K.P.Saadat	DOP	Shifting of load	M/Garh	2.073	0.000	2.073	0.937	0	08/2014	0.000	8.35	0.000	0.000	10	0.000	
7	34-50055	D.H.Q	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	2.800	0.000	2.800	6.844	0	08/2014	0.000	8.35	0.000	0.000	10	0.000	
8	34-50057	Sadar Bazar	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	3.400	0.000	3.400	8.620	0	08/2014	0.000	8.35	0.000	0.000	10	0.000	
9	34-50058	Model Town	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	0.030	3.120	3.150	3.287	0	08/2014	0.000	8.35	0.000	0.000	10	0.000	
10	34-50059	Gaddai	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	1.036	0.000	1.036	2.610	0	08/2014	0.000	8.35	0.000	0.000	10	0.000	
11	33-50006	Old Chichawatni	132 KV Chichawatni	ELR (WB)	Recond:	Sahiwal	0.000	5.601	5.601	9.331	0.644	08/2014	0.054	8.35	0.448	4.802	10	0.537	
12	32-50011	Tibbi Qaisrani	132 KV Noor Ahmas Wali	ELR (WB)	Bifurcation	D.G.Kha	3.455	16.087	19.542	18.574	1.791	08/2014	0.149	8.35	1.246	6.710	10	1.493	
13	32-50055	Galay Wala	132 KV Lodhran	ELR (WB)	Bifurcation	Bahawal Pur	2.484	5.705	8.189	15.144	2.695	08/2014	0.225	8.35	1.875	12.383	10	2.246	
14	31-50085	Khan Kamal & Koray Shah	132 KV Qadir Abad & T.B.Ziad	ELR (WB)	Bifurcation	Sahiwal	15.423	12.126	27.549	37.630	4.069	09/2014	0.339	8.35	2.831	7.524	9	3.052	
15	34-50021	Jand Wala	66 KV Noor Sar	ELR	Bifurcation	Bahawal Nagar	8.322	4.314	12.636	10.417	1.038	09/2014	0.087	8.35	0.722	6.934	9	0.779	
16	30-50021	Muhammad Pur	132 KV Basti Malook	ELR (WB)	Recond:	Multan	0.000	19.497	19.497	16.266	1.376	09/2014	0.115	8.35	0.957	5.856	9	1.032	

Sr.N o.	Work Order	HT Proposal		Head	Mode	Circle	Scope of Work			Actual Cost (M Rs)	Annual Antisipated saving (MKWH)	Date of Completed on of work	Annual Saving Per Month				Multiplying factor Accumulativ e savings	Accumulati ve savings
		11KV Feeder / Proposal	Grid Station				New Line (KM)	Recond (KM)	Total				MKWH	Rs. /KWH	MRs	%Age		
17	28-50029	City Makhdoom Rasheed	132 KV Makhdoom Rasheed	ELR	Recond.	Multan	0.000	0.998	0.998	0.592	0.068	09/2014	0.006	8.35	0.047	7.993	9	0.051
18	33-50042	Baha-ud-din	132 KV Jail Road	DOP	Shifting of load	Multan	1.860	0.000	1.860	5.727	0.000	09/2014	0.000	8.35	0.000	0.000	9	0.000
19	33-50048	Scheme No.3	132 KV Sahiwal-III	DOP	Shifting of load	Sahiwal	0.250	2.524	2.774	4.474	0.000	09/2014	0.000	8.35	0.000	0.000	9	0.000
20	34-50024	Colony	132 KV Khanewal	ELR	Bifurcation	Multan	5.300	0.550	5.850	9.549	0.550	10/2014	0.046	8.35	0.383	4.008	8	0.367
21	33-50042	Khair Pur Bhutta	132 KV Indl Estate	DOP	Modif. / Recond	Multan	0.396	7.887	8.283	4.309	0.000	10/2014	0.000	8.35	0.000	0.000	8	0.000
22	33-50034	Old Shujatad	132 KV Jail Road	DOP	Shifting of load	Multan	2.085	2.619	4.704	9.714	0.000	11/2014	0.000	8.35	0.000	0.000	7	0.000
23	33-50045	Civil Line	132 KV Sahiwal-III	DOP	Shifting of load	Sahiwal	3.500	0.600	4.100	7.149	0.000	11/2014	0.000	8.35	0.000	0.000	7	0.000
24	34-50056	Civil Line	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	4.232	0.000	4.232	8.741	0.000	11/2014	0.000	8.35	0.000	0.000	7	0.000
25	34-50044	Shifting of line	66 KV Fateh Pur	DOP	Shifting of load	M/Garh	0.491	0.000	0.491	1.724	0.000	11/2014	0.000	8.35	0.000	0.000	7	0.000
26	34-50035	City Tounsa	132 KV Tounsa	DOP	Bifurcation	D.G.Khan	2.830	2.130	4.960	8.232	0.122	11/2014	0.010	8.35	0.085	1.031	7	0.071
27	34-50036	Power House M/Garh	132 KV Muzaffar Garh	ELR	Bifurcation	M/Garh	2.043	2.158	4.201	7.658	0.243	11/2014	0.020	8.35	0.169	2.208	7	0.142
28	35-50033	Shakoor Abad	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	0.458	0.000	0.458	0.871	0.000	12/2014	0.000	8.35	0.000	0.000	6	0.000
29	35-50008	Sarai Siddhu	132 KV Bati Bangla	DOP	Shifting of load	Sahiwal	10.120	6.771	16.891	14.955	0.000	12/2014	0.000	8.35	0.000	0.000	6	0.000
30	34-50052	Tariq Bin Ziad	132 KV T.B.Z	DOP	Bifurcation	Sahiwal	0.122	0.649	0.771	3.613	0.000	12/2014	0.000	8.35	0.000	0.000	6	0.000
31	34-50052	Mahmood Kot & Gormani	132 KV Gujrat	ELR (WB)	Bifurcation	M/Garh	7.303	11.700	19.003	17.917	0.379	12/2014	0.032	8.35	0.264	1.472	6	0.190
32	32-50065	Nouqabil Wah	132 KV Kahrar Pacca	ELR	Bifurcation	B/Pur	10.723	8.953	19.676	24.534	1.927	12/2014	0.161	8.35	1.341	5.465	6	0.964

Sr. No.	Work Order	11KV Feeder / Proposal	Grid Station	Head	Mode	Circle	New Line (KM)	Recond (KM)	Total	Actual Cost (M Rs)	Anticipated saving (MKWH)	Completion of work	MKWH	Rs. /KWH	MRs	%Age	Accumulative savings	ve savings
33	34-50011	Al-Haider, Hospital & M.Pannah	132 KV Hasil Pur	ELR	Bifurcation	B/Pur	18.879	11.649	30.528	20.130	1.987	12/2014	0.166	8.35	1.383	6.666	6	0.994
34	28-50016	Ghazi Pur	132 KV Jalal Pur	ELR	Recond:	Multan	0.000	6.123	6.123	4.789	0.448	01/2015	0.037	8.35	0.312	6.509	5	0.187
35	34-50054	College Road-I	132 KV D.G.Kha-II	DOP	Shifting of load	D.G.Khan	4.050	0.000	4.050	6.535	0.000	01/2015	0.000	8.35	0.000	0.000	5	0.000
36	33-50031	Tarkoo	132 KV Choubara	ELR (WB)	Recond:	M/Garh	0.000	14.664	14.664	12.931	1.013	01/2015	0.084	8.35	0.705	5.451	5	0.422
37	33-50024	Sardar Jhandir	132 KV Mailsi	ELR (WB)	Bifurcation	Vehari	15.335	0	15.335	21.795	0.871	01/2015	0.073	8.35	0.606	2.781	5	0.363
38	32-50016	Railway & Shikar Pur	132 KV Rajan Pur	ELR (WB)	Bifurcation	D.G.Khan	4.320	5.118	9.438	9.812	0.628	02/2015	0.052	8.35	0.437	4.454	4	0.209
39	33-50029	Ghazi Abbas	132 KV Chak 211/WB	ELR (WB)	Bifurcation	Vehari	10.999	3.544	14.543	19.854	1.428	02/2015	0.119	8.35	1.994	5.005	4	0.476
40	34-50022	Choona Wala	66 KV Dahran Wala	ELR	Modif. / Recond	B/Nagar	6.992	12.129	19.121	21.889	1.412	02/2015	0.118	8.35	0.983	4.489	4	0.471
41	34-50054	Model Town-A	132 KV Cantt BWP	DOP	Shifting of load	B/Pur	6.595	0.000	6.595	32.735	0.000	02/2015	0.000	8.35	0.000	0.000	4	0.000
42	31-50082	Kohi Wala	132 KV Kabir Wala	ELR	Bifurcation	Multan	7.060	12.59	19.650	25.006	1.637	03/2015	0.136	8.35	1.139	4.555	3	0.409
43	35-50022	City Shujabad	132 KV Shujabad	ELR	Bifurcation	Multan	4.900	3.485	8.385	15.780	0.504	03/2015	0.042	8.35	0.351	2.222	3	0.126
44	35-50023	Model Town	132 KV Sadiq Abad	ELR	Bifurcation	Multan	1.611	0.747	2.358	11.115	0.717	03/2015	0.060	8.35	0.499	4.489	3	0.179
45	35-50039	City Ali Pur	66 KV Ali Pur	ELR	Bifurcation	M/Garh	1.195	3.607	4.802	5.780	0.519	03/2015	0.043	8.35	0.361	6.248	3	0.130
46	32-50009	Noor Ahmad Wali	132 KV Noor Ahmas Wali	ELR	Bifurcation	Multan	21.037	0.793	21.830	28.528	3.592	03/2015	0.299	8.35	2.499	8.761	3	0.898
47	33-50033	Vehari Road	132 KV Hasil Pur	DOP	Bifurcation	B/Pur	3.440	1.927	5.367	6.955	0.197	03/2015	0.016	8.35	0.137	1.971	3	0.049
48	35-50047	Muhammad Pannah	132 KV Kameer	DOP	Shifting of load	Sahiwal	2.753	0.990	3.743	4.537	0.000	03/2015	0.000	8.35	0.000	0.000	3	0.000

Sr. No.	Work Order	11KV Feeder / Proposal	Grid Station	Head	Mode	Circle	New Line (KM)	Recond (KM)	Total	(M Rs)	saving (MKWH)	on of work	MKWH	Rs. /KWH	MRs	%Age	e savings	
49	33-50044	Noor Mahal-II	132 KV Bahawal Pur Cantt	DOP	Shifting of load	B/Pur	10.516	0.000	10.516	16.712	0.000	03/2015	0.000	8.35	0.000	0.000	3	0.000
50	34-50049	Feeder No.7	132 KV Bhong	DOP	Shifting of load	R.Y.Khan	10.227	0.000	10.227	18.842	0.000	03/2015	0.000	8.35	0.000	0.000	3	0.000
51	35-50011	Bosan	132 KV Man kot	DOP	Shifting of load	Multan	4.358	8.298	12.656	15.543	0.000	04/2015	0.000	8.35	0.000	0.000	2	0.000
52	35-50010	City Jalal Pur	132 KV Jalal Pur	DOP	Bifurcation	Multan	3.752	7.487	11.239	11.503	0.610	04/2015	0.051	8.35	0.424	3.690	2	0.102
53	34-50017	City-I Layyah	132 KV Layyah	ELR	Bifurcation	M/Garh	2.901	0	2.901	7.232	1.237	04/2015	0.103	8.35	0.861	11.902	2	0.206
54	35-50038	City Fort Abbas	66 KV Fort Abbas	ELR	Bifurcation	B/Nagar	6.156	3.849	10.005	4.866	0.455	04/2015	0.038	8.35	0.317	6.506	2	0.076
55	32-50054	Maiz Farm	220 KV Yousaf Wala	ELR (WB)	Recond:	Sahiwal	1.848	2.549	4.397	7.519	0.324	04/2015	0.027	8.35	0.225	2.998	2	0.054
56	32-50004	Lahore Road	220 KV Yousaf Wala	ELR (WB)	Recond:	Sahiwal	0.000	3.314	3.314	6.111	0.272	05/2015	0.023	8.35	0.189	3.097	1	0.023
57	35-50009	Bahishti	132 KV R.Y.Khan-II	ELR	Bifurcation	R.Y.Khan	2.883	4.298	7.181	16.573	1.401	05/2015	0.117	8.35	0.975	5.882	1	0.117
58	35-50014	Sakdera	132 KV Sahuka	ELR	Bifurcation	Vehari	7.657	4.200	11.857	15.384	1.130	05/2015	0.094	8.35	0.786	5.111	1	0.094
59	35-50024	Tal Pur	66 KV Chooti	ELR	Bifurcation	D.G.Khan	2.348	0.000	2.348	6.312	0.514	05/2015	0.043	8.35	0.358	5.666	1	0.043
60	3550085	Relocation of Terminal Poles	66 KV Faqir Wali	DOP	Relocation of Terminal Poles	B/Nagar	0.244	0.000	0.244	0.844	0.000	06/2015	0.000	8.35	0.000	0.000	0	0.000
G.Total							253.728	259.992	513.720	672.421	38.029		3.169		26.462			18.578

1

Sr. No.	Loans	Interest Rate %	FY				Total
			1st Qrt	2nd Qrt	3rd Qrt	4rth Qrt	
1	World Bank	17			398.272	398.272	796.544
2	ADB	17	150	150.000	150.000	150	600.00
3	CDL	17	33.75	33.750	33.750	33.75	135.00
	New Loans				500.000	558	1,058.00
		17	183.750	183.750	1,082.022	1,140.022	2,589.54



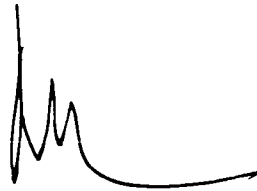
MEPCO
Development Loan

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This form should be submitted for each loan appearing on the DISCO's Balance Sheet

Domestic Consumers

Domestic Consumers															
Slabs	No. of Customers														
		0-50	1 - 100	101 - 200	201-300	301-400	401-500	501-600	601-700	701-800	801-900	901-1000	1001-1100	Above 1100	Total
0 - 50		1834336													
1 - 100			766508												
101 - 200				900711											
201 -300					364567										
301 - 400						121258									
401-500							51847								
501-600								26476							
601-700									15801						
701-800										9549					
801-900											6801				
901-1000												4197			
1001-1100													3025		
Above 1100														11156	
Total															4116232



F.Y. 2015-16												
	(MkWh)	(%age)		(kW)	(%age)		(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)	(Rs/kWh)
Residential								4.00		4.94		0.94
Up to 50 Units	1,006	8.36%										
For peak load requirement up to 5 kW								9.52		11.76		2.24
01-100 Units	2,541	21.11%						12.00		14.83		2.83
101-200 Units	1,033	8.58%						12.00		14.83		2.83
201-300 Units	926	7.70%						15.00		18.53		3.53
301-700 Units	469	3.90%						16.00		19.77		3.77
Above 700 Units	113	0.94%										
For peak load requirement exceeding 5 kW								16.00		19.77		3.77
Time of Use (TOU) - Peak	19	0.16%						10.50		12.97		2.47
Time of Use (TOU) - Off-Peak	78	0.65%						16.00		19.77		3.77
Temporary	1	0.01%										
Total Residential	6,186	51.40%										
Commercial - A2												
Commercial -								16.00		19.77		3.77
For peak load requirement up to 5 kW	371	3.080%					400	16.00	500	19.77	100.00	3.77
Commercial (<100)												
Commercial (<20 kW)							400	16.00	500	19.77	100.00	3.77
For peak load requirement exceeding 5 kW							400	14.00	500	17.30	100.00	3.30
Regular	1	0.005%					400	16.00	500	19.77	100.00	3.77
Time of Use (TOU) - Peak (A-2)	67	0.560%					400	10.50	500	12.97	100.00	2.47
Time of Use (TOU) - Off-Peak (Temp)	235	1.950%										
Temporary	0	0.001%						16.00		19.77		3.77
Total Commercial	673	5.6%										
Industrial												
B1	39	0.325%						13.50		16.68		3.18
B1 (b) (Peak)	60	0.495%						16.00		19.77		3.77
B1 (b) (Off-Peak)	219	1.818%						10.50		12.97		2.47
B2	3	0.022%					400	13.00	500	16.06		3.06
B2 - TOU (Peak)	193	1.607%					400	16.00	500	19.77		3.77
B2 - TOU (Off-peak)	716	5.950%					400	10.30	500	12.73		2.43
B3 - TOU (Peak)	267	2.220%					380	16.00	450	19.77		3.77
B3 - TOU (Off-peak)	1,210	10.050%					380	10.20	450	12.60		2.40
B4 - TOU (Peak)	87	0.720%					360	16.00	430	19.77		3.77
B4 - TOU (Off-peak)	360	2.990%					360	10.10	430	12.48		2.38
Temporary	0	0.003%						13.50		16.68		3.18
Total Industrial	3,153	26.2%										
Bulk												
C1(a) Supply at 400 Volts - up to 5 kW	0	0.001%						14.00		17.30		3.30
C1(b) Supply at 400 Volts - exceeding 5 kW	2	0.016%					400	13.50	500	16.68		3.18
Time of Use (TOU) - Peak	8	0.064%					400	16.00	500	19.77		3.77
Time of Use (TOU) - Off-Peak	22	0.180%					400	10.50	500	12.97		2.47
C2 Supply at 11 kV	3	0.029%					380	13.30	450	16.43		3.13
Time of Use (TOU) - Peak	36	0.303%					380	16.00	450	19.77		3.77
Time of Use (TOU) - Off-Peak	101	0.840%					380	10.30	450	12.73		2.43
C3 Supply above 11 kV							360	13.20	430	16.31		3.11
Time of Use (TOU) - Peak	5	0.043%					360	16.00	430	19.77		3.77
Time of Use (TOU) - Off-Peak	27	0.223%					360	10.20	430	12.60		2.40
Total Single Point Supply	204	1.70%										
Agricultural Tube-wells - Tariff D												
D1 Scarp	4	0.034%						13.50		16.68		3.18
D2 Agricultural Tube-wells	1	0.007%					200	13.00	300	16.06	100	3.06
Agricultural Tube-wells D-2 (ii) Peak	14	0.118%					200	16.00	300	19.77	100	3.77
Time of Use (TOU) - Off-Peak D-2(i)	79	0.657%					200	10.20	300	12.60	100	2.40
Time of Use (TOU) - Peak D-2	341	2.830%					200	16.00	300	19.77	100	3.77
Time of Use (TOU) - Off-Peak D2	1,354	11.253%					200	10.20	300	12.60	100	2.40
Total Agricultural	1,793	14.9%										
Public Lighting G	17	0.138%						14.00		17.30		3.30
Residential Colonies H	8	0.070%						14.00		17.30		3.30
Special Contracts - Tariff K (AJK)												
Time of Use (TOU) - Peak												
Time of Use (TOU) - Off-Peak												
Railway Traction Traction - 1								14.00		17.30		3.30
Co-Generation-J												
Grand Total	12,035	100.00%										

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Existing & Proposed Tariff Statement

F.Y. 2015-16

	(MkWh)	(%age)	(kW)	(%age)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)
Residential						4,025		4,973		540
Up to 50 Units	1,006.25	8.36%								
For peak load requirement up to 5 kW						24,189		29,885		5,696
01-100 Units	2,540.90	21.11%				12,393		15,311		2,918
101-200 Units	1,032.73	8.58%				11,116		13,733		2,617
201-300 Units	926.33	7.70%				7,041		8,699		1,658
301-700 Units	469.42	3.90%				1,810		2,237		426
Above 700 Units	113.14	0.94%				-		-		-
For peak load requirement exceeding 5 kW		0.00%				299		369		70
Time of Use (TOU) - Peak	18.66	0.16%				824		1,018		194
Time of Use (TOU) - Off-Peak	78.48	0.65%				15		19		4
Temporary	0.96	0.01%				-		-		-
Total Residential	6,186.87	51.40%				61,713		76,244		14,532
Commercial - A2										
Commercial -						5,932		7,328		1,397
For peak load requirement up to 5 kW	370.72	3.08%				-		-		-
Commercial (<100)	-	0.00%		9.70%		-		-		-
Commercial (<20 KW)	-	0.00%		9.70%		-		-		-
For peak load requirement exceeding 5 kW						3	8	4.25	10	2
Regular	0.60	0.01%		9.70%		381	1,078	475.95	1,332	254
Time of Use (TOU) - Peak (A-2)	67.40	0.56%		9.70%		1,326	2,464	1,657.33	3,045	580
Time of Use (TOU) - Off-Peak (Temp)	234.71	1.95%		9.70%		-	-	-	-	-
Temporary	0.12	0.00%				2		2		0
Total Commercial	673.56	5.60%				1,710	9,485	2,138	11,718	428
Industrial										
B1	39.12	0.33%		0.00%		528		652		124
B1 - TOU (Peak)	59.58	0.50%				953		1,178		224
B1 - TOU (Off-peak)	218.82	1.82%				2,298		2,839		541
B2	2.65	0.02%		33.00%		4	34	5.50	43	8
B2 - TOU (Peak)	193.43	1.61%		33.00%		321	3,095	401.47	3,824	80
B2 - TOU (Off-peak)	716.17	5.95%		33.00%		1,189	7,377	1,486.45	9,114	297
B3 - TOU (Peak)	267.21	2.22%		64.00%		217	4,275	257.37	5,282	40
B3 - TOU (Off-peak)	1,209.67	10.05%		64.00%		984	12,339	1,165.13	15,244	181
B4 - TOU (Peak)	86.66	0.72%		65.00%		66	1,387	78.54	1,713	13
B4 - TOU (Off-peak)	359.89	2.98%		65.00%		273	3,635	326.14	4,491	53
Temporary	0.36	0.00%				5		6		1
Total Industrial	3,154	26.20%				3,055	35,925	3,721	44,384	666
Bulk										
C1(a) Supply at 400 Volts - up to 5 kW	0.12	0.00%		0.00%		2		2		0
C1(b) Supply at 400 Volts - exceeding 5 kW	1.93	0.02%		55.00%		2	26	2.40	4	0
Time of Use (TOU) - Peak	7.70	0.06%		55.00%		8	123	9.59	152	2
Time of Use (TOU) - Off-Peak	21.67	0.18%		55.00%		22	227	26.98	281	5
C2 Supply at 11 kV	3.49	0.03%		55.00%		3	46	3.91	57	1
Time of Use (TOU) - Peak	36.47	0.30%		55.00%		35	584	40.88	721	6
Time of Use (TOU) - Off-Peak	101.11	0.84%		55.00%		96	1,041	113.32	1,287	18
C3 Supply above 11 kV	-	0.00%		55.00%		-	-	-	-	-
Time of Use (TOU) - Peak	5.18	0.04%		55.00%		5	83	5.54	102	1
Time of Use (TOU) - Off-Peak	26.84	0.22%		55.00%		24	274	28.75	338	5
Total Single Point Supply	204	1.70%				193	2,406	231	2,945	38
Agricultural Tube-wells - Tariff D										
D1 Scarp	4.09	0.03%		47.00%		-	55	-	68	13
D2 Agricultural Tube-wells	0.84	0.01%		47.00%		0	11	0.74	14	0
Agricultural Tube-wells D-2 (ii) Peak	14.20	0.12%		47.00%		8	227	12.42	281	4
Time of Use (TOU) - Off-Peak D-2(i)	79.08	0.66%		47.00%		46	607.4	69.15	997	23
Time of Use (TOU) - Peak D-2	340.63	2.83%		47.00%		199	5,450	297.84	6,733	99
Time of Use (TOU) - Off-Peak D2	1,354.45	11.25%		47.00%		790	13,816	1,184.32	17,078	395
Total Agricultural	1,793	14.90%				1,043	20,366	1,564	26,170	521
Public Lighting G	16.61	0.14%					233		287	55
Residential Colonias H	8.43	0.07%					118		146	28
Special Contracts - Tariff K (AJK)	-	0.00%								
Time of Use (TOU) - Peak	-	0.00%								
Time of Use (TOU) - Off-Peak	-	0.00%								
Railway Traction Traction - I	-	0.00%								
Co-Generation-J	-	0.00%								
Grand Total	12,037	100.00%				6,001	130,245	7,654	160,895	1,653

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Proposed Revenue & Subsidy Statement

F.Y. 2015-16

	(MkVn)	(%age)	(%age)	(Rs/kW/M)	(Rs/kWh)		(Rs/kW/M)	(Rs/kWh)		(Rs/kW/M)	(Rs/kWh)
Residential											
Up to 50 Units		0%			4.9			2.00			2.94
For peak load requirement up to 5 kW											
01-100 Units		0%			11.76			5.79			5.97
101-200 Units					14.83						
201-300 Units		0%			14.83			10.20			4.63
301-700 Units		0%			18.53			15.00			3.53
Above 700 Units		0%			19.77			16.00			3.77
For peak load requirement exceeding 5 kW											
Time of Use (TOU) - Peak		0%			19.77			16.00			3.77
Time of Use (TOU) - Off-Peak		0%			12.97			10.50			2.47
Temporary					19.77						
Total Residential	-	0%		-	-	-	-	-	-	-	-
Commercial - A2											
Commercial -					19.77			16.00			3.77
For peak load requirement up to 5 kW		0%									
Commercial (<100)		0%		500	19.77		100	14.00		400	5.77
Commercial (<20 KW)											
For peak load requirement exceeding 5 kW				500	19.77		100	-		400	20
Regular		0%		500	17.30		100	14.00		400	3.30
Time of Use (TOU) - Peak (A-2)		0%		500	19.77		100	16.00		400	3.77
Time of Use (TOU) - Off-Peak (Temp)		0%		500	12.97		100	10.50		400	2.47
Temporary					19.77			-			19.77
Total Commercial	-	0%		-	-	-	-	-	-	-	-
Industrial											
B1		0%		-	16.68		-	13.50			3.18
B1 (b) (Peak)				-	19.77		-	16.00			3.77
B1 (b) (Off-Peak)				500	12.97		100	10.50		400	2.47
B2		0%		500	16.05		100	13.00		400	3.06
B2 - TOU (Peak)		0%		500	19.77		100	16.00		400	3.77
B2 - TOU (Off-peak)		0%		500	12.73		100	10.30		400	2.43
B3 - TOU (Peak)		0%		450	19.77		70	16.00		380	3.77
B3 - TOU (Off-peak)		0%		450	12.60		70	10.20		380	2.40
B4 - TOU (Peak)		0%		430	19.77		70	16.00		360	3.77
B4 - TOU (Off-peak)		0%		430	12.48		70	10.10		360	2.38
Temporary					16.68			-			16.68
Total Industrial	-	0%		-	-	-	-	-	-	-	-
Bulk											
C1(a) Supply at 400 Volts - up to 5 kW		0%		-	17.30		-	14.00			3.30
C1(b) Supply at 400 Volts - exceeding 5 kW		0%		500	16.68		100	13.50		400	3.18
Time of Use (TOU) - Peak		0%		500	19.77		100	16.00		400	3.77
Time of Use (TOU) - Off-Peak		0%		500	12.97		100	10.50		400	2.47
C2 Supply at 11 kV		0%		450	16.43		70	13.30		380	3.13
Time of Use (TOU) - Peak		0%		450	19.77		70	16.00		380	3.77
Time of Use (TOU) - Off-Peak		0%		450	12.73		70	10.30		380	2.43
C3 Supply above 11 kV		0%		430	16.31		70	13.20		360	3.11
Time of Use (TOU) - Peak		0%		430	19.77		70	16.00		360	3.77
Time of Use (TOU) - Off-Peak		0%		430	12.60		70	10.20		360	2.40
Total Single Point Supply	-	0%		-	-	-	-	-	-	-	-
Agricultural Tube-wells - Tariff D											
D1 Scarp		0%		-	16.68		-	12.00			4.68
D2 Agricultural Tube-wells		0%		300	16.06		180	13.00		120	3.06
Time of Use (TOU) - Peak D-2		0%		300	19.77		100	10.35		200	9.42
Time of Use (TOU) - Off-Peak D2		0%		300	12.60		100	8.85		200	3.75
Total Agricultural	-	0%		-	-	-	-	-	-	520	-
Public Lighting G		0%			17.30			12.00		-	5.30
Residential Colonies H		0%			17.30			12.00		-	5.30
Special Contracts - Tariff K (A/J/K)											
Time of Use (TOU) - Peak		0%									
Time of Use (TOU) - Off-Peak		0%									
Railway Traction Traction - 1		0%			17.30			13.00		-	4.30
Co-Generation-J		0%									
Grand Total	-	0%		-	-	-	-	-	-	520	-

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Proposed Revenue & Subsidy Statement

F.Y. 2015-16

	(MkVh)	(%age)	(%age)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)
Residential												
Up to 50 Units	1,006		0.00%		4,973	4,973		2,960	2,960		2,012	2,012
For peak load requirement up to 5 kW			0.00%									
01-100 Units	2,541	0%	0.00%		29,885	29,885		15,173	15,173		14,712	14,712
101-200 Units	1,033	0%	0.00%		15,311	15,311		4,777	4,777		10,534	10,534
201-300 Units	926				13,733							
301-700 Units	469	0%	0.00%		8,699	8,699		1,658	1,658		7,041	7,041
Above 700 Units	113	0%	0.00%		2,237	2,237		426	426		1,810	1,810
For peak load requirement exceeding 5 kW			0.00%									
Time of Use (TOU) - Peak	19	0%	0.00%		369	369		70	70		299	299
Time of Use (TOU) - Off-Peak	78	0%	0.00%		1,018	1,018		194	194		824	824
Temporary	1				19	19		19	19			
Total Residential	6,187	0%	-	-	76,244	62,511	-	25,278	25,278	-	37,232	37,232
Commercial - A2												
Commercial -												
For peak load requirement up to 5 kW	371	0%	9.70%	-	7,328	7,328	-	1,397	1,397	-	5,932	5,932
Commercial (<100)	-	0%	9.70%	-	-	-	-	-	-	-	-	-
Commercial (<20 kW)	-		9.70%	-	-	-	-	-	-	-	-	-
For peak load requirement exceeding 5 kW												
Regular	1	0%	9.70%	4	10	15	1	2	3	3	8	12
Time of Use (TOU) - Peak (A-2)	67	0%	9.70%	476	1,332	1,808	95	254	349	381	1,078	1,459
Time of Use (TOU) - Off-Peak (Temp)	235	0%	9.70%	1,657	3,045	4,702	331	580	912	1,326	2,464	3,790
Temporary	0				2	2		2	2			
Total Commercial	674	0%	-	2,138	11,716	13,853	428	2,233	2,660	1,710	9,483	11,193
Industrial												
B1	39	0%	0.00%	-	652	652		124	124		528	528
B1 - TOU (Peak)	60				1,178	1,178		224	224		953	953
B1 - TOU (Off-peak)	219				2,839	2,839		541	541		2,298	2,298
B2	3	0%	33.00%	5	43	48	1	8	9	4	34	39
B2 - TOU (Peak)	193	0%	33.00%	401	3,824	4,225	80	729	809	321	3,095	3,416
B2 - TOU (Off-peak)	716	0%	33.00%	1,486	9,114	10,600	297	1,737	2,034	1,189	7,377	8,566
B3 - TOU (Peak)	267	0%	64.00%	257	5,282	5,539	40	1,007	1,047	217	4,275	4,493
B3 - TOU (Off-peak)	1,210	0%	64.00%	1,165	15,244	16,409	181	2,905	3,087	984	12,339	13,322
B4 - TOU (Peak)	87	0%	63.00%	79	1,713	1,792	13	327	340	68	1,387	1,454
B4 - TOU (Off-peak)	360	0%	63.00%	326	4,491	4,817	55	856	911	282	3,635	3,917
Temporary	0											
Total Industrial	3,154	0%	-	3,721	44,378	48,099	668	8,458	9,126	3,066	35,920	38,986
Bulk												
C1(a) Supply at 400 Volts - up to 5 kW	0.12	0%	0.00%	-	2	2		0	0		2	2
C1(b) Supply at 400 Volts - exceeding 5 kW	1.93	0%	55.00%	2	4	7	0	(22)	(21)	2	26	28
Time of Use (TOU) - Peak	7.70	0%	55.00%	10	152	162	2	29	31	8	123	131
Time of Use (TOU) - Off-Peak	21.67	0%	55.00%	27	281	308	5	54	59	22	227	249
C2 Supply at 11 kV	3.49	0%	55.00%	4	57	61	1	11	12	3	46	50
Time of Use (TOU) - Peak	36.47	0%	55.00%	41	721	762	6	137	144	35	584	618
Time of Use (TOU) - Off-Peak	101.11	0%	55.00%	113	1,287	1,400	18	245	263	96	1,041	1,137
C3 Supply above 11 kV	-	0%	55.00%	-	-	-	-	-	-	-	-	-
Time of Use (TOU) - Peak	5.18	0%	55.00%	6	102	108	1	19	20	5	83	87
Time of Use (TOU) - Off-Peak	26.84	0%	55.00%	29	338	367	5	64	69	24	274	298
Total Single Point Supply	204	0%	-	231	2,945	3,176	38	639	577	193	2,406	2,600
Agricultural Tube-wells - Tariff D												
D1 Scarp	4	0%	0.00%	-	68	68		19	19		49	49
D2 Agricultural Tube-wells	1	0%	47.00%	1	14	14	0	3	3	0	11	11
Agricultural Tube-wells D-2 (in)	14	0%	47.00%	12	261	293	12	117	130	-	163	163
Time of Use (TOU) - Peak D-2(0)	79	0%	47.00%	69	997	1,066	69	(190)	(121)	-	1,156	1,186
Time of Use (TOU) - Peak D-2	341	0%	47.00%	298	6,733	7,031	99	3,208	3,307	199	3,526	3,724
Time of Use (TOU) - Off-Peak D2	1,354	0%	47.00%	1,184	17,078	18,262	395	5,091	5,485	790	11,987	12,777
Total Agricultural	1,793	0%	-	1,564	25,170	26,735	576	8,248	8,824	988	16,922	17,911
Public Lighting G	17	0%	0.00%		267	287	-	33	33	-	199	199
Residential Colonias H	8	0%	0.00%		146	146	-	17	17	-	101	101
Special Contracts - Tariff K (A-J)	-											
Time of Use (TOU) - Peak	-	0%										
Time of Use (TOU) - Off-Peak	-	0%										
Railway Traction Traction - I	-	0%	0.00%									
Co-Generation-J	-	0%										
Grand Total	12,037	0%	-	7,654	160,887	154,807	1,709	44,806	46,516	5,957	102,264	108,222

	(MkWh)	(%)	(kV)	(%)	(Rs/kV/M)	(Rs/kWh)	(Rs/kV/M)	(Rs/kWh)	(Rs/kV/M)	(Rs/kWh)
Residential										
Up to 50 Units	1,006	8%				4.00		2.00		2.00
For peak load requirement up to 5 kW						9.52		5.79		3.73
01-100 Units	2,541	0%				12.00		8.11		3.89
101-200 Units	1,033					12.00		10.20		1.80
201-300 Units	926	0%				15.00		15.00		
301-700 Units	469	0%				16.00		16.00		
Above 700 Units	113	0%								
For peak load requirement exceeding 5 kW						16.00		16.00		
Time of Use (TOU) - Peak	19	0%				10.50		10.50		
Time of Use (TOU) - Off-Peak	78	0%				16.00		16.00		
Temporary	1									
Total Residential	6,186	8%								
Commercial - A2										
Commercial -						16.00		16.00		
For Sanctioned load less than 5 kW	371	0%	9.70%			16.00		16.00		
For Sanctioned load 5 kW & above	-	0%	9.70%		400	14.00	400.00	14.00		
Commercial (<20 KW)										
For peak load requirement exceeding 5 kW			9.70%							
Regular	1	0%	9.70%		400	14.00	400.00	14.00		
Time of Use (TOU) - Peak (A-2)	67	0%	9.70%		400	16.00	400.00	16.00		
Time of Use (TOU) - Off-Peak (Temp)	235	0%	9.70%		400	10.50	400.00	10.50		
Temporary	0					16.00		16.00		
Total Commercial	673	0%								
Industrial										
B1	39	0%				13.50		13.50		
B1 (b) (Peak)	60					16.00		16.00		
B1 (b) (Off-Peak)	219					10.50	400.00	10.50		
B2	3	0%	33	400		13.00	400.00	13.00		
B2 - TOU (Peak)	193	0%	33	400		16.00	400.00	16.00		
B2 - TOU (Off-peak)	716	0%	33	400		10.30	400.00	10.30		
B3 - TOU (Peak)	267	0%	64	380		16.00	380.00	16.00		
B3 - TOU (Off-peak)	1,210	0%	64	380		10.20	380.00	10.20		
B4 - TOU (Peak)	87	0%	63	360		16.00	360.00	16.00		
B4 - TOU (Off-peak)	360	0%	63	360		10.10	360.00	10.10		
Temporary	0					13.50		13.50		
Total Industrial	3,153	0%								
Bulk										
C1(a) Supply at 400 Volts - up to 5 kW	0	0%				14.00		14.00		
C1(b) Supply at 400 Volts - exceeding 5 kW	2	0%	55	400		13.50	400.00	13.50		
Time of Use (TOU) - Peak	8	0%	55	400		16.00	400.00	16.00		
Time of Use (TOU) - Off-Peak	22	0%	55	400		10.50	400.00	10.50		
C2 Supply at 11 kV	3	0%	55	380		13.30	380.00	13.30		
Time of Use (TOU) - Peak	36	0%	55	380		16.00	380.00	16.00		
Time of Use (TOU) - Off-Peak	101	0%	55	380		10.30	380.00	10.30		
C3 Supply above 11 kV	-	0%	55	360		13.20	360.00	13.20		
Time of Use (TOU) - Peak	5	0%	55	360		16.00	360.00	16.00		
Time of Use (TOU) - Off-Peak	27	0%	55	360		10.20	360.00	10.20		
Total Single Point Supply	204	0%								
Agricultural Tube-wells - Tariff D										
D1 Scarp	4	0%				13.50		12.00		1.50
D2 Agricultural Tube-wells	1	0%	47			13.00		13.00		
Agricultural Tube-wells D-2 (ii)		0%	47	200		13.00		11.50		1.50
Time of Use (TOU) - Peak D-2(i)	14	0%	47	200		16.00	200.00	15.00		1.00
Time of Use (TOU) - Off - Peak D-2(i)	70			200		10.20	200.00	8.85		1.35
Time of Use (TOU) - Peak D-2	341	0%	47	200		16.00	200.00	10.35		5.65
Time of Use (TOU) - Off-Peak D2	1,354	0%	47	200		10.20	200.00	8.85		1.35
Total Agricultural	1,793	0%								
Public Lighting G	17	0%				14.00		12.00		2.00
Residential Colonies H	8	0%				14.00		12.00		2.00
Special Contracts - Tariff K (AJK)	-									
Time of Use (TOU) - Peak	-	0%								
Time of Use (TOU) - Off-Peak	-	0%								
Railway Traction - 1	-	0%				14.00		13.00		1.00
Co-Generation-J	-	0%								
Grand Total	12,035	8%								

MEPCO

Revenue & Subsidy Statement

F.Y. 2015-16

	(M-Wh)	(%age)	(kW)	(%age)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)	(Min Rs)
Residential										
Up to 50 Units	1,006	8%				4,025		2,012		2,012
For peak load requirement up to 5 kW										
01-100 Units	2,541	0%				24,189		9,478		14,712
101-200 Units	1,033					12,393				
201-300 Units	926	0%				11,116		1,667		9,449
301-700 Units	469	0%				7,041				7,041
Above 700 Units	113	0%				1,810				1,810
For peak load requirement exceeding 5 kW										
Time of Use (TOU) - Peak	19	0%				299				299
Time of Use (TOU) - Off-Peak	78	0%				824				824
Temporary	1					15				15
Total Residential	6,186	8%				61,713		13,157		36,162
Commercial - A2										
Commercial -										
For peak load requirement up to 5 kW	371	0%				5,932				5,932
Commercial (<100)		0%		9.70%						
Commercial (<20 kW)				9.70%						
For peak load requirement exceeding 5 kW				9.70%						
Regular	1	0%		9.70%	3	8			3	8
Time of Use (TOU) - Peak (A-2)	67	0%		9.70%	381	1,078			381	1,078
Time of Use (TOU) - Off-Peak (Temp)	235	0%		9.70%	1,326	2,464			1,326	2,464
Temporary	0					2				
Total Commercial	673	0%				1,710		9,485		1,710
Industrial										
B1	39	0%				528				528
B1 - TOU (Peak)	60					953				953
B1 - TOU (Off-peak)	219					2,298				2,298
B2	3	0%		33%	4	34			4	34
B2 - TOU (Peak)	193	0%		33%	321	3,095			321	3,095
B2 - TOU (Off-peak)	716	0%		33%	1,189	7,377			1,189	7,377
B3 - TOU (Peak)	267	0%		64%	217	4,275			217	4,275
B3 - TOU (Off-peak)	1,210	0%		64%	984	12,339			984	12,339
B4 - TOU (Peak)	87	0%		65%	66	1,387			66	1,387
B4 - TOU (Off-peak)	360	0%		65%	273	3,635			273	3,635
Temporary	0					5				5
Total Industrial	3,154	0%				3,055		35,925		3,055
Bulk										
C1(a) Supply at 400 Volts - up to 5 kW	0	0%				2				2
C1(b) Supply at 400 Volts - exceeding 5 kW	2	0%		55%	2	26			2	26
Time of Use (TOU) - Peak	8	0%		55%	8	123				123
Time of Use (TOU) - Off-Peak	22	0%		55%	22	227			22	227
C2 Supply at 11 kV	3	0%		55%	3	46			3	46
Time of Use (TOU) - Peak	36	0%		55%	35	584			35	584
Time of Use (TOU) - Off-Peak	101	0%		55%	96	1,041			96	1,041
C3 Supply above 11 kV		0%		55%						
Time of Use (TOU) - Peak	5	0%		55%	5	83			5	83
Time of Use (TOU) - Off-Peak	27	0%		55%	24	274			24	274
Total Single Point Supply	204	0%				193		2,406		193
Agricultural Tube-wells - Tariff D										
D1 Scarp	4	0%		47%		55		6		49
D2 Agricultural Tube-wells	1	0%		47%		11				11
Agricultural Tube-wells D-2 (ii)		0%		47%						
Time of Use (TOU) - Peak D-2(i)	14	0%		47%	8	227		14	8	213
Time of Use (TOU) - Off-Peak D-2(i)	79			47%	46	807				
Time of Use (TOU) - Peak D-2	341	0%		47%	199	5,450		1,925	199	3,526
Time of Use (TOU) - Off-Peak D2	1,354	0%		47%	790	13,816		1,829	790	11,987
Total Agricultural	1,793	0%				1,042		20,366		3,773
Public Lighting G	17	0%				233		33		199
Residential Colonies H	8	0%				118		17		101
Special Contracts - Tariff K (AJK)										
Time of Use (TOU) - Peak		0%								
Time of Use (TOU) - Off-Peak		0%								
Railway Traction Traction - 1		0%								
Co-Generation-J		0%								
Grand Total	12,036	8%				6,001		130,245		16,981

	(MkWh)	MW	(Rs/kV/Month)	(Rs/kV/Month)	(Rs/kV/Month)	(Rs/kV/Month)				
Residential-A1										
Up to 50 Units	1,006					4.94	4,973			
51-100 Units	2,541					11.76	29,885			
101-300 Units	926					14.85	13,733			
301-700 Units	469					18.53	8,699			
Above 700 Units	113					19.77	2,237			
Time of Use (TOU) - Peak	19						369			
Time of Use (TOU) - Off-Peak	78					19.77	1,018			
Total Residential	5,153	-	-	-	-		60,914	-	-	-
Commercial - A2										
Commercial - For Sanctioned load less than 5 kW	371					19.77	7,328			
Regular	1				500.00	19.77	15			
Time of Use (TOU) - Peak (A-2)	67				500.00	19.77	1,554			
Time of Use (TOU) - Off-Peak (Temp)	235				500.00	12.97	4,702			
Total Commercial	673	-	-	-	1,500	72	13,599	-	-	-
Industrial										
B1	39					16.68	652			
B1 (b) (Peak)	60					19.77	1,178			
B1 (b) (Off-Peak)	219					12.97	2,839			
B2	3				500.00	16.06	48			
B2 - TOU (Peak)	193				500.00	19.77	4,225			
B2 - TOU (Off-peak)	716				500.00	12.73	10,600			
B3 - TOU (Peak)	267				450.00	19.77	5,539			
B3 - TOU (Off-peak)	1,210				450.00	12.60	16,409			
B4 - TOU (Peak)	87				430.00	19.77	1,792			
B4 - TOU (Off-peak)	360				430.00	12.48	4,817			
Total Industrial	3,153	-	-	-	3,260	163	48,099	-	-	-
Bulk										
C1(a) Supply at 400 Volts - up to 5 kW	0					17.30	2			
C1(b) Supply at 400 Volts - exceeding 5 kW	2				500.00	16.68	7			
Time of Use (TOU) - Peak	8				500.00	19.77	162			
Time of Use (TOU) - Off-Peak	22				500.00	12.97	308			
C2 Supply at 11 kV	3				450.00	16.43	61			
Time of Use (TOU) - Peak	36				450.00	19.77	762			
Time of Use (TOU) - Off-Peak	101				450.00	12.73	1,400			
C3 Supply above 11 kV	-				430.00	16.31	-			
Time of Use (TOU) - Peak	5				430.00	19.77	108			
Time of Use (TOU) - Off-Peak	27				430.00	12.60	367			
Total Single Point Supply	204	-	-	-	4,140	164	3,176	-	-	-
Agricultural Tube-wells - Tariff D										
D1 Scarp	4					16.68	68			
D2 Agricultural Tube-wells	1				300.00	16.06	14			
Time of Use (TOU) - Peak	341				300.00	19.77	7,031			
Time of Use (TOU) - Off-Peak	1,354				300.00	12.60	18,262			
Total Agricultural	1,793	-	-	-	1,500	97	26,653	-	-	-
Temporary Supply Tariff - Tariff E										
Temporary E-1 (i)					300.00	12.60	0%			
Temporary E-1 (ii)							0%			
Temporary E-2							0%			
Total Temporary - E	-	-	-	-	300	13	-	-	-	-
Public Lighting G	17					17.30	287.30			
Residential Colonies H	8					17.30	145.73			
Special Contracts - K										
Special Contracts - Tariff K (AJK)										
Time of Use (TOU) - Peak										
Time of Use (TOU) - Off-Peak						17.30				
Rawat Lab										
Total Special Contracts	25	-	-	-	-	52	433	-	-	-
Sub Total A	11,003	-	-	-	-		152,875	-	-	-
Wheeling Charges: Export to DISCOs										
Export to DISCOs										
Export to DISCOs										
Sub Total B - Export to DISCOs	-	-	-	-	-	-	-	-	-	-
Grand Total (A+B)	11,003	-	-	-	-	-	152,875	-	-	-

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ASSUMPTIONS

Year	2016	2017	2018	2019	2020

PPP

energy charges	0	0	0	0	0
Capacity Charges	0%	0%	0%	0%	0%
ransmission/UOSC	0%	0%	0%	0%	0%
O&M Pay & Allowances+New Inductions	11%	11%	11%	11%	11%
Provision for Retirement Benefits	11%	11%	11%	11%	11%
Energy Purchased/Received	2%	5%	5%	5%	5%
R&D Losses	16%	15.50%	15%	15%	15%
Investment (Rs. Mill)	14781	19851	13168	14004	12193
Working Capital (Rs. Mill)	7215	7822	8420	9072	9728



FINANCIAL ASSUMPTIONS TO THE MEPCO MULTI YEAR TARIFF PETITION**1. Basic Information**

The financial projections have been prepared on the basis of actual results for FY 2013-14 and unaudited results of FY 2014-15. The figures for the multi-year tariff petition FY 2016-20 are based on the following key assumptions:

Sales (in GWh), Energy Losses & Purchase of Power (GWh& MW) have been projected as given in Tables below:

Table 1 – Quantitative Data Historical

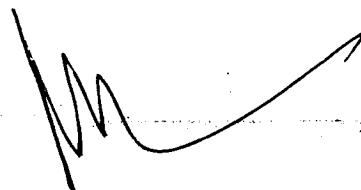
Description		Tariff Control Period				
		2016	2017	2018	2019	2020
Sales	GWh	12036	12774	13699	14754	15909
Sales growth	%age	2.78%	6.13%	7.24%	7.70%	7.83%
T&D losses	%age	16.23%	15.76%	15.60%	15.60%	14.88%
Purchase of power	GWh	14368	15164	16232	17482	18690
Avg. MDI	MW	2726	2850	3003	3174	3355

Actual Sales (in GWh), Energy Losses & Purchase of Power (GWh& MW) for the last five years has been tabulated below:

Table 2 – Quantitative Data for Tariff Control Period

Description		Actual FY					Test Year
		2011	2012	2013	2014	2015	2016
Sales	GWh	10189	10218	9913	11437	11711	12036
Sales growth	%age		0.28%	-2.98%	15.37%	2.40%	2.78%
T&D losses	%age	18.30%	17.95%	17.13%	17.48%	16.80%	16.23%
Purchase of power	GWh	12471	12453	11962	13859	14076	14368
Avg. MDI	MW	2785	3491	2409	2501	2670	2726

2. **Revenue (in Million Rupees)** for the test year has been estimated on the basis of the last notified tariff determined by NEPRA for MEPCO dated March 27, 2015 and notified by GOP including the monthly tariff adjustments determined/notified from time to time. The difference between determined and notified tariffs has been taken as subsidy. The revenue estimates for the test year and subsequent years of the multi-year tariff have been worked out by adding additional tariff



requirement over and above the rates determined and notified vide SRO 572 (I) / 2015 dated 10-06-2015 for recovery of proposed distribution margin and power purchase cost.

3. Revenue Requirement

The revenue requirements for tariff control period has been worked out in accordance with the tariff guidelines issued by NEPRA in January 2015 wherein following formula has been provided for describing the revenue requirement:

$$RR_D = PPP_D + DM_D + PYA_D$$

Where:

RR_D is the eligible distribution company's revenue requirement

PPP_D is the power purchase cost for an eligible distribution company

DM_D is the distribution margin for an eligible distribution company

PYA_D is the prior year adjustment for an eligible distribution company

As stated above, the revenue requirement for tariff control period is based on the various assumptions including the periodic adjustments with regard to power purchase costs, which have been discussed below, and results thereof is summarized below:

Table 3 - Revenue Requirements for Tariff Control Period

Description	(B-Year) 2015	Tariff Control Period				
		T-Year 2016	2017	2018	2019	2020
	Million Rupees					
A. Power Purchase Price	130,818	133,817	140832	150053	160706	171251
B. Distribution Margin						
O&M	14,890	17,334	20,268	22,446	24,617	26,912
Depreciation	3,346	3,835	4,441	4,959	5,461	5,922
RORB	4,947	6,225	8,095	9,800	11,046	12,155
Other Income	(2,803)	(2,630)	(2,859)	(3,027)	(3,185)	(3,339)
Working Capital		722	939	1,095	1,179	1,265
Sub Total	20,380	25,486	30,884	35,273	39,118	42,916
C. Prior Period Adjustment						
Sales Mix		3,104				
Others - Quarterly Adjustments etc.		6,142				
Revenue Requirement (A+B+C)	151,198	168,549	171,716	185,326	199,824	214,167

Multi Year Tariff Application of Multan Electric Power Company



Table 4 - Revenue Requirements for Tariff Control Period

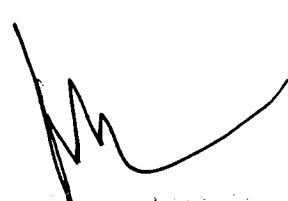
Description	(B-Year) 2015	Tariff Control Period				
		T-Year 2016	2017	2018	2019	2020
	Rs. / kWh					
A. Power Purchase Price	11.17	11.12	11.03	10.09	10.89	10.76
B. Distribution Margin						
Q&M	1.27	1.44	1.59	1.64	1.67	1.69
Depreciation	0.29	0.32	0.35	0.36	0.37	0.37
RORB	0.42	0.52	0.63	0.72	0.75	0.76
Other Income	-0.24	-0.22	-0.22	-0.22	-0.22	-0.21
Working Capital		0.06	0.07	0.08	0.08	0.08
Sub Total	1.74	2.12	2.42	2.57	2.65	2.70
C. Prior Period Adjustment						
Sales Mix		0.26				
Others - Quarterly Adjustments etc.	-	0.51	-	-	-	-
Revenue Requirement (A+B+C)	12.91	14.00	13.44	13.53	13.54	13.46

4. **Power Purchase Cost:** The estimated average rate for each component of power purchase cost has been assumed based on the actual unaudited results of FY 2014-15 (Base Year) and the same is tabulated below:

Table 5 – Power Purchase Price

Description		FY 2015
Energy Transfer Rate	Rs/kWh	6.476
Capacity Transfer Rate	Rs/kW/month	1127.932
Use of System Charge	Rs/kW/month	102.429

The above component of power purchase price is subject to periodic adjustments as per the mechanism provided into the tariff guidelines 2015.



Multi Year Tariff Application of Multan Electric Power Company

5. **Target Losses:** The total transmission and distribution losses expected for the tariff control period along with the actual losses incurred during FY 2014-15 are tabulated below:

Table – 6

Year	T&D Losses
2014-15	16.80%
2015-16	16.22%
2016-17	15.76%
2017-18	15.60%
2018-19	15.60%
2019-20	14.88%

6. MEPCO's Distribution Margin

The distribution margin required for the tariff control period has been worked out based on the following assumptions:

- 6.1. **O & M Costs:** include pay & allowances, repair & maintenance, mandatory social insurance payments, administrative, management and other operating costs related to MEPCO's distribution and supply business. In the tariff determination dated March 27, 2015 NEPRA allowed O&M costs of Rs. 9226 million for FY 2014-15. Based on the following components wise assumptions the O&M costs for the test year is worked out to Rs. 15972 without the impact of new hiring i.e. hiring against sanctioned limits and hiring to support new expansion of network and offices including the hiring required for new technologies being implemented / completed by USAID PDP.

Further, the breakdown for each of the subcomponent of O&M for the tariff control period has been tabulated in Annexure-I attached to this Annex – I along with the tables showing comparative actual figures for the last five years. The major assumptions impacting the O&M is mentioned below:

6.1.1. **Salary:** Salary is the major component of O & M costs. It is assumed that GOP, in its annual budget for base year, will increase the running basis pay of Govt. employees @ 10%. Similarly 5% increase from 1st December of every year onwards is assumed as effect of annual increment and overall increase is 11% from F.Y. 216-17 onward. New hiring cost against the existing vacant positions has been estimated at Rs. 1101 million and new hiring cost for the expansion related projects as per DIIP, including the projects implemented by USAID-PDP, is estimated at Rs. 236 million.

6.1.2. **Repair & Maintenance:** Expense in the subject head has been assumed @ 1.5% of gross Fixed Assets without accounting for the additional repair and maintenance required for DIIP related expansion including sustainability cost of USAID related



projects and repair and maintenance expenses has been worked out as 1.7% of gross fixed assets in operation after accounting for DIIP.

6.1.3. **Employee's Retirement Benefits:** have been based on average increase in the last five years over FY 2014-15 and onwards.

6.2. **Depreciation:** The depreciation for the tariff control period is calculated on the basis of:
(i) The value of assets existing prior to the determination; plus (ii) new investment in assets by MEPCO during each of the years in the tariff control period. The assets will be depreciated for a specified number of years based on a straight-line method as per company policy as Land (0%), buildings & civil works (2%), plant and machinery (3.5%), office equipment (10%), mobile plant & equipment (10%) and other assets (10%).

6.3. **Other Income:** This includes markup on bank deposits, amortization of deferred credits and income from other sources. In the subject heads average increase in last five years has been applied on the figures appearing in provisional financial statements of 2014-15.

6.3.1. **Amortization of Deferred Credits:** has been taken on the basis of useful life of the related assets i.e. 3.5% p.a.

6.3.2. **Other Operating Revenues:** have been assumed to increase by average increase in last five years applied for the tariff control period.

6.4. **Tariff Subsidy:** No tariff subsidy expense out of MEPCO account has been assumed.

6.5. **Financial Charges:** for the long term loans actually in the books have been arrived at on the basis of debt service schedule attached to each loan. For future loans (in local currency) the interest has been assumed with 02 years grace period, 05 year payment period (total 07 years) at 15% interest rate. The foreign currency loans have been assumed for 22 year (including 02 years grace period) for repayment, annual payment each year and interest rate at 15%.

6.6. **Workers' Profit Participation Fund:** provision has not been made as exemption decision is pending with ECC, Govt. of Pakistan.

6.7. **Tax:** The Authority allowed pre-Tax RORB in tariff determination for F.Y. 2014-15, therefore, no separate amount has been demanded in petition, however, any prior period tax is paid by MEPCO, the same will be claimed under prior period adjustment.

6.8. **Dividend:** No payment has been assumed.

Multi Year Tariff Application of Multan Electric Power Company

6.9. Return on Regulatory Asset Rate Base (RORB):

- 6.9.1. **WACC:** Average rate of return is a pre-tax return on the Profit Rate Base. The average rate of return is calculated under WACC, with cost of equity being calculated under CAPM. The investment is typically financed with a combination of debt and equity, therefore the appropriate rate of return would be a market-based weighted average of the cost of capital. However, Authority has started using post tax return on the plea that Distribution Company is not in profit. MEPCO has calculated return on investment @ 17.83% which includes the country risk also. Detail working is given at Annex-B.

Return on Equity (20% financing)	19.86%	3.97%
Return on Loans (80% financing)	14.83%	11.86%

Under the situation of negative equity (including deposit for shares and accumulated losses) the debt equity ratio of 80:20 has been assumed.

- 6.9.2. **Rate Base:** For the tariff control period, the regulatory asset base has been worked out based on the above-mentioned assumptions and accordingly is reflected in the relevant portion of the tariff petition formats for the tariff control period.

- 6.10. **Total Unit Sales:** A schedule of the total unit sales (in kWh) of MEPCO across all customer categories is forecasted for the test year. This forecast will be used to determine the average distribution margin per unit (Rs/kWh) needed to cover the revenue requirement expected for the year.

7. The detailed petition formats as per the tariff guidelines for the tariff control period i.e. financial year 2016 – 2020 have been prepared and accordingly have been attached as **Annex – 3** to this multiyear tariff petition for consideration of the Authority.



8. Distribution Integrated Investment Plan (DIIP) has been summarized below:

Table-7

Description	Base Year	Tariff Control Period					Total
	2015	2016	2017	2018	2019	2020	
	Million Rupees						
Investment Plan							
DOP	456	476	1444	1447	1531	1466	6364
ELR	551	588	2167	2170	2297	2324	9546
STG	2934	7106	5513	4044	5933	4076	26672
Sub-Total	3941	8170	9124	7661	9761	7866	42582
Village Electrification/Deposit Work	937	1689	2514	1234	1101	1100	7638
Others (Capital receipts)	2300	2669	2669	2669	2669	2669	13345
Vehicles (Utility & Others)		380	740	504	34	34	1692
Other Functional Investment	306	30	60	410	60	160	690
1. DIIP - Commercial		1027	2542	119	81	81	3850
2. DIIP - HR		95	371	14	28	14	522
3. DIIP - Communication		4	15	0	0	0	19
4. DIIP - Finance		0	45	0	0	0	45
5. DIIP - Safety		717	1770	557	270	270	3584
Total	7484	14781	19851	13168	14004	12193	73967

Further, the detailed description of the DIIP as per the formats finalized and communicated by NEPRA including the cost benefits analysis of the above summary table is attached as **Annex - IV** to this multi-year tariff petition for consideration of the Authority.

9. **Capitalization of Work in Progress**, the capitalization of investment requested for the tariff control period has been assumed as 100% at the end of the control period.

10. **Stocks and Spares** have been assumed to remain at 6 % of net fixed assets in FY 2015 and beyond.

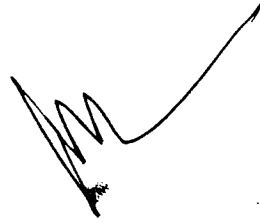
11. **Equity** is the total paid up capital plus deposit for issue of shares and (plus / minus) retained profits / (losses).

12. **Deferred Credits** are the amounts received from consumers as capital contributions and grants received from Federal and Provincial Governments against Rural Electrification and other deposit works. These are capitalized in the first instance and amortized in later years at 3.5% per annum being the depreciation rate applicable to the assets constructed through capital contributions and grants. The amortization of deferred credit is recognized as income for the relevant year.

13. **New Long-term loan** have been assumed as per the same term and condition as shown in 6.5 above.

Multi Year Tariff Application of Multan Electric Power Company

14. **Consumer Security Deposits** are long-term liabilities. The amounts received against security deposits are taken as per the existing rates and no increase has been assumed.

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Multi Year Tariff Application of Multan Electric Power Company

Annexure I of Financial Assumptions to the MEPCO Multi Year Tariff Petition

Table-8 - Repair & Maintenance Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Offices & Residential Building	14	10	12	15	25	15
Grid Stations	52	67	45	50	58	54
Transmission Lines	5	4	4	8	13	7
Distribution Transformers	253	455	542	386	560	439
Service Drops	132	100	117	164	305	164
Meters	345	283	247	328	533	347
Total:-	801	919	968	951	1494	1027

Regulator allowed Rs. 835/- million for F.Y. 2014-15.

Table-9 - Repair & Maintenance MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Offices & Residential Building	25	27	30	33	36	40	32
Grid Stations	58	64	70	77	85	94	75
Transmission Lines	13	15	16	18	20	22	17
Distribution Transformers	560	616	678	745	820	902	720
Service Drops	305	336	369	406	447	492	393
Others	533	586	645	709	780	858	685
Total	1495	1644	1808	1989	2188	2407	
% increase/ decrease		10	10	10	10	10	

Table - 10 Rent, Rate & Taxes Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Years Average
Rent, Rate & Taxes	14	16	16	15	15	14

Multi Year Tariff Application of Multan Electric Power Company

Table – 11 Rent, Rate & Taxes for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test	Y 2	Y3	Y4	Y5	
Impact of Rent, Rate & Taxes	15	17	19	20	23	25	20
% increase/ decrease		10	10	10	10	10	

Table – 12 Telephone & Postage Historical

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Telephone & Postage	29	28	30	36	39	32

Table – 13 Telephone & Postage Historicalfor MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Telephone & Postage	39	41	43	45	47	50	44
% increase/ decrease		5	5	5	5	5	

Table –14 Power, Light & Water Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Power, Light & Water	44	47	47	54	61	51

Table – 15 Power, Light & Water for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Power, Light & Water	61	67	74	81	90	99	79
% increase/ decrease		10	10	10	10	10	

Multi Year Tariff Application of Multan Electric Power Company



Table – 16 Office Supplies & Other Expenses Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Office Supplies & Other Expenses	87	154	93	107	146	118

Table – 17 Office Supplies & Other Expenses for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Office Supplies & Other Expenses	146	154	161	169	178	187	166
% increase/ decrease		5	5	5	5	5	

Table – 18 Travelling Expenses Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Travelling Expenses	381	402	550	618	618	513

Table – 19 Travelling Expenses for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Travelling Expenses	618	680	714	750	787	827	730
% increase/ decrease		10	5	5	5	5	

Multi Year Tariff Application of Multan Electric Power Company

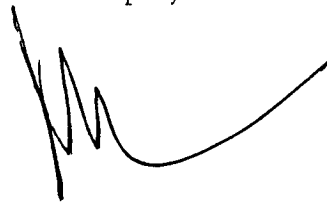


Table – 20 Insurance Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Insurance	11	11	18	17	18	15

Table – 21 Insurance cost for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Insurance	18	19	20	21	22	23	20
% increase/ decrease		5	5	5	5	5	

Table – 21 Professional Fee Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Professional Fee	46	53	39	32	33	41

Table – 22 Professional Fee for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Professional Fee	33	37	40	44	49	54	43
% increase/ decrease		10	10	10	10	10	

Table – 23 Computer & Outside Services Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Computer & Outside Services	28	21	42	46	60	39

Multi Year Tariff Application of Multan Electric Power Company

Table – 24 Computer & Outside Services for MYT

Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Computer & Outside Services	60	69	80	92	106	121	88
% increase/ decrease		15	15	15	15	15	

Table 25 - Transportation Cost Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Transportation	253	285	324	346	319	305

Table 26- Transportation Cost for MYT

Rs. In Million

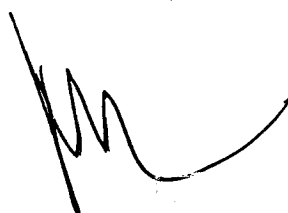
DESCRIPTION	Actual Base Year	Tariff Control Period					Avg. for Tariff Control Period
		Test Year	Y 2	Y3	Y4	Y5	
Transportation	319	366	421	483	556	639	464
% increase/ decrease		15	15	15	15	15	

Table 27 - Electricity Bill Collection Charges Historical

Rs. In Million

Description	FY 2011	FY 2012	FY 2013	FY 2014	Base Year	Five Year Average
Electricity Bill Collection Charges	278	245	304	311	316	291

The rate for electricity bill collection is fixed by the STATE Bank of Pakistan, any change during control period will be claimed by MEPCO at the time of adjustment.



Multi Year Tariff Application of Multan Electric Power Company

Table 28 - Electricity Bill Collection Charges Historical

Rs. In Million

DESCRIPTION	Estimated / Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Electricity Bill Collection Charges	316	329	342	356	370	385	349
% increase/ decrease		4	4	4	4	4	

Table – 29 Miscellaneous Expense Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Other Charges	10	12	56	811	31	184

Table – 30 Miscellaneous Expenses for MYT

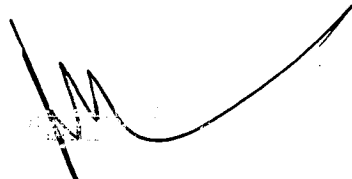
Rs. In Million

DESCRIPTION	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Other Charges	31	33	34	36	38	40	35
% increase/ decrease		5	5	5	5	5	

Table – 31 Provision for Bad Debt Historical

Rs. In Million

Description	FY2011	FY2012	FY2013	FY2014	Base Year	Five Year Average
Provision for Bad Debt	896	1594	295	1773	0.000	615



Multi Year Tariff Application of Multan Electric Power Company

Annexure II- Summary of the Above Projected Costs for the Multi-Year Tariff

DESCRIPTION	As per Last Determination	Estimated/ Actual	Tariff Control Period					Avg. for Tariff Control Period
	FY2015	Base Year	Test Year	Y 2	Y3	Y4	Y5	
Salaries and Benefits	5649							
i. Basic Pay		2750	3428	3762	4071	4383	4702	4069
ii. Allowance		2967	2502	3028	3553	4100	4674	3571
iii. Employee Benefits (live)		703	712	773	841	916	1001	849
iv. Employee Benefit (Prov)	1000							
a) Pension		3074	3381	3720	4091	4501	4951	4129
b) Medical		235	259	284	313	344	378	316
c) Utility Expenses		267	294	323	355	391	430	359
d) Leave Encashment		257	283	311	342	376	414	34
Repair and Maintenance	835							
i. Office & Residential Building		25	27	30	33	36	40	33
ii. Grid Stations		58	64	70	77	85	94	78
iii. Transmission Lines		13	15	16	18	20	22	18
iv. Distribution Transformers		560	616	678	745	820	902	752
v. Service Drops		305	336	369	406	447	492	410
vi. Meter etc.		377	422	473	529	591	659	535
vii. General Equipment		22	25	27	30	33	36	30
viii. Others		14	16	18	19	21	23	19
Travelling Expenses	600	618	680	714	750	787	827	752
Vehicle Expenses	307	319	366	421	483	556	639	493
Other Expenses	835							
i. Rent, Rates and Taxes		15	17	19	20	23	25	21
ii. Utility Expenses		61	67	74	81	90	99	82
iii. Communication		39	41	43	45	47	50	45
iv. Office Supplies and other expenses		146	154	161	169	178	187	170
v. Professional fees		31	34	37	41	45	49	41
vi. Outsourced Services		376	398	422	447	475	506	450
vii. Management Fees/AOH		40	45	52	60	68	78	61
viii. Advertising & Pub.		53	61	70	81	93	107	83
ix. Miscellaneous Expenses		260	284	309	337	367	400	339
Total :-	9226	13588	14526	16203	17939	19792	21783	18049

ANNEX-VI of Tariff Determination for FY 2014-15

Summary of Directions for MEPCO:

Point wise reply/ compliance relating to MEPCO is submitted hereunder:

Sr. #	DIRECTIONS	RESPONSE															
1	To print bills with the snap shots of meter readings (both previous and current) not later than 30th April, 2015.	MEPCO has completed meter reading thorough hand Held units in 146 Sub divisions and implementation is under progress in remaining sub divisions some Technical Problems are being faced for printing of meter reading snaps and will be resolved.															
2	To submit its investment requirements for the implementation of Hand Handled Units (HHU) along with its completion timelines with its next tariff petition.	It has been included in Distribution Companies Integrated Investment Plan (DIIP).															
3	- The Authority had directed DISCOs vide Registrar's letter dated 21.12.2012 to submit their plans regarding introduction and expansion of Automatic Meter Reading System (AMR). DISCOs were also required to submit progress reports on NEPRA's directions. Subsequently vide letter no. NEPRA/R/L/LAD-21/9016-26 Dated 7th August 2014, the Authority also directed DISCOs to install AMR and Automatic Metering Infrastructure (AMI) at all of their Common Delivery Points (CDPs). It is noted that except for initiating certain pilot projects, DISCOs have not been able to show serious efforts on the installation of AMR and AMI systems. - The Authority considers that one of the key reasons for high transmission and distribution losses in DISCOs is absence of any mechanism for tracking of electricity flow from the points of their electricity purchases (CDP) down to the final consumer. A reliable metering and recording system at every voltage level starting with the 132 kV grid, at the 11 kV and to 400 and 230 volts is therefore critical for not only elimination of theft, unaccounted for electricity and diagnosing technical problems, such systems would also enable NEPRA in analyzing DISCOs' genuine investment	MEPCO has 78 Nos. CDPs in its jurisdiction and AMR meters are installed at all 78 Nos. CDPs. AMR meters are installed on all 1081 nos. feeders at receiving end of grid stations. NEPRA has advised installation of AMR meters at consumer level by the end of 30.06.2016. It is submitted that installation of AMR meters at consumer end by 30.06.2016 is not possible because of scope of work is very large as the total no. of consumers of MEPCO will exceed 5.3 million by the end of 30.06.2016. MEPCO has prioritize the installation of AMR meters as per the following tentative schedule: <table> <tr> <th>Sr.N o.</th><th>Category</th><th>Tentative Plan for completion.</th></tr> <tr> <td>i</td><td>Connections exceeding 20KW sanctioned load.</td><td>30.09.2015</td></tr> <tr> <td>ii</td><td>T/Wells above 20 KW load</td><td>31.12.2015</td></tr> <tr> <td>iii</td><td>T/Wells below 20 KW load.</td><td>30.06.2016</td></tr> <tr> <td>iv</td><td>Commercial and industrial consumers 5 to 20 KW load.</td><td>31.12.2016</td></tr> </table> MEPCO is of the view that installation of AMR meters at high end consumers will be beneficial in term of financial and monitoring of consumers consumption behavior and to overcome suspect of theft through vigilance by AMI cell.	Sr.N o.	Category	Tentative Plan for completion.	i	Connections exceeding 20KW sanctioned load.	30.09.2015	ii	T/Wells above 20 KW load	31.12.2015	iii	T/Wells below 20 KW load.	30.06.2016	iv	Commercial and industrial consumers 5 to 20 KW load.	31.12.2016
Sr.N o.	Category	Tentative Plan for completion.															
i	Connections exceeding 20KW sanctioned load.	30.09.2015															
ii	T/Wells above 20 KW load	31.12.2015															
iii	T/Wells below 20 KW load.	30.06.2016															
iv	Commercial and industrial consumers 5 to 20 KW load.	31.12.2016															

	requirements. Consequently reduction in losses would help save billion of rupees annually and support GOP's efforts in eliminating circular debt. Reportedly the results through the model projects have been quite encouraging and noticeable reductions in the losses have been observed.	
4	The Authority therefore directs all D ISCOs as follows: - To install AMR and AMI at all of their CDPs by December 31, 2015. - To install AMR and AMI on the receiving end of at least 30% of their 11 kV feeders (as existing on 30 June 2014) by 31st December 2015 and remaining 70% till June, 2016. - To initiate and install AMR/AMI at the consumer level in at least 10 of their high loss making subdivisions by 31st December, 2015 and remaining 70% by 30th June 2016.	MEPCO has adopted the following strategy/ planning for installation of AMR & metering through HHU to cover secure maximum revenue in scarcity of funds. - Installation of AMR on all high end consumers having load 20 KW and above- It will cover 35500 nos. of consumers and 36% revenue. - Installation of AMR at all Tubewell consumers, it will cover 66000 nos. of consumers 16% revenue. - Installation of AMR on connections having load 4 KW to 20 KW, it will cover 100000 nos. of consumers (Especially AC premises.) - Reading of below 4 KW consumers through hand held units (HHU). It will cover 4.5 million nos. of consumers and 30% revenue. NEPRA has proposed installation of AMR meters within period of one year, which requires extensive homework by devising mechanism of checking, jobs & duties at various levels in operation MIS and metering and testing department and creation of posts. After evaluation of analysis of cost and operations MEPCO will set the plan either AMR should be extended towards the domestic and commercial connections or otherwise in the guidance of Authority.
5	To provide break-up of receivables with aging and nature of receivables and a concrete plan of their recovery not later than 30th April, 2015.	The aging break up of receivable on 30th June 2015 is attached as desired.
6	To get its strength y d stick approved by the Authority based on proper justifications and its quantified benefits	Strength yard stick for MEPCO is attached for approval of the authority.
7	To submit comments and proposal on the issue of the existing financial, administration and technical powers concentrated at different layers of hierarchy in order to provide better services from the door step of the consumer?	Existing financial, administration and technical powers are under revision and will be submitted in due course of time.
8	Not later than 30th April, 2015 for consideration in the next year's tariff	Multiyear Tariff Petition has been submitted as per Authority's time line.

	determination.	
9	To share the details of late payment charges recovered from consumers and any invoice raised by CPPA under the head of mark up on delayed payments for the FY 2014-15. The information must be submitted before the next tariff petition is filed.	Detail of Late payment surcharge charged to consumers is attached, however, late payment invoice from CPPA has not been received up till now.
10	The Petitioner is directed to give comments on the proposal of lifeline consumers before the next year's tariff petition and also to share the financial impact of revision of criteria of lifeline consumers on its revenue.	Comments on the proposal of lifeline consumer is attached.
11	To submit the details of investment expense undertaken in the FY 2013-14.	Detail of investment expenses undertaken in 2013-14 is attached with tariff petition.
12	To transfer amount in the post retirement benefit fund and claim the amount so transferred from the Authority in the next year's tariff determination by submission of evidence of transfer of amount.	MEPCO has opened Post Retirement Benefit Fund account with an amount of Rs. 100 million.
13	To submit a recruitment plan for the requested hiring of staff containing cost/benefit analysis based on best practices.	Recruitment plan is being submitted separately.
14	To submit its investment requirements for the implementation of the said plan along with the completion timelines along with its next tariff petition.	Distribution Companies Integrated Investment Plan has been prepared under the guidelines of Authority and being submitted with the Tariff Petition.
15	To submit comments and proposal along with the expansion plan for consideration of the Authority regarding existing service delivering structure of circles, divisions and sub-divisions etc with next tariff petition.	Expansion plan is included in DIIP
16	To provide break-up along with the nature of receivables and a concrete plan of their recovery not later than 30th April, 2015.	The aging break up of receivable on 30th June 2015 is attached as desired.
17	To take a separate presentation on Cost Service Study along with PDP team and requesting Authority for appointment in advance.	MEPCO has already submitted Cost of Service study and Authority is requested to give date for the presentation at its convenience.

CATEGORY & NATURE OF RECEIVABLES ENDING 06/2015

Receivables against Federal Govt.	-36.14 Mil.	
Receivables against Provincial Govt.	864.53Mil	
Total Govt.		828.39 Mil.
Receivables against Private		26493.42 Mil.
Total Receivables		27321.86 Mil.

Breakup of Private Receivables

Spillover	5344.82 Mil.
GOP Subsidy	5774.89 Mil.
Deferred	2349.04 Mil.
Unpaid Debt (T.Well)	2634.07 Mil.
Credit Balance	(-) 500.07 Mil.
UT	(-) 330.60 Mil.
P.Disc	2837.61 Mil.
Running	8383.67 Mil.

Aging of Defaulting Amount

	Upto 2 months	2-3 Months	4-6 Months	6-12 Months	1-3 Years	Above 3 Year	Total
Running	2261.14	283.36	5600.49	200.19	35.44	0.06	838.67
P.Disc	145.61	5.75	27.61	168.03	995.71	1495.33	2837.61

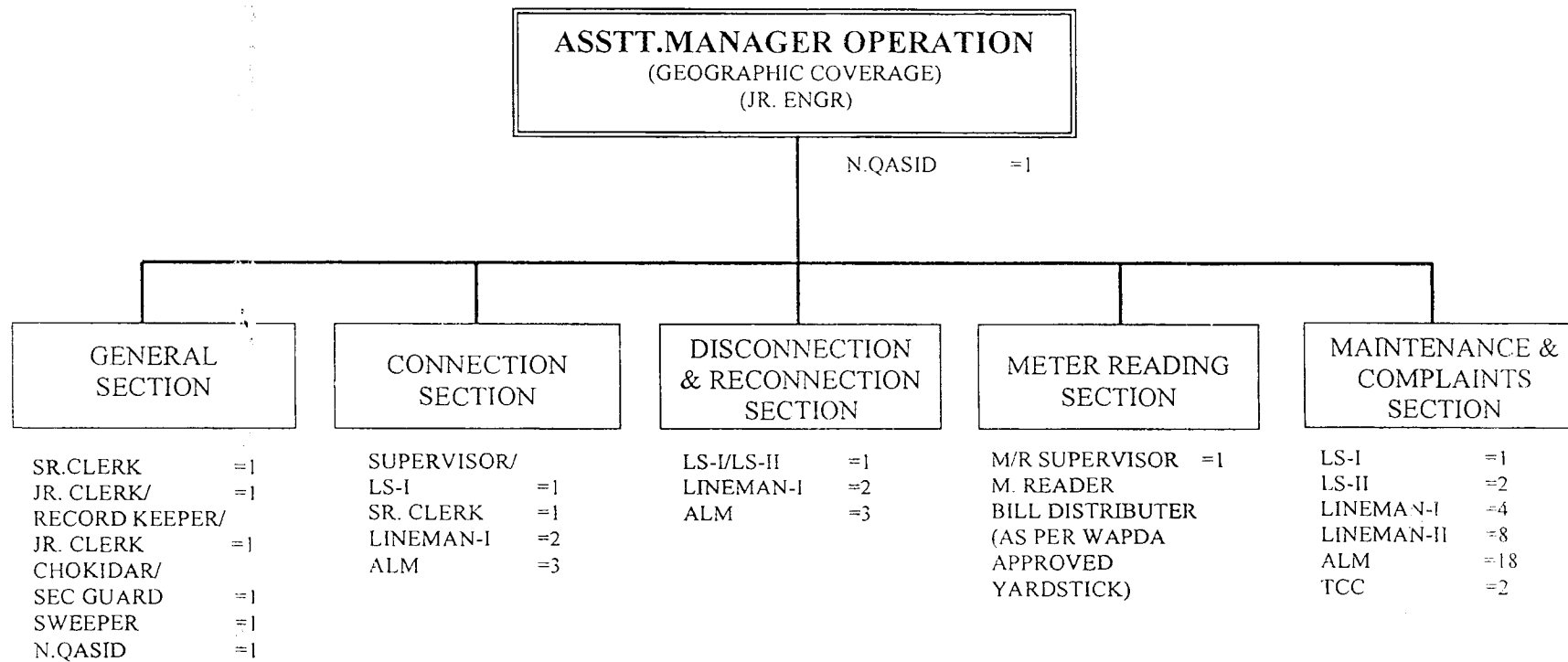
MEPCO Planned following strategy to recover Receivables.

- Billing of Govt. connections through accurate billing
- Reconciliation of Govt. department billing every month.
- Disconnect Govt. connections without any discrimination on nonpayment.
- Arrange meeting with departments to resolve the disputed issues.
- Timely and correct meter reading.
- Monitoring of batch wise recovery and settlement of billing disputes on priority.
- Follow up of payment by consumers on due date.
- Prompt implementation of ERP.
- Vigilance with activity premises through special teams.
- Adjustment of security deposit against arrear.
- Creation of demand through Tehsilder for payment of arrear under Land Revenue Act
- Providing incentive to staff for recovery of arrear.
- Initiating punitive disciplinary action against employee with stealers.

In result of above strategic planning, MEPCO has decreased Rs. 3200.97 Mil receivables from June-2014.

i.e.	Receivables ending June-21014	=	30522.77 Mil.
	Receivables Ending June-2015	=	<u>27321.80 Mil.</u>
			3200.97 Mil

DETAILED ORGANIZATIONAL STRUCTURE OF ASSTT. MANAGER (OPERATION) DISC



NOTE

1. ADDITIONAL REQUIREMENT TO BE MET AGAINST LENGTH OF LINE NO. OF CONSUMERS AND SUB OFFICES AS PER WAPDA APPROVED YARDSTIC AFTER OBTAINING APPROVAL OF THE AUTHORITIES.
2. AUTHORIZATION OF DRIVERS/ LORRY CLEANER IS TO BE WORKED OUT AT THE SCALE OF HTV AND LTV VEHICLES.

Late Payment Surcharge

For F.Y. 2014-15

Sr. #	Month	Amount
1	Jul-14	(225,941,774)
2	Aug-14	436,819,872
3	Sep-14	(169,526,164)
4	Oct-14	(265,092,906)
5	Nov-14	(202,101,476)
6	Dec-14	(147,559,520)
7	Jan-15	(112,448,444)
8	Feb-15	(46,947,338)
9	Mar-15	(116,945,436)
10	Apr-15	(122,002,905)
11	May-15	(84,473,851)
12	Jun-15	(96,019,995)
TOTAL		(1,152,239,937)

LIFE LINE CONSUMERS

- The life line consumers are considered as low income group having consumption up to 50 units being billed at subsidized rate on the basis of “50 units” .
- The criteria for life line consumers is based on consumption which do not truly reflect the eligibility for availing electricity at subsidized rate. It is experienced that consumer managed to get installed second meter in order to avail low price electricity or the consumers having big houses being supervised by their servants and not in use of the owners.
- MEPCO request re-evaluation of the low consumption consumers and proposed of following criteria for declaration and registration of life line consumers with distribution companies.
 - 1- consumers registered with local Zakat committee as eligible for Zakat
 - 2- Consumers registered under income support program of Govt.

- 3- Low income people not claiming zakat or supported by Govt. may file an application to claim as a life line consumer on the basis of proof of monthly income and survey may conducted for authentication and registration as life line consumers trough third party.
- Consumers having residential area over 250 sq yards may not be allowed in life line.
 - Consumers having consumption of more than total of 500 units in preceding 11 months may not be allowed in life line consumers.

VOLUME-I

DISTRIBUTION COMPANY INTEGRATED INVESTMENT PLAN (DIIP)-MEPCO

This Business Plan /
DIIP entails Goals
and Objectives and
Initiatives that will
help MEPCO achieve
the stated goals.
This plan has been
prepared with
extensive cross-
functional
discussions,
coordination and
teamwork and
provides MEPCO the
road map to success.

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Section -I

Executive Summary

i. Introduction

Multan Electric Power Company (MEPCO), incorporated as a Public Limited Company, is responsible for the delivery of electricity to its customers spanning 13 districts of southern Punjab as set out in MEPCO's Distribution License number 06/DL/2002, granted by NEPRA under the NEPRA Act. On May 14, 1998, as a result of the restructuring of WAPDA's Power Wing, MEPCO assumed its official operations and is since then being headed by a Chief Executive Officer (CEO) who is in turn supported by nine Executive Directors.

MEPCO pays a power purchase price (in Rs/kWh) for the electricity it procures from the Central Power Purchasing Agency (CPPA) or from other sources on behalf of the CPPA which would include the generation and transmission charges regulated by NEPRA. The major objectives of the company include ensuring uninterrupted and stable power supply to all its customers along with state of the art customer care as well as establishing and operating reliable electricity distribution networks.

Currently, MEPCO has 16,550 active employees, employed in nine directorates and is responsible for distributing electricity to approximately five million consumers. The consumer mix comprises approximately 88% domestic consumers (4.4 million) including residential consumers in both urban and rural areas, 9.37% commercial consumers (0.47 million) including business consumers such as markets, plazas, and offices in both urban and rural areas, 1.02% industrial consumers (0.05 million) consisting of large and small industrial loads, 0.01% bulk consumers (425) consisting primarily of large societal consumers like housing societies, 1.54% agricultural consumers (0.076 million) including tube wells in rural areas, and 0.03% other consumers (1,511). The sales mix consists of 48% domestic, 6% commercial, 26% industrial, 2% bulk, 18% agricultural, and 0.07% other consumers.

ii. Purpose and Goal of Investment Plan

The Integrated Investment Plan¹ entails MEPCO's vision, mission, core values, stakeholders' needs, general indicators, sales and consumer forecasts, power supply issues with limitations, human resources and organizational development, financial projections, regulatory requirements including quality of service, subsidies and legal restrictions affecting timely collection of delinquent payments, performance indices with initiatives and risk assessment and will serve as a central reference document for integrated cross-functional planning that will help MEPCO make informed decisions based on priorities.

The goal of the Investment Plan/Business Plan is to create a document which will be used by the CEO and senior managers of MEPCO to focus its activities and energies for the next five years in making MEPCO a financially viable company by improving the regulation and governance of the entity, introducing new technologies including upgrade of existing technology and machinery and improving human resources in line with best practices

¹ The term Investment Plan or Business Plan will be used interchangeably throughout this document, as NEPRA names the Business Plan as the Investment Plan

worldwide. This plan will also be utilized by the Strategic Planning Committee to the Board for regular monitoring, to ensure that company achieves its stated objectives.

This Investment Plan covers a five year period from FY 2016 to FY 2020, encompassing the following areas:

- Defining the activities and resources available to MEPCO through the incorporation agreements and laws relating to it
- Identifying projections of power demand, power resources and population served expected in the time period from 2016-2020
- Illustrating the strategic objectives for 2016-2020, aligned with optimally achievable scenario as defined by the regulator, which designated coordinators prepared to accomplish the strategic goals in the five year timeframe of the Investment Plan
- The best and optimally achievable scenarios to demonstrate what is required and what can be achieved keeping in view the resources constraints and realities on ground
- Projecting the financial impact on MEPCO's bottom-line of implementing the project plans

iii. Major Planning Situation

The following challenges faced by MEPCO require integrated cross functional planning:

- Technical challenges and technological advances that require MEPCO to upgrade the network, including metering to receive and measure continuous and reliable flow of power
- Operational challenges to maintain continuous flow of reliable power to the customers and meet their expectations in demand dominated, load-shedding driven regime
- Institutional challenges faced while developing the capacity of MEPCO
- Smooth power evacuation, especially related to variable renewables being integrated in the network
- Compliance with applicable laws and regulations
- Social responsibility to conserve energy and social up-lift

iv. Company's Investment Plan

The five year Investment Plan (FY 2016-20) is intended to be used by MEPCO managers and the Strategic Planning Committee of the Board of Directors as a reference guide to the upgradation and operations of MEPCO, taking into consideration the activities projected to occur in the next five years. Although the Investment Plan is based on a five year window, it will be a living document and will be updated to reflect changes in requirements.

The Business Plan is segregated into eleven sections, which are:

- i. Executive Summary – Pages (1-3)
- ii. The Company's Baseline Pages (3-16)
- iii. Forecasts for Next Five Years Pages (17-18)

- iv. Next Five Years Goals and Objectives Pages (19-24)
- v. Projects and Programs Scope of Work Pages (25-76)
- vi. Costs and Financing Plan Pages (76-92)
- vii. Benefits and Financial Analysis Pages (93-95)
- viii. Financial Projections for FY 2016 to FY 2020 Page 96
- ix. Investment Plan Implementation Pages (97-98)
- x. Implementation, Monitoring Plan and Reporting Pages (99-110)
- xi. Environmental and Social Assessment and Mitigation Plans Page 110

As per regulatory requirement specified in DIIP formats, two scenarios have been worked out, Best Case Scenario (if implemented, the company will achieve NEPRA standards in five years, comes with a higher cost) and Optimally Achievable Scenario (based on what company can fund, procure and implement realistically, comes with less cost, but compromise on the performance). The Multi Year Tariff (MYT) of MEPCO will be based on the Achievable Scenario, and the Best Case is prepared to demonstrate the overall needs of the DISCO to meet the benchmarks specified by NEPRA in five years.

Abstract of the business plan based on the two scenarios is presented hereunder:

Under this five year plan MEPCO will expand and rehabilitate its Transmission and Distribution (T&D) systems. Moreover, plans have been prepared to improve the financial, commercial, human resource and communications functions, including IT that supports the main T&D business. From new grid stations to AMRs for commercial improvements, initiatives have been planned to improve the overall performance of the company in an integrated manner. For details on scope please refer Section-V of this plan.

Costs Summary:

- Total Cost Best Case: Rs. 66,337 million.
- Total Cost Optimally Achievable Case: Rs. 49,534 million.

Benefits Summary:

- Best Case: Savings of 2,216 MKWh of energy through loss reduction and smooth dispersal of power from new generation.
- Optimally Achievable Case: Savings of 1,496 MKWh of energy through loss reduction and smooth dispersal of power from new generation.

IFRR:

Optimally Achievable Case: 10.45% for T&D investments

Loss Reduction and Collections Targets:

MEPCO will reduce the losses from 16.7% in FY2015 to 14.9% by FY2020. MEPCO has attained the collection efficiency of 100% that will be maintained throughout the control period.

Others	1,778	2,756	3,093	7,367
Total	8,667	9,382	7,971	20,459

- **Relationship between staff and consumers:** There are total 16,939 employees working in MEPCO as of FY 2014-15. The relationship between staff and consumers for the last four years is as follows:

Description	2011-12	2012-13	2013-14	2014-15
Customers	4,423,603	4,674,094	4,860,295	5,065,080
Employees	17,227	17,213	16,828	16,939
Customer/Employee Ratio	257	272	289	299

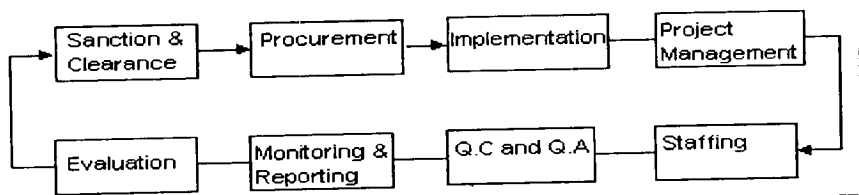
▪ **Existing Project Design and Implementation System of DISCO**

The project design and implementation system of MEPCO is based on the resource allocation (the anticipated amount of material required and obtained for the execution of the project), resource leveling (the required amount of resources to be provided at a proper time e.g, at the start of a phase, more work force and less material may be required as compared to the growth or maturity stage) and resource scheduling/loading (the amount of resources required during the specified phase of the project).

MEPCO has the required capability, personnel and expertise to implement and execute a project. It has well established, functioning departments that are capable of handling projects of similar nature and magnitude. Some of these departments are as under:

- Engineering
- Material Management
- Finance
- Commercial

Project implementation is summarized in the form of a flow chart as below:



Further, to align its planning department with current and future needs of the business, MEPCO is restructuring its overall planning function, which is being discussed under Section-ix.

▪ **Existing Operation System of DISCO**

The existing administrative layout of MEPCO operation system is given below:

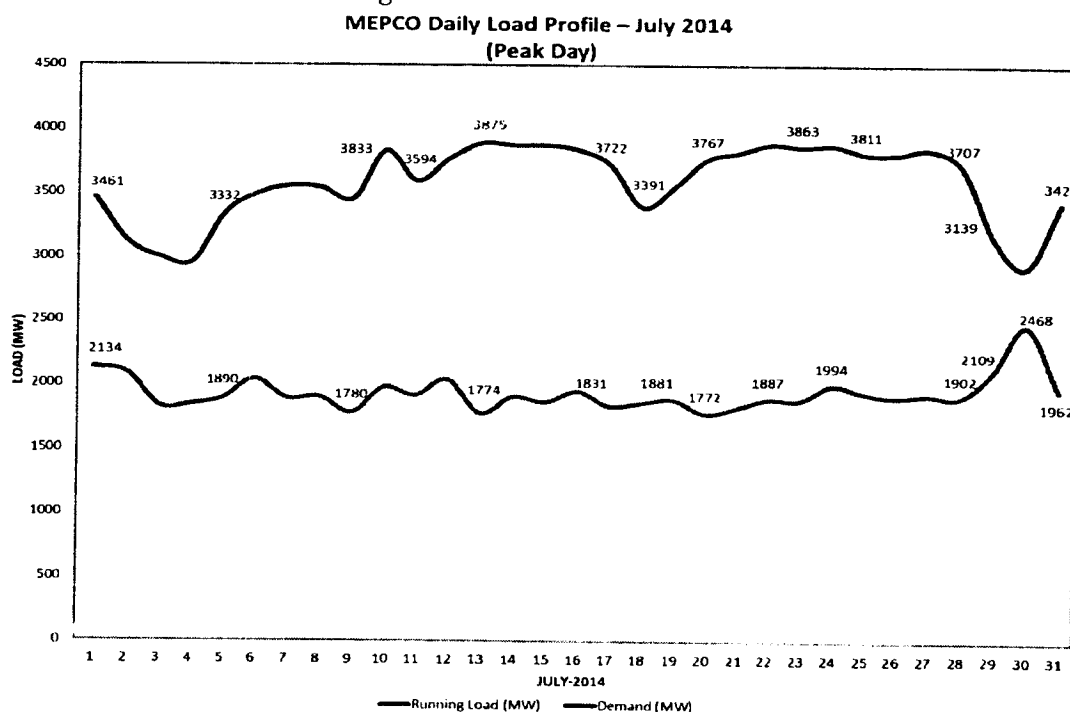
Description	Circles	Divisions	Subdivisions	R.O Office
Distribution	9	35	160	-
Grid System Operation	2	6	34	-
Metering & Testing	2	8	-	-
Construction	1	8	17	-
Grid System Construction	1	4	8	-
Total	15	61	219	35

Each Distribution division has one revenue /customer service office. The distribution circles, divisions, customer services offices and subdivisions deal with all types of customers of the company. The Grid System Operation (GSO) circle, divisions and subdivisions take care of and maintain the power supply through 132kV and 66kV systems comprising of the transmission lines and grid stations while the Grid System Construction (GSC) executes 66kV and 132kV grid station and transmission lines works. The Metering and Testing (M&T) section takes care of the installation, maintenance and testing of energy meters of all types. The Construction Section undertakes the implementation and execution of investment programs of 11kV and LT (0.4 kV), System Augmentation Program (ELR and DOP), deposit works and village electrification.

ii. Power Demand and Supply

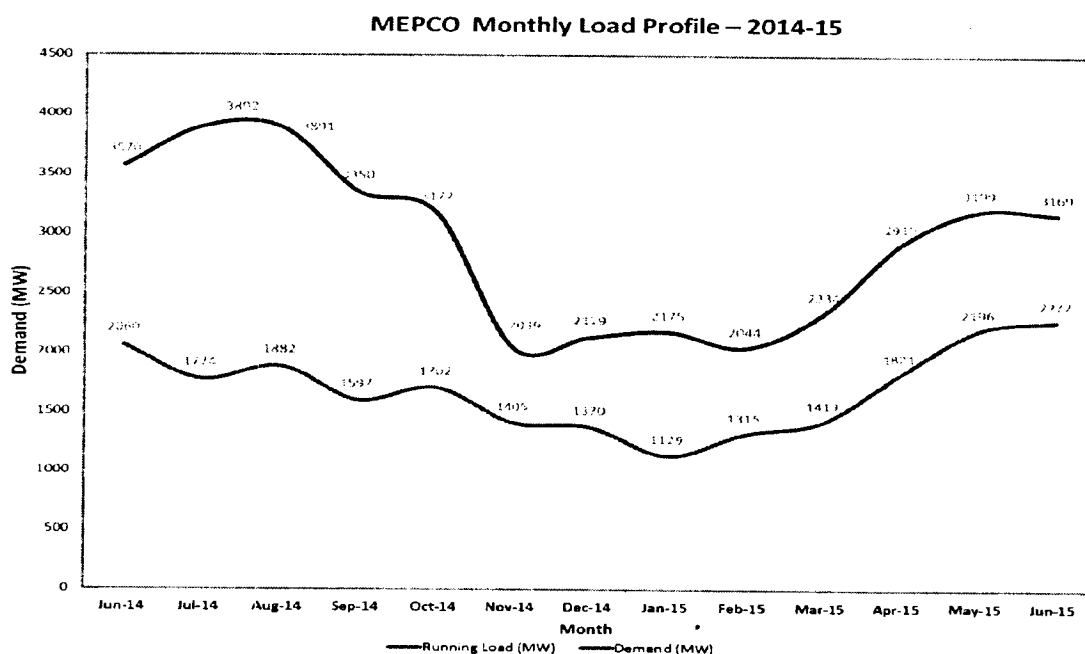
▪ Daily Load Demand

Below is the graphical representation of load fed below and computed demand, the difference is the load-shedding:



■ Seasonal Load Profile

Below is the graphical representation of load fed below and computed demand, the difference is the load-shedding:



iii. Secondary Transmission and Distribution Network Condition:

MEPCO has a total of 115 grid stations. The details by grid stations (includes loading) is placed at **Annexure-1**. MEPCO serves over five million customers through over a thousand of distribution feeders with a total length over seventy thousand kilometers. The total number of distribution transformer in MEPCO is over 140,000 with over 7,000 MVA. The distribution transformers by subdivisions

The total T&D losses are provided at **Annexure-2**. However, the segregate of Technical and non-technical losses is not available. The T&D losses with technical and non-technical segregate can be calculated using the following two approaches. Simulation through SLDs² will require at least one year through a third party consultant to complete. The D loss was calculated by independent consultant in 2010 using FDRANA. This study was submitted to NEPRA, however, there were some concern raised by NEPRA. Simulation through GIS³ will require at-least two to three more years to first map the whole system and then simulate in SynerGEE and PSS/E. The T loss calculations will be done through outsourcing and will be completed in FY 2016.

² Hiring a third party consultant, getting the Single Line Diagram (SLDs) updated and then simulating the network requires at-least a year's time

³ The GIS mapping of HT and LT network takes a lot of time as DISCOs have the network length in thousands of Km and hundreds and thousands of network assets that are mapped during GIS mapping

The distribution transformers loading data of grid stations is placed at Annexure-1. Directions have been passed to field formations to collect the data of the distribution transformers loading for the month of that will be completed in 2016.

Main equipment status (power transformers, transmission lines, distribution lines and distribution transformers) is provided above. However, the status of other equipment including breakers, isolators, CTs and PTs at grid stations is in process and will be provided in 2016.

iv. Financial Management:

The accounting systems and the corresponding back-office operations of MEPCO are legacy based which are not only unable to meet the growing needs of the company but also incapable of providing timely information required for senior management to make effective decisions or properly monitor and control utility operations. The ERP is being implemented under USAID Power Distribution Program, however all the current processes are manually run. MEPCO's cost/revenue centers are dispersed geographically, adding to the delay in reporting. The number and type of financial transactions are complex and diverse, and the data required managing these transactions quite voluminous.

The system of inventory / material management requires significant manual effort and does not provide real time valuation and status of the inventory. The inventory of MEPCO, despite of real time updating, is updated periodically for its valuation, thus, weakening the overall internal control system which in turn does not provide timely information for the project costing or project management. The inventory at warehouse is maintained manually on Microsoft Excel without any use of inventory coding.

Lack of automation in financial system and its manual integration with billing system results in working capital difficulties for MEPCO and delay follow up with banks for cash-in-transit by respective customer service offices.

The MEPCO requirement for Operating and Maintenance expenses for the Financial Year 2014-15 was Rs. 13,347 million. The brief head-wise detail is provided in the table below:

S. No.	Expense Head	O&M Expense Requirement (Rs. Million)
1	Salaries and Benefits	9924
2	Repair and Maintenance	1300
3	Travelling Expenses	600
4	Vehicle Expenses	346
5	Other Expenses	1177
	Total	13347

v. **HR Management**

The current strength of MEPCO for the year 2014-15 is 16,939 employees against sanctioned posts of 21,669 that make occupancy rate to be 78%. Among these, 475 are in the management cadre i.e. Grade 17 and above, while the remaining 16,464 are below Grade 17.

MEPCO Existing Strength

Sr. #	Category	Working				Total
		Distribution	GSO	GSC	IT Staff	
1	Officers Grade 18 & above	141	8	6	7	162
2	Assistant Managers	231	32	9	16	288
3	Assistant Managers (CS)	25	0	0	0	25
Sum of Officers		397	40	15	23	475
4	Computer Operator	0	0	0	32	32
5	Supervisor (DE)	0	0	0	60	60
6	Supervisor (DC)	0	0	0	41	41
7	Data Entry Operator	0	0	0	20	20
8	Data Coder	0	0	0	32	32
9	P.C Operator	0	0	0	8	8
10	LS-I	512	26	6	0	544
11	SSO-I	5	111	0	0	116
12	LS-I, MS-I, II	385	5	6	0	396
13	SSO-II	0	202	0	0	202
14	LFM-I	27	0	0	0	27
15	Foreman	2	23	3	0	28
16	LFM-II	60	1	0	0	61
17	Commercial Assistant	613	0	0	0	613
18	LM-I	1543	63	68	0	1674
19	LM-II	1539	71	43	0	1653
30	ALM	4189	55	64	0	4308
21	Meter Reader	1647	0	0	0	1647
22	Bill Distributor	303	0	0	0	303
23	Chowkidar / NQ	788	26	31	24	869
24	Clerks all Types	876	23	13	4	916
25	Other Staff	1603	1179	107	25	2914
Sum of Officials		14092	1785	341	246	16464
Grand Total		14489	1825	356	269	16939

MEPCO regularly conducts training and capacity building of its employees largely through self-owned training facilities (CTCs and RTCs) and WAPDA Staff College. The trainings that are mandated by WAPDA for the Officers are conducted at the Staff College while the local training centers organize around fifteen to twenty regular training programs each year for MEPCO employees. An average of 4,500 numbers of staff was trained under various functional and skill based training programs each year. In the year 2014-15, a total of 4,773 (28% of total strength) employees were trained at the RTC and WAPDA Staff College. Meanwhile, the budgeted amount spend on these trainings was nearly Rs. 5 million.

MEPCO has a total of eight training facilities including one RTC and seven CTCs to deliver trainings to the employees. Recently, USAID has upgraded the RTC and four CTCs of MEPCO. The remaining three RTCs are to be revamped by MEPCO on the same lines in the coming years.

vi. IT-MIS

With assistance from USAID Power Distribution Program (PDP), the IT backbone of the business has significantly improved but still required further scaling.

The table below depicts the IT infrastructure being developed by MEPCO by getting assistance from PDP:

Projects	Server	Desktop	Laptop	UPS	Printer	Scanner	LAN	WAN	Other Hardware	Software
ERP	13	271	20	271	59	53	23 sites	14 sites	-	SAP covering Finance, HR and MM modules for ERP
CIS	4	-	-	12	12	-	8 sites	8 sites	-	Customer Care and Billing software for CIS
IMR/ HHU	-	58	63	58	57	-	-	-	480 HHUs+ 150 Point Mobile PM	HHU Software
CSC		6	-	6	1	1	-	-	-	CMS v 2.2
P&E	1	6	-	7	2	-	8 nodes	-	-	ArcGIS & SynerGEE
AMR	7	181	-	182	176	-	6 nodes	1 link ⁴	33,250 AMR meters	MDC Software
LDI ⁵	4	6	-	7	1	-	16 nodes	1 link ⁶	-	MDC Software
IT Lab at HQ	-	16	-	17	1	-	16 nodes	-	-	-
RTC Lab	1	25	3	2	1	-	26 nodes	-	-	-
Data Center	Racks, UPS, backup systems, fire safety, HVAC, biometric based security, video surveillance, backup generator etc.									

⁴ PDC at MEPCO HO is connected with WAPDA House NOC @ 2 Mbps

⁵ Servers for LDI and AMR are located at WAPDA House NOC.

⁶ AMI at MEPCO HO is connected with WAPDA House NOC @ 2 Mbps

vii. Commercial Management

The commercial operations of MEPCO were legacy based and did not offer much in terms of transparency, data accuracy, system efficiency and services to consumers. Therefore, there was a dire need to improve commercial procedures and bring them at par with best practices adopted by utilities worldwide. With the vision to improve the overall commercial operations at MEPCO, USAID implemented an optimal fusion of activities that would be in order to revolutionize the business practices adopted by MEPCO which took its commercial operations many steps further.

The old billing system of MEPCO was characterized by manual and cumbersome processes, inadequate controls, insufficient commercial focus, limited transparency and a lack of reliable information. Therefore, CIS, which is the critical backbone of customer care and commercial operations, was implemented at MEPCO and Vehari Circles with the assistance of PDP.

As far as meter reading process is considered, the orthodox practice was recording the reading and calculating the consumption on customer records (Kalamzu card), transferring this data to the meter reading list, obtaining approval for the compiled readings by operating personnel and then entering the reading and the consumption into the computer which was a time consuming process leaving little or no time to verify suspect readings. Therefore, data manipulation and transcription errors were common causing the entire process to be highly inefficient with poor internal controls. In response to this, MEPCO implemented the IMR initiative under which the process of meter reading was re-engineered and the role of the MIS directorate was increased to maintain registers electronically, eliminate redundancies and ensure better monitoring methods. The HHUs were implemented in two Circles of MEPCO with help of USAID PDP.

MEPCO through PDP's assistance has also implemented a large-scale high-end meter replacement program across its territory, with AMR (GSM/GPRS) meters for up to 20,000 high-end residential, agricultural, commercial and industrial customers having a sanctioned load of more than 20 kW to ensure improved commercial performance, increased revenue (by modernizing MEPCO's meter reading) and commercial management processes by reducing losses and saving energy. Further, AMRs have also been installed over 20,000 tubewell customers of two operational circles of MEPCO.

The following table illustrates the trend of units purchased from CPPA and subsequent billing to the consumers by MEPCO:

(Units in GWh)

Description	2010	2011	2012	2013	2014
Units Received from CPPA	12,239	12,471	12,453	11,962	13,859
Units Billed to Customers	9,916	10,189	10,218	9,913	11,437
Units Lost	2,323	2,282	2,234	2,049	2,422
Losses (%)	19.0	18.3	17.9	17.1	17.5

The table below gives an illustration of the billing and collection pattern of MEPCO:

(Revenue in Million Rs)

Description	2010	2011	2012	2013	2014
Revenue Billed to Customers	72,150	84,637	98,264	107,932	138,621
Revenue Collected from Customers	67,968	82,922	95,559	99,035	133,127
Revenue Collection (%)	94	98	97	92	96
AT & C Losses (%)	23.7	20.0	20.2	24.0	20.7

viii. Internal Control

■ Investment Approval

The company has adopted WAPDA procedures and PEPCO approved book of Financial Powers for processing all types of expenditures. The above documents prescribe financial and administrative powers of various offices for different type of expenditures.

The investment program is categorized into three components: Development of Power, Rehabilitation / Energy Loss Reduction and Secondary Transmission Lines and Grid Stations and now been transformed into the Distribution Integrated Investment Plan (DIIP)/ Business Plan, which also covers other functional areas plans as well.

The Planning Department under supervision of CEO and Chief Engineer and in consultation with Operation, Finance and other Directorates prepared PC-1s for DOP, ELR, STG and RE. The PC-1s were submitted to Planning Division of GOP after approval of BOD/Authority for final approval from ECNEC and subsequently they were approved. The approved PC-1s are the basis of annual investment. Now DIIP will be utilized for getting regulatory approval first and then taking the desired course of approval, based on funding sources.

■ Internal Audit

There are three types of audits conducted in MEPCO Internal Audit, Govt. Audit and Audit by a chartered company. Each has different scope and objectives. The internal audit processes of MEPCO are governed by the legacy systems which have missed the mark to adequately identify non-compliance with existing procedures such as:

- Units consumed but consumer not billed
- Damaged or slow meters
- Inaccurate meter reading
- Units billed to nonexistent consumers

- Failure to monitor accounts with payment arrangements

Under the co-sourcing arrangement, a co-sourcing partner was hired through PDP provided assistance to MEPCO to implement a risk based audit approach as defined in the new internal audit manual for a period of one year. After a year, the performance of the audit function was evaluated and it was revealed that the internal audit function has significantly improved as the desired controls were established with in the processes. The capacity and capability of the internal audit staff was also increased.

ix. **Legal and Contractual Framework**

The primary function of MEPCO is to distribute electrical power to the residents and industries within its service area.

The important legal and regulatory documents, principal contracts, and laws under which MEPCO must operate are:

- The Companies Ordinance 1984
- MEPCO Memorandum of Association
- MEPCO Articles of Association
- Distribution License 2002
- NEPRA Performance Standard 2005
- Income Tax Ordinance 2001

The Companies Ordinance of 1984 encompasses all the rules and regulations for businesses registered with Security Exchange Commission of Pakistan (SECP). The Ordinance provides legal protection to the businesses, with the SECP keeping a close check on financial and corporate entities to ensure the stakeholders' interest. According to the Ordinance, MEPCO has to follow the Memorandum of Association and Articles of Association.

According to its Memorandum of Association, in May 1998, MEPCO was incorporated as a Limited Liability Company with the right to acquire properties and grid stations of WAPDA with the sole purpose of carrying on and expanding the business and supplying electricity to the areas formerly supplied by the Multan Area Electricity Board (AEB). Similarly, the Companies Ordinance of 1984 provides a framework of rules and regulations to MEPCO, known as its Articles of Association, which cause MEPCO to be classified as a Public Limited business and therefore subject to the laws which apply to such corporations.

In April 2002, NEPRA granted a distribution license to MEPCO as per section 21 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997. According to it, MEPCO can engage in distribution services and make sales of power to consumers in the Service Territory and the Concession Territory subject to and in accordance with the terms and conditions of the license.

NEPRA also prescribes separate performance standards for generation, transmission and distribution of safe, efficient and reliable electric power to all the consumers.

Additionally, the taxation system is defined by the Income Tax Ordinance of 2001. Like all DISCOs, MEPCO has to comply with this Ordinance and file the following returns:

- Annual income tax return
- Monthly sales tax return
- Statement of deductions and calculations
- Monthly withholding tax
- Quarterly advance tax

The following deductions are made by MEPCO and are duly submitted to the Government of Pakistan:

- Sales tax
- Withholding tax on sales tax
- Withholding tax on goods
- Withholding tax on sales

Section -III

Forecasts for Next Five Years

Through Power Market Survey (PMS), MEPCO prepares the forecast ten years. The forecasts for the period of FY2016 to FY2020 are tabulated in this section. Additionally, the generation plan is prepared centrally by NTDC that is also attached.

i. Consumer Growth by Category

DIIP 1 – Consumer Growth by Category

(Nos in Million)

Circle	Domestic	Commercial	Industrial	Bulk	T/ Well	Public Light	Others	Total
2015-16	4,730,544	478,501	52,795	418	81,507	1,490	120	5,345,375
2016-17	4,935,315	493,423	54,330	420	83,983	1,550	125	5,569,146
2017-18	5,141,676	508,319	55,977	421	86,618	1,600	126	5,794,736
2018-19	5,348,020	523,289	57,581	423	89,201	1,645	128	6,020,288
2019-20	5,553,845	538,219	59,177	425	91,766	1,680	130	6,245,242

ii. Energy and Demand Forecasts

DIIP 2 – Energy and Demand Forecasts

Category-wise Energy Sales (GWh) – Including Load Shedding

Description	2016	2017	2018	2019	2020
Domestic	8335	8934	9545	10169	10805
Commercial	1217	1301	1387	1474	1563
Public Light	24	24	25	25	26
Small Industries	743	919	1097	1276	1457
M&L Industries	4348	4813	5300	5813	6350
Tube Well	3227	3485	3744	4002	4261
TOTAL	17894	19476	21098	22760	24463
Growth %		8.8	8.3	7.9	7.5

Category-wise Energy Sales (GWh) – Excluding Load Shedding

Description	2016	2017	2018	2019	2020
Domestic	6624	7189	7766	8354	8954
Commercial	966	1045	1125	1208	1291
Public Light	18	19	20	20	21
Small Industries	650	825	1002	1181	1361
M&L Industries	3482	3911	4361	4834	5330
Tube Well	2604	2862	3119	3377	3636
TOTAL	14345	15851	17393	18973	20592

Growth %		10.5	9.7	9.1	8.5

Category-wise Demand (MW) – Including Load Shedding

Description	2016	2017	2018	2019	2020
Domestic	1688	1811	1936	2064	2194
Commercial	282	302	322	343	365
Public Light	5	5	5	5	6
Small Industries	65	81	96	112	128
M&L Industries	1641	1716	1795	1878	1966
Tube Well	426	460	494	528	562
TOTAL	3366	3584	3807	4036	4271
Growth %		6.5	6.2	6.0	5.8

Category-wise Demand (MW) –Excluding Load Shedding

Description	2016	2017	2018	2019	2020
Domestic	978	1087	1200	1314	1434
Commercial	163	181	200	218	238
Public Light	3	3	3	3	4
Small Industries	42	54	67	80	94
M&L Industries	922	986	1053	1121	1194
Tube Well	250	281	313	345	378
TOTAL	1932	2124	2322	2522	2733
Growth %		9.9	9.3	8.6	8.4

iii. Generation Forecast and Power Acquisition Program

Apart from aggressive generation additional plan out-side MEPCO's territory, widespread variable renewable generation (Solar Power) influx in is also planned in MEPCO's territory, along with coal based conventional power plants coming on bar in next five years. Please see **Annexure-3** for generation plan recently finalized by NTDC.

iv. Other Changes Including Technological Advances

With the assistance from USAID PDP MEPCO has introduced technology to improve its financial, commercial and overall business management, which need to be sustained and scaled-up. Therefore, preparing and implementing DIIP is extremely important.

v. Analysis

As depicted above, the power demand of the customers is growing rapidly, and extensive generation is being added. With overloaded transmission and distribution system, if proper plan like DIIP is not approved, implemented, monitored and closed in-time, then the customers will not get relieve and the whole generation investments can go down the drain.

Section -IV

Next Five Years Goals and Objectives

i. Goals and Objectives Matrix

The goals are long term targets and objectives are medium term targets. The objectives defined by MEPCO are SMART i.e. Specific, Measurable, Attainable, Realistic and Timely. The target setting has been done keeping in view what can be **achieved optimally** in next five years. Table below (DIIP4) lists the goals and objectives for next five year for the company, are prepared by extensive discussions and coordination within MEPCO and the signed-off goals and objectives from initial exercise are placed at **Annexure-4**:

DIIP 3 - Goals and Objectives Matrix

Strategic Goals	Strategic Objectives	Coordinating Directorate (s)	Leading Directorate	Target Measurement	Measurement FY 2015	Five Year Objective FY16 to FY2020					Project Manager	Supporting Plan
						FY2016	FY2017	FY2018	FY2019	FY2020		
1.0 Improve Operational Efficiency	1.1.a Reduce overall electricity losses to 10% <u>Technical Losses Reduction by:</u>	P&E, Dev & Ops	P&E	% age of kWh	16.7%	16.2%	15.8%	15.6%	15.5%	14.9%	CE P&E and team	DIIP- Transmission and Distribution Plan
	- Improving voltage profile To meet specified regulatory performance standards			% of specified voltage	+ -20%	Improved	Improved	Improved	Improved	Within permissible limits as specified by NEPRA for different voltage levels		
	-Improve power factor to meet specified regulatory standards			%	Average 0.87					average 0.92		
	-Reduce distribution transformers failure rate to <1%			%	Reported 3%					2%		
	-Improve HT/LT ratio to 2:1			Ratio	1.5:1	.				1.57:1		

Strategic Goals	Strategic Objectives	Coordinating Directorate (s)	Leading Directorate	Target Measurement	Measurement FY 2015	Five Year Objective FY16 to FY2020					Project Manager	Supporting Plan
						FY2016	FY2017	FY2018	FY2019	FY2020		
1.0 Improve Operational Efficiency	1.1.b Reduce Commercial Losses	CSD, MIS and Ops	CSD	% of KWh	This is progressive decrease by % of the commercial loss. Therefore, 1% commercial loss will be reduced while	0.2%	0.2%	0.2%	0.1%	0.3%	CSD and his team	DIIP- Commercial Improvement Plan (CIP)
	1.2 Maintain revenue recovery to 100%	CSD, Ops, MIS, O&M Dist	CSD	%age billed amount excluding subsidy	100%	100%	100%	100%	100%	100%		
	1.3 Reduce meter reading to bill delivery time to 2 days	CSD, Ops, MIS, O&M Dist	CSD	Days	10	10	8	8	8	8		
	1.4 Improve SAIDI/SAIFI To meet specified regulatory performance standards	Ops, T&G, O&M Dist, CSD, Technical	O&M Dist	Hours/Numbers	Over Specified limits of NEPRA					To comply with NEPRA's specified standards	CE P&E and his team	DIIP- Transmission and Distribution Plan
	1.5 Eliminate fatal & non-fatal accidents	Ops, HR, O&M Dist, MM, HR, Dev, T&G	Operations	No of accidents	14/12	Substantial Reduction	Eliminate	Eliminate	Eliminate	Eliminate		
	1.6 Automation of Financial, HR and Material Management Processes	FD, HR and MM	FD		Partial through ERP	Complete DISCO	Complete DISCO	Complete DISCO	Complete DISCO	Complete DISCO	FD and his team	DIIP-Financial Management Improvement Plan (FMIP)
	1.7 E-Transfer of bank scrolls by 100%	Commercial , FIN, MIS	FIN	%age of collection	40% of collection					All		
2.0 Improve Customer Care and Service	2.1 Reducing complaints related to billings to less than 0.1%	Ops, CSD, O&M Dist	CSD	%age of total	More than 0.5%	Reduction	Reduction	Reduction	<0.1%	<0.1%	CSD and his team	DIIP- Commercial Improvement Plan (CIP)
	2.2 Minimize New Connections installation duration	Ops, O&M Dist, CSD, MM,	CSD	No of days	NEPRA's guidelines not complied with			To comply with NEPRA's specified standards				
	2.3 Minimize Reconnection installation duration	Ops, O&M Dist, CSD, MM,	CSD	No of days	NEPRA's guidelines not complied with			To comply with NEPRA's specified standards				
	2.4 Maximize the time between date of receipt of bill and due date for payment (10 days)	Ops, MIS, CSD, O&M Dist	MIS	Days	7	7	10	10	10	10		

Strategic Goals	Strategic Objectives	Coordinating Directorate (s)	Leading Directorate	Target Measurement	Measurement FY 2015	Five Year Objective FY16 to FY2020					Project Manager	Supporting Plan
						FY2016	FY2017	FY2018	FY2019	FY2020		
3.0 Improve MEPCO's Infrastructure	3.1 Human-ware											
	3.1.1 Implement Performance Based Management System	HR & All	HR		Not fully implemented	Implement existing Policies & extend PBMS study					HRD and his team	Human Resource Improvement Plan (HRIP)
	3.1.2 Start Training & capacity building Initiatives	HR & All	HR		Legacy training	TNA, Training plans, CPD						
	3.1.3 Improve recruitment process	HR & All	HR		Legacy process	NTS weightage to be considered for selection/recruitment						
	3.1.4 Fulfill the basic requirement for needs to operate for field staff	HR , FIN, Ops, O&M Dist	HR		No comprehensive system in place	LM plan part of the overall DIIP						
	3.1.5 Improve communications with staff	HR,PR & MIS	HR		In-adequate communication	To develop coordinated communication system aligned with business strategy						
	3.1.6 Identify turnaround group	All	HR		Does not exist	Prepare TOR, Approval from BOD, structure of SBU						
	3.2 Orgaware											
	3.2.1 Org A&R review and implementation	HR & All	HR		Not fully implemented	Align org structure with business strategy					HRD and his team	Organizational Improvement Plan (OIP)
	3.2.2 Improve office facilities/work environment	All	HR		Inadequate facilities	Needs improvement						
	3.2.3 Conduct yardstick study for Human Resource	All	HR		Yardstick study is obsolete	Yardstick Study to be updated						
	3.2.4 Conduct motivational campaigns	PR, HR	HR		No campaign	Need to conduct						
	3.2.5 Career planning	HR & All	HR		Not done	Plan & approval by BOD						
	3.2.6 Improvement in health & education	HR & All	HR		Limited/inadequate facilities	Plan & approval by BOD						

Strategic Goals	Strategic Objectives	Coordinating Directorate (s)	Leading Directorate	Target Measurement	Measurement FY 2015	Five Year Objective FY16 to FY2020					Project Manager	Supporting Plan
						FY2016	FY2017	FY2018	FY2019	FY2020		
3.0 Improve MEPCO's Infrastructure	3.3 Technoware											
	3.3.1 AMI expansion	MIS, Ops, O&M Dist, CSD,P&E	CSD		USAID Project/ Pilot by MEPCO	Cover an additional approx. 100,000 high-end and tubewell customers through AMRs					CSD	Commercial Improvement Plan (CIP)
	3.3.2 P&E expansion to GIS Mapping	P&E, MIS, Ops, O&M Dist	P&E		USAID Project	Fully implement in MEPCO					P&E	IGTDP
	3.3.3 Improve procurement standards	P&E	P&E		Need to Improve the standards	Standards improved					P&E	IGTDP
	3.4 Inforware											
	3.4.1 Implement ERP & its rollout	All	FIN		PDP initiated ERP project	IT infrastructure extended					FD	Financial Management Improvement Plan (FMIP)
	3.4.2 Implement CIS & its rollout	CSD,MIS	CSD		PDP initiated it in one circle	Extended to all circles					CSD	Commercial Improvement Plan (CIP)
	3.4.3 Improve communications through email	All	MIS		Paper based communication	Promote e-communication culture					DG IT	Internal Comm. Improvement Plan (ICIP)

4.0 Comply with applicable laws and regulations	4.1 Companies Ordinance 1984	FIN, Company Secretary	FIN		-	Study and Compliance Required	All	Create a Library, map all requirements and Make it part of Business Plan
	4.2 Code of Corporate Governance for Public Sector	FIN, Company Secretary	FIN		-			
	4.3 Income Tax Ordinance	Legal, FIN,CSD,MIS	FIN		-			
	4.4 Sales Tax Act	Legal, FIN,CSD,MIS	FIN		-			
	4.5 Electricity Act & rules	Legal, CSD	CSD		-			
	4.6 Theft Ordinance CPC	Ops, Legal	CSD		-			
	4.7 Industrial Relations	HR, Legal	HR		-			
	4.8 Other labor laws	HR, Legal	HR		-			
	4.9 PPRA Rules	Dev, P&E,	P&E		-			
	4.10 Distribution License	Ops, T&G, P&E, Dev, CSD, FIN	FIN		-			
	4.11 NEPRA Act & Rules	All	FIN		-			
	4.12 Compliance with	Dev	Dev		-			
	4.13 Power Sale Agreement with CPPA	Legal, FIN, CSD, T&G	FIN		-			

5.0 Make MEPCO socially responsible corporate entity	5.1 Extension of exemption of Load shedding to Hospitals	Ops	Ops	No of hospitals	Provision to some hospitals		Extend it	Communication Head	Stakeholders Communication Plan
	5.2 Campaign for anti-theft	CSD, O&M Dist, Ops, PR, HR	CSD	No of campaigns	No Campaigns	DISCOs wide			
	5.3 Campaign for energy conservation	P&E, PR	P&E	No of campaigns	No Campaigns	DISCOs wide			

In the above table the goals for MEPCO are divided into five major categories (i) Improve operational efficiency (this includes technical (transmission and distribution systems operational efficiency⁷), financial, commercial, human resource, employee safety etc. (ii) Customers Services and Care, (iii) Improve DISCOs Infrastructure (with only top priority projects under the four heads defined that need highest of attention), (iv) Comply with applicable laws and regulations and (v) The initiatives that the DISCO may take to make it more socially responsible corporate entity.

⁷ NEPRA Performance Standards (Distribution) Rules, 2005 and Distribution Codes were consulted while preparing these objectives

ii. Rationale for Setting Goals and Objectives and the Planning Criteria for Proposed Investments

The goals and objectives that have been narrated under DIIP-4 were prepared after extensive discussions and coordination efforts within MEPCO. These are the targets that MEPCO has set and the projects / initiatives have been identified to meet these set targets. The resources requirements for the best case were far more than the capacity MEPCO to fund and execute. Initiatives have been identified and prioritized under the optimally achievable scenario keeping in view, the following factors:

- a. The reliable dispersal of power, especially the power that will be injected within MEPCO in next five years, including the variable renewables
- b. Funding availability as MEPCO can arrange funding only up to Rs. 49,534 million as required under the achievable scenario and not Rs. 66,337 million as required under best case
- c. Capacity to procure and execute is another constraint that has limited MEPCO's capability to implement the achievable scope, not the larger scope envisaged under best scenario developed
- d. Meeting the technical parameters specified in the Grid Code, Distribution code performance standards and consumer service manual
- e. Loss reduction from 16.7% in FY2015 to 14.9% in FY2020, the loss improvement potential saturates as the losses are further decreased and improving/maintaining collections
- f. Improving internal controls, faster information availability and quality of data through back-office automation
- g. Improving the competencies of the employees and their morale, through training capacity building and incentives
- h. Improving corporate brand image by improving internal and external communications
- i. Safety of line-staff is a key part of DIIP, includes special focus on LM safety
- j. Return on investment is also considered while planning and prioritizing the interventions
- k. Other objectives (social uplift e.g. village electrification) are part of the plan as well

Section -V

Projects and Programs – Scope

A. Secondary Transmission System

This section covers scope for the expansion and rehabilitation of secondary transmission network (132 kV and or 66 kV) of MEPCO.

MEPCO has prepared two Scenarios and the related scope. **Scenario-1** (the Best Case), that if implemented would have completely revamped the transmission network and enabled the DISCOs to achieve the NEPRA's specified Performance Standards Distribution and provision of the Distribution Code, specially the Distribution Planning Code issued by NEPRA.

The company has also prepared a **Scenario-2** (the Optimally Achievable Case) based on its procurement, execution and especially the ability to raised funding. The Multi Year Tariff (MYT) is based on based on the Optimally Achievable Case scope and costs.

The proposed sub Transmission Lines and Grid Stations works for DISCO also includes the scope for "Deposit Work" and these works are separately identified in the formats below:

▪ Load Flow Studies for Best Case and Optimally Achievable Cases

This section covers the load low flow peak-cases for of the five years (FY2016-20). The assumptions and results of these studies are discussed under this section and detailed plots are referred in the Annexures. Special situation, for instance, integration with Solar Power (large induction) over a specified period in MEPCO has been paid special attention in the studies.

As per NEPRA's guidelines provided in the DIIP formats, MEPCO has prepared two Scenarios and the related scope. Scenario-1 (the Best Case), that if implemented will completely revamp the transmission network and enable the DISCOs to achieve the NEPRA's specified Performance Standards Distribution and provision of the Distribution Code, specially the Distribution Planning Code issued by NEPRA.

Further, the company has also prepared a Scenario-2 (the Optimally Achievable Case) based on its procurement / execution capacity and availability / capacity to raise funding for the investments. Detailed system studies for the future years (based on two scenarios as defined above) have been carried out to determine the justification of the proposed sub-projects in MEPCO area under five year DIIP and to assess their impact on the system transmission network.

The other objectives of the studies are identification of any reinforcements required with the proposed sub-projects in terms of new lines, new substations transformer addition/augmentation, reactive power compensation and switchgear addition/replacement at the substations, in addition to the already planned/under execution projects in MEPCO. The benefits of the proposed sub-projects to the network of MEPCO have also been determined through system studies and are discussed below.

Methodology of Analysis – Load Flow Studies

The methodology of system studies/analysis for both scenarios (best and achievable scenarios) is given as under:

- i. Under this DIIP, MEPCO's network expansion plan including already planned/under-execution projects have been included
- ii. The proposed sub-projects to be implemented have been identified through load flow studies and identified separately
- iii. The complete system model of the National Grid has been simulated, i.e., system network of not only the MEPCO but also of NTDC and the neighboring DISCOs have been simulated for the purpose of analysis
- iv. The assumptions on which the system studies are based have been mentioned with necessary details below
- v. Two type of analysis, i.e., load flow and short circuit, have been carried out and their results have been presented in the report
- vi. Load flow analysis has been carried out for the steady state normal system operating condition in order to:
 - Assess adequacy of the network to feed the proposed sub- projects
 - Determine any additional transmission reinforcement and/or reactive compensation requirement for the scope of work of sub-projects
 - Justification of proposed projects
 - Determine the benefits of the above proposed works at substations and transmission lines in terms of reduction in transmission losses, improvement in voltage profile, reduction in loading of transmission lines or transformers, spare capacity margin in the transmission system
- vii. Short circuit analysis has been carried out to compute 3-phase and 1-phase short circuit levels at the substations. A comparison between the computed short levels and short circuit rating of the installed switchgear equipment at the existing substations has also been made in the vicinity of the proposed sub-projects in order to assess whether any switchgear equipment is appropriate or will become under-rated after the commissioning of the proposed sub-project(s). Recommendations for under-rated switchgear have also been made where needed, which essentially is replacement, also made part of scope. The short circuit analysis are used from Tranche-III recently carried out
- viii. Conclusions and recommendations on the basis of technical analyses have been presented at the end

Assumptions – Load Flow Studies

The load flow studies are based on the following assumptions:

- i. Latest PMS load forecast, attached as **Annex-5**. The diversified values of the peak projected loads on substations, existing and new, have been modeled as per latest PMS load forecast. The loads have been adjusted as per the ratio between MEPCO Peak including load shedding and the algebraic sum of recorded individual peaks of the substations of MEPCO. This diversified peak is modeled in the load flow cases for FY 2016 to FY 2020 that helps in identifying scope for transmission lines
- ii. The scope of substation is derived from their individual undiversified peaks separately in excel based models. This scope identified is then modeled in the load flow cases
- iii. Generation expansion plan utilized in the load flow studies is attached with document. All the existing as well as the proposed power plants, both in public and private sectors have

been assumed in operation in all the study scenarios as per their expected commissioning schedules

- iv. The transmission expansion plans of NTDC
- v. Latest MEPCO's planned/on-going transmission expansion/re-enforcement projects, including substations (extension, augmentation, conversion, new), transmission lines have also been simulated in the studies as per their expected commissioning schedules
- vi. The existing and planned shunt capacitors at 11 kV and 132 kV have been modeled in the study scenarios. However, additional shunt capacitors have also been recommended to compensate the reactive power where net power factor at the substations have been found too low

Study Criteria– Load Flow Studies

The load flow studies have been carried out keeping in view the following criteria in the MEPCO's network:

Best Case

- Voltage Limits: $\pm 5\%$ under normal operating conditions
- Loading of transmission lines and transformers have been kept within 100% of their capacities under normal operating conditions.
- N-1 contingency analysis has been carried out and additional scope to meet that criteria is also simulated

Optimally Achievable Case

- Voltage Limits: $\pm 5\%$ under normal operating conditions
- Loading of transmission lines and transformers have been kept within 100% of their capacities under normal operating conditions.
- N-1 contingency analysis has not been carried out under this option as it would be require further reinforcement in MEPCO's transmission network for which MEPCO at this stage has no firm financing

Results of Load Flow Studies

Load flow studies have been carried out with already planned/on-going projects; and with & without proposed subprojects in 5 year plan to study their impact on the system network. The system scenarios of peak load conditions of years 2015 to 2020 have been simulated.

The year wise Single line diagram of the system showing voltage profile and MW/MVAR flows are **Annexe- 6** for Best Case (FY2016 to Fy2020) and **Annexure-7** for optimally achievable (FY2016 to Fy2020):

i. Year Wise Voltage Profile

It is evident from the study exhibits that voltage profile will improve and becomes within permissible limits. The detail of proposed rehabilitation and there effects is show in the single line diagram (**Annex-8**).

ii. Year Wise Loading Position - For Grids refer to the Excel Sheet and for T/Lines refer to plots of Load Flow

Load flow studies have also been carried out for both Best and optimally achievable system scenario with the proposed rehabilitation in form of Conversions, 132 kV Capacitors and

New transmission Lines and year wise loading position of Grid Stations and Transmission lines are attached (**Annex-09**)

iii. Reduction In Losses

Year	MW		Units (MKWh)	
	Ideal	Realistic	Ideal	Realistic
2015-16	57.8	27.1	269.87	126.53
2016-17	10.5	28.6	49.03	133.54
2017-18	16	28.9	74.71	134.94
2018-19	7.5	6.5	35.02	30.35
2019-20	82	46.9	382.86	218.98

▪ Expansion and Rehabilitation (Best Case) - Scope

The scope of Work for Best Case is tabulated here under:

a. Grid Stations (Best Case)

DIIP 4 - Grid Stations (Best Case)

Sr. No	Description	Total No.	Total Capacity (MVA)	2015-16 (No)	2016-17 (No)	2017-18 (No)	2018-19 (No)	2019-20 (No)
1	New							
a	132 KV	13	489	6	4	0	1	2
2	Conversion							
a	66 to 132 KV	8	312	7	0	0	0	1
3	Augmentation							
a	132 KV	42	719	9	13	9	7	4
b	66 KV							
4	Extension (Transformer)							
a	132 KV	16	500	4	4	3	5	-
b	66 KV							
5	Line Bays							
a	132 KV	104	-	62	12	12	10	8
b	66 KV							

Year	Scope of Work					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Projects with Available Finances (Tr-III, Tr-IV) ADB						
New Grid	2	-	-	-	-	-
Conversion	5	-	-	-	-	-
T/Line (Total)	7	-	-	-	-	-
Augmentation	38	13	-	-	-	-
Extension	12	4	-	-	-	-
Capacitor	-	-	-	-	-	-
Total	64	17	0	0	0	81

b. Transmission Lines (Best Case)

i. New Line(Best Case)

DIIP 5 – Transmission Lines : New Line (Best Case)

Sr. No.	Description	Total Length (km)	2015-16 (Km)	2016-17 (Km)	2017-18 (Km)	2018-19 (Km)	2019-20 (Km)
1	132 KV D/C (Rail)	180	97	10	-	73	-
2	132 KV D/C (Lynx)	161	157	4	-	-	-
3	132 KV SDT (Rail)	407	228	50	69	60	-
4	132 KV SDT (Lynx)	655	405	64	94	-	92

ii. Rehabilitation/Reconductoring/Up-gradation (Best Case)

DIIP 6 – Transmission Lines: Rehabilitation/ Reconductoring / Up-gradation (Best Case)

Sr. No.	Description	Total Length (km)	2015-16 (Km)	2016-17 (Km)	2017-18 (Km)	2018-19 (Km)	2019-20 (Km)
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iii. Reconductoring and Rerouting (Best Case)

DIIP 7 – Transmission Lines: Reconductoring and Rerouting (Best Case)

Sr. No.	Description	Total Length (km)	2015-16 (Km)	2016-17 (Km)	2017-18 (Km)	2018-19 (Km)	2019-20 (Km)
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iv. Capacitor (Best Case)

DIIP 8 – Transmission Lines: Capacitors (Best Case)

Sr. No.	Description	Total MVAR	2015-16 (MVAR)	2016-17 (MVAR)	2017-18 (MVAR)	2018-19 (MVAR)	2019-20 (MVAR)
1	11kV Fixed Capacitors	163	69	48	18	22	6
2	11kV Switched Capacitors	-	-	-	-	-	-
3	132kV Fixed Capacitors	343	40	101	202	-	-
4	132kV Switched Capacitors	-	-	-	-	-	-

▪ **Expansion and Rehabilitation (Optimally Achievable Case) - Scope**

The scope of Work for Achievable Case is tabulated here under:

a. Grid Stations (Optimally Achievable Case)

DIIP 9 - Grid Stations Optimally Achievable Case

Sr. No	Description	Total No.	Total Capacity (MVA)	2015-16 (No)	2016-17 (No)	2017-18 (No)	2018-19 (No)	2019-20 (No)
1	New							
a	132 KV	10	365	1	2	2	2	3
2	Conversion							
a	66 to 132 KV	8	312	1	2	2	2	1
3	Augmentation							
a	132 KV	17	270	-	2	5	6	4
b	66 KV			-				
4	Extension (Transformer)							
a	132 KV	8	237	-	1	2	1	4
b	66 KV							
5	Line Bays							
a	132 KV	74	-	8	14	14	20	18
b	66 KV							

Year	Scope of Work					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Projects with Available Finances (Tr-III, Tr-IV) ADB						
New Grid	2	-	-	-	-	-
Conversion	5	-	-	-	-	-
T/Line (Total)	7	-	-	-	-	-
Augmentation	38	13	-	-	-	-
Extension	12	4	-	-	-	-
Capacitor	-	-	-	-	-	-
Total	64	17	0	0	0	81

b. Transmission Lines (Optimally Achievable Case)

i. New Line

DIIP 10 - Transmission Lines (Optimally Achievable): New Line

Sr. No.	Description	Total Length (km)	2015-16 (Km)	2016-17 (Km)	2017-18 (Km)	2018-19 (Km)	2019-20 (Km)
1	132 KV D/C (Rail)	149	18	13	-	106	12
2	132 KV D/C (Lynx)	321	13	112	55	54	88
3	132 KV SDT (Rail)	222	-	70	44	93	115
4	132 KV SDT (Lynx)	336	-	79	91	84	82

ii. Rehabilitation/Reconductoring/Up-gradation

DIIP 11 - Transmission Lines (Optimally Achievable): Rehabilitation/Reconductoring/Up-gradation

Sr. No.	Description	Total Length (km)	2015-16 (Km)	2016-17 (Km)	2017-18 (Km)	2018-19 (Km)	2019-20 (Km)
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iii. Reconductoring and Rerouting

DIIP 12 - Transmission Lines (Optimally Achievable): Reconductoring and Rerouting

Sr. No.	Description	Total Length (km)	2015-16 (Km)	2016-17 (Km)	2017-18 (Km)	2018-19 (Km)	2019-20 (Km)
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iv. Capacitors

DIIP 13 - Transmission Lines (Optimally Achievable): Capacitors

Sr. No.	Description	Total MVAR	2015-16 (MVAR)	2016-17 (MVAR)	2017-18 (MVAR)	2018-19 (MVAR)	2019-20 (MVAR)
1	11kV Fixed Capacitors	163	69	48	18	22	6
2	11kV Switched Capacitors	-	-	-	-	-	-
3	132kV Fixed Capacitors	343	40	101	202	-	-
4	132kV Switched Capacitors	-	-	-	-	-	-

▪ Short Circuit Studies

Short circuit studies have been carried out for the scenario of year 2020 of entire network to compute maximum 3-phase and 1-phase fault levels. The computed fault levels have been compared with the short circuit rating of the installed switchgear equipment at the substations to identify any under-rated switchgear in the existing substation.

The maximum short circuit levels have been computed with the following assumptions under IEC 909 standard by setting:

- Transformers tap ratio to unity
- Line charging to zero
- Shunt elements to zero under in positive sequence
- Voltage at 1.1 p.u

As per above short circuit study results, following rating of switchgear is recommended while keeping margin for future network expansion:

- 40 kA for 132 kV
- 40 kA for 11 kV, especially for power transformers

It has been found that the short circuit levels, as a result of the induction of the proposed subprojects, will not increase at the existing substations in their vicinity. In addition, it has been identified through the studies that the replacement of switchgear at following Grid Stations are would be required due to future network expansion of MEPCO.

Sr. No.	Name of Substation	Bus Voltage (kV)	Remarks
1	Industrial Esatate, Multan	132	Replacement of 20kA required
2	Bosan Road, Multan	132	Replacement of 16.9kA required
3	Khanewal Road, Multan	132	Replacement of 25kA & 14 kA required
4	Sahiwal Old	132	Replacement of 2 No. 15.3kA required
5	Kot Addu	132	Replacement of 13.1kA, 16kA 25kA & 20 kA required
6	Qadirabad	132	Replacement of 25kA required
7	Chichawattni	132	Replacement of 13.1kA required

B. Plan for Expansion and Rehabilitation Distribution System – Scope

Under this section, the Expansion and Rehabilitation (two scenarios Best and Optimally Achievable) are presented and the Status of Study Based Distribution System Planning Based on GIS Mapping and the Rollout Plans are also discussed.

This section covers the expansion and rehabilitation of distribution network (11kV and below) of the distribution company.

The has prepared two Scenarios and the related scope. **Scenario-1** (the Best Case), that if implemented will completely revamp the distribution network and enable the DISCOs to achieve the NEPRA's specified Performance Standards for Distribution and the provisions of the Distribution Code, especially the Distribution Planning Code issued by NEPRA.

MEPCO has also prepared a **Scenario-2** (the Optimally Achievable Case) based on its procurement and execution capacity and will make the MYT rate case based on this scenario.

The proposed distribution works for MEPO also includes the scope for "Deposit Works" and "Village Electrification Works" and these works are separately identified in the formats below.

Below is the overall synopsis - HT/LT ratios of distribution system and length per feeder of 11 kV lines' comparison:

Existing HT/LT Ratios and length per feeder of 11 kV lines:

- Existing HT to LT Ratio = 1.5 : 1
- Existing average length of 11-KV feeder = 65.8 Km

After completion of **Best Case** of the 5 year plan (DIIP), the above parameters will be as under:

- HT to LT Ratio = 1.61 : 1
- Average length of 11-KV feeder = 44 Km

After completion of Optimally Achievable Case of the 5 year plan (DIIP), the above parameters will be as under:

- HT to LT Ratio = 1.57 : 1
- Average length of 11-KV feeder = 51.5 Km

Due to increased HT/LT ratio and decrease in HT average length per feeder, the technical loss of the distribution system will be decreased. This will further result in reduction of system outages making it more efficient and reliable.

▪ **Expansion and Rehabilitation (Best Case)**

The table DIIP 15 captures the complete scope under Best Case for distribution system:

DIIP 14 - Distribution System (Best Case)

Sr. No.	Description	Unit	Quantities					
			2015-16	2016-17	2017-18	2018-19	2019-20	Total
Scope of Work for 11 kV and Below Expansion (Dedicated Feeders on Cost Deposit Basis)								
A.								
1	New HT Lines							
	Number of proposals	Nos	13	15	17	19	21	85
	Length of new HT line	Km	65	78	87	96	109	435
2	Transformers							
	a. 1000 KVA	Nos	8	9	10	11	13	51
	b. 750 KVA	Nos	4	5	5	6	7	27
	c. 630 KVA	Nos	10	12	13	14	16	65
	d. 400 KVA	Nos	8	9	10	11	13	51
	e. 200 KVA	Nos	31	37	41	45	51	206
	f. 100 KVA	Nos	46	56	62	68	77	309
	Sub Total	Nos	107	128	142	156	178	710
3	11 KV Panel	Nos	13	15	17	19	21	85
4	11KV 500 MCM S/C Cable	Km	4	5	5	6	6	26
5	New LT Lines (For Housing societies)	Km	8	10	11	12	13	54
Scope of Work for LT Expansion (Village Electrification on Cost Deposit Basis)								
B.								
1	New LT Lines							
	Number of proposals/Villages	Nos	1185	1422	1580	1738	1975	7,898
	Length of new LT line	Km	291	350	389	427	486	1,943
2	Transformers							
	a. 25 KVA	Nos	373	447	497	547	622	2,486
	b. 50 KVA	Nos	249	298	331	365	414	1,657
	Sub Total	Nos	622	746	829	912	1036	4,143
3	New HT Lines (For Village connectivity with HT)	Km	564	676	752	827	940	3,758

Village Electrification:

- The estimation of scope of work in next five years is based on the historical data of the financial years 2013-14 & 2014-15
- The 25 KVA transformers are considered as 60 % and 50 KVA transformers are considered as 40 % of the total transformers
- HT conductor percentage is assumed as 30 % 'Dog' and 70 % 'Rabbit'
- LT conductor assumed to be 'Ant'

Dedicated 11-kv Feeders:

- The estimation of scope of work in next five years is based on the historical data of the financial years 2011-12, 2012-13, 2013-14 & 2014-15
- HT conductor percentage is assumed as 50 % 'Osprey', 40 % 'Dog' and 10 % 'Rabbit'
- LT conductor percentage is assumed as 60 % 'Wasp' and 40 % 'Ant'
- 1000 KVA transformers are considered as 25 %, 750 KVA transformers are considered as 10 %, 630 KVA transformers are considered as 20 %, 400 KVA transformers are considered

as 10 %, 200 KVA transformers are considered as 20 % and 100 KVA transformers are considered as 20 % of the total transformers

Scope of Work for 11 kV and Below Rehabilitation							
A.							
1	Rehabilitation of HT Lines						
	Number of proposals	Nos	20	145	165	165	660
	Bifurcation						
	Reconductoring						
	Re-routing						
2	New HT Lines	Km	143	1033	1176	1176	4,703
3	HT Line Reconductoring	Km	176	1279	1456	1456	5,823
4	11KV Capacitors	Nos	20	145	165	165	660
5	11KV Panels	Nos	20	145	165	165	660
6	Replacement of T/F Earthing	Nos	7558	7558	7558	7558	37,790
7	11-kV Sectionalizers	Nos	85	599	705	705	2,799
8	11-kV500 MCM Cable	Km	6	44	50	50	198
Scope of Work for LT Rehabilitation							
B.							
1	LT Lines Rehabilitation						
	Number of proposals	Nos	268	1830	2080	2080	8,338
2	New LT Lines	Km	33	224	254	254	1,019
3	LT Line Reconductoring	Km	54	368	418	418	1,675
4	New HT Lines (For New T/F Substations)	Km	13	91	103	103	413
5	Replacement of D-Fittings	Nos	1080	5000	5300	5300	21,980
6	Augmentation of Overloaded Transformers						
	a. 50 KVA	Nos	50	350	450	450	1,750
	b. 100 KVA	Nos	100	500	700	700	2,700
	c. 200 KVA	Nos	100	500	700	700	2,700
	d. 200 KVA (Additional)	Nos	50	300	450	450	1,700
	Sub Total	Nos	300	1650	2300	2300	8,850
7	New Transformer Substations						
	a. 50 KVA	Nos	104	104	104	104	520
	b. 100 KVA	Nos	209	209	209	209	1,045
	c. 200 KVA	Nos	104	104	104	104	520
	Sub Total	Nos	417	417	417	417	2,085
8	Replacement of 2-Leg Transformers						
	a. 10 KVA	Nos	5	34	0	0	39
	b. 15 KVA	Nos	10	62	0	0	72
	c. 25 KVA	Nos	76	550	0	0	626
	d. 50 KVA	Nos	122	900	0	0	1,022
	e. 100 KVA	Nos	118	500	0	0	618
	f. 200 KVA	Nos	70	300	0	0	370
	Sub Total	Nos	401	2346	0	0	2,747
9	Energy Meters (against defective)						
	a. Single Phase	Nos	13636	13636	13636	13636	68,180
	b. Three Phase	Nos	1515	1515	1515	1515	7,575
	Sub Total	Nos	15151	15151	15151	15151	75,755
10	PVC Cables	km	641	641	642	641	3,206
11	P.G.Connectors	Nos	624525	624524	624524	624524	3,122,621
12	LT Capacitors	Nos	6555	6555	6556	6558	32,782

The narrative, assumptions and details explaining the scope above are hereunder:

Methodology

The distribution Voltage is 11 KV on HT and 0.4 KV on LT system. Estimation of material requirement is made on the basis of SDI. All aspects are considered while deciding the design and requirement of material e.g. requirement of new line for urban as well as for Rural area. For reconductoring of urban area's line as well as rural area are considered keeping in view the size of conductor as well. Different type of assemblies are selected which is used commonly and estimation for a specific assembly is made separately.

For economical and safety purpose, PC Poles will be utilized along with Steel structure for extension of HT/LT lines in the areas under electrification. The ratio of steel structures and PC poles will be maintained as 10:90. ACSR and AAC will be used for the purpose of current carrying from the Grid Station to the point of DS/utilization. 25 KVA, 50 KVA, 100 KVA, 200 KVA and 400 KVA sizes of Distribution Transformers will be used. Span length of structures and P.C Poles has been worked out according to SDI so as to ensure adequate clearance, safety as well as avoiding obstruction in normal life.

Evaluation of Material Requirements

Scope of material requirements under the Distribution Rehabilitation Project is calculated as per data collected upto 03/2015 and detailed in the following section.

The rehabilitation BOQs for different ELR measures have been developed as follows:

New 11 KV Switchgear (Control Panels)

11 KV panels to be added according to the following break-up:

Panels for express feeders to be built for Shifting/bifurcation of existing feeders	660 Nos

ACSR Conductors for new express line construction

It is estimated that 660-Nos feeders will require construction of express lines for their bifurcation. On the average 7.125 km of 3-phase HT line will be constructed per feeder

based on historical construction data. The overall share of different ACSR conductors in the total of 4702.5 km of lines is estimated based on historical construction data and the segregate is given as below:

Km Line

Osprey	$67.62\% \times 4702.5$	3179.93 Km
Dog	$22.87\% \times 4702.5$	1075.66 Km
Rabbit	$09.50\% \times 4702.5$	<u>446.93 Km</u>
Total		4702.50 Km

Calculation of Material for 11 KV System Rehabilitation

(i) 11 kV Line Re-conductoring

Estimated re-conductoring per feeder based on sample studies, works out to be = 8.823 Km

Estimated % share of different Conductors in re-conductoring:

Osprey	51.46%
Dog	40.73%
Rabbit	07.80%

Number of feeders for rehabilitation 660 Nos.
 Therefore, total re-conductoring length 660×8.823 5823.18 Km
 The quantities of ACSR conductors required for re-conductoring are therefore:

Km Line

Osprey	$51.46\% \times 5823.18$	2996.75 KM
Dog	$40.73\% \times 5823.18$	2371.85 KM
Rabbit	$07.80\% \times 5823.18$	<u>454.31 KM</u>
Total		5823.18 KM

(ii) Capacitor Applications for Power Factor Improvement

The sample studies indicate that at an average, one capacitor bank of 450 kVAR is needed per feeder for improving the power factor to 95% from existing average power factor of 85% on the selected feeders. For 660 No. 11 kV feeders, requirement of capacitor banks of 450 kVAr each will, therefore, be 660 Nos.

For LT, USAID PDP has provided 44000 LT Capacitors of different capacities and all have been installed to-date. Total tubewell connections in MEPCO are up to 76,782, therefore the

net demand excluding USAID provided capacitors is 32,782 and capacity wise segregation of which is as, 490 No. 25 KVA_r, 782 No. 20 kVA_r, 1935 No.15kVA_r, 4443 No. 12.5 kVA_r, 9655 No. 10 kVA_r, 11310 No. 7.5 kVA_r and 4167 No. 5 kVA_r.

(iii) Augmentation of Over-loaded Transformers

The number of transformers required for replacement against overloading is worked out as follows:

Max demand of Grid Stations up to 2019-20 (MW) as per PMS	6776.5
Converting demand to MVA by 2019-20	7789
MVA Required (110% ⁸ of above) for distribution system	8567
Existing MVA (Distribution) as of 2015	7330
Net MVA Required	1237
Net KVA Required	1,237,413

Share of Transformers required for Augmentation

50 kVA	1750	Nos.
100 kVA	2700	Nos.
200 kVA	2700	Nos.
200 kVA (Additional)	<u>1700</u>	<u>Nos.</u>
Total: 8,850 Nos. (which is equal to 1,237 MVA)		

(iv) D-fuse fittings (Drop-out Cut-outs)

Replacement of D-fuse fittings (drop-out cut-outs) is estimated as 14 % of the total number of transformers. The total quantity of D-fuse fittings is therefore worked out as follows:

Total transformers up to 2015	148,203 Nos.
Total D-fuse fittings required @ 14%	21,980 Nos.

(v) New Transformer Sub-Stations

⁸ 10% additional MVA for distribution is just an approximation, however, a study reference is required to know the actual value

These will be required for installation after extension of HT lines to minimize the high loss LT lines or to install under the existing HT line to take up additional loads. The quantity is estimated as 25% of the 8338 transformers.

Total overloaded transformers up to 06/2020 = 8338 Nos.

New additional transformer sub-stations required: $8338 \times 25\% = 2085$ Nos.

Share of Different Ratings of Transformers

50 kVA	25 %	$2085 \times 25\%$	520 Nos.
100 kVA	50 %	$2085 \times 30\%$	1045 Nos.
200 kVA	25 %	$2085 \times 25\%$	<u>520 Nos.</u>
Total:			2085 Nos

(vi) Replacement of 2-Leg Transformers

The number of transformers required for replacement against 2-leg transformers is worked out as follows:

Total number of 2-leg transformers in MEPCO upto 03/2015 = 2747 Nos.

Share of Different Ratings of 2-leg Transformers

10 kVA	39	Nos.
15 kVA	72	Nos.
25 kVA	626	Nos.
50 kVA	1022	Nos.
75 kVA	06	Nos.
100 kVA	612	Nos.
200 kVA	<u>370</u>	<u>Nos.</u>
Total:		2747 Nos.

Therefore, requirement against 2-leg transformer replacement is the same as above.

(vi) New LT Lines

Each new transformer is estimated to have at least two LT circuits of 800 feet (244 M). Based on this estimation, the LT line conductor for a total of 2085 new transformers is calculated as follows:

Total LT line required: $\frac{2 \times 244 \times 2085}{1000} = 1018$ Km

For 200 kVA (520 No.) Transformers,

LT line length 15.40% 157 km

Share of Wasp conductor 80% 124 km

Share of Ant conductor	20%	32 km
For 100 KVA transformers (1045 No.)		
LT line length	38.50%	392 km
Share of Wasp conductor	10%	40 km
Share of Ant conductor	90%	352 km
For 50 KVA transformers (520 No.)		
LT line length	46.20%	470 km
Share of Ant conductor	100%	470 km
Total Wasp length	164 km	
Total Ant length	854 km	

The final estimated conductor lengths are therefore:

New 3-φ LT line (Wasp)	129 km
New 3-φ LT line (Ant)	670 km

(vii) LT Line Reconductoring

The average LT line reconductoring per LT rehabilitation proposal is estimated based on historical as:

3-φ, Wasp conductor line	0.095 km
3-φ, Ant Conductor line	0.106 km

The same average have been applied to evaluate the LT conductor quantities which is as under:

Total number of over loaded transformer upto 06/2020	8338 Nos.
Hence total number of LT proposals for Reconductoring	8338 Nos.
LT line reconductoring (3-φ, Wasp) 8338×0.095	792 km
LT line reconductoring (3-φ, Ant) 8338×0.106	884 km

(viii) New 11 KV Line

Total number of LT proposals for reconductoring	8338 Nos.
LT proposals requiring 11 kV line extension	33 %
Total number of LT proposals requiring 11 kV line extension	2752 Nos.
Average length of 11 kV line extension per LT proposal	150 M
Total length of new 11 kV line (Rabbit conductor)	413 KM

(ix) Energy Meters

The requirement of energy meters for replacement against damaged/defective meters is estimated as follows:

1-phase defective/damaged energy meters upto 03/2015	=	57811 Nos.
3-phase defective/damaged energy meters upto 03/2015	=	<u>4276 Nos.</u>
Total		62087 Nos.
Total No. of consumers upto 06/2015	=	5,118,053
% of energy meters defective upto 06/2015 $(62087/5118053 \times 100) = 1.213 \%$		
No. of consumers expected upto 06/2020	=	6,245,242
Total No. of energy meters to be defective upto 06/2020	=	75755 Nos.
(1.213% of 6245242=75755)		

Therefore, requirement of total no. of energy meters is as below,

1-Phase energy meters required (90% of Total defective energy meters) = 68180 Nos.

3-Phase energy meters required (10% of Total defective energy meters) = 7575 Nos.

(x) PVC Cables

PVC cables are required for replacement/upgrading of damaged/overloaded customer service drops and sub-mains serving as LT lines in the streets and congested areas. The estimation is carried out as follows:

A. For customers: 2/core, 7/0.052 & 4/core 19/0.052 cables are required

Total customers of MEPCO expected upto 06/2020	6,245,242 Nos.
Estimated customers requiring service cable replacement (5%)	312262 Nos.
Average length per service cable	10 Mtr
Total length required $312262 \times 10/1000$	3123 km

Share of total length of cable into different sizes:

<u>Customer Category</u>	<u>Cable Size</u>	<u>%Share</u>	<u>KM</u>
1-φ customers	2/c; 7/0.052	80	2498
3-φ customers	4/c; 19/0.052	20	<u>625</u>
Total:			3123

B. For sub-mains: the cable sizes required are 4-core 19/0.052 and 4-core 19/0.083

Total number of LT proposals		8338 Nos.
Proposals requiring LT sub-mains extensions		
(New and replacement/upgrading)	10%	833 Nos.
Average length per proposal		100 M
Total length	833 x 0.10	83 KM

Share of total length of cable into different sizes:

KM Line

4-core 19/0.052 (30%)	83 x 0.30	25
4-core 19/0.083 (70%)	83 x 0.70	<u>58</u>
Total:		83 Km

(xi) P.G. Connectors

The requirement of P.G. Connectors has been estimated as follows:

Total customers of MEPCO expected upto 06/2020	6,245,242 Nos.
Estimated customers requiring P.G. Connectors (50%)	3122621 Nos.

Share

1-phase services requiring connectors (80%)	2498096 Nos.
3-phase services requiring connectors (20%)	<u>624525 Nos.</u>
Total:	3,122,621 Nos.

(xii) Earthing

Estimation of quantities for replacement of earthing on existing transformers is worked out as follows:

Total expected transformers upto 06/2020	188948-Nos. Replacement
of earthing is estimated on 20% of transformers,	
Therefore total earthing required (188948 x 20%)	37790 Nos.

(xiii) 11 KV Sectionalizers

In order to achieve isolation of faulty portions of feeders under fault conditions, sectionalization equipment is needed. A minimum of 3 sectionalizers per feeder are recommended for new locations as well as for replacement of damaged sectionalizers. The quantity is worked out as follows:

11 kV Sectionalizers required per feeder	3 Nos.
Total number of 11 kV sectionalizers required (3 x 933)	2799 Nos.

Share

Sectionalizers 600 Amps 30 %	840 Nos.
Sectionalizers 200 Amps 70 %	1959 Nos.

(xiv) **11 KV Cables**

11 KV cable is required for connecting the proposed new feeders as well as for adding/replacing the under-size/deteriorated cable. The quantity is worked out on the basis that an average length of 300 meters of 500 MCM cable is required for each feeder from the panel in the grid station to the first riser pole of the feeder.

Feeders selected for rehabilitation	660 Nos.
Average length of S/C cable per feeder	300 M
Therefore length of cable required	$0.3 \times 660 = 198 \text{ KM}$

▪ **Expansion and Rehabilitation (Optimally Achievable Case) - Scope**

The table DIIP 16 captures the complete scope under Achievable Case for distribution system:

DIIP 15 - Distribution System (Optimally Achievable Case)

Sr. No.	Description	Unit	Quantities					
			2015-16	2016-17	2017-18	2018-19	2019-20	Total
Scope of Work for 11 kV and Below Expansion (Dedicated Feeders on Cost Deposit Basis)								
A.								
1	New HT Lines							
	Number of proposals	Nos	13	15	17	19	21	85
	Length of new HT line	Km	65	78	87	96	109	435
2	Transformers							
	a. 1000 KVA	Nos	8	9	10	11	13	51
	b. 750 KVA	Nos	4	5	5	6	7	27
	c. 630 KVA	Nos	10	12	13	14	16	65
	d. 400 KVA	Nos	8	9	10	11	13	51
	e. 200 KVA	Nos	31	37	41	45	51	206
	f. 100 KVA	Nos	46	56	62	68	77	309
	Sub Total	Nos	107	128	142	156	178	710
3	11 KV Panel	Nos	13	15	17	19	21	85
4	11KV 500 MCM S/C Cable	Km	4	5	5	6	6	26
5	New LT Lines (For Housing societies)	Km	8	10	11	12	13	54
Scope of Work for LT Expansion (Village Electrification on Cost Deposit Basis)								
B.								
1	New LT Lines							
	Number of proposals/Villages	Nos	1185	1422	1580	1738	1975	7898
	Length of new LT line	Km	291	350	389	427	486	1943
2	Transformers							
	a. 25 KVA	Nos	373	447	497	547	622	2486
	b. 50 KVA	Nos	249	298	331	365	414	1657
	Sub Total	Nos	622	746	829	912	1036	4143
3	New HT Lines (For Village connectivity with HT)	Km	564	676	752	827	940	3758

Village Electrification:

- The estimation of scope of work in next five years is based on the historical data of the financial years 2013-14 & 2014-15
- The 25 KVA transformers are considered as 60 % and 50 KVA transformers are considered as 40 % of the total transformers
- HT conductor percentage is assumed as 30 % 'Dog' and 70 % 'Rabbit'
- LT conductor assumed to be 'Ant'

Dedicated 11-kv Feeders:

- The estimation of scope of work in next five years is based on the historical data of the financial years 2011-12, 2012-13, 2013-14 & 2014-15
- HT conductor percentage is assumed as 50 % 'Osprey', 40 % 'Dog' and 10 % 'Rabbit'
- LT conductor percentage is assumed as 60 % 'Wasp' and 40 % 'Ant'

- 1000 KVA transformers are considered as 25 %, 750 KVA transformers are considered as 10 %, 630 KVA transformers are considered as 20 %, 400 KVA transformers are considered as 10 %, 200 KVA transformers are considered as 20 % and 100 KVA transformers are considered as 20 % of the total transformers

The narrative, assumptions and details is hereunder:

Scope of Work for 11 kV and Below Rehabilitation							
A.							
1 Rehabilitation of HT Lines							
Number of proposals	Nos	10	70	90	90	90	350
Bifurcation							
Reconductoring							
Re-routing							
2 New HT Lines	Km	71	499	641	641	641	2494
3 HT Line Reconductoring	Km	88	618	794	794	794	3088
4 11KV Capacitors	Nos	10	70	90	90	90	350
5 11KV Panels	Nos	10	70	90	90	90	350
6 Replacement of T/F Earthing	Nos	5328	5328	5328	5328	5328	26640
7 11-kv Sectionalizers	Nos	109	590	700	700	700	2799
8 11-Kv 500 MCM Cable	Km	3	21	27	27	27	105
Scope of Work for LT Rehabilitation							
B.							
1 LT Lines Rehabilitation							
Number of proposals	Nos	190	1430	1640	1640	1640	6540
2 New LT Lines	Km	23	175	200	200	200	799
3 LT Line Reconductoring	Km	38	287	329	329	329	1314
4 New HT Lines (For New T/F Substations)	Km	9	71	81	81	81	324
5 Replacement of D-Fittings	Nos	455	4000	4000	4000	4000	16455
6 Augmentation of Overloaded Transformers							
a. 25 KVA	Nos	22	30	50	50	50	202
b. 50 KVA	Nos	22	230	250	250	250	1002
c. 100 KVA	Nos	276	400	500	500	500	2176
d. 200 KVA	Nos	106	400	510	510	510	2036
e. 200 KVA (Additional)	Nos	150	224	250	250	250	1124
Sub Total	Nos	576	1284	1560	1560	1560	6540
7 New Transformer Substations							
a. 50 KVA	Nos	20	89	100	100	100	409
b. 100 KVA	Nos	47	170	200	200	200	817
c. 200 KVA	Nos	20	89	100	100	100	409
Sub Total	Nos	87	348	400	400	400	1635
8 Replacement of 2-Leg Transformers							
a. 10 KVA	Nos	5	34	0	0	0	39
b. 15 KVA	Nos	10	62	0	0	0	72
c. 25 KVA	Nos	76	550	0	0	0	626
d. 50 KVA	Nos	122	900	0	0	0	1022
e. 100 KVA	Nos	118	500	0	0	0	618
f. 200 KVA	Nos	70	300	0	0	0	370
Sub Total	Nos	401	2346	0	0	0	2747
9 Energy Meters (against defective)							
a. Single Phase	Nos	3811	12000	14000	14000	14000	57811
b. Three Phase	Nos	266	800	1070	1070	1070	4276
Sub Total	Nos	4077	12800	15070	15070	15070	62087
10 PVC Cables	km	122	584	640	640	640	2626
11 P.G.Connectors	Nos	511805	511805	511805	511805	511806	2559026
12 LT Capacitors	Nos	6555	6555	6556	6558	6558	32782

Methodology

The distribution Voltage is 11 KV on HT and 0.4 KV on LT system. Estimation of material requirement is made on the basis of SDI. All aspects are considered while deciding the design

and requirement of material e.g. requirement of new line for urban as well as for Rural area. For reconductoring of urban area's line as well as Rural area are considered keeping in view the size of conductor as well. Different type of assemblies are selected which is used commonly and estimation for a specific assembly is made separately.

For economical and safety purpose, PC Poles will be utilized along with steel structure for extension of HT/LT lines in the areas under electrification. The ratio of steel structures and PC poles will be maintained as 10:90. ACSR and AAC will be used for the purpose of current carrying from the Grid Station to the point of DS/utilization. 25 KVA, 50 KVA, 100 KVA, 200 KVA, 400 KVA sizes of Distribution Transformers will be used. Span length of structures and P.C Poles has been worked out according to SDI so as to ensure adequate clearance, safety as well as avoiding obstruction in normal life.

Evaluation of Material Requirements

Scope of material requirements under the Distribution Rehabilitation Project is calculated as per data collected upto 03/2015 and detailed in the following section.

The rehabilitation BOQs for different ELR measures have been developed as follows:

New 11 KV Switchgear (Control Panels)

11 KV panels to be added according to the following break-up:

Panels for express feeders to be built for
Shifting/bifurcation of existing feeders (the feeders are being reduced keeping in-
view the funding and execution capacity) 350 Nos.

ACSR Conductors for new express line construction

It is estimated that 350 feeders will require construction of express lines for their bifurcation. On the average 7.125 km of 3-phase HT line will be constructed per feeder. The overall share of different ACSR conductors in the total of 2493.75 km of lines is calculated as below:

KM Line

Osprey	$67.62\% \times 2493.75 \times 0.6762$	1685.98 Km

Dog	$22.87\% \times 2493.75 \times 0.2287$	570.32 Km
Rabbit	$09.50\% \times 2493.75 \times 0.0950$	<u>236.90 Km</u>
Total		2493.75 Km

Calculation of Material for 11 KV System Rehabilitation

(i) 11 kV Line Re-conductoring

Estimated re-conductoring per feeder based on sample studies,
Works out to be 12.91% of the 11 kV line length = 8.823 KM

Estimated % share of different Conductors in re-conductoring

Osprey	51.46%
Dog	40.73%
Rabbit	07.80%

Number of feeders for rehabilitation 350 Nos.
Therefore, total re-conductoring length 350×8.823 3088.05 Km
The quantities of ACSR conductors required for re-conductoring are therefore:

KM Line

Osprey	$51.46\% \times 3088.05 \times 0.5146$	1589.11 KM
Dog	$40.73\% \times 3088.05 \times 0.4073$	1257.76 KM
Rabbit	$07.80\% \times 3088.05 \times 0.0780$	<u>240.86 KM</u>
Total		3088.05 KM

(ii) Capacitor Applications for Power Factor Improvement

The sample studies indicate that at an average, one capacitor bank of 450 kVAr is needed per feeder for improving the power factor to 95% from existing average power factor of 85% on the selected feeders. For 350 No. 11 kV feeders, requirement of capacitor banks of 450 kVAr each (a total capacitance of 112.5 MVar) will, therefore, be 350 Nos.

For LT, USAID PDP has provided 44000 LT Capacitors of different capacities from which around 30000 have been installed upto 04/2015 and remaining are under installation. Total Tube Well connections in MEPCO upto 03/2015 are 76,782, therefore the net demand excluding USAID provided capacitors is 32,782 and capacity wise segregation of which is as, 490 No. 25 KVar, 782 No. 20 kVAr, 1935 No. 15kVAr, 4443 No. 12.5 kVAr, 9655 No. 10 kVAr, 11310 No. 7.5 kVAr and 4167 No. 5 kVAr.

(iii) Augmentation of Over-loaded Transformers

The number of transformers required for replacement against overloading is worked out as follows:

Total number of over loaded transformer in MEPCO upto 03/2015 = 6540 Nos.

Total number of LT Proposals proposed during next 5-years = 6540 Nos.

Share of Different Ratings of overloaded Transformers

10 kVA	61	Nos.
15 kVA	141	Nos.
25 kVA	1002	Nos.
50 kVA	2167	Nos.
75 kVA	09	Nos.
100 kVA	2036	Nos.
200 kVA	<u>1124</u>	<u>Nos.</u>
Total:	6540	Nos.

Share of Transformers required for replacement

25 kVA	202	Nos.
50 kVA	1002	Nos.
100 kVA	2176	Nos.
200 kVA	<u>2036</u>	<u>Nos.</u>
200 kVA (Additional)	<u>1124</u>	<u>Nos.</u>
Total:	6540	Nos.

(v) D-fuse fittings (Drop-out Cut-outs)

Replacement of D-fuse fittings (drop-out cut-outs) is estimated as 10 % of the total number of transformers. The total quantity of D-fuse fittings is therefore worked out as follows:

Total transformers upto 03/2015	148203	Nos.
D-fuse fittings required for replacement 148203 x 10 %	14820	Nos.
D-fuse fittings required for new T/F Substations	<u>1635</u>	<u>Nos.</u>
Total D-fuse fittings required	16455	Nos.

(v) New Transformer Sub-Stations

These will be required for installation after extension of HT lines to minimize the high loss LT lines or to install under the existing HT line to take up additional loads. The quantity is estimated as 25% of the 6540 transformers.

Total overloaded transformers 6540 Nos.
 New additional transformer sub-stations required: $6540 \times 25\% = 1635$ Nos.

Share of Different Ratings of Transformers

50 kVA	25 %	$1635 \times 25 \%$	409 Nos.
100 kVA	50 %	$1635 \times 30 \%$	817 Nos.
200 kVA	25 %	$1635 \times 25 \%$	<u>409 Nos.</u>
Total:			1635 Nos.

(vii) Replacement of 2-Leg Transformers

The number of transformers required for replacement against 2-leg transformers is worked out as follows:

Total number of 2-leg transformers in MEPCO upto 03/2015 = 2747 Nos.

Share of Different Ratings of 2-leg Transformers

10 kVA	39	Nos.
15 kVA	72	Nos.
25 kVA	626	Nos.
50 kVA	1022	Nos.
75 kVA	06	Nos.
100 kVA	612	Nos.
200 kVA	<u>370</u>	<u>Nos.</u>
Total:		2747 Nos.

Therefore, requirement against 2-leg transformer replacement is the same as above.

(vi) New LT Lines

Each new transformer is estimated to have at least two LT circuits of 800 feet (244 M). Based on this estimation, the LT line conductor for a total of 1635 new transformers is calculated as follows:

Total LT line required: $\frac{2 \times 244 \times 1635}{1000} = 799$ Km

For 200 kVA (409 No.) Transformers,

LT line length	15.40%	123 km
Share of Wasp conductor	80%	99 km
Share of Ant conductor	20%	24 km
For 100 KVA transformers (817 No.)		
LT line length	38.50%	307 km
Share of Wasp conductor	10%	30 km
Share of Ant conductor	90%	277 km
For 50 KVA transformers (409 No.)		
LT line length	46.20%	369 km
Share of Ant conductor	100%	369 km
Total Wasp length		129 km
Total Ant length		670 km

The final estimated conductor lengths are therefore:

New 3-φ LT line (Wasp)	129 km
New 3-φ LT line (Ant)	670 km

(vii) LT Line Reconductoring

The average LT line reconductoring per LT rehabilitation proposal is estimated as:

3-φ, Wasp conductor line	0.095 km
3-φ, Ant Conductor line	0.106 km

The same average have been applied to evaluate the LT conductor quantities which is as under:

Total number of over loaded transformer	6540 Nos.
Hence total number of LT proposals for Reconductoring	6540 Nos.
LT line reconductoring (3-φ, Wasp) 6540×0.095	621 km
LT line reconductoring (3-φ, Ant) 6540×0.106	693 km

(viii) New 11 KV Line

Total number of LT proposals for reconductoring	6540 Nos.
LT proposals requiring 11 kV line extension	33 %
Total number of LT proposals requiring 11 kV line extension	2159 Nos.
Average length of 11 kV line extension per LT proposal	150 M
Total length of new 11 kV line (Dog conductor)	324 KM

(ix) Energy Meters

The requirement of energy meters for replacement against damaged/defective meters is estimated as follows:

1-phase defective/damaged energy meters upto 03/2015	=	57811 Nos.
3-phase defective/damaged energy meters upto 03/2015	=	<u>4276 Nos.</u>
Total		62087 Nos.

Therefore, requirement of total no. of energy meters is the same as above.

(x) PVC Cables

PVC cables are required for replacement/upgrading of damaged/overloaded customer service drops and sub-mains serving as LT lines in the streets and congested areas. The estimation is carried out as follows:

A. For customers: 2/core, 7/0.052 & 4/core 19/0.052 cables are required

Total customers of MEPCO upto date	5,118,053 Nos.
Estimated customers requiring service cable replacement (5%)	255902 Nos.
Average length per service cable	10 Mtr
Total length required	255902 x 10/1000
	2560 km

Share of total length of cable into different sizes:

<u>Customer Category</u>	<u>Cable Size</u>	<u>%Share</u>	<u>KM</u>
1-φ customers	2/c; 7/0.052	80	2048
3-φ customers	4/c; 19/0.052	20	<u>512</u>
Total:			2560

B. For sub-mains: the cable sizes required are 4-core 19/0.052 and 4-core 19/0.083

Total number of LT proposals		6540 Nos.
Proposals requiring LT sub-mains extensions		
(New and replacement/upgrading)	10%	654 Nos.
Average length per proposal		100 M
Total length	654 x 0.10	66 KM

Share of total length of cable into different sizes:**KM Line**

4-core 19/0.052 (30%)	66 x 0.30	20
4-core 19/0.083 (70%)	66 x 0.70	<u>46</u>
	Total:	66 Km

(xi) P.G. Connectors

The requirement of P.G. Connectors has been estimated as follows:

Total customers of MEPCO upto date	5,118,053 Nos.
Estimated customers requiring P.G. Connectors (50%)	2559026 Nos.

Share

1-phase services requiring connectors (80%)	2047221 Nos.
3-phase services requiring connectors (20%)	<u>511805 Nos.</u>
Total:	2559026 Nos.

(xii) Earthing

Estimation of quantities for replacement of earthing on existing transformers is worked out as follows:

Total transformers upto 03/2015	148203 Nos.
Replacement of earthing is estimated on 20% of transformers, Therefore total earthing required (148203 x 20%)	26640 Nos.

(xiii) 11 KV Sectionalizers

In order to achieve isolation of faulty portions of feeders under fault conditions, sectionalization equipment is needed. A minimum of 3 sectionalizers per feeder are recommended for new locations as well as for replacement of damaged sectionalizers. The quantity is worked out as follows:

11 kV Sectionalizers required per feeder	3 Nos.
Total number of 11 kV sectionalizers required (3 x 933)	2799 Nos.
Sectionalizers 600 Amps 30 %	840 Nos.
Sectionalizers 200 Amps 70 %	1959 Nos.

(xiv) 11 KV Cables

11 KV cable is required for connecting the proposed new feeders as well as for adding/replacing the under-size/deteriorated cable. The quantity is worked out on the basis that an average length of 300 meters of 500 MCM cable is required for each feeder from the panel in the grid station to the first riser pole of the feeder.

Feeders selected for rehabilitation	350 Nos.

Average length of S/C cable per feeder	300 M

Therefore length of cable required	$0.3 \times 350 =$	105 KM

▪ **Status of Study Based Distribution System Planning Based on GIS Mapping and the Transition Plan**

The status as per FY2014-05 on the mapping of HT and LT network and studies based on GIS mapped network on modern planning analysis tool(s) is provided in DIIP 17. Also, the plan to map the whole HT and LT network and subsequent conversion to planning based on GIS mapping using modern state of the art tools is given in table DIIP 18.

Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

DIIP 16 - Study of Distribution System Planning Based on GIS Mapping and the Transition Plan

Sr. No.	Description	Unit	Quantities						
			2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Total
GIS Mapping									
HT Mapping									
1	Number of 11 kV Feeders (Total 1113 No)	Nos	564	549	108	107	109	111	1548
	Length of HT Lines mapped (70835 KM)	Km	32159	38676	2034	1561	1645	1771	77846
LT Mapping									
2	Number of LT Lines (148203 total distribution T/F)	Nos				76540	76540	1613	154693
	Length of LT Lines mapped (46776 KM)	Km				24436.0	24436.0	700.0	49572
Tools Required									
3	GIS Mapping Software Licenses	Nos							
	Hardware including plotters, computers, GPS devices etc	Nos							

Sr. No.	Description	Unit	Quantities						
			2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Study Based Planning using GIS Maps with Modern Planning Tools - Transition Plan									
1	HT 11 kV Feeders (Total 1076 No)								
	Circles (09 No)	Nos			03No Circles (Mul+VHR+B. Nagar) HT Only	Remaining 06 CirclesHT Only			
2	LT Lines (46776 KM)								
	Number ofLT Lines (148203 total distribution T/F)	Nos					09 Circles for HT & LT		
3	Tools Required								
	Simulation Software Licenses				70				
	02 No SynerGEE Licence at division Level				Nos				
	Hardware including plotters, computers etc	Nos		GPS Sets,SynerGEE Licences,Computers Printers. Ploters. etc					

MEPCO is comprised of 1113 number 11kV feeders having length of 70835 Km. MEPCO is pioneer among the DISCO of Pakistan to start GIS activity of its distribution system and till 30th June 2015, 564 number 11 kV feeders have been digitized. MEPCO has developed its resources with the help of USAID Power Distribution Program at sub-division level for carrying GIS field survey of its HT network and remaining feeders of MEPCO will be completed by MEPCO at its own resources. However, digitization of LT network will be completed by out-sourcing.

After completion of HT network mapping and tendering process work, mapping of LT network will be started in FY 2017-18 and will be completed on 2018-19, whereas mapping of additional LT system will be carried out by MEPCO resources.

In order to carry out GIS field survey and its updating, tools like GPS sets, computers, printers and SynerGEE licenses will be required.

During FY 2016-17 03 the operation circles of MEPCO namely Multan, Vehari and Bahawal-Nagar will start study of distribution system using GIS and SynerGEE electric software as GIS mapping activity in these circles has already been started and near to its completion by then. During FY 2017-18 remaining operation circles of MEPCO will be using GIS & SynerGEE for the rehabilitation of their distribution system.

LT system of MEPCO will be out sourced after completion of mapping of HT network and tendering process and other form will be completed 2016-17. Mapping of LT network of MEPCO will be completed during F.Y 2018-19. The transition of LT load flow in SynerGEE will be carried out in FY2019 and FY2020, after completion of the mapping.

The cost of carrying out GIS based mapping through own sources is taken as Rs. 3000/km whereas for out sourcing of LT network Rs. 6000/ km. For the complete transition of MEPCO on GIS and SynerGEE system at least two licenses @ Rs. 0.7 million / license will be required at division level.

C. Other Functional Improvement Plans:

i. Commercial Improvement Plan

This plan covers the commercial improvement activities including but not limited to metering (including AMRs), Hand Held Units based meter reading, improvement in billing systems, anti-theft initiatives, consumers database update, customers services improvement initiatives etc. The scope that what will be done in each of the five year under this business plan is provided here. The narrative shall is supported by justification.

DIIP 17 - Commercial Improvement Plan

Commercial DIIP- MEPCO							
#	CAPEX	FY16	FY17	FY18	FY19	FY20	5-Year Total
1	HHUs and other Equip (Nos)	1,788	-	-	-	-	1,788
	HHUs: Number Bikes for MRs (Nos)	930	1,395	-	-	-	2,326
	(a)AMRs-Whole Curr-Supply-Inst (Nos) for 15-20kW Customers	12,322	46,206	1,232	924	924	61,608
2	(b)AMRS-HT/LT-Supp-Inst (Nos) for 15-20kW Customers	1,250	4,689	125	94	94	6,252
	(c.)AMRs-Whole Curr-Supply-Inst (Nos) for Tubewell Customers	11,320	42,449	1,132	849	849	56,599
3	CIS - Rolled-out Circles - (Nos)	2	3	2	-	-	7
4	CSC Revamp- CSC in (Nos)	51	203	-	-	-	254
5	Surveillance (Vehicles & other equipment) (Nos)	7	30	-	-	-	37

The Integrated Commercial Improvement Plan (ICIP) broadly aims to demonstrate commercial loss reduction, improvement in revenues and improvement in customer services through process automation, transparency, accountability, and improved productivity in order to create a foundation for sustainable commercial operations. Additional goals and objectives include:

Please refer table DIIP-4 for complete mapping of ICIP with goals and objectives. Here are the highlights related to commercial interventions:

- Improving MEPCO's operational efficiency through:
 - Reduced commercial losses by 1% progressively over the period of five years
 - Maintaining revenue recovery up to 100% in next five years
- Improving customer care and services:
 - Reducing complaints related to billings to less than 0.1%
 - Minimizing new connections installation duration to comply with NEPRA's requirements
 - Minimizing reconnection installation duration to comply with NEPRA's requirements
 - Maximizing the time between date of receipt of bill and due date (10 days)
- Improving MEPCO's infrastructure:
 - Expansion of AMI to reduce commercial losses at high-end customers, this contributes to reduction in commercial loss
 - Implementing CIS and its rollout to overcome billing errors and ensure more controls over billing through modern technology

Other related objectives:

- Streamlined procedure without compromising system of internal controls
- Re-direction of documents on an efficient path to reduce revenue cycle and process cycle time
- Faster complaint resolution and timely availability of accurate information for better decision making
- Increased accuracy of billing through reduction of human interface in commercial processes
- Increased efficiency, easy access and administration through an online complaint system

Problem Statement (Baseline-Defined)

The current commercial operations of DISCOs are legacy based and do not offer much in terms of transparency, data accuracy, system efficiency and services to consumers. Therefore, there is a dire need to improve commercial procedures and bring them at par or close to best practices adopted by utilities worldwide. The commercial cycle starts with meter readings (which is manual), billing (which is being done through a legacy billing system), collections and customers services, which also needs considerable improvements.

Response

As a result of comprehensive planning exercise, MEPCO has identified some low cost and quick impact interventions that would transform the way MEPCO operate commercially and would bring a paradigm shift in its commercial operations. The ICIP is an optimal fusion of all the activities that

would be implemented through the course of five years to revolutionize the business practices adopted by MEPCO and take its commercial operations further.

The ICIP offers a holistic approach as it not only targets the main goal of the organization i.e. increased revenues but also takes the customers' perspective into consideration through improved services. The ICIP starts with striking the heart of commercial operations i.e. the provision of correct consumer and billing data. Hence, the Improved Meter Reading (IMR) initiative is designed to correct the baseline so that if any consumer is under billed or over billed, it might be adjusted accordingly and also the consumer database is also correct with regards to its tariff and other important parameters. The IMR is a pre-requisite for the Hand Held Units (HHUs) Project. To further strengthen the meter reading process and make it more stringent against inaccurate readings, the support of latest technology will be utilized thus, HHUs will be implemented across MEPCO. This will not only enhance the capability of meter readers to take accurate readings but will also build the confidence of consumers in the bills that they receive. MEPCO has already covered two circles with HHUs through USAID PDP's assistance.

Special attention will be paid to high end consumers who contribute more to MEPCO's revenues. Therefore AMR meters will be installed on all high end consumers with a load between 15-20kW, as 20kW and above customers are already covered by AMRs under USAID Power Distribution Program (PDP). AMRs will also be installed on all tubewell customers of MEPCO, these meters will have remote connect-disconnect capability to help the DISCOs to remotely connect or disconnect the customers on non-payment. The AMR meters will enable the DISCO to give special treatment to its high revenue consumers by getting accurate and timely readings. Another aspect of installing AMRs is the trigger that they will send to the DISCO in case of any potential theft. It will add another level of monitoring to the existing mechanism of the DISCO while a separate cell will be established as well to counter the alarms triggered by the AMR meters.

To improve the efficiency and accuracy of the consumer billing process, CIS will be scaled-up. MEPCO has already completed two circles with USAID PDP's assistance. The updated consumer's database from the consumer census will be utilized to populate the CIS database i.e. through IMR. In addition, the data on electricity consumption, whether received from AMR meters or HHUs, will be processed through CIS. This will shorten the meter reading and billing cycle thus ensuring that cash flows hit the ledgers of the DISCO much sooner and with less effort. Further, in order to curb potential theft and non-recovery, a surveillance unit will also be setup across the DISCOs that will be responsible to monitor incidents of theft and guard the revenues of the company. This cell will also enforce the nonpaying consumers to pay their outstanding dues. To achieve excellence in customer services, the Customer Service Centers (CSCs) will be upgraded in each subdivision. These centers will facilitate the consumers and improve the brand image of MEPCO in the eyes of the consumers. In conjunction, a Customers Management System (CMS) will be launched all across MEPCO, along with a toll free number where consumers can file their complaints.

All these integrated commercial efforts will create a synergized effect of improving the commercial performance of MEPCO and making it a more profitable entity. Therefore, based on the return on investment offered, these projects have been chosen.

Improved Meter Reading (IMR) Followed by Hand Held Units (HHUs) Project

The current practice of recording the reading and calculating the consumption on customer records (Kalamzu card), transferring this data to the meter reading list, obtaining approval for the compiled readings by operating personnel and then entering the reading and the consumption into the computer is a time consuming process leaving little or no time to verify suspect readings. Therefore, data manipulation and transcription errors are common causing the entire process to be highly inefficient with poor internal controls.

The IMR project is sequentially predecessor task to the HHUs implementation. The improvement part of IMR includes physical scanning of meters to identify discrepancies and potential theft, lowering the height of meters (bringing them down to readable height) and getting the defective meters replaced. Furthermore, through this initiative, MEPCO aims to update customer information.

Once the IMR activity is completed across all subdivisions where HHUs will be implemented, then the ground is set to implement the HHUs project there. The scaling -up of HHUs for meter reading will help MEPCO to reduce non-technical losses and efficiently manage / monitor the meter reading process thus, improving meter reading and billing data integrity. HHU devices are essentially small computers where the reader keys-in the meter read information and other particulars. Built-in controls of the system, for example, high-low check, snapshots of the meter etc., allow detection of suspicious activities. The readings are transferred to the computer via a docking station, reducing vulnerabilities for transcription errors and opportunities for manipulation. The snapshots can be used for further data validation by meter reader supervisors and also shared with customers in case of complaints. This will help in improving customer services and also build customer confidence in the meter reading process. MEPCO also aims to print these snaps on the customer's bills, thus brining more transparency and establishing accountability on the meter readings.

MEPCO along-with USAID PDP initially designed IMR and HHU projects that helped improve the efficiency of meter reading and the discrepancy identification process and reduced the opportunities for data manipulation at Gulgasht subdivision. This pilot project achieved excellent results with 3% reduction in progressive losses in June 2014, increased revenue and an average decrease of up to 80% in customer complaints. Later with assistance from PDP, the HHUs project was rolled-out. PDP procured 774 HHUs and implemented this project at 37 subdivisions of Multan Circle and Khanewal Circle and 13 subdivisions of Vehari Circle. Under this DIIP/Business Plan, the IMR/HHU initiative has been designed for implementation MEPCO wide.

This project will be further extended to 137⁹ subdivisions by MEPCO after September 2015, covering a total of 190 subdivisions. Under this project an additional 1,788 HHUs¹⁰, allied IT equipment and 2,326 motor bikes will be purchased. Please refer table DIIP-18 above for summary scope by year and refer to **Annex-10** for details on scope and cost.

AMRs Extension – 15-20 KW and All Tubewell Customers

AMR technology has been designed to assist MEPCO in achieving significant improvement in commercial performance through integration of advanced metering processes. MEPCO has an

⁹ Please note that 137 includes new 30 subdivision that are estimated to be created in next 5 years

¹⁰ Please note that MEPCO plans on procuring mobile phone devices as substitute for HHUs, which have been tested successfully and utilizes the same software as the other robust HHU device has

outdated metering system based on electro-mechanical metering subject to inaccurate manual readings and field tampering, resulting in a significant loss of revenue and increased opportunities for theft. The project aims to scale-up the AMR system to help reduce distribution losses, enhance load control and load management, provide automated consumption (billing) data, improve revenue collection and customer services, reduce billing complaints, increase operational efficiency, reduce operating costs and modernize the electricity metering and billing operations while also responding to AMR meter alerts and events.

Thus, under this activity, MEPCO plans to carry out a large-scale meter replacement program across its territory, with AMR (GSM/GPRS) meters for high-end residential, agricultural, commercial and industrial customers having a sanctioned load of between 15-20kW (as 20 kW and above meter are already covered by USAID PDP through AMRs). Further, under this intervention, AMR meters with a remote disconnect and connect capability will also be installed on tube customers of seven circles (as for Multan and Vehari Circles' tubewell connections, the AMRs have already been installed under USAID PDP). For these meters in-case of disconnection initiated by the backend system, the AMR meter will not reconnect until it receives a reconnection command. These will also have the capability to support two different load thresholds against different time slots (peak/off peak) which will be programmed to activate disconnection/reconnection automatically.

Furthermore, to effectively implement the AMR project and enable a smooth transition, an AMI Cell is being established by PDP within the existing DISCO IT department to undertake the responsibility of AMR system configuration, installation, communication and operation with different DISCO formations. Moreover, a theft cell under commercial is planned to be established whose function will be to analyze the data from these AMRs on daily basis and intimate / monitor the field formations to take appropriate actions against the alarms raised.

Currently, with USAID PDP's assistance MEPCO is installing up to 16,526 AMR meters on high end customers having a sanctioned load of 20kW and above. About 1,510 AMR meters will also be provided to maintain the operational reserve supporting the sustainability objectives. Also, under the same project, MEPCO is also installing up to 23,167 AMR meters for tubewell connections of two Circles (with up to 13,000 AMRs for Multan Circle and up to 10,167 AMRs in Vehari Circle).

MEPCO under this DIIP will further expand the AMRs project to cover 61,608 high-end domestic, commercial and industrial customers between 15-20kW. An additional 6,252 HT/LT AMRs will be procured as well to cover the new connections in next five years (between 20KW and above).

Further, there are more than 75,000 tubewell connection in MEPCO. USAID PDP has installed up to 23,163 AMRs on tubewells, rest 56,600 tubewell connection will be covered through AMRs under this plan. Therefore, a total of 124,460 AMRs will be procured under this scheme.

Please refer table DIIP-18 above for summary scope by year and refer to **Annex-11** for details on scope and cost.

Customers Information System (CIS) Extension – Seven Remaining Circles

The operations of DISCOs are characterized by manual and cumbersome processes, inadequate controls, insufficient commercial focus, limited transparency and a lack of reliable information. As a

result, operations are highly inefficient with substantial revenue leakages and poor customer orientation. Integrating and automating core commercial functions like meter reading and billing/collections will minimize the human element in commercial processes and lay the foundation for sustainable revenue cycle reforms.

Integrating and automating core commercial functions like meter reading and billing/collections that will minimize the human element in commercial processes and lay the foundation for sustainable revenue cycle reforms is being planned. From customer care and metering to billing, payments, credit and collections, these applications enable the customer experience and support all aspects of billing and revenue collections. Augmented with HHU meter reading devices, the CIS will generate accurate consumer bills and a one-window customer services facility will provide improved customer experience. This will result in improved operational efficiency, increased accuracy of bills, reduced process cycle time and more efficient customer services with a reduction in customer complaints.

Therefore, CIS, which is the critical backbone of customer care and commercial operations, is being implemented at MEPCO with assistance from USAID PDP and Power Information Technology Company (PITC) at Multan Circle.

CIS is a web based application system. The required servers and allied hardware is being provided by PDP that has the capacity to cover the entire company's customers base. PDP-PITC was developed the CIS application whereas Oracle license for database was purchased by MEPCO. The CIS rollout comprises of numerous elements including the application software, database engine, computer hardware and networks (LANs and WANs), network installation and testing, data conversion from legacy system to a new system, data cleansing, pre-installation and on-the-job training, and operational support for a limited time. All these activities will be done by MEPCO and PITC in the coming years.

For client deployment, there will be three layers of deployment for each circle, i.e. the circle level, the division level and the sub-division level (automation of workflow data). To ensure a smooth transition, each layer will be deployed in separate phases. During phase I, the primary and failover application and database servers will be deployed at MEPCO's computer center and Disaster Recovery (DR) application and database servers will be deployed at PITC. The clients will be deployed at each circle's computer center with real time network connectivity to MEPCO's computer center, as well as the PITC disaster recovery center using high speed fiber networks. During phase II, the client stations will be extended to 35 divisions of MEPCO and up to 177 offices including subdivision offices in phase III.

As the first implementation takes is completed in Multan Circle and Vehairi Circle by PDP's assistance, the CIS will be progressively rolled out to other circles by MEPCO, by FY2018, rolling covering two more circles in FY2016, three more in FY 2017 and finally two more in FY2018. PDP has successfully established the partnership of MEPCO with PITC and they have taken full ownership of developing and expanding the new billing system to other circles of MEPCO.

Please refer table DIIP-18 above for summary scope and refer to **Annex-12** for details on scope and cost.

Customers Service Center (CSC) Up-grade and Complaints Management System (CMS)

Efficient customer services are a critical success factor for DISCOs who bear a significant responsibility to provide continuous and reliable services to their customers. Currently, manual processes for accessing customer records make it difficult to quickly respond to customer queries and often require calling back customers hours or even days after their initial visit leading to inefficiency and poor customer orientation. MEPCO as a power distribution company has to face a lot of consumer complaints at divisional / sub-divisional level on a daily basis. For this purpose, a one-window operation is working at sub-division level and CSCs at divisional level. Regional CSC is also functional at MEPCO Head Quarter to facilitate consumers. If a complaint is received by the consumer, it is properly recorded in a complaints' register by the customer service representative (CSR) and later on forwarded to the concerned office through courier or fax but this process is very time consuming.

Therefore, MEPCO by getting technical assistance from USAID PDP has already undertaken an initiative to revamp the existing regional complaint center and one-window customer service centers of Multan Circle. Additionally, to ensure quick resolution of complaints and customer satisfaction, automated modern software and technology i.e. Interactive Voice Response (IVR), Queue Management System and Online Complaint Management System (OCMS) has been introduced at MEPCO through PDP's Technical Assistance with the following parameters:

- IVR is a technology that allows a computer to interact with customers through the use of voice input via keypad and has been introduced at MEPCO CSC to allow callers to lodge various complaints.
- Queue management system is designed to help managers through enhanced customer service, improved efficiency and reduced costs. It comprises a token dispenser and counter display alert system with four counters at MEPCO's regional CSC. Different complaints are entertained at respective counters and tokens are issued to walk-in customers to accurately detect the number and behavior of people in the queue.
- OCMS is one of the latest productivity enhancement tools used widely by organizations where there is a need to book complaints via operators and analyze the complaints that are made or are pending. Through this, the concerned CSR registers the complaint and fills out the requisite information received through the complainant.

Thus, by optimizing the complaint-handling process, speeding up the turnaround from complaint submission to resolution, and keeping the overall quality of online customer complaint system always ready for audits, this initiative aims to ensure transparency and efficiency of commercial procedures while bringing about a fundamental change in the work culture. While the current CMS can only pick basic information of consumers, when interfaced with CIS, we will be able to get comprehensive consumer information for efficient complaint resolution. This will further create a positive image of MEPCO for the customers, motivate employees to work towards the overall performance improvement of the company and provide an environment for the sustainability of new technology and improvements brought about by PDP which include the introduction of HHUs, CIS, AMR, lineman tools and equipment and purpose-built transport etc.

Currently, 24 subdivision offices' CSCs of Multan Circle have been upgraded by MEPCO with the help of PDP. This will be extended to 234 CSCs. The CMS software has been developed and will be

implemented and further rolled out company-wide by MEPCO after September 2015. A provision is also made to further customize the CMS software under this DIIP.

Please refer table DIIP-18 above for summary scope by year and refer to Annex-13 for details on scope and cost.

Surveillance

T&D losses of DISCOs are one of the primary causes for Pakistan's circular debt in the energy sector. Power theft is a major contributor towards T&D losses and poor collections in the DISCOs. There is poor surveillance, no back end support, poor evidence collection, documentation and representation, no anti-theft interaction at the community level and slow recovery of arrears which leads to high losses.

Thus, with an overall objective of increasing collections and decreasing losses, MEPCO along with USAID PDP has developed a surveillance initiative to periodically monitor high revenue meters, especially agricultural customers and AMR meters being installed. The procedure for surveillance includes survey and inspection of theft cases through coordinated field teams, prosecutable evidence collection through standardized forms, photographs and defined procedure, FIR application and registration, penalty (detection bill preparation), legal action and case management.

As part of this project, five surveillance teams will be formed with three teams for surveillance in Multan Circle and two teams for surveillance on AMI alerts all over MEPCO in the AMI Cell. These teams will work under a Field Project Manager Surveillance. One official from MEPCO Surveillance / M&S and one from the concerned subdivision will be included in each team to analyze the data. Three staff members of PDP's Surveillance Team will be deputed to the AMI Cell for monitoring of AMI alerts round the clock. Further, for prompt surveillance on the AMI alerts, M&S and M&T staff will be called to jointly visit the sites and detect problems and discrepancies to avoid any revenue losses. Surveillance will be carried out on the discrepancies pointed out by the meter reader / follow up teams where IMR/ HHU are being implemented along with meters that have not been replaced yet. Random surveillance will also be carried out in high end commercial and residential areas and those with high loss feeders.

A fully functional surveillance unit has been established by PDP. Five vehicles have been supplied to strengthen the unit along with training and capacity building of the staff. MEPCO under this initiative will expand this further to nine circles and 32 divisions. For mobility, it is proposed that the units be given 37 Vehicles including Suzuki Ravis and Hilux under this plan, along with tools to enable these teams to take action against theft and enhance collections.

Please refer table DIIP-18 above for summary scope and refer to Annex-14 for details on scope and cost.

ii. Financial Management Improvement Plan

MEPCO is implementing ERP with USAID PDP's assistance. The costs for ERP implementation are already covered. Further USAID PDP has assisted MEPCO to improve the internal audit function and audit and accounting manuals. Under this plan MEPCO envisages to conduct specialized studies like Assets tagging and valuation. Provision for covering the

bandwidth operational costs is also made under this DIIP for ERP. Further staffing required to scale ERP company-wide is part of the HR plan.

DIIP 18 - Financial Management Improvement Plan

Financial DIIP- MEPCO

# CAPEX	FY16	FY17	FY18	FY19	FY20	5-Year Total
1 ERP	Costs already covered, will be rolled out in FY2016					-
2 Studies etc.	Assesses Valuation and tagging					

The details of ERP MEPCO are discussed hereunder¹¹. ERP implementation plan for MEPCO has three basic components:

1. ERP Application: This is a tier one, off the shelf software of ERP which will cover the following business areas;
 - a. Financials which cover general ledger, accounts payable, accounts receivable, fixed assets, cash management and budget.
 - b. Material Management which will cover inventory and purchasing management.
 - c. HRIS which will cover core employee data and payroll.
 - d. Integration of ERP with other modules currently in use or will be developed during the implementation of PDP by other teams.
2. IT Infrastructure for ERP: Covers user hardware, ERP servers, WAN, LAN, servers and other related IT infrastructure
3. Capacity Building / Trainings: Cover basic training for the use of computers and its basic applications e.g. MS Word/Excel etc. ERP application role based usage trainings are part of the scope of work of the ERP implementer.

The key objectives of ERP Solution/Implementation are:

- To ensure, reduced supply chain cost, Optimized maintenance cost and increased transparency and audit ability.
- To ensure that MEPCO continues to reap the best value out of its IT investments and develop a mechanism to enhance competency, build knowledge, stimulate, innovation and enable proactive road-mapping to help MEPCO in achieving productivity and effectiveness through technology enablement.
- To take MEPCO to the next level of Business Network Transformation by focusing on:

High level Project scope includes the following:

1. Provision of SAP User Licenses as per RFP.
2. Project Management for Implementation phase.
3. Functional scope:
 - a. Financial Accounting and Controlling

¹¹ Please note that the scope and cost are already covered by MEPCO / PDP, this description is provided for information of the regulator

- General Ledger
 - Accounts Payable
 - Accounts Receivable
 - Fixed Assets
 - Cash Management
 - Funds Management
 - Controlling
- b. Materials Management
- Procurement
 - Inventory Management
- c. Human Resource Management Systems
- Personnel Administration
 - Time Management
 - Payroll
 - Organizational Chart
4. Technical Scope
- a. Development of RICEFW (Reports, Interfaces, Customizations, Enhancements, Forms, Workflows).
 - b. Identification of Hardware and Network requirements for the project.
 - c. Setting up SAP System Landscape including SAP ECC and its administration and tuning.
 - d. Setting up access controls in the system
5. Providing Level 1, Level 2 training (Train the Trainer) and technology transfer training.
 6. Conducting Unit and Integration Testing
 7. Data Migration from legacy systems to SAP. Data will be provided by MEPCO as per data migration templates
 8. Documentation including Specifications and User Manuals
 9. System Rollout to remaining sites after Pilot Phase Go Live
 10. Geographical Scope for the MEPCO SAP Implementation Project includes the following:

Phase 1 – Implementation & rollout	Phase 2 Rollout-Post September 2015
Accounting and Financial Management System	
Head Office	
All Sections	
All Regional Stores	
Warehouse	
PD Construction	
PD GSC	
Project Management Unit	
All Divisions of Multan Circle	All Divisions of remaining circles

All Revenue Offices of Multan Circle	All Revenue Offices of remaining circles
Material Management System	
All Regional Stores	
All Field Stores	
All Warehouses	
Office of Material Management	
Project Management Unit	
PD GSC	
PD Construction (PDC)	
One Division (PDC)	Remaining divisions of PDC
Human Resource Management System	
Headquarter (The Core HR data will include all MEPCO employees)	
MEPCO Centralized Payroll	
All Circles	
All Divisions	

Please refer Annex-15 for details on scope and cost.

iii. Human Resource Improvement Plan

This plan covers the HR improvement activities, revamping / addition of training facilities, training of employees through external facilities, conducting some studies, improving the working environment etc. Under this section scope that what will be done in each of the five year under of business plan is discussed. The narrative shall also be supported by the justification. Please note that **Linemen safety is covered separately below.**

DIIP I9 - Human Resource Improvement Plan

HR DIIP- MEPCO						
# CAPEX	FY16	FY17	FY18	FY19	FY20	5-Year Total
1 Training Facilities Revamp	1	2				3
2 Studies Yard Stick Study	Will be started in FY2016 with completion in 2017					-
3 Improving the Working Env. Including Transportation	Furnishing the Office Buildings with new furniture and allied equipment in order to improve the working and provision of vehicles to the officers with transfer of ownership					-
4 Trainings	Trainings of officers twice a year and international exchanges. Provision is also made for international individual consultants for conducting utility specific					-

The Human Resource Improvement Plan (HIRIP) broadly aims to increase the functional capacity of DISCO staff by providing the institutional model for technical and behavioral skills among the company's employees. It also aims to increase the productivity and quality of services provided both

internally and externally, creating a foundation for sustainable IIR operations. Additional goals and objectives include:

Please refer table DIIP-4 for detailed mapping of IIR initiatives with goals and objectives, with a summary mapping discussed below:

Human-ware:

- Improving MEPCO's infrastructure:
 - Starting training and capacity building initiatives
 - Improving the recruitment process
 - Fulfilling the basic requirement for needs to operate for field staff
 - Improving communications with staff
 - Identifying a turnaround group

Org-ware:

- Org A&R review and implementation
- Improving office facilities/work environment
- Conducting yardstick study for IIR
- Conducting motivational campaigns
- Career planning
- Improving health and educational facilities for employees

Others:

- Streamlined IIR procedure and system of internal controls.
- Increased efficiency and effectiveness of the departments.
- Increased knowledge and skills of staff in their functional areas

The current operations and budgets of DISCOs lack a focus towards the improvement of human resource functions and significantly neglect the skill development of employees which often times is a major contributing factor towards the poor overall performance of the organization. Therefore, there is a dire need to improve human resource functions and bring them at par with best practices adopted by utilities worldwide. As a result of DISCOs' operational audits, USAID Power Distribution Program (PDP) identified some interventions that would transform the way these DISCOs operate and bring a paradigm shift in their human resource functions. The HRIP is an optimal fusion of all the activities that would be implemented through the course of five years to revolutionize the business practices adopted by MEPCO and ensure the development of its human capital.

The HRIP offers a holistic approach as it not only targets one of the main goals of the organization i.e. increased efficiency but also takes the employees' perspective into consideration through improved facilities/work environment. The HRIP starts with striking the heart of human resource development i.e. training and capacity building of the staff. For this purpose, MEPCO will begin the process of adequately funding the proper training function by allocating training and development specific budget at two percent of the operating budget and increasing it by almost one percent per year. To be effective, the trainings must be a continuing process that steadily enhance the technical skills and reinforce safe working practices especially amongst the linemen.

All these efforts will create a synergized effect of improving the human resource functions of the DISCO and making it a more profitable entity.

Under training facilities revamping, the remaining three CTC's will be revamped as one RTC and three CTCs have already been revamped by USAID PDP. Further, the yard stick study will be carried out to form the base of bifurcations and additional staffing requirements. The working environment improvement includes provision of furniture, paint jobs of offices and provision of vehicles to officers through cost sharing scheme, with ultimate goal of transferring the vehicles to the officers under the MEPCO's to-be finalized vehicles policy (provision is being made here). Trainings of officers twice a year and four international exchanges per year are planned. Provision is also made for international individual consultants for conducting utility specific trainings.

Please refer Annex-16 for details on scope and cost.

Staffing Plan:

The staffing plan is an essential component of the IIR plan. Appropriate staffing aligned with Business Strategy is a must to ensure smooth implementation of projects, operations, sustainability and achievement of goals. Below is the staffing plan related to IT, Planning, Strategic Planning, commercial, communications, transmission and distribution. The cost of this staffing is reflected in the operational costs are this plan is consistent between the two scenarios developed i.e. is the best and optimally achievable cases:

DIIP 20- Staffing Plan aligned with Investment Plan

Staffing Plan							
1: Commercial							
#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
1	Meter Readers for Operations (HHUs)	850	340	510			
2	Meter Readers for Projects Implementation on Contract (HHUs)	419	419				
3	Supervisors for Projects Implementation on Contract (HHUs)	7	7				
4	Data Analyst for AMI - CIS Integration Commercial	5	2	3			
5	Assistant Manager Data Analysis, Reporting and Compliance	1	1				
6	Deputy Manager Anti-Theft Cell and AMI Commercial Analysis	1	1				
	Manager Customer Services	1	1				
	Meter reading data analyst for HHUs (25K)	190	40	132	6	6	6
7	Drivers for Anti-theft Cells	5	2	3			
Total		1,479	813	648	6	6	6

2: IT

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
Officers-IT							
1	Chief Information Officer	1		1			
2	Manager Applications	1		1			
3	Manager System & Infrastructure	1		1			
4	Deputy Manager - Networks	2	1	1			
5	Assistant Manager Networks	2		2			
6	Deputy Manager - Systems	2	1	1			
7	Assistant Manager Systems	4	2	2			
8	Deputy Manager Database	1	1				
9	Assistant Manager DBA	8	2	6			
10	Deputy Manager IT Security	1		1			
11	Assistant Manager - IT Security	2		2			
12	Deputy Manager ERP	1	1				
13	Deputy Manager Billing and CC&B	1		1			
14	Deputy Manager Customized Applications	1		1			
15	Assistant Manager (Application Developers) for ERP	4	1	3			
16	Assistant Manager (Application Developers) for Billing/CIS	3	1	2			
17	Business Analysts - ERP	3		3			
18	Business Analysts - Billing and CIS	2		2			
19	Assistant Manager (Web services)	1	1				
20	Assistant Manager (GIS)	1	1				
21	Assistant Manager (AMR,HHU)	2	2				
22	Assistant Manager - Customized Applications	1		1			
Sub - Total							
		45	14	31	-	-	-
Staff -IT							
	Network Assistants	12	4	8			
	Network Systems Assc	12	4	8			
Sub - Total							
		24	8	16	-	-	-
Total - IT							
		69	22	47	-	-	-

3: Strategy Planning and Planning and Engineering

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
1	Chief Strategy Officer	1	1				
2	P&E Managers	3	3				
3	Other Staff	2	12				
Total		6	16	0	0	0	0

4: Communications - PR

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
1	Asst. Manager Communication & Outreach	1	1				
2	Communication Assistant	1	1				
3	Graphic Designer	1	1				
Total		3	0	3	0	0	0

5: Transmission and Distribution

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
<u>To fill existing staff shortage</u>				-	-	-	-
6	Managers	8	5	3	-	-	-
7	Deputy Managers	19	11	8	-	-	-
8	Assistant Managers	133	74	59	-	-	-
9	Line Superintendents	374	206	168	-	-	-
10	Line Men	473	260	213	-	-	-
11	Assistant Linemen	1280	704	576	-	-	-
12	Clerks	641	353	288	-	-	-
13	SDC	101	56	45	-	-	-
14	Drivers	272	149	123	-	-	-
15	Naib Qasids	142	78	64	-	-	-
16	Security Guards	583	321	262	-	-	-
17	Sweepers	141	78	63	-	-	-
18	Draftsmen	43	24	19	-	-	-
19	Tracers	50	28	22	-	-	-
20	Surveyors	5	3	2	-	-	-
21	Mali	68	37	31	-	-	-
22	Data Control Supervisors	20	11	9	-	-	-
23	Others	2697	1483	1214	-	-	-

5: Transmission and Distribution**Expansion Required for Future Expansion (Achievable Case)**

24	Managers	5	2	1	1	0	1
25	Deputy Managers	5	3	1	0	1	0
26	Assistant Managers	136	71	21	17	16	11
27	Line Superintendents	235	131	37	31	23	13
28	Line Men	724	417	163	81	41	22
29	Assistant Linemen	1025	601	191	97	73	63
30	Clerks	66	41	12	7	4	2
31	SDC	142	82	22	16	16	6
32	Drivers	0	0	0	0	0	0
33	Naib Qasids	4	0	1	1	1	1
34	Security Guards	273	103	76	41	33	20
35	Sweepers	10	0	4	3	2	1
36	Draftsmen	57	21	17	11	6	2
37	Tracers	112	37	29	21	14	11
38	Surveyors	0	0	0	0	0	0
39	Mali	0	0	0	0	0	0
40	Data Control Supervisors	140	41	32	27	23	17
41	Others	825	321	227	108	96	73
Total		10832	5775	4003	462	349	243

6: Transmission and Distribution

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
Safety Department							
1	Manager Safety	1	1				
2	Deputy Manager Safety	2	2				
3	SDO Safety Head Quarters	2	9				1
4	SDO Safety per Circle	10	9				1
5	LS Safety per Circle	10	9				1
Total		25	30	0	0	0	3

iv. Communications Improvement Plan

This plan covers the communications improvement activities including but not limited to improving the internal communication amongst employees and external communication with customers to improve image of the company etc. Under this section scope of work is provided to be done in each of the five years under this business plan.

MEPCO often receive negative coverage in the local media due to the absence of active communications and media strategy. Moreover, the basic functions of communications are undermined with little or no communications budget. The public relations department lacks the resources, manpower and expertise that prevent MEPCO from achieving corporate communication standards and creating a positive image among their consumers. The Communications Improvement Plan (CIP) thus, offers a holistic approach because it not only emphasizes the importance of public awareness and image building initiatives for the DISCO but also the internal communication. A part

from this, it also focuses on improving the internal communication among staff specially the officer cadre who are involved in the decision making and for the purpose, require immediate access to the information, when and where required.

This plan identified some low cost interventions that would transform the way MEPCO operate their PR department. Frequent consumer awareness campaigns and regular interaction with consumers are few of the highly recommended activities targeting educated and well-informed consumers who are bound to play their role in energy conservation and spread positive messages. In addition, MEPCO will allocate a clearly defined budget and resources for consumer awareness activities. The CIP is an optimal fusion of all such activities that would be implemented through the course of five years by MEPCO to take its communications and outreach further.

Through the initiatives indicated, the CIP aims to improve MEPCO's branding with recognition among local communities and consumers and improved understanding among the young generation regarding their role in energy conservation along with improved corporate communication and increase in the usage of email and telephonic communication amongst MEPCO's staff.

All these efforts will create a synergized effect of improving the communications function of the DISCO and making it a corporate entity at par with utilities worldwide. Therefore, based the maximum band for the buck, these projects have been chosen.

A. Internal Communication:

Mail Servers:

Before MEPCO could take the initiative to improve communication with its external stakeholder such as consumers and the community as a whole, it must ensure that it has achieved the optimum level required in the internal communication among staff. To achieve this objective, MEPCO should acquire the basis infrastructure that would help the staff to have affective communication among them. The modes of communication that are needed to be strengthened by MEPCO as an organization are electronic communication via email and, telephonic communication over the cell phones.

In order to provide instant access to the information required for the spontaneous decision making and problem solving, MEPCO employees in the officer cadre need to have in their possession, at least an email address to communicate within the boundaries of MEPCO and a cell phone enabling them to relay their communication outside the premises of their offices. Therefore a mail server is suggested to be deployed within the organization. Scanners will also be installed to ease the email functionality. This will be done right after the communication protocols have been set, user trainings have been imparted and procedures have been finalized; all of which would happen in the first year of Business Plan implementation. In addition, cell phones will also be provided to the officers serving the dual purpose of not only making phone calls but also checking their emails.

Annual Employee Recognition Event:

It is the duty of an organization to appreciate its employees because as a matter of fact, an organization is in existence only because of its employees. Therefore, MEPCO will organize an annual function to celebrate its successes and achievement in the last year as well as to recognize the employees that have given MEPCO the reasons for celebration through their dedication and hard

work. This will not only motivate the employees but will consequently result in creating harmony and mutual understanding among them.

These interventions will ensure that MEPCO establish an effective internal communication setup required to run the organization and its operations, in a more efficient manner.

B. Public Communication & Outreach Activities:

MEPCO's Public Relations (PR) Departments comprise one PR officer and two clerical staff who dedicate a good portion of their time to issuing rebuttals to inaccurate media reports. The concept of image building and consumer awareness needs improvement. Therefore this plan which actually comprises of a complete portfolio in the realm of Public Communication and Outreach, helping put forward an improved brand image of MEPCO, better customer services and better informed customers through a series of outreach campaigns.

1. Mass Media Campaigns

The Public Relations and Customer Services Departments of MEPCO will design localized campaigns to target consumers on both energy conservation and the timely payments of bills. These campaigns will help MEPCO in its image promotion as a well-run and progressive power distribution company. MEPCO staff will be given an opportunity to talk to consumers through radio, TV and newspapers to educate consumers regarding the distribution business of MEPCO.

In the long run, these campaigns will result in an improved image of MEPCO as a dynamic and customer-friendly entity through external communications that will help to smoothly implement consumer awareness campaigns and will empower the PR Department to deliver assertive communications and outreach on behalf of MEPCO.

2. Public Outreach & Awareness Programs

Consumer outreach activities will help build a relationship between MEPCO and its consumers. Campaigns targeted at schools and universities, and industries, traders and farmers will be planned in close coordination with the relevant departments of MEPCO.

A variety of interventions at schools and colleges will be held including energy conservation seminars, lectures on MEPCO's role as a DISCO, debating, essay writing and painting competitions. These will help in the image promotion of MEPCO among school- / college-going students. A range of consumer awareness material will be disseminated to improve the knowledge of students on energy conservation and efficiency at both homes and schools.

Industries are important consumers of MEPCO therefore targeting industrialists, through seminars at the Chamber of Commerce, will spread energy conservation awareness and the effectiveness of energy audits. Speakers from MEPCO will be arranged to speak with industrialists on selected topics e.g. energy conservation, better relationships between MEPCO and industries and the need for strengthening cooperation to the mutual benefit of both.

Similarly meetings will be organized with Press Club, to gain its support to spread the message to the masses to adopt energy conservation measures and place MEPCO's conservation material in prominent locations.

Farmers, in addition to being important consumers of MEPCO, can play a significant role in the conservation of energy through the use of efficient tubewells and legally managing their connections. Improved relationships between farmers and MEPCO are the key to discouraging theft and soliciting timely bill payments.

3. Design and printing of Customer Awareness Material

MEPCO's corporate image requires steps to be taken for its improvement and to promotion as a DISCO rather than an electricity generation and supply control entity. A localized media campaign will be designed and executed to create awareness among consumers regarding MEPCO and energy conservation. Material will include news articles, brochures and leaflets, billboards, pamphlets, local cable advertisements and documentaries. A new corporate tagline (slogan) along with business cards will help introduce a uniform public face of the company at the professional level and will be proposed to MEPCO management.

As part of the overall branding campaign, MEPCO's Customer Services Centers will be branded through the strategic placement of standees, banners and other awareness material. Brochures, leaflets and handbooks will be developed for employee safety measures and workplace ethics that will help guide Customer Service Center employees. The proposed action plan includes designing content that educates consumers about MEPCO's role as a DISCO and the different energy conservation measures they can adopt.

4. Student Energy Conservation Programs

Another important intervention is the energy efficiency and anti-theft campaigns consisting of mass media and Informational and Educational Communication (IEC) materials for dissemination to the public as well as internal communications. These are grassroots-level promotions that target awareness at community level or through school children and college/university students with action-oriented messages, where benefits of proposed actions are quantitative and clear to the audience. For instance, replacing an incandescent light bulb with an energy saver will help reduce consumption by 50%, resulting in money saving and increased availability of electricity.

5. Radio Talk shows

Talk shows aired through radio are one of the cost effective ways to directly reach the consumers and to tame their minds by talking about the positive developments being carried out by MEPCO and showing the positive side of the picture. These talk shows also provide an opportunity to the consumers to take part in the ongoing discussions with the senior officials of MEPCO, turn attention to their complaints, or provide their feedback. MEPCO will launch two seasons of the radio talk shows on the leading FM radio channels, one series of 13 episodes will be aired for a quarter in peak summer season focusing on energy conservation, while other series will commence in peak winter season with an emphasis on the anti-theft.

6. Monthly News Letter

Any progressive organization would like to update the society in general and its employees and consumers in particular, in a progressive manner, about the achievement it is making throughout the course of time. Newsletter is an effective matter to get this done. MEPCO will publish monthly newsletter that will not only contain the updates about the organization but will also include news, events, articles, consumer feedback and other topics of interest.

DIIP 21 - Communications Improvement Plan

Rather than presenting the scope in a table it is narrated and explained below:

A. Internal Communications

For enhancing email internal communication via email, the company will deploy physical IT infrastructure consisting of one Mail Server and associated paraphernalia. In addition, scanners will be provided in all the 250 distinguished offices of MEPCO to facilitate email communication. Further, to facilitate swift communication amongst the officers, smart phones will be designated for all the 475 officers enabling them not only to make calls but also to check and respond to the emails on the go.

Apart from investments in the communications technology, MEPCO will invest in the human aspect as well by arranging at least one Employee Recognition Event each year. It will be a formal event attended by all the employees of MEPCO in which the high-achievers will be acknowledged for their services and successes.

B. External Communications

Public Outreach Office of MEPCO will be strengthened by provision of a Toyota Hiace for rapid outdoor mobility of staff for performing outreach activities in the field.

At least four mass media campaigns in a year will be arranged within the territory of MEPCO, two campaigns will be based on the theme of anti-theft while two will focus energy conservation. These will include publishing advertisement in leading local newspapers, and relaying the message using the electronic media: TV, Cable and FM Radio. In addition, billboards, pole streamers and similar mediums will also be utilized to spread the message among the consumers.

Apart from these campaigns, public outreach programs and awareness sessions will be arranged at university, community and district levels. It is anticipated that at least four sessions per year at each level will be organized to reciprocate the message.

Printed material is an effective way to penetrate within the masses therefore, consumer awareness material will be designed and printed which includes but not limited to brochures, pamphlets, leaflets, flyers etc. In addition, a newsletters will be also published each month.

Please refer Annexure-17 for details on scope and cost.

v. Linemen Training, Tools and Equipment

USAID Power Distribution Program (PDP) has provided quality tools, vehicles and equipment, and also conducted different trainings of MEPCO line staff on the latest tools and equipment that are used worldwide to make line work effective and prevent lineman from fatal and severe non-fatal accidents. A hundred purpose-built vehicles have been provided making the line staff able to carry all necessary tools and equipment that are mandatory to perform their job safely.

MEPCO's senior and middle managers are also trained so that they can realize the importance of lineman safety in quality work production and elimination of these accidents. The point of consensus has developed in the MEPCO due to safety trainings at all levels of management and line staff is "all these accidents are avoidable and can be eliminated". To reach such point, unwavering commitment is required at every level of DISCO to show zero tolerance attitudes on any accident in future. The management can't justify its position by initiating disciplinary actions against SDOs and Supervisors only, but the management has to have allocated good amount of resources in lineman safety.

Currently MEPCO have serious dearth in Transport, Tools and Personal Protective Equipment for Linemen. Further MEPCO operate its safety through Deputy Manager Safety with two safety inspectors, where MEPCO is the largest utility in Pakistan having more than 10,000 employees, in one research it is concluded that in a well-run power utility its safety personnel ratio to its employees should be 1/250, whereas MEPCO has such ratio 1/4000. To improve such ratio MEPCO Safety Organization needs restructuring immediately.

In this business plan MEPCO has incorporated such needs in lineman safety with extensive homework and calculations. In this plan, all the needs of Safety Organization restructuring, Trainings and Safety Professional Development Programs for management and line staff, provision of 190 Bucket Mounted Trucks for transport and mobility with safety of linemen, 160 Ravis for supply complaints handling, communication (mobile phones provision for all LM), Linemen equipment and PPEs have been catered with to make MEPCO lineman safe, effective and efficient (that includes 70,100 miscellaneous gang-tools, 96,980 individual tools, 70,294 personal protective equipment items, 380,000 automatic connectors and 1,900 cut out fuses are planned to be procured). This plans also includes provision for customized trainings for MEPCO's LM.

This plan under safety when executed well save MEPCO from huge losses due to poor quality of work and rampant accidents of experienced lineman caused in the shape of heavy financial losses and human loss and it will also improve response to complaint time resulted in improved customer services.

Please refer Annexure-18 for details on scope and cost.

Section -VI

Costs and Financing Plan

A. Capital Expenditure and additional Operating Costs for Expansion and Rehabilitation (this section also includes the total cost of DIIP):

This section includes:

- Summary of Annual Capital and Operational Expenditure Costs for Best Case
- Summary of Annual Capital and Operational Expenditure Costs for Optimally Achievable Case
- Detail Costing

▪ Summary of Annual Capital and Operational Expenditure Costs for Best Case

DIIP 22 - Summary of Best Case Annual Capital Expenditure and Operational Expenditure Costs

Total (Support + Core) DIIP-Business Plan- MEPCO - Best Case						
	In Million Rs.					
Grand Total Capex Plans	FY16	FY17	FY18	FY19	FY20	5-Year Total
	18,970	16,863	10,826	10,575	9,102	66,337
Sub-Total Opex	1,067	2,076	2,538	3,045	3,486	12,212
Add: Staffing Opex, including staffing the existing shortatge as well.	1795	2822	3166	3495	3813	15,091
Grand Total of Opex	2862	4898	5704	6540	7298	27,303

Total Core Business - Transmission and Distribution Plans DIIP- MEPCO --- Best Case

		In Million Rs.				
	Capex	FY16	FY17	FY18	FY19	FY20 5-Year Total
1	Distribution without Deposit	1676	7062	6644	6644	6644 28,670
2	Transmission without ADB	15,076	4,258	3,306	3,365	2,051 28,056
3	Linemen Safety	936	2,522	591	304	304 4,657
4	GIS Mapping	158	48	152	153	8 519
	Total	17,845	13,890	10,693	10,466	9,007 61,902
1	Distribution Deposit Cost	704	845	939	1,033	1,174 4,695
2	Transmission ADB's Cost	5,563	910	-	-	- 6,473
	Total	6,267	1,755	939	1,033	1,174 11,168
		In Million Rs.				
	Opex	FY16	FY17	FY18	FY19	FY20 5-Year Total
1	Distribution	84	437	769	1,101	1,434 3,825
2	Transmission	754	967	1,132	1,300	1,403 5,555
3	Linemen Safety	35	126	129	133	137 560
	Total	873	1,529	2,031	2,535	2,973 9,940

Total Support Business - DIIP- MEPCO

		In Million Rs.				
	Total Capex Support Plans	FY16	FY17	FY18	FY19	FY20 5-Year Total
		1,125	2,973	133	109	95 4,435
	Total Opex Support Plans	FY16	FY17	FY18	FY19	FY20 5-Year Total
		195	502	508	510	513 2,227

Summary of Annual Capital and Operational Expenditure Costs for Achievable Case

DIIP 23 - Summary of Best Case Annual Capital Expenditure and Operational Expenditure Costs

Total (Support + Core) DIIP-Business Plan- MEPCO - Achievable

		In Million Rs.				
	Total Capex Plans	FY16	FY17	FY18	FY19	FY20 5-Year Total
		5,113	15,338	9,314	10,892	8,877 49,534
	Sub-Total Opex	FY16	FY17	FY18	FY19	FY20 5-Year Total
		374	1,307	1,693	2,216	2,646 8,237
Add: Staffing Opex, including staffing the existing shortatge too		1795	2822	3166	3495	3813 15091
	Grand Total of Opex	2169	4129	4859	5711	6458 23,327

Total Core Business - Transmission and Distribution Plans DIIP- MEPCO --- Achievable

		In Million Rs.					
	Capex	FY16	FY17	FY18	FY19	FY20	5-Year Total
1	Distribution without Deposit	1351	5192	4394	4394	4394	19,724
2	Transmission without ADB	1,543	4,603	4,044	5,933	4,076	20,199
3	Linemen Safety	936	2,522	591	304	304	4,657
4	GIS Mapping	158	48	152	153	8	519
	Total	3,988	12,365	9,181	10,783	8,782	45,099
1	Distribution Deposit Cost	704	845	939	1,033	1,174	4,695
2	Transmission ADB's Cost	5,563	910	-	-	-	6,473
	Total	6,267	1,755	939	1,033	1,174	11,168
	Opex	FY16	FY17	FY18	FY19	FY20	5-Year Total
1	Distribution	68	327	547	767	986	2,694
2	Transmission	77	307	510	806	1,010	2,710
3	Linemen Safety	35	126	129	133	137	560
	Total	180	760	1,186	1,706	2,133	5,965

Total Support Business - DIIP- MEPCO

		In Million Rs.					
	Total Capex Support Plans	FY16	FY17	FY18	FY19	FY20	5-Year Total
		1,125	2,973	133	109	95	4,435
	Total Opex Support Plans	195	502	508	510	513	2,227

▪ Details of Costing

The detailed costs of Transmission, Distribution and functional plans is provided hereunder, with more details Annexure-19.

▪ **STG- Expansion and Rehabilitation (Best Case)**

a. **Grid Stations**

DIIP 24 - STG Expansion and Rehabilitation (Best Case): Grid Stations

Rs. In Million								
Sr. No	Description	Total Cost	Total Capacity Added (MVA)	2015-16	2016-17	2017-18	2018-19	2019-20
1	New							
A	132 KV	2631	515	1,264	822	-	241	304
2	Conversion							
A	66 to 132 KV	1264	206	1117	-	-	-	147
3	Augmentation							
A	132 KV	2638	719	515	781	584	465	292
B	66 KV							
4	Extension (Transformer)							
A	132 KV	1396	500	317	338	316	425	-
B	66 KV							
5	Line Bays							
A	132 KV	1040		620	120	120	100	80
B	66 KV							

Year	Cost (MRs.)					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Projects with Available Finances (Tr-III, Tr-IV) ADB						
New Grid	567	-	-	-	-	-
Conversion	1,250	-	-	-	-	-
T/Line (Total)	892	-	-	-	-	-
Augmentation	2,171	682	-	-	-	-
Extension	683	228	-	-	-	-
Capacitor	-	-	-	-	-	-
Total	5,563	910	0	0	0	6,473

T/ Lines (Best Case)**i. New Line**

DIIP 25 - STG Expansion and Rehabilitation (Best Case): Transmission Lines (Best Case): New Lines

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	T/Line D/C (Rail)	1690	860	100	-	730	-
2	T/Line S/C (Rail)	4283	2494	500	686	603	-
3	T/Line D/C (Iynx)	1318	1290	28	-	-	-
4	T/Line S/C (Iynx)	5137	2,996	512	752	-	877

ii. Rehabilitation/Reconductoring/Up-gradation (Best Case)

DIIP 26 - STG Expansion and Rehabilitation (Best Case): Transmission Lines (Best Case): Rehabilitation/Reconductoring/Up-gradation

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iii. Reconductoring and Rerouting (Best Case)

DIIP 27 - STG Expansion and Rehabilitation (Best Case): Transmission Lines (Best Case): Reconductoring and Rerouting

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iv. Capacitor

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DIIP 28 - STG Expansion and Rehabilitation (Best Case): Transmission Lines (Best Case): Capacitor

Rs. In Million							
Sr. No.	Description	Total Cost	2015-16	2016-17	2017-18	2018-19	2019-20
1	11kV Fixed Capacitors	50	20	15	6	7	3
2	11kV Switched Capacitors	-	-	-	-	-	-
3	132kV Fixed Capacitors	106	12	31	63	-	-
4	132kV Switched Capacitors	-	-	-	-	-	-

▪ **Expansion and Rehabilitation (Optimally Achievable Case)**

a. **Grid Stations**

DIIP 29 - Expansion and Rehabilitation (Optimally Achievable Case): Grid Stations

Rs. In Million								
Sr. No	Description	Total Cost	Total Capacity (MVA)	2015-16	2016-17	2017-18	2018-19	2019-20
1	New							
a	132 KV	2048	365	227	402	447	460	511
2	Conversion							
a	66 to 132 KV	1468	173	242	356	319	404	147
3	Augmentation							
a	132 KV	1132	283	-	124	321	395	292
b	66 KV							
4	Extension (Transformer)							
a	132 KV	716	237	-	91	180	57	388
b	66 KV							
5	Line Bays							
a	132 KV	740		80	140	140	200	180
b	66 KV							

Year	Cost (MRs.)					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Projects with Available Finances (Tr-III, Tr-IV) ADB						
New Grid T	567	-	-	-	-	-
Conversion a	1,250	-	-	-	-	-
T/Line (Total) n	892	-	-	-	-	-
Augmentation m	2,171	682	-	-	-	-
Extension s	683	228	-	-	-	-
Capacitor i	-	-	-	-	-	-
Total n	5,563	910	0	0	0	6,473

b. T/Lines (Optimally Achievable Case)

i. New Line

DIIP 30- Expansion and Rehabilitation (Optimally Achievable Case): Transmission Lines (Optimally Achievable Case): New Line

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	T/Line D/C (Rail)	1802	496	130	-	1,056	120
2	T/Line S/C (Rail)	2120	-	700	440	830	150
3	T/Line D/C (Lynx)	2504	100	892	440	448	624
4	T/Line S/C (Lynx)	2723	-	632	728	672	691

ii. Rehabilitation/Reconductoring/Up-gradation

DIIP 31 - Expansion and Rehabilitation (Optimally Achievable Case): Transmission Lines (Optimally Achievable Case): Rehabilitation/Reconductoring/Up-gradation

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iii. Reconductoring and Rerouting

DIIP 32 - Expansion and Rehabilitation (Optimally Achievable Case): Transmission Lines (Optimally Achievable Case): Reconductoring and Rerouting

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	132 KV D/C	-	-	-	-	-	-
2	132 KV SDT	-	-	-	-	-	-

iv. Capacitor

DIIP 33- Expansion and Rehabilitation (Optimally Achievable Case): Transmission Lines (Optimally Achievable Case): Capacitor

Sr. No.	Description	Total Cost	Rs. In Million				
			2015-16	2016-17	2017-18	2018-19	2019-20
1	11kV Fixed Capacitors	50	20	15	6	7	3
2	11kV Switched Capacitors	-	-	-	-	-	-
3	132kV Fixed Capacitors	106	12	31	63	-	-

▪ **Distribution System- Expansion and Rehabilitation (Best Case)**

DIIP 34 - Distribution System Expansion and Rehabilitation (Best Case)

Sr. No.	Description	Million Rs.					
		2015-16	2016-17	2017-18	2018-19	2019-20	Total
Scope of Work for 11 kV and Below Expansion (Dedicated Feeders on Cost Deposit Basis)							
A.							
1	New HT Lines	58	70	78	85	97	388
2	Transformers						
	a. 1000 KVA	1	1	2	2	2	8
	b. 750 KVA	1	1	1	1	1	4
	c. 630 KVA	2	2	3	3	3	13
	d. 400 KVA	2	2	3	3	3	14
	e. 200 KVA	12	15	16	18	20	81
	f. 100 KVA	30	36	40	44	50	199
	Sub Total	48	57	64	70	80	319
3	11 KV Panel	13	16	18	19	22	88
4	11KV 500 MCM S/C Cable	10	11	13	14	16	64
5	New LT Lines (For Housing societies)	5	5	6	7	8	30
	Sub Total	133	160	178	196	222	889
Scope of Work for LT Expansion (Village Electrification on Cost Deposit Basis)							
B.							
1	New LT Lines	134	161	179	197	223	894
2	Transformers						
	a. 25 KVA	72	86	96	105	120	479
	b. 50 KVA	67	80	89	98	112	446
	Sub Total	139	166	185	203	231	925
3	New HT Lines (For Village connectivity with HT F	298	358	397	437	497	1987
	Sub Total	571	685	761	837	951	3806
	Total Expansion (Distt.) Cost	704	845	939	1033	1174	4695

Scope of Work for 11 kV and Below Rehabilitation						
A.						
1	Rehabilitation of HT Lines					
	Number of proposals/Villages					
	Bifurcation					
	Reconductoring					
	Re-routing					
2	New HT Lines	141	1021	1162	1162	4648
3	HT Line Reconductoring	111	806	917	917	3668
4	11KV Capacitors	2	13	15	15	59
5	11KV Panels	21	150	171	171	685
6	Replacement of T/F Earthing	1	1	1	1	7
7	11-kv Sectionalizers	26	185	217	217	863
8	11-Kv 500 MCM Cable	15	109	124	124	495
	Sub Total	317	2286	2608	2608	10426
Scope of Work for LT Rehabilitation						
B.						
1	LT Lines Rehabilitation					
	Number of proposals					
2	New LT Lines	16	109	124	124	496
3	LT Line Reconductoring	9	64	73	73	293
4	New HT Lines (For New T/F Substations)	8	57	65	65	262
5	Replacement of D-Fittings	6	30	31	31	130
6	Augmentation of Overloaded Transformers					
	a. 50 KVA	12	83	106	106	414
	b. 100 KVA	34	172	240	240	926
	c. 200 KVA	59	297	415	415	1602
	d. 200 KVA (Additional)	32	194	291	291	1098
	Sub Total	138	745	1053	1053	4040
7	New Transformer Substations					
	a. 50 KVA	28	28	28	28	140
	b. 100 KVA	83	83	83	83	413
	c. 200 KVA	67	67	67	67	336
	Sub Total	178	178	178	178	889
8	Replacement of 2-Leg Transformers					
	a. 10 KVA	1	4	0	0	4
	b. 15 KVA	1	8	0	0	9
	c. 25 KVA	12	88	0	0	100
	d. 50 KVA	29	213	0	0	241
	e. 100 KVA	40	172	0	0	212
	f. 200 KVA	42	178	0	0	220
	Sub Total	124	658	0	0	782
9	Energy Meters (against defective)					
	a. Single Phase	29	29	29	29	143
	b. Three Phase	5	5	5	5	23
	Sub Total	33	33	33	33	166
10	PVC Cables	42	42	42	42	208
11	P.G. Connectors	33	33	33	33	165
12	LT Capacitors	24	24	24	24	122
	Sub Total	1086	3591	2920	2920	13437
	Total Rehabilitation (distt.) Cost	1403	5876	5528	5528	23863

▪ **Distribution System- Expansion and Rehabilitation (Optimally Achievable Case)**

DIIP 35 - Distribution System Expansion and Rehabilitation (Optimally Achievable Case)

Sr. No.	Description	Million Rs.					
		2015-16	2016-17	2017-18	2018-19	2019-20	Total
Scope of Work for 11 kV and Below Expansion (Dedicated Feeders on Cost Deposit Basis)							
A.							
1	New HT Lines	58	70	78	85	97	388
2	Transformers						
	a. 1000 KVA	1	1	2	2	2	8
	b. 750 KVA	1	1	1	1	1	4
	c. 630 KVA	2	2	3	3	3	13
	d. 400 KVA	2	2	3	3	3	14
	e. 200 KVA	12	15	16	18	20	81
	f. 100 KVA	30	36	40	44	50	199
	Sub Total	48	57	64	70	80	319
3	11 KV Panel	13	16	18	19	22	88
4	11KV 500 MCM S/C Cable	10	11	13	14	16	64
5	New LT Lines (For Housing societies)	5	5	6	7	8	30
	Sub Total	133	160	178	196	222	889
Scope of Work for LT Expansion (Village Electrification on Cost Deposit Basis)							
B.							
1	New LT Lines	134	161	179	197	223	894
2	Transformers						
	a. 25 KVA	72	86	96	105	120	479
	b. 50 KVA	67	80	89	98	112	446
	Sub Total	139	166	185	203	231	925
3	New HT Lines (For Village connectivity with HT)	298	358	397	437	497	1987
	Sub Total	571	685	761	837	951	3806
	Total Cost of Expansion	704	845	939	1033	1174	4695

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Cost of Work for 11 kV and Below Rehabilitation						
A.						
1	Rehabilitation of HT Lines					
	Number of proposals/Villages					
	Bifurcation					
	Reconductoring					
	Re-routing					
2	New HT Lines	70	493	634	634	2465
3	HT Line Reconductoring	56	389	500	500	1945
4	11KV Capacitors	1	6	8	8	31
5	11KV Panels	10	73	93	93	363
6	Replacement of T/F Earthing	1	1	1	1	5
7	11-kv Sectionalizers	34	182	216	216	863
8	11-Kv 500 MCM Cable	8	53	68	68	263
Sub Total		179	1196	1520	1520	5936
Scope of Work for LT Rehabilitation						
B.						
1	LT Lines Rehabilitation					
	Number of proposals					
2	New LT Lines	11	85	98	98	389
3	LT Line Reconductoring	7	50	58	58	230
4	New HT Lines (For New T/F Substations)	6	45	51	51	205
5	Replacement of D-Fittings	3	24	24	24	98
6	Augmentation of Overloaded Transformers					
	a. 25 KVA	4	5	8	8	32
	b. 50 KVA	5	54	59	59	237
	c. 100 KVA	95	137	172	172	747
	d. 200 KVA	63	237	303	303	1208
	e. 200 KVA (Additional)	97	145	161	161	726
	Sub Total	263	578	703	703	2950
7	New Transformer Substations					
	a. 50 KVA	5	24	27	27	110
	b. 100 KVA	19	67	79	79	323
	c. 200 KVA	13	57	65	65	264
	Sub Total	37	149	171	171	697
8	Replacement of 2-Leg Transformers					
	a. 10 KVA	1	4	0	0	4
	b. 15 KVA	1	8	0	0	9
	c. 25 KVA	12	88	0	0	100
	d. 50 KVA	29	213	0	0	241
	e. 100 KVA	40	172	0	0	212
	f. 200 KVA	42	178	0	0	220
	Sub Total	124	658	0	0	782
9	Energy Meters (against defective)					
	a. Single Phase	8	25	29	29	122
	b. Three Phase	1	2	3	3	13
	Sub Total	9	28	33	33	135
10	PVC Cables	7	39	42	42	171
11	P.G.Connectors	27	27	27	27	135
12	LT Capacitors	24	24	24	24	122
Sub Total		952	3123	2136	2136	10482
Total Cost of Rehabilitation		1132	4320	3656	3656	16418

Cost for GIS Mapping and P&E:

Sr. No.	Description	Unit	Cost in Million Rs.					Total
			2015-16	2016-17	2017-18	2018-19	2019-20	
1	11 KV Feeders Mapping	MRs.	116.0	6.1	4.7	4.9	5.3	137.1
2	LT Circuits Mapping	MRs.			146.6	146.6	2.1	295.3
3	Tools Required	MRs.	41.7	41.7	0.9	1.7	0.9	86.8
	TOTAL	MRs.	157.7	47.8	152.2	153.3	8.3	519.2

B. Capital Expenditure and Additional Operating Costs for Other Functional Improvement Plans:**Summary of Capital and Operational Expenditure Costs**

Please note that the Scope and Cost of Functional Plans is same for both the scenarios.

DIIP 36 - Summary of Capital and Operational Expenditure Costs

Commercial DIIP- MEPCO

In Million Rs.							
#	Capex	FY16	FY17	FY18	FY19	FY20	5-Year Total
1.1	HHUs	274	133	-	-	-	407
1.2	AMRs and Elec Meters	618	2,239	95	81	81	3,114
1.3	CIS	98	24	22	-	-	144
1.4	CSC	19	79	1	-	-	100
1.5	Surveillance	17	67	-	-	-	84
	Total	1,027	2,542	119	81	81	3,849

#	Opex	FY16	FY17	FY18	FY19	FY20	5-Year Total
1.1	HHUs	19	60	60	60	60	260
1.2	AMRs	19	93	96	96	96	401
1.3	CIS	20	20	20	20	20	101
1.4	CSC	3	13	13	13	13	54
1.5	Surv	3	14	14	14	14	59
	Total	63	200	204	204	204	876

HR DIIP- MEPCO

In Million Rs.

	Capex	FY16	FY17	FY18	FY19	FY20	5-Year Total
2.1	HR Development Training and Capacity Building	-	14	14	14	14	57
2.2	Improving Training Facilities	3	10	-	-	-	13
2.3	Improving Working Environment and Transportation for Officers	83	333	-	14	-	430
2.4	Conducting Yard Stick Study	9	14				23
	Total	95	371	14	28	14	522
	Opex	FY16	FY17	FY18	FY19	FY20	5-Year Total
2.1	HR Development Training and Capacity Building	72	218	218	218	218	944
2.2	Improving Training Facilities	0	1	1	1	1	5
2.3	Improving Working Environment and Transportation for Officers	2	12	12	12	12	52
2.4	Conducting Yard Stick Study	-	-	-	-	-	-
	Sub-Total-A	75	232	232	232	232	1,002
2.5	Staffing Opex						
2.5.1	Commercial	-	-	-	-	-	-
2.5.2	Finance and IT	-	-	-	-	-	-
2.5.3	Communications-PR	-	-	-	-	-	-
2.5.4	Safety Department	-	-	-	-	-	-
2.5.5	Other including Trans. And Distri. Related	-	-	-	-	-	-
	Sub-Total-B	1,795	2,822	3,166	3,495	3,813	15,091
	Total Opex HR (A+B)	1,870	3,054	3,398	3,727	4,044	16,092

Communication DIIP- MEPCO

							In Million Rs.
Capex		FY16	FY17	FY18	FY19	FY20	5-Year Total
3.0-A	Internal Communication	-	15	-	-	-	15
3.0-B	External Communication	4	-	-	-	-	4
Total		4	15	-	-	-	19

Opex		FY16	FY17	FY18	FY19	FY20	5-Year Total
3.0-A	Internal Communication	1	12	12	13	13	51
3.0-B	External Communication	28	29	31	33	35	156
Total		29	42	43	46	48	207

Financial DIIP- MEPCO

							In Million Rs.
4.0	Capex	FY16	FY17	FY18	FY19	FY20	5-Year Total
	ERP	-	45	-	-	-	45
	Total	-	45	-	-	-	45

4.0	Opex	FY16	FY17	FY18	FY19	FY20	5-Year Total
	ERP	28	28	28	28	28	142
	Total	28	28	28	28	28	142

Total Support Business - DIIP- MEPCO

						In Million Rs.
Total Capex Support Plans	FY16	FY17	FY18	FY19	FY20	5-Year Total
	1,125	2,973	133	109	95	4,435
Total Opex Support Plans	1,990	3,324	3,674	4,005	4,325	17,318

Summary of Annual Recurring Costs

DIIP 37 - Summary of Annual Recurring Costs

Capital and Operational Expenditure are provided above together under the DIIP 37.

- Details of Costs**

Commercial Improvement Plans Capital Expenditure Costs

DIIP 38 - Commercial Improvement Plans Capital Expenditure Costs

Please refer Annexures (10 to 14) for details cost.

Financial Improvement Plans Capital Expenditure Costs

DIIP 39 - Financial Management Improvement Plan Capital Expenditure Costs

Please refer Annexure 15 for details cost.

Human Resource Improvement Plans Capital Expenditure Costs

DIIP 40 - Human Resource Plans Capital Expenditure Costs

Please refer Annexure 16 for details cost.

Communications Improvement Plans Capital Expenditure Costs

DIIP 41 - Communications Improvement Plans Capital Expenditure Costs

Please refer Annexure 17 for details cost.

LM Safety Tools and Equipment Costs

Please refer Annexure 18 for details cost.

C. Summary Costs for the Integrated Investment Plan

Summary of Cost for Best Case

DIIP 42 - Summary Costs for the Investment Plan: Summary of Cost for Best Case

Covered under Section A above.

Summary of Cost for Optimally Achievable Case

DIIP 43- Summary Costs for the Investment Plan: Summary of Cost for Optimally Achievable Case

Covered under Section A above.

Summary of Annual Recurring Costs

DIIP 44- Summary Costs for the Investment Plan: Summary of Annual Recurring Costs

Covered under Section A above.

D. Financing Plan:

DIIP45 - Financing Plan: Source of Financing

Funding	2016	2017	2018	2019	2020
Public Financed	2669	2669	2669	2669	2669
DISCO's financing through Tariff	3737	4500	4484	4766	5056
Other Donors	7375	8668	4781	4968	2868
Others	1000	4014	1234	1601	1600
Total	14781	19851	13168	14004	12193

Section - VII

Benefits and Financial Analysis

A. Expansion and Rehabilitation of Secondary Transmission and Distribution System:

i. Tangible Benefits

Additional Energy Available for Sales (Common for Tran & Dist)

Year	Best		Achievable	
	MVA Added	Additional Energy for Sales	MVA Added	Additional Energy for Sales
2015-16	771	3173	85	350
2016-17	500	2058	190	782
2017-18	271	1116	261	1073
2018-19	278	1145	244	1003
2019-20	120	494	278	1145

Transmission - Loss Reduction

Year	MW		Units MKWh	
	Ideal	Realistic	Ideal	Realistic
2015-16	57.8	27.1	269.87	126.53
2016-17	10.5	28.6	49.03	133.54
2017-18	16	28.9	74.71	134.94
2018-19	7.5	6.5	35.02	30.35
2019-20	82	46.9	382.86	218.98

Distribution - Loss Reduction

Year	HT Rehab		LT Rehab		Total	
	Units MKWh		Units MKWh		Units MKWh	
	Ideal	Realistic	Ideal	Realistic	Ideal	Realistic
2015-16	34.24	17.12	3.44	2.44	37.68	19.56
2016-17	248.2	119.82	23.52	18.38	271.72	138.2
2017-18	282.44	154.06	26.74	21.08	309.18	175.14
2018-19	282.44	154.06	26.74	21.08	309.18	175.14
2019-20	282.44	154.06	26.74	21.08	309.18	175.14

Total Loss Reduction - DIIP Achievable for MYT

Loss Reduction MKWh	FY2016	FY2017	FY2018	FY2019	FY2020
Total DIIP Loss Reduction for Achievable for MYT	175.4	303.8	343.8	223.2	449.8

Total Loss Reduction - DIIP Achievable for MYT

Loss Reduction MKWh	FY2016	FY2017	FY2018	FY2019	FY2020
Total DIIP Loss Reduction for Achievable for MYT	336.9	352.8	417.6	361.9	747.8

ii. Non-tangible Benefits

The other benefits like improvement in voltage profile, improving the overloading of the network are placed at Annexure 08 through 09.

iii. Financial Analysis for the entire Transmission and Distribution Investments

- Internal financial rate of return (IFRR) comes out to be 10.45% is placed at Annexure-20 and the repayment / amortization schedule at Annexure-21

iv. Sensitivity Analysis

The IFRR for the following scenarios are placed at Annexure-22:

- Increasing costs by 10%
- Decreasing benefits by 10%
- Increasing costs and decreasing benefits by 10% each
- Increasing cost by 25%

B. Other Functional Improvement Plans:

i. Tangible Benefits

Commercial Loss Reduction-MKWh						
Descript.	FY2016	FY2017	FY2018	FY2019	FY2020	Total Prog
Loss Reduction Targets per year	0.2%	0.2%	0.2%	0.1%	0.3%	1.0%
Generation of System as per NTDC's Latest Plan (MW)	23474.5	30891	38553	41252	47212	-
MEPCO's Share @ 15%	3521	4634	5783	6188	7082	-
MEPCO's Energy Availability Projections based on the Generation Availability	14658	19289	23708	24587	28276	-
MEPCO's Purchase Projections @ avrg. 5% growth	15280	16044	16846	17688	18572	-
Purchase is <= Availability	FALSE	TRUE	TRUE	TRUE	TRUE	
Commercial Benefits - Energy Saved from Reduction of Theft (MKWh)	29.3	32.1	33.7	17.7	55.7	168.5

ii. **Non-tangible Benefits**

The non-tangible benefits of functional plans are discussed under scope section.

iii. **Financial Analysis for the other functional plans (Needs Discussion and Guidance)**

- Quantifiable output of the project
- Profit and loss account and Cash Flow statement
- Net present value (NPV) and Benefit Cost Ratio
- Payback period
- Internal financial rate of return (IFRR) (Needs discussion and guidance)

iv. **Sensitivity Analysis**

Calculate the NPV and IFRR for the following scenarios:

- Increasing costs by 10%
- Decreasing benefits by 10%
- Increasing costs and decreasing benefits by 10% each
- Increasing cost by 25%

Section - VIII

Financial Projections for FY 2016 to FY2020

Following are provided in Annex-22

- i. Key Assumptions
- ii. Revenue and Operating Costs Estimates
- iii. Profit and Loss Statement
- iv. Balance sheet and Cash Flow

Section - IX

Investment Plan Implementation

Business Planning Organization for Preparation of Investment Plans

The stewardship responsibility of the Board of Directors (the Board) is to have an oversight role over the management of the DISCO, which is responsible for the day-to-day conduct of the business. The Board must assess and ensure systems are in place to identify and manage the risks of the Company's business with the underline objective of preserving Company's assets and steering it in a strategic direction that ensures fulfilling its objectives. The Board, through the Chief Executive Officer (CEO), sets the attitude and disposition of the Company towards achieving sets of goals and objectives, in compliance with applicable laws and regulations. Business Plan is a tool that helps a company to achieve its goals and objectives.

MEPCO has started the business planning initiative / DIIP that will entail company's goals and objectives to the initiatives that are required to meet those objectives. The integrated cross-functional plan will cover the core business (transmission and distribution system expansion and rehabilitation) and support business (improving the commercial, financial, HR and other functional improvement) initiatives to meet the stated objectives. The MEPCO's business plan for FY2016-2020 is prepared by MEPCO by getting USAID PDP's assistance and will be update each year. In order to sustain this initiative, a strategic planning organization is required within MEPCO, who can assist the CEO of the Company to prepare, maintain, improve, monitor and get implemented the business plan.

The response is the restructuring of the planning organization. The proposed restructured planning organization includes (a) creation of a Strategic Planning Committee (SPC) to the Board (please see attached the Term of Reference (TOR) of SPC) (b) establishment of a Strategic Business Unit (SBU), headed by a Chief Strategy Officer (CSO) who reports to the CEO and (c) restructuring of Planning and Engineering Department. The position of General Manager Technical is also created, to whom CE P&E and CE PMU will report. The SBU will serve as the central resource for the Planning Organization, apart from other key positions, it also includes three implementation managers' positions for Commercial, HR and Financial initiatives implementation and support. As the core business (Transmission and Distribution) is planned, augmented and expanded through CE P&E, CE Development and two Project Directors, these three implementation managers under CSO will support the functional heads and the CSO in designing and implementing their respective initiatives. For details on staffing requirements please refer to the staffing plan.

Moreover, in businesses comparable to the scale of MEPCO, the planning restructuring of the overall organization including formation of Business Unit at the central level is a very essential step.

T&D P&E Organization

Based on the current and future requirements of MEPCO, a functional approach has been taken to develop the MEPCO P&E To-Be Org. Structure. Currently, one of the biggest short-comings in the MEPCO P&E Org. is that the Chief Engineer has no managers directly working underneath him to support the various functions under the purview of P&E. To alleviate this shortcoming, it is

envisioned that the following departments be made under Chief Engineer P&E corresponding to the three main functional areas of MEPCO P&E:

- Manager Engineering
- Manager Transmission and Generation Planning
- Manager Distribution Planning

These Functional Managers will be supported by Deputy Managers defined to support the sub-functions of each department formed as Sections. The Deputy Managers would then further supported by relevant Assistant Managers for each Section. For details on staffing requirements please refer to the staffing plan.

Based on this understanding both the current and future evolutions of MEPCO P&E have been designed. This Structure as it should be implemented immediately by MEPCO to start meeting its Regulatory and Business Needs.

Section - X

Implementation, Monitoring Plan and Reporting

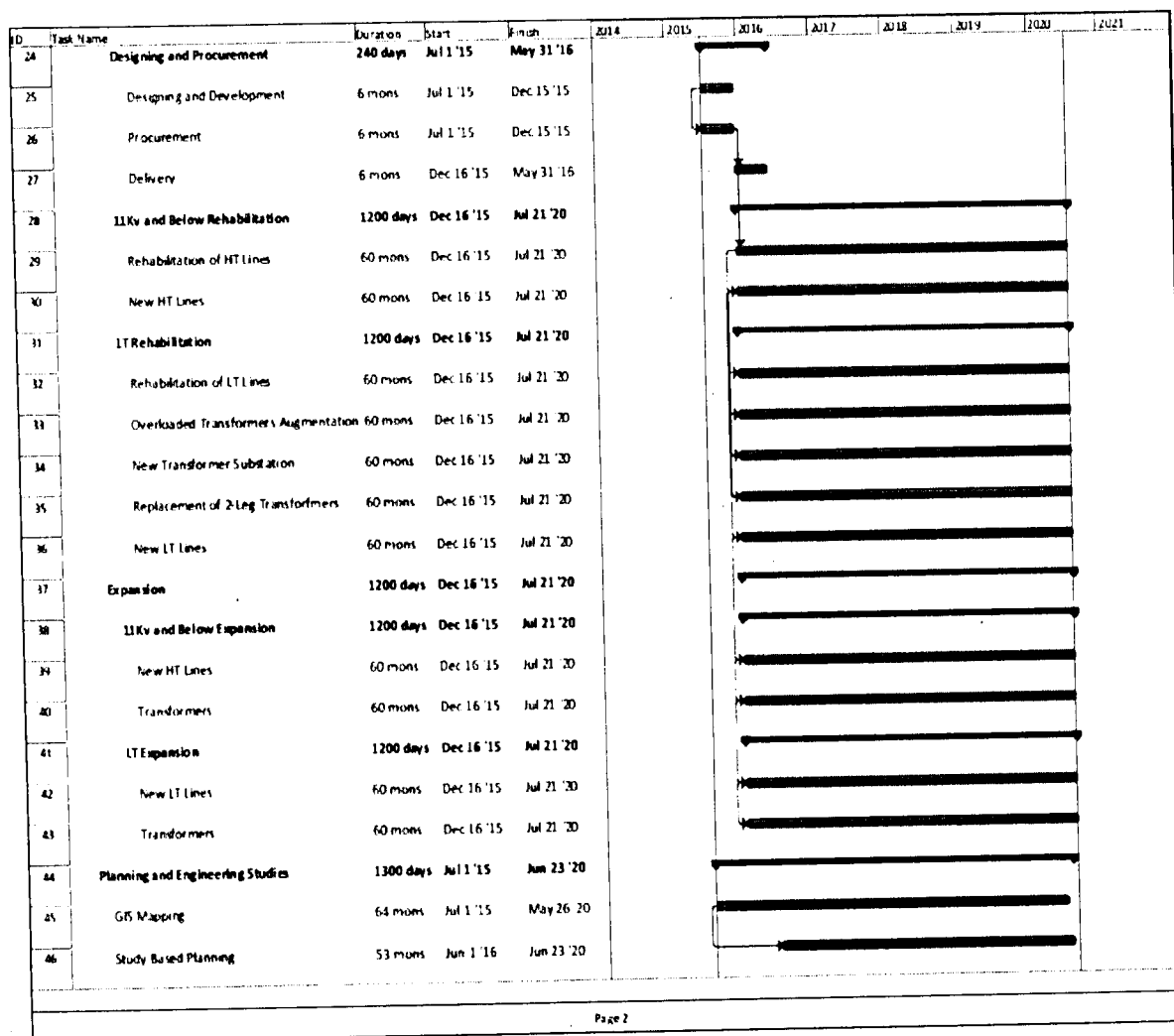
i. Implementation Schedules

Transmission Expansion and Rehabilitation

ID	Task Name	Duration	Start	Finish	2014	2015	2016	2017	2018	2019	2020	2021
1	Integrated Generation, Transmission & Distribution	1320 days	Jul 1 '15	Jul 21 '20								
2	Grid Stations Exp. And Rehab.	1320 days	Jul 1 '15	Jul 21 '20								
3	Designing and Procurement	240 days	Jul 1 '15	May 31 '16								
4	Designing and Development	6 mons	Jul 1 '15	Dec 15 '15								
5	Procurement	6 mons	Jul 1 '15	Dec 15 '15								
6	Delivery	6 mons	Dec 16 '15	May 31 '16								
7	Expansion and Rehabilitation	1200 days	Dec 16 '15	Jul 21 '20								
8	New Grid Construction	60 mons	Dec 16 '15	Jul 21 '20								
9	Conversion	60 mons	Dec 16 '15	Jul 21 '20								
10	Augmentation	60 mons	Dec 16 '15	Jul 21 '20								
11	Extension	60 mons	Dec 16 '15	Jul 21 '20								
12	Transmission Lines	60 mons	Dec 16 '15	Jul 21 '20								
13	Designing and Procurement	240 days	Jul 1 '15	May 31 '16								
14	Designing and Development	6 mons	Jul 1 '15	Dec 15 '15								
15	Procurement	6 mons	Jul 1 '15	Dec 15 '15								
16	Delivery of Material	6 mons	Dec 16 '15	May 31 '16								
17	Expansion and Rehabilitation	1200 days	Dec 16 '15	Jul 21 '20								
18	New Transmission Lines	1200 days	Dec 16 '15	Jul 21 '20								
19	Reconductoring and Upgrading	60 mons	Dec 16 '15	Jul 21 '20								
20	Reconductoring and Rerouting	60 mons	Dec 16 '15	Jul 21 '20								
21	Fixed and Switch Capacitor Installation	60 mons	Dec 16 '15	Jul 21 '20								
22	Distribution System	1320 days	Jul 1 '15	Jul 21 '20								
23	Rehabilitation & Reconductoring	1320 days	Jul 1 '15	Jul 21 '20								
Page 1												

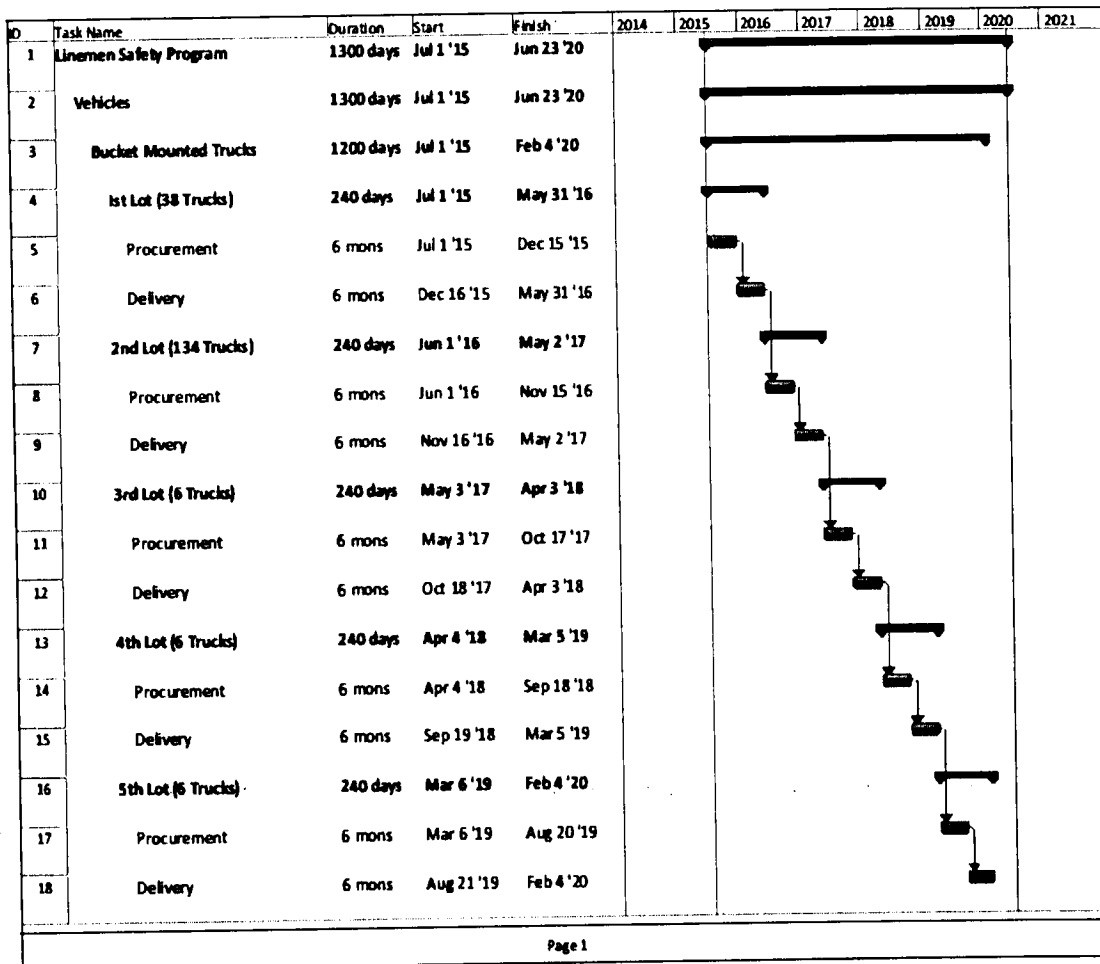
Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

Distribution Expansion and Rehabilitation:

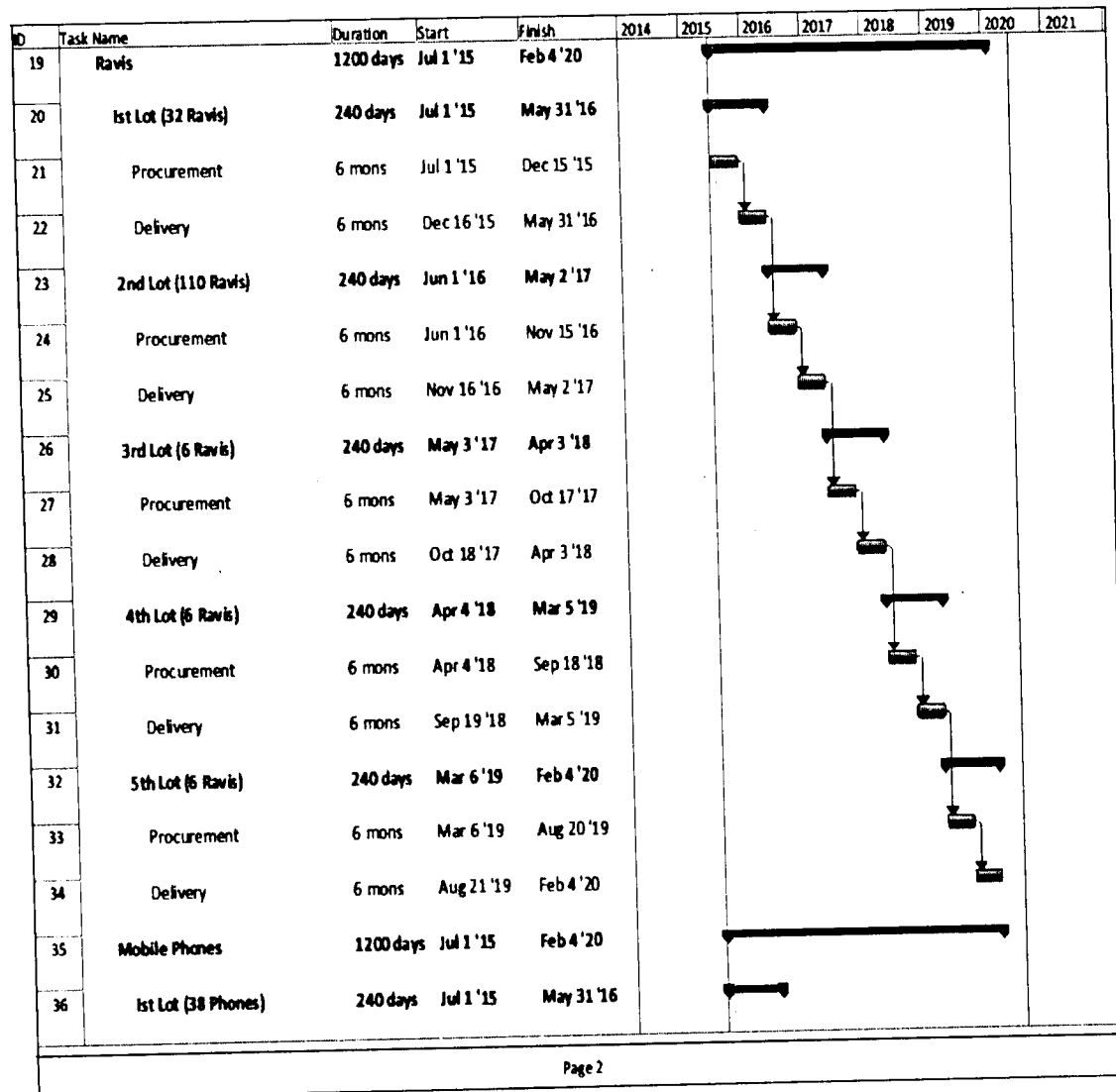


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LM Safety, Tools and Equipment:



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Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

ID	Task Name	Duration	Start	Finish	2014	2015	2016	2017	2018	2019	2020	2021
37	Procurement	6 mons	Jul 1 '15	Dec 15 '15								
38	Delivery	6 mons	Dec 16 '15	May 31 '16								
39	2nd Lot (134 Phones)	240 days	Jun 1 '16	May 2 '17								
40	Procurement	6 mons	Jun 1 '16	Nov 15 '16								
41	Delivery	6 mons	Nov 16 '16	May 2 '17								
42	3rd Lot (6 Phones)	240 days	May 3 '17	Apr 3 '18								
43	Procurement	6 mons	May 3 '17	Oct 17 '17								
44	Delivery	6 mons	Oct 18 '17	Apr 3 '18								
45	4th Lot (6 Phones)	240 days	Apr 4 '18	Mar 5 '19								
46	Procurement	6 mons	Apr 4 '18	Sep 18 '18								
47	Delivery	6 mons	Sep 19 '18	Mar 5 '19								
48	5th Lot (6 Phones)	240 days	Mar 6 '19	Feb 4 '20								
49	Procurement	6 mons	Mar 6 '19	Aug 20 '19								
50	Delivery	6 mons	Aug 21 '19	Feb 4 '20								
51	Tools & PPEs	1300 days	Jul 1 '15	Jun 23 '20								
52	Procurement	48 mons	Jul 1 '15	Mar 5 '19								
53	Delivery	48 mons	Oct 19 '16	Jun 23 '20								
Page 3												

Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

Commercial Plan Schedule:

ID	Task Name	Duration	Start	Finish	2014	2015	2016	2017	2018	2019
1	Commercial Improvement Plan	720 days	Jul 1 '15	Apr 3 '18						
2	MEPCO-Wide HHU Expansion	480 days	Jul 1 '15	May 2 '17						
3	Mobile HHUs (1788 Units)	240 days	Jul 1 '15	May 31 '16						
4	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
5	Delivery	6 mons	Dec 16 '15	May 31 '16						
6	Other Equipment	240 days	Jul 1 '15	May 31 '16						
7	PCs (142)	240 days	Jul 1 '15	May 31 '16						
8	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
9	Delivery	6 mons	Dec 16 '15	May 31 '16						
10	Printers (142 Units)	240 days	Jul 1 '15	May 31 '16						
11	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
12	Delivery	6 mons	Dec 16 '15	May 31 '16						
13	DSL Connection (137 Units)	240 days	Jul 1 '15	May 31 '16						
14	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
15	Delivery	6 mons	Dec 16 '15	May 31 '16						
16	Furniture & Accessories (150 Units)	240 days	Jul 1 '15	May 31 '16						
17	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
18	Delivery	6 mons	Dec 16 '15	May 31 '16						
19	Split Air Conditioners (150 Units)	240 days	Jul 1 '15	May 31 '16						
Page 1										

Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

ID	Task Name	Duration	Start	Finish	2014	2015	2016	2017	2018	2019
20	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
21	Delivery	6 mons	Dec 16 '15	May 31 '16						
22	Transportation	480 days	Jul 1 '15	May 2 '17						
23	Bikes (930 Units)	240 days	Jul 1 '15	May 31 '16						
24	Procurement	6 mons	Jul 1 '15	Dec 15 '15						
25	Delivery	6 mons	Dec 16 '15	May 31 '16						
26	Bikes (1395 Units)	240 days	Jun 1 '16	May 2 '17						
27	Procurement	6 mons	Jun 1 '16	Nov 15 '16						
28	Delivery	6 mons	Nov 16 '16	May 2 '17						
29	MEPCO-Wide AMR Expansion	240 days	Jul 1 '15	May 31 '16						
30	AMRS-Whole Current (61608 Units)	240 days	Jul 1 '15	May 31 '16						
31	Procurement	3 mons	Jul 1 '15	Sep 22 '15						
32	Supply	3 mons	Sep 23 '15	Dec 15 '15						
33	Installation	6 mons	Dec 16 '15	May 31 '16						
34	AMRS-HT/LT- for new connections (6252 Units)	240 days	Jul 1 '15	May 31 '16						
35	Procurement	3 mons	Jul 1 '15	Sep 22 '15						
36	Supply	3 mons	Sep 23 '15	Dec 15 '15						
37	Installation	6 mons	Dec 16 '15	May 31 '16						
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Distribution Company Integrated Investment Plan (DIIIP) / Business Plan - MEPCO

ID	Task Name	Duration	Start	Finish	2014	2015	2016	2017	2018	2019
38	AMRs-Whole Current-for Tubewells (56599 Units)	240 days	Jul 1 '15	May 31 '16						
39	Procurement	3 mons	Jul 1 '15	Sep 22 '15						
40	Supply	3 mons	Sep 23 '15	Dec 15 '15						
41	Installation	6 mons	Dec 16 '15	May 31 '16						
42	MEPCO-Wide CIS Expansion	720 days	Jul 1 '15	Apr 3 '18						
43	IT Infrastructure Procurement	24 mons	Jul 1 '15	May 2 '17						
44	IT Infrastructure Deployment	24 mons	Jun 1 '16	Apr 3 '18						
45	Database Configuration and Updating	24 mons	Jun 1 '16	Apr 3 '18						
46	Customer Service Center Improvement (254 Facilities)	480 days	Jul 1 '15	May 2 '17						
47	Revamping of CSC Rooms	24 mons	Jul 1 '15	May 2 '17						
48	Provision of Furniture & Fixtures	24 mons	Jul 1 '15	May 2 '17						
49	Computing Equipment	24 mons	Jul 1 '15	May 2 '17						
50	MEPCO-Wide Surveillance for Anti-Theft	480 days	Jul 1 '15	May 2 '17						
51	Proc & Supply of 37 Toyota Hilux	24 mons	Jul 1 '15	May 2 '17						
52	Proc & Supply of Tooling Sets	24 mons	Jul 1 '15	May 2 '17						
53	Proc & Supply of Mobile Phones	24 mons	Jul 1 '15	May 2 '17						
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Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

Commutations Plan Schedule:

ID	Task Name	Duration	Start	2014	2015	2016	2017	2018	2019	2020	2021
1	Communications Improvement Plan	1305 days	Jul 1 '15								
2	Internal Communications	1044 days	Jun 30 '16								
3	Email Server Deployment	12 mons	Jul 1 '16								
4	Provision of Scanners	12 mons	Jul 1 '16								
5	Provision of Smart Phones	12 mons	Jul 1 '16								
6	Annual Employee Event	1044 days	Jun 30 '16								
7	First Event	1 day	Jun 30 '16								
8	Second Event	1 day	Jun 30 '17								
9	Third Event	1 day	Jun 28 '18								
10	Forth Event	1 day	Jun 28 '19								
11	Fifth Event	1 day	Jun 30 '20								
12	External Communications	1286 days	Jul 1 '15								
13	Mass Media Campaigns	1200 days	Jul 1 '15								
14	Newspaper Ads in leading local newspapers	60 mons	Jul 1 '15								
15	Cable TV Spots throughout Peshawar and its surroundings	60 mons	Jul 1 '15								

Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

Task Name	Duration	Start	2014	2015	2016	2017	2018	2019	2020	2021
16 Public Service announcement on local FM Radio	60 mons	Jul 1 '15								
17 Billboards & Street Pole Streamers	60 mons	Jul 1 '15								
18 Radio Talk shows	60 mons	Jul 1 '15								
19 Public Outreach & Awareness Programmes	1200 days	Jul 1 '15								
20 University Campus Sessions	60 mons	Jul 1 '15								
21 Local Imam Masjid sessions	60 mons	Jul 1 '15								
22 Community Center Sessions	60 mons	Jul 1 '15								
23 Chamber of Commerce sessions	60 mons	Jul 1 '15								
24 Press Club Meetings	60 mons	Jul 1 '15								
25 Energy Conservation Walk	60 mons	Jul 1 '15								
26 Painting & Debate Competition	60 mons	Jul 1 '15								
27 Monthly Newsletter	60 emons	Jul 1 '15								

Distribution Company Integrated Investment Plan (DIIP) / Business Plan - MEPCO

HR Plan Schedule:

ID	Task Name	Duration	Start	Finish	2014	2015	2016	2017	2018	2019	2020	2021
1	HR Improvement Plan	1222 days	Jul 1 '15	Mar 5 '20								
2	Training & Capacity Building	960 days	Jul 1 '16	Mar 5 '20								
3	Management Trainings	48 mons	Jul 1 '16	Mar 5 '20								
4	International Exchanges	48 mons	Jul 1 '16	Mar 5 '20								
5	CTC Upgrade (3 CTCs)	720 days	Jul 1 '15	Apr 3 '18								
6	CTC # 1	240 days	Jul 1 '15	May 31 '16								
7	Procurement of Furniture & Fixtures	3 mons	Jul 1 '15	Sep 22 '15								
8	Civil Works	6 mons	Sep 23 '15	Mar 8 '16								
9	Renovation & Revamping	3 mons	Mar 9 '16	May 31 '16								
10	CTC # 2	240 days	Jun 1 '16	May 2 '17								
11	Procurement of Furniture & Fixtures	3 mons	Jun 1 '16	Aug 23 '16								
12	Civil Works	6 mons	Aug 24 '16	Feb 7 '17								
13	Renovation & Revamping	3 mons	Feb 8 '17	May 2 '17								
14	CTC # 3	240 days	May 3 '17	Apr 3 '18								
15	Procurement of Furniture & Fixtures	3 mons	May 3 '17	Jul 25 '17								
16	Civil Works	6 mons	Jul 26 '17	Jan 9 '18								
17	Renovation & Revamping	3 mons	Jan 10 '18	Apr 3 '18								
18	Improving Work Environment	960 days	Jul 1 '15	Mar 5 '19								
19	Improving 20% of Facilities	12 mons	Jul 1 '15	May 31 '16								
20	Improving 60% of Facilities	12 mons	Jun 1 '16	May 2 '17								
21	Improving 20% of Facilities	12 mons	Apr 4 '18	Mar 5 '19								
22	Yard Stick Study	480 days	Jul 1 '15	May 2 '17								
23	Hiring of Consultant	6 mons	Jul 1 '15	Dec 15 '15								
24	Conducting YS Study	18 mons	Dec 16 '15	May 2 '17								

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- ii. Monitoring of Outcomes, Physical and Financial Progress
Indicate Result Based Monitoring (RBM) framework indicators and physical and financial monitoring targets in quantifiable terms in the following table:

DIIP 46 - Monitoring of Outcomes, Physical and Financial Progress

Please refer to table DIIP 5 to 17 for physical targets and DIIP 23 to 36 for financial progress.

iii. Linkage with Performance Standards¹²

DIIP 47 - Linkage with Performance Standards

Please refer to DIIP-4 for detailed mapping of benefits.

Section - XI

Environmental and Social Assessment and Mitigation Plans

There will be environmental and social impacts of the implementing these projects. A detailed environmental and social assessment is required to be carried out to successfully complete this project.

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Acknowledgement

We gratefully acknowledge the valuable assistance provided to MEPCO by USAID Power Distribution Program (PDP) in completing the DIIP / Business Plan for MEPCO. The PDP's Business Planning Team supported by Policy Team, worked extremely hard with MEPCO for not only preparing this plan but also building the capacity and bringing-in the organizational structural changes that are necessary for sustainability of this integrated cross-functional planning work.

STATEMENT OF 90 % & ABOVE LOADING OF POWER TRANSFORMERS FOR THE MONTH OF 05/2015
GSO CIRCLE MEPCO MULTAN.

Sr. No:	Name of Grid Station	Code No.	Total	Serial No:	Make	Date of Commission	Voltage Ratio	CAPACITY			MAXIMUM LOAD RECORDED.				Load Shedded at the time of Maxium load recorded	Total / Actual Load	% age
			No.					MVA	LV	H.V	Time	Date	Load	%age.			
1	Ahmed Pur East.	T-2	1	198956	Elta	17-08-09	132/11KV	26	1305	113.7	21 00	19.05.15	1220	93.49	0	1220	93.49
		T-3	2	8530341	Irantransfo	30-07-07	132/11KV	26	1305	114	20 00	27.05.15	1215	93.10	80	1295	99.23
2	Basti Malook	T-2	3	8230585	Irantransfo	12-06-06	132/11KV	26	1305	114	16 00	24.05.15	1220	93.49	180	1400	107.28
3	J. D. Wali	T-1	4	1H9575 T-5	Meiden	18-12-87	132/11KV	26	1305	113.7	11 00	26.05.15	1240	95.02	90	1330	101.92
		T-2	5	179558	BBC	02.04.14	132/11KV	13	653	56.9	17 00	28.05.15	590	90.35	0	590	90.35
4	Khanewal Road Multan	T-1	6	PELHV1130028	PEL	30.01.14	132/11KV	40	2008	175	8:30	27.05.15	1810	90.14	0	1810	90.14
		T-2	7	PELHV1120053	PEL	26.06.14	132/11KV	40	2008	175	15 00	17.05.15	1700	84.66	220	1920	95.62
5	Khan Bela	T-2	8	2018	O.T.E	26.11.13	132/11KV	13	653	56.9	10 00	06.05.15	610	93.42	0	610	93.42
6	Lodhran	T-2	9	138859	E/Putere	03-06-98	132/11KV	26	1305	113.7	13 00	29.05.15	1265	96.93	220	1485	113.79
7	Mesco Multan.	T-1	10	1H9343 T-2	Meiden	06-07-84	132/11KV	26	1305	113.7	16 00	31.05.15	1230	94.25	220	1450	111.11
		T-2	11	LPK10800015	Siemens	18-08-06	132/11KV	40	2008	175	15 30	20.05.15	1470	73.21	480	1950	97.11
		T-3	12	11100009	Siemens	01-02-11	132/11KV	40	2008	175	17 00	20.05.15	1380	68.73	480	1860	92.63
8	Rahim Yar Khan-I	T-1	13	PELHV	PEL	20.03.13	132/11KV	40	2008	175	15 00	28.05.15	1850	92.13	135	1985	98.85
		T-2	14	LPK10900011	Siemens	25-02-09	132/11KV	40	2008	175	9:30	28.05.15	1890	94.12	150	2040	101.59
9	Sadiq Abad	T-1	15	LPK NO.11000051	Siemens	03-11-10	132/11KV	40	2008	175	17 00	27.05.15	830	41.33	1050	1880	93.63
		T-2	16	PELHV1120045	PEL	04.02.13	132/11KV	40	2008	175	15 00	21.05.15	1180	58.76	640	1820	90.64
10	Uch Sharif	T-1	17	102571	Siemens	10.07.06	132/11KV	13	653	57	20 00	20.05.15	600	91.88	0	600	91.88
11	Wapda Town	T-2	18	LPK1100004	Siemens	26.06.11	132/11KV	26	1305	113.7	15 00	23.05.15	1280	98.08	0	1280	98.08
12	Ali Pur	T-1	19	102832	Elprom	01-11-93	66/11KV	13	653	113.6	11 00	16.05.15	530	81.16	140	670	102.60
13	Head Rajkan	T-1	20	102816	Elprom	28-04-08	66/11KV	13	653	113.6	14 00	17.05.15	630	96.48	130	760	116.39
14	Marrot	T-1	21	145223	Elta	23.05.07	66/11KV	13	653	113.7	13 00	26.05.15	620	94.95	0	620	94.95
15	Uch Sharif	T-1	22	89196	Elprom	02-03-78	66/11KV	13	653	113.6	21 00	09.05.15	320	49.00	390	710	108.73
16	Yazman	T-1	23	6261	Lagnano	13-11-89	66/11KV	14	702	87.5	16 00	21.05.15	540	76.92	310	850	121.08
		T-2	24	T99226	Siemens	27.07.14	66/11KV	5	262	43.8	15 00	26.05.15	260	99.24	210	470	179.39
17	132KV C/Munda	T-1	25	10200007	Siemens	2/6/2002	132/11KV	26	1305	114	17 00	19.05.15	1260	96.55	0	1260	96.55
18	132KV D/Wala	T-2	26	77482	Elprom	02.04.08	132/11KV	13	653	56.9	20 00	17.05.15	560	85.76	85	645	98.77
19	132KV Fateh Pur	T-2	27	9567	Siemens	13.04.2015	132/11KV	13	653	56.9	13 00	25.05.15	500	76.57	90	590	90.35
20	132KV Kot Addu	T-1	28	140636	E/Putere	19-03-94	132/66KV	40	350	174.95	22 00	15.05.15	260	74.29	70	330	94.29
21	132KV M/Garh	T-2	29	KPK-11200012	Siemens	18.06.12	132/11KV	40	2008	175	3:10	22.05.15	1860	92.63	320	2180	108.57
22	132KV M/Khas	T-2	30	HV-1090016	PEL	16-07-09	132/11KV	26	1305	114	21 00	24.05.15	1130	86.59	240	1370	104.98
23	66KV Karor	T-1	31	140494	E/Putere	5/10/1995	66/11KV	13	653	113.8	6 00	20.05.15	600	91.88	0	600	91.88

STATEMENT OF 80 - 90 % LOADING OF POWER TRANSFORMERS FOR THE MONTH OF 05/2015

GSO CIRCLE MEPCO MULTAN.

Sr. No:	Name of Grid Station	Code No.	Total	Serial No:	Make	Date of Commission	Voltage Ratio	CAPACITY			MAXIMUM LOAD RECORDED				Load Shedded at the time of Maximum load recorded	Total / Actual Load	% age
			No.					MVA	LV	H.V	Time	Date	Load	%age			
1	Bahawal Pur	T-3	1	PELHV1090002	PEL	28.-03-09	132/11KV	26	1305	113.7	14:00	25.05.15	1060	81.23	0	1060	81.23
		T-4	2	165694	Elta	30.04.15	132/66KV	40	349	175	16:00	17.05.15	300	85.96	0	300	85.96
2	Baghdad Ul Jadid	T-2	3	8530331	Irantransfo	23-06-07	132/11KV	26	1305	114	14:00	25.05.15	1085	83.14	0	1085	83.14
3	Bosan Road Multan	T-1	4	111999	Elprom	01-02-10	132/11KV	26	1305	113.7	14:00	25.05.15	1120	85.82	0	1120	85.82
		T-3	5	LPK10800036	Siemens	05.08.08	132/11KV	40	2008	175	17:00	23.05.15	1760	87.65	0	1760	87.65
4	Basti Malook	T-1	6	PELHV1120036	PEL	27.11.12	132/11KV	40	2008	175	15:00	25.05.15	1490	74.20	300	1790	89.14
5	Industrial Estate Multan	T-1	7	T-5-33	H.E.C	20-03-05	132/11KV	26	1305	113.7	16:00	25.05.15	1150	88.12	0	1150	88.12
		T-3	8	LPK10700037	Siemens	11-05-08	132/11KV	26	1305	114	11:00	26.05.15	1050	80.46	0	1050	80.46
6	J.P.Pirwala	T-2	9	LPK81700009	Siemens	10.03.11	132/11KV	26	1305	113.7	14:00	16.05.15	430	32.95	620	1050	80.46
7	Khanewal Road	T-3	10	PELHV1150008	PEL	28.03.15	132/11KV	40	2008	175	16:00	20.05.15	1620	80.68	0	1620	80.68
8	Kabir Wala	T-1	11	T-5-92	H.E.C	15-11-07	132/11KV	26	1305	113.7	9:00	21.05.15	940	72.03	140	1080	82.76
		T-2	12	LPK10300009	Siemens	27-06-02	132/11KV	26	1305	114	10:00	07.05.15	1040	79.69	60	1100	84.29
9	Khan Bela	T-1	13	1H9575 T-1	Meiden	22-07-88	132/11KV	26	1305	113.7	20:00	18.05.15	1075	82.38	80	1155	88.51
10	Khan Pur	T-3	14	PELHV1100012	PEL	27-08-12	132/11KV	26	1305	113.7	20:30	26.05.15	1125	86.21	0	1125	86.21
11	Lodhran	T-1	15	LPK11200011	Siemens	19-07-12	132/11KV	40	2008	175	14:00	07.05.15	1610	80.18	0	1610	80.18
		T-3	16	PELHV1110001	PEL	29-06-11	132/11KV	26	1305	113.7	11:00	26.05.15	1045	80.08	0	1045	80.08
12	M.W.Qureshian	T-1	17	1H9575 T-6	Meiden	05-03-88	132/11KV	26	1305	113.7	17:30	04.05.15	1045	80.08	0	1045	80.08
		T-2	18	46231	BBC	05-06-13	132/11KV	13	653	56.9	9:30	23.05.15	560	85.76	0	560	85.76
13	Navazabad	T-1	19	8830267	Irantransfo	01.10.12	132/11KV	26	1305	114	14:00	26.05.15	1080	82.76	0	1080	82.76
14	Qasim Pur Multan	T-3	20	LPK NO 11000014	Siemens	29-03-10	132/11KV	40	2008	175	12:00	24.05.15	1610	80.18	0	1610	80.18
15	Rahim Yar Khan-I	T-3	21	1140009	PEL	11.02.15	132/11KV	40	2008	175	13:00	28.05.15	1730	86.16	0	1730	86.16
16	Uch Sharif	T-2	22	43983	Parsons	13.03.08	132/11KV	13	653	56.9	20:00	24.05.15	580	88.82	0	580	88.82
17	Yehari Road Multan	T-2	23	LPK10900041	Siemens	05-07-12	132/11KV	40	2008	175	13:00	13.05.15	1660	82.67	0	1660	82.67
18	Wapda Town	T-1	24	11100002	Siemens	26.06.11	132/11KV	26	1305	113.7	21:00	25.05.15	1080	82.76	0	1080	82.76
19	132KV Gujrat	T-1	25	11V-260003	PEL	04.09.07	132/11KV	26	1305	114	21:00	03.05.15	1060	81.23	0	1060	81.23
20	132KV Kot Addu	T-3	26	11V-1120040	PEL	06.12.12	132/11KV	26	1305	114	0:30	26.05.15	1110	85.06	0	1110	85.06
21	132KV Layyah	T-1	27	11V-1120042	PEL	20.12.12	132/11KV	26	1305	114	20:00	09.05.15	1070	81.99	0	1070	81.99
22	132KV S/Sarwar	T-1	28	106430	Ganz	25-08-09	132/11KV	10	502	43.7	13:00	27.05.15	420	83.67	0	420	83.67
23	132KV Tounsa	T-2	29	112611	Elprom	8/7/1998	132/11KV	13	653	56.9	16:00	26.05.15	570	87.29	0	570	87.29
24	66KV Chotti	T-1	30	2652420	G.E.C	24.11.00	66/11KV	12.5	653	113.8	13:00	29.05.15	540	82.70	0	540	82.70
25	66 KV Jam Pur	T-1	31	90870	Elprom	25.03.14	66/11KV	13	653	113.8	12:00	15.05.15	540	82.70	0	540	82.70
26	66KV Karor	T-2	32	138907	E-Putere	24.06.13	66/11KV	13	653	113.8	15:00	26.05.15	540	82.70	0	540	82.70
27	66KV S.S.Din	T-1	33	29973	Milano	4.11.2004	66/11KV	9.37	490	85.6	11:30	12.05.15	420	85.71	0	420	85.71

MONTHLY STATEMENT SHOWING MAXIMUM LOAD OF POWER TRANSFORMER FOR THE MONTH 05/2015
GSO CIRCLE MEPCO MULTAN.

Sr: No:	Name of Grid Station	Code No.	Serial No:	Make	Date of Commission	Voltage Ratio	CAPACITY			MAXIMUM LOAD RECORDED.				Load Shedded at the time of Maxium load recorded	Total / Actual Load	% age
							MVA	LV	H.V	Time	Date	Load	%age.			
SS&T DIVISION MEPCO MULTAN																
1	Ahmed Pur East.	T-1	140638	E/Putre	17-11-93	132/66KV	40	349	175	15:00	21.05.15	240	68.77	0	240	68.77
		T-2	198956	Elta	17-08-09	132/11KV	26	1305	113.7	21:00	19.05.15	1220	93.49	0	1220	93.49
		T-3	8530341	Irantransfo	30-07-07	132/11KV	26	1305	114	20:00	27.05.15	1215	93.10	80	1295	99.23
2	Bahawal Pur	T-1	LPK10300010	Siemens	15-03-04	132/11KV	26	1305	114	17:00	17.05.15	1030	78.93	0	1030	78.93
		T-2	LPK11100001	Siemens	09.12.10	132/11KV	40	2008	175	14:00	09.05.15	1590	79.18	0	1590	79.18
		T-3	PELHV1090002	PEL	28.-03-09	132/11KV	26	1305	113.7	14:00	25.05.15	1060	81.23	0	1060	81.23
		T-4	165694	Elta	30.04.15	132/66KV	40	349	175	16:00	17.05.15	300	85.96	0	300	85.96
3	Bahawal Pur Cantt	T-1	8830268	Irantransfo	09.03.13	132/11KV	26	1305	113.7	16:00	25.05.15	540	41.38	0	540	41.38
		T-2	8830265	Irantransfo	09.03.13	132/11KV	26	1305	113.7	16:00	18.05.15	530	40.61	0	530	40.61
4	Baghdad Ul Jadid	T-1	PELHV1120045	PEL	24.01.13	132/11KV	26	1305	113.7	14:00	23.05.15	735	56.32	0	735	56.32
		T-2	8530331	Irantransfo	23-06-07	132/11KV	26	1305	114	14:00	25.05.15	1085	83.14	0	1085	83.14
5	Bosan Road Multan	T-1	111999	Elprom	01-02-10	132/11KV	26	1305	113.7	14:00	25.05.15	1120	85.82	0	1120	85.82
		T-2	1H9345 T-2	Meiden	25-10-84	132/11KV	26	1305	113.7	15:00	26.05.15	1000	76.63	0	1000	76.63
		T-3	LPK10800036	Siemens	05.08.08	132/11KV	40	2008	175	17:00	23.05.15	1760	87.65	0	1760	87.65
6	Basti Malook	T-1	PELHV1120035	PEL	27.11.12	132/11KV	40	2008	175	15:00	25.05.15	1490	74.20	300	1790	89.14
		T-2	8230585	Irantransfo	12-06-06	132/11KV	26	1305	114	16:00	24.05.15	1220	93.49	180	1400	107.28
7	Feroza	T-1	LPK108270	Siemens	30-12-02	132/11KV	13	653	56.9	13:00	24.05.15	375	57.43	0	375	57.43
		T-2	125573	Elta	15.10.12	132/11KV	13	653	56.9	20:00	22.05.15	455	69.68	0	455	69.68
8	Industrial Estate Multan	T-1	T 5-33	H.E.C	20-03-05	132/11KV	26	1305	113.7	16:00	25.05.15	1150	88.12	0	1150	88.12
		T-2	PELHV1120037	PEL	04.12.12	132/11KV	40	2008	175	12:00	18.05.15	1535	76.44	0	1535	76.44
		T-3	LPK10700037	Siemens	11-05-08	132/11KV	26	1305	114	11:00	26.05.15	1050	80.46	0	1050	80.46
9	Jail Road Multan	T-1	8830261	Irantransfo	09.03.13	132/11KV	26	1305	113.7	15:00	31.05.15	800	61.30	0	800	61.30
		T-2	8830259	Irantransfo	09.03.13	132/11KV	26	1305	113.7	15:00	20.05.15	530	40.61	0	530	40.61
10	J. D. Wali	T-1	1H9575 T-5	Meiden	18-12-87	132/11KV	26	1305	113.7	11:00	26.05.15	1240	95.02	90	1330	101.92
		T-2	179558	BBC	02.04.14	132/11KV	13	653	56.9	17:00	28.05.15	590	90.35	0	590	90.35
11	J.P.Pirwala	T-1	140583	Electroputre	23-01-10	132/11KV	26	1305	113.7	16:00	25.05.15	540	41.38	300	840	64.37
		T-2	LPK81700009	Siemens	10.03.11	132/11KV	26	1305	113.7	14:00	16.05.15	430	32.95	620	1050	80.46
		T-3	HV1140030	PEL	28.02.15	132/11KV	26	1305	113.7	8:00	25.05.15	1040	79.69	0	1040	79.69

Sr. No.	Name of Grid Station	Code No.	Serial No.	Make	Date of Commission	Voltage Ratio	CAPACITY			MAXIMUM LOAD RECORDED.				Load Shedded at the time of Maxium load recorded	Total / Actual Load	% age
							MVA	LV	H.V	Time	Date	Load	%age.			
12	Khanewal Road Multan	T-1	PELHV1130028	PEL	30.01.14	132/11KV	40	2008	175	8:00	27.05.15	1810	90.14	0	1810	90.14
		T-2	PELHV1120053	PEL	26.06.14	132/11KV	40	2008	175	15:00	17.05.15	1700	84.66	220	1920	95.62
		T-3	PELHV1150008	PEL	28.03.15	132/11KV	40	2008	175	16:00	20.05.15	1620	80.68	0	1620	80.68
13	Kabir Wala	T-1	T 5-92	H.E.C	15-11-07	132/11KV	26	1305	113.7	9:00	21.05.15	940	72.03	140	1080	82.76
		T-2	LPK10300009	Siemens	27-06-02	132/11KV	26	1305	114	10:00	07.05.15	1040	79.69	60	1100	84.29
		T-3	LPK10300009	Siemens	21.05.14	132/11KV	26	1305	114	13:00	18.05.15	930	71.26	0	930	71.26
14	Khan Bela	T-1	1119575 T-1	Meiden	22-07-88	132/11KV	26	1305	113.7	20:00	18.05.15	1075	82.38	80	1155	88.51
		T-2	2018	O.T.E	26.11.13	132/11KV	13	653	56.9	10:00	06.05.15	610	93.42	0	610	93.42
15	Khan Pur	T-1	260005	PEL	15-12-07	132/11KV	26	1305	114	14:00	24.05.15	930	71.26	0	930	71.26
		T-2	1119575 T-4	Meiden	30-08-87	132/11KV	26	1305	113.7	11:00	27.05.15	961	73.64	0	961	73.64
		T-3	PELHV1100012	PEL	27-08-12	132/11KV	26	1305	113.7	20:30	26.05.15	1125	86.21	0	1125	86.21
16	Lar	T-1	LPK11100033	Siemens	22-05-12	132/11KV	26	1305	113.7	10:00	20.05.15	840	64.37	0	840	64.37
		T-2	LPK11100032	Siemens	23-06-12	132/11KV	26	1305	113.7	15:00	21.05.15	540	41.38	0	540	41.38
17	Lal Sohanra	T-1	LPK800974	Siemens	16.04.14	132/11KV	13	653	56.9	16:00	23.05.15	420	64.32	0	420	64.32
18	Liaqat Pur	T-1	1100007	PEL	05-05-10	132/11KV	26	1305	114	20:00	17.05.15	760	58.24	0	760	58.24
		T-2	1100005	PEL	20-04-10	132/11KV	26	1305	114	20:00	18.05.15	620	47.51	0	620	47.51
19	Lodhran	T-1	LPK11200011	Siemens	19-07-12	132/11KV	40	2008	175	14:00	07.05.15	1610	80.18	0	1610	80.18
		T-2	138859	E/Putre	03-06-98	132/11KV	26	1305	113.7	13:00	29.05.15	1265	96.93	220	1485	113.79
		T-3	PELHV1110001	PEL	29-06-11	132/11KV	26	1305	113.7	11:00	26.05.15	1045	80.08	0	1045	80.08
20	Makhdom Rashid	T-1	PELHV1140029	PEL	17.02.15	132/11KV	26	1305	114	20:00	26.05.15	900	68.97	0	900	68.97
		T-2	96224	E/Putre	22-07-08	132/11KV	13	653	56.9	10:00	04.05.15	465	71.21	0	465	71.21
21	Mesco Multan.	T-1	1119343 T-2	Meiden	06-07-84	132/11KV	26	1305	113.7	16:00	31.05.15	1230	94.25	220	1450	111.11
		T-2	LPK10800015	Siemens	18-08-06	132/11KV	40	2008	175	15:30	20.05.15	1470	73.21	480	1950	97.11
		T-3	11100009	Siemens	01-02-11	132/11KV	40	2008	175	17:00	20.05.15	1380	68.73	480	1860	92.63
22	Maan Kot	T-1		HEC	20.05.15	132/11KV	13	653	56.9	21:00	31.05.15	220	33.69	0	220	33.69
		T-2	T4-17	HEC	20.05.15	132/11KV	13	653	56.9	15:00	23.05.15	150	22.97	0	150	22.97
23	M.W.Qureshian	T-1	1119575 T-6	Meiden	05-03-88	132/11KV	26	1305	113.7	17:30	04.05.15	1045	80.08	0	1045	80.08
		T-2	46231	BBC	05-06-13	132/11KV	13	653	56.9	9:30	23.05.15	560	85.76	0	560	85.76
24	Nawazabad	T-1	8830267	Irantransfo	01.10.12	132/11KV	26	1305	114	14:00	26.05.15	1080	82.76	0	1080	82.76
25	Qasim Pur Multan	T-1	PELHV1120049	PEL	31.01.13	132/11KV	40	2008	175	11:00	25.05.15	1110	55.28	0	1110	55.28
		T-2	157244	Elta	02-04-77	132/11KV	26	1305	113.8	15:00	31.05.15	1000	76.63	0	1000	76.63
		T-3	LPK NO 11000014	Siemens	29-03-10	132/11KV	40	2008	175	12:00	24.05.15	1610	80.18	0	1610	80.18
26	Qasim Bagh Multan	T-1	LPK11100012	Siemens	19-06-12	132/11KV	26	1305	113.7	17:00	25.05.15	830	63.60	0	830	63.60
		T-2	LPK11100013	Siemens	19-06-12	132/11KV	26	1305	113.7	17:00	25.05.15	910	69.53	0	910	69.53

Sr: No:	Name of Grid Station	Code No.	Serial No.	Make	Date of Commission	Voltage Ratio	CAPACITY			MAXIMUM LOAD RECORDED.				Load Shedded at the time of Maxium load recorded	Total / Actual Load	% age
							MVA	LV	H.V	Time	Date	Load	%age.			
27	Rahim Yar Khan-I	T-1	PELHV	PEL	20.03.13	132/11KV	40	2008	175	15:00	28.05.15	1850	92.13	135	1985	98.85
		T-2	LPK10900011	Siemens	25-02-09	132/11KV	40	2008	175	9:00	28.05.15	1890	94.12	150	2040	101.59
		T-3	1140009	PEL	11.02.15	132/11KV	40	2008	175	13:00	28.05.15	1730	86.16	0	1730	86.16
28	R.Y.Khan-II	T-1	1H9575 T.2	Meiden	12.06.13	132/11KV	26	1305	114	17:00	25.05.15	1020	78.16	0	1020	78.16
		T-2	KPK10900041	PEL	02-09-10	132/11KV	26	1305	114	20:00	18.05.15	932	71.42	5	937	71.80
29	Sadiq Abad	T-1	LPK NO.11000051	Siemens	03-11-10	132/11KV	40	2008	175	17:00	27.05.15	830	41.33	1050	1880	93.63
		T-2	PELHV1120045	PEL	04.02.13	132/11KV	40	2008	175	15:00	21.05.15	1180	58.76	640	1820	90.64
		T-3	PELHV1150005	PEL	30.03.15	132/11KV	40	2008	175	16:00	26.05.15	990	49.30	310	1300	64.74
30	Samma Satta.	T-1	T 5-175	HEC	02.04.13	132/11KV	26	1305	113.7	15:00	06.05.15	450	34.48	0	450	34.48
		T-2	PELHV1100011	PEL	20-08-11	132/11KV	26	1305	114	11:00	10.05.15	500	38.31	0	500	38.31
31	Shujabad	T-1	1100009	PEL	17-04-10	132/11KV	26	1305	114	19:00	24.05.15	890	68.20	0	890	68.20
		T-2	1080006	PEL	10.11.14	132/11KV	26	1305	114	20:00	22.05.15	910	69.73	0	910	69.73
		T-3	260002	PEL	26.02.15	132/11KV	26	1305	114	18:00	18.05.15	820	62.84	0	820	62.84
32	Uch Sharif	T-1	102571	Siemens	10.07.06	132/11KV	13	653	57	20:00	20.05.15	600	91.88	0	600	91.88
		T-2	43983	Parsons	13.03.08	132/11KV	13	653	56.9	20:00	24.05.15	580	88.82	0	580	88.82
33	Vehari Road Multan	T-1	PELHV1120052	PEL	07.02.13	132/11KV	40	2008	175	17:00	17.05.15	1350	67.23	0	1350	67.23
		T-2	LPK10900041	Siemens	05-07-12	132/11KV	40	2008	175	13:00	13.05.15	1660	82.67	0	1660	82.67
		T-3	T 5-48	HEC	16.05.07	132/11KV	26	1305	113.7	17:00	25.05.15	885	67.82	0	885	67.82
34	Wapda Town Multan	T-1	11100002	Siemens	26.06.11	132/11KV	26	1305	113.7	15:00	23.05.15	1280	98.08	0	1280	98.08
		T-2	LPK1100004	Siemens	26.06.11	132/11KV	26	1305	113.7	21:00	25.05.15	1080	82.76	0	1080	82.76
35	Ali Pur	T-1	102832	Elprom	01-11-93	66/11KV	13	653	113.6	11:00	16.05.15	530	81.16	140	670	102.60
		T-2	102836	Elprom	21-09-11	66/11KV	13	653	113.6	20:00	17.05.15	430	65.85	0	430	65.85
36	Head Rajkan	T-1	102816	Elprom	28-04-08	66/11KV	13	653	113.6	14:00	17.05.15	630	96.48	130	760	116.39
		T-2	58715	Elprom	23.10.08	66/11KV	7.5	393	65.6	13:00	26.05.15	620	94.95	0	620	94.95
37	Marrot	T-1	145223	Elta	23.05.07	66/11KV	13	653	113.7	13:00	26.05.15	200	50.89	0	200	50.89
		T-2	89196	Elprom	02-03-78	66/11KV	13	653	113.6	21:00	09.05.15	320	49.00	390	710	108.73
38	Uch Sharif	T-1	89196	Elprom	02-03-78	66/11KV	13	653	113.6	21:00	09.05.15	320	49.00	390	710	108.73
		T-2	89196	Elprom	02-03-78	66/11KV	13	653	113.6	21:00	09.05.15	320	49.00	390	710	108.73
39	Yazman	T-1	6261	Lagnano	13-11-89	66/11KV	14	702	87.5	16:00	21.05.15	540	76.92	310	850	121.08
		T-2	T99226	Siemens	27.07.14	66/11KV	5	262	43.8	15:00	26.05.15	260	99.24	210	470	179.39

SS&T DIVISION MEPCO MUZAFFAR GARH

40	132KV Choubara	T-1	7211003	Pauwels	02.10.13	132/66KV	37.5	328	164	5.00	24.05.15	238	72.56	0	238	72.56
		T-2	22088	Energ	11.06.1973	132/11KV	13	653	56.9	14.00	28.05.15	280	42.88	0	280	42.88
41	132KV C/Munda	T-1	10200007	Siemens	2/6/2002	132/11KV	26	1305	114	17.00	19.05.15	1260	96.55	0	1260	96.55
42	132KV C/Azam	T-1	326040	R/Koncar	04.02.2010	132/11KV	13	500	56.9	19.00	17.05.15	360	72.00	0	360	72.00
		T-2	8230591	IranTransfo	17.03.2015	132/11KV	26	1305	114	21.00	18.05.15	800	61.30	0	800	61.30

Sr. No.	Name of Grid Station	Code No.	Serial No.	Make	Date of Commission	Voltage Ratio	CAPACITY			MAXIMUM LOAD RECORDED				Load Shedded at the time of Maximum load recorded	Total / Actual Load	% age
							MVA	LV	H.V	Time	Date	Load	%age.			
43	132KV D.G.Khan	T-1	138661	E/Putere	8/7/1989	132/66KV	40	350	174.95	6.00	16.05.15	90	25.71	0	90	25.71
		T-2	135278	Ganz	15-04-89	132/11KV	26	1305	114	9.00	27.05.15	770	59.00	0	770	59.00
		T-3	LPK-10900053	Siemens	19/11/09	132/11KV	40	2008	175	17.00	26.05.15	1225	61.01	0	1225	61.01
		T-4	LPK-11200012	Siemens	10/7/2012	132/11KV	40	2008	175	23.00	26.05.15	1060	52.79	0	1060	52.79
44	132KV D.G.Khan-II	T-1	8830263	IranTransfo	08.07.14	132/11KV	26	1305	114	23.00	27.05.15	660	50.57	0	660	50.57
		T-2	8830266	IranTransfo	12.07.14	132/11KV	26	1305	114	17.00	27.05.15	755	57.85	0	755	57.85
45	132KV D/Wala	T-1	14029	Energco	11/5/1970	132/11KV	10	502	43.7	22.00	17.05.15	340	67.73	0	340	67.73
		T-2	77482	Elprom	02.04.08	132/11KV	13	653	56.9	20.00	17.05.15	560	85.76	85	645	98.77
46	132KV Fazil Pur	T-1	123753	Elta	04.06.12	132/11KV	13	653	56.85	21.00	17.05.15	400	61.26	0	400	61.26
		T-2	GM95070	BBC	04.07.12	132/11KV	13	653	56.9	11.00	17.05.15	440	67.38	0	440	67.38
47	132KV Fateh Pur	T-1	104140	Siemens	18.03.2015	132/11KV	13	653	56.9	22.00	24.05.15	500	76.57	0	500	76.57
		T-2	9567	Siemens	13.04.2015	132/11KV	13	653	56.9	13.00	25.05.15	500	76.57	90	590	90.35
48	132KV F/ Manro	T-1	3633	Legnano	24.08.06	132/11KV	7.5	393	85.6	19.30	27.05.15	70	17.81	0	70	17.81
49	132KV Gujrat	T-1	HV-260003	PEL	04.09.07	132/11KV	26	1305	114	21.00	03.05.15	1060	81.23	0	1060	81.23
		T-2	178138	Elta	06.01.13	132/11KV	13	653	56.9	20.00	20.05.15	480	73.51	0	480	73.51
		T-3	139919	E/Putere	11/6/1996	132/11KV	6.3	316	27.55	13.00	06.05.15	60	18.99	0	60	18.99
50	132KV Jattoi	T-1	14030	Energco	11/5/1970	132/11KV	10	502	43.7	15.00	27.05.15	270	53.78	0	270	53.78
		T-2	198960	ELTA	25.04.13	132/11KV	26	1305	114	12.30	24.05.15	700	53.64	0	700	53.64
51	132KV Jampur	T-1	HV-1090013	PEL	16/06/09	132/11KV	26	1305	114	14.00	24.05.15	660	50.57	0	660	50.57
		T2	139981	E/Putere	05.04.13	132/11KV	13	653	56.9	15.00	08.05.15	210	32.16	0	210	32.16
52	132KV K.P.Sadat	T-1	992010298	Shenbian	19.05.2014	132/11KV	26	1305	144	15.00	27.05.15	520	39.85	0	520	39.85
53	132KV Kot Addu	T-1	140636	E/Putere	19-03-94	132/66KV	40	350	174.95	22.00	15.05.15	260	74.29	70	330	94.29
		T-2	-	Elta	15-11-2010	132/66KV	37	328	-	13.00	23.05.15	236	71.95	25	261	79.57
		T-3	HV-1120040	PEL	06.12.12	132/11KV	26	1305	114	0.30	26.05.15	1110	85.06	0	1110	85.06
		T-4	158247	ELTA	22.05.2012	132/11KV	26	1305	114	16.30	23.05.15	950	72.80	0	950	72.80
54	132KV Khan Garh	T-1	112619	Elprom	12/4/2000	132/11KV	13	653	56.9	21.00	21.05.15	440	67.38	0	440	67.38
		T-2	0	Siemens	26.03.13	132/11KV	13	653	56.9	20.00	20.05.15	290	44.41	0	290	44.41
55	132KV K/Chutta	T-1	-	IranTrans	14.12.2010	132/11KV	26	1305	114	14.00	18.05.15	720	55.17	0	720	55.17
		T-2	HV-260004	PEL	19.09.07	132/11KV	26	1305	114	15.00	30.05.15	890	68.20	0	890	68.20
56	132KV Layyah	T-1	HV-1120042	PEL	20.12.12	132/11KV	26	1305	114	20.00	09.05.15	1070	81.99	0	1070	81.99
		T-2	-	HEC	30.01.08	132/11KV	26	1305	114	16.00	27.05.15	800	61.30	0	800	61.30
57	132KV M/Garh	T-1	HV-1120044	PEL	26.12.12	132/11KV	40	2008	175	15.00	30.05.15	1570	78.19	0	1570	78.19
		T-2	KPK-11200012	Siemens	18.06.12	132/11KV	40	2008	175	3.00	22.05.15	1860	92.63	320	2180	108.57
		T-3	HV-1140007	PEL	06.09.14	132/11KV	40	2008	175	16.00	09.05.15	1300	69.22	0	1300	69.22

Sr: No:	Name of Grid Station	Code No.	Serial No:	Make	Date of Commission	Voltage Ratio	CAPACITY			MAX Time	MAXIMUM LOAD RECORDED.			Load Shedded at the time of Maxium load recorded	Total / Actual Load	% age
							MVA	LV	H.V		Date	Load	%age.			
58	132KV M/Khas	T-1	108272	Siemens	11/1/2010	132/11KV	13	653	56.9	20.00	07.05.15	440	67.38	0	440	67.38
		T-2	HV-1090016	PEL	16-07-09	132/11KV	26	1305	114	21.00	24.05.15	1130	86.59	240	1370	104.98
59	132KV N.A.Wali	T-2	0	PEL	27-05-09	132/11KV	26	1305	114	24.00	08.05.15	840	64.37	0	840	64.37
60	132KV Rojhan	T-1	0	Meiden	28-12.2011	132/11KV	13	653	56.9	6.00	08.05.15	360	55.13	0	360	55.13
61	132KV Rajanpur	T-1	HV-1100008	PEL	28-04.10	132/11KV	26	1305	114	15.00	28.05.15	820	62.84	0	820	62.84
		T-2	0	PEL	15.04.13	132/11KV	26	1305	114	16.00	17.05.15	835	63.98	0	835	63.98
62	132KV S/Sarwar	T-1	106430	Ganz	25-08-09	132/11KV	10	502	43.7	13.00	27.05.15	420	83.67	0	420	83.67
63	132KV S/Lund	T-1	LPK-800972	Siemens	16.10.12	132/11KV	13	653	113.8	15.00	13.05.15	350	53.60	0	350	53.60
		T-2	199983	IE/Putere	31.08.12	132/11KV	13	653	113.8	8.00	24.05.15	390	59.72	0	390	59.72
64	132KV Tounsa	T-1	10400031	Siemens	02.08.12	132/11KV	26	1305	114	15.00	26.05.15	850	65.13	0	850	65.13
		T-2	112611	Elprom	8/7/1998	132/11KV	13	653	56.9	16.00	26.05.15	570	87.29	0	570	87.29
65	66KV Chotti	T-1	9652420	G.E.C	24-11-00	66/11KV	12.5	653	113.8	13.00	29.05.15	540	82.70	0	540	82.70
66	66KV Dajal	T-1	930376	China	27-04-98	66/11KV	6.3	316	55.1	11.00	25.05.15	170	53.80	0	170	53.80
		T-2	930384	China	22.07.14	66/11KV	6.3	316	55.1	19.00	26.05.15	200	63.29	0	200	63.29
67	66 KV Jam Pur	T-1	90870	Elprom	25.03.14	66/11KV	13	653	113.8	12.00	15.05.15	540	82.70	0	540	82.70
		T-2	81/22282	AEG	11.01.13	132/66KV	32.2	262	141	7.00	01.05.15	150	57.25	0	150	57.25
68	66KV Kot Sultan	T-1	0	Elprom	08.07.13	66/11KV	13	653	113.8	15.00	17.05.15	490	75.04	0	490	75.04
		T-2	38179	Marali	31-07-09	66/11KV	5	262	43.7	20.00	17.05.15	160	61.07	0	160	61.07
69	66KV Nawan Kot	T-1	38179	Marali	7/1/1987	66/11KV	5	262	43.7	15.00	24.05.15	60	22.90	0	60	22.90
70	66KV Karor	T-1	140494	IE/Putere	5/10/1995	66/11KV	13	653	113.8	6.00	20.05.15	600	91.88	0	600	91.88
		T-2	138907	IE/Putere	24.06.13	66/11KV	13	653	113.8	15.00	26.05.15	540	82.70	0	540	82.70
71	66KV Rang Pur	T-1	90875	Elprom	23.10.14	66/11KV	13	653	113.8	15.00	02.05.15	330	50.54	0	330	50.54
72	66KV S.S.Din	T-1	29973	Milano	4/11/2004	66/11KV	9.37	490	85.6	11.30	12.05.15	420	85.71	0	420	85.71
		T-2	0	Elprom	24-01-12	66/11KV	5	262	43.7	6.00	22.05.15	180	68.70	0	180	68.70

ABSTRACT

LOADING POSITION OF POWER TRANSFORMERS.

	132/66KV	132/11KV	66/11KV
Below 50%	02	14	01
50-60%	01	15	03
60-70%	01	28	04
70-80%	01	17	01
80-90%	01	28	04
90-100%	01	16	02
Above 100%	0	07	05
TOTAL	07	125	20

Annexure-2

(T&D Losses)

S/DIV. WISE BILLING RECOVERY AND LOSSES FOR F-Y-2013-14 OF MEPCO

	S/DIV/DIV/CIR/CMP NAME	AMOUNT BILLED	AMOUNT COLLECTED	% RECOVERY	UNITS RECEIVED	UNITS BILLED	UNITS LOST	% LOSS
	15111 MULTAN CANTT	1423.36	1309.21	91.98%	98.41	93.07	5.34	5.42%
	15113 NAWAN SHEHER	1594.55	1575.99	98.84%	131.62	114.57	17.04	12.95%
	15117 HASAN PARWANA	859.37	840.2	97.77%	66.7	59.31	7.38	11.07%
	15118 INDUSTRIAL ESTA	2483.05	2457.4	98.97%	195.38	178.34	17.04	8.72%
DIV.	1511 MULTAN CANTT	6360.34	6182.8	97.21%	492.11	445.3	46.81	9.51%
	15121 MUMTAZABAD	2770.52	2835.92	102.36%	241.97	212.97	29	11.99%
	15122 MANZOORABAD	795.08	781.29	98.27%	69.56	60.05	9.51	13.66%
	15123 NEW MULTAN	4714.98	4610.77	97.79%	383.85	350.51	33.35	8.69%
	15124 SHAH RUKNE ALAM	1671.25	1624.4	97.20%	150.83	127.57	23.27	15.43%
	15125 GHALLA MANDI	1921.2	1879.81	97.85%	162.35	139.31	23.04	14.19%
	15126 GULBERG	817.15	799.97	97.90%	70.66	60.07	10.6	14.99%
	15127 MAKHDOOM RASHID	374.73	352.5	94.07%	41.62	34.59	7.02	16.87%
DIV.	1512 MUMTAZABAD	13064.91	12884.65	98.62%	1120.84	985.07	135.78	12.11%
	15131 MULTAN CITY	403.19	377.91	93.73%	35.51	28.57	6.94	19.55%
	15132 WALAYATABAD	1679.44	1651.97	98.36%	137.05	124.25	12.8	9.34%
	15133 PAK GATE	696.6	654.33	93.93%	58.15	50.7	7.44	12.80%
	15138 GARDEN TOWN	2390.71	2347.52	98.19%	214.97	193.98	20.99	9.76%
DIV.	1513 CITY	5169.94	5031.72	97.33%	445.67	397.5	48.18	10.81%
	15141 KHANEWAL-I	909.02	847.67	93.25%	83.13	70.21	12.92	15.54%
	15142 KHANEWAL-II	720.43	648.68	90.04%	78.1	63.29	14.81	18.96%
	15143 CIVIL LINES	852.69	752.52	88.25%	90.81	73.55	17.26	19.01%
	15147 JAHANIAN	490.66	460.2	93.79%	51.42	44.29	7.13	13.87%
	15148 JAHANIAN-II	503.85	413.36	82.04%	62.67	49.5	13.17	21.01%
DIV.	1514 KHANEWAL	3476.65	3122.44	89.81%	366.13	300.84	65.29	17.83%
	15151 MIAN CHANNU-I	1073.78	1063.4	99.03%	102.92	91.95	10.97	10.66%
	15152 MIAN CHANNU-II	1093.7	1046.41	95.68%	114.95	99.43	15.52	13.50%
	15153 ABDUL HAKIM	362.53	332.23	91.64%	42.99	36.03	6.96	16.19%
	15154 INDUSTRIAL ESTA	903.38	890.29	98.55%	81.65	71.32	10.33	12.65%
	15155 TULAMBA	221.18	234.02	105.80%	23.9	20.87	3.03	12.69%
DIV.	1515 MIAN CHUNNU	3654.56	3566.35	97.59%	366.4	319.59	46.81	12.78%
	15161 SHUJABAD	773.4	726.04	93.88%	90.91	71.54	19.37	21.30%
	15162 SIKANDAR ABAD	923.67	908.45	98.35%	97.29	79.75	17.54	18.02%
	15163 J.P. PIR WALA	717.45	633.12	88.25%	81.09	65.26	15.84	19.53%
	15164 ALI PUR SADAAT	621.65	558.37	89.82%	74.66	54.84	19.83	26.56%
DIV.	1516 SHUJABAD	3036.17	2825.97	93.08%	343.96	271.39	72.57	21.10%
	15171 GULGASHT	1415.69	1372	96.91%	129.85	107.91	21.95	16.90%
	15172 SHAMASABAD	616.37	592.59	96.14%	52.78	44.48	8.3	15.73%
	15173 HASANABAD	1362.3	1327.6	97.45%	126.2	103.71	22.49	17.82%
	15174 BOSAN ROAD	1191.17	1124.89	94.44%	123.03	94	29.03	23.60%
DIV.	1517 B.ZAKRIA(MUSA P	4585.53	4417.08	96.33%	431.86	350.1	81.77	18.93%
	15181 KACHA KHU	864.05	698.52	80.84%	96.02	77.75	18.27	19.03%
	15182 MAKHDOOM PUR	726	655.4	90.28%	77.54	64.94	12.61	16.26%
	15183 KABIRWALA	1642.54	1624.29	98.89%	151.36	131.96	19.4	12.82%
	15184 SARA-I-SIDHU	339.94	312.71	91.99%	45.9	35.92	9.98	21.75%
DIV.	1518 KHANEWAL II	3572.52	3290.92	92.12%	370.83	310.56	60.27	16.25%
CIR	151 MULTAN	47020.62	41221.92	87.67%	2927.91	2280.23	647.68	22.13%
	15221 D.G KHAN-I	1007.41	979.59	97.24%	96.98	78.39	18.59	19.17%
	15224 D.G KHAN-II	1511.69	1544.48	102.17%	133.11	119.07	14.04	10.55%
	15225 KOT CHUTTA	1728.02	1766.56	102.23%	155.68	143.1	12.58	8.08%
	15226 QUETTA ROAD	1387.97	1344.45	96.86%	112.97	100.59	12.38	10.96%
	15227 SHAR SADAR DIN	1492.95	1494.02	100.07%	128.05	106.39	21.66	16.92%

DIV.	1522 D.G KHAN	7128.04	7129.1	100.01%	626.78	547.54	79.24	12.64%
	15241 RAJANPUR	850.38	827.37	97.29%	70.94	61.61	9.33	13.16%
	15242 JAMPUR	399.35	395.1	98.94%	40.65	34.11	6.55	16.10%
	15243 KOT MITHAN	440.53	419.4	95.20%	45	36.12	8.88	19.73%
	15244 FAZIL PUR	437.24	408.33	93.39%	45.53	33.5	12.04	26.44%
	15245 GULSHAN ABAD	406.17	385.06	94.80%	45.84	35.18	10.67	23.27%
	15246 ROJHAN	198	197.3	99.65%	19.67	15.4	4.27	21.70%
DIV.	1524 RAJANPUR	2731.67	2632.56	96.37%	267.64	215.91	51.73	19.33%
	15262 TOUNSA SHARIF	747.57	670.38	89.67%	85.31	66.51	18.8	22.04%
	15263 VOHWA	648.87	459.29	70.78%	71.58	58.59	12.99	18.14%
	15264 SHADAN LUND	457.78	432.9	94.56%	45.08	35.32	9.76	21.64%
DIV.	1526 D.G.KHAN II	1854.23	1562.57	84.27%	201.96	160.42	41.54	20.57%
CIR.	152 D.G. KHAN	11713.93	11324.23	96.67%	1096.38	923.87	172.51	15.73%
	15311 VEHARI CITY	1143.25	1050.36	91.87%	114.54	95.01	19.53	17.05%
	15312 FAISAL TOWN	943.93	845.82	89.61%	93.72	80.02	13.7	14.62%
	15313 THINGI	812.34	755.55	93.01%	84.96	73.97	10.99	12.94%
	15314 LUDDEN	884.45	801.49	90.62%	89.72	77.57	12.15	13.54%
DIV.	1531 VEHARI	3783.97	3453.21	91.26%	382.94	326.57	56.38	14.72%
	15331 BUREWALA CITY	848.52	724.62	85.40%	85.5	72.16	13.34	15.60%
	15332 SATELLITE TOWN	985.33	881.95	89.51%	103.1	84	19.1	18.52%
	15333 AZIMABAD	855.93	804.35	93.97%	84.84	72.39	12.45	14.68%
	15334 MADINA TOWN	1014.52	924.13	91.09%	98.75	81.83	16.92	17.14%
	15335 HAJI SHER	902.98	620.11	68.67%	95.02	80.08	14.95	15.73%
DIV.	1533 BUREWALA	4607.27	3955.16	85.85%	467.21	390.45	76.76	16.43%
	15351 MAILSI-I	849.96	764.22	89.91%	87.27	75.15	12.11	13.88%
	15352 MAILSI-II	666.13	565.7	84.92%	71.21	61.08	10.13	14.23%
	15353 TIBBA	724.95	701.44	96.76%	70.84	64.24	6.6	9.32%
	15354 SARDAR PUR JHAN	635.37	553.42	87.10%	67.75	60.27	7.48	11.04%
DIV.	1535 MAILSI	2876.41	2584.79	89.86%	297.07	260.74	36.32	12.23%
CIR.	153 VEHARI	11267.65	9993.16	88.69%	1147.22	977.76	169.46	14.77%
	15411 ABBASIA	746.58	689.03	92.29%	66.64	56.44	10.2	15.31%
	15414 SATELLITE TOWN	721.73	701.16	97.15%	70.61	60.97	9.65	13.66%
	15416 YAZMAN	546.03	542.54	99.36%	58.37	51.29	7.08	12.13%
	15419 BAGHDAD AL-JADE	675.62	678.3	100.40%	67.42	57.96	9.46	14.03%
DIV.	1541 BAHAWALPUR	2689.96	2611.03	97.07%	263.04	226.65	36.39	13.83%
	15421 LODHRAN	1284.07	1222.35	95.19%	132.45	110.07	22.39	16.90%
	15422 LODHRAN RURAL	1092.45	1016.54	93.05%	108.21	91.72	16.49	15.24%
	15423 KAROR PACCA	742.92	685.76	92.31%	75.86	65.59	10.28	13.54%
	15424 DUNYA PUR	408.32	422.79	103.54%	40.13	34.39	5.74	14.30%
	15425 KAROR PACCA II	873.38	798.39	91.41%	92.89	79.45	13.45	14.48%
	15426 BASTI MALOOK	491.51	505.7	102.89%	50.19	42.78	7.41	14.76%
	15427 DUNYA PUR-II	284.91	291.81	102.42%	35.79	30.49	5.29	14.80%
	15428 JALLAH	583.18	585.51	100.40%	61.94	51.62	10.32	16.67%
DIV.	1542 LODHRAN	5760.75	5528.85	95.97%	597.46	506.1	91.36	15.29%
	15431 AHMAD PUR-I	813.77	775.78	95.33%	86.66	71.78	14.88	17.17%
	15432 AHMAD PUR-II	760.66	707.28	92.98%	82.49	68.29	14.2	17.21%
	15433 UCH SHARIF	506.05	478.29	94.51%	58.4	49.69	8.71	14.91%
	15436 HEAD RAJGAN	281.77	274.81	97.53%	32.12	28.15	3.97	12.36%
	15437 CHANI GOTH	210.57	210.86	100.14%	23.72	21.06	2.67	11.25%
DIV.	1543 AHMAD PUR	2572.82	2447.02	95.11%	283.4	238.97	44.42	15.68%
	15441 BAH. MODEL TOWN	1578.79	1556.96	98.62%	127.39	113.94	13.45	10.56%
	15442 KHANQAH SHARIF	1419.39	1325.07	93.35%	129.2	111.16	18.03	13.96%
	15443 SHAHDARA	775.31	759.29	97.93%	64.76	57.39	7.37	11.38%
	15444 SATLUJ	758.38	736.42	97.10%	70.27	59.97	10.3	14.66%
DIV.	1544 MODEL TOWN	4531.87	4377.74	96.60%	391.61	342.45	49.16	12.55%

	15451 HASIL PUR	532.11	492.02	92.47%	54.92	46.89	8.03	14.62%
	15452 MUKHTAR ABAD	610.17	586.18	96.07%	59.15	51.86	7.29	12.33%
	15453 KHAIRPUR TAMEWA	445.96	359.39	80.59%	47.67	39.99	7.68	16.11%
	15454 QAIMPUR	303.02	261.48	86.29%	34.37	28.24	6.13	17.83%
DIV.	1545 HASIL PUR	1891.26	1699.07	89.84%	196.1	166.97	29.13	14.86%
CIR.	154 BAHAWALPUR	17446.66	16663.72	95.51%	1731.62	1481.15	250.47	14.46%
	15512 SAHIWAL CIVIL L	978.7	948.52	96.92%	92.78	79.4	13.39	14.43%
	15513 SAHIWAL RURAL	1029.14	1010.39	98.18%	92.11	79.55	12.56	13.64%
	15514 KOT KHADIM ALI	1008.32	990.71	98.25%	96.39	82.9	13.49	13.99%
	15516 QADAR ABAD	484.11	472.54	97.61%	56.69	47.07	9.62	16.98%
DIV.	1551 SAHIWAL 1ST	3500.28	3422.16	97.77%	337.98	288.92	49.06	14.51%
	15521 PAKPATTAN-I	1001.85	1014.61	101.27%	107.38	88.93	18.45	17.18%
	15522 PAKPATTAN-II	856.43	858.67	100.26%	82.28	70.04	12.24	14.87%
	15525 NOORPUR	869.47	865.8	99.58%	91.26	76.48	14.78	16.19%
	15526 BONGA HAYAT	741.69	747.46	100.78%	82.69	67.45	15.24	18.43%
DIV.	1552 PAKPATTAN	3469.44	3486.54	100.49%	363.61	302.9	60.71	16.70%
	15531 ARIFWALA-I	784.39	748.45	95.42%	78.84	65.43	13.41	17.01%
	15532 ARIFWALA-II	978.73	965.09	98.61%	102.6	86.68	16.11	15.68%
	15533 QADOOLA	1549.76	1244.41	92.19%	140.4	114.4	26	18.52%
	15534 SWL RD ARIF WAL	784.23	776.95	99.07%	82.12	68.98	13.14	16.00%
DIV.	1553 ARIFWALA	3897.12	3734.9	95.84%	404.16	335.5	68.66	16.99%
	15541 CHICHAWATNI CIT	829.32	812.09	97.92%	77.51	70.28	7.23	9.33%
	15542 CHICHAWATNI RUR	473.29	468.95	99.08%	53.91	45.59	8.32	15.44%
	15544 KASSOWAL	546.5	528.68	96.74%	61.23	51.65	9.58	15.65%
	15545 GHAZI ABAD	762.61	755.7	99.09%	78.9	69.33	9.57	12.13%
DIV.	1554 CHICHAWATNI	2611.72	2565.42	98.23%	271.55	236.84	34.7	12.78%
	15551 SAHIWAL CITY	831.57	837.84	100.75%	71.76	63.13	8.63	12.03%
	15552 MULTAN ROAD SWL	1333.13	1344.48	100.85%	105.66	93.92	11.73	11.11%
	15553 HARAPPA	671.08	677.27	100.92%	64.58	58.12	6.46	10.00%
	15554 SHAH MURAD	482.29	479.37	99.39%	51.51	44.07	7.44	14.44%
DIV.	1555 SAHIWAL 2ND	3318.08	3338.95	100.63%	293.51	259.25	34.26	11.67%
CIR.	155 SAHIWAL	16796.64	16547.97	98.52%	1670.81	1423.41	247.4	14.81%
	15611 CITY S-DIV	917.63	896.96	97.75%	73.2	64.85	8.35	11.41%
	15612 S/TOWN S-DIV	1937.79	1934.45	99.83%	163.02	147.62	15.4	9.45%
	15613 GULSHAN-E-IQBAL	1227.3	1218.46	99.28%	113.07	94.71	18.36	16.24%
	15614 JINNAH	633.06	553.17	87.38%	65.02	57.03	7.99	12.29%
	15618 CHOWK BAHADAR P	1008.82	959.23	95.08%	89.5	74.69	14.81	16.55%
DIV.	1561 RAHIM YAR KHAN	5724.59	5562.26	97.16%	503.83	438.91	64.92	12.88%
	15621 CITY KHANPUR	599.49	593.8	97.38%	58.87	47.63	11.25	19.10%
	15622 RURAL KHAN PUR	516.95	492.97	95.36%	65.1	50.73	14.37	22.08%
	15623 KOT SAMABA	560.4	515.65	92.01%	63.43	51.75	11.68	18.41%
	15624 ZAHIR PEER	451.26	433.56	96.08%	57.21	43.48	13.72	23.99%
	15627 M.W. QURESHIAN	463.75	439.4	94.75%	55.02	41.06	14.87	26.59%
DIV.	1562 KHAN PUR	2591.85	2465.37	95.12%	300.54	234.65	65.89	21.92%
	15631 LIAQAT PUR	397.06	380.68	95.87%	42.98	37.31	5.67	13.19%
	15632 KHAN BELA	240.66	233.24	96.92%	31.75	27.07	4.68	14.75%
	15633 ALLAH ABAD	328.32	317.18	96.61%	39.66	33.72	5.94	14.97%
	15634 FEROZA	451.34	413.18	91.55%	45.62	39.99	5.62	12.33%
DIV.	1563 LIAQAT PUR	1417.38	1344.29	94.84%	160	138.09	21.91	13.70%
	15641 CITY-SDK	945.32	919.01	97.22%	95.76	75.48	20.28	21.16%
	15642 AS/TOWN SDK	722.53	686.18	94.97%	73.82	63.88	9.94	13.46%
	15643 JAMAL DIN WALI	912.54	828.63	90.80%	115.27	81.3	33.98	29.47%
	15644 AHMAD PUR LAMA	1372.75	1298.68	94.60%	149.62	108.06	41.55	27.77%
DIV.	1564 SADIQ-ABAD	3953.14	3732.49	94.42%	434.47	328.72	105.75	24.34%
CIR.	156 RAHIM YAR KHAN	13686.96	13104.41	95.74%	1398.83	1140.37	258.47	18.48%

	15711 MUZAFARGARH-I	3785.54	3742.98	98.88%	306.87	288.25	18.62	6.07%
	15712 MUZAFARGARH-II	1383.95	1431.72	103.45%	127.7	112.34	15.35	12.02%
	15713 KHAN GARH	353.57	343.64	97.19%	43.96	35.02	8.94	20.34%
	15718 KARAM DAD QURES	370.47	361.65	97.62%	48.42	37.58	10.84	22.39%
	15719 SHAH JAMAL	250.68	238.28	95.05%	32.54	26.65	5.89	18.11%
DIV.	1571 MUZAFFARGARH	6144.22	6118.28	99.58%	559.5	499.84	59.66	10.66%
	15721 KOT ADDU-I	527.26	518.96	98.43%	51.89	44.03	7.87	15.16%
	15722 KOT ADDU-II	445.87	437.32	98.10%	48.38	43.99	4.39	9.07%
	15723 CHOWK S.SHAHEED	1903.7	1957.13	102.81%	163.66	155.63	8.03	4.91%
	15724 GUJRAT	3655.57	3654.89	99.98%	252.24	246.31	5.94	2.35%
	15725 SINAWAN	363.68	358.66	98.62%	39	33.87	5.13	13.14%
DIV.	1572 KOT ADDU	6896.08	6927.02	100.45%	555.18	523.83	31.35	5.65%
	15731 LAYYAH-I	729.22	711.04	97.51%	71.46	62.13	9.33	13.05%
	15732 LAYYAH-II	580.43	567.27	97.73%	61.07	53.96	7.11	11.64%
	15733 KARDR LALEASON	567.05	544.36	96.00%	63.8	54.1	9.7	15.20%
	15734 FATEH PUR	436.75	427.41	97.86%	48.88	43.23	5.65	11.56%
	15735 CHOWK AZAM	635.7	629.01	98.95%	69.07	58.94	10.14	14.67%
DIV.	1573 LAYYAH	2949.15	2879.08	97.62%	314.28	272.36	41.92	13.34%
	15741 ALI PUR-I	578.53	558.1	96.47%	65.73	52.76	12.97	19.73%
	15742 JATOI	386.41	378.53	97.96%	47.13	36.82	10.32	21.89%
	15743 SHEHR SULTAN	366.73	358.44	97.74%	44.72	35.68	9.04	20.22%
	15744 ROHELLAN WALI	315.08	302.89	96.13%	40.16	32.25	7.91	19.69%
	15745 KHAIR PUR SADAA	199.05	189.9	95.40%	24.44	20	4.44	18.17%
DIV.	1574 ALI PUR	1845.8	1787.86	96.86%	222.18	177.51	44.68	20.11%
CIR.	157 MUZAFFARGARH	17835.25	17712.24	99.31%	1651.14	1473.54	177.61	10.76%
	15811 BAHAWALNAGAR-I	947.7	941.94	99.39%	84.78	74.4	10.39	12.25%
	15812 BAHAWALNAGAR-II	578.3	541.23	93.59%	61.56	51.12	10.44	16.96%
	15813 MODEL TOWN	429.65	411.94	95.88%	46.78	40.09	6.69	14.30%
	15814 MINCHINABAD	382.15	341.44	89.35%	44.35	37.52	6.83	15.40%
	15815 MANDI SADIQ GUN	310.5	280	90.18%	35.81	30.59	5.22	14.57%
DIV.	1581 BAHAWALNAGAR	2648.3	2516.56	95.03%	273.29	233.72	39.57	14.48%
	15821 HAROONABAD	588.47	562.63	95.61%	61.78	51.97	9.81	15.87%
	15822 MUSLIM COLONY	562.28	546.24	97.15%	58.76	51.85	6.91	11.76%
	15823 FAQIR WALI	333.16	323	96.95%	39.97	35.17	4.8	12.00%
	15824 FORT ABBAS	975.7	781.77	80.12%	105.07	90.36	14.7	13.99%
DIV.	1582 HAROON ABAD	2459.61	2213.64	90.00%	265.57	229.35	36.22	13.64%
	15831 S/TOWN CHISHTIA	680.02	633.78	93.20%	70	60.75	9.26	13.22%
	15832 CITY CHISHTIAN	732.12	670.59	91.60%	78.48	66.96	11.52	14.67%
	15834 DAHRANWALA	258.02	254.89	98.79%	29.61	25.08	4.53	15.29%
	15836 DAHRANWALA 2ND	174.95	169.59	96.94%	24.43	20.96	3.47	14.20%
DIV.	1583 CHISHTIAN	1845.11	1728.85	93.70%	202.52	173.75	28.77	14.20%
CIR.	158 BAHWAL NAGAR	6953.02	6459.05	92.90%	741.37	636.82	104.55	14.10%
CMPY	15 MEPCO	138620.74	133126.72	96.04%	13375.19	11437.25	1937.94	14.49%

Annexure-3

(Generation Plan by NTDC)

Summary of Generation Addition

Sl. #	Fiscal Year	Name of Project	Agency	Fuel	Location	Installed Capacity (MW)	Commissioning Date	Total Installed Ca (MW)
		Existing capacity						22749
1	2014-15	Nandipur (Remaining Unit-CC)	GENCO	RFO	Gujranwala, Punjab	140	Jun. 2015	
		Total Generation Addition in 2014-15				140		22889
2	2015-16	Sapphire Wind Power Co. Ltd.	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	49.5	Oct. 2015	
3		Appolo Solar Development Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Dec. 2015	
4		Best Green Energy Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Dec. 2015	
		CHASNUPP-III	PAEC	Nucl	Chashma, KPK	340	Mar. 2016	
		Total Generation Addition in 2015-16				589.5		23474.5
6	2016-17	Elbel Green Energy Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Jul. 2016	
7		Flare Solar Development Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Jul. 2016	
8		Golden Eye Solar Development Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Jul. 2016	
9		Yunus Energy Ltd.	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	50	Jul. 2016	
10		Metro Power Co. Ltd.	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	50	Jul. 2016	
11		Tenaga Generasi Limited	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	49.5	Jul. 2016	
12		Gul Ahmed Energy Limited	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	50	Jul. 2016	
13		Master Wind Energy Limited	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	49.5	Jul. 2016	
14		HydroChina Dawood Power Ltd.	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	49.5	Jul. 2016	
15		Tapal Wind	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	30	Jul. 2016	
16		United Energy Pakistan Limited	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	99	Jul. 2016	
17		Neelum Jhelum Hydel	WAPDA	Hydel	Nauseri/Muzaffarabad, AJK	969	Nov. 2016	
18		CHASHNUPP-IV	PAEC	Nucl	Chashma, KPK	340	Dec. 2016	
19		Crest Energy Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Dec. 2016	
20		Other Wind Power Plants	AEDB	Wind	Jhampir/Gharo/Bhambore/Kuttikun, Sindh	1023	Dec. 2016	
21		High Flying Solar Development Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Jan. 2017	
22		Indigo Solar Development Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Feb. 2017	
23		King Rider Solar Development Pakistan Limited	PPDB	Solar	Lal Sohna (Cholistan), Punjab	100	Feb. 2017	
24		Tarbela 4th Ext. Project	WAPDA	Hydel	Tarbela, KPK	1410	Mar. 2017	
25		Patriad HPP	PPIB	Hydel	Kunhar River, KPK/AJK	147	Apr. 2017	
26		LNG Based Plants (Phase-I)	PPIB	LNG	Bhikki/Baloki, Punjab	2400	Apr. 2017	
		Total Generation Addition in 2016-17				7416.5		30891
27	2017-18	Keyal Khwar	WAPDA	Hydel	Dasu District, KPK	122	Oct. 2017	
28		Coal Plant at Sahiwal	PPDB	Coal	Sahiwal, Punjab	1320	Dec. 2017	
29		Port Qasim Power Plant	PPIB	Coal	Port Qasim Karachi, Sindh	1320	Dec. 2017	
30		Engro Thar Coal (unit-1)	PPIB	Coal	Thar, Sindh	330	Dec. 2017	
31		Nooriabad Gas Plant	GoS	Gas	Nooriabad, Sindh	100	Dec. 2017	
32		Engro Thar Coal (unit-2)	PPIB	Coal	Thar, Sindh	330	Apr. 2018	
33		LNG Based Plants (Phase-II)	PPIB	LNG	Haveli Bahadur Shah (Jhang), Punjab	1200	Apr. 2018	
34		Coal Plant at Salt Range	PPDB	Coal	Salt Range, Punjab	300	Jun. 2018	

Summary of Generation Addition

Sr. #	Fiscal Year	Name of Project	Agency	Fuel	Location	Installed Capacity (MW)	Commissioning Date	Total Installed Capacity (MW)
35		Tarbela 5th Ext. Project	WAPDA	Hydel	Tarbela, KPK	1320	Jun. 2018	
36		SSRL	TCEB	Coal	Thar, Sindh	1320	Jun. 2018	
		Total Genertion Addition in 2017-18				7662		38553
37		Golen Gol HPP	WAPDA	Hydel	Chitral, KPK	106	Jul. 2018	
38	2018-19	HUB Power Company Ltd.	PPIB	Coal	HUB, Baluchistan	1320	Jul. 2018	
39		Siddiqsons Limited	TCEB	Coal	Port Qasim, Sindh	350	Jun. 2019	
40		Lucky Electric Power Company Ltd	TCEB	Coal	Port Qasim, Sindh	660	Jun. 2019	
41		Grange Holding	PPIB	Coal	Arifwala, Punjab	163	Jun. 2019	
42		Gulpur Poonch river	PPIB	Hydel	Poonch River/Gulpur, AJK	100	Jun. 2019	
		Total Genertion Addition in 2018-19				2699		41252
43	2019-20	CASA	GoP	Import	Cross Border Interconnection	1000	Jul. 2019	
44		TPS Jamshoro (Phase-1)	GENCOs	Coal	Jamshoro, Sindh	660	Dec. 2019	
45		TPS Jamshoro (Phase-2)	GENCOs	Coal	Jamshoro, Sindh	660	Mar. 2020	
46		Azad Pattan HPP	PPIB	Hydel	Jehlum River/Sudhnoti, AJK	640	Jun. 2020	
47		Suki Kinari HPP	PPIB	Hydel	Kunhar River/Mansehra, KPK	840	Jun. 2020	
48		Dasu HPP-1	WAPDA	Hydel	7km upstream of Dasu Village on Indus River, KPK	2160	Jun. 2020	
	Total Genertion Addition in 2019-20				5960		47212	
49	2020-21	Karachi Coastal Power Plant (unit-1)	PAEC	Nucl	Karachi	1100	Aug. 2020	
50		Karachi Coastal Power Plant (unit-2)	PAEC	Nucl	Karachi	1100	Jun. 2021	
		Total Genertion Addition in 2020-21				2200		49412
51	2021-22	Karot HPP	PPIB	Hydel	Jehlum River, Distt. Rawalpindi, Punjab	720	Jun. 2022	
52		Kotli	AJKHEB	Hydel	Poonch River/Kotli, AJK	100	Jun. 2022	
53		Coal Plant at Lakhra	GENCOs	Coal	Lakhra, Sindh	660	Jun. 2022	
		Total Genertion Addition in 2021-22				1480		50892
Total Generation Addition upto 2021-22						28147		

References:

As per data provided by WAPDA Hydel, GENCOs, AJKHEB, PHEDO, PPIB, AEDB, PPDB, TCEB and PAEC information

Annexure-4

(Goals and Objectives)

MEPCO STRATEGIC GOALS & OBJECTIVES

Strategic Goals	Strategic Objectives	Concerned Directorate	Leading Directorate	Target Measurement	Measurement FY 2014	5 year Goal FY 16-20	Project Manager	Supporting Plan
1.0 Improve Operational Efficiency	1.1 Reduce overall electricity losses to 10% <u>Technical Losses Reduction by:</u> - Improving voltage profile To meet specified regulatory performance standards - Improve power factor to meet specified regulatory standards - Reduce distribution transformer failure rate to <1% - Improve HT/LT ratio to 2:1 - Reduce average length of HT feeders to 30Km - Eliminate 66kV network	P&E, Dev & Ops	P&E	% age of kWh % of specified voltage % % Ratio Km No of grid stations/length in Km	17.5% ~20% Average 0.87 Reported 3% 1.5:1 70 Km	15% Within permissible limits as specified by NEPRA for different voltage levels Average 0.92 2% 1.75:1 60Km	CE P&E and team	IC TDF
	Reduce Commercial Losses	CSD, MIS and Ops	CSD	% of kWh	17.50%	15%	CSD and his team	Commercial Improvement Plan (CIP)
	1.2 Improve revenue recovery up to 100%	CSD, Ops, MIS, O&M Dist	CSD	%age billed amount excluding subsidy	96%	100%		Commercial Improvement Plan (CIP)
	1.3 Improve SAIDI/SAIFI To meet specified regulatory performance standards	Ops, T&G, O&M Dist, CSD, Technical	O&M Dist	Hours/Numbers	NEPRA's standards not complied with	To comply with NEPRA's specified standards	CE P&E and his team	IGTDP
	1.4 Eliminate fatal & non-fatal accidents	Ops, O&M Dist, MM, HR, Dev, T&G	HR	No of accidents	Very High	Eliminate		IGTDP
	1.5 E-Transfer of bank scrolls by 100%	Commercial, FIN, MIS	FIN	%age of collection	40% of collection	90% of collection	FD and his team	Financial Management Improvement Plan (FMIP)
2.0 Improve Customer Care & Service	2.1 Reducing complaints related to billings to less than 0.1%	Dps, CSD, O&M Dist	CSD	%age of total consumers	More than 2%	<0.5%	CSD and his team	Commercial Improvement Plan (CIP)
	2.2 Minimize New Connections installation duration	Ops, O&M Dist, CSD, MM,	CSD	No of days	NEPRA's guidelines not complied with	To comply with NEPRA's specified standards		Commercial Improvement Plan (CIP)
	2.3 Minimize Reconnection installation duration	Ops, O&M Dist, CSD, MM,	CSD	No of days	NEPRA's guidelines not complied with	To comply with NEPRA's specified standards		Commercial Improvement Plan (CIP)
	2.4 Maximize the time between date of receipt of bill and due date (10 days)	Dps, MIS, CSD, O&M Dist	MIS	Days before due date	7 days	10 days		Commercial Improvement Plan (CIP)

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MEPCO STRATEGIC GOALS & OBJECTIVES

Strategic Goals	Strategic Objectives	Concerned Directorate	Leading Directorate	Target Measurement	Measurement FY 2014	5 year Goal FY 16-20	Project Manager	Supporting Plan
3.0 Improve MEPCO's Infrastructure	3.1 Human-ware							
	3.1.1 Implement Performance Based Management System	HR & All	HR		Not fully implemented	Implement existing Policies & extend PSMs study	HRD and his team	Human Resource Improvement Plan (HRIP)
	3.1.2 Start Training & capacity building initiatives	HR & All	HR		Legacy training	TNA, Training plans, CPD		
	3.1.3 Improve recruitment process	HR & All	HR		Legacy process	NTS weightage to be considered for selection/recruitment		
	3.1.4 Fulfill the basic requirement for needs to operate for field staff	HR, FIN, Ops, O&M Dist	HR		No comprehensive system in place	Conduct requirement analysis and policy formulation and approval by competent authority.		
	3.1.5 Improve communications with staff	HR, PR & MIS	HR		Inadequate communication	To develop coordinated communication system aligned with business strategy		
	3.1.6 Identify turnaround group	All	HR		Does not exist	Prepare TOR, Approval from BOD, structure of SBU		
	3.2 Orgware							
	3.2.1 Org A&R review and Implementation	HR & All	HR		Not fully implemented	Align org structure with business strategy	HRD and his team	Organizational Improvement Plan (OIP)
	3.2.2 Improve office facilities/work environment	All	HR		Inadequate facilities	Needs improvement		
	3.2.3 Conduct yardstick study for Human Resource	All	HR		Yardstick study is obsolete	Yardstick Study to be updated		
	3.2.4 Conduct motivational campaigns	PR, HR	HR		No campaign	Need to conduct		
	3.2.5 Career planning	HR & All	HR		Not done	Plan & approval by BOD		
	3.2.6 Improvement in health & education facilities for employees	HR & All	HR		Limited/inadequate facilities	Plan & approval by BOD		
	3.3 Technoware							
	3.3.1 AMI expansion	MIS, Ops, O&M Dist, CSD, P&E	CSD		USAID Project/ Pilot by MEPCO	8% valuable customers contributing 60% of revenue	CSD	Commercial Improvement Plan (CIP)
	3.3.2 P&E expansion to GIS Mapping	P&E, MIS, Ops, O&M Dist	P&E		USAID Project	Fully implement in MEPCO	P&E	IGTDP
	3.3.3 Improve procurement standards	P&E	P&E		Need to improve the standards	Standards Improved	P&E	IGTDP
	3.4 Inforware							
	3.4.1 Implement ERP & its rollout	All	FIN		PDP Initiated ERP project	IT infrastructure extended	FD	Financial Management Improvement Plan (FMIP)
	3.4.2 Implement CIS & its rollout	CSD, MIS	CSD		PDP Initiated in one circle	Extended to all circles	CSD	Commercial Improvement Plan (CIP)
	3.4.3 Improve communications through email	All	MIS		Paper based communication	Promote e-communication culture	DG IT	Internal Comm. Improvement Plan (ICIP)

MEPCO STRATEGIC GOALS & OBJECTIVES								
Strategic Goals	Strategic Objectives	Concerned Directorate	Leading Directorate	Target Measurement	Measurement FY 2014	5 Year Goal FY 16-20	Project Manager	Supporting Plan
4.0 Comply with applicable laws and regulations	4.1 Companies Ordinance 1984	FIN, Company Secretary	FIN		-	-	All	Create a Library, map all requirements and Make it part of Business Plan
	4.2 Code of Corporate Governance for Public Sector	FIN, Company Secretary	FIN		-	-		
	4.3 Income Tax Ordinance	Legal, FIN, CSD, MIS	FIN		-	-		
	4.4 Sales Tax Act	Legal, FIN, CSD, MIS	FIN		-	-		
	4.5 Electricity Act & rules	Legal, CSD	CSD		-	-		
	4.6 Theft Ordinance CPC	Ops, Legal, CSD	CSD		-	-		
	4.7 Industrial Relations Act	HR, Legal	HR		-	-		
	4.8 Other labor laws	HR, Legal	HR		-	-		
	4.9 PPRA Rules	Dev, P&E, FIN	P&E		-	-		
	4.10 Distribution License	Ops, T&G, P&E, Dev, CSD, FIN	FIN		-	-		
	4.11 NEPRA Act & Rules and Codes	All	FIN		-	-		
	4.12 Compliance with EPA	Dev	Dev		-	-		
	4.13 Power Sales Agreement with CPPA	Legal, FIN, CSD, T&G	FIN		-	-		
5.0 Make MEPCO socially responsible corporate entity	5.1 Extension or exemption of Load shedding to Hospitals	Ops	Ops	No of hospitals	Provision to some hospitals	Extend it	Communication Head	Stakeholders Communication Plan
	5.2 Campaign for anti-theft	CSD, O&M Dist, Ops, PR, HR	CSD	No of campaigns	No Campaigns	ISCDs wide		
	5.3 Campaign for energy conservation	P&E, PR	P&E	No of campaigns	No Campaigns	ISCDs wide		

Muzaffar Ali Abbasi
Chief Executive Officer MEPCO

27/02/15
CRO MEPCO

J.R. Dufford
Director
Senior Advisor & Technical Lead USAID PDP

Team Lead PMO/Business Planning
USAID PDP

Business Analyst USAID PDP

MEPCO STRATEGIC GOALS & OBJECTIVES							
Strategic Goals	Strategic Objectives	Concerned Directorate	Leading Directorate	Target Measurement	Measurement FY 2014	5 year Goal FY 16-20	Project Manager Supporting Plan

Chief Engineer PMU MEPCO

Chief Engineer T & S MEPCO

Chief Engineer O & M MEPCO

Chief Engineer CSD MEPCO

Chief Engineer P & E MEPCO

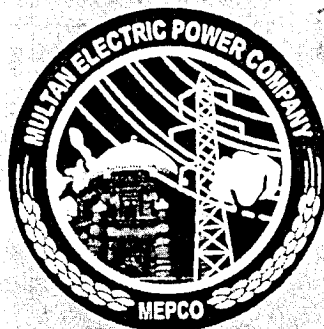
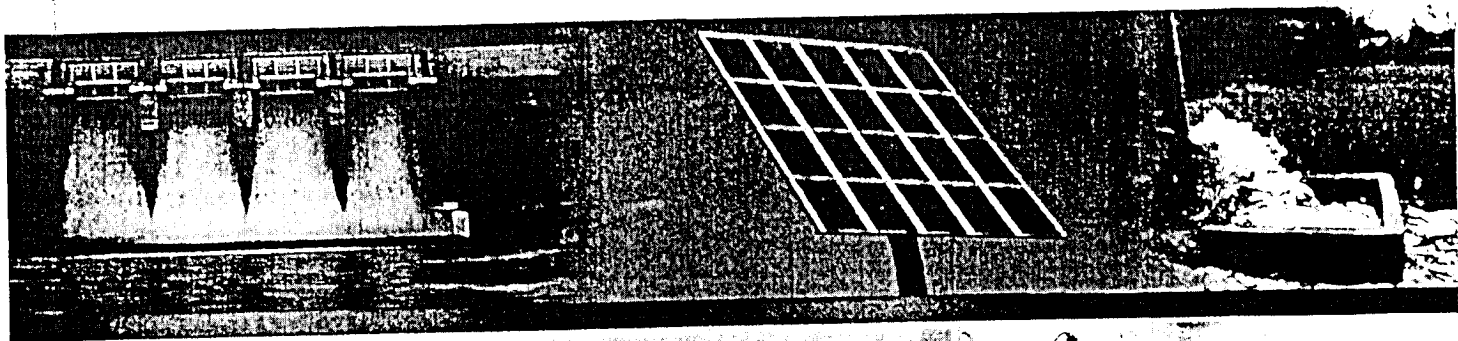
Director HR MEPCO

Finance Director MEPCO

Additional DG MIS MEPCO

Annexure-5

(PMS Load forecast)



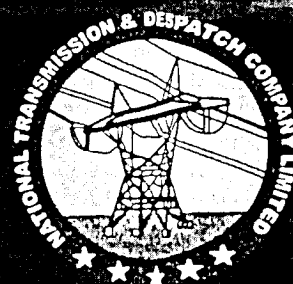
MEPCO

**MULTAN ELECTRIC POWER COMPANY
ELECTRICITY DEMAND FORECAST
BASED ON
POWER MARKET SURVEY**

TWENTY FOURTH ISSUE

PERIOD 2014 TO 2024

**JOINTLY PREPARED BY MEPCO
UNDER THE SUPERVISION OF
PLANNING POWER, NTDC
MAY 2015**



■ Executive Summary

Executive Summary

Multan Electric Supply Company (MEPCO) is supplying power to civil districts of Multan, Sahiwal, Bahawalpur, Bahawal Nagar, Muzzaffargarh, Dera Ghazi Khan, Rahim Yar Khan, Vehari, Pakpattan, Khanewal, Leiah, and Rajanpur. MEPCO came into existence in the year 2001 after unbundling of WAPDA system. Earlier it was known as Multan Area Electricity Board (AEB). Its distribution network in the year 2001 comprised of seventy one 132 kV and thirty four 66 kV sub-stations and by the year 2013-14, sixty eight 132 kV and twenty seven 66 kV sub-stations have started to function in the company.

Peak demand of MEPCO in the year 2013-14 was recorded as 1887 MW, energy sale was 11437 GWh and energy purchased was 13859 GWh. The total number of consumers in this year were 4.86 million out of which domestic consumers were 4.27 million, commercial were 0.45 million and agricultural consumers were 0.075 million. In the year 2013-14, MEPCO total sale in terms of megawatt was 1558 MW, for the domestic sector it was 766 MW while for the medium & large industries and small industries it was 793 MW and 18 MW respectively. The shares of domestic sector and industrial sector were 48% and 27% respectively with respect to total energy sale, which is not a healthy sign.

This forecast has been computed on the basis of Power Market Survey (PMS) methodology by the MEPCO (PMS) team under the supervision of planning power, NTDC. The year 2013-14 has been taken as base and the forecast horizon is ten years up to 2023-24. The base year sale data (feeder wise consumer category wise energy sale) and the expected spot loads data at the locations of different sub-stations have been collected by MEPCO power market survey team. Energy sale data for the base year is also been adjusted for the estimates of un-served energy (load shedding) in order to have a realistic sales figure.

Forecast results show that in the year 2017-18 and 2023-24 energy sales will be 21098 GWh and 31727 GWh, peak demand will be 4535 MW and 6113 MW, and energy purchased will be 25146 GWh and 36796 GWh respectively. The annual average compound growth rate of energy sale, peak demand and energy purchased is 7.89 %, 5.53% and 7.42% respectively by the year 2023-24 with respect to 2013-14.

A realistic forecast, saves over investment as well as under investment, meaning thereby timely recovery of revenue and no constraints in the supply of power (load shedding) respectively. This kind of forecast can only be prepared by applying proper methodology with authentic data. The results of previous PMS forecasts were very close to the actual which proves the authenticity of methodology and data. This report highlights the salient features of load forecast of the company.

Planning Power, NTDC firmly believes that the readers' comments/suggestions on this report will help in improving energy and demand forecast in future.

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1 Introduction

The present report of Power Market Survey forecast is the 23rd issue, jointly prepared by MEPCO and planning power department NTDCL. This report contains year wise detailed forecast of energy and demand for the whole company and each sub-station within the company. In addition to that civil administrative areas' forecast like division and district within the company are also computed and depicted in different tables. The forecasted peak demand of MEPCO has graphically presented in Figure 1-1

Load forecasting is an important element of the power planning process involving prediction of future level of demand. The forecast serves as the basis for supply-side and demand-side planning. Load forecasts are typically prepared by utilities for different time frames and levels of detail and used in different planning applications and operations.

Long range planning requires a system level forecast of total generation requirement and peak demand. On the other hand transmission and distribution planning require for more load level and geographic detail to assess location, timing and loading of individual lines, substation and transformation facilities.

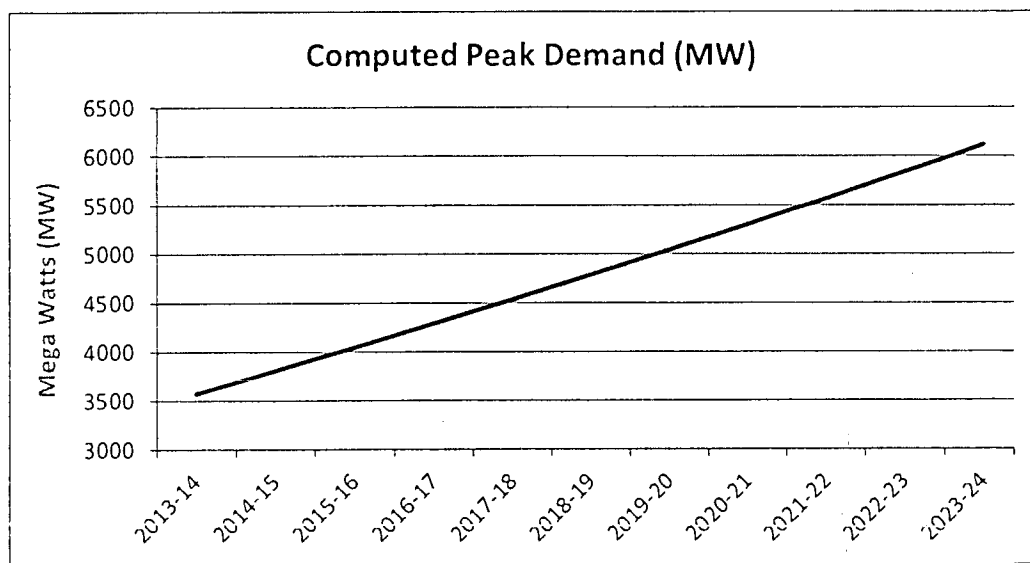


Figure 1- 1: Computed Demand Forecast

Forecasting models fall into three general categories:

- Trend models
- Econometric based models
- End-use models

Trend forecasts graphically or mathematically extrapolate past electricity demand trends into the future. They may be inadequate for shorter time periods where dramatic changes in the underlying casual factors of load growth are not anticipated. Econometric models represent a more complex 'top-down' approach to forecasting and rely on the observed or the implied

relationship between past energy consumption and other variables defining past economic output, demographics and price or income variables. Such models employ a combination of econometric, regression and time series forecast techniques. End-use models relate energy use to the physical appliance stock levels, to the use patterns or to the industrial process. These end use models represent a 'bottom-up' forecasting approach and normally incorporate disaggregate end use forecast and consumer survey techniques.

This report has been prepared on the basis of Power Market Survey Methodology and the model used is called Power Market Survey (PMS) model. This model is a form of end use model which provides energy and power projection for all distribution companies and all grid stations within the company.

The PMS model relies on an extensive data base of historical sales. The data base includes consumption by consumer type (i.e. domestic, industrial and commercial etc.) on a grid station and grid station feeder basis. Actual consumption data are adjusted for un-served demands attributed to load shedding.

Energy forecasts are computed for each consumption category at the sub area level on the basis of a trend analysis of recent per consumer sales plus new consumer connection applications. Industrial forecasts are based on interviews with existing consumer trend projections and a review of the applications for new and increased service. These analyses are repeated for each sub area for each of the years to be forecast. The annual peak demand is determined from the resulting energy forecasts by using the load factors and diversity factors developed for each consumer category. Forecasts are then aggregated to a system level.

Because the PMS forecast is based on a mix of end-use, trend projection and known consumer expansion plans, it cannot be used reliably to predict demand over the longer term. This model had not been created to predict impacts of changes in growth rates of different economic sectors or consumers categories over time, of changes in both the absolute and relative prices of electricity, or of changes in the relationships between income growth and electricity growth over time as a result of market saturation and technological change (in order to capture these changes NTDC is using another model called regression model). This model is used for long term forecasting as the changes in growth rate are occurred due to change in technology, life style over a longer time period.

The Power Market Survey forecast model most closely approaches the requirements of power system planning. It provides the level of detail required for siting studies and transmission and substation planning, as well as the sartorial detail necessary to assess different sector growth rates and their impacts on load shapes, both for the system, DISCOs and grid stations. In addition, because it also makes specific provision for load shedding i.e. suppressed demand, it provides a reasonable approximation of unconstrained load growth.

2 Historical Supply and Demand Analysis

2.1 Category-wise Sale

The customers within the company can be segregated in different categories. The segregation is usually based upon the type of applications for which electricity is being used. Major categories include Domestic, Commercial, Small industries, Medium & Large industries and Agriculture.

The category-wise percentage sale for the years 2002-03, 2005-06, and 2012-13 are given in Figure 1-2.

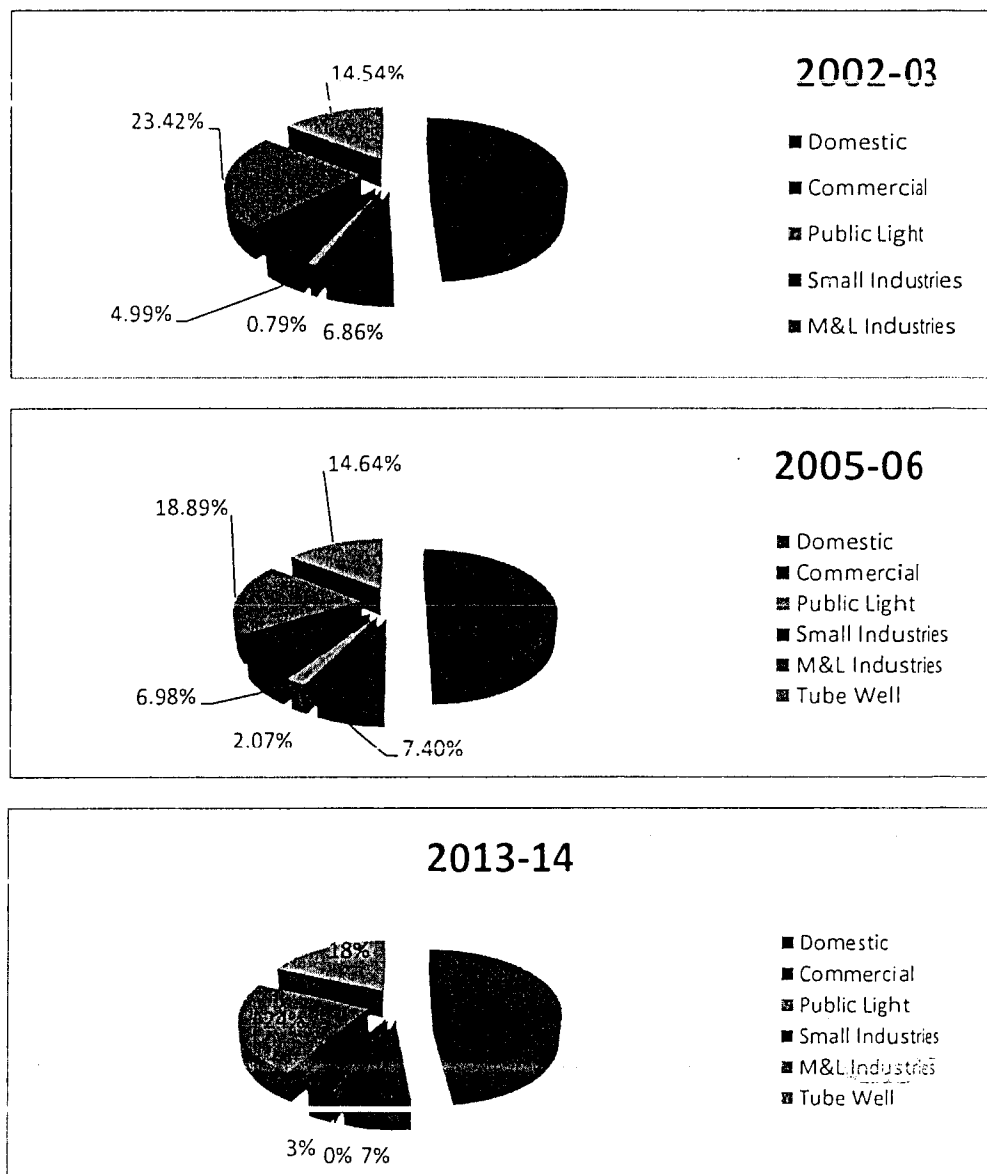


Figure 1- 2: Historical Category-wise Sale

2.2 Transmission and Distribution Losses

In our system losses are divided into two types:

- Transmission Losses
- Distribution Losses

The losses on 132 kV and 11kV transmission lines are considered as Transmission Losses whereas the losses on 11 kV and 440 Volts lines supplying the consumers are called Distribution Losses. In a system, generally the high losses are due to lack of proper maintenance and elements of theft. Reduction in losses can be achieved, by installing proper size of conductor in 11kV feeders, low tension lines and also by installing capacitor banks, to reduce reactive power and thereby improving power factor. Energy sent out is shown in the form of its breakup as sale, distribution losses and transmission losses with their percentages in the figure 1-3 for the year 2010-11, 2011-12 and 2012-13.

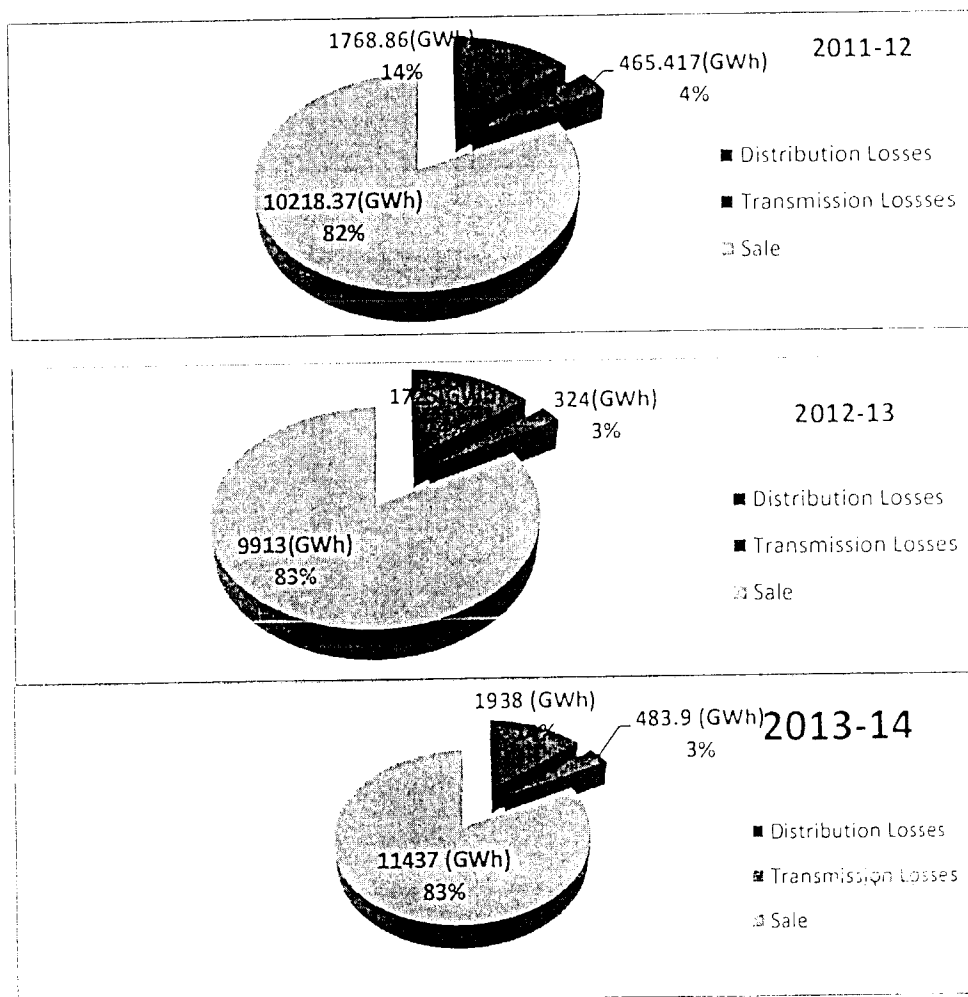


Figure 1- 3: Historical Transmission and Distribution Losses

2.3 Recorded and Computed Peak Demand

Recorded demand is the highest electricity demand or maximum power supplied to the consumers during the base year. Computed peak demand is calculated by adding the element of unserved power into the figure of the recorded peak demands. Figure 1-4 shows the recorded and computed peak demand (MW) from the year 2009-10 to 2012-13.

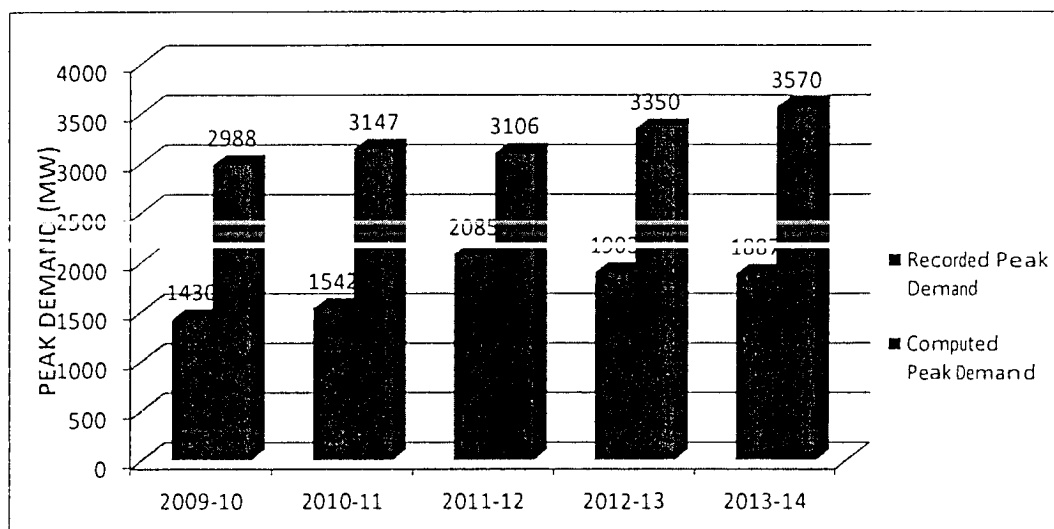


Figure 1- 4: Historical Recorded and Computed Peak Demand

2.4 Number of Consumers

Historical record of number of consumers within MEPCO jurisdiction is given in Figure 1-5. These consumers are from all categories; i.e. Domestic, Commercial, Small industries, Medium & Large industries, Public Lighting, Bulk and Agriculture.

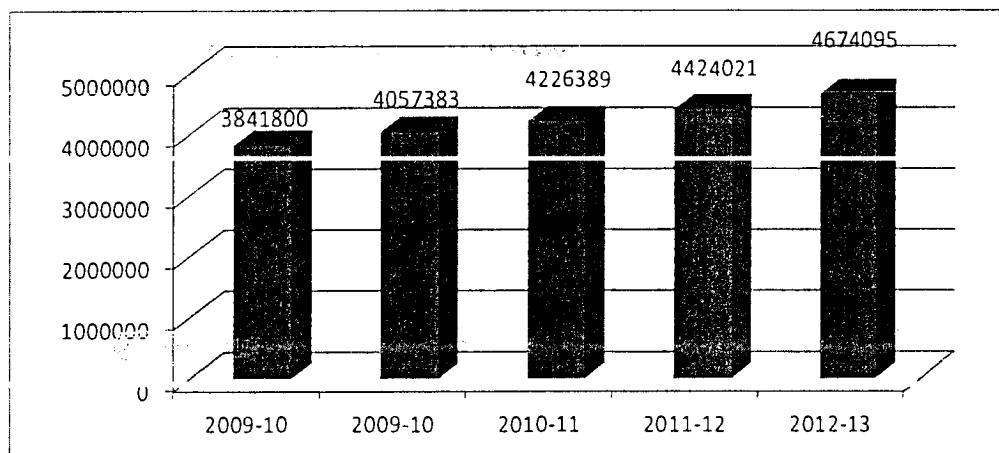


Figure 1- 5: Number of Consumers

3 Power Market Survey Methodology

3.1 Overview

The Power Market Survey Model forms the basis of the medium term forecast. It produces energy and peak demand forecast over a ten year period by consumption category and by grid station for the entire service area. The model has three inter-related components: the main database, the basic input parameters and the calculations themselves.

The energy consumption data base obtained through the power market survey is immense. It contains base year consumption data for existing consumers and ten years' forecast data for new consumers for each consumer category within the company. In addition, there is separate information for peak demand in medium & large industries and traction categories. Because of its volume this data is not listed as part of this report.

In addition to the data base, a number of basic input parameters form an integral part of the forecast model which are separately prepared for each DISCO. These include:

- Growth rates: the annual increase in consumption per consumer by consumption category.
- Loss rates: transmission and distribution losses expressed as a percentage of energy purchased and energy sold, respectively.
- Load factors: relating the amount of energy consumed to the rate at which it is consumed (that is, the peak demand) for each consumption category.
- Coincidence factors: describing the load diversity within the system.

The forecast calculations within the model combine the energy consumption data and the input parameters to compute the energy and peak demand requirements within each area for each year to be forecasted. The data is accumulated from the area basis, to grid stations, DISCOs and ultimately to produce a forecast for the entire system. Each of the three model component is discussed in detail below.

3.2 Survey Base Data

An extensive data base has been developed on gross consumption by consumer category: household (domestic), commercial, small industrial, large industrial, tube wells (agriculture), public lighting, and traction (electric rail). Energy consumption comes from consumer service meter readings. Maximum demand readings and load factors for large industrial users and other demand-metered consumers are based on service meter readings. The consumption data is collected from Computer Centers of each DISCO (It is feeder-wise category-wise consumption data).

Actual consumption data are also adjusted for un-served demands attributed to load shedding and to voluntary restraint by consumers (e.g. an industrial consumer who agrees to close his plant or switch to auto-generation during peak hours).

The basic geographic unit represented within the data base is called an area, although many areas are divided into two or more subareas. This occurs when portions of the area are

served by different feeders or where a single feeder services different administrative districts. Each area is assigned a series of codes which identify the technical boundaries associated with the area.

The technical boundaries, which are emphasized in this report, start at the grid station. Thus, all areas and subareas are assigned to one of the all the sub-stations in each DISCO. These are distribution grid stations supplying power at 11 kV after transformation from a 132kV or 66 kV source. Grid stations are combined to form DISCO.

There can be up to eleven records in the data base for each area or subarea, one record for each year of forecast. The first year is typically year zero and records the base year level of consumption for each consumption category as determined in the survey. The remaining records for the area list the incremental consumption associated with new consumers to be added to the area within the specified year.

This incremental consumption is based on applications for new or extended service which are filed at each revenue office and from discussions with the relevant industries and government agencies. Incremental industrial consumption is based on a combination of interviews, trend projections, and reviews of applications for new and/or increased service. Interviews are held with major industrial consumers to identify their current capacity utilization and any long-term plans they have for future expansion or changes in their electricity consumption. Auto-generation is also recorded. In addition, the various branches of the Ministry of Industries are interviewed to determine how many applications for new developments or plant expansions have been received, and what the anticipated electrical load associated with each is likely to be. These anticipated new demands are added to the basic forecast of industrial consumption.

Extension of electricity to new areas over the forecast period is dealt with separately. The number of new communities to be electrified is also obtained. Initial loads and load growth are calculated based on past experience in terms of market penetration and consumption per consumer in newly electrified communities. This analysis is conducted at DISCO level.

There are over 10,000 area/subarea/year records in the data base.

3.3 Input Parameters

A number of input parameters are defined for use in the Power Market Survey model. These parameters are:

- Transmission and distribution loss rates
- The rates of growth in consumption per consumer
- Load factors for each consumption category
- Coincidence or diversity factors

The definition and basic derivation of each is discussed below.

3.4 Growth Rates

The forecast calculations, as will be discussed below, use per consumer growth rates to update the previous year's consumption before adding the incremental consumption estimate for the current year. The Power Market Survey model requires per consumer growth rates to be specified by DISCO for each consumption category (domestic, commercial, etc). The rates selected for the forecast are based on average annual compound growth rates, calculated from the last six years data of each consumer category in each DISCO.

3.5 Losses

For every 100 units of electricity purchased from a power station only 75 to 85 units are actually sold to the ultimate end-user. The remainder is consumed by the power system itself in the transmission and distribution of the sold energy. These transmission and distribution losses must be added to the sales forecast in order to determine the total generation requirement for the system. An additional source of "loss" is the consumption in auxiliaries (also called station service) used by the power plants in the process of generating electricity. Auxiliary consumption cannot be avoided and is totally dependent on the type of generation system. For example, a thermal plant would have a higher station service than a hydro plant to account for the energy consumed by fuel and waste handling systems. Auxiliary losses are determined and incorporated in the forecast outside the model.

Within the Power Market Survey model, distribution losses are expressed as a percentage of sales and transmission losses as a percentage of the energy purchased from the generating stations. The model is capable of handling different loss rates of each year for each DISCO. The distribution and transmission losses used in the Power Market Survey Model are based on the review of current loss rates and an evaluation of existing loss reduction initiatives within PEPCO. The losses proposed, distribution losses at 11kV and transmission losses at 132 kV, are applied DISCO-wise. A separate excel sheet has been developed outside the model to calculate the loss rates needed for the model. The loss rates have been set to match observed performance.

3.6 Load Factors

Energy sale in each consumption category is converted to peak power demand through the use of a load factor. It expresses the ratio of the amount of energy actually consumed to the amount that would have been consumed, had the peak rate been continued over the entire period. Load factors can be calculated over any time period but the most common are daily, weekly and annual.

The load factors utilized in the Power Market Survey Model relate annual energy sales to peak capacity for each consumer category (domestic, commercial, public lighting, small industries and private tube wells). Input load factors are not required for medium/large industry, public tube well and traction sales as consumption for these sectors is provided through the survey in both energy and power terms.

Maximum demand readings are available directly for large industrial and other demand metered consumers such as public tube wells. Load factors for non-demand metered

consumers are determined on a sample basis. For example, peak demand is based on maximum demand readings from substation feeders which are identified as serving predominantly one sector.

Domestic and commercial load factors are differentiated by community size (village, town or city). Whereas a single load factor is used for small industrial, private tube wells, public lighting and traction because of the similar nature in the operation of these loads. While there is some variation in the load factors within the domestic and commercial sectors, there are no differences in any of the load factors by DISCO.

3.7 Coincidence Factors

The total energy demand of a number of individual consumers is determined as the simple sum of their individual energy consumption values. The total peak load, however, is calculated as the diversified sum of their individual peak load levels. The coincidence factor, as its name implies, is a general term which measures the coincidence between the peak loads of any number of individual consumers or consumer groups over a specified time period in order to compute a combined peak. Mathematically, it is the inverse of the diversity factor.

The daily coincidence factor is determined by comparing the daily load patterns of each consumer or group under consideration. In this case, the sum of the individual hourly (or 15-minute) peaks would determine the overall daily load pattern and the overall peak load. If, for example, one consumer (or group) consumes energy only in the morning and a second group consume only in the evening, the coincidence factor between these two consumers would be zero and the peak load of the combined group would be the peak of the larger consumer. Conversely, if both groups consumed all energy at the same hour, the coincidence factor would be one and the combined peak would be the sum of the two peaks. In practice, the coincidence factor is found between these two extremes.

Coincidence factors can be determined between any group and sub-group of consumers whether it is domestic versus commercial or Lahore versus Islamabad, provided that reasonable estimates of the appropriate load patterns are available. Typically, these patterns are not readily available and must be synthesized from incomplete or estimated data. In addition, all coincidence factors calculated from these load patterns are approximations of the corresponding instantaneous peak faced by the system. In fact, a common practice is to define this instantaneous peak as the bench mark and specify all coincidence factors in relation to this peak and time. The advantage of this approach is that all peak can be easily converted into their contribution to the overall system peak, the disadvantage is that the relationship between any two groups cannot be so clearly specified and will likely be incorrectly specified.

The Power Market Survey Model depends upon specified coincidence factors between consumption categories and between consumption areas in the aggregation of peak loads from consumers to the peaks at grid stations and at DISCO level and at the level of overall system peak. The coincidence factors estimated for the medium term model have been based on the limited available PEPCO records of the peak loads at various points in their respective systems.

4 PMS Forecast Results

4.1 Recorded Forecast (Excluding Load Shedding)

The term 'recorded' means the sale used in forecast that has not been adjusted for un-served energy (load shedding). Forecast of sale, transmission and distribution losses, generation requirement and peak demand without load shedding has been shown in Table 1-1.

4.2 Computed Forecast (Including Load Shedding)

The term 'computed' means the sale used in forecast has been adjusted for un-served energy (load shedding). Forecasted sale, transmission and distribution losses, generation requirement and peak demand with load shedding has been shown on Table 1-2. Peak demand of this table has been demonstrated graphically in Figure 1-6. Similarly energy sale and energy Purchased also have been shown in Figure 1-7, the difference shows all losses of the DISCO. This is also the base forecast. If there had not been the load shedding the recorded forecast would have been the actual forecast i.e. the base forecast.

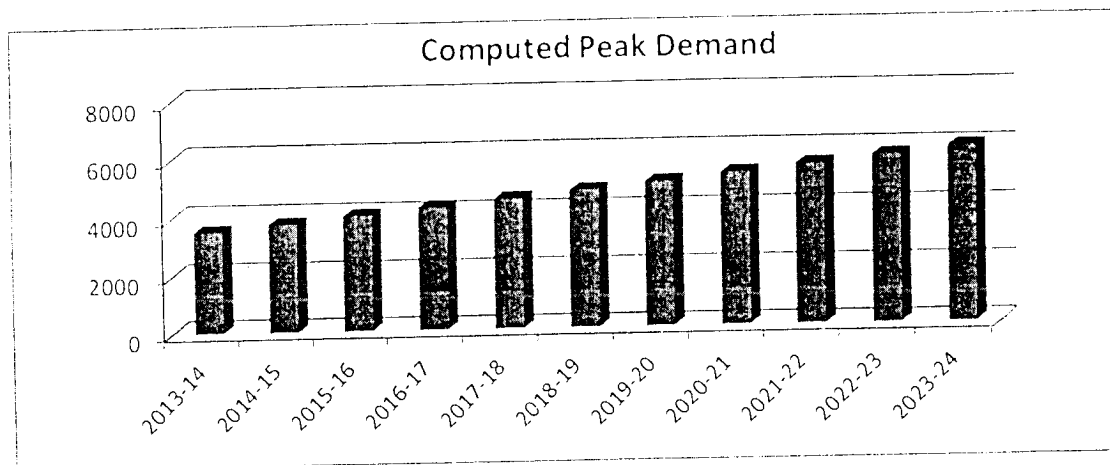


Figure 1- 6: Computed Peak Demand

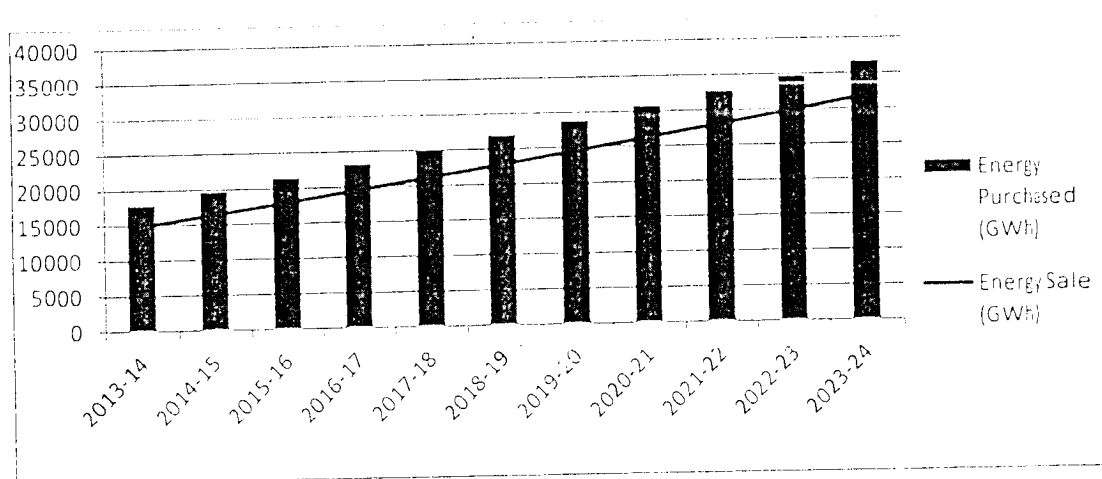


Figure 1- 7: Energy Purchased vs. Energy Sale

4.3 Category-wise Forecasted Energy Sale (GWh)

Percentage share of each consumer category in total sale of year 2015-16 and year 2022-23 has been depicted in Figure 1-8.

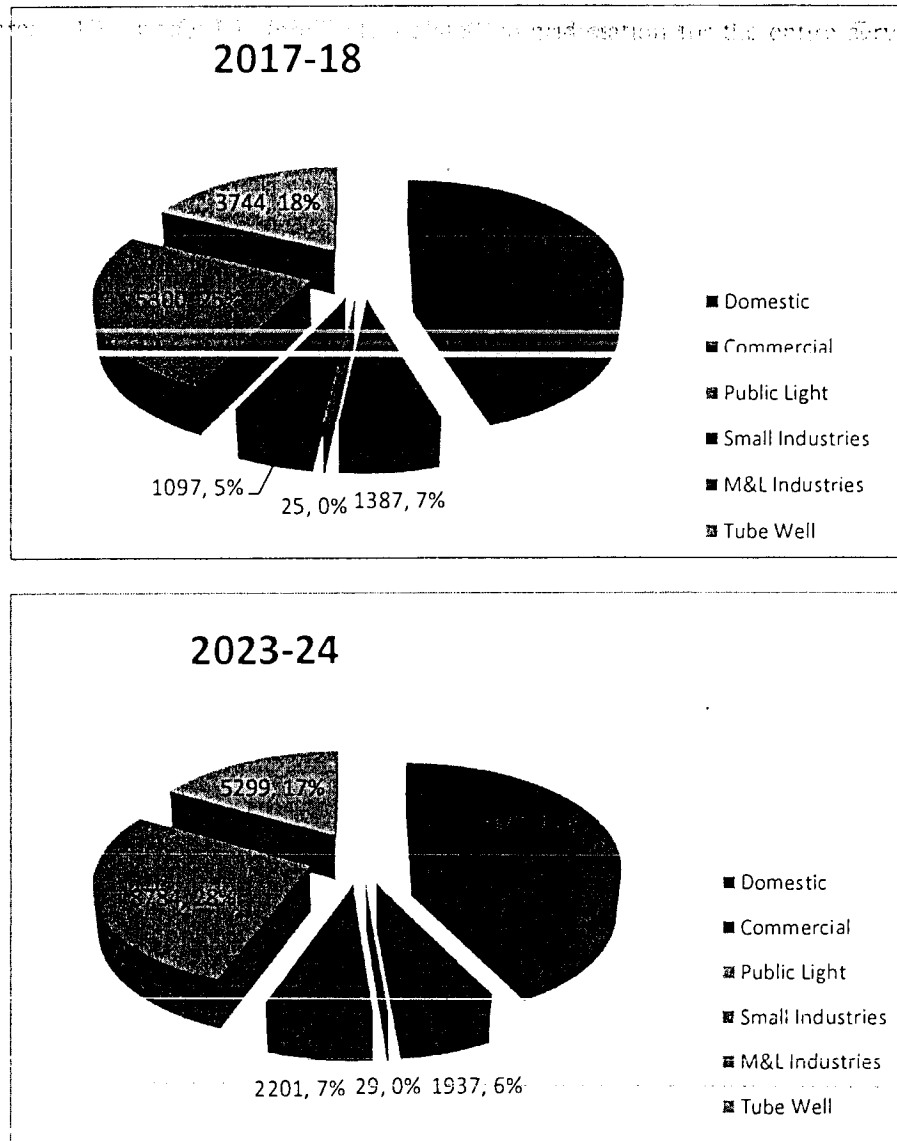


Figure 1- 8: Forecasted Category-wise Sale

The category-wise forecasted sale with and without load shedding are shown in Table 1-3 and 1-4 respectively.

4.4 Category-wise Power Demand (MW)

The forecast of consumption (sale) in terms of Mega Watts with and without load shedding is shown in Table 1-5 and Table 1-6 respectively.

4.5 Peak Demand of Substations

A projection at a sub-station is the most peculiar feature of this report. It is indeed a very rare and useful forecast. It's the base of transmission system expansion planning. It also provides a very solid ground for proposing a new sub-station or augmentation, extension and conversion of a sub-station. Only distribution losses have been considered in preparing the grid station peak demand.

The peak demand of each substation, existing as well as proposed, situated in the service area of the DISCO has been shown in the Table 1-26.

4.6 Per capita consumption

Per capita consumption is a very vivid indicator of development in a country. Usually developed countries have very high per capita consumption. The consumption for the years 2015-16, 2021-22 and 2022-23 are obtained from forecasted data. Per capita consumption (kWh/person) is given in Figure 1-9.

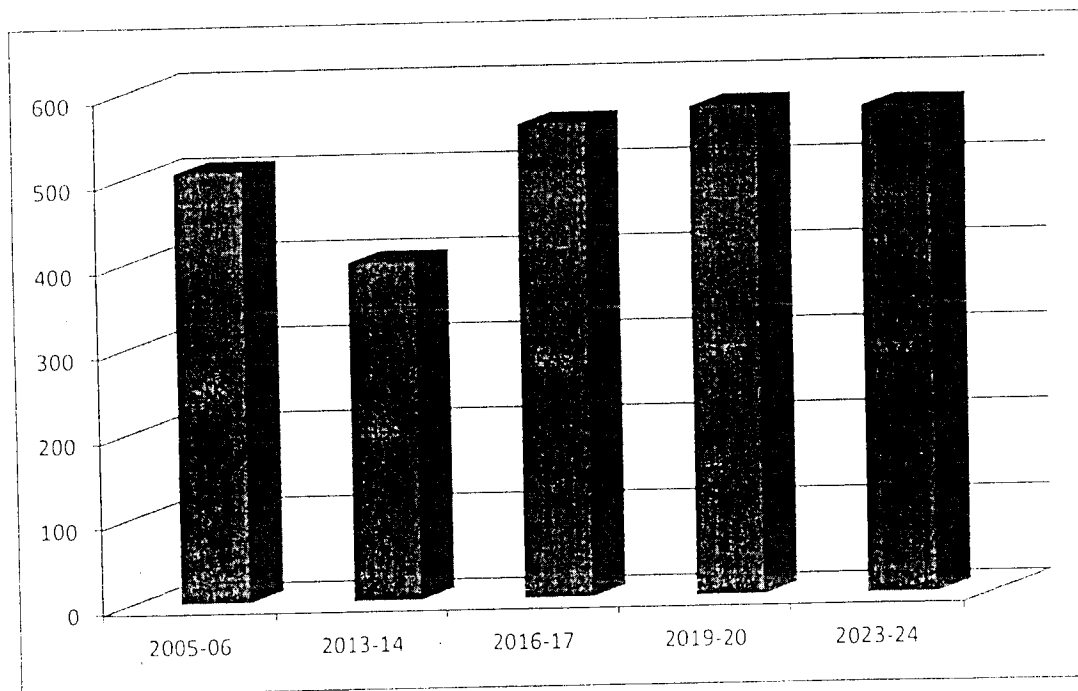


Figure 1- 9: Per Capita Consumption

4.7 Category-wise Substation-wise Energy and Demand Projections

The category-wise substation-wise energy and demand projections have been presented in Table 1-27. The last column of the table contains power factor and reactive power values. In order to reduce the volume of the report, only the values last year are presented i.e. 2022-23.

4.8 Civil Administrative Area Forecast

The MEPCO service area comprises of three civil administrative divisions and 12 districts. Divisions are Multan, Bahawalpur, and D.G. Khan. Districts are Multan, Vehari, Sahiwal, Pakpattan, Khanewal, Rajanpur, Muzaffar Ghar, Lehia, D.G. Khan, R.Y. Khan, Bahawalpur and Bahawal Nagar. The District-wise and Division-wise energy and demand projections have been presented in tables 1-7 to 1-21.

4.9 Monthly Demand (MW) Projections

The Month-wise demand (MW) projections of the respected DISCO have been presented in Table 1-22. To develop this projection the average of monthly computed peak demand of last five years is calculated and their month factors are obtained. MEPCO peak demand was 3350 which had been recorded in the month of May.

4.10 List of Overloaded Substations

There have been several incidents of damage and fire at a number of sub-stations across the country due to overloading and they need augmentation or addition of a transformer. The list of overloaded substation will inform about that particular year in which a substation will be overloaded. The overloading criterion of a substation has been considered as 85% i.e. when any substation is 85% loaded the remedial measures should be taken in the form of new substation or augmentation of the existing transformers. Table 1-23 and Table 1-24 shows the list of overloaded substations based on overloading criterion of 85% and 100% respectively.

Table 1- HPMs Recorded Forecast (Excluding Load Shedding)

Year	Energy Sale		Distribution Losses		Transmission Losses		Energy Sent out	Load Factor	Peak Demand
	(GWh)	G.R	(GWh)	(%)	(GWh)	(%)	(GWh)	(%)	(MW)
2013-14	11437		1938	14.0	484	3.49	13859	84	1887
2014-15	12874	12.6	2132	13.7	536	3.45	15542	84	2121
2015-16	14345	11.4	2316	13.4	586	3.40	17248	85	2322
2016-17	15851	10.5	2492	13.1	636	3.35	18979	85	2541
2017-18	17393	9.7	2658	12.8	686	3.31	20737	86	2766
2018-19	18973	9.1	2814	12.5	734	3.26	22522	86	2991
2019-20	20592	8.5	2960	12.2	782	3.21	24335	86	3227
2020-21	22252	8.1	3096	11.8	829	3.17	26177	87	3416
2021-22	23954	7.6	3221	11.5	875	3.12	28050	87	3679
2022-23	25699	7.3	3335	11.1	920	3.07	29955	88	3888
2023-24	27486	7.0	3436	10.8	964	3.02	31887	88	4146
Ave. Growth (2014-2024)	9.16%						8.69%		8.19%

Table 1- 2: PMS Base Forecast

Year	Energy Sale	Computed Energy Load Shed	G.R	Distribution Losses		Transmission Losses		Computed Energy Sent Out	Load Factor	Computed Peak Demand	G.R
	(GWh)	(GWh)	(%)	(GWh)	(%)	(GWh)	(%)	(GWh)	(%)	(MW)	(%)
2013-14	11437	14840		2515	14.5	627.8	3.49	17983	58	3570	
2014-15	12874	16349	10.2	2705	14.2	680.2	3.45	19734	59	3805	6.6
2015-16	14345	17894	9.5	2885	13.9	731.4	3.40	21510	61	4044	6.3
2016-17	15851	19476	8.8	3056	13.6	781.9	3.35	23314	62	4287	6.0
2017-18	17393	21098	8.3	3217	13.2	831.6	3.31	25146	63	4535	5.8
2018-19	18973	22760	7.9	3368	12.9	880.5	3.26	27008	64	4786	5.5
2019-20	20592	24463	7.5	3509	12.5	928.7	3.21	28901	65	5042	5.3
2020-21	22252	26211	7.1	3638	12.2	976.1	3.17	30825	66	5303	5.2
2021-22	23954	28003	6.8	3757	11.8	1022.7	3.12	32783	67	5568	5.0
2022-23	25699	29842	6.6	3864	11.5	1068.5	3.07	34774	68	5838	4.9
2023-24	27486	31727	6.3	3957	11.1	1112.6	3.02	36796	69	6113	4.7
Ave. Growth (2014-2024)	9.16%	7.89%						7.42%		5.53%	

Table 1- 3: Category-wise Sale – GWh (Excluding Load Shedding)

Year	Domestic		Commercial		Public Light		Small Industries		M&L Industries		Tube Well		Total	
	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R
2013-14	5527		813		17		305		2685		2090		11437	
2014-15	6070	9.8	889	9.3	18	3.1	477	56.2	3074	14.5	2347	12.3	12874	12.6
2015-16	6624	9.1	966	8.7	18	3.0	650	36.3	3482	13.3	2604	11.0	14345	11.4
2016-17	7189	8.5	1045	8.2	19	3.0	825	26.9	3911	12.3	2862	9.9	15851	10.5
2017-18	7766	8.0	1125	7.7	20	2.9	1002	21.4	4361	11.5	3119	9.0	17393	9.7
2018-19	8354	7.6	1208	7.3	20	2.9	1181	17.8	4834	10.8	3377	8.3	18973	9.1
2019-20	8954	7.2	1291	6.9	21	2.8	1361	15.3	5330	10.3	3636	7.6	20592	8.5
2020-21	9565	6.8	1377	6.6	21	2.8	1543	13.4	5851	9.8	3894	7.1	22252	8.1
2021-22	10189	6.5	1464	6.3	22	2.7	1727	11.9	6399	9.4	4153	6.6	23954	7.6
2022-23	10826	6.2	1553	6.1	22	2.7	1913	10.8	6973	9.0	4412	6.2	25699	7.3
2023-24	11472	6.0	1643	5.8	23	2.6	2100	9.8	7576	8.6	4671	5.9	27486	7.0
Ave. Growth (2014-2024)	7.58%		7.30%		2.86%		21.27%		10.93%		8.37%		9.16%	

Table 1- 4: Category-wise Sale – GWh (Base Forecast)

Year	Domestic		Commercial		Public Light		Small Industries		M&L Industries		Tube Well		Total	
	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R	Energy	G.R
2013-14	7171		1055		22		396		3484		2712		14840	
2014-15	7747	3.0	1135	7.6	23	2.6	569	43.5	3905	12.1	2969	9.5	16349	10.2
2015-16	8335	7.6	1217	7.2	24	2.6	743	30.6	4343	11.3	3227	8.7	17894	9.5
2016-17	8934	7.2	1301	6.9	24	2.5	919	23.7	4813	10.7	3485	8.0	19476	8.8
2017-18	9545	3.8	1387	6.6	25	2.5	1097	19.3	5300	10.1	3744	7.4	21098	8.3
2018-19	10169	3.5	1474	6.3	25	2.5	1276	16.4	5813	9.7	4002	6.9	22760	7.9
2019-20	10805	3.3	1563	6.0	26	2.4	1457	14.2	6350	9.3	4261	6.5	24463	7.5
2020-21	11454	3.0	1654	5.8	27	2.4	1640	12.6	6915	8.9	4520	6.1	26211	7.1
2021-22	12116	5.8	1747	5.6	27	2.4	1825	11.3	7503	8.6	4780	5.7	28003	6.8
2022-23	12791	5.6	1841	5.4	28	2.3	2012	10.2	8131	8.3	5039	5.4	29842	6.6
2023-24	13477	5.4	1937	5.2	29	2.3	2201	9.4	8784	8.0	5299	5.1	31727	6.3
Ave. Growth (2014-2024)	6.51%		6.27%		2.46%		18.70%		9.69%		6.93%		7.89%	

Table 1- 5: Category-wise Demand – MW (Excluding Load Shedding)

Year	Domestic		Commercial		Public Light		Small Industries		M&L Industries		Tube Well		Total	
	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R
2013-14	766		128		3		18		793		189		1558	
2014-15	878	14.6	147	14.4	3	7.5	30	62.7	864	9.0	221	17.0	1758	12.8
2015-16	978	11.4	163	11.2	3	5.0	42	39.0	922	6.6	250	13.1	1932	9.9
2016-17	1087	11.1	181	11.0	3	5.4	54	29.8	986	7.0	281	12.4	2124	9.9
2017-18	1200	10.4	200	10.3	3	5.1	67	24.0	1053	6.8	313	11.3	2322	9.3
2018-19	1314	9.5	218	9.4	3	4.6	80	19.8	1121	6.4	345	10.1	2522	8.6
2019-20	1434	9.1	238	9.1	4	4.6	94	17.3	1194	6.5	378	9.5	2733	8.4
2020-21	1534	7.0	255	6.9	4	2.9	107	13.5	1251	4.7	405	7.2	2906	6.3
2021-22	1669	8.7	277	8.7	4	4.8	122	14.2	1336	6.8	441	8.8	3144	8.2
2022-23	1779	6.6	295	6.6	4	3.0	136	11.1	1403	5.0	470	6.6	3338	6.2
2023-24	1913	7.5	317	7.5	4	4.1	151	11.4	1490	6.2	504	7.4	3576	7.1
Ave. Growth (2014-2024)	9.58%		9.48%		4.69%		23.43%		6.51%		10.31%		8.67%	

Table 1- 6: Category-wise Demand – MW (Including Load Shedding)

Year	Domestic		Commercial		Public Light		Small Industries		M&L Industries		Tube Well		Total	
	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R	Demand	G.R
2013-14	1450		242		5		35		1501		358		2947	
2014-15	1568	8.1	262	8.0	5	2.6	50	43.5	1569	4.6	392	9.5	3154	7.0
2015-16	1688	7.7	282	7.6	5	2.6	65	30.6	1641	4.6	426	8.7	3366	6.7
2016-17	1811	7.3	302	7.2	5	2.5	81	23.7	1716	4.6	460	8.0	3584	6.5
2017-18	1936	6.9	322	6.8	5	2.5	96	19.3	1795	4.6	494	7.4	3807	6.2
2018-19	2064	6.6	343	6.5	6	2.5	112	16.4	1878	4.6	528	6.9	4036	6.0
2019-20	2194	6.3	365	6.2	6	2.4	128	14.2	1966	4.6	562	6.5	4271	5.8
2020-21	2327	6.1	386	6.0	6	2.4	144	12.6	2057	4.7	596	6.1	4512	5.6
2021-22	2463	5.8	409	5.8	6	2.4	160	11.3	2154	4.7	630	5.7	4759	5.5
2022-23	2601	5.6	431	5.6	6	2.3	177	10.2	2255	4.7	665	5.4	5013	5.3
2023-24	2741	5.4	455	5.4	6	2.3	193	9.4	2361	4.7	699	5.1	5274	5.2
Ave. Growth (2014-2024)	6.58%		6.49%		2.45%		18.70%		4.64%		6.92%		5.99%	

Table 1- 7: District-wise Energy (GWh) and Demand (MW) Forecast For District: BahawalNagar

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	873	0.00	155	15.06	37	3.49	1065	39	308
2014-15	905	3.70	156	14.70	38	3.45	1099	39	319
2015-16	938	3.66	157	14.34	39	3.40	1134	39	331
2016-17	972	3.62	158	13.97	39	3.35	1170	39	342
2017-18	1007	3.58	159	13.60	40	3.31	1206	39	354
2018-19	1043	3.55	159	13.22	41	3.26	1243	39	367
2019-20	1080	3.52	159	12.85	41	3.21	1280	38	380
2020-21	1117	3.49	159	12.46	42	3.17	1318	38	393
2021-22	1156	3.46	159	12.08	42	3.12	1357	38	406
2022-23	1196	3.44	158	11.69	43	3.07	1397	38	420
2023-24	1237	3.41	158	11.30	43	3.02	1438	38	434
Ave. Growth (2014-2024)	3.54%						3.05%		3.48%

Table 1- 8: District-wise Energy (GWh) and Demand (MW) Forecast For District: Bahawal Pur

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1134	0.00	201	15.06	48	3.49	1383	45	347
2014-15	1196	5.46	206	14.70	50	3.45	1452	46	364
2015-16	1259	5.29	211	14.34	52	3.40	1522	46	381
2016-17	1324	5.14	215	13.97	53	3.35	1592	46	399
2017-18	1390	5.00	219	13.60	55	3.31	1664	46	417
2018-19	1458	4.87	222	13.22	57	3.26	1737	46	435
2019-20	1527	4.75	225	12.85	58	3.21	1811	46	454
2020-21	1598	4.64	228	12.46	60	3.17	1885	46	473
2021-22	1671	4.54	230	12.08	61	3.12	1961	45	492
2022-23	1745	4.45	231	11.69	63	3.07	2039	45	512
2023-24	1821	4.36	232	11.30	64	3.02	2117	45	533
Ave. Growth (2014-2024)	4.85%						4.35%		4.37%

Table 1- 9: District-wise Energy (GWh) and Demand (MW) Forecast For District: R.Y. Khan

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1480	0.00	262	15.06	63	3.49	1805	41	497
2014-15	1518	2.59	262	14.70	64	3.45	1843	41	511
2015-16	1557	2.60	261	14.34	64	3.40	1882	41	525
2016-17	1598	2.61	260	13.97	64	3.35	1922	41	540
2017-18	1640	2.62	258	13.60	65	3.31	1963	40	555
2018-19	1683	2.63	256	13.22	65	3.26	2005	40	570
2019-20	1727	2.64	255	12.85	66	3.21	2048	40	587
2020-21	1773	2.65	253	12.46	66	3.17	2092	40	603
2021-22	1820	2.66	250	12.08	67	3.12	2137	39	621
2022-23	1869	2.68	247	11.69	67	3.07	2184	39	638
2023-24	1919	2.69	244	11.30	67	3.02	2231	39	657
Ave. Growth (2014-2024)	2.64%						2.14%		2.82%

Table 1- 10: District-wise Energy (GWh) and Demand (MW) Forecast For District: D.G. Khan

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	630	0.00	85	11.91	26	3.49	742	39	217
2014-15	1518	1.56	85	11.66	26	3.45	751	39	221
2015-16	1557	1.57	84	11.41	26	3.40	760	38	226
2016-17	1598	1.59	83	11.16	26	3.35	769	38	231
2017-18	1640	1.61	82	10.89	26	3.31	779	38	236
2018-19	1683	1.63	81	10.63	26	3.26	789	37	241
2019-20	1727	1.65	80	10.36	26	3.21	799	37	246
2020-21	1773	1.67	79	10.08	26	3.17	810	37	252
2021-22	1820	1.69	78	9.80	26	3.12	820	36	257
2022-23	1869	1.71	77	9.52	26	3.07	831	36	263
2023-24	1919	1.73	75	9.23	25	3.02	843	36	269
Ave. Growth (2014-2024)	11.78%						1.29%		2.18%

Table 1- 11: District-wise Energy (GWh) and Demand (MW) Forecast For District: Leiah

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1131	0.00	140	11.01	46	3.49	1318	47	320
2014-15	1567	38.50	211	11.88	63	3.45	1842	53	393
2015-16	2014	28.52	280	12.20	81	3.40	2375	58	467
2016-17	2473	22.78	346	12.28	98	3.35	2917	61	542
2017-18	2944	19.05	410	12.21	115	3.31	3468	64	618
2018-19	3427	16.43	470	12.06	131	3.26	4029	66	694
2019-20	3924	14.49	528	11.86	148	3.21	4600	68	772
2020-21	4435	13.01	583	11.62	164	3.17	5181	70	850
2021-22	4959	11.83	634	11.34	180	3.12	5774	71	929
2022-23	5498	10.87	683	11.05	196	3.07	6377	72	1008
2023-24	6053	10.08	727	10.73	211	3.02	6991	73	1089
Ave. Growth (2014-2024)	18.26%						18.16%		13.04%

Table 1- 12: District-wise Energy (GWh) and Demand (MW) Forecast For District: Muzafar Garh

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1105	0.00	196	15.06	47	3.49	1348	52	294
2014-15	1597	44.56	275	14.70	67	3.45	1940	59	374
2015-16	2104	31.68	352	14.34	86	3.40	2542	64	453
2016-17	2624	24.73	426	13.97	106	3.35	3156	67	534
2017-18	3159	20.39	497	13.60	125	3.31	3781	70	616
2018-19	3709	17.42	565	13.22	144	3.26	4418	72	698
2019-20	4275	15.27	630	12.85	163	3.21	5068	74	782
2020-21	4858	13.63	692	12.46	76	3.17	5731	76	866
2021-22	5458	12.35	750	12.08	200	3.12	6408	77	951
2022-23	6076	11.32	804	11.69	218	3.07	7098	78	1038
2023-24	6712	10.47	855	11.30	236	3.02	7803	79	1125
Ave. Growth (2014-2024)	19.77%						19.19%		14.34%

Table 1- 13: District -wise Energy (GWh) and Demand (MW) Forecast For District: Rajan Pur

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	237	0.00	39	14.01	10	3.49	285	30	107
2014-15	241	1.94	38	13.69	10	3.45	290	30	110
2015-16	246	1.95	38	13.37	10	3.40	294	30	114
2016-17	251	1.96	38	13.04	10	3.35	298	29	117
2017-18	256	1.97	37	12.71	10	3.31	303	29	120
2018-19	261	1.98	37	12.37	10	3.26	308	28	124
2019-20	266	1.99	36	12.03	10	3.21	312	28	127
2020-21	271	2.00	36	11.68	10	3.17	317	28	131
2021-22	277	2.01	35	11.34	10	3.12	322	27	135
2022-23	282	2.02	35	10.98	10	3.07	327	27	139
2023-24	288	2.03	34	10.62	10	3.02	332	27	143
Ave. Growth (2014-2024)	1.99%						1.54%		2.90%

Table 1- 14: District -wise Energy (GWh) and Demand (MW) Forecast For District: Khanewal

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1216	0.00	216	15.06	52	3.49	1483	45	374
2014-15	1249	2.71	215	14.70	52	3.45	1516	45	385
2015-16	1283	2.72	215	14.34	53	3.40	1550	45	396
2016-17	1318	2.73	214	13.97	53	3.35	1585	44	407
2017-18	1354	2.75	213	13.60	54	3.31	1621	44	419
2018-19	1391	2.76	212	13.22	54	3.26	1658	44	431
2019-20	1430	2.78	211	12.85	54	3.21	1695	44	444
2020-21	1470	2.79	209	12.46	55	3.17	1734	43	456
2021-22	1511	2.81	208	12.08	55	3.12	1774	43	470
2022-23	1554	2.82	206	11.69	56	3.07	1816	43	484
2023-24	1598	2.84	204	11.30	56	3.02	1858	43	498
Ave. Growth (2014-2024)	2.77%						2.28%		2.89%

Table 1- 15: District -wise Energy (GWh) and Demand (MW) Forecast For District: Multan

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	3864	0.00	659	14.57	164	3.49	4687	47	1129
2014-15	3978	2.92	660	14.23	166	3.45	4803	47	1162
2015-16	4094	2.93	660	13.89	167	3.40	4922	47	1196
2016-17	4215	2.94	660	13.54	169	3.35	5044	47	1231
2017-18	4339	2.95	659	13.19	171	3.31	5170	47	1267
2018-19	4468	2.97	658	12.84	173	3.26	5299	46	1305
2019-20	4601	2.98	656	12.48	175	3.21	5432	46	1343
2020-21	4739	2.99	653	12.12	176	3.17	5568	46	1383
2021-22	4881	3.00	650	11.75	178	3.12	5709	46	1424
2022-23	5028	3.01	646	11.38	180	3.07	5854	46	1467
2023-24	5177	2.96	640	11.01	181	3.02	5998	45	1510
Ave. Growth (2014-2024)	2.97%						2.50%		2.95%

Table 1- 16: District -wise Energy (GWh) and Demand (MW) Forecast For District: Pakpattan

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	374	0.00	66	15.06	16	3.49	456	41	123
2014-15	537	43.64	93	14.70	22	3.45	652	48	153
2015-16	701	30.48	117	14.34	29	3.40	847	52	184
2016-17	865	23.44	140	13.97	35	3.35	1040	56	212
2017-18	1030	19.05	162	13.60	41	3.31	1233	59	240
2018-19	1195	16.06	182	13.22	46	3.26	1424	61	268
2019-20	1361	13.88	201	12.85	52	3.21	1614	62	293
2020-21	1528	12.23	218	12.46	57	3.17	1802	64	324
2021-22	1695	10.94	233	12.08	62	3.12	1990	65	351
2022-23	1862	9.89	247	11.69	67	3.07	2176	66	379
2023-24	2031	9.03	259	11.30	71	3.02	2361	66	407
Ave. Growth (2014-2024)	18.44%						17.87%		12.24%

Table 1- 17: District -wise Energy (GWh) and Demand (MW) Forecast For District: Sahiwal

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1547	0.00	274	15.06	66	65.88	1887	41	531
2014-15	1644	6.31	284	14.70	69	68.83	1997	41	556
2015-16	1744	6.02	292	14.34	72	3.40	2107	41	581
2016-17	1844	5.77	299	13.97	74	3.35	2218	42	607
2017-18	1946	5.54	306	13.60	77	3.31	2330	42	633
2018-19	2050	5.33	312	13.22	80	3.26	2442	42	660
2019-20	2155	5.14	318	12.85	82	3.21	2555	42	687
2020-21	2263	4.97	322	12.46	85	3.17	2669	43	714
2021-22	2372	4.82	326	12.08	87	3.12	2784	43	743
2022-23	2482	4.67	329	11.69	89	3.07	2900	43	772
2023-24	2595	4.54	331	11.30	91	3.02	3017	43	801
Ave. Growth (2014-2024)	5.31%						4.80%		4.19%

Table 1- 18: District -wise Energy (GWh) and Demand (MW) Forecast For District: Vehari

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	1248	0.00	221	15.06	53	53.17	1523	38	455
2014-15	1276	2.17	220	14.70	53	53.39	1549	38	467
2015-16	1303	2.13	218	14.34	54	3.40	1575	37	480
2016-17	1332	2.19	216	13.97	54	3.35	1602	37	493
2017-18	1361	2.20	214	13.60	54	3.31	1629	37	506
2018-19	1391	2.21	212	13.22	54	3.26	1657	36	520
2019-20	1422	2.22	210	12.85	54	3.21	1686	36	535
2020-21	1454	2.23	207	12.46	54	3.17	1715	36	550
2021-22	1487	2.24	204	12.08	54	3.12	1745	35	565
2022-23	1520	2.25	201	11.69	55	3.07	1776	35	581
2023-24	1555	2.27	198	11.30	55	3.02	1807	35	593
Ave. Growth (2014-2024)	2.22%						1.73%		2.77%

Table 1- 19: Division-wise Energy (GWh) and Demand (MW) Forecast For Division: Bahawalpur

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	3487	0.00	618	15.06	149	3.49	4254	43	1116
2014-15	3619	3.80	624	14.70	151	3.45	4395	43	1157
2015-16	3755	3.75	629	14.34	154	3.40	4538	43	1198
2016-17	3894	3.71	632	13.97	157	3.35	4684	43	1241
2017-18	4037	3.67	635	13.60	160	3.31	4833	43	1284
2018-19	4184	3.63	638	13.22	162	3.26	4984	43	1329
2019-20	4334	3.60	639	12.85	165	3.21	5138	43	1375
2020-21	4489	3.56	639	12.46	168	3.17	5296	42	1422
2021-22	4647	3.53	639	12.08	170	3.12	5456	42	1471
2022-23	4810	3.50	637	11.69	173	3.07	5620	42	1521
2023-24	4977	3.47	634	11.30	175	3.02	5786	42	1572
Ave. Growth (2014-2024)	3.62%						3.12%		3.48%

Table 1- 20: Division-wise Energy (GWh) and Demand (MW) Forecast For Division: D.G. Khan

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	3104	0.00	460	12.90	129	3.49	3692	46	909
2014-15	4046	30.37	609	13.09	166	3.45	4822	52	1064
2015-16	5014	23.92	754	13.07	203	3.40	5971	56	1221
2016-17	6008	19.83	893	12.94	239	3.35	7140	59	1379
2017-18	7030	17.00	1026	12.74	276	3.31	8331	62	1539
2018-19	8080	14.94	1153	12.49	311	3.26	9544	64	1702
2019-20	9159	13.36	1275	12.22	346	3.21	10780	66	1866
2020-21	10269	12.12	1390	11.92	381	3.17	12040	68	2032
2021-22	11411	11.12	1498	11.60	416	3.12	13324	69	2200
2022-23	12586	10.30	1599	11.27	450	3.07	14634	70	2371
2023-24	13795	9.61	1692	10.93	483	3.02	15970	72	2543
Ave. Growth (2014-2024)	16.09%						15.77%		10.84%

Table 1- 21: Division-wise Energy (GWh) and Demand (MW) Forecast For Division: Multan

Year	Energy Sale		Distribution Losses		Transmission Losses		Generation	Load Factor	Peak Demand
	(GWh)	G.R.(%)	(GWh)	%	(GWh)	%	(GWh)	%	(MW)
2013-14	8250	0.00	1437	14.83	350	3.49	10037	45	2535
2014-15	8683	5.26	1471	14.49	363	3.45	10517	45	2640
2015-16	9125	5.08	1502	14.14	374	3.40	11001	46	2748
2016-17	9574	4.92	1530	13.78	385	3.35	11489	46	2857
2017-18	10031	4.77	1555	13.42	396	3.31	11982	46	2969
2018-19	10496	4.64	1577	13.06	407	3.26	12480	46	3083
2019-20	10970	4.52	1595	12.69	417	3.21	12982	46	3200
2020-21	11453	4.40	1610	12.32	427	3.17	13489	46	3319
2021-22	11945	4.30	1621	11.95	437	3.12	14002	46	3441
2022-23	12447	4.20	1628	11.57	446	3	14521	46	3566
2023-24	12955	4.08	1631	11.18	455	3.02	15041	46	3693
Ave. Growth (2014-2024)	4.62%						4.13%		3.83%

Table 1- 22: Monthly Peak Demand Forecast

Year	July	August	September	October	November	December	January	February	March	April	May	June
	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)
2013-14	3481	3481	3381	3184	1996	2013	2413	2181	2592	2906	3570	3516
2014-15	3710	3710	3604	3394	2127	2146	2572	2325	2763	3098	3805	3748
2015-16	3943	3943	3830	3608	2261	2281	2734	2471	2936	3292	4044	3984
2016-17	4180	4180	4060	3824	2397	2418	2898	2620	3113	3490	4287	4223
2017-18	4421	4421	4294	4045	2535	2557	3065	2771	3292	3691	4535	4467
2018-19	4666	4666	4532	4269	2675	2699	3235	2924	3475	3896	4786	4714
2019-20	4916	4916	4775	4497	2818	2844	3408	3081	3660	4104	5042	4966
2020-21	5170	5170	5022	4730	2964	2991	3585	3240	3850	4316	5303	5223
2021-22	5429	5429	5273	4967	3112	3140	3764	3402	4042	4532	5568	5484
2022-23	5692	5692	5529	5208	3264	3293	3947	3567	4239	4752	5838	5751
2023-24	5960	5960	5789	5453	3417	3448	4132	3735	4438	4976	6113	6021

Table 1- 23: List of Overloaded Substations during Period 2012-13 to 2022-23 Overloading Criterion 85%

S.No.	Name	Rating KV	Grid #	Total Capacity (MVA)	Total Capacity (MW)	Overloading Criterion (MW)	Overloading Criterion (%)	Year of Overloading	Overloading Status (MW)	Power Factor
1	APE	132	2	52	43.68	37.13	85.00	2013-14	54.90	0.84
2	Arifwala	132	5	92	77.28	65.69	85.00	2013-14	89.90	0.84
3	Bahawalpur	132	8	92	82.80	70.38	85.00	2013-14	85.40	0.90
4	Bahawal Nagar	132	9	28.6	24.60	20.91	85.00	2013-14	62.00	0.86
5	Basti Malook	132	12	52	44.20	37.57	85.00	2013-14	73.10	0.85
6	Bonga Hayat	132	17	39	31.98	27.18	85.00	2013-14	29.70	0.82
7	Bosan Road	132	18	92	82.80	70.38	85.00	2013-14	93.40	0.90
8	Burewala	132	20	78	66.30	56.36	85.00	2013-14	73.80	0.85
9	Chichawatni	132	27	66	56.10	47.69	85.00	2013-14	66.60	0.85
10	Choubara	132	29	13	11.57	9.84	85.00	2014-15	7.00	0.89
11	Chowk Munda	132	31	26	22.88	19.45	85.00	2013-14	22.70	0.88
12	D.G Khan	132	33	92	81.88	69.60	85.00	2013-14	104.30	0.89
13	Damar Wala	132	36	23	20.47	17.40	85.00	2013-14	12.40	0.89
14	Garah More	132	42	26	21.84	18.56	85.00	2013-14	31.60	0.84
15	Gujrat South	132	52	32.3	28.75	24.44	85.00	2013-14	33.40	0.89
16	Harappa	132	58	52	44.20	37.57	85.00	2013-14	46.50	0.85
17	Industrial Esta	132	65	78	67.86	57.68	85.00	2013-14	78.20	0.87
18	Jahanian	132	69	52	43.68	37.13	85.00	2013-14	59.80	0.84
19	Jatoi	132	75	23	20.47	17.40	85.00	2013-14	24.30	0.89
20	Khair Pur	132	83	39	32.76	27.85	85.00	2018-19	25.40	0.84
21	Kabirwala	132	87	52	44.72	38.01	85.00	2013-14	66.60	0.86
22	Kacha Khuh	132	88	52	43.16	36.69	85.00	2013-14	51.50	0.83
23	Khanpur	132	102	52	46.28	39.34	85.00	2013-14	68.30	0.89
24	Khanewal	132	103	66	55.44	47.12	85.00	2013-14	88.60	0.84
25	Khanewal Rd	132	104	78	68.64	58.34	85.00	2013-14	109.10	0.83
26	Kot Addu	132	112	39	34.71	29.50	85.00	2013-14	49.90	0.89
27	Liaquatpur	132	122	26	23.14	19.67	85.00	2013-14	31.30	0.89
28	Lodhran	132	123	78	64.74	55.03	85.00	2013-14	91.30	0.83
29	Mehra Khas	132	131	39	34.71	29.50	85.00	2013-14	35.90	0.89
30	MESCO	132	132	92	82.80	70.38	85.00	2013-14	133.20	0.90

S.No.	Name	Rating	Grid #	Total Capacity	Total Capacity	Overloading Criterion	Overloading Criterion	Year of Overloading	Overloading Status	Power Factor
		KV		(MVA)	(MW)	(MW)	(%)		(MW)	
31	Mian Channu	132	133	80	68.00	57.80	85.00	2013-14	77.40	0.85
32	Muzafar Garh	132	140	92	81.88	69.60	85.00	2013-14	95.90	0.89
33	Noor A.Wali	132	148	26	21.58	18.34	85.00	2013-14	27.30	0.83
34	Prak Pattan	132	154	92	76.36	64.91	85.00	2013-14	83.00	0.83
35	Qabula	132	165	52	42.64	36.24	85.00	2013-14	47.60	0.82
36	Qadirabad	132	166	39	33.15	28.18	85.00	2013-14	33.80	0.85
37	Qasim Pur	132	168	92	79.12	67.25	85.00	2013-14	90.00	0.86
38	R.Y.Khan	132	171	92	80.04	68.03	85.00	2013-14	121.10	0.87
39	Sadiqabad	132	181	92	78.20	66.47	85.00	2013-14	95.60	0.85
40	Samma Satta	132	186	39	34.32	29.17	85.00	2019-20	29.10	0.88
41	Noor Pur	132	196	39	31.98	27.18	85.00	2013-14	35.60	0.82
42	Taunsa	132	216	26	21.84	18.56	85.00	2013-14	33.40	0.84
43	Mehari	132	219	65	54.60	46.41	85.00	2013-14	77.20	0.84
44	Mehari Road	132	220	92	78.20	66.47	85.00	2013-14	86.70	0.85
45	Ali Pur	66	229	26	21.84	18.56	85.00	2013-14	25.60	0.84
46	Chishtian	66	253	2.5	2.25	1.91	85.00	2013-14	1.50	0.90
47	Daharanwala	66	261	13	11.57	9.84	85.00	2013-14	17.50	0.89
48	Fazal Pur	66	274	13	10.92	9.28	85.00	2013-14	23.00	0.84
49	Fort Abbas	66	276	26	23.14	19.67	85.00	2018-19	19.60	0.89
50	Jalal Pur Pirwa	132	285	65	53.95	45.86	85.00	2013-14	63.70	0.83
51	Jam Pur	66	293	13	11.57	9.84	85.00	2013-14	16.00	0.89
52	K.P.T	66	297	26	21.32	18.12	85.00	2013-14	30.00	0.82
53	Lal Sohanra	66	313	5	4.25	3.61	85.00	2013-14	6.00	0.85
54	Layyah	132	316	39	34.71	29.50	85.00	2013-14	43.10	0.89
55	Ludden	132	317	39	31.98	27.18	85.00	2013-14	29.60	0.82
56	Mecload Gunj	66	327	13	11.57	9.84	85.00	2013-14	21.00	0.89
57	Shuja Abad	132	374	52	43.16	36.69	0.00	2013-14	55.40	0.83
58	Head Sidnai	66	376	26	22.88	19.45	0.00	2013-14	36.40	0.88
59	Uch Sharif	66	397	13	11.57	9.84	85.00	2013-14	10.80	0.89
60	Wazman	66	404	13	11.57	9.84	85.00	2013-14	18.00	0.89

S.No.	Name	Rating	Grid #	Total Capacity	Total Capacity	Overloading Criterion	Overloading Criterion	Year of Overloading	Overloading Status	Power Factor
		KV		(MVA)	(MW)	(MW)	(%)		(MW)	
61	Hasilpur	132	472	52	43.68	37.13	85.00	2013-14	47.40	0.84
62	Chak-211/WB	132	528	26	21.58	18.34	85.00	2013-14	29.40	0.83
63	Feroza	132	530	13	11.05	9.39	85.00	2013-14	19.90	0.85
64	Khan Bela	132	533	26	23.14	19.67	85.00	2013-14	34.60	0.89
65	Mianwali Quresh	132	534	26	21.84	18.56	85.00	2013-14	35.40	0.84
66	Sakhi Sarwar	132	535	10	8.60	7.31	85.00	2013-14	7.50	0.86
67	Sheikh Fazil	132	536	39	32.76	27.85	85.00	2013-14	44.40	0.84
68	Sahuka	132	537	39	31.98	27.18	85.00	2013-14	31.20	0.82
69	Chak No. 83/12L	66	538	25.5	21.17	17.99	85.00	2013-14	30.20	0.83
70	Dajal	66	540	6.3	5.29	4.50	85.00	2013-14	4.70	0.84
71	Faqir Wali	66	541	26	23.40	19.89	85.00	2013-14	22.10	0.90
72	Karor Iali San	66	542	19.3	16.21	13.78	85.00	2013-14	23.80	0.84
73	Kot Sultan	66	543	11	9.79	8.32	85.00	2013-14	9.70	0.89
74	Kot Chutta	132	544	52	45.76	38.90	85.00	2016-17	38.80	0.88
75	Minchanabad	66	545	22.3	19.62	16.68	85.00	2013-14	17.10	0.88
76	Noor Sar	66	546	13	11.57	9.84	85.00	2013-14	11.20	0.89
77	Shah Sadarudin	66	547	11.9	10.12	8.60	85.00	2013-14	9.10	0.85
78	Shadan Lund	66	548	19.3	16.21	13.78	85.00	2013-14	17.40	0.84
79	Rang Pur	66	549	5	4.40	3.74	85.00	2013-14	2.60	0.88
80	Mailsi	132	552	78	64.74	55.03	85.00	2013-14	64.60	0.83
81	Chotti	66	602	12.5	10.38	8.82	85.00	2013-14	11.80	0.83
82	Maroot	66	606	20.5	16.81	14.29	85.00	2013-14	25.70	0.82
83	Baghdad	132	626	39	34.71	29.50	85.00	2013-14	43.50	0.89

S.No.	Name	Rating	Grid #	Total Capacity	Total Capacity	Overloading Criterion	Overloading Criterion	Year of Overloading	Overloading Status	Power Factor
		KV		(MVA)	(MW)	(MW)	(%)		(MW)	
76	Noor Sar	66	546	13	11.57	9.84	85.00	2013-14	11.20	0.89
77	Shah Sadarudin	66	547	11.9	10.12	8.60	85.00	2013-14	9.10	0.85
78	Shadan Lund	66	548	19.3	16.21	13.78	85.00	2013-14	17.40	0.84
79	Fang Pur	66	549	5	4.40	3.74	85.00	2013-14	2.60	0.88
80	Mailsi	132	552	78	64.74	55.03	85.00	2013-14	64.60	0.83
81	Chhoti	66	602	12.5	10.38	8.82	85.00	2013-14	11.80	0.83
82	Maroot	66	606	20.5	16.81	14.29	85.00	2013-14	25.70	0.82
83	Eaghdad	132	626	39	34.71	29.50	85.00	2013-14	43.50	0.89
84	Fateh Pur	66	642	13	11.57	9.84	85.00	2013-14	20.60	0.89
85	Karam Pur	132	685	39	31.59	26.85	85.00	2016-17	26.20	0.81
86	Chishtian New	132	728	52	43.68	37.13	85.00	2013-14	64.90	0.84
87	Campur	132	743	26	23.14	19.67	85.00	2013-14	30.50	0.89
88	Makhdom Rashid	132	766	26	21.58	18.34	85.00	2013-14	33.50	0.83
89	F.Y.Khan-II	132	767	39	34.32	29.17	85.00	2013-14	36.60	0.88
90	Khan Garh	132	769	13	11.57	9.84	85.00	2013-14	12.60	0.89
91	Mau Abad	220	815	26	21.58	18.34	85.00	2013-14	25.30	0.83
92	Head Rajkan	66	852	13	10.92	9.28	85.00	2013-14	9.40	0.84
93	Haroonabad	132	924	52	46.28	39.34	85.00	2013-14	42.50	0.89
94	Harro Pakka	132	927	66	54.12	46.00	85.00	2013-14	69.90	0.82
95	Uch Sharif	132	932	26	21.58	18.34	85.00	2016-17	18.10	0.83
96	Dunya Pur	132	982	39	32.37	27.52	85.00	2013-14	32.10	0.83
97	MLT WAPDA Town	132	1041	52	46.80	39.78	85.00	2018-19	39.10	0.90

Table 1- 24: List of Overloaded Substations during Period 2012-13 to 2022-23 Overloading Criterion 100%

S.No.	Name	Rating	Grid #	Total Capacity	Total Capacity	Overloading Criterion	Overloading Criterion	Year of Overloading	Over loading Status	Power Factor
		KV		(MVA)	(MW)	(MW)	(%)		(MW)	
1	APE	132	2	52	43.68	43.68	100.00	2013-14	54.90	0.84
2	Arifwala	132	5	92	77.28	77.28	100.00	2013-14	89.90	0.84
3	Bahawalpur	132	8	92	82.80	82.80	100.00	2013-14	85.40	0.90
4	Bahawal Nagar	132	9	28.6	24.60	24.60	100.00	2013-14	62.00	0.86
5	Basti Malook	132	12	52	44.20	44.20	100.00	2013-14	73.10	0.85
6	Bonga Hayat	132	17	39	31.98	31.98	100.00	2013-14	29.70	0.82
7	Bosan Road	132	18	92	82.80	82.80	100.00	2013-14	93.40	0.90
8	Burewala	132	20	78	66.30	66.30	100.00	2013-14	73.80	0.85
9	Chichawatni	132	27	66	56.10	56.10	100.00	2013-14	66.60	0.85
10	Choubara	132	29	13	11.57	11.57	100.00	2015-16	10.20	0.89
11	Chowk Munda	132	31	26	22.88	22.88	100.00	2013-14	22.70	0.88
12	D.G Khan	132	33	92	81.88	81.88	100.00	2013-14	104.30	0.89
13	Damar Wala	132	36	23	20.47	20.47	100.00	2014-15	19.20	0.89
14	Garah More	132	42	26	21.84	21.84	100.00	2013-14	31.60	0.84
15	Gujrat South	132	52	32.3	28.75	28.75	100.00	2013-14	33.40	0.89
16	Harappa	132	58	52	44.20	44.20	100.00	2013-14	46.50	0.85
17	Industrial Esta	132	65	78	67.86	67.86	100.00	2013-14	78.20	0.87
18	Jahanian	132	69	52	43.68	43.68	100.00	2013-14	59.80	0.84
19	Jatoi	132	75	23	20.47	20.47	100.00	2013-14	24.30	0.89
20	Khair Pur	132	83	39	32.76	32.76	100.00	2019-20	29.20	0.84
21	Kabirwala	132	87	52	44.72	44.72	100.00	2013-14	66.60	0.86
22	Kacha Khuh	132	88	52	43.16	43.16	100.00	2013-14	51.50	0.83
23	Khanpur	132	102	52	46.28	46.28	100.00	2013-14	63.30	0.89
24	Khanewal	132	103	66	55.44	55.44	100.00	2013-14	88.60	0.84
25	Khanewal Rd	132	104	78	68.64	68.64	100.00	2013-14	109.10	0.88
26	Kot Addu	132	112	39	34.71	34.71	100.00	2013-14	49.90	0.89
27	Liaquatpur	132	122	26	23.14	23.14	100.00	2013-14	31.30	0.89
28	Lodhran	132	123	78	64.74	64.74	100.00	2013-14	91.30	0.83
29	Mehra Khas	132	131	39	34.71	34.71	100.00	2013-14	35.90	0.89
30	MESCO	132	132	92	82.80	82.80	100.00	2013-14	133.20	0.90
31	Mian Channu	132	133	80	68.00	68.00	100.00	2013-14	77.40	0.85

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S.No.	Name	Rating	Grid #	Total Capacity (MVA)	Total Capacity (MW)	Overloading Criterion (MW)	Overloading Criterion (%)	Year of Overloading	Overloading Status (MW)	Power Factor
32	Muzafar Garh	132	140	92	81.88	81.88	100.00	2013-14	95.90	0.89
33	Noor A.Wali	132	148	26	21.58	21.58	100.00	2013-14	27.30	0.83
34	Fak Pattan	132	154	92	76.36	76.36	100.00	2013-14	83.00	0.83
35	Tabula	132	165	52	42.64	42.64	100.00	2013-14	47.60	0.82
36	Qadirabad	132	166	39	33.15	33.15	100.00	2013-14	33.80	0.85
37	Qasim Pur	132	168	92	79.12	79.12	100.00	2013-14	50.00	0.86
38	F.Y.Khan	132	171	92	80.04	80.04	100.00	2013-14	121.10	0.87
39	Sadiqabad	132	181	92	78.20	78.20	100.00	2013-14	95.60	0.85
40	Noor Pur	132	196	39	31.98	31.98	100.00	2013-14	35.60	0.82
41	Taunsa	132	216	26	21.84	21.84	100.00	2013-14	33.40	0.84
42	Vehari	132	219	65	54.60	54.60	100.00	2013-14	77.20	0.84
43	Vehari Road	132	220	92	78.20	78.20	100.00	2013-14	86.70	0.85
44	Ali Pur	66	229	26	21.84	21.84	100.00	2013-14	25.60	0.84
45	Chishtian	66	253	2.5	2.25	2.25	100.00	2013-14	1.50	0.90
46	Daharanwala	66	261	13	11.57	11.57	100.00	2013-14	17.50	0.89
47	Fazal Pur	66	274	13	10.92	10.92	100.00	2013-14	23.00	0.84
48	Jalal Pur Pirwa	132	285	65	53.95	53.95	100.00	2013-14	63.70	0.83
49	Jam Pur	66	293	13	11.57	11.57	100.00	2013-14	16.00	0.89
50	K.P.T	66	297	26	21.32	21.32	100.00	2013-14	30.00	0.82
51	Lal Sohanra	66	313	5	4.25	4.25	100.00	2013-14	6.00	0.85
52	Layyah	132	316	39	34.71	34.71	100.00	2013-14	43.10	0.89
53	Ludden	132	317	39	31.98	31.98	100.00	2015-16	31.20	0.82
54	Mecload Gunj	66	327	13	11.57	11.57	100.00	2013-14	21.00	0.89
55	Shuja Abad	132	374	52	43.16	43.16	100.00	2013-14	55.40	0.83
56	Head Sidnai	66	376	26	22.88	22.88	100.00	2013-14	36.40	0.88
57	Uch Sharif	66	397	13	11.57	11.57	0.00	2014-15	11.30	0.89
58	Yazman	66	404	13	11.57	11.57	0.00	2013-14	18.00	0.89
59	Hasilpur	132	472	52	43.68	43.68	100.00	2013-14	47.40	0.84
60	Chak-211/WB	132	528	26	21.58	21.58	100.00	2013-14	29.40	0.83
61	Peroza	132	530	13	11.05	11.05	100.00	2013-14	19.90	0.85
62	Khan Bela	132	533	26	23.14	23.14	100.00	2013-14	24.60	0.89

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S.No.	Name	Rating KV	Grid #	Total Capacity (MVA)	Total Capacity (MW)	Overloading Criterion (MW)	Overloading Criterion (%)	Year of Overloading	Overloading Status (MW)	Power Factor
63	Mianwali Quresh	132	534	26	21.84	21.84	100.00	2013-14	35.40	0.84
64	Sakhi Sarwar	132	535	10	8.60	8.60	100.00	2020-21	8.50	0.86
65	Sheikh Fazil	132	536	39	32.76	32.76	100.00	2013-14	44.40	0.84
66	Sahuka	132	537	39	31.98	31.98	100.00	2014-15	31.90	0.82
67	Chak No.83/12L	66	538	25.5	21.17	21.17	100.00	2013-14	30.20	0.83
68	Dajal	66	540	6.3	5.29	5.29	100.00	2019-20	5.20	0.84
69	Faqir Wali	66	541	26	23.40	23.40	100.00	2014-15	22.90	0.90
70	Karor Iali San	66	542	19.3	16.21	16.21	100.00	2013-14	23.80	0.84
71	Kot Sultan	66	543	11	9.79	9.79	100.00	2013-14	9.70	0.89
72	Kot Chutta	132	544	52	45.76	45.76	100.00	2021-22	45.70	0.88
73	Minchanabad	66	545	22.3	19.62	19.62	100.00	2016-17	19.00	0.88
74	Noor Sar	66	546	13	11.57	11.57	100.00	2013-14	11.20	0.89
75	Shah Sadarudin	66	547	11.9	10.12	10.12	100.00	2018-19	10.00	0.85
76	Shadan Lund	66	548	19.3	16.21	16.21	100.00	2013-14	17.40	0.84
77	Rang Pur	66	549	5	4.40	4.40	100.00	2014-15	3.80	0.88
78	Mailsi	132	552	78	64.74	64.74	100.00	2013-14	64.60	0.83
79	Chotti	66	602	12.5	10.38	10.38	100.00	2013-14	11.80	0.83
80	Maroot	66	606	20.5	16.81	16.81	100.00	2013-14	25.70	0.82
81	Baghdad	132	626	39	34.71	34.71	100.00	2013-14	43.50	0.89
82	Fateh Pur	66	642	13	11.57	11.57	100.00	2013-14	20.60	0.89
83	Chishtian New	132	728	52	43.68	43.68	100.00	2013-14	64.90	0.84
84	Jampur	132	743	26	23.14	23.14	100.00	2013-14	30.50	0.89
85	Makhdum Rashid	132	766	26	21.58	21.58	100.00	2013-14	33.50	0.83
86	R.Y.Khan-II	132	767	39	34.32	34.32	100.00	2013-14	36.60	0.88
87	Khan Garh	132	769	13	11.57	11.57	100.00	2013-14	12.60	0.89
88	Nau Abad	220	815	26	21.58	21.58	100.00	2013-14	25.30	0.83
89	Head Rajkan	66	852	13	10.92	10.92	100.00	2017-18	10.70	0.84
90	Haroonaabad	132	924	52	46.28	46.28	100.00	2015-16	45.20	0.89
91	Karor Pakka	132	927	66	54.12	54.12	100.00	2013-14	53.90	0.82
92	Uch Sharif	132	932	26	21.58	21.58	100.00	2021-22	21.30	0.83
93	Dunya Pur	132	982	39	32.37	32.37	100.00	2017-18	32.20	0.83

Table 1- 25: List of Grids with their Codes & MVA Capacities

POWER MARKET SURVEY
List of Grids With Their Codes And MVA Capacities For MEPCO

SR. No.	Grid No.	KV	Grid Name	Transformers				(MVA) Total	SR. No.	Grid No.	KV	Grid Name	Transformers				(MVA) Total
				T1	T2	T3	T4						T1	T2	T3	T4	
1	2	132	APE	26	26			52	2	5	132	Arifwala	26	40	26		92
3	8	132	Bahawalpur	26	40	26		92	4	9	132	Bahawal Nagar	3	26			29
5	12	132	Basti Malook	26	26			52	6	17	132	Bonga Hayat	26	13			39
7	18	132	Bosan Road	26	26	40		92	8	20	132	Burewala	26	26			52
9	27	132	Chichawatni	40	26			66	10	29	132	Choubara	13				13
11	31	132	Chowk Munda	26				26	12	33	132	D.G Khan	26	40	26		92
13	36	132	Damar Wala	10	13			23	14	42	132	Garah More	13	13			26
15	52	132	Gujrat South	26	6			32	16	58	132	Harappa	26	26			52
17	65	132	Industrial Esta	26	26	26		78	18	69	132	Jahanian	26	26			52
19	75	132	Jatoi	10	13			23	20	87	132	Kabirwala	26	26			52
21	88	132	Kacha Khuh	26	26			52	22	102	132	Khanpur	26	26			52
23	103	132	Khanewal	26	40			66	24	104	132	Khanewal Rd	26	26	26		78
25	112	132	Kot Addu	13	26			39	26	122	132	Liaquatpur	13	13			26
27	123	132	Lodhran	26	26	26		78	28	131	132	Mehra Khas	13	26			39
29	132	132	MESCO	26	40	26		92	30	133	132	Mian Channu	40	40			80
31	140	132	Muzafar Garh	26	40	26		92	32	148	132	Noor A.Wali	26				26
33	154	132	Pak Pattan	40	26	26		92	34	165	132	Qabula	26	26			52
35	166	132	Qadirabad	26	13			39	36	168	132	Qasim Pur	26	26	40		92

P O W E R M A P K E T S U R V E Y
List of Grids With Their Codes And MVA Capacities For MEPCO

SR. No.	Grid No.	KV	Grid Name	Transformers				(MVA) Total	SR. No.	Grid No.	KV	Grid Name	Transformers				(MVA) Total
				T1	T2	T3	T4						T1	T2	T3	T4	
37	171	132	R.Y.Khan	26	40	26		92	38	181	132	Sadiqabad	40	26	26		92
39	186	132	Samna Satta	13	26			39	40	196	132	Noor Pur	26	13			39
41	216	132	Taunsa	13	13			26	42	219	132	Vehari	26	26	13		65
43	220	132	Vehari Road	26	40	26		92	44	229	66	Ali Pur	13	13			26
45	253	66	Chishtian	3				3	46	261	66	Daharanwala	13				13
47	274	66	Fazal Pur	13				13	48	276	66	Fort Abbas	13	13			26
49	293	66	Jam Pur	13				13	50	297	66	K.P.T	13	13			26
51	313	66	Lal Sohanra	5				5	52	316	132	Layyah	1	26			26
53	317	132	Ludden	13	26			39	54	327	66	Mecload Gunj	13				13
55	374	132	Shuja Abad	26	26			52	56	376	66	Head Sidnai	13	13			26
57	397	66	Uch Sharif	13				13	58	404	66	Yarman	14				14
59	472	132	Hasilpur	26	26			52	60	528	132	Chak-211/WB	13	13			26
61	530	132	Feroza	13				13	62	533	132	Khan Bela	26				26
63	534	132	Mianwali Quresh	26				26	64	535	132	Sakhi Sarwar	10				10
65	536	132	Sheikh Fazil	26	13			39	66	537	132	Sahuka	26	13			39
67	538	66	Chak No.83/12L	13	13			26	68	540	66	Dajal	6				6
69	541	66	Faqir Wali	13	13			26	70	542	66	Karor lali San	13	6			19
71	543	66	Kot Sultan	6	5			11	72	544	132	Kot Chutta	26	13			39

POWER MARKET SURVEY
List of Grids With Their Codes And MVA Capacities For MEPCO

SR. No.	Grid No.	KV	Grid Name	Transformers				(MVA) Total	SR. No.	Grid No.	KV	Grid Name	Transformers				(MVA) Total
				T1	T2	T3	T4						T1	T2	T3	T4	
73	545	66	Minchanabad	9	13			22	74	546	66	Noor Sar	13				13
75	547	66	Shah Sadarudin	9	3			12	76	548	66	Shadan Lund	13	6			19
77	549	66	Rang Pur	5				5	78	550	66	Nawan Kot	5				5
79	552	132	Mailsi	26	26	26		78	80	584	220	Yousaf Wala	13	13	13	26	65
81	602	66	Chotti	13				13	82	606	66	Maroot	13	8			21
83	626	132	Baghdad	13	26			39	84	642	66	Fateh Pur	13				13
85	685	132	Karam Pur	13	26			39	86	705	132	Fort Manro	8				8
87	728	132	Chishtian New	26	26			52	88	743	132	Jampur	26				26
89	766	132	Makhdom Rashid	13	13			26	90	769	132	Khan Garh	13				13
91	852	66	Head Rajkan	13				13	92	924	132	Haroonaabad	26	26			52
93	927	132	Karcor Pakka	40	26			66	94	932	132	Uch Sharif	13	13			26
95	982	132	Dunya Pur	13	26			39	96	1041	132	MLT WAPDA Town	26	26			52

Table 1- 26: Maximum Demand (MW) of Substations

POWER MARKET SURVEY LOAD CENTRE SUMMARY MAXIMUM DEMAND (MW) OF SUBSTATIONS														
DISCO: MEPCO														
GRID NO.	NAME OF GRIDSTATION	KV	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
1.	584 220 KV Y/Wala	500	29.7	30.7	31.7	32.7	33.7	34.8	35.9	37.0	38.2	39.3	40.4	41.5
2.	815 220 KV Nau Ab	220	25.3	26.1	27.0	27.8	28.7	29.7	30.7	31.6	32.7	33.7	34.8	35.9
3.	818 220 KV FARCO	220	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2
4.	806 220 KV Vehari	220	16.2	16.5	16.7	17.0	17.3	17.6	17.8	18.1	18.4	18.7	19.0	19.3
5.	133 M/Channu	132	77.4	79.4	81.4	83.5	85.6	87.8	90.1	92.4	94.8	97.3	99.8	102.3
6.	186 S-Satta	132	22.8	23.8	24.8	25.8	26.8	27.9	29.1	30.3	31.5	32.7	34.0	35.2
7.	193 Swi Old	132	77.8	81.4	85.3	89.9	94.6	99.4	104.3	109.3	114.3	119.3	124.3	129.3
8.	959 A.Hassan Tex	132	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
9.	2 APE	132	54.9	57.4	60.0	62.7	65.4	68.1	71.0	73.9	76.8	79.9	82.7	85.7
10.	891 Alhand Texti	132	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
11.	5 Arifwala	132	89.9	92.1	94.9	98.1	101.4	104.8	108.3	111.8	115.3	118.8	122.3	125.8
12.	9 B/Nagar	132	62.0	64.3	66.7	69.2	71.7	74.3	77.0	79.8	82.6	85.6	88.6	91.6
13.	8 BWP	132	95.4	92.5	99.6	106.9	114.3	121.9	129.5	137.3	145.3	153.3	161.3	169.3
14.	1068 BWP Cantt	132	17.8	18.6	19.4	20.2	21.0	21.9	22.8	23.7	24.7	25.7	26.7	27.7
15.	626 Bagh Iad	132	43.5	44.8	46.0	47.6	49.1	50.6	52.0	53.6	55.1	56.7	58.3	59.9
16.	12 Basti Malook	132	73.1	75.1	77.5	80.0	82.8	85.6	88.5	91.5	94.5	97.5	100.5	103.5
17.	17 Bonga Hayat	132	29.7	38.6	47.5	56.4	65.3	74.1	82.9	91.7	100.5	109.3	118.1	126.9
18.	18 Besan Road	132	93.4	95.9	98.5	101.2	104.0	106.9	109.7	112.7	115.8	118.9	122.0	125.1
19.	20 Burewala New	132	73.5	75.9	78.1	80.4	82.9	85.2	87.7	90.1	92.6	95.1	97.6	100.1
20.	1001 Burewala Old	132	39.3	38.2	37.0	35.9	34.8	33.7	32.7	31.6	30.7	29.7	28.7	27.7
21.	779 CTR Ismailat	132	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7
22.	528 Char Jil/WB	132	29.4	30.3	31.7	33.1	34.1	35.2	36.3	37.4	38.5	39.6	40.7	41.8
23.	725 Chishtian	132	64.9	66.9	69.0	71.0	73.4	75.7	78.1	80.6	83.1	85.6	88.1	90.6
24.	29 Ch. Jil/WB	132	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
25.	1001 Ch. Jil/WB	132	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1

POWER MARKET SURVEY

LOAD CENTRE SUMMARY
MAXIMUM DEMAND (MW) OF GRIDSTATIONS

DISCO: MEPCO

GRID NO.	NAME OF GRIDSTATION	KV	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
26.	31 Chowk Munda	132	22.7	29.1	35.6	42.1	48.7	55.4	62.1	69.0	75.9	82.9	90.1
27.	706 DG Cemen: Fa	132	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
28.	33 DG Khan	132	104.3	107.2	110.1	113.2	116.4	119.7	123.1	126.6	130.3	134.1	138.0
29.	36 Damar Wala	132	12.4	19.2	26.0	32.8	39.8	46.7	53.8	60.9	68.0	75.3	82.5
30.	982 Dunya Pur	132	32.1	33.1	30.2	31.2	32.2	33.3	34.4	35.5	36.7	37.9	39.2
31.	530 Feroza	132	19.9	20.5	21.0	21.6	22.2	22.8	23.5	24.1	24.8	25.5	26.2
32.	705 Fort Manroo	132	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9
33.	42 G/More	132	31.6	32.6	33.5	34.6	35.6	36.7	37.9	39.1	40.3	41.5	42.8
34.	52 Gujrat South	132	33.4	45.4	57.5	69.7	82.0	94.4	107.0	119.8	132.7	145.7	158.9
35.	58 Harappa	132	46.5	48.1	49.8	51.5	53.3	55.1	57.0	59.0	61.0	63.1	65.2
36.	924 Haroonabad	132	42.5	43.8	45.2	46.7	48.1	49.6	51.2	52.7	54.3	56.0	57.8
37.	472 Hasilpur	132	47.4	49.1	50.9	45.6	47.4	49.3	51.2	53.2	55.2	57.3	59.4
38.	775 Hota	132	14.3	14.5	14.7	15.0	15.2	15.4	15.7	16.0	16.2	16.5	16.8
39.	285 J Pur Pithwal	132	63.7	65.4	67.1	68.9	70.7	72.7	74.7	76.8	78.9	81.2	83.5
40.	531 J.D.W	132	56.7	58.5	60.4	62.3	64.4	66.5	68.7	71.1	73.5	76.0	78.6
41.	69 Jahanian	132	59.8	61.6	63.5	65.4	67.4	69.5	71.6	73.8	76.1	78.5	81.0
42.	1072 Jail Road	132	8.2	8.5	8.9	9.2	9.6	10.0	10.4	10.8	11.2	11.7	12.2
43.	743 Jam Pur	132	30.5	31.6	32.6	33.7	34.9	36.1	37.3	38.6	40.0	41.4	42.9
44.	75 Jatoi	132	24.3	31.4	38.5	45.8	53.1	60.6	68.1	75.7	83.4	91.2	99.1
45.	533 K. Bela	132	34.6	35.6	36.6	37.7	38.8	39.9	41.1	42.3	43.6	44.9	46.2
46.	112 K/Adu	132	49.9	67.4	85.2	103.1	121.2	139.4	157.9	176.6	195.5	214.6	233.9
47.	88 K/Khun	132	51.5	53.1	54.7	56.4	58.1	59.9	61.8	63.7	65.7	67.8	70.0
48.	87 K/Wala	132	66.6	68.8	65.2	67.5	69.8	72.3	74.8	77.4	80.1	82.9	85.8
49.	102 KNP	132	68.3	70.2	72.2	74.3	76.4	78.5	80.8	83.1	85.5	87.9	90.4
50.	103 KWL	132	88.6	91.0	93.5	96.0	98.7	101.4	104.2	107.1	110.1	113.2	116.4

POWER MARKET SURVEY

LOAD CENTER SUMMARY
MAXIMUM DEMAND (MW) OF GRIDSTATIONS

DISCO: MEPCO

GRID NO.	NAME OF GRIDSTATION	V KV	Y E A R										
			2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
51.	164 KWL Road	132	109.1	113.3	117.5	122.0	126.8	131.7	136.9	142.2	147.4	152.6	157.8
52.	685 Karam Pur	132	24.4	25.0	25.6	26.2	26.9	27.6	28.3	29.0	29.8	30.6	31.3
53.	927 Karor Pacca	132	69.9	71.7	73.6	75.6	77.7	79.8	82.0	84.2	86.3	88.5	90.7
54.	83 Khair Pur Ga	132	6.5	10.2	14.0	17.7	21.5	25.4	29.2	33.1	37.0	40.9	44.8
55.	769 Khan Garh	132	12.6	17.9	23.3	28.8	34.2	39.8	45.4	51.1	56.9	62.7	68.5
56.	544 Kot Chutta	132	35.2	36.3	37.5	38.8	40.0	41.4	42.8	44.2	45.7	47.3	48.9
57.	122 LQP	132	31.3	32.1	33.0	33.9	34.9	35.7	36.7	37.5	38.6	39.9	41.1
58.	780 Lar	132	13.0	13.3	13.7	14.1	14.5	14.9	15.3	15.7	16.1	16.6	17.1
59.	316 Layyah	132	43.1	57.7	72.5	87.5	102.6	117.9	133.3	148.9	164.7	180.6	196.5
60.	123 Lodhran	132	91.3	94.2	97.2	94.2	97.3	100.5	103.8	107.1	110.6	114.2	117.8
61.	317 Ludden	132	29.6	30.4	31.2	32.1	32.9	33.9	34.8	35.8	36.8	37.9	38.9
62.	140 M.Garh	132	95.9	113.6	131.5	149.7	168.1	186.9	206.0	225.4	245.1	265.1	285.5
63.	766 M/Pashin	132	33.5	34.6	35.7	36.8	38.1	39.4	40.7	42.1	43.5	45.0	46.4
64.	132 MESCO	132	133.2	137.5	142.0	146.7	151.5	156.4	161.5	166.6	172.3	177.9	183.7
65.	534 MWQ	132	35.4	36.6	37.9	39.1	40.5	41.8	43.3	44.7	46.1	47.8	49.1
66.	131 Mahra Khas	132	39.9	48.6	61.4	74.3	87.4	100.7	114.1	127.6	141.1	155.1	169.1
67.	552 Mallisi	132	64.6	66.3	68.1	69.9	71.8	73.8	75.8	77.9	80.1	82.3	84.5
68.	1059 Makhdoom Pur	132	14.1	14.6	15.2	15.8	16.4	17.1	17.7	18.4	19.1	19.8	20.5
69.	148 NA Wali	132	27.3	27.9	28.5	29.2	29.9	30.6	31.3	32.1	32.9	33.7	34.5
70.	1058 Nawazabad	132	5.7	5.7	5.7	5.8	5.8	5.8	5.9	5.9	6.0	6.1	6.1
71.	196 Noor Pur	132	35.6	45.1	54.6	64.0	73.4	82.9	92.3	101.7	111.1	120.4	129.8
72.	934 PACO S.Paccha	132	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
73.	724 PACO R/Pur	132	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
74.	223 - 441AC-DGH	132	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
75.	154 Pindriyan	132	8.1	10.4	12.7	15.0	17.3	19.6	21.9	24.2	26.5	28.8	31.1

POWER MARKET SURVEY

LOAD CENTRE SUMMARY
MAXIMUM DEMAND (MW) OF GRIDSTATIONS

DISCO: MEPCO

GRID NO.	NAME OF GRIDSTATION	KV	Y	E	A	R	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
76.	166 Q/Abad	132	33.8	35.3	36.8	38.3	39.9	41.5	43.2	45.0	46.8	48.7	50.6				
77.	165 Qaboola	132	47.6	48.9	50.3	51.8	53.3	54.9	56.5	58.2	60.0	61.8	63.7				
78.	763 Qasim Bagh	132	25.9	26.6	27.4	28.1	28.9	29.8	30.6	31.5	32.4	33.3	34.3				
79.	168 QasimPur	132	90.0	92.8	95.7	98.6	101.6	104.8	108.0	111.3	114.7	118.2	121.9				
80.	171 R.Y.K	132	121.1	124.8	128.5	132.3	136.3	140.4	144.7	149.0	153.6	158.3	163.1				
81.	767 R.Y.K-II	132	36.6	37.6	38.7	39.8	40.9	42.1	43.3	44.5	45.8	47.1	48.5				
82.	354 Rajan Pur	132	47.0	48.4	49.8	51.2	52.7	54.3	55.9	57.6	59.4	61.2	63.1				
83.	589 Rojhan	132	5.4	5.6	5.7	5.8	6.0	6.1	6.3	6.4	6.6	6.7	6.9				
84.	181 S.D.K	132	95.6	97.8	100.0	102.3	104.8	107.2	109.8	112.5	115.2	118.0	121.0				
85.	535 S/Sarwer	132	7.5	7.6	7.8	7.9	8.1	8.2	8.4	8.5	8.7	8.9	9.1				
86.	1089 Sahiwal III	132	8.5	9.0	9.5	10.0	10.5	11.0	11.6	12.2	12.7	13.4	14.0				
87.	537 Sahuka	132	31.2	31.9	32.6	33.3	34.1	34.9	35.7	36.5	37.4	38.2	39.2				
88.	536 Sheikh fazal	132	44.4	45.6	46.8	48.0	49.2	50.6	51.9	53.3	54.8	56.3	57.9				
89.	374 Shujabad	132	55.4	57.0	58.6	60.2	61.9	63.6	65.4	67.3	69.2	71.2	73.2				
90.	551 Swl New	132	49.5	51.0	52.6	54.3	56.0	57.7	59.5	61.4	63.3	65.3	67.3				
91.	216 Taunsa	132	33.4	34.2	35.0	35.9	36.8	37.8	38.8	39.8	40.8	41.9	43.0				
92.	932 Uch Sharif	132	16.3	16.9	17.5	18.1	18.7	19.4	20.0	20.7	21.3	22.0	22.7				
93.	219 Vehari	132	77.2	79.3	81.5	83.8	86.2	88.6	91.2	93.8	96.5	99.3	102.3				
94.	220 Vehari. Foad	132	86.7	89.2	91.8	94.4	97.1	99.8	102.7	105.6	108.7	111.9	115.0				
95.	1041 WAPDA Town	132	33.6	34.6	35.7	36.8	37.9	39.1	40.3	41.5	42.8	44.1	45.4				
96.	27 chichawatni	132	66.6	68.0	69.4	70.9	72.4	74.0	75.6	77.2	78.9	80.7	82.6				
97.	65 ind.Estate	132	78.2	80.8	83.5	86.2	89.1	92.1	95.1	98.3	101.5	104.9	108.4				
98.	4004 chunawala	132	0.0	0.0	0.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.9				
99.	4002 kamir	132	0.0	0.0	19.2	19.5	19.7	20.0	20.2	20.5	20.7	21.0	21.3				
100.	4001 man Kot	132	0.0	0.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9				

POWER MARKET SURVEY

LOAD CENTRE SUMMARY
MAXIMUM DEMAND (MW) OF GRIDSTATIONS

DISCO: MEPCO

GRID NO.	NAME OF GRIDSTATION	KV	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
101.	4003 miran pur	132	0.0	0.0	17.4	17.5	17.7	17.9	18.0	18.1	18.4	18.5	18.7
102.	274 Fazal Pur	66	23.0	23.7	24.4	25.2	26.0	26.8	27.7	28.6	29.7	30.8	31.9
103.	297 K.P.T	66	30.0	31.0	31.9	32.9	34.0	35.1	36.2	37.3	38.5	39.7	41.0
104.	313 Lal Scharra	66	6.0	6.3	6.7	7.0	7.4	7.7	8.1	8.4	8.8	9.2	9.6
105.	547 66 KV S.S.Oi	66	9.1	9.3	9.5	9.6	9.8	10.0	10.2	10.4	10.6	10.8	11.0
106.	229 66 KV Ali Pur	66	25.6	26.5	27.5	28.6	29.7	30.8	31.9	33.0	34.2	35.4	36.6
107.	538 66 KV Chak Ho	66	30.2	30.9	31.7	32.5	33.4	34.2	35.1	36.1	37.1	38.1	39.1
108.	253 66 KV Chishti	66	1.5	2.4	3.3	4.2	5.1	6.1	7.0	7.9	8.9	9.8	10.8
109.	602 66 KV Chetti	66	11.8	12.1	12.4	12.8	13.1	13.4	13.8	14.1	14.5	14.8	15.2
110.	261 66 KV Dahanra	66	17.5	17.9	18.3	18.6	19.0	19.4	19.8	20.2	20.7	21.1	21.5
111.	540 66 KV Dajal	66	4.7	4.8	4.9	5.0	5.0	5.1	5.2	5.3	5.4	5.4	5.5
112.	541 66 KV Faqirwa	66	22.1	22.9	23.7	24.5	25.4	26.3	27.1	28.1	29.1	30.1	31.1
113.	642 66 KV Fateh P	66	20.6	20.6	20.9	21.0	21.4	21.8	22.4	23.0	23.6	24.2	24.8
114.	276 66 KV Fortabb	66	16.8	17.3	17.8	18.4	19.0	19.6	20.2	20.8	21.4	22.0	22.6
115.	852 66 KV Heed Ka	66	9.4	9.7	10.0	10.3	10.7	11.0	11.3	11.7	12.1	12.4	12.8
116.	293 66 KV Jam Pur	66	16.0	16.5	17.0	17.4	18.2	18.6	19.4	20.1	20.9	21.4	22.0
117.	542 66 KV Kurei	66	23.8	24.2	24.6	25.0	25.4	25.8	26.2	26.6	27.0	27.4	27.8
118.	297 66 KV Kot Kha	66	10.5	11.3	11.9	12.4	12.9	13.5	14.0	14.6	15.1	15.7	16.2
119.	543 66 KV Kot Gul	66	9.7	10.8	11.1	11.4	11.7	12.0	12.3	12.6	12.9	13.2	13.5
120.	545 66 KV M/Abad	66	17.1	17.7	18.3	18.9	19.7	20.4	21.2	21.9	22.7	23.4	24.1
121.	606 66 KV Marhota	66	21.7	22.6	23.4	24.2	25.0	25.8	26.6	27.4	28.2	29.0	29.8
122.	327 66 KV Mehar G	66	21.0	21.8	22.6	23.4	24.2	25.0	25.8	26.6	27.4	28.2	29.0
123.	550 66 KV Nawab K	66	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.6
124.	546 66 KV Nara 24	66	11.1	11.3	11.5	11.7	11.9	12.1	12.3	12.5	12.7	12.9	13.1
125.	549 66 KV Rany Pa	66	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

POWER MARKET SURVEY

LOAD CENTRE SUMMARY
MAXIMUM DEMAND (MW) OF GRIDSTATIONS

DISCO: MEPCO

GRID NO.	NAME OF GRIDSTATION	KV	Y	E	A	R								
			2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	
126.	548 66 KV S/Lund	66	17.4	17.8	18.2	18.7	19.1	19.6	20.1	20.6	21.2	21.7	22.3	
127.	404 66 KV Yaznan	66	18.0	18.6	19.2	19.8	20.5	21.1	21.8	22.5	23.2	23.9	24.6	
128.	376 Sidnai	66	36.4	37.5	38.6	39.7	40.9	42.1	43.3	44.6	45.9	47.2	48.6	
Total L.C.			4783.6	5101.4	5424.8	5753.1	6088.1	6429.2	6776.5	7129.8	7490.3	7857.4	8231.5	

Table 1- 27: Category-wise Maximum Demand (MW) of Substations 2022-23

POWER MARKET SURVEY
CATEGORY-WISE GRIDSTATION LOAD FOR DISCO

DISCO: MEPCO		YEAR: 2023-24										TOTAL & POWER FACTOR		
SR. GRID	NAME OF GRID STATION	DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	M & L INDUSTRIES	TUBE WELLS	TRACTION	PRIVATE	PUBLIC	UTILIZATION	BEAT-1000 MW		
1.	133	132KV	H/Chandu	GWh	215.42	20.16	0.20	5.44	179.92	69.76	0.00	0.00	484.89	0.99
		MW	61.32	6.59	0.06	1.13	40.85	13.74	0.00	0.00	0.00	0.00	57.00	
2.	134	132KV	S-Satta	GWh	29.94	6.29	0.00	1.24	86.29	6.11	0.00	0.00	131.59	0.98
		MW	9.11	2.39	0.00	0.13	29.52	1.48	0.00	0.00	0.00	0.00	14.70	
3.	135	132KV	Sul Old	GWh	159.66	21.28	0.40	6.91	129.83	36.02	0.00	0.00	394.20	0.99
		MW	45.58	5.58	0.12	0.84	65.77	6.58	0.00	0.00	0.00	0.00	61.50	
4.	259	132KV	A.Hassan Text	GWh	0.00	0.00	0.00	0.00	44.16	0.00	0.00	0.00	44.16	0.99
		MW	0.00	0.00	0.00	0.00	12.60	0.00	0.00	0.00	0.00	0.00	6.00	
5.	2	132KV	APE	GWh	168.92	25.93	0.18	16.58	18.22	57.55	0.00	0.00	189.39	0.98
		MW	46.66	8.58	0.06	2.02	33.62	10.51	0.00	0.00	0.00	0.00	54.10	
6.	891	132KV	Alhamd Textil	GWh	0.00	0.00	0.00	0.00	84.09	0.00	0.00	0.00	84.09	0.99
		MW	0.00	0.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	24.00	
7.	5	132KV	Arifwala	GWh	167.99	15.98	0.20	7.22	44.50	81.05	0.00	0.00	317.21	0.99
		MW	51.14	5.44	0.06	0.88	61.55	14.91	0.00	0.00	0.00	0.00	71.00	
8.	6	132KV	B/Nadar	GWh	159.73	31.36	0.02	4.79	79.81	25.27	0.00	0.00	366.62	0.99
		MW	40.79	9.16	0.01	0.58	50.02	4.62	0.00	0.00	0.00	0.00	14.00	
9.	8	132KV	BWP	GWh	506.41	113.58	1.23	4.89	39.24	2.10	0.00	0.00	161.50	0.99
		MW	116.69	31.74	0.37	0.60	39.24	2.10	0.00	0.00	0.00	0.00	37.50	
10.	1068	132KV	BWP Cantt	GWh	55.77	4.91	0.04	0.81	2.76	3.03	0.00	0.00	67.33	0.99
		MW	13.85	1.37	0.01	0.10	15.98	0.55	0.00	0.00	0.00	0.00	14.00	
11.	606	132KV	Bachawal	GWh	152.82	40.46	0.33	1.50	42.21	18.56	0.00	0.00	256.23	0.99
		MW	40.44	12.39	0.12	0.23	14.06	3.39	0.00	0.00	0.00	0.00	24.00	
12.	12	132KV	Basti Balokh	GWh	75.83	3.50	0.00	0.42	69.12	16.49	0.00	0.00	94.61	0.99
		MW	13.08	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13.	17	132KV	Bonga Hayat	GWh	33.00	1.70	0.00	47.53	1.35	560.17	0.00	0.00	114.70	0.99
		MW	10.05	0.64	0.00	5.79	28.78	102.31	0.00	0.00	0.00	0.00	114.70	
14.	18	132KV	Bosan Road	GWh	321.54	82.37	4.13	9.02	21.91	5.91	0.00	0.00	444.85	0.99
		MW	73.61	21.77	1.20	1.10	44.92	1.09	0.00	0.00	0.00	0.00	60.00	
15.	20	132KV	Burewala New	GWh	197.72	21.61	0.03	2.86	81.86	44.41	0.00	0.00	354.48	0.99
		MW	55.34	6.80	0.01	1.08	49.18	8.11	0.00	0.00	0.00	0.00	61.00	
16.	1001	132KV	Burewala Old	GWh	43.13	1.99	0.00	2.40	27.19	37.92	0.00	0.00	112.61	0.99
		MW	9.85	0.41	0.00	0.29	30.68	6.93	0.00	0.00	0.00	0.00	41.00	
17.	109	132KV	CTM Ismailpura	GWh	0.00	0.00	0.00	0.00	149.69	0.00	0.00	0.00	149.69	0.99
		MW	0.00	0.00	0.00	0.00	42.72	0.00	0.00	0.00	0.00	0.00	37.00	
18.	608	132KV	Chak 211WR	GWh	49.76	2.82	0.00	1.84	6.30	20.30	0.00	0.00	77.04	0.99
		MW	15.11	1.03	0.00	0.22	29.29	4.87	0.00	0.00	0.00	0.00	4.00	
19.	102	132KV	Chishtian	GWh	123.70	12.36	0.30	4.42	21.27	41.24	0.00	0.00	208.11	0.99
		MW	34.08	4.10	0.09	0.56	59.10	7.53	0.00	0.00	0.00	0.00	54.00	
20.	29	132KV	Chauthara	GWh	118.59	18.08	0.04	11.82	0.83	9.72	0.00	0.00	154.72	0.99
		MW	35.50	6.10	0.01	1.34	6.19	1.79	0.00	0.00	0.00	0.00	24.00	
21.	30	132KV	Chowk Azam	GWh	363.99	62.80	0.05	101.09	14.01	22.55	0.00	0.00	560.41	0.99
		MW	86.00	16.65	0.01	17.31	17.29	4.10	0.00	0.00	0.00	0.00	114.00	
22.	31	132KV	Chowk Banda	GWh	210.70	40.04	0.00	54.28	702.82	38.34	0.00	0.00	1163.84	0.99
		MW	64.14	14.63	0.00	6.61	20.19	7.00	0.00	0.00	0.00	0.00	14.00	
23.	306	132KV	DG Cement Fac	GWh	0.00	0.00	0.00	3.00	0.12	0.00	0.00	0.00	0.12	0.00
		MW	0.00	0.00	0.00	0.00	17.16	0.00	0.00	0.00	0.00	0.00	0.00	
24.	308	132KV	DG Khana	GWh	259.52	38.83	0.07	7.00	82.85	20.66	0.00	0.00	402.88	0.99
		MW	76.01	12.00	0.02	0.85	80.13	3.41	0.00	0.00	0.00	0.00	74.00	
25.	309	132KV	Lahori Wala	GWh	31.51	11.43	0.10	12.71	7.40	39.37	0.00	0.00	101.49	0.99
		MW	7.11	3.49	0.00	1.40	1.71	4.04	0.00	0.00	0.00	0.00	0.00	

POWER MARKET SURVEY
CATEGORY-WISE GRIDSTATION LOAD FOR DISCO

DISCO: MEPCO

YEAR :2023-24

ISR GRID NO. NUMBER	NAME OF GRID STATION		DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	M & L INDUSTRIES	TUBE WELL; PRIVATE	PUBLIC	TRACTION	TOTAL OF GRIDSTATION	POWER FACTOR(%) REACT-POWER(Mvar)
26.	982	132kV Dunya Pur	GWh 54.90	5.91	0.00	1.85	7.74	27.68	0.00	0.00	98.08	0.84
			MW 16.71	2.16	0.00	0.23	24.49	5.06	0.00	0.00	39.15	25.00
27.	274	66kV Fazal Pur	GWh 28.35	8.57	0.00	1.84	6.59	13.63	0.00	0.00	58.98	1.84
			MW 8.63	3.13	0.00	0.22	24.86	2.49	0.00	0.00	31.47	20.00
28.	530	132kV Feroza	GWh 44.63	5.26	0.01	2.39	10.42	10.52	0.00	0.00	73.23	0.85
			MW 13.59	1.92	0.00	0.29	15.08	1.92	0.00	0.00	26.24	16.00
29.	705	132kV Fort Manroo	GWh 0.51	0.40	0.00	0.00	0.00	3.46	0.00	0.00	4.37	0.77
			MW 0.19	0.18	0.00	0.00	0.00	0.79	0.00	0.00	0.93	1.00
30.	42	132kV G/More	GWh 64.24	4.34	0.01	2.38	5.44	22.30	0.00	0.00	98.70	0.84
			MW 19.56	1.58	0.00	0.29	28.05	4.07	0.00	0.00	42.85	28.00
31.	52	132kV Gujrat South	GWh 455.99	45.79	0.13	149.53	1092.87	34.17	0.00	0.00	1782.47	0.88
			MW 138.81	18.19	0.04	18.21	17.09	6.24	0.00	0.00	158.86	26.00
32.	58	132kV Harappa	GWh 92.74	1.78	0.00	2.70	83.52	34.13	0.00	0.00	220.88	0.86
			MW 28.23	2.84	0.00	0.33	43.92	6.23	0.00	0.00	65.24	39.00
33.	924	132kV Haroonabad	GWh 142.25	15.93	0.02	4.01	73.69	4.99	0.00	0.00	240.90	0.86
			MW 42.62	5.66	0.01	0.49	22.00	0.91	0.00	0.00	57.75	34.00
34.	472	132kV Hasi pur	GWh 101.82	17.13	0.15	3.19	28.39	27.88	0.00	0.00	178.56	0.85
			MW 26.57	5.21	0.05	0.39	35.79	5.09	0.00	0.00	59.40	27.00
35.	775	132kV Hota	GWh 18.46	0.88	0.00	0.65	0.13	45.52	0.00	0.00	65.45	0.81
			MW 5.38	0.31	0.00	0.08	6.53	8.31	0.00	0.00	16.81	12.00
36.	285	132kV J Pur Pirwala	GWh 100.34	5.95	0.00	6.43	18.82	86.65	0.00	0.00	219.20	0.83
			MW 30.55	2.54	0.00	0.78	54.72	15.83	0.00	0.00	83.53	56.00
37.	531	132kV J.D.V	GWh 51.20	2.13	0.00	0.78	9.50	58.23	0.00	0.00	126.38	0.83
			MW 16.20	0.78	0.00	0.40	70.29	10.64	0.00	0.00	78.64	13.00
38.	69	132kV Jaharian	GWh 117.64	10.48	0.03	4.18	39.62	48.04	0.00	0.00	219.99	0.85
			MW 31.40	3.65	0.01	0.51	52.72	8.77	0.00	0.00	80.97	50.00
39.	1072	132kV Jail Road	GWh 5.65	0.55	0.00	0.34	7.42	3.10	0.00	0.00	17.05	0.86
			MW 1.29	0.14	0.00	0.04	12.26	0.57	0.00	0.00	12.16	7.00
40.	743	132kV Jam Pur	GWh 44.00	5.59	0.05	1.73	4.20	2.41	0.00	0.00	62.97	0.89
			MW 11.87	2.04	0.02	0.21	35.97	0.44	0.00	0.00	42.84	22.00
41.	75	132kV Jatci	GWh 223.84	28.09	0.00	115.30	7.11	32.63	0.00	0.00	412.97	0.83
			MW 69.97	10.26	0.00	14.04	23.63	5.96	0.00	0.00	99.08	57.00
42.	533	132kV K. Fela	GWh 91.24	8.49	0.00	4.35	10.51	8.32	0.00	0.00	125.90	0.89
			MW 23.69	3.10	0.00	0.53	23.91	1.52	0.00	0.00	46.20	24.00
43.	297	66kV K.P.T	GWh 52.32	4.42	0.08	2.62	2.17	44.18	0.00	0.00	105.79	0.83
			MW 15.52	1.58	0.02	0.32	25.32	8.07	0.00	0.00	41.03	28.00
44.	112	132kV K/Acu	GWh 705.23	118.46	0.14	179.54	83.58	57.39	0.00	0.00	1144.32	0.84
			MW 193.16	37.05	0.04	21.86	19.60	10.48	0.00	0.00	233.91	151.00
45.	88	132kV K/Kluh	GWh 73.90	4.92	0.00	3.21	30.99	68.52	0.00	0.00	186.54	0.84
			MW 24.02	1.80	0.00	0.39	48.79	12.52	0.00	0.00	70.01	45.00
46.	87	132kV K/Wala	GWh 103.53	8.12	0.05	6.21	189.02	43.58	0.00	0.00	350.51	0.87
			MW 31.52	2.97	0.02	0.76	63.40	7.96	0.00	0.00	85.77	49.00
47.	102	132kV KNP	GWh 180.19	23.92	0.87	8.29	14.14	28.90	0.00	0.00	268.31	0.89
			MW 55.80	7.99	0.26	1.01	40.98	5.25	0.00	0.00	90.45	46.00
48.	103	132kV KWL	GWh 204.25	26.20	0.27	9.05	62.13	80.59	0.00	0.00	382.50	0.85
			MW 59.91	8.87	0.08	1.10	59.60	14.72	0.00	0.00	116.43	72.00
49.	104	132kV KWL Road	GWh 108.80	20.34	0.35	11.05	670.98	36.54	0.00	0.00	878.06	0.89
			MW 31.69	5.31	0.11	1.35	152.68	6.67	0.00	0.00	159.68	32.00
50.	685	132kV Karam Fur	GWh 13.91	1.32	0.00	0.77	1.93	56.67	0.00	0.00	64.61	0.82
			MW 7.28	0.48	0.00	0.09	21.04	10.35	0.00	0.00	31.39	22.00

POWER MARKET SURVEY
CATEGORY-WISE GRIDSTATION LOAD FOR 1990

YEAR 1993-94													
GRID	NAME OF GRID STATION	DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	MA L INDUSTRIES	TOBE WELLS	TRACTION	TOTAL OF GRIDSTATION LOAD FACTORS				
GRID NUMBER	NAME OF GRID STATION	DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	MA L INDUSTRIES	TOBE WELLS	TRACTION	GRIDSTATION	PEAK-TO-PEAK	PEAK-TO-PEAK	PEAK-TO-PEAK	PEAK-TO-PEAK
51. 427	132KV Kaper Pasca	GMh 102.38	7.22	0.03	3.53	10.51	122.45	0.00	246.12	1.37	1.37	1.37	1.37
52. 83	132KV Khatir Fur Sad	GMh 31.10	2.63	0.01	0.43	35.05	22.37	0.00	91.53	1.37	1.37	1.37	1.37
53. 769	132KV Khan Garh	GMh 120.29	13.48	0.00	41.33	1.27	50.32	0.00	226.81	1.37	1.37	1.37	1.37
54. 544	132KV Kot Chaula	GMh 36.62	4.93	0.00	5.03	0.31	9.15	0.00	48.97	1.37	1.37	1.37	1.37
55. 122	132KV LOP	GMh 202.25	24.78	0.00	42.82	2.56	15.48	0.00	287.89	1.37	1.37	1.37	1.37
56. 313	66KV Lal Feharita	GMh 61.57	9.05	0.00	5.21	7.03	2.82	0.00	86.68	1.37	1.37	1.37	1.37
57. 280	132KV Lal Feharita	GMh 63.91	4.61	0.00	2.02	172.41	3.05	0.00	246.00	1.37	1.37	1.37	1.37
58. 316	132KV Layyah	GMh 19.46	1.69	0.10	4.08	8.57	10.22	0.00	42.92	1.37	1.37	1.37	1.37
59. 123	132KV Lohman	GMh 84.87	9.17	0.10	0.50	20.08	1.67	0.00	117.12	1.37	1.37	1.37	1.37
60. 317	132KV Ludder	GMh 25.03	3.26	0.00	0.83	12.48	1.56	0.00	42.92	1.37	1.37	1.37	1.37
61. 140	132KV M-Garh	GMh 22.22	1.66	0.00	0.16	2.85	1.56	0.00	28.99	1.37	1.37	1.37	1.37
62. 766	132KV M/Rashid	GMh 6.76	0.68	0.00	1.77	28.95	22.23	0.00	39.78	1.37	1.37	1.37	1.37
63. 132	132KV MECCO	GMh 30.94	2.53	0.00	0.22	6.61	4.06	0.00	44.76	1.37	1.37	1.37	1.37
64. 534	132KV MWO	GMh 9.31	0.92	0.00	0.22	23.92	8.57	0.00	36.02	1.37	1.37	1.37	1.37
65. 131	132KV Muzia Ehas	GMh 524.81	90.83	0.70	258.20	23.92	48.56	0.00	947.02	1.37	1.37	1.37	1.37
66. 1079	132KV Nalaboom Fur	GMh 138.90	28.16	0.21	31.44	30.11	8.57	0.00	196.35	1.37	1.37	1.37	1.37
67. 148	132KV BA Wall	GMh 163.35	15.63	0.05	6.46	46.22	137.23	0.00	364.93	1.37	1.37	1.37	1.37
68. 1078	132KV Nawababad	GMh 49.73	5.71	0.00	1.56	27.18	9.24	0.00	92.43	1.37	1.37	1.37	1.37
69. 196	132KV Noor Fur	GMh 34.53	2.53	0.00	0.19	2802.92	82.47	0.00	2985.53	1.37	1.37	1.37	1.37
70. 148	132KV BA Wall	GMh 10.51	0.92	0.10	0.75	54.50	20.19	0.00	100.24	1.37	1.37	1.37	1.37
71. 132	132KV MECCO	GMh 162.36	35.29	0.12	14.21	126.50	15.06	0.00	364.93	1.37	1.37	1.37	1.37
72. 766	132KV M/Rashid	GMh 52.19	2.81	0.00	2.98	12.07	5.51	0.00	74.55	1.37	1.37	1.37	1.37
73. 132	132KV MECCO	GMh 15.21	0.97	0.00	0.36	35.65	2.80	0.00	58.98	1.37	1.37	1.37	1.37
74. 534	132KV MWO	GMh 326.60	123.99	8.86	19.68	103.67	0.52	0.00	598.73	1.37	1.37	1.37	1.37
75. 131	132KV Muzia Ehas	GMh 24.57	32.33	2.70	2.40	13.53	5.57	0.00	59.73	1.37	1.37	1.37	1.37
76. 1079	132KV Nalaboom Fur	GMh 61.96	6.03	0.00	0.52	34.59	5.57	0.00	103.67	1.37	1.37	1.37	1.37
77. 148	132KV BA Wall	GMh 18.86	2.23	0.00	0.52	5.44	0.52	0.00	27.63	1.37	1.37	1.37	1.37
78. 1078	132KV Nawababad	GMh 40.53	40.53	0.00	133.66	65.40	0.00	0.00	280.13	1.37	1.37	1.37	1.37
79. 196	132KV Noor Fur	GMh 142.80	14.91	0.00	16.97	21.58	11.95	0.00	193.23	1.37	1.37	1.37	1.37
80. 148	132KV BA Wall	GMh 111.31	13.50	0.32	4.25	48.28	16.22	0.00	185.63	1.37	1.37	1.37	1.37
81. 132	132KV MECCO	GMh 33.28	4.87	0.10	0.92	9.78	0.92	0.00	45.91	1.37	1.37	1.37	1.37
82. 766	132KV M/Rashid	GMh 25.03	1.65	0.00	1.19	2.63	7.43	0.00	37.32	1.37	1.37	1.37	1.37
83. 1079	132KV Nalaboom Fur	GMh 45.23	6.22	0.00	0.14	16.62	1.36	0.00	63.33	1.37	1.37	1.37	1.37
84. 148	132KV BA Wall	GMh 5.72	0.42	0.00	2.10	2.20	41.56	0.00	51.53	1.37	1.37	1.37	1.37
85. 1078	132KV Nawababad	GMh 13.77	2.57	0.00	0.26	19.35	7.59	0.00	34.59	1.37	1.37	1.37	1.37
86. 196	132KV Noor Fur	GMh 8.32	0.34	0.00	0.07	0.00	4.62	0.00	13.93	1.37	1.37	1.37	1.37
87. 148	132KV BA Wall	GMh 2.53	0.27	0.00	39.43	9.12	186.68	0.00	248.95	1.37	1.37	1.37	1.37
88. 1079	132KV Nalaboom Fur	GMh 38.20	2.13	0.00	4.64	22.16	106.97	0.00	186.97	1.37	1.37	1.37	1.37
89. 148	132KV BA Wall	GMh 11.63	0.18	0.00	0.00	0.00	0.00	0.00	11.63	1.37	1.37	1.37	1.37
90. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
91. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
92. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
93. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
94. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
95. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
96. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
97. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
98. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
99. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
100. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
101. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
102. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
103. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
104. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
105. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
106. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
107. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
108. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
109. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
110. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
111. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
112. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
113. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
114. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
115. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
116. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
117. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
118. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
119. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
120. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
121. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
122. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
123. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
124. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
125. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
126. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
127. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
128. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
129. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
130. 1078	132KV Nawababad	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
131. 196	132KV Noor Fur	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
132. 148	132KV BA Wall	GMh 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	1.37
133. 1079	132KV Nalaboom Fur	GMh 0.00	0.00	0.00									

POWER MARKET SURVEY
CATEGORY-WISE GRIDSTATION LOAD FOR DISCO

DISCO: MEPCO

YEAR :2023-24

SR GRID No. NUMBER	NAME OF GRID STATION		DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	M & L INDUSTRIES	TUBE WELLS PRIVATE	PUBLIC	TRACTION	TOTAL OF GRIDSTATION	POWER FACTOR(%) REACT-POWER(Mvar)
76. 165	132kV Qaboola	GWh	58.00	2.60	0.00	1.67	9.45	81.41	0.00	0.00	153.12	0.83
		MW	17.65	0.95	0.00	0.20	45.93	14.87	0.00	0.00	63.68	0.80
77. 763	132kV Qasim Bagh	GWh	77.87	10.47	1.53	10.44	7.45	0.42	0.00	0.00	108.18	0.89
		MW	18.93	2.73	0.47	1.27	16.88	0.08	0.00	0.00	34.30	0.80
78. 168	132kV Qasim Pur	GWh	262.26	47.90	2.84	42.03	266.58	26.07	0.00	0.00	647.69	0.87
		MW	61.54	13.42	0.86	5.12	57.65	4.76	0.00	0.00	121.86	0.89
79. 171	132kV R.Y.K	GWh	287.50	52.82	0.58	11.09	345.59	48.85	0.00	0.00	746.42	0.87
		MW	76.05	15.26	0.18	1.35	93.91	8.92	0.00	0.00	163.15	0.89
80. 767	132kV R.Y.K-II	GWh	94.20	11.00	0.10	1.98	12.12	15.32	0.00	0.00	137.70	0.89
		MW	25.10	4.65	0.03	0.24	25.90	2.80	0.00	0.00	48.53	0.85
81. 354	132kV Rajar Pur	GWh	88.96	17.63	0.43	4.59	19.61	18.41	0.00	0.00	149.62	0.85
		MW	25.54	5.14	0.13	0.56	42.06	3.36	0.00	0.00	63.06	0.89
82. 589	132kV Rojhan	GWh	18.09	5.04	0.04	1.73	0.52	3.03	0.00	0.00	22.44	0.88
		MW	5.51	2.21	0.01	0.21	0.12	0.55	0.00	0.00	6.88	0.85
83. 181	132kV S.D.K	GWh	231.49	33.96	0.30	8.42	81.07	63.90	0.00	0.00	419.13	0.85
		MW	70.10	12.25	0.09	1.02	54.45	11.67	0.00	0.00	120.97	0.86
84. 535	132kV S/Satwer	GWh	12.34	11.77	0.00	0.19	12.58	4.24	0.00	0.00	42.12	0.86
		MW	4.06	4.30	0.00	0.02	2.17	0.78	0.00	0.00	9.45	0.89
85. 1089	132kV Sahival III	GWh	8.39	0.40	0.00	0.06	0.79	1.07	0.00	0.00	10.41	0.89
		MW	2.02	0.11	0.00	0.01	14.78	0.19	0.00	0.00	14.02	0.83
86. 537	132kV Sahuca	GWh	51.33	2.16	0.00	2.33	26.89	76.73	0.00	0.00	159.44	0.83
		MW	15.62	0.79	0.00	0.28	18.24	14.02	0.00	0.00	39.16	0.86
87. 536	132kV Sheikh fazal	GWh	90.25	5.14	0.00	3.81	11.82	36.28	0.00	0.00	148.31	0.84
		MW	27.47	2.24	0.00	0.46	35.58	6.63	0.00	0.00	57.92	0.84
88. 374	132kV Shujabad	GWh	118.65	10.35	0.56	5.74	19.31	71.88	0.00	0.00	226.50	0.84
		MW	36.12	3.78	0.17	0.70	37.59	13.13	0.00	0.00	73.19	0.89
89. 551	132kV Swl New	GWh	142.77	12.94	0.63	5.79	28.95	11.41	0.00	0.00	202.49	0.89
		MW	36.71	3.85	0.19	0.70	37.29	2.08	0.00	0.00	67.34	0.84
90. 216	132kV Taunsa	GWh	74.38	3.07	0.00	1.73	9.08	23.07	0.00	0.00	116.33	0.84
		MW	22.64	2.91	0.00	0.21	23.36	4.21	0.00	0.00	43.05	0.89
91. 932	132kV Uch Sharif	GWh	55.05	7.61	0.20	5.78	3.91	32.42	0.00	0.00	108.56	0.83
		MW	17.98	2.78	0.06	0.70	0.89	5.92	0.00	0.00	22.67	0.89
92. 219	132kV Vehari	GWh	141.38	20.22	0.25	4.97	33.43	80.16	0.00	0.00	280.41	0.84
		MW	40.31	5.63	0.08	0.61	63.39	14.64	0.00	0.00	102.26	0.85
93. 220	132kV Vehari. Road	GWh	270.66	31.49	1.92	62.58	82.02	12.00	0.00	0.00	460.66	0.85
		MW	68.16	9.53	0.58	7.62	49.29	2.19	0.00	0.00	115.00	0.84
94. 1041	132kV WAPDA Town	GWh	125.40	10.27	0.01	2.23	7.01	4.09	0.00	0.00	149.00	0.90
		MW	32.36	2.99	0.00	0.27	18.36	0.75	0.00	0.00	45.43	0.85
95. 27	132kV Chichawatni	GWh	185.14	21.15	0.00	6.74	52.06	47.29	0.00	0.00	316.38	0.85
		MW	54.90	7.25	0.00	0.82	30.13	8.64	0.00	0.00	82.51	0.87
96. 65	132kV Ind. State	GWh	184.88	68.44	0.18	10.05	279.23	17.09	0.00	0.00	559.87	0.87
		MW	42.86	19.12	0.05	1.22	61.71	3.12	0.00	0.00	108.35	0.84
97. 815	220kV 220 KV Nau Abad	GWh	45.16	3.72	0.03	2.76	15.43	41.54	0.00	0.00	112.63	0.84
		MW	14.96	1.36	0.01	0.34	19.27	7.59	0.00	0.00	34.62	0.90
98. 818	220kV 220 KV PARCO Gu	GWh	0.00	0.00	0.00	0.00	267.06	0.00	0.00	0.00	267.06	0.90
		MW	0.00	0.00	0.00	0.00	76.22	0.00	0.00	0.00	76.22	0.84
99. 806	220kV 220 KV Vehari	GWh	55.65	3.43	0.20	1.96	9.27	26.09	0.00	0.00	96.60	0.84
		MW	15.12	1.05	0.06	0.24	2.12	4.77	0.00	0.00	19.02	0.86
100. 584	500kV 220 KV Y/Wala	GWh	95.87	15.57	0.22	5.03	59.76	6.30	0.00	0.00	186.76	0.86
		MW	25.71	5.53	0.07	0.61	13.29	1.15	0.00	0.00	40.54	0.86

POWER MARKET SURVEY
CATEGORY-WISE GRIDSTATION LOAD FOR DISCO

DISCO: MEPCO					YEAR :2023-24											TOTAL OF GRIDSTATION	POWER FACTOR BEHIND-TURN-ON
SR. GRID STATION NUMBER	NAME OF GRID STATION		DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	M & L INDUSTRIES	PIPE WELLS PRIVATE	PUBLIC	TRACTION							
101.	547	66KV 66 KV S.S.Din	GWh	28.75	4.08	0.00	1.25	10.37	5.41	0.00	0.00	58.06	0.97				
		MW	8.75	1.44	0.00	0.15	2.35	1.02	0.00	0.00	11.01	7.0					
102.	209	66KV 66 KV Ali Pur	GWh	288.09	37.46	0.42	102.20	7.55	93.56	0.00	0.00	519.89	0.97				
		MW	87.58	13.67	0.13	12.44	17.36	17.05	0.00	0.00	115.88	5.1					
103.	538	66KV 66 KV Chak No.8	GWh	53.15	1.96	0.00	2.09	0.78	37.80	0.00	0.00	95.97	0.97				
		MW	16.18	0.72	0.00	0.25	24.84	6.90	0.00	0.00	39.11	16.00					
104.	253	66KV 66 KV Chishtian	GWh	25.69	1.92	0.00	0.01	0.00	12.19	0.00	0.00	39.81	0.93				
		MW	9.78	0.88	0.00	0.00	0.00	2.73	0.00	0.00	10.75	7.09					
105.	602	66KV 66 KV Chotti	GWh	24.23	2.34	0.00	1.51	1.00	10.98	0.00	0.00	40.06	0.94				
		MW	7.38	0.86	0.00	0.18	8.68	2.01	0.00	0.00	15.58	10.00					
106.	261	66KV 66 KV Daharanwa	GWh	68.05	6.54	0.00	1.49	7.34	2.25	0.00	0.00	85.67	0.93				
		MW	20.72	2.39	0.00	0.15	3.26	0.41	0.00	0.00	21.56	10.00					
107.	540	66KV 66 KV Dajal	GWh	15.46	1.49	0.00	0.39	0.41	5.45	0.00	0.00	23.20	0.94				
		MW	4.71	0.54	0.00	0.05	0.62	1.00	0.00	0.00	5.53	4.50					
108.	541	66KV 66 KV Faqirwali	GWh	52.68	5.41	0.00	1.35	9.87	0.86	0.00	0.00	70.19	0.96				
		MW	16.04	1.99	0.00	0.10	20.62	0.16	0.00	0.00	31.17	10.00					
109.	642	66KV 66 KV Fateh Pur	GWh	338.70	43.80	0.01	64.67	5.96	39.41	0.00	0.00	490.56	0.96				
		MW	103.11	16.00	0.00	7.87	10.40	7.20	0.00	0.00	115.47	6.00					
110.	276	66KV 66 KV Fortabbas	GWh	70.41	7.87	0.09	2.80	15.49	3.34	0.00	0.00	100.39	0.97				
		MW	21.43	2.83	0.03	0.10	2.88	0.72	0.00	0.00	23.65	10.00					
111.	813	66KV 66 KV Hean Rajk	GWh	36.84	3.51	0.00	2.05	6.52	8.43	0.00	0.00	56.98	0.97				
		MW	11.22	1.28	0.00	1.37	1.49	1.58	0.00	0.00	12.75	8.00					
112.	293	66KV 66 KV Jam Pur	GWh	24.92	4.12	0.01	1.29	2.82	0.75	0.00	0.00	37.89	0.97				
		MW	8.61	1.45	0.00	0.14	17.02	0.14	0.00	0.00	22.16	10.00					
113.	542	66KV 66 KV Karor	GWh	384.00	58.97	0.19	99.80	7.38	126.07	0.00	0.00	654.45	0.93				
		MW	116.89	13.50	0.05	12.16	11.83	23.03	0.00	0.00	141.47	25.00					
114.	397	66KV 66 KV Kot Khali	GWh	52.69	5.59	0.00	3.20	5.35	3.19	0.00	0.00	70.79	0.98				
		MW	16.04	2.04	0.00	0.48	1.22	0.58	0.00	0.00	16.39	8.00					
115.	543	66KV 66 KV Kot Sulta	GWh	270.07	30.89	0.02	58.14	2.01	25.48	0.00	0.00	386.42	0.98				
		MW	82.21	11.29	0.01	7.04	0.46	4.45	0.00	0.00	84.56	40.00					
116.	545	66KV 66 KV M/Abad	GWh	46.16	5.12	0.00	1.26	1.77	9.40	0.00	0.00	64.29	0.98				
		MW	14.05	1.87	0.00	0.20	10.52	1.71	0.00	0.00	21.09	10.00					
117.	606	66KV 66 KV Marcot	GWh	28.64	2.72	0.00	0.51	2.40	40.13	0.00	0.00	85.48	0.98				
		MW	8.72	1.02	0.00	0.00	27.29	8.43	0.00	0.00	34.42	20.00					
118.	327	66KV 66 KV Meled Gun	GWh	56.60	5.37	0.00	1.50	4.48	6.92	0.00	0.00	74.87	0.98				
		MW	17.23	1.96	0.00	0.15	17.12	1.26	0.00	0.00	30.21	10.00					
119.	550	66KV 66 KV Mawan Kot	GWh	4.01	0.63	0.00	0.00	0.14	0.31	0.00	0.00	5.11	0.97				
		MW	1.52	0.29	0.00	0.00	0.04	0.07	0.00	0.00	1.74	1.00					
120.	546	66KV 66 KV Noor Sar	GWh	45.88	4.70	0.00	1.34	8.72	6.80	0.00	0.00	66.85	0.97				
		MW	13.97	1.72	0.00	0.10	1.48	1.13	0.00	0.00	14.87	40.00					
121.	549	66KV 66 KV Rang Pur	GWh	31.43	6.35	0.00	4.02	0.26	11.70	0.00	0.00	54.11	0.97				
		MW	11.96	2.90	0.00	0.68	3.07	2.63	0.00	0.00	14.42	20.00					
122.	548	66KV 66 KV S/Lane	GWh	21.35	13.97	0.00	1.40	7.41	13.29	0.00	0.00	62.49	0.98				
		MW	6.50	6.93	0.00	0.17	11.85	2.43	0.00	0.00	21.39	14.00					
123.	404	66KV 66 KV Yazman	GWh	81.41	9.22	0.29	4.23	8.91	2.05	0.00	0.00	106.17	0.94				
		MW	24.26	3.31	0.09	0.91	2.03	0.37	0.00	0.00	24.87	10.00					
124.	496	66KV Signal	GWh	103.47	10.88	0.58	4.99	7.33	17.21	0.00	0.00	144.80	0.97				
		MW	31.50	3.78	0.23	1.21	21.47	3.14	0.00	0.00	44.09	10.00					
125.	403	66KV Chinnawal	GWh	26.77	4.29	0.00	0.84	2.56	6.77	0.00	0.00	41.23	0.97				
		MW	8.18	1.27	0.00	0.10	0.80	0.24	0.00	0.00	11.74	10.00					

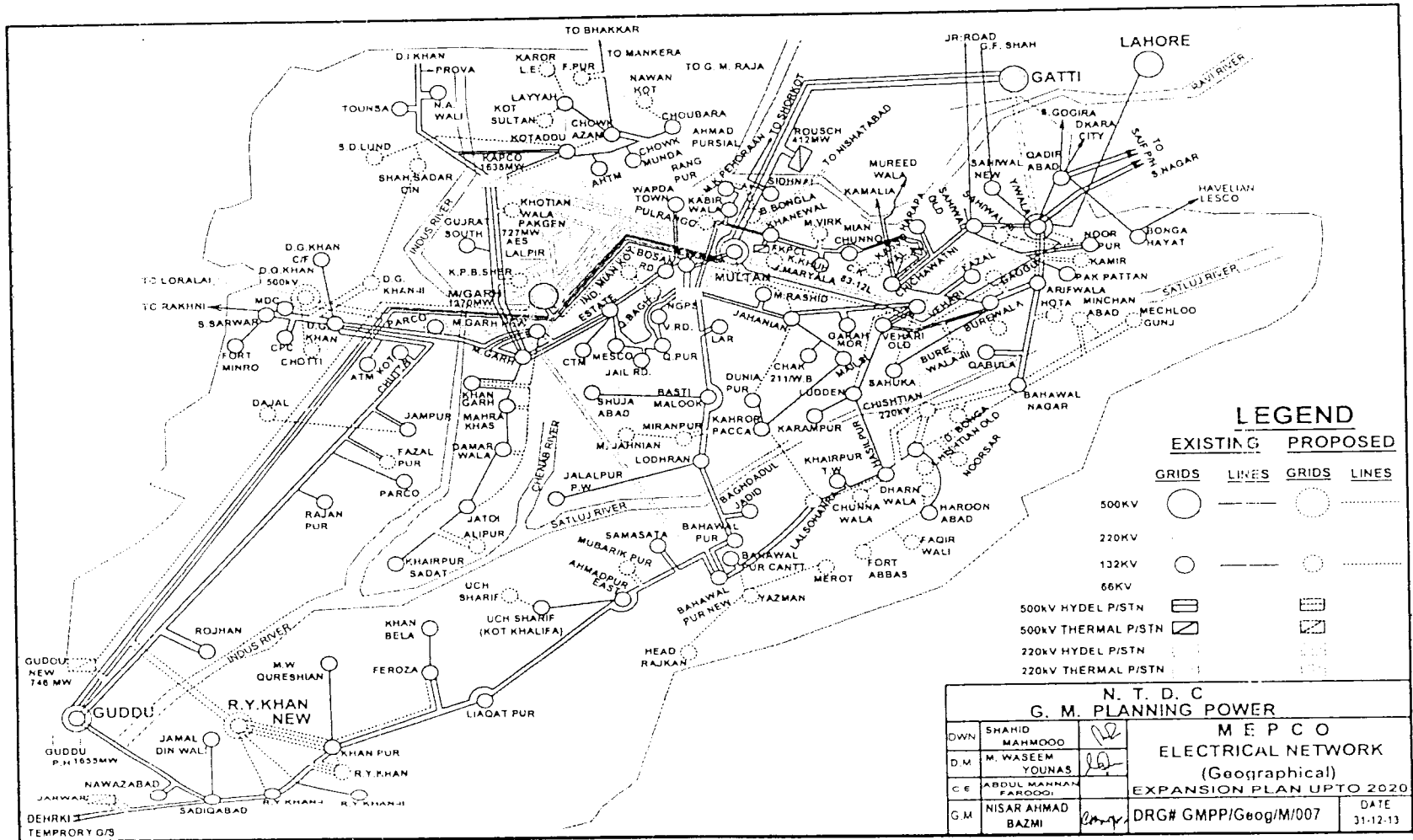
POWER MARKET SURVEY
CATEGORY-WISE GRIDSTATION LOAD FOR DISCO

DISCO: MEPCO

YEAR :2023-24

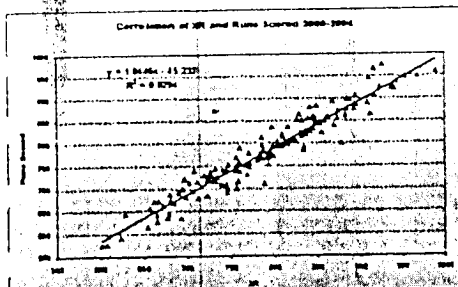
SR GRID No. NUMBER	NAME OF GRID STATION		DOMESTIC	COMMERCIAL	PUBLIC LIGHTING	SMALL INDUSTRIES	M & L INDUSTRIES	TUBE WELLS PRIVATE	PUBLIC	TRACTION	TOTAL OF GRIDSTATION	POWER FACTOR(%) REACT-POWER(Mvar)
126. 4002	0kV kamir	GWh	67.90	16.52	0.39	1.90	22.68	20.67	0.00	0.00	130.06	0.85
		MW	17.01	4.38	0.12	0.23	0.00	3.78	0.00	0.00	21.25	13.00
127. 4001	0kV man kot	GWh	18.13	3.10	0.17	0.84	1.46	0.75	0.00	0.00	24.44	0.89
		MW	6.19	1.40	0.07	0.13	0.00	0.17	0.00	0.00	6.86	4.00
128. 4003	132kV miran pur	GWh	35.11	5.84	0.00	1.51	5.66	31.28	0.00	0.00	79.40	0.83
		MW	13.16	2.67	0.00	0.23	0.00	7.14	0.00	0.00	18.72	13.00
=====												
TOTAL OF DISCO :		GWh	15666.94	2250.44	33.30	2558.36	10127.13	6159.99	0.00	0.00	36796.15	
		MW	3186.17	527.89	7.31	224.51	2726.84	812.33	0.00	0.00	6112.32	

Figure 1- 10: Distribution Network Map



Disclaimer

All data used in this report are provided by MEPCO.
Planning Power, NTDC does not own any error responsible



MULTAN ELECTRIC POWER COMPANY

**JOINTLY PREPARED BY MEPCO
 UNDER THE SUPERVISION OF
 PLANNING POWER, NTDC
 MAY 2015**



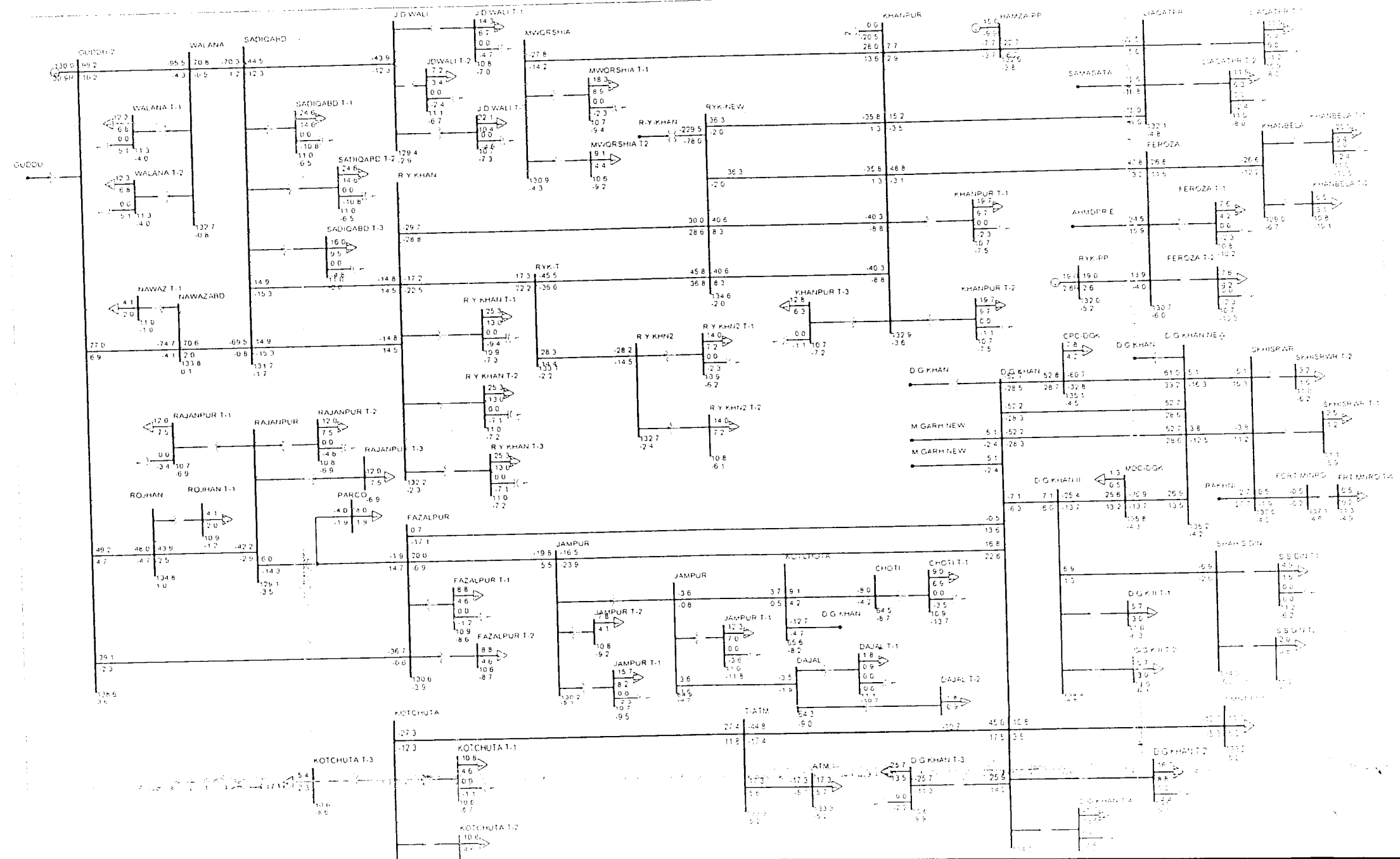
Annexure-6

(Single Line Diagram & Voltage Profile)

Best Case

LOAD FLOW FOR JLP MEPCO YEAR 2016 WITH ADDITIONAL REINFORCEMENT

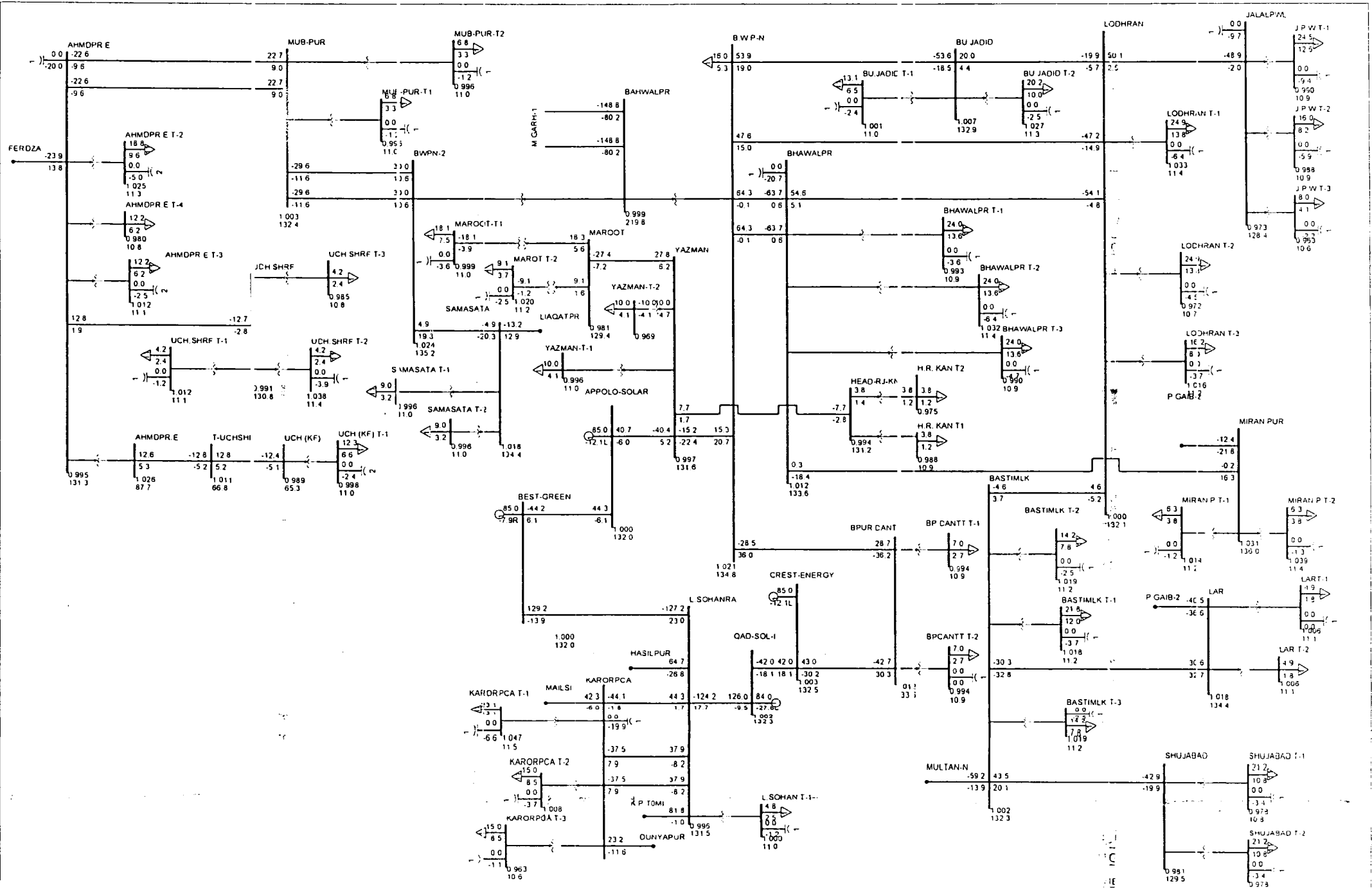
Exhibit-2016-11



LOAD FLOW FOR DIIP

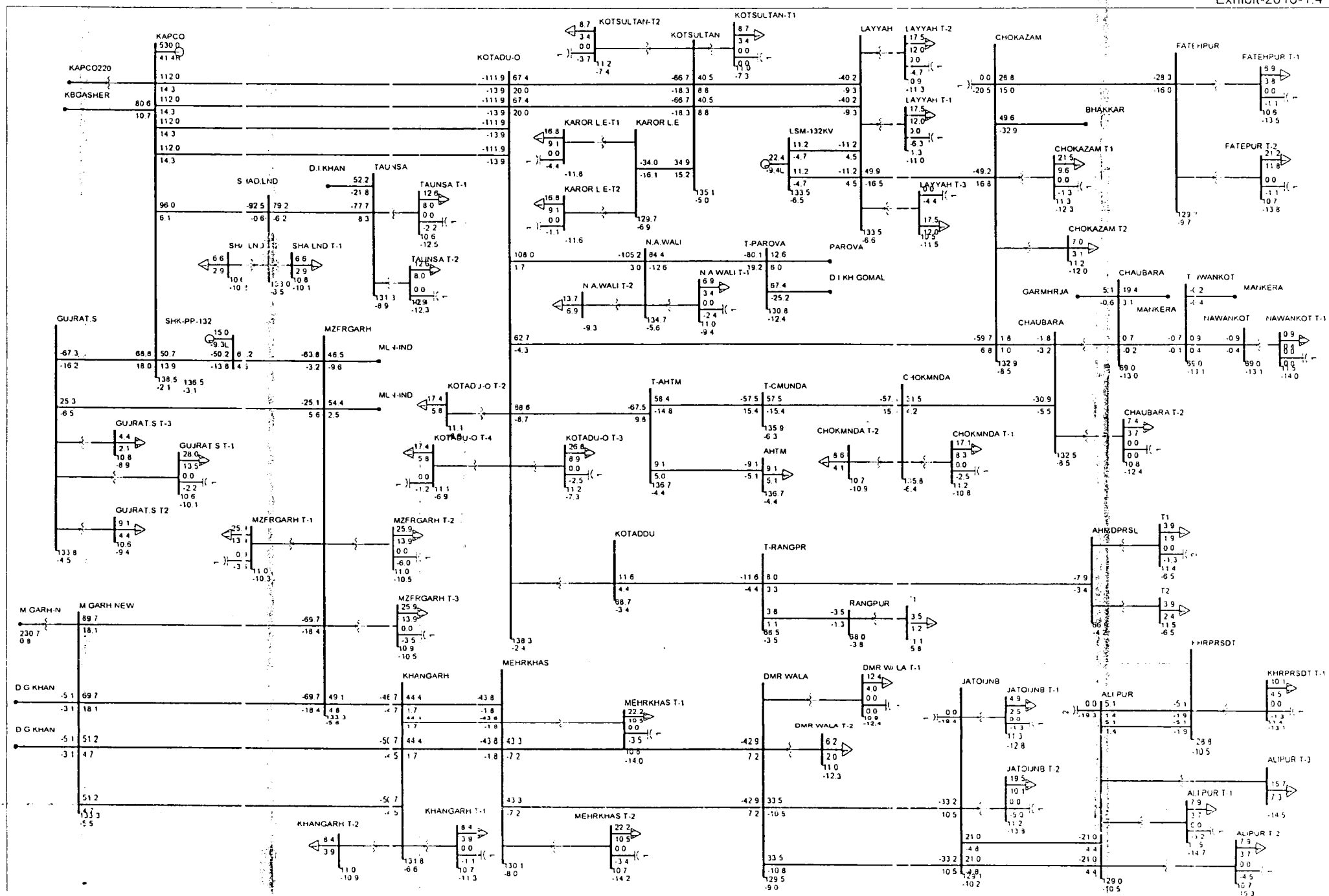
MEPCO YEAR 2016 WITH REINFORCEMENT

Exhibit-2016 1/2



MEPCO YEAR 2016 WITH REINFORCEMENT

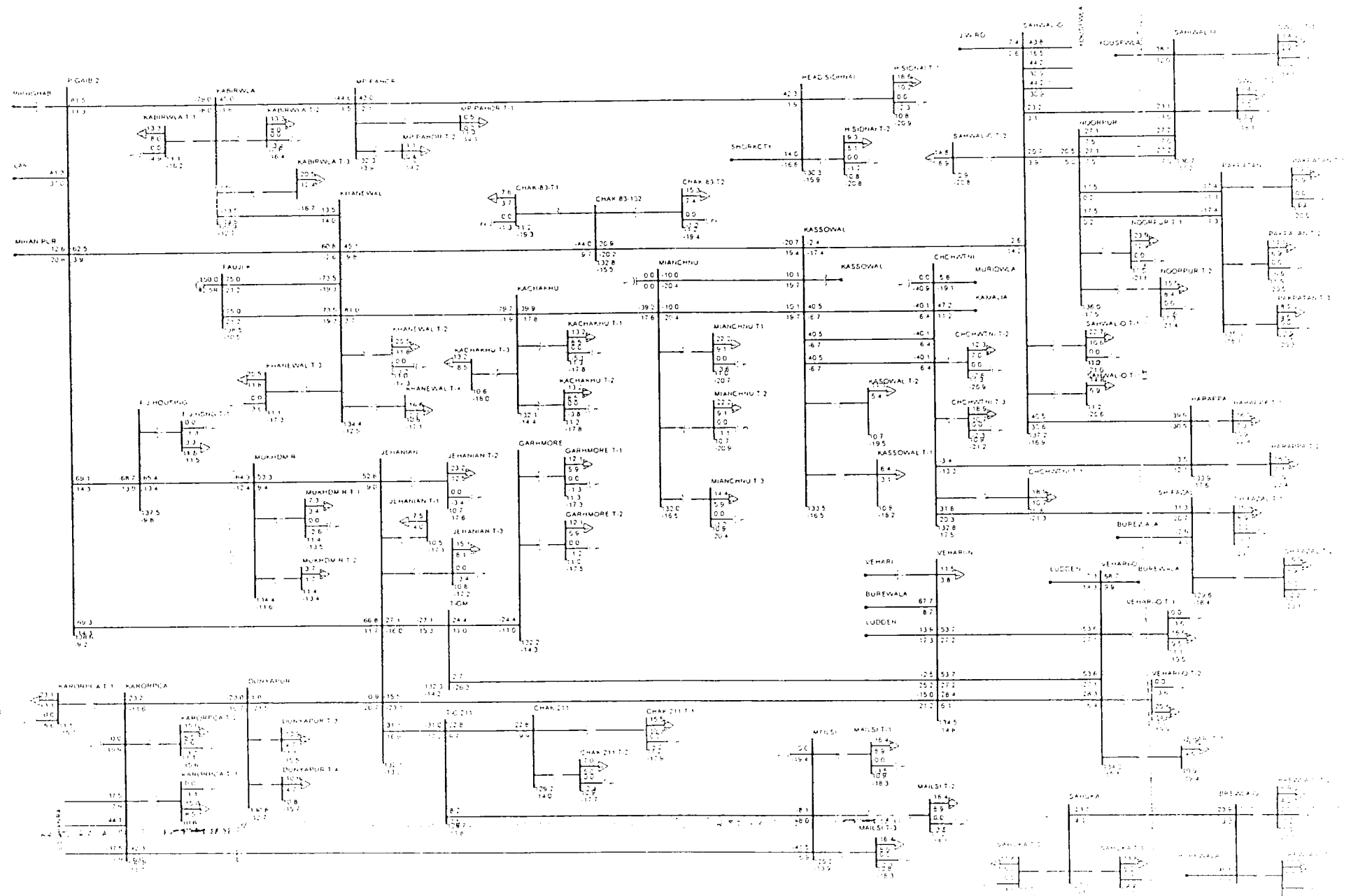
Exhibit-2016-1.4



LOCAL FLOW FOR JH

MEPCO YEAR 2016 WITH REINFORCEMENT

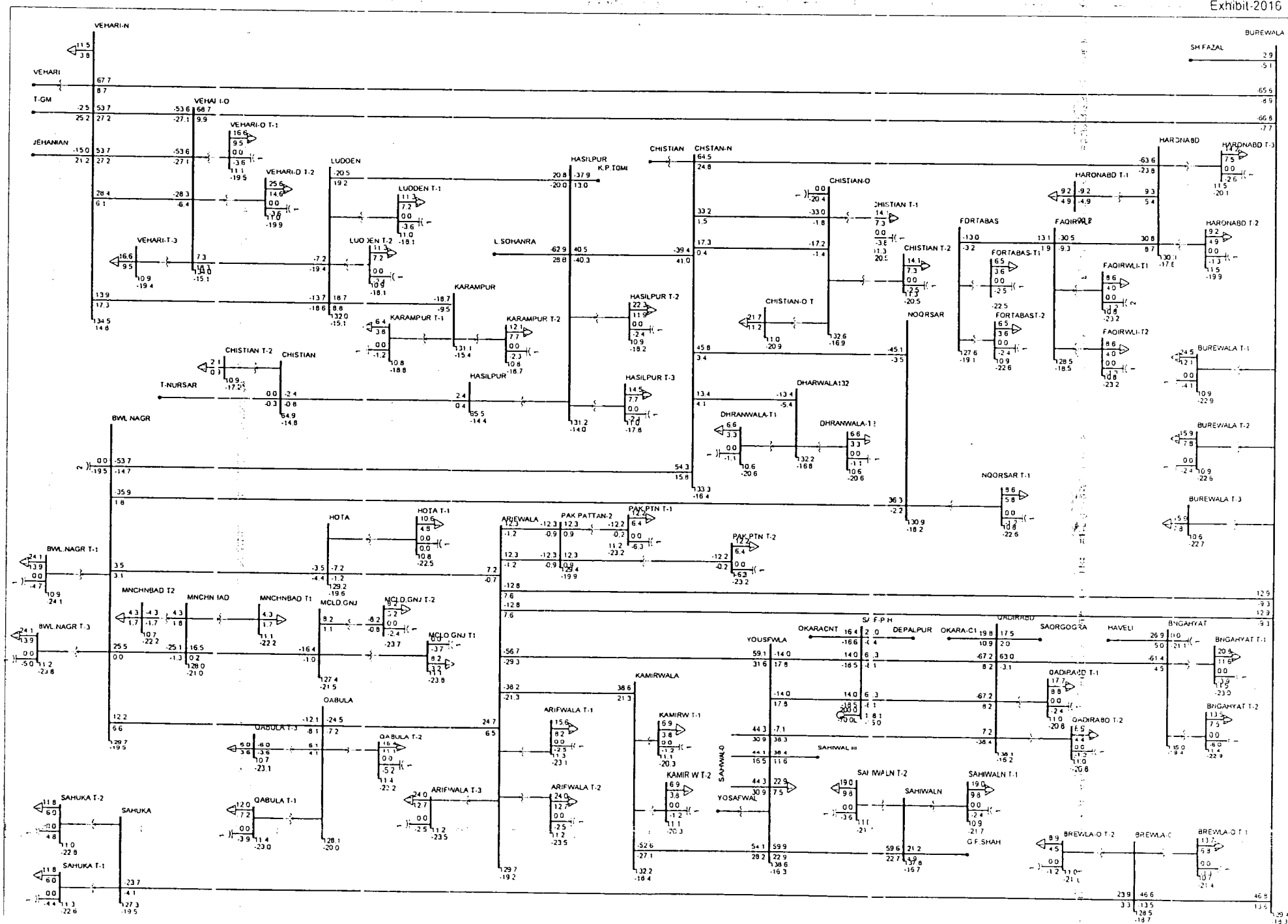
Exhibit-2015-15



LOAD FLOW FOR LIP

MEPCO YEAR 2016 WITHOUT REINFORCEMENT

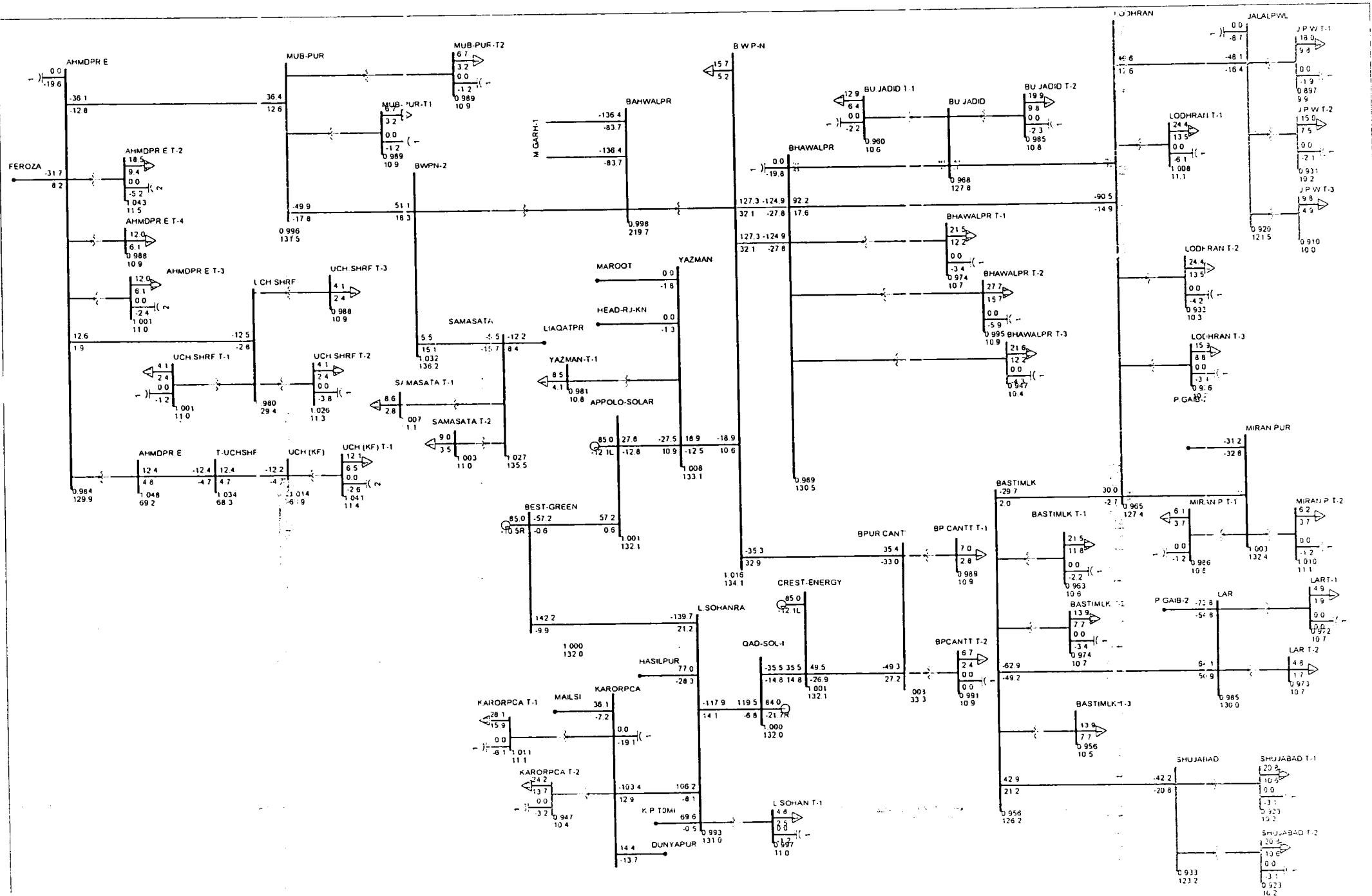
Exhibit-2016 1.6



LOAD FLOW FOR DTP

MEPCO YEAR 2016 WITHOUT REINFORCEMENT

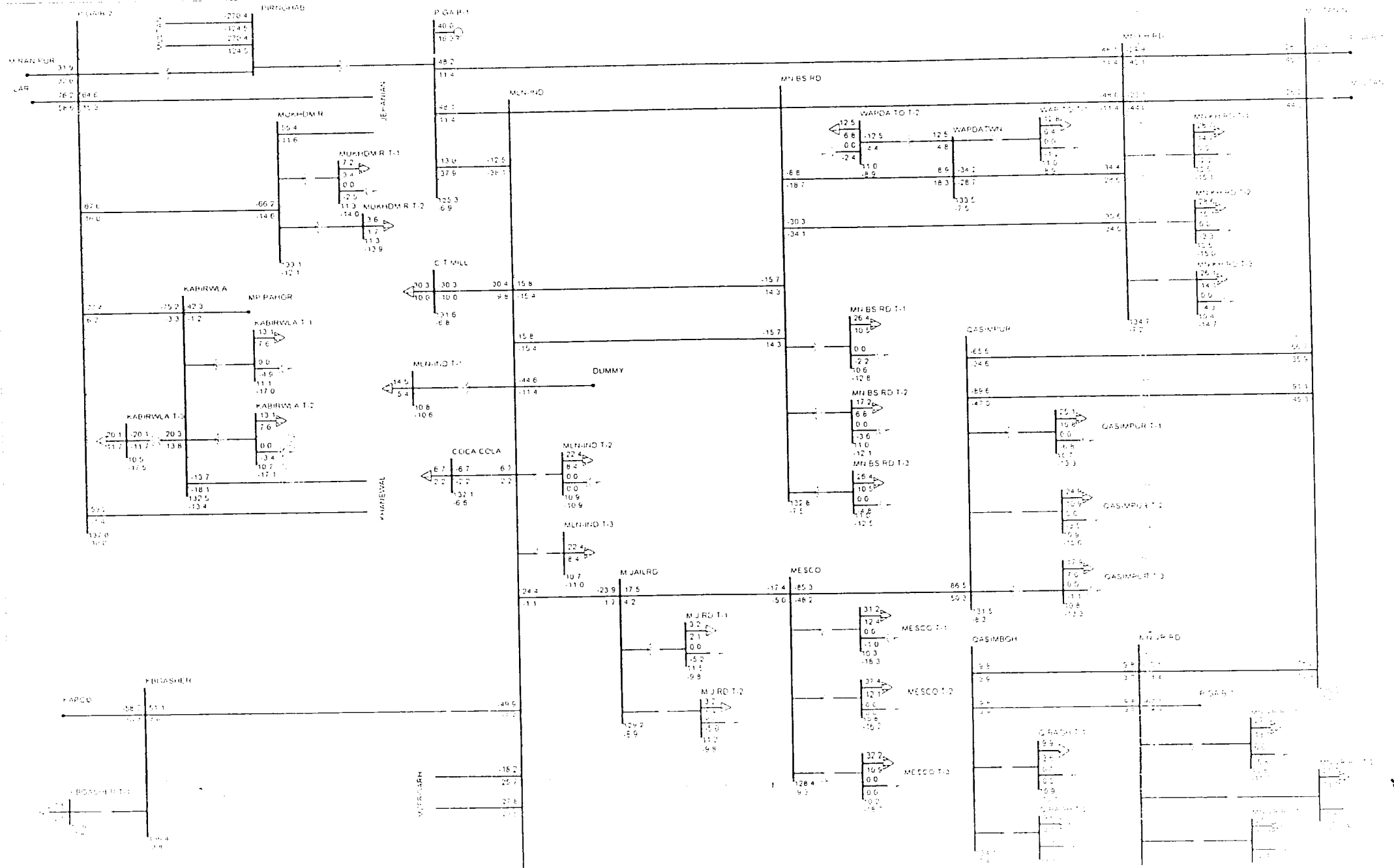
Exhibit-2016-1.2



LOAD FLOW FOR DLP

MEPCO YEAR 2016 WITHOUT REINFORCEMENT

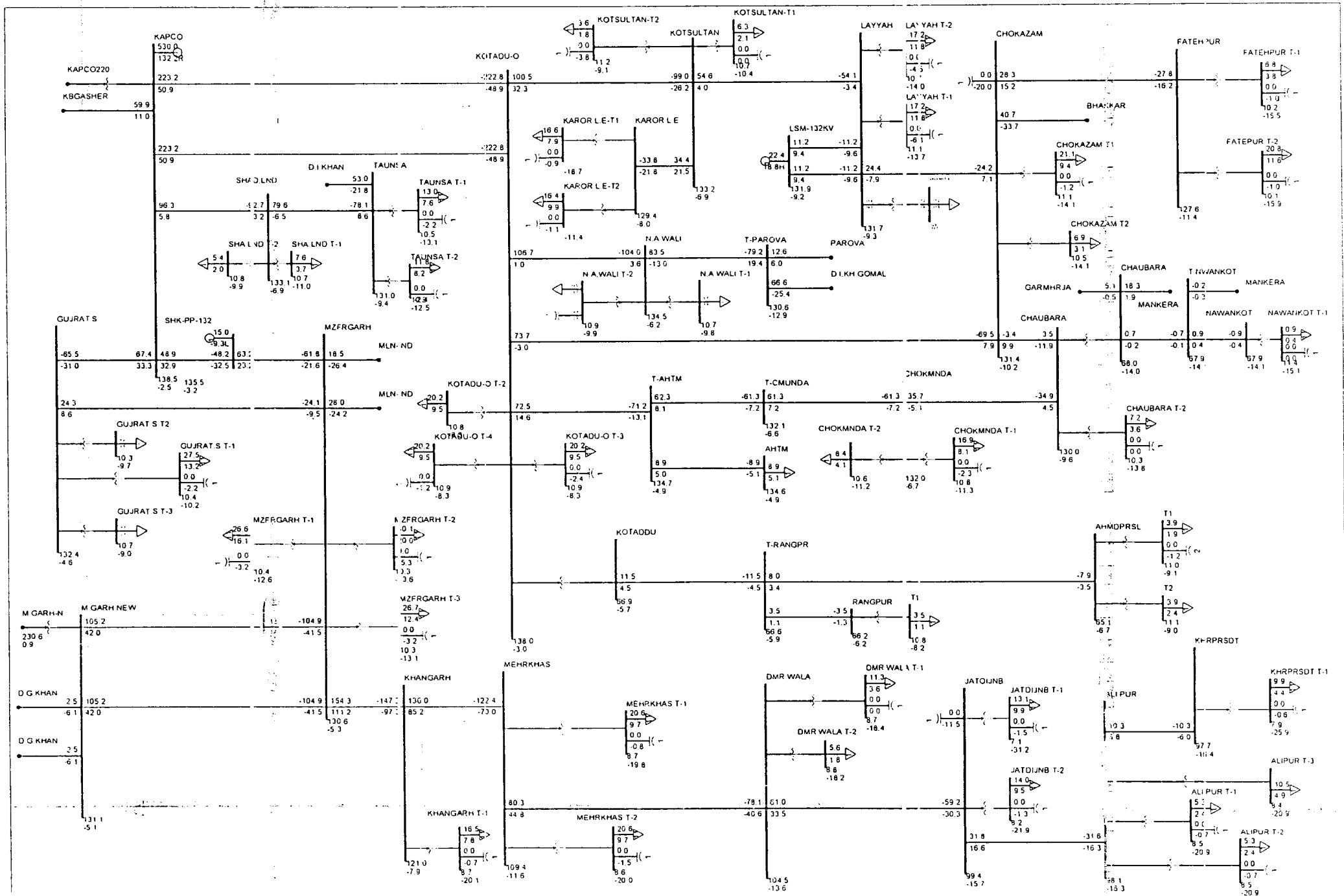
Exhibit-2016-13



LOAD FLOW FOR DLP

MEPCO YEAR 2016 WITHOUT REINFORCEMENT

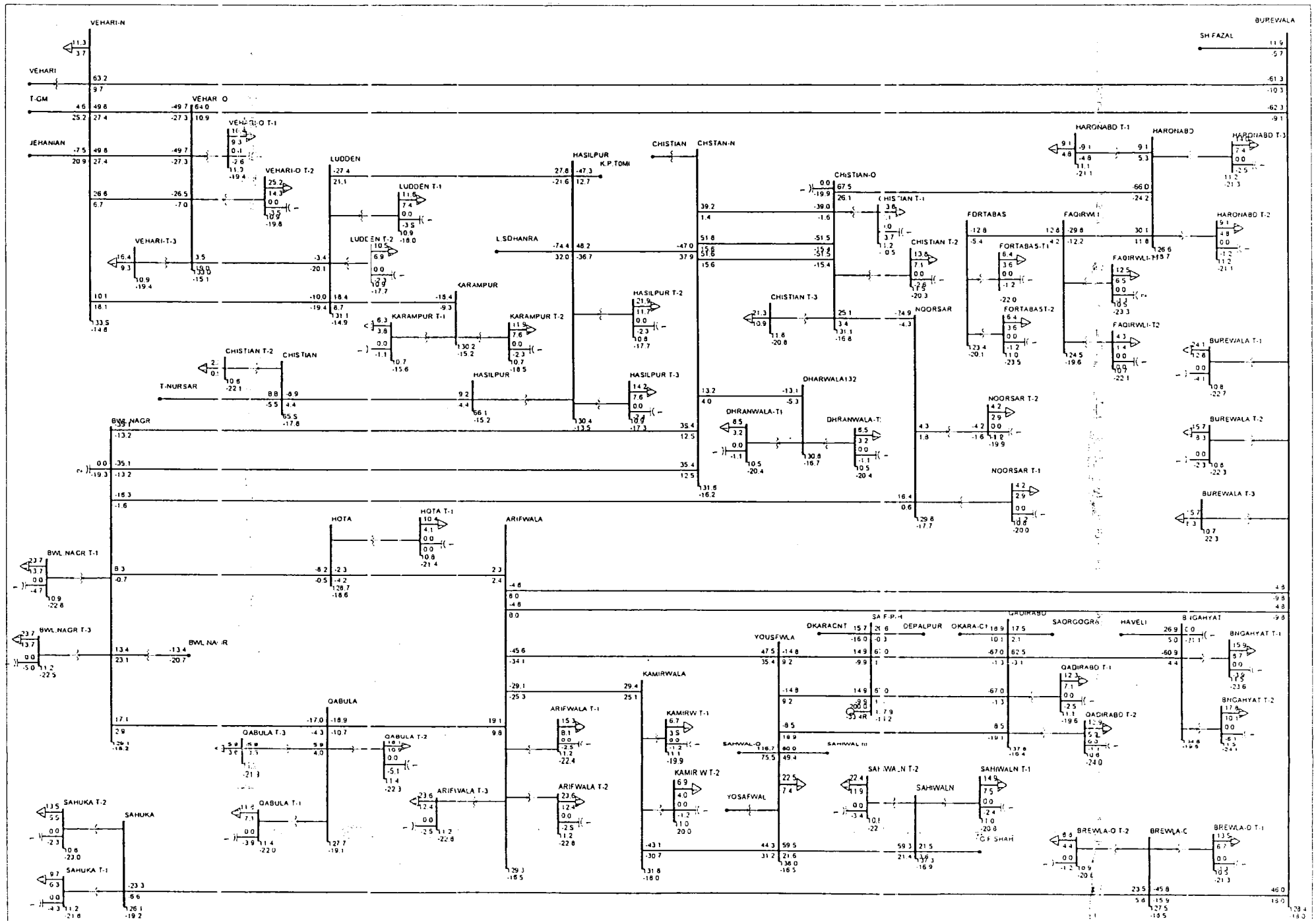
Exhibit-2016-1.4



LOAD FLOW FOR LHP

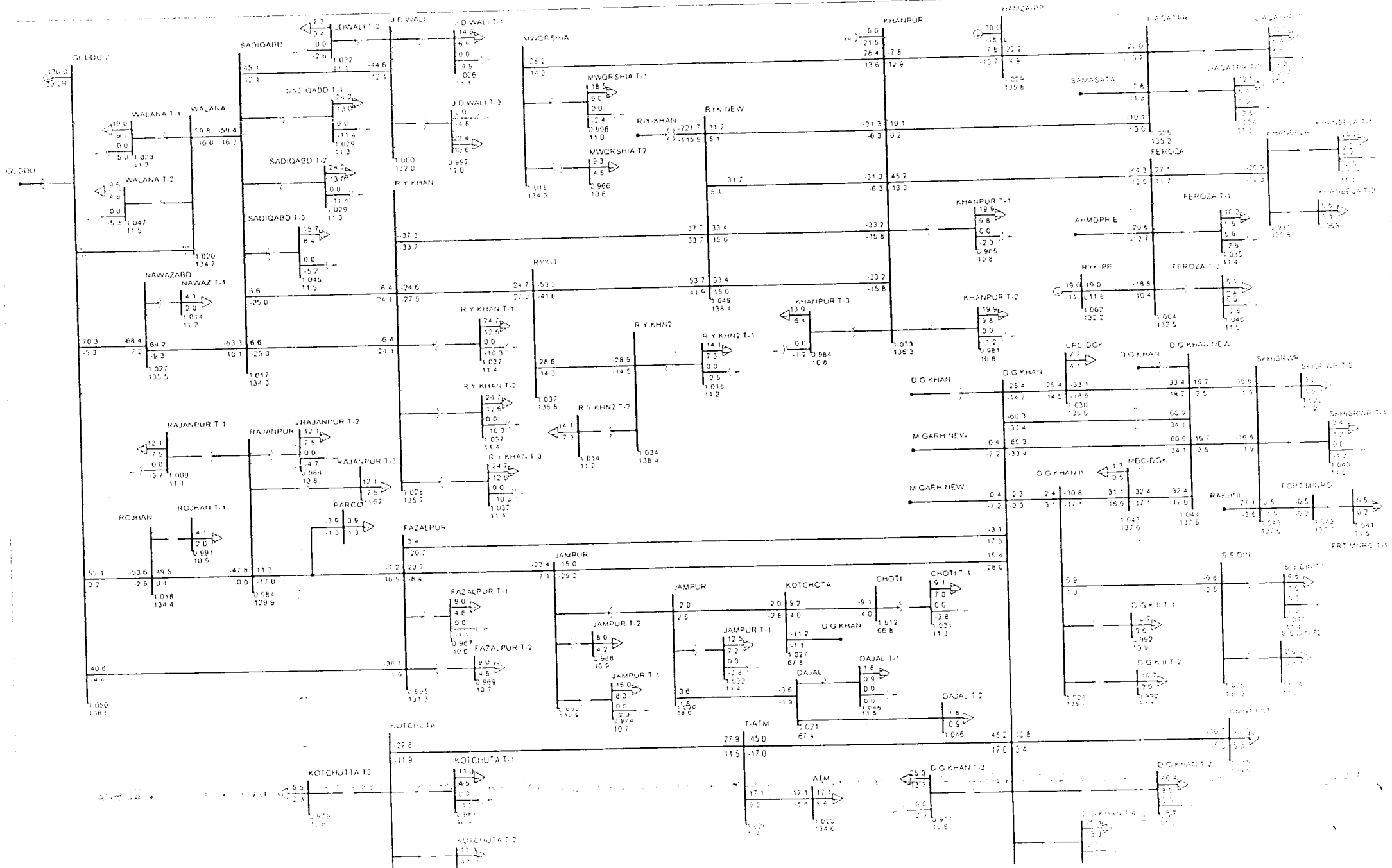
MEPCO YEAR 2016 WITHOUT REINFORCEMENT

Exhibit-2016-1.6



LOAD FLOW FOR DLP MEPCO YEAR 2017 WITH ADDITIONAL REINFORCEMENT

Exhibit-2017-11



LOAD FLOW FOR DLF MEPCO YEAR 2017 WITH REINFORCEMENT

Exhibit-2017-1.2

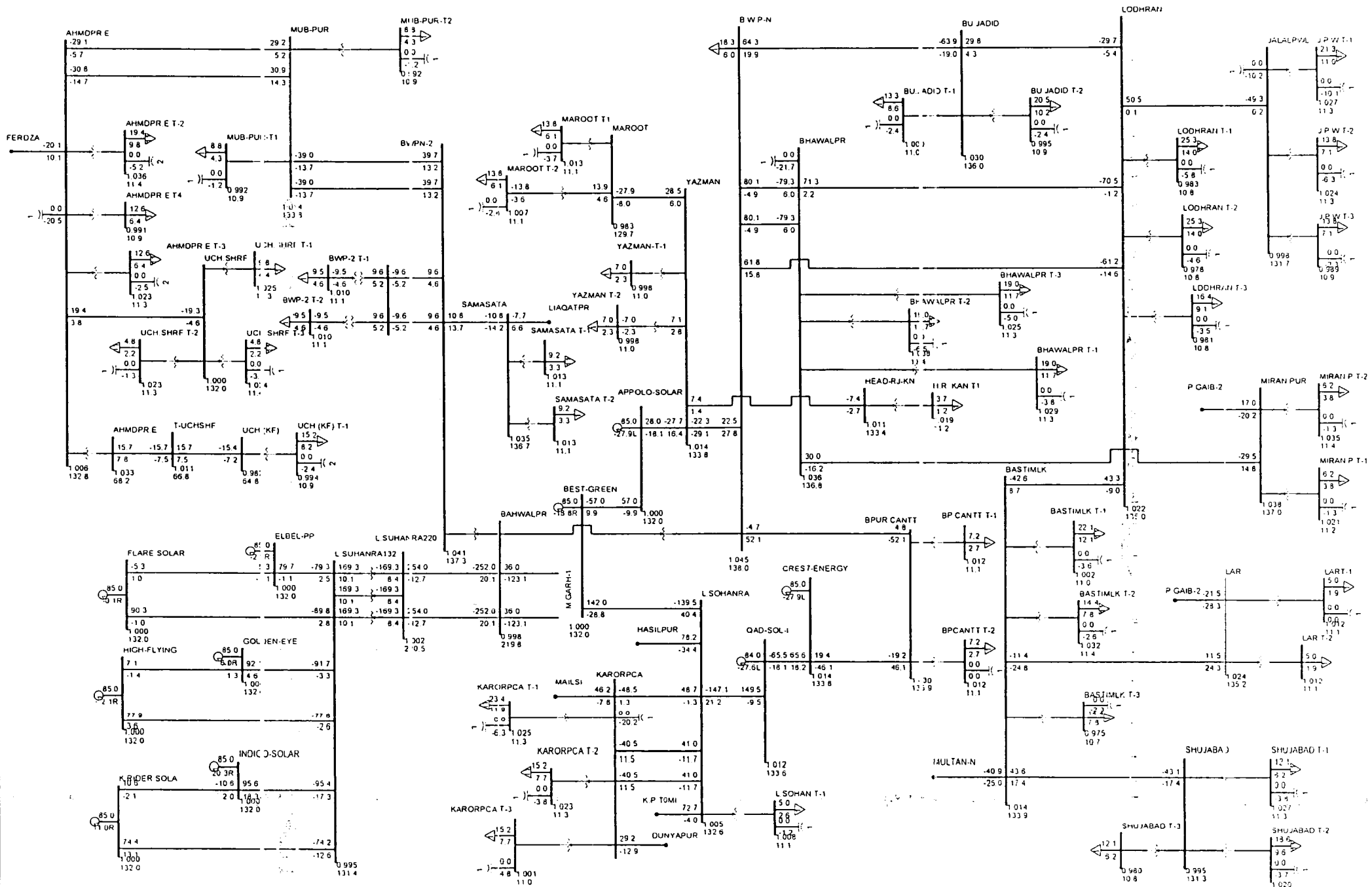


Exhibit-2017-1.3

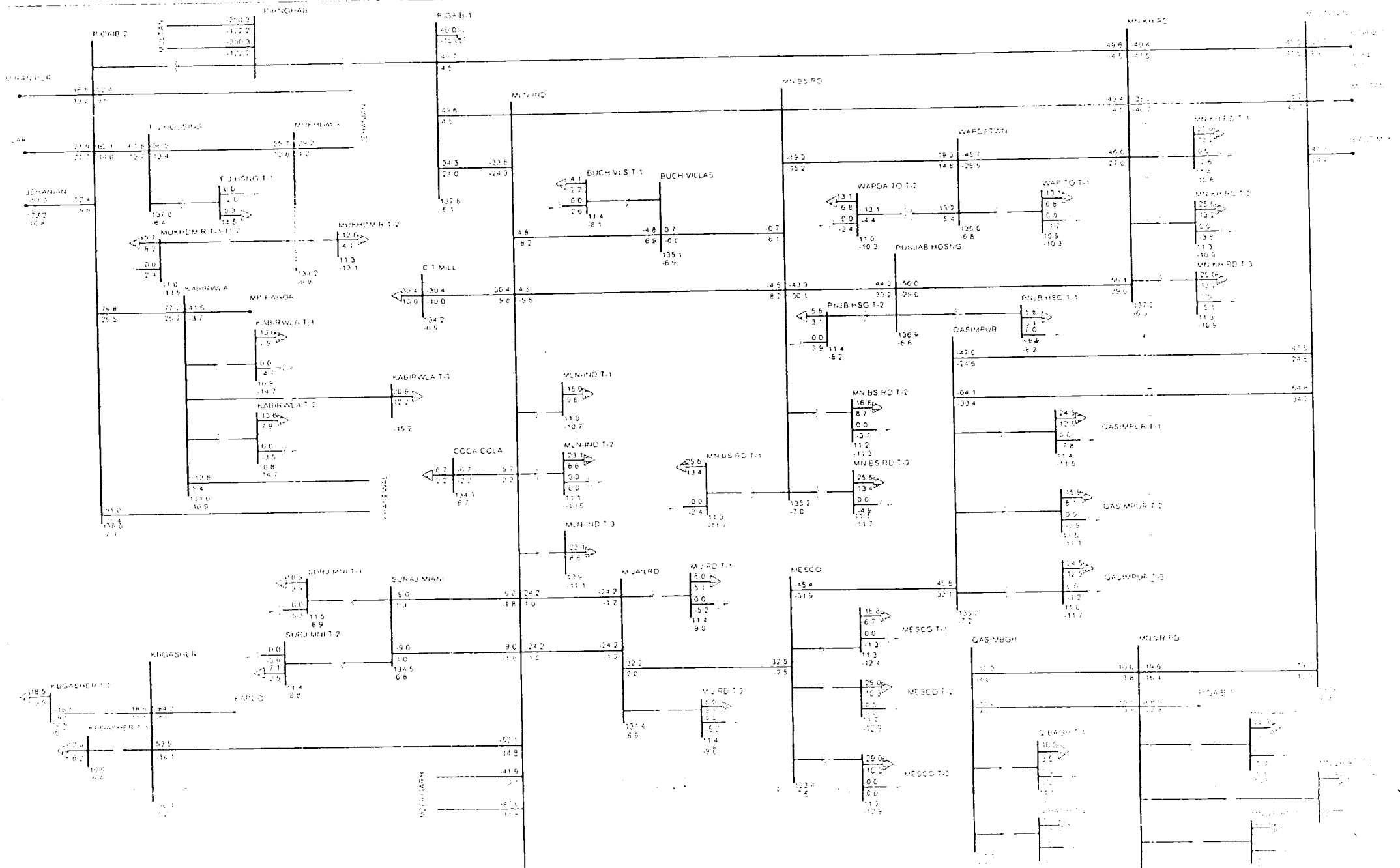
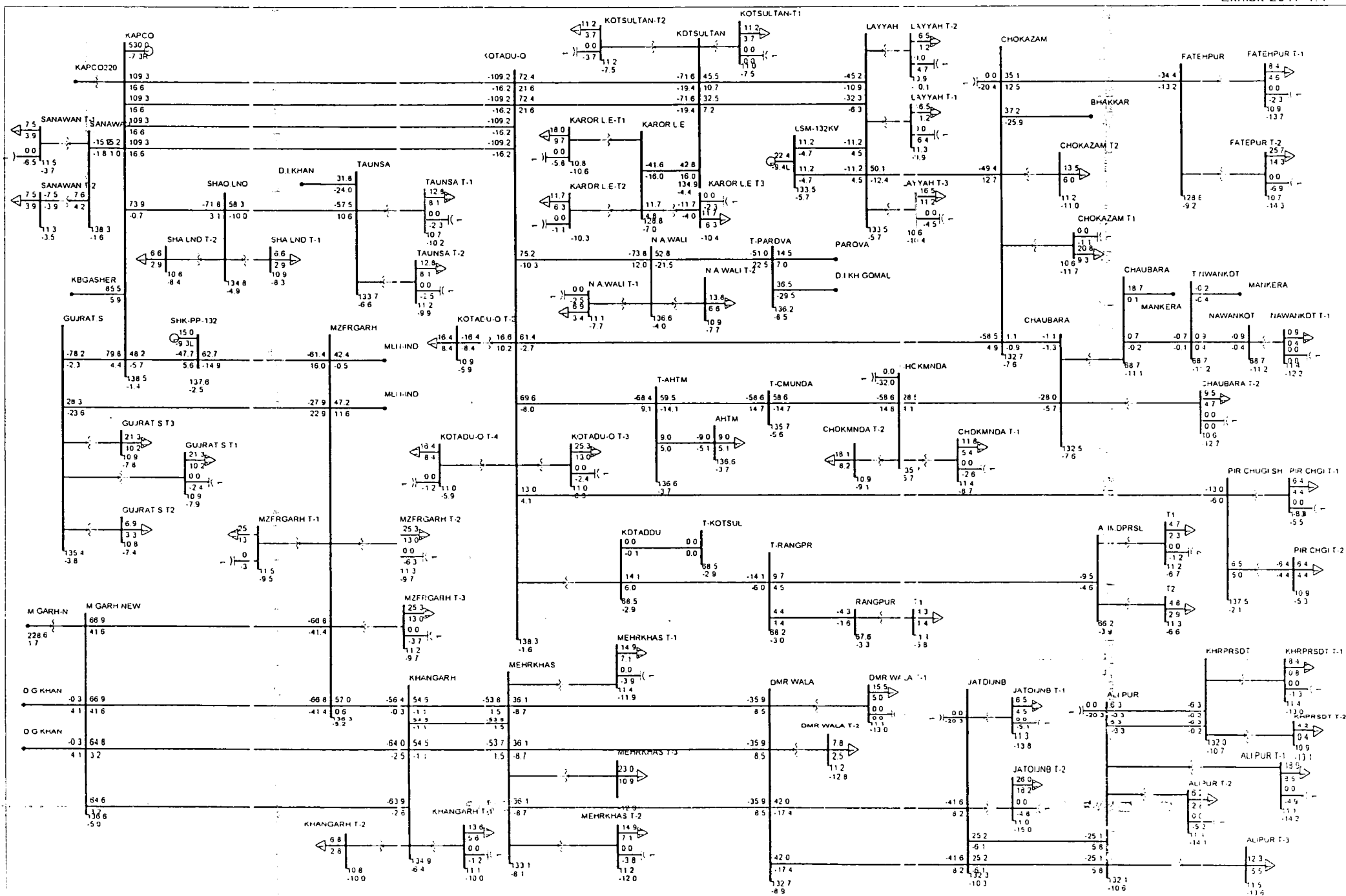


Exhibit-2017-1.4



LOAD FLOW FOR JIII MEPCO YEAR 2017 WITH REINFORCEMENT

EX-100-2017-0001

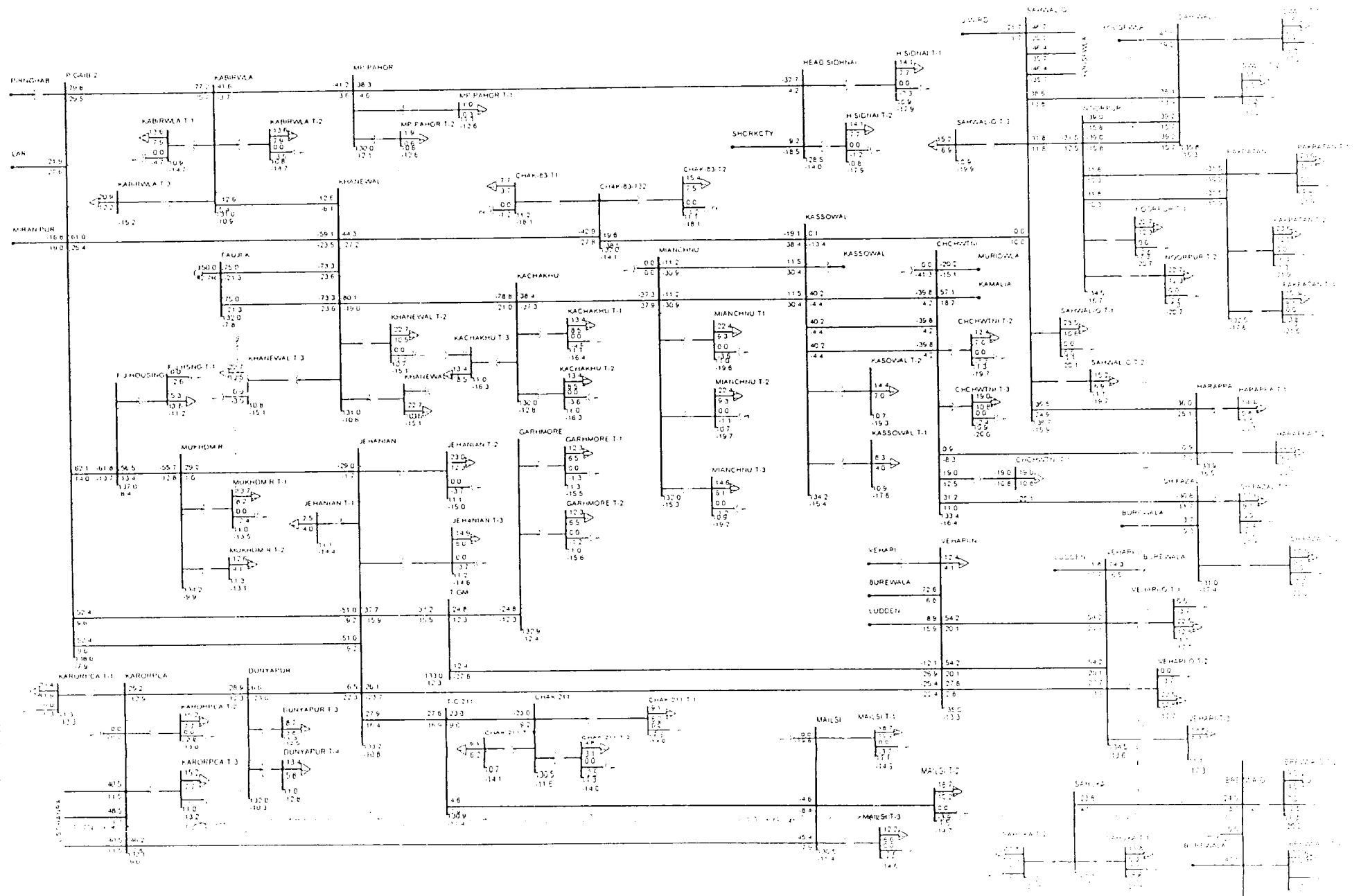
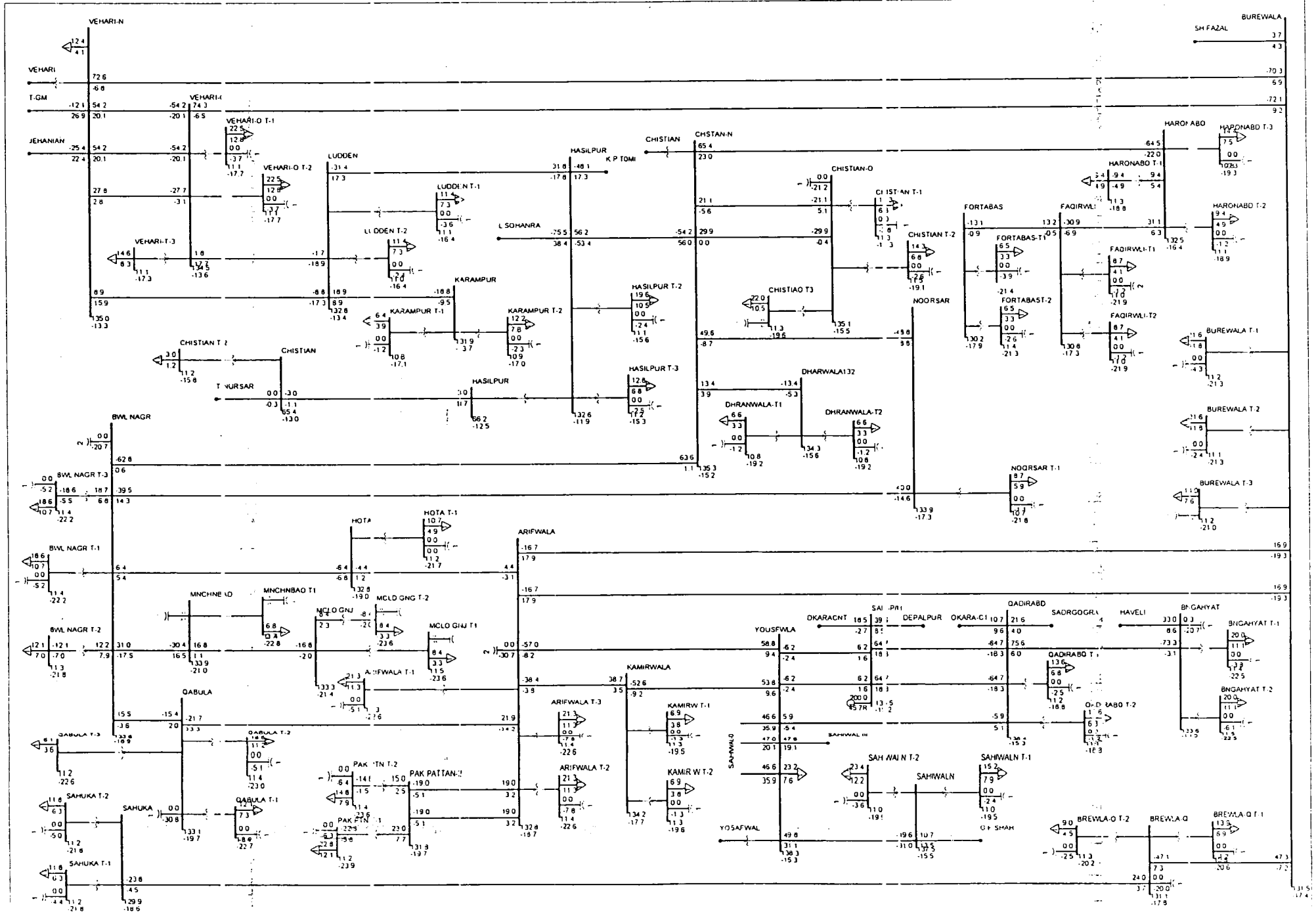
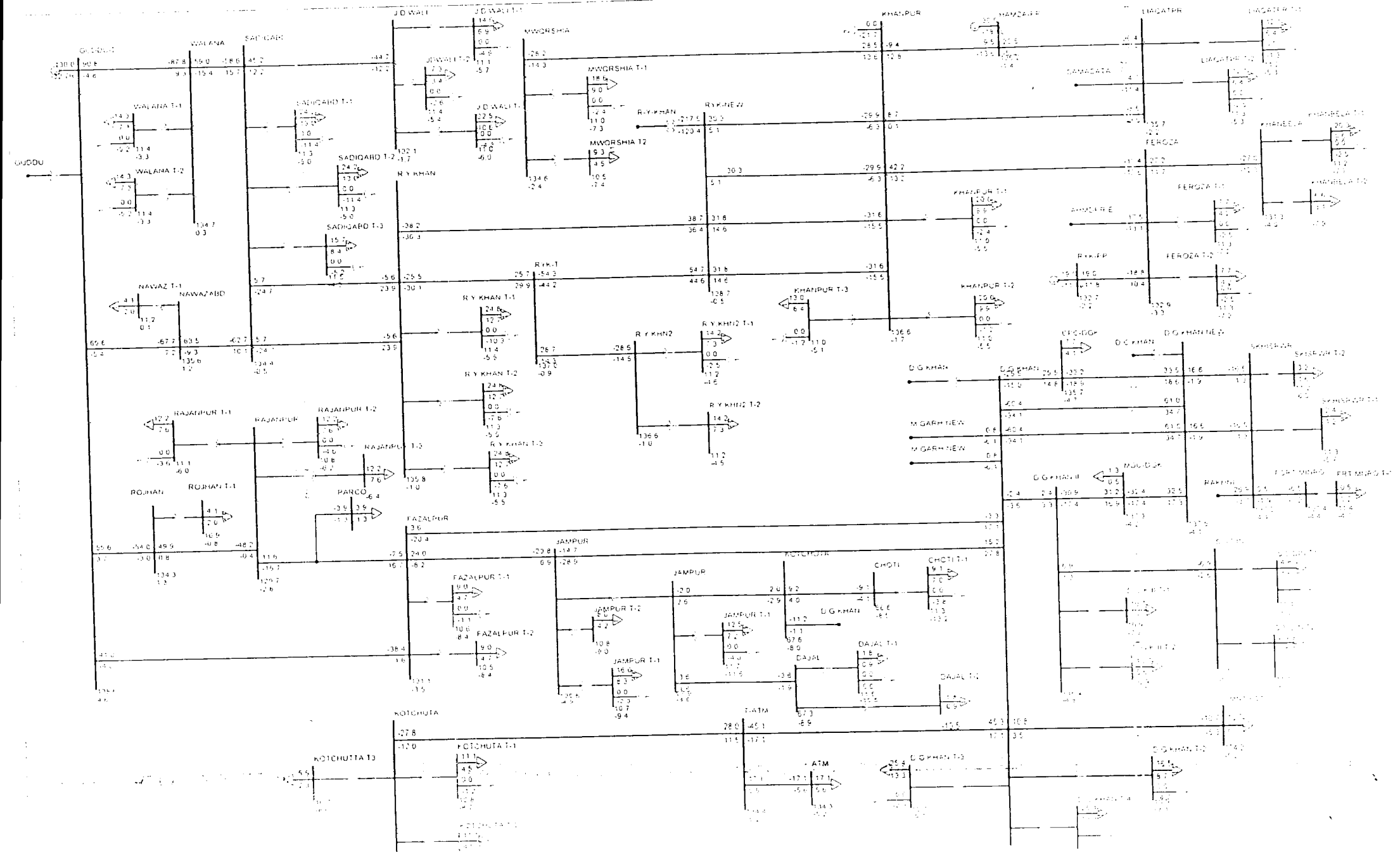


Exhibit-2017-1.6



LOAD FLOW FOR DIIP MEPCO YEAR 2017 WITHOUT ADDITIONAL REINFORCEMENT

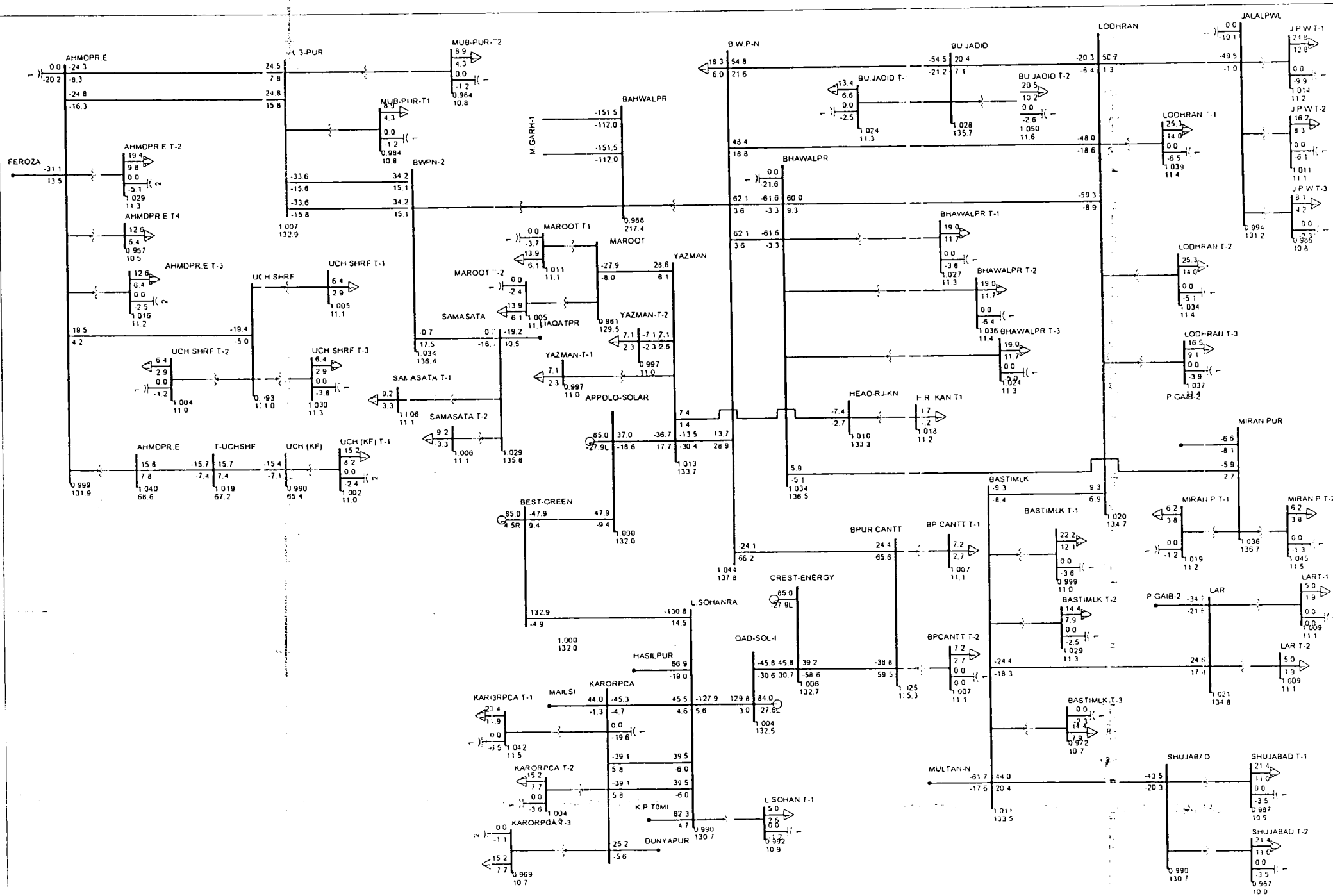
Exhibit-2017-11



LOAD FLOW FOR IGTP

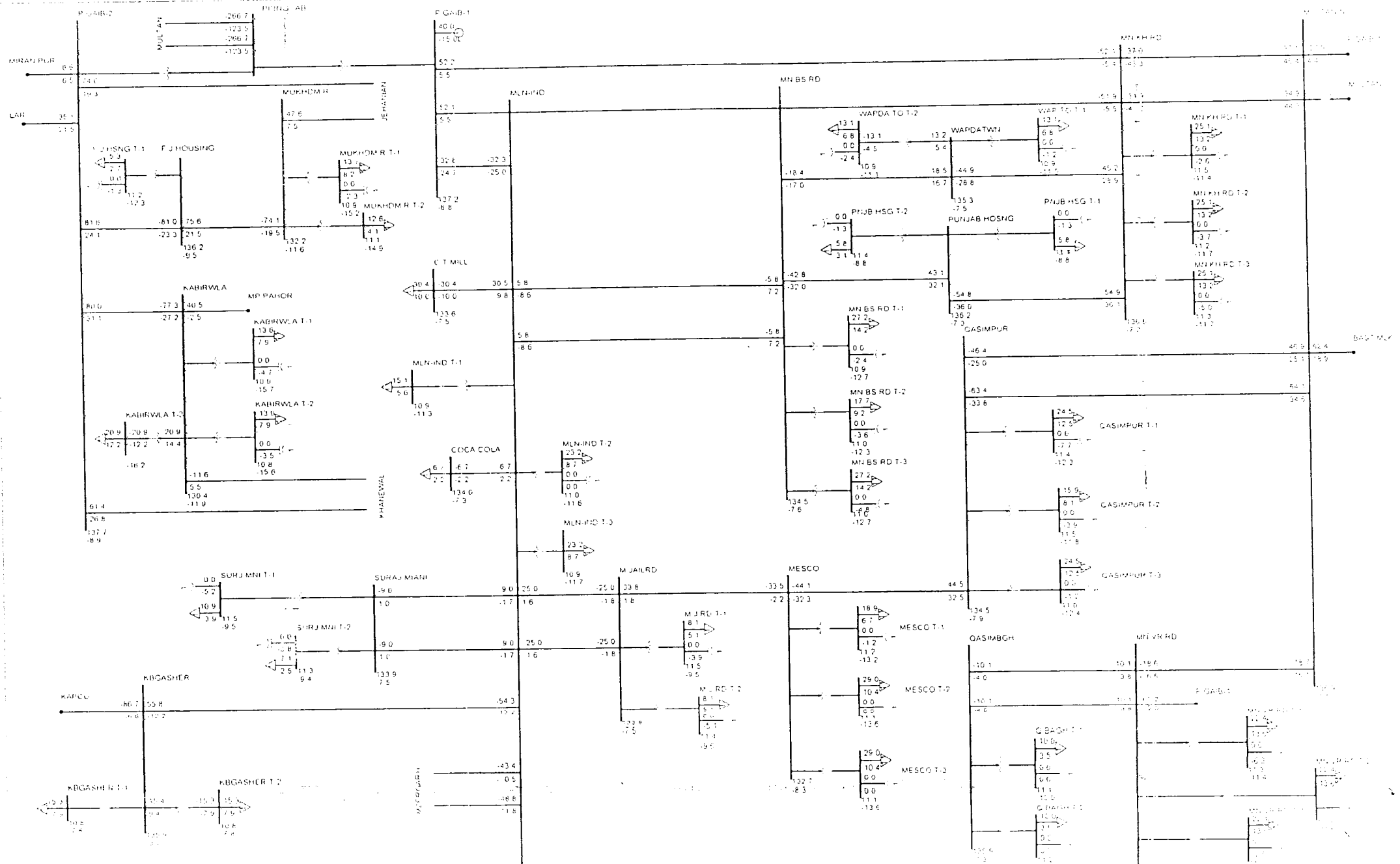
MEPCO YEAR 2017 WITHOUT REINFORCEMENT

Exhibit-2017-1.2



LOAD FLOW FOR DLP MEPCO YEAR 2017 WITHOUT REINFORCEMENT

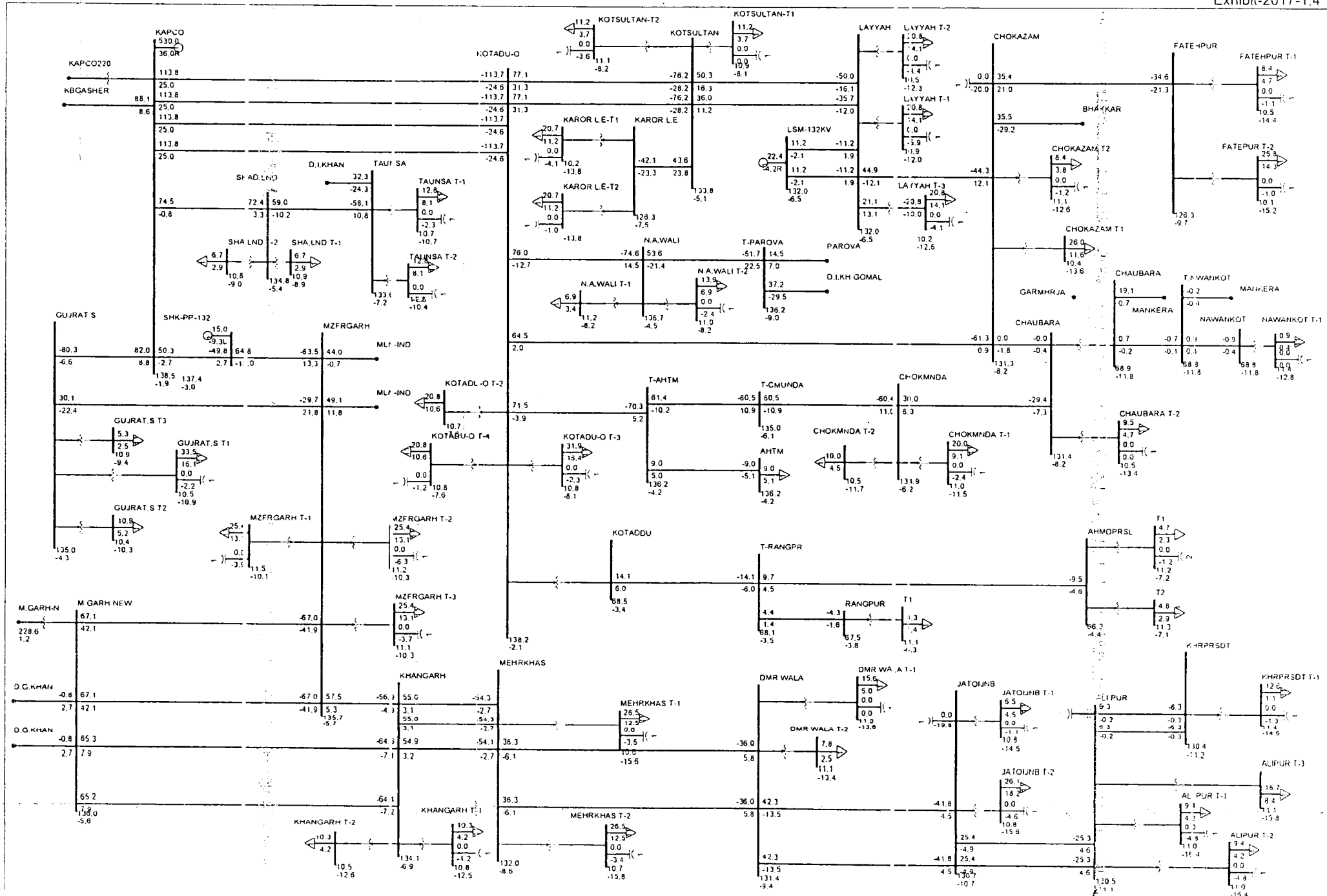
Exhibit-2017-13



LOAD FLOW FOR D11P

MEPCO YEAR 2017 WITHOUT REINFORCEMENT

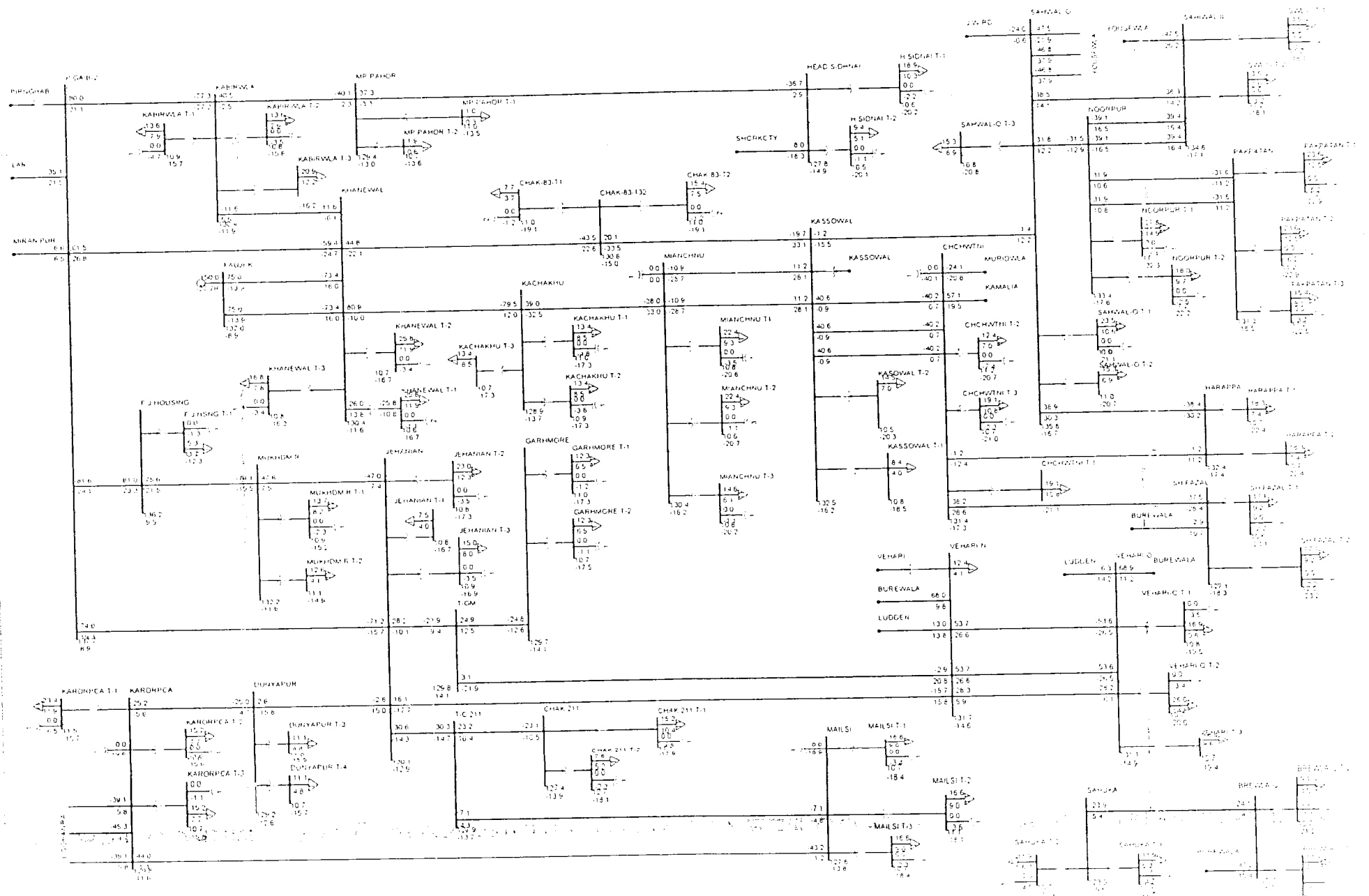
Exhibit-2017-1.4



LOAD, L.C.W. OR D.M.P

MEPCO YEAR 2017 WITHOUT REINFORCEMENT

Exhibit-2017-18



LOAD FLOW FOR LIP

MEPCO YEAR 2017 WITHOUT REINFORCEMENT

Exhibit-2017-16

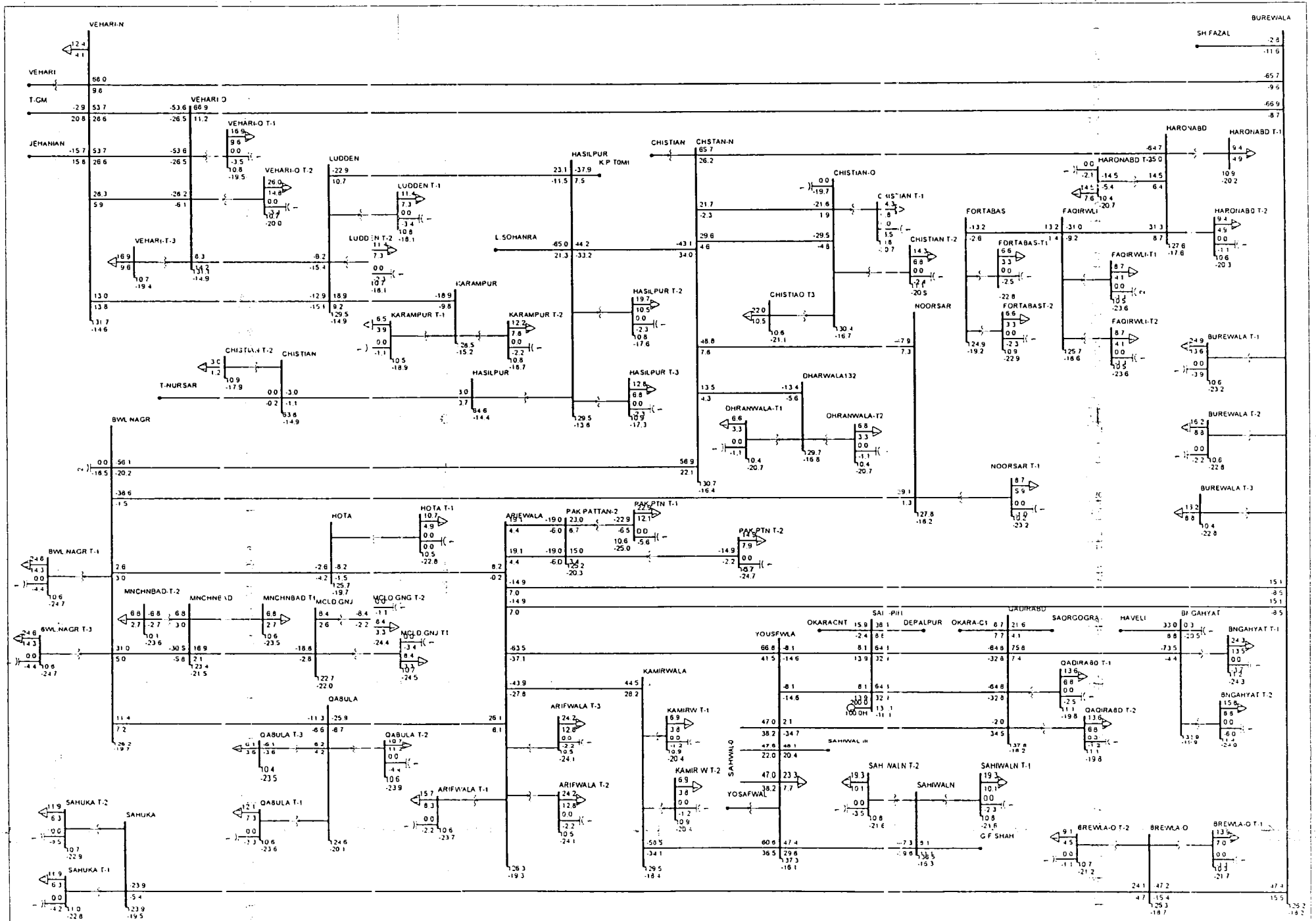
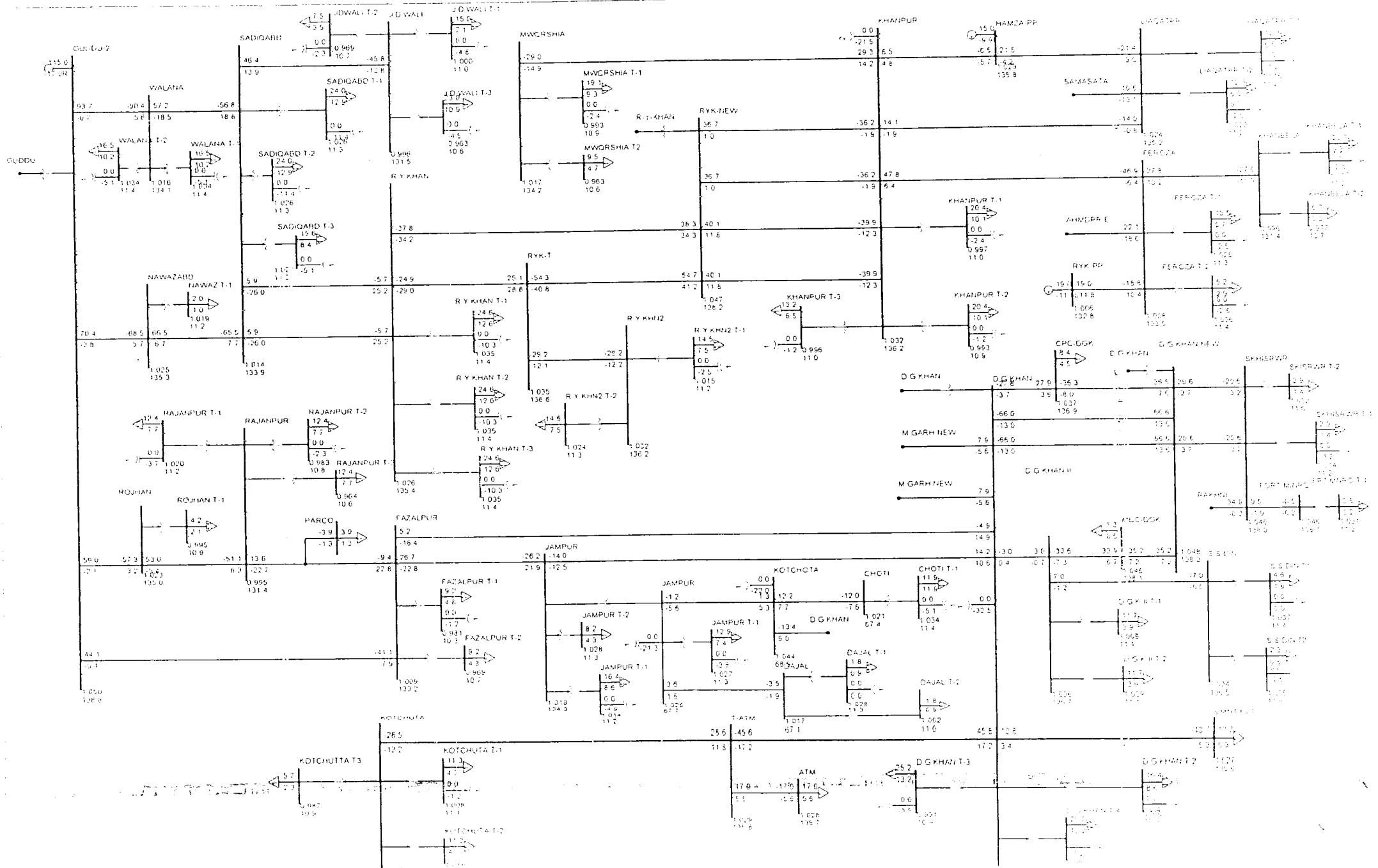


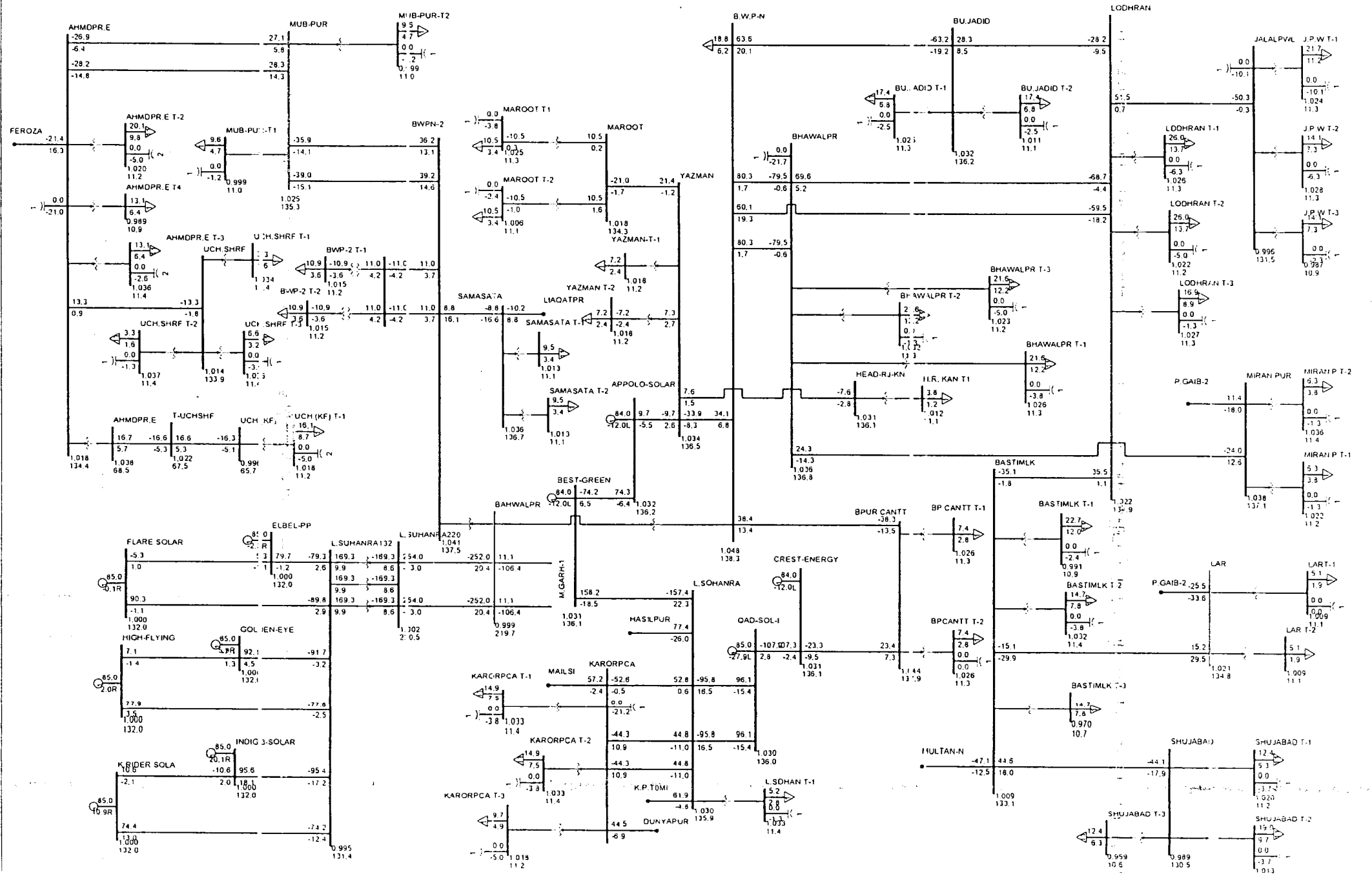
Exhibit-2018-11



LOAD FLOW FOR DLP

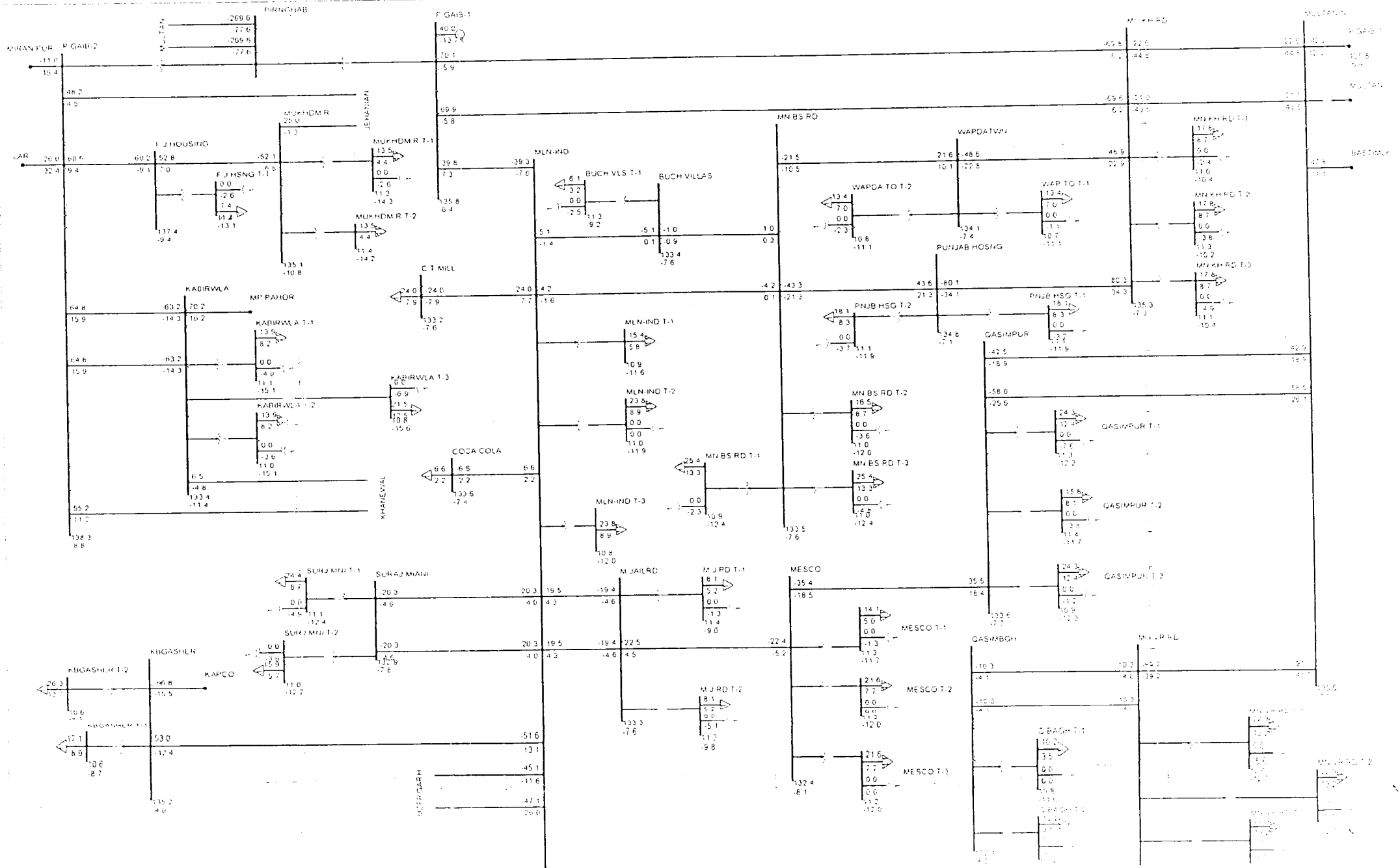
MEPCO YEAR 2018 WITH REINFORCEMENT

Exhibit-2018-1.2

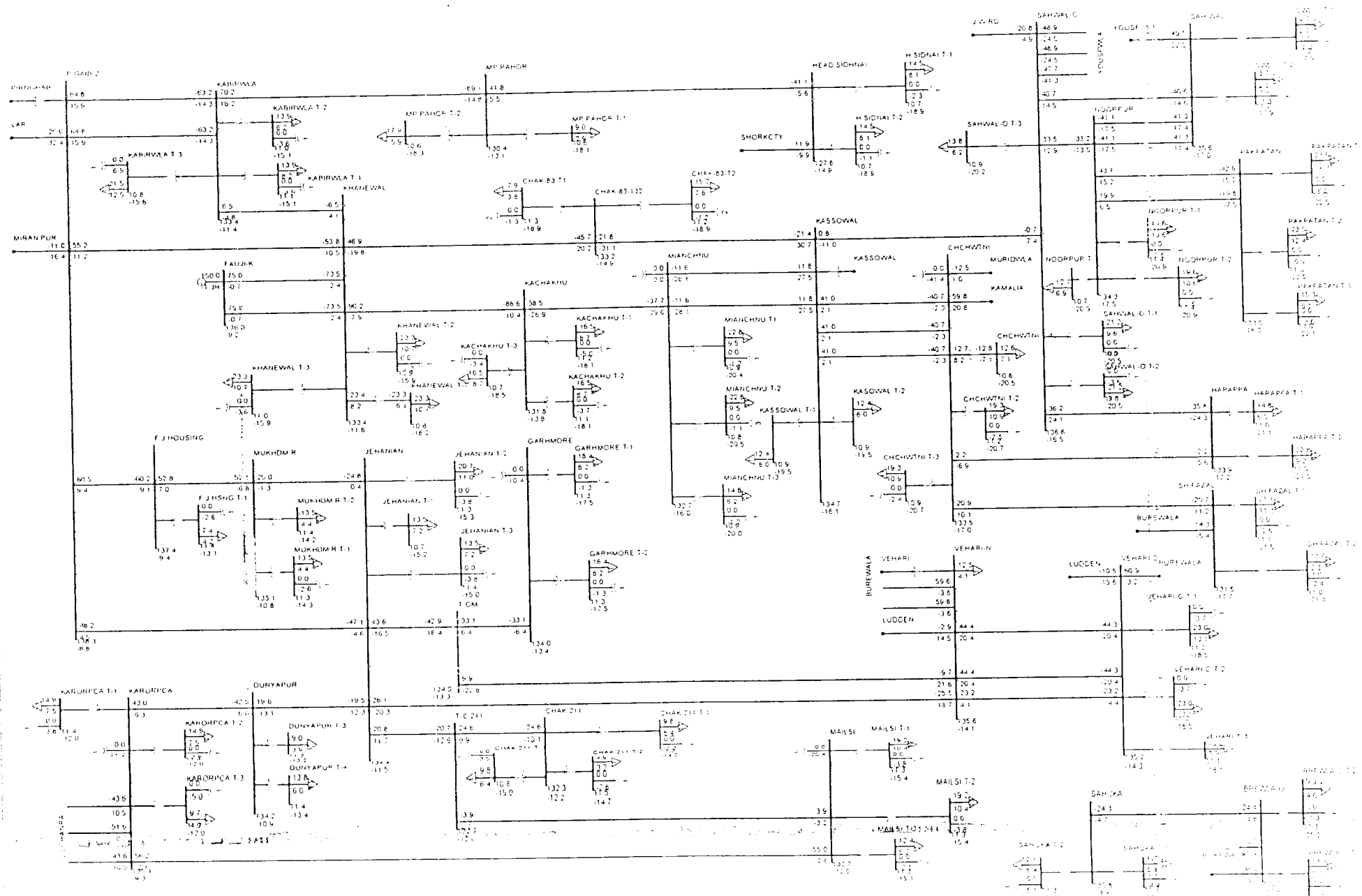


LOAD FLOW FOR DHP MEPCO YEAR 2018 WITH REINFORCEMENT

Exhibit-2018-13



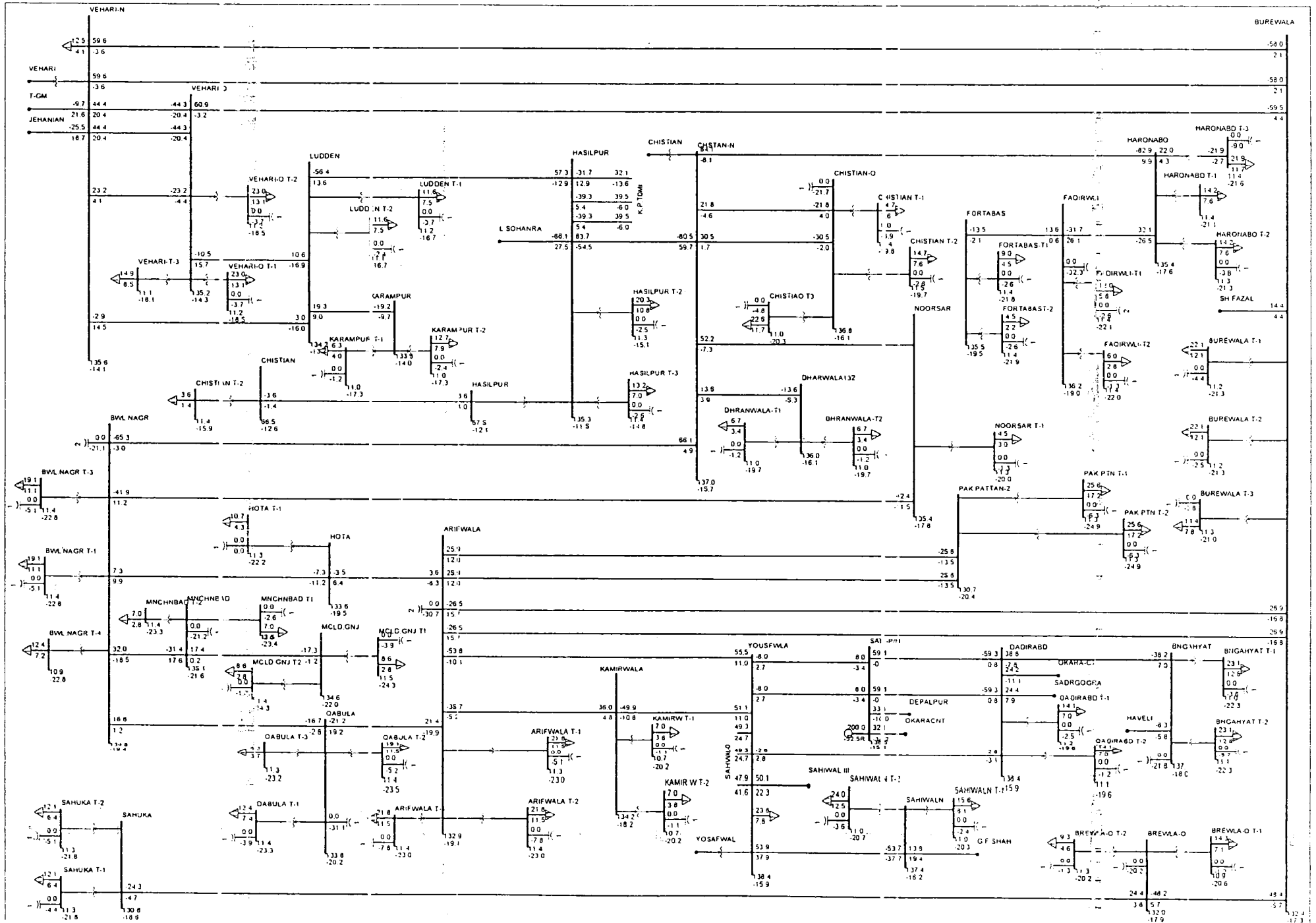
EX-100-2019-115



LOAD FLOW FOR LIP

MEPCO YEAR 2018 WITH REINFORCEMENT

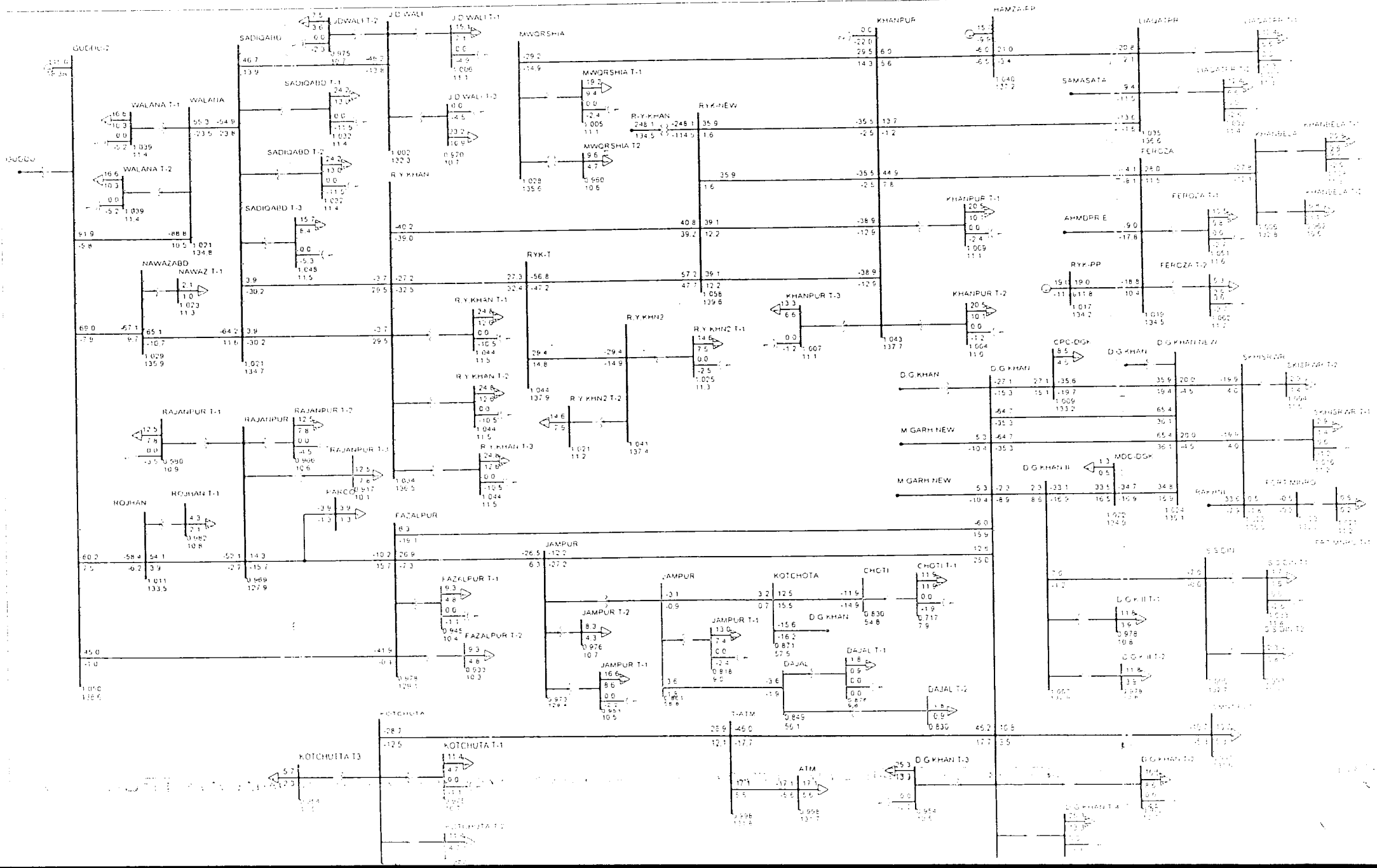
Exhibit-2018-16



LOAD FLOW FOR 2018

MEPCO YEAR 2018 WITHOUT ADDITIONAL REINFORCEMENT

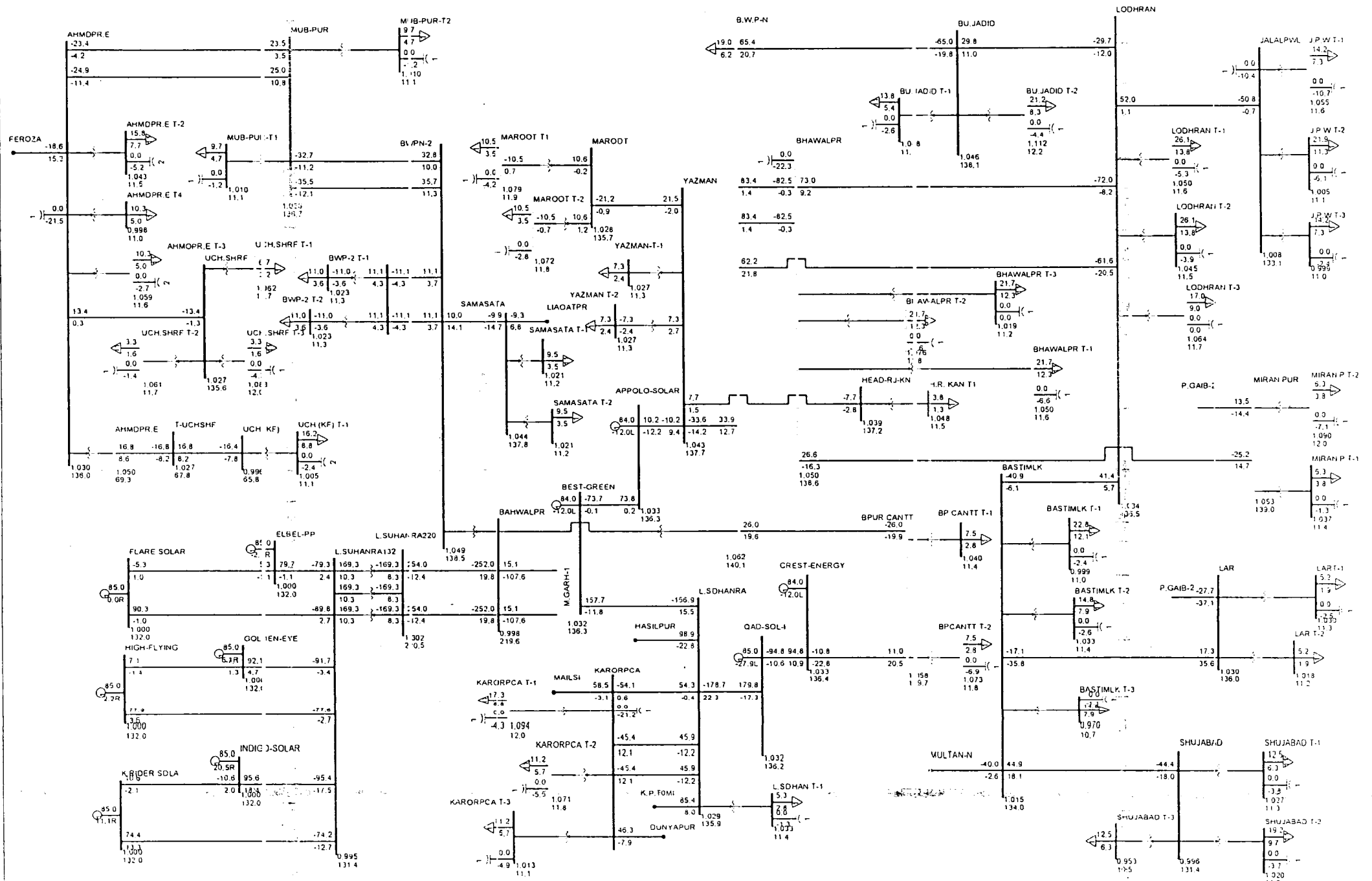
Exhibit-2018-1.1



LOAD FLOW FOR DII

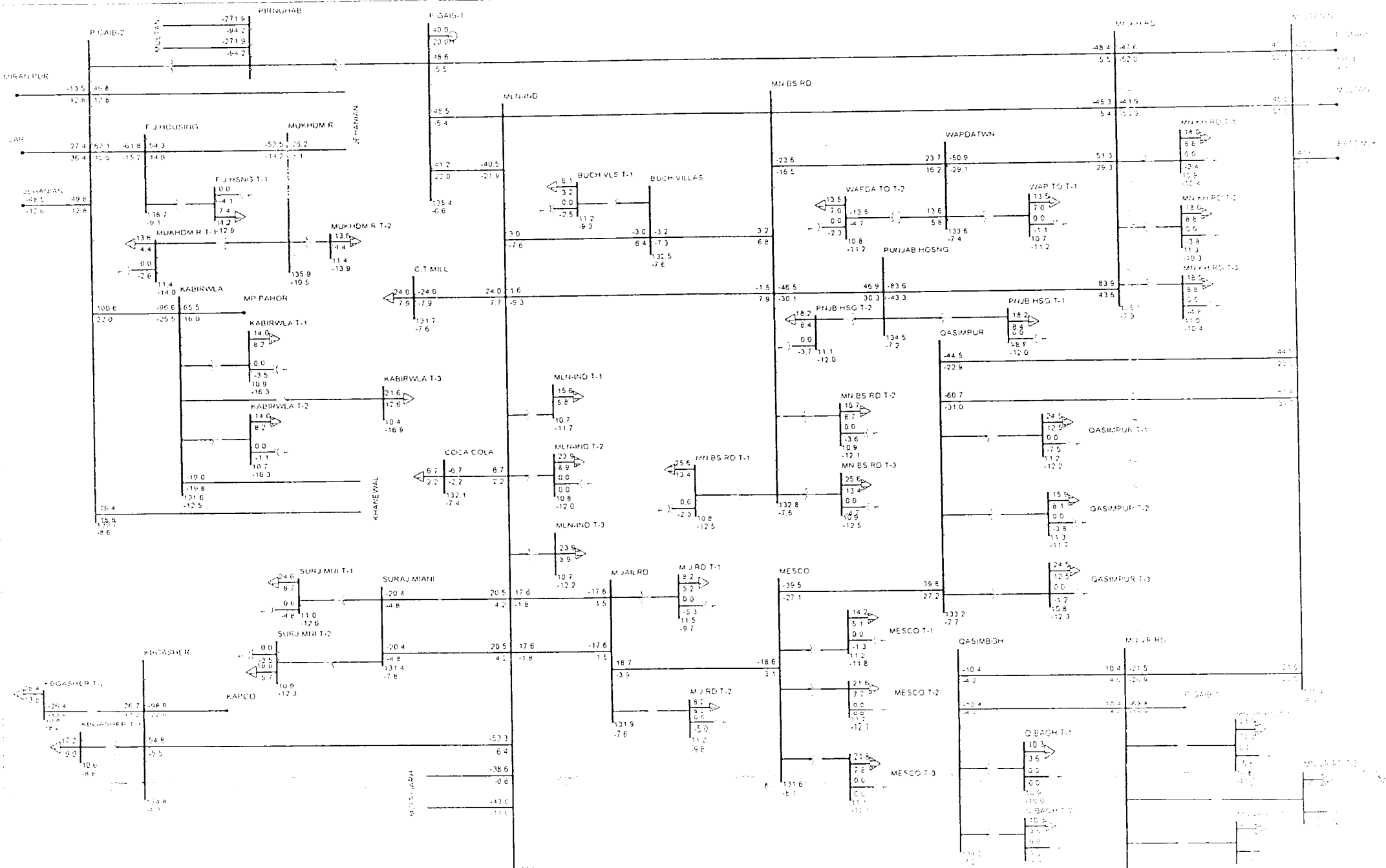
MEPCO YEAR 2018 WITHOUT REINFORCEMENT

Exhibit-2018-1.2



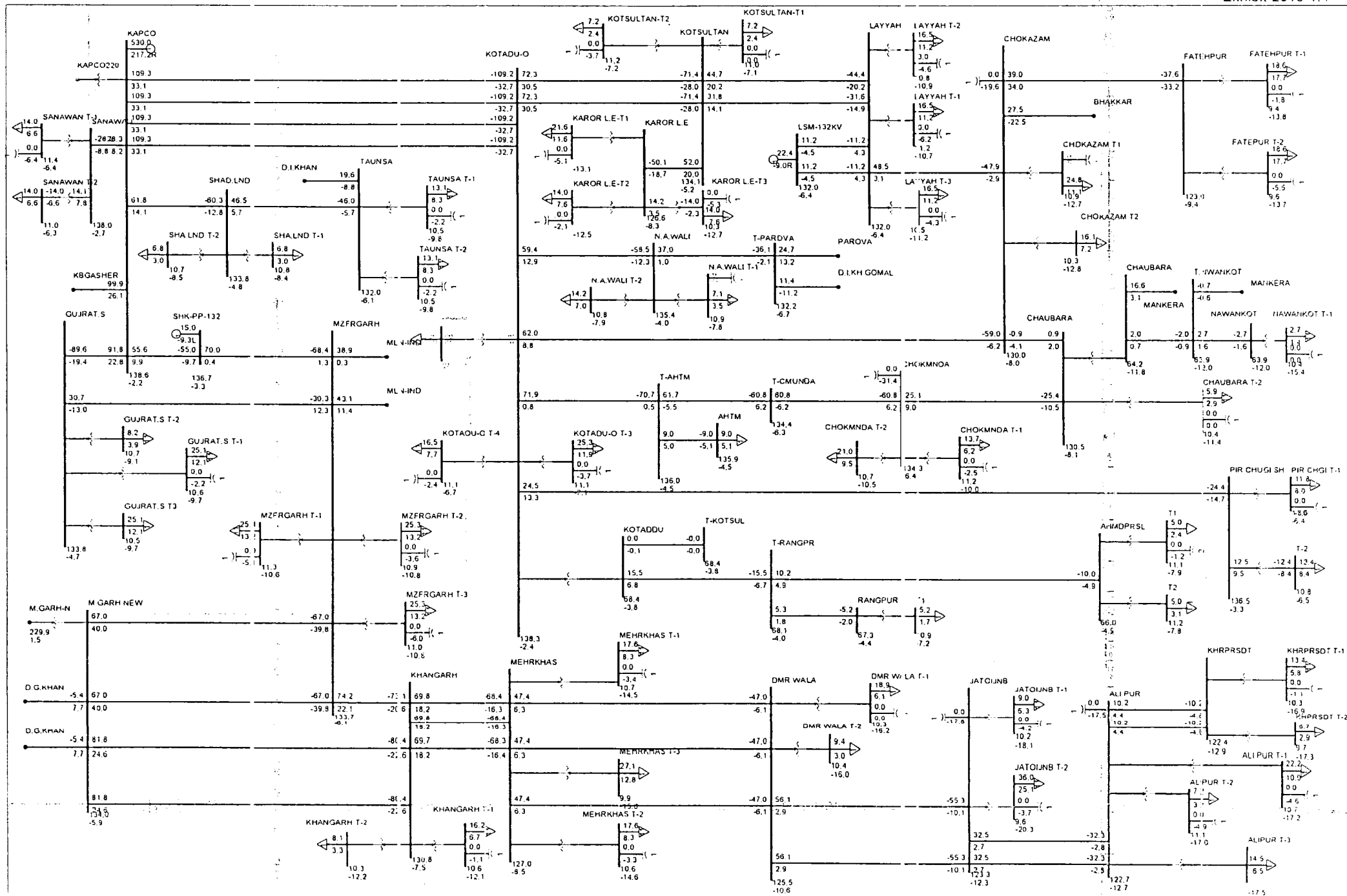
LOAD FLOW FOR DLP MEPCO YEAR 2018 WITHOUT REINFORCEMENT

Exhibit-2018-13



LOAD FLOW FOR DTP MEPCO YEAR 2018 WITHOUT REINFORCEMENT

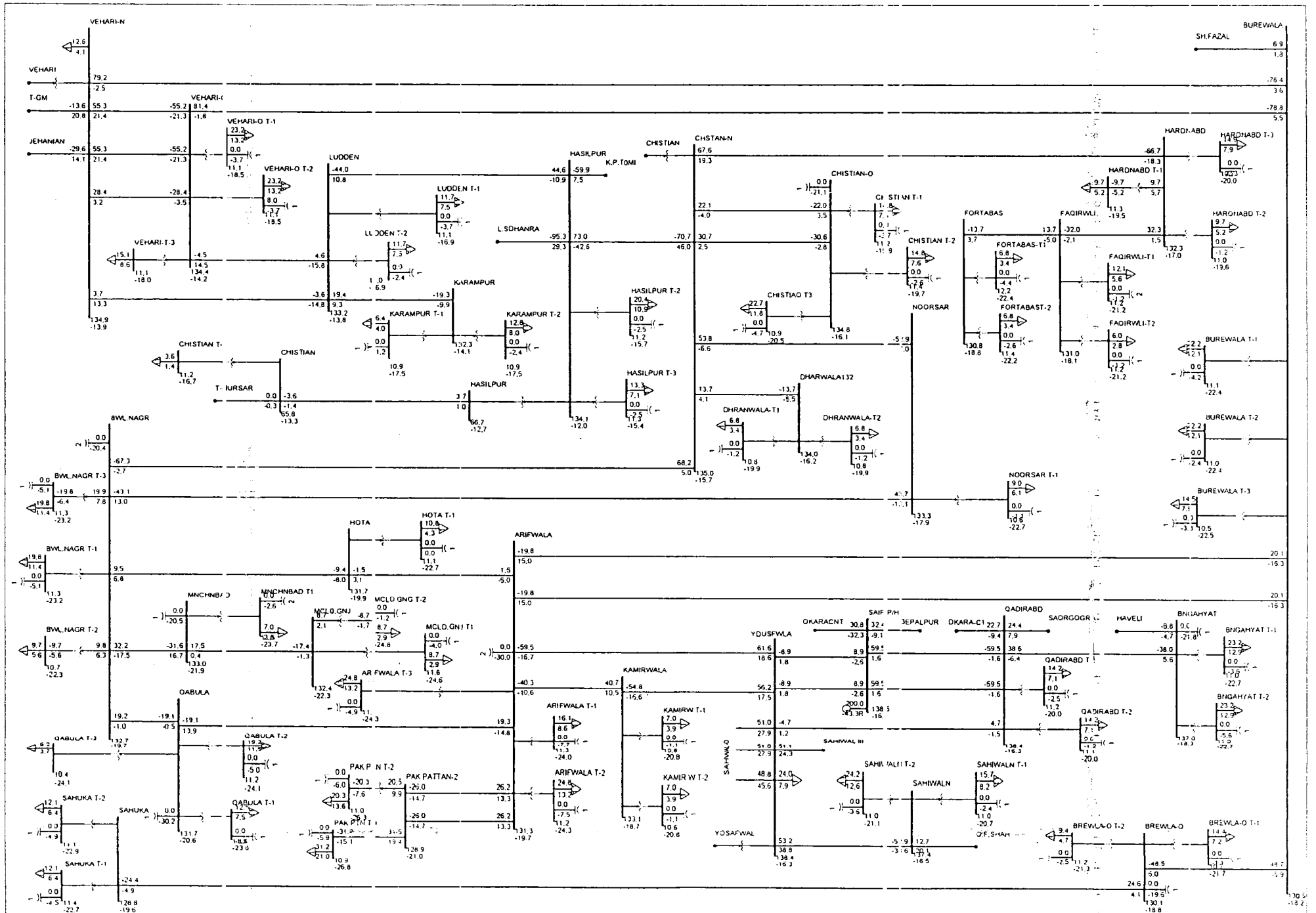
Exhibit-2018-1.4



LOAD FLOW FOR D.F.P

MEPCO YEAR 2018 WITHOUT REINFORCEMENT

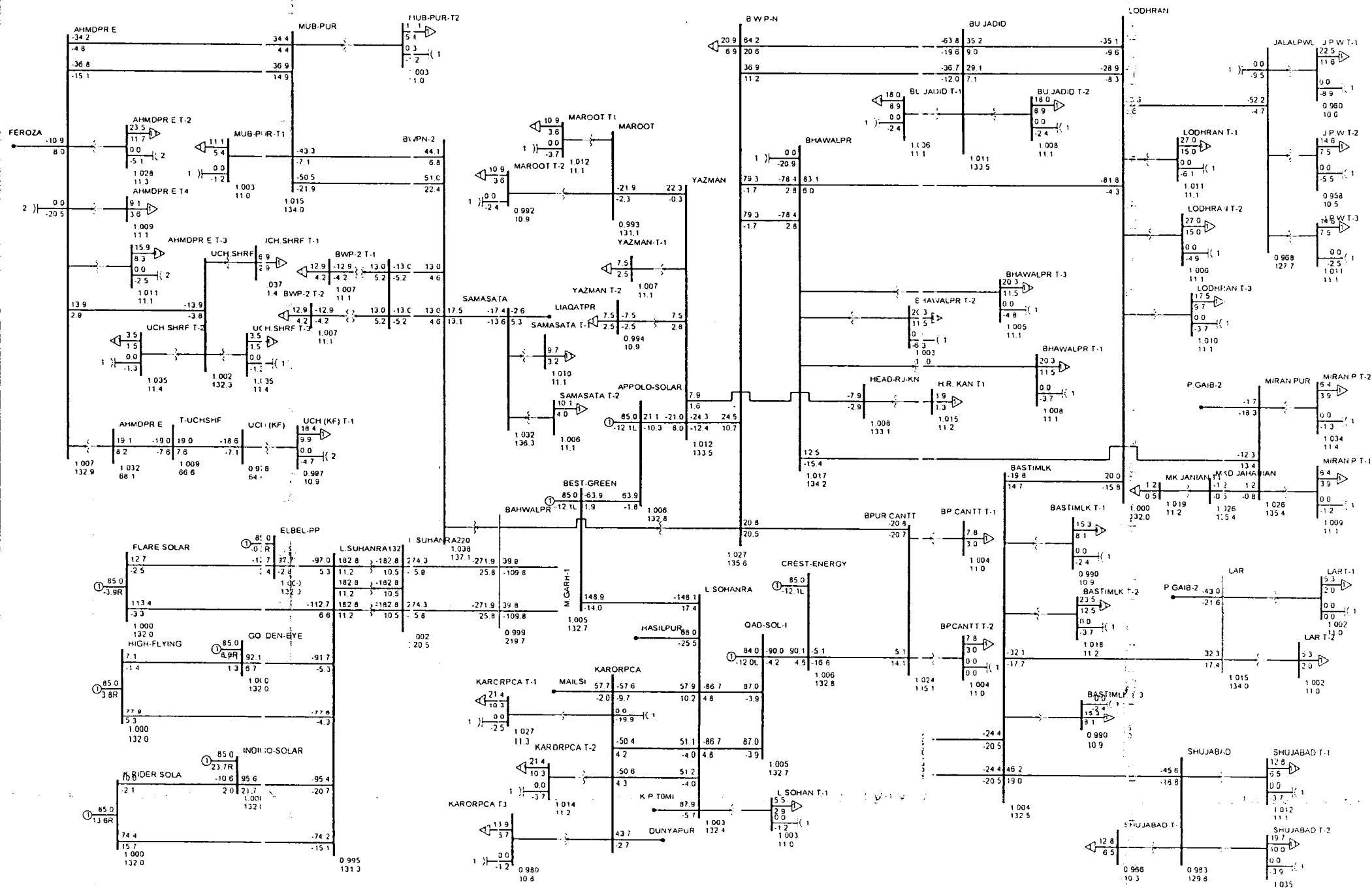
Exhibit-2018-16



LOAD FLOW FOR LIP

MEPCO YEAR 2019 WITH REINFORCEMENT

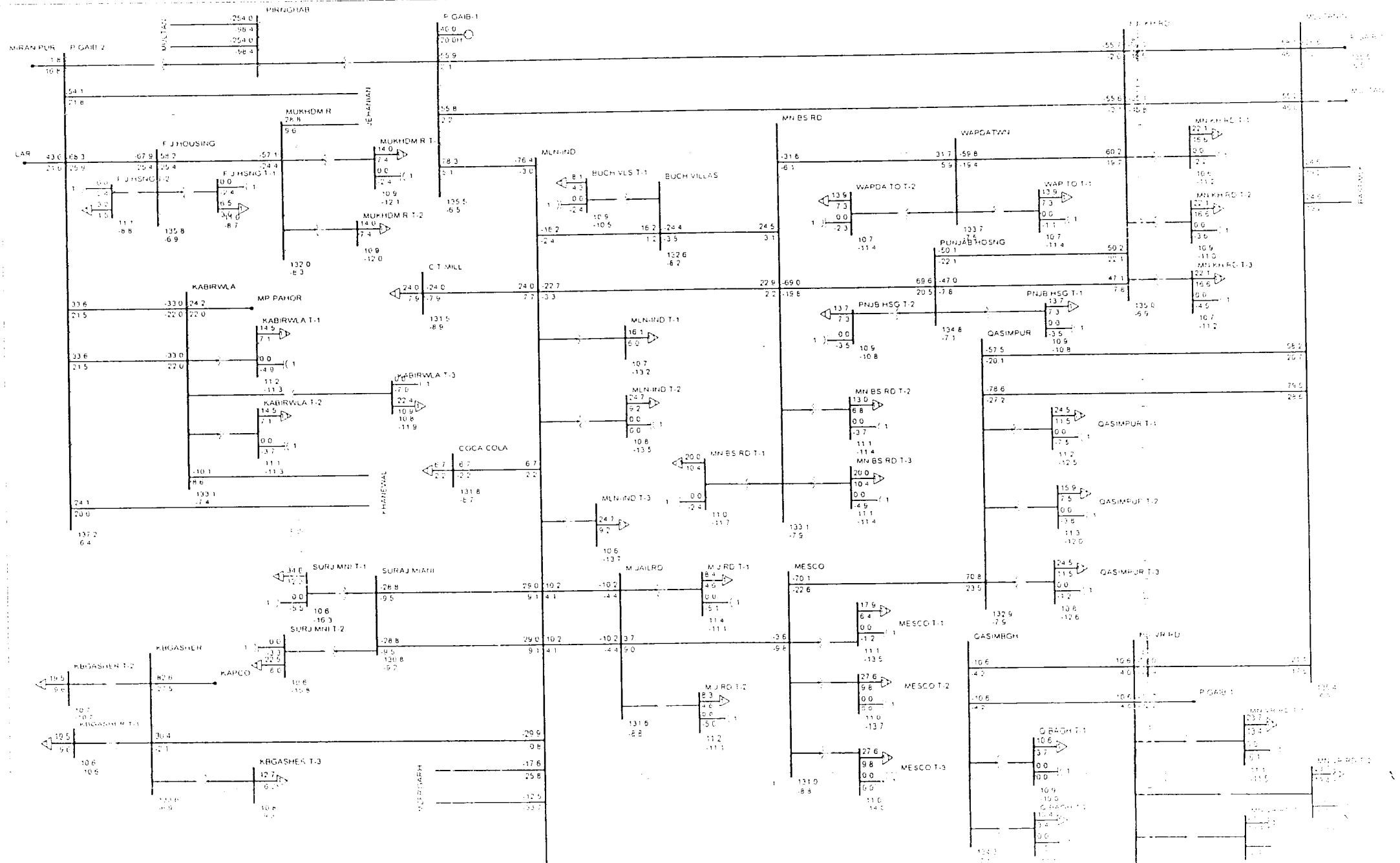
Exhibit-2019-1.2



LOAD FLOW FOR 2019

MEPCO YEAR 2019 WITH REINFORCEMENT

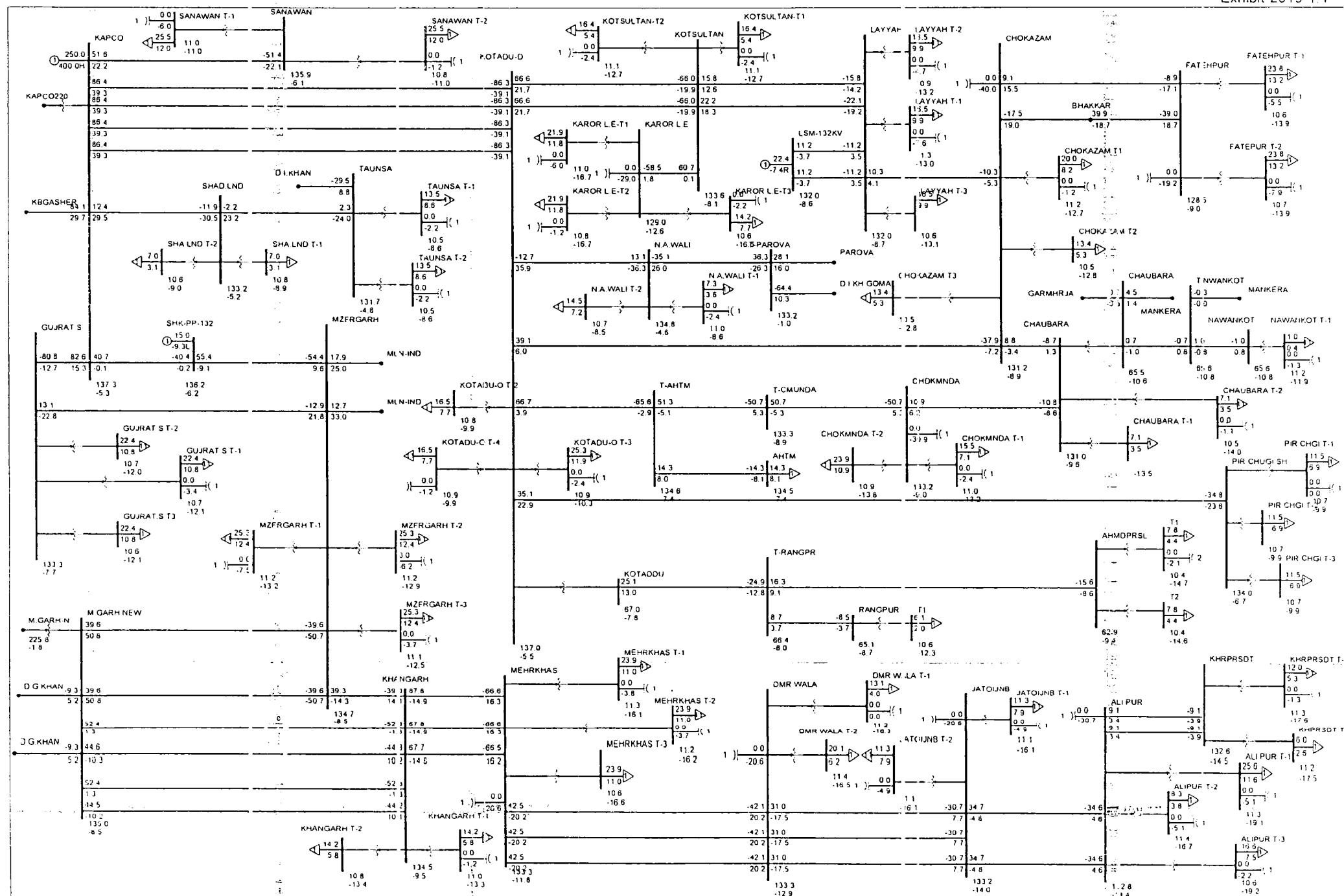
Exhibit-2019-13



LOAD FLOW FOR DIP

MEPCO YEAR 2019 WITH REINFORCEMENT

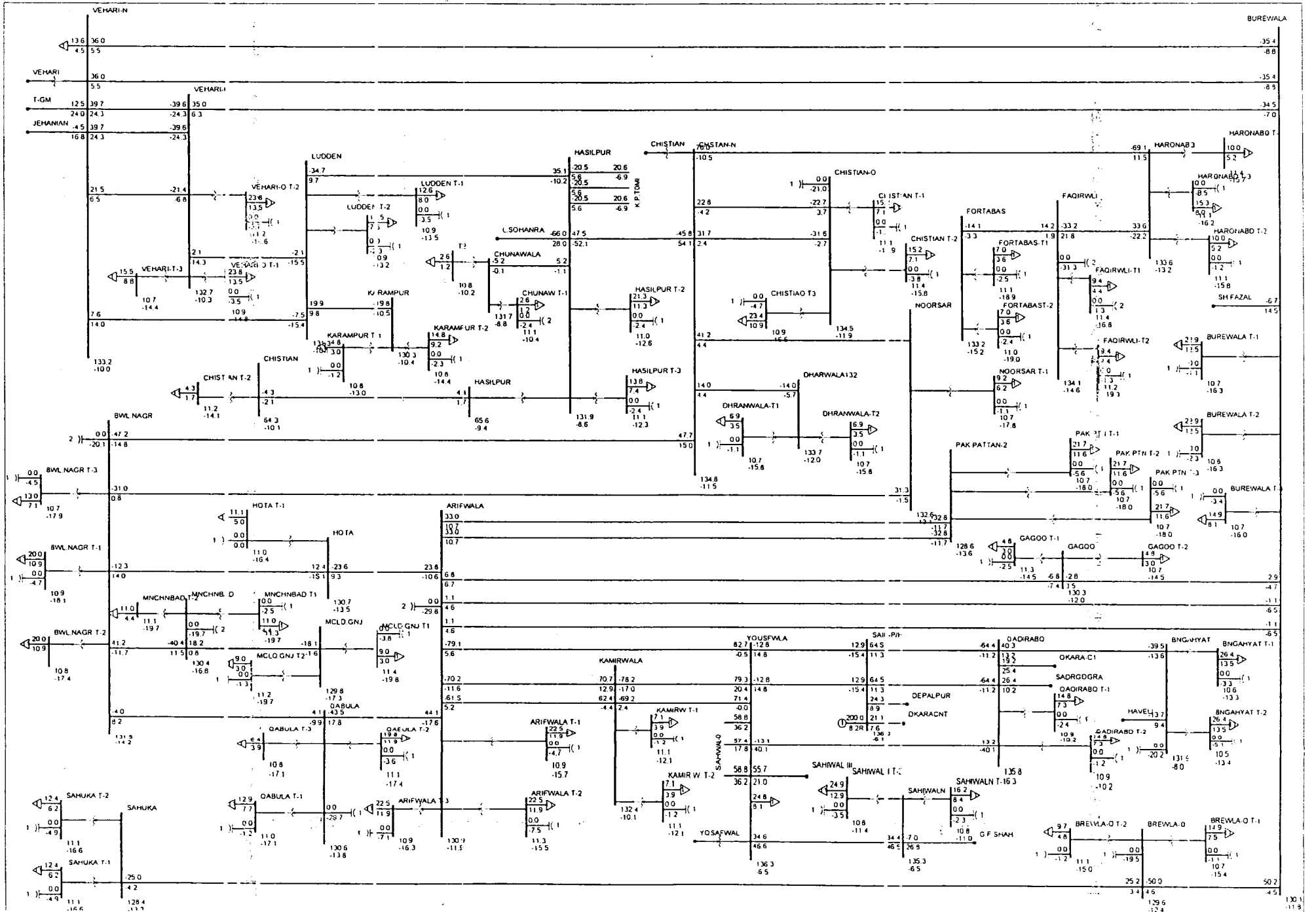
Exhibit-2019-1.4



LOCAL FLOW FOR D.P

MEPCO YEAR 2019 WITH REINFORCEMENT

Exhibit-2019-1.6



LOAD FLOW FOR DLP

MEPCO YEAR 2019 WITHOUT REINFORCEMENT

Exhibit-2019-1.2

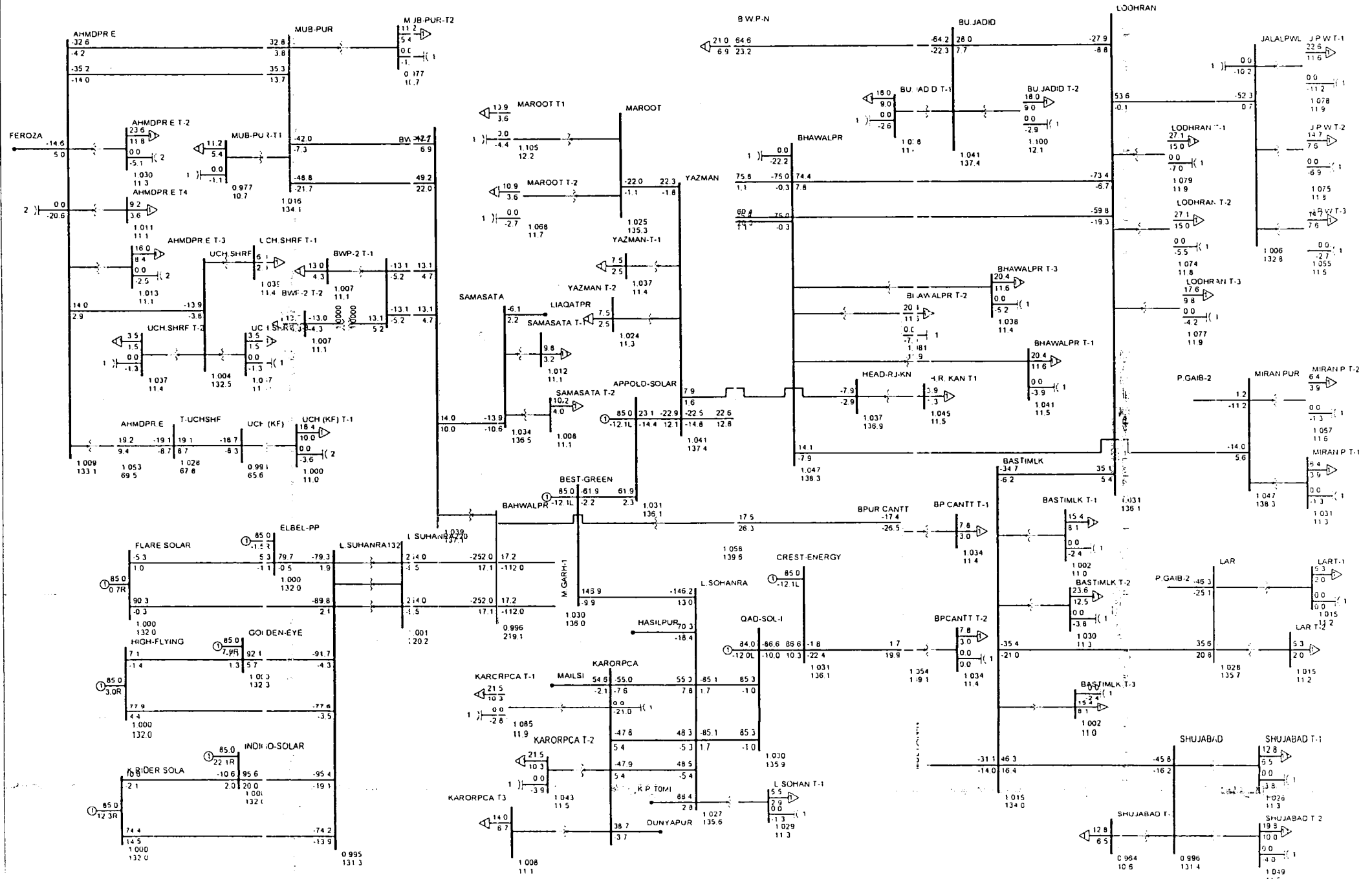
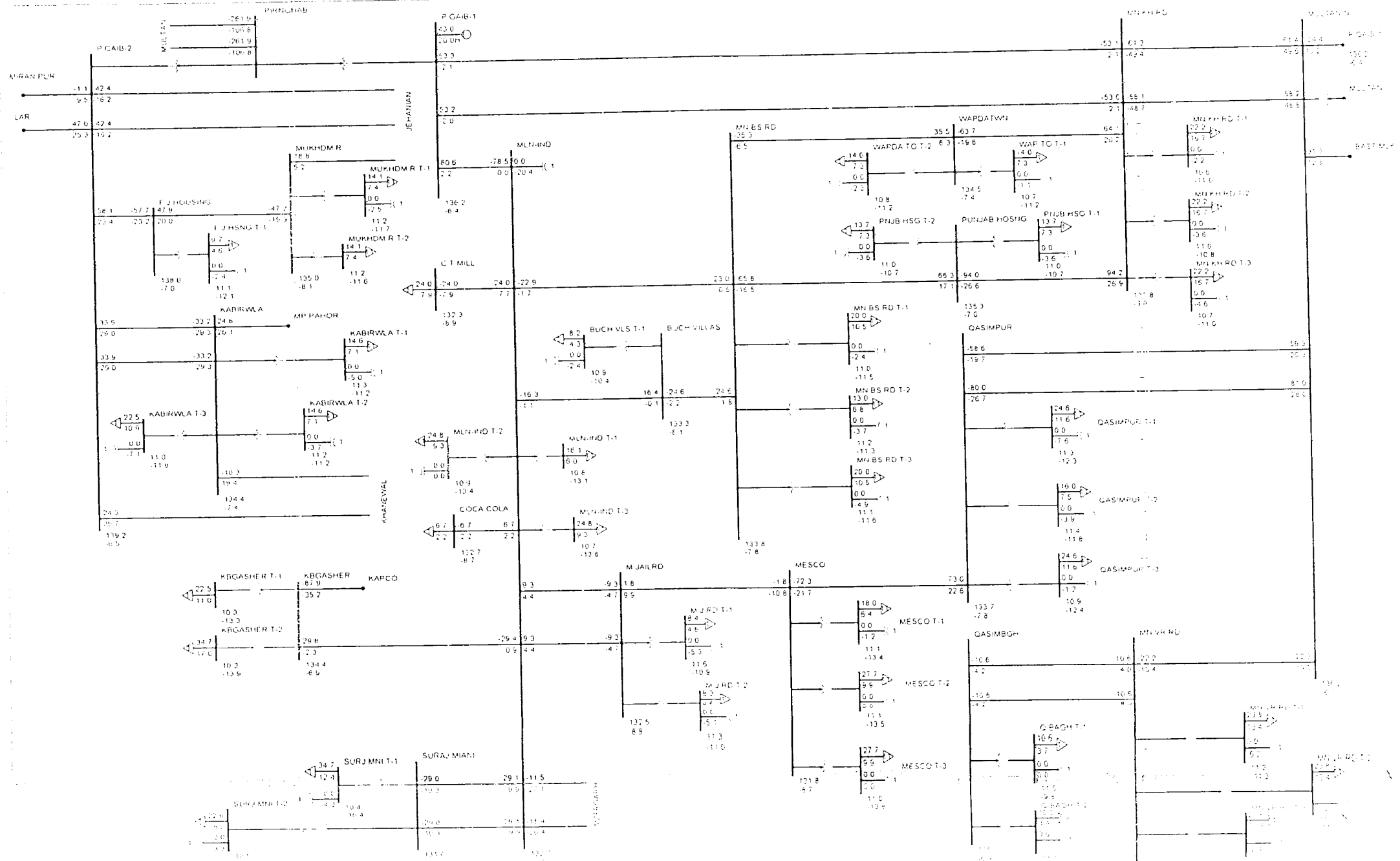


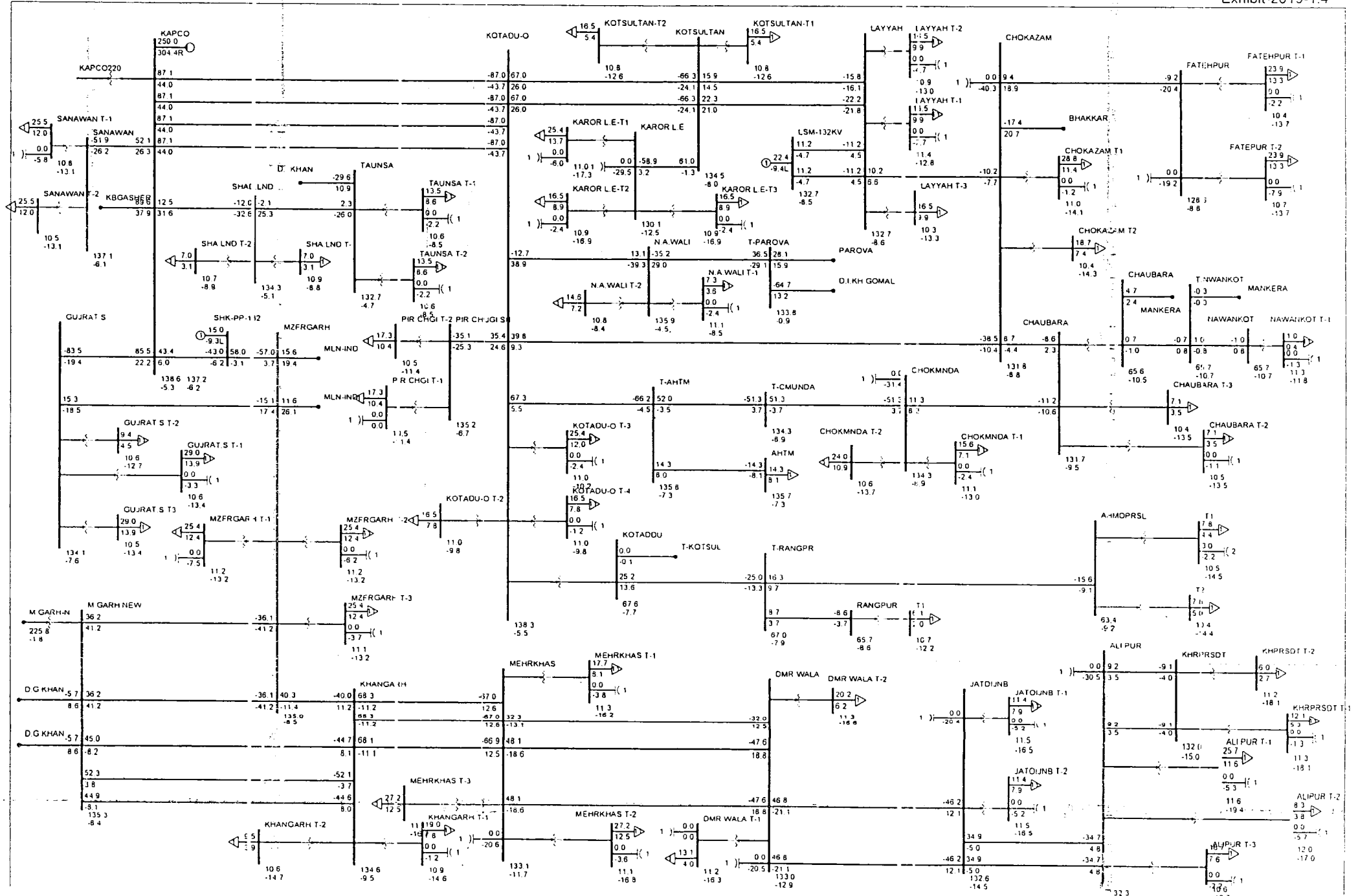
Exhibit-2019-13



LOAD FLOW FOR IGIDP

MEPCO YEAR 2019 WITHOUT REINFORCEMENT

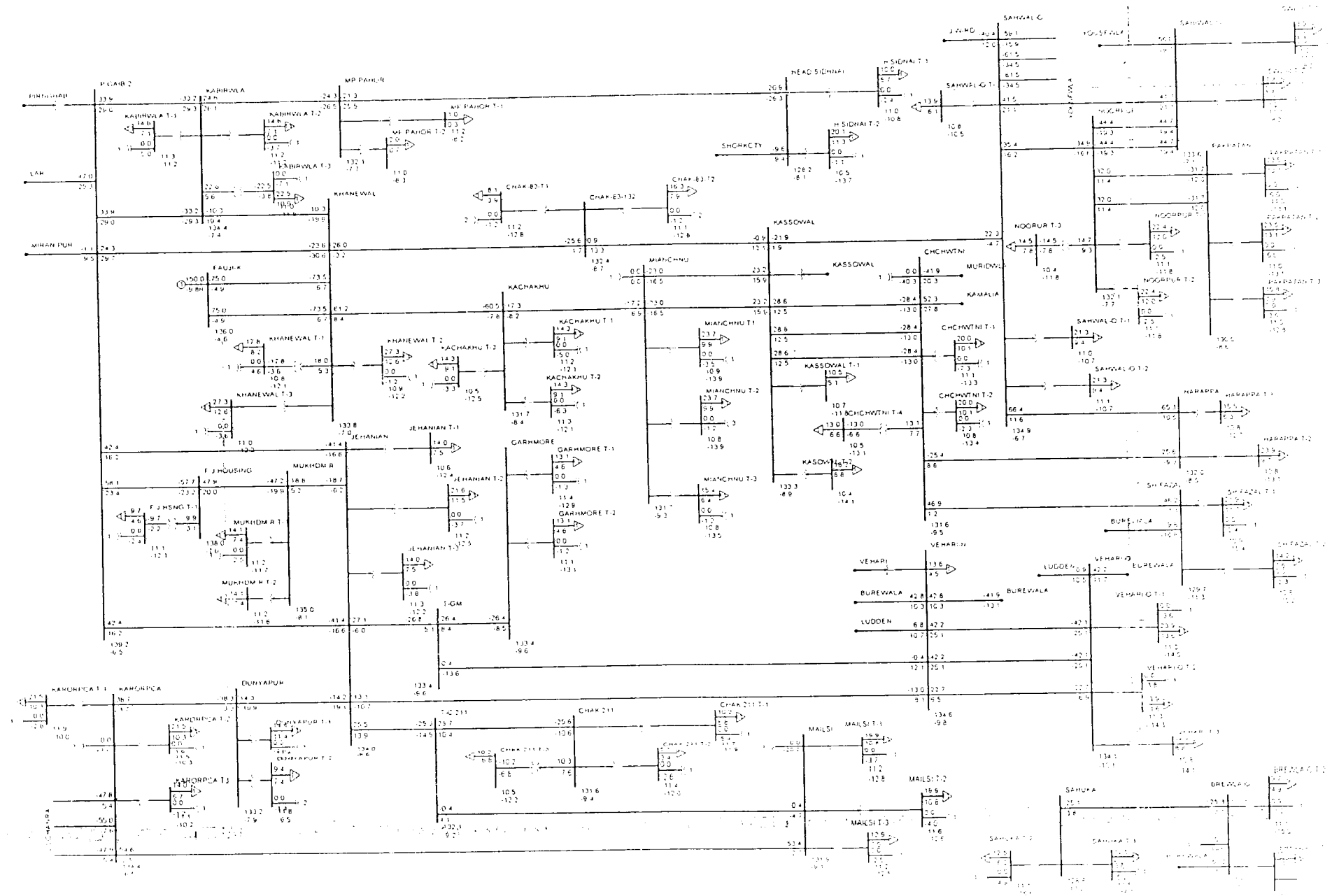
Exhibit-2019-1.4



LOCAL FLOW, FOR JIII

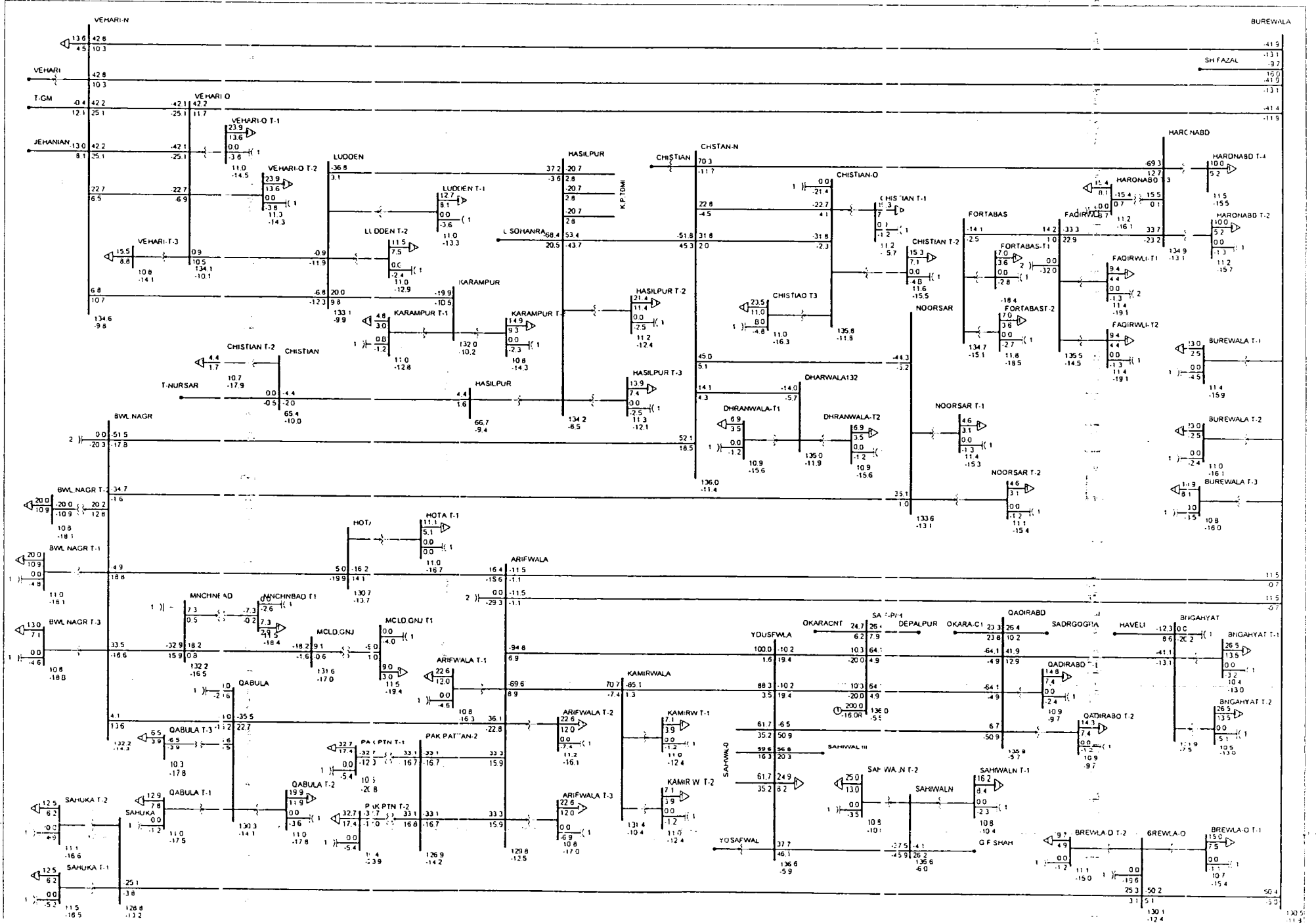
MEPCO YEAR 2019 WITHOUT REINFORCEMENT

Exhibit-2019-1.5



LOAD FLOW CALCULATION MEPCO YEAR 2019 WITHOUT REINFORCEMENT

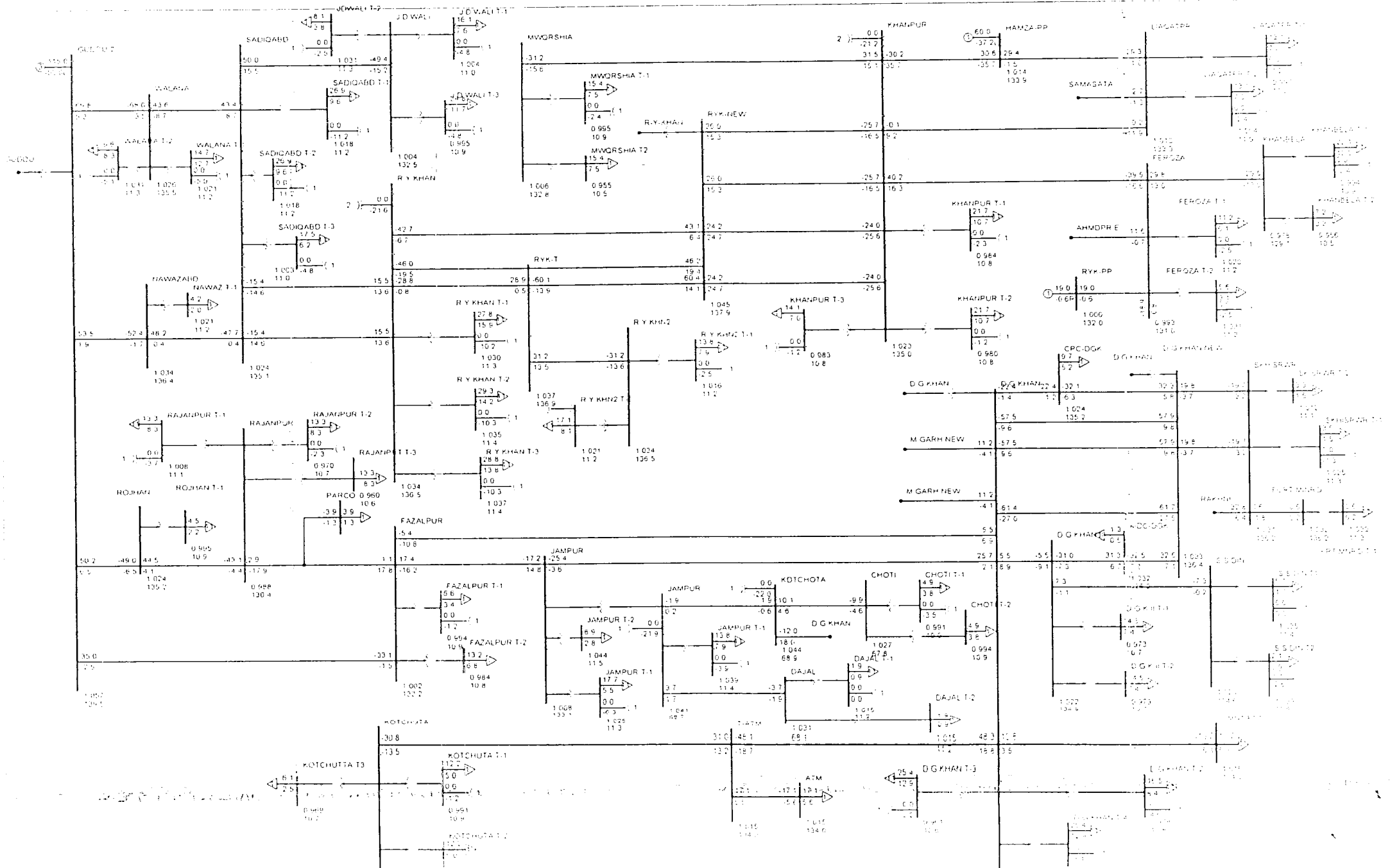
Exhibit-2019-1.6



LOAD FLOW FOR DIP

MEPCO YEAR 2020 WITH ADDITIONAL REINFORCEMENT

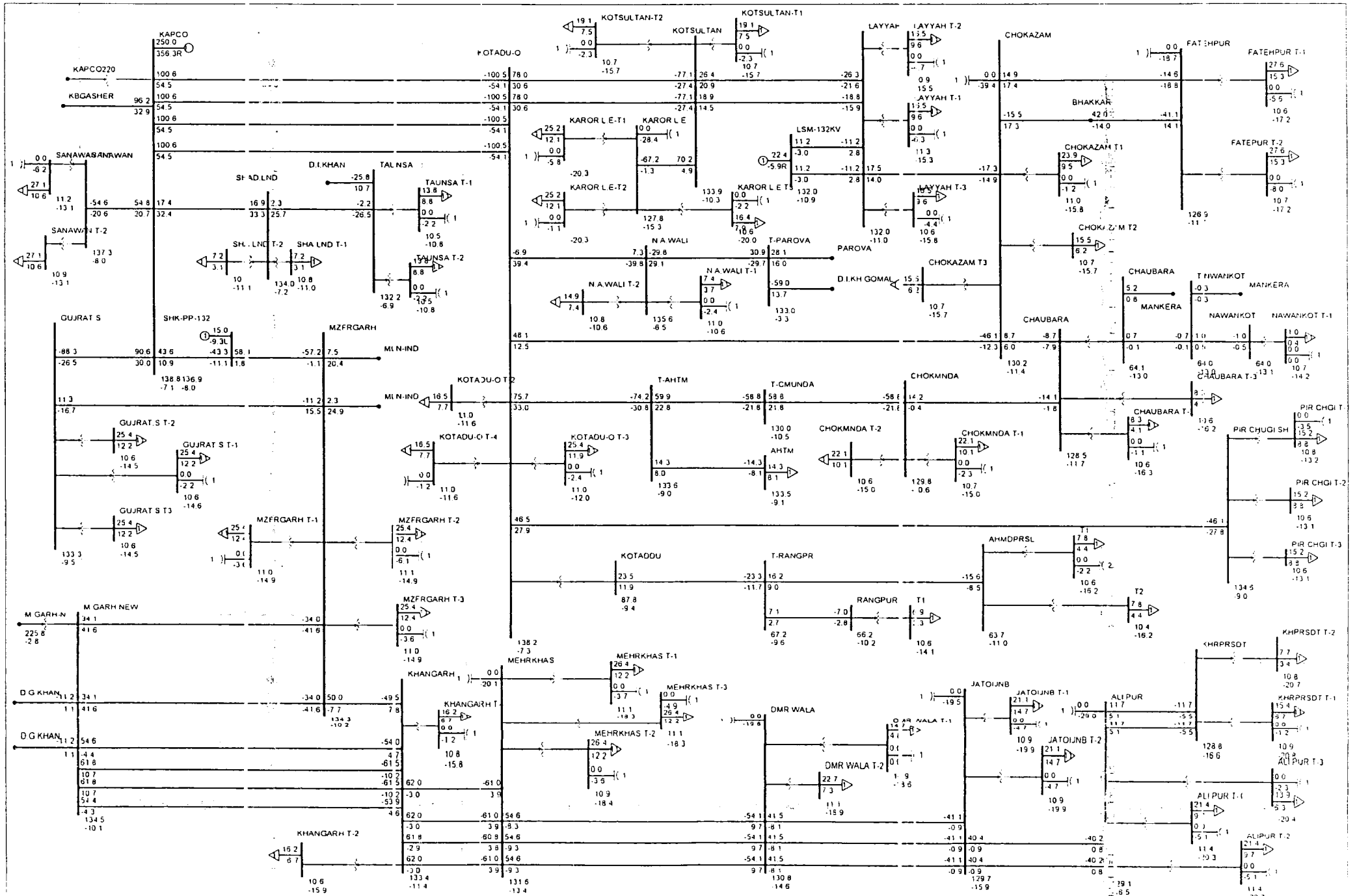
Exhibit-2020-11



LOAD FLOW FOR DLP

MEPCO YEAR 2020 WITH REINFORCEMENT

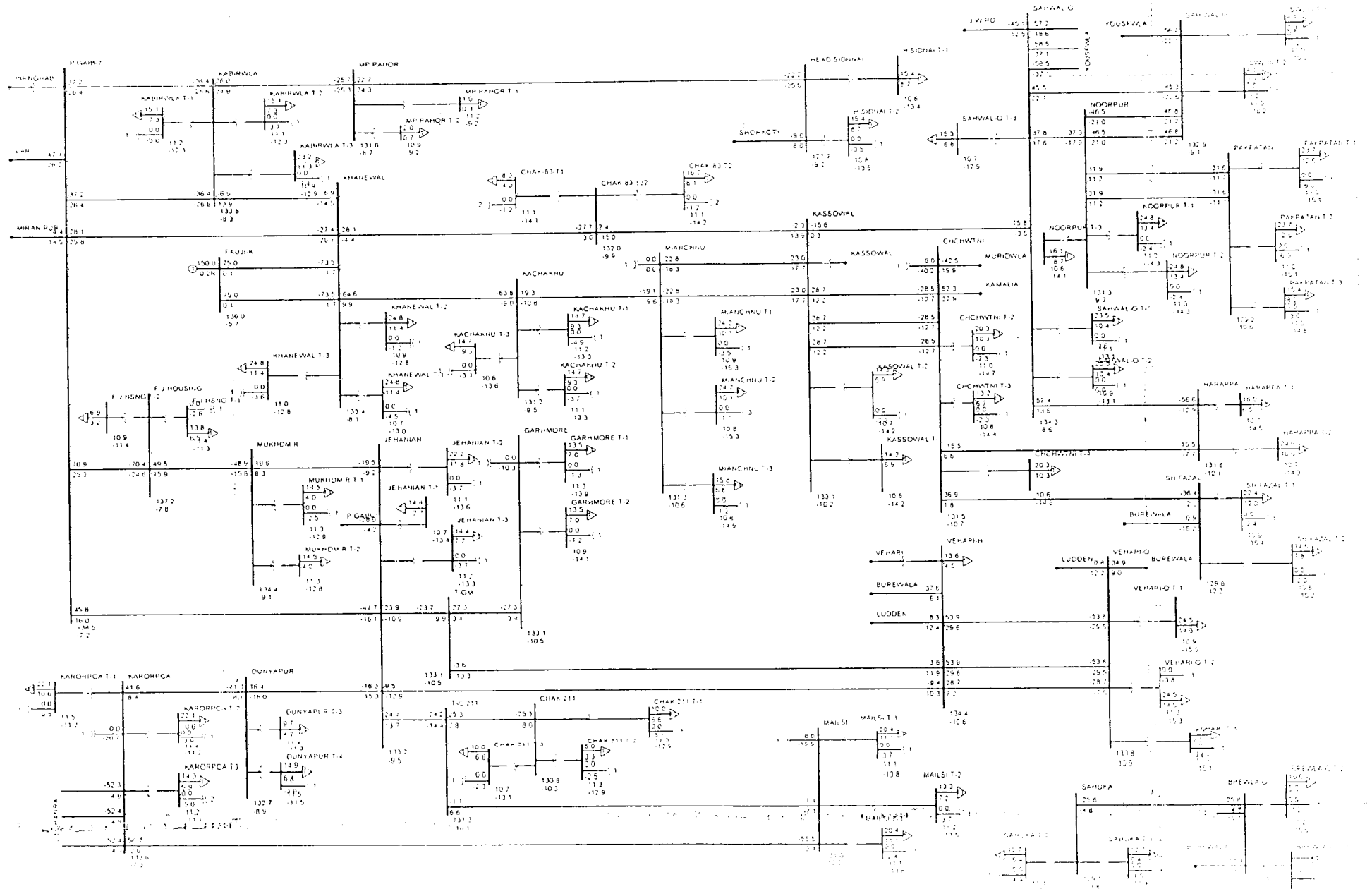
Exhibit-2020-1.4



LOCAL FLOW. FOR JIII

MEPCO YEAR 2020 WITH REINFORCEMENT

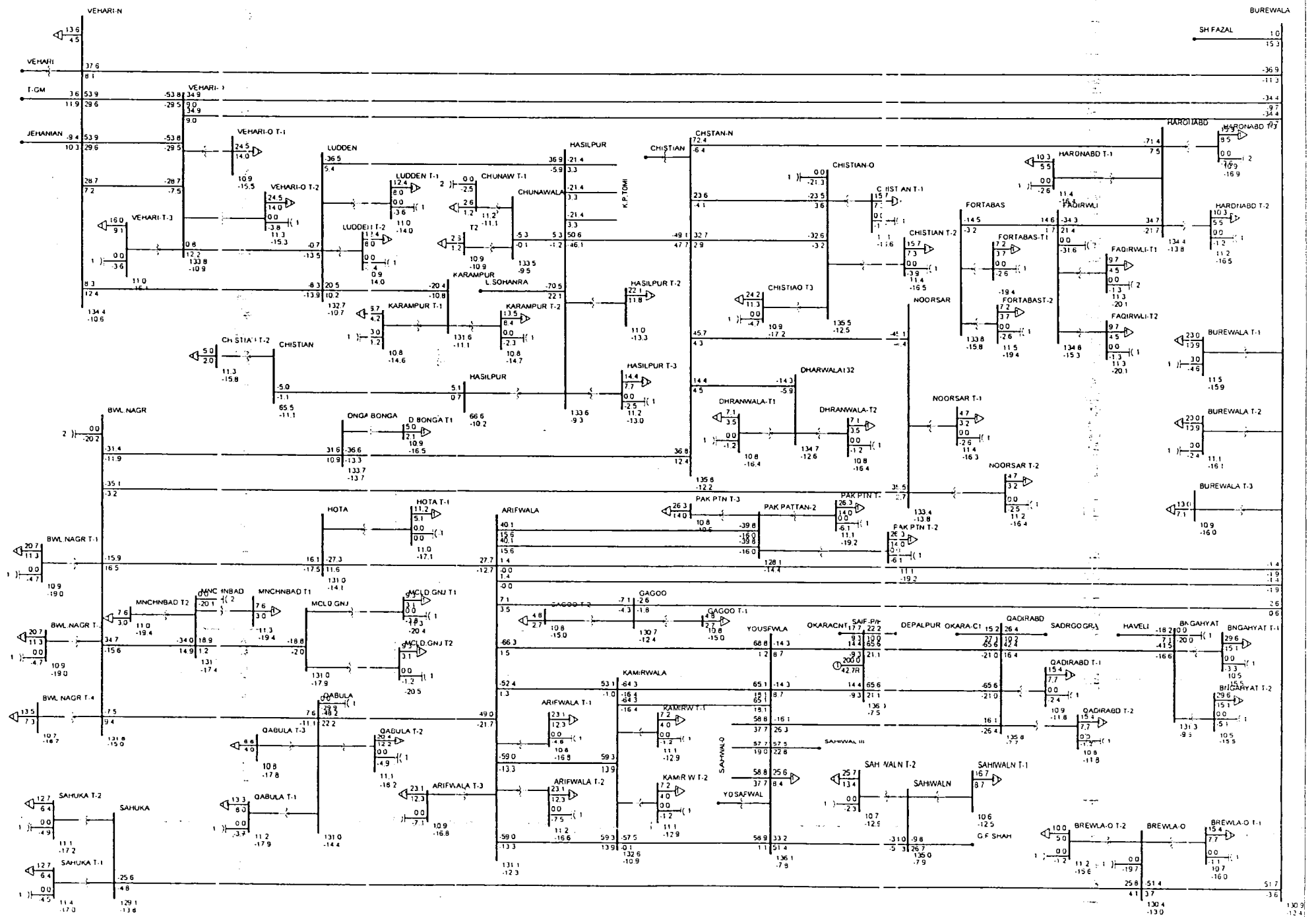
Exhibit-2020-15



LOAD FLOW FOR D.I.P

MEPCO YEAR 2020 WITH REINFORCEMENT

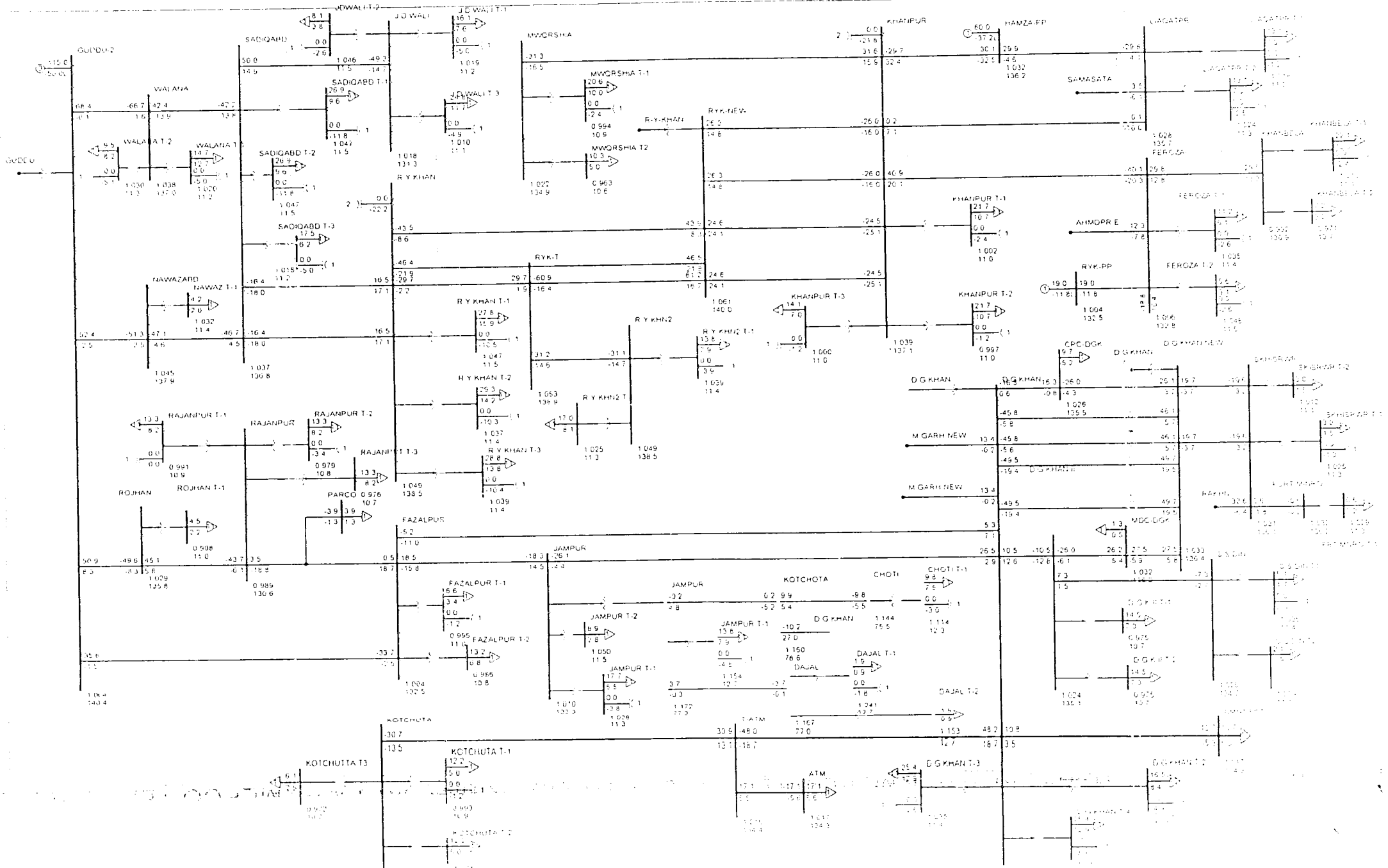
Exhibit-2020-1.6



LOAD FLOW FOR DLP

MEPCO YEAR 2020 WITHOUT ADDITIONAL REINFORCEMENT

Exhibit-2020-1.1



LOAD FLOW FOR LIF

MEPCO YEAR 2020 WITHOUT REINFORCEMENT

Exhibit-2020-1.2

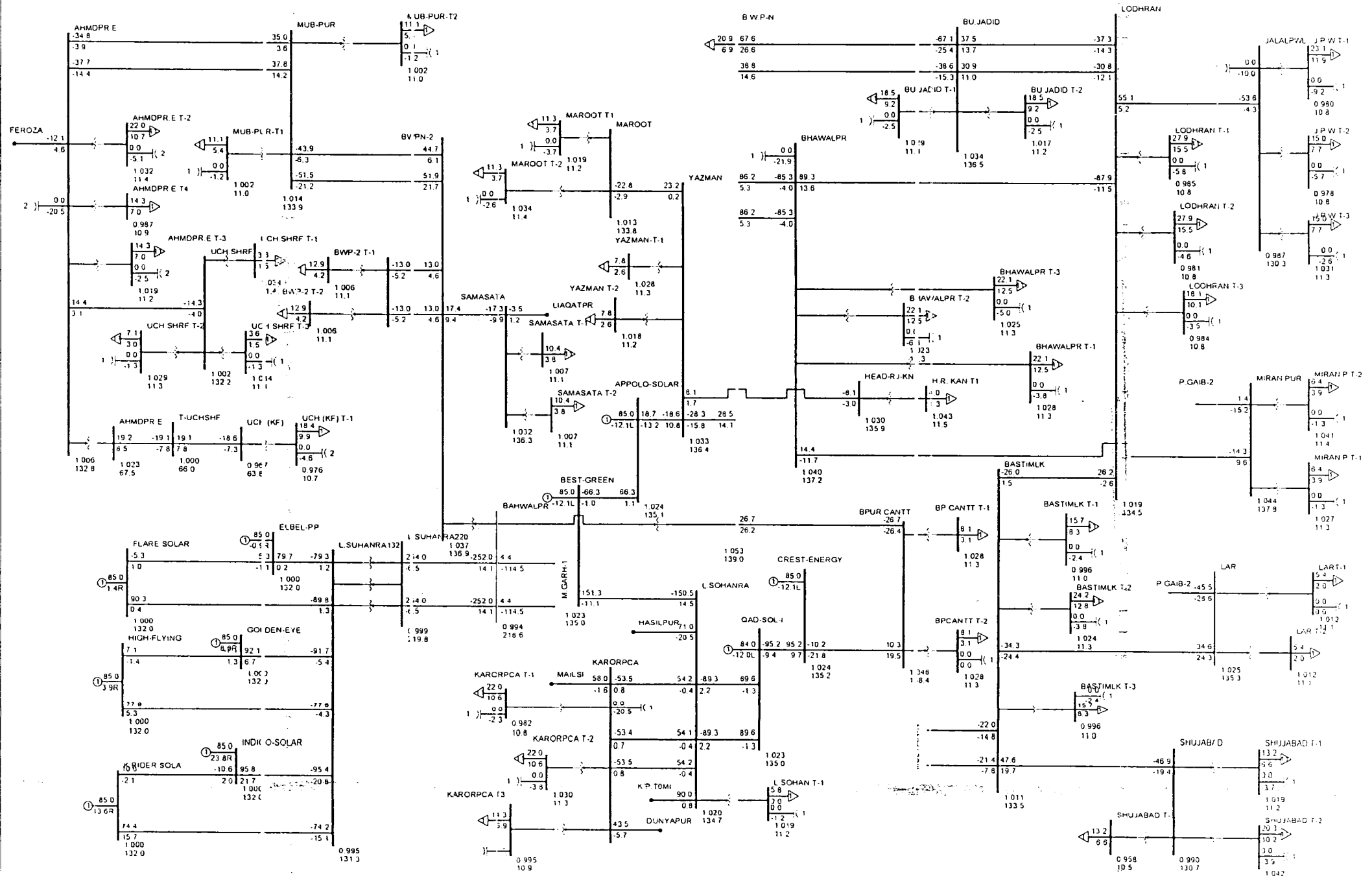
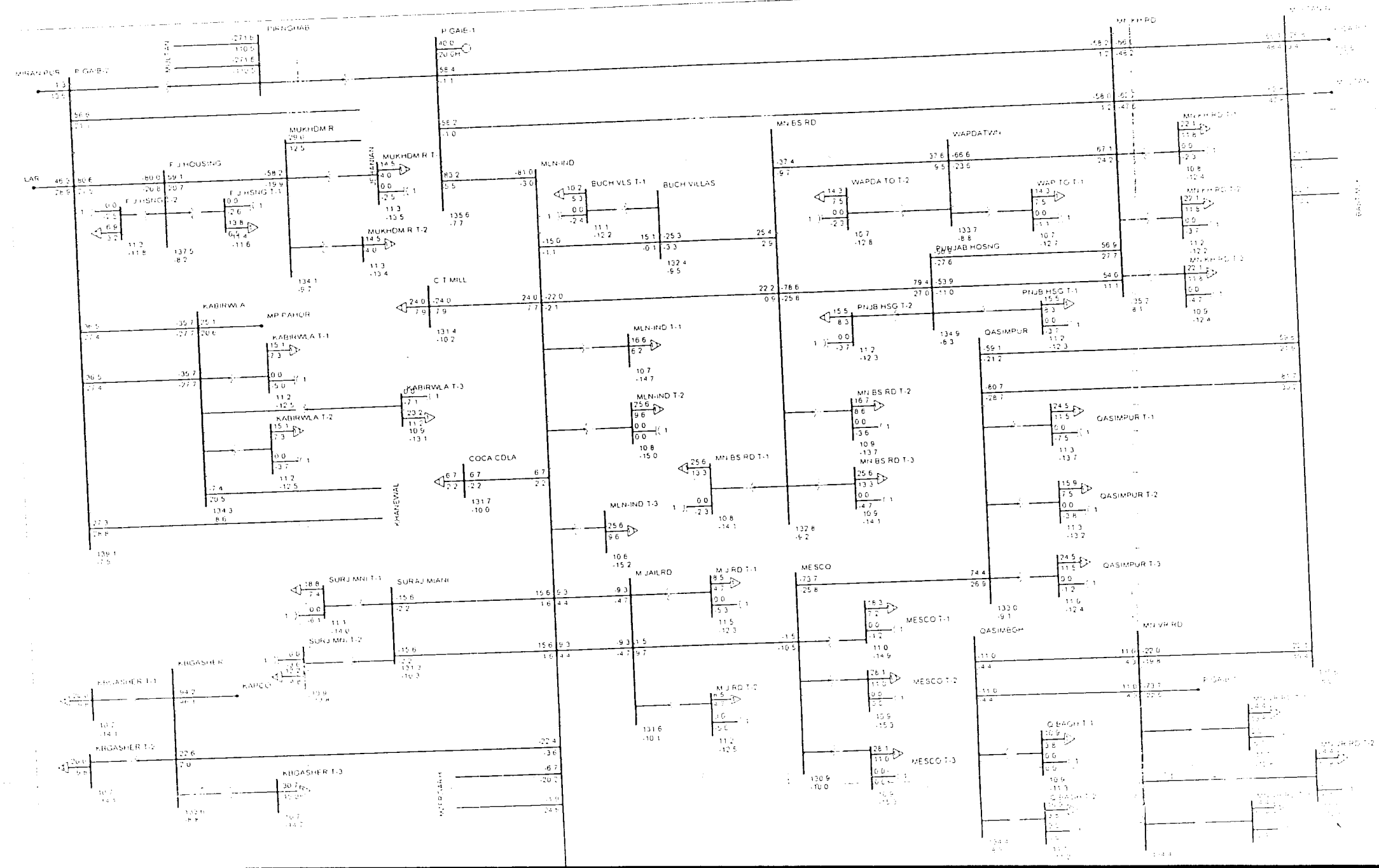


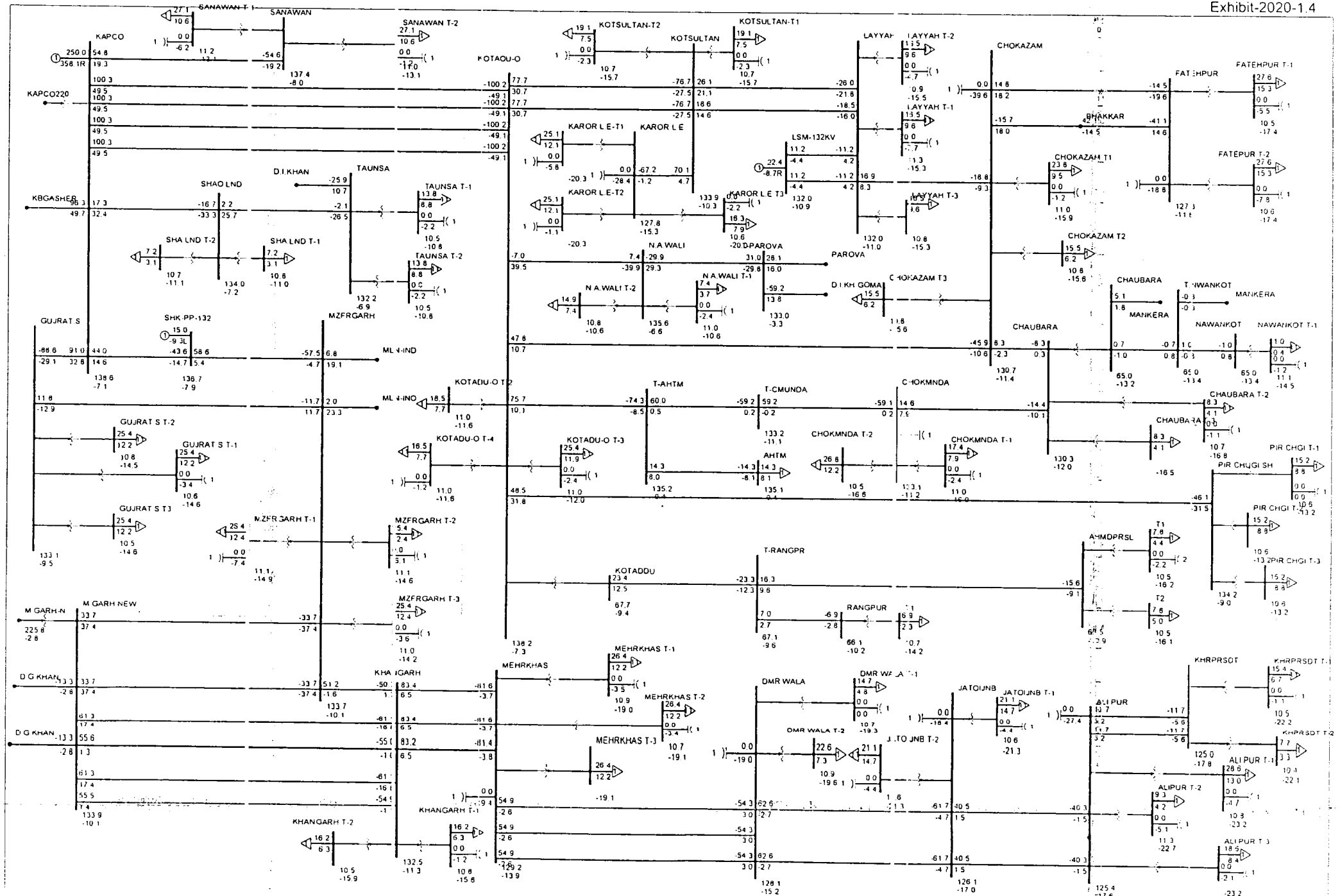
Exhibit-2020-1.3.



LOAD FLOW FOR DLP

MEPCO YEAR 2020 WITHOUT REINFORCEMENT

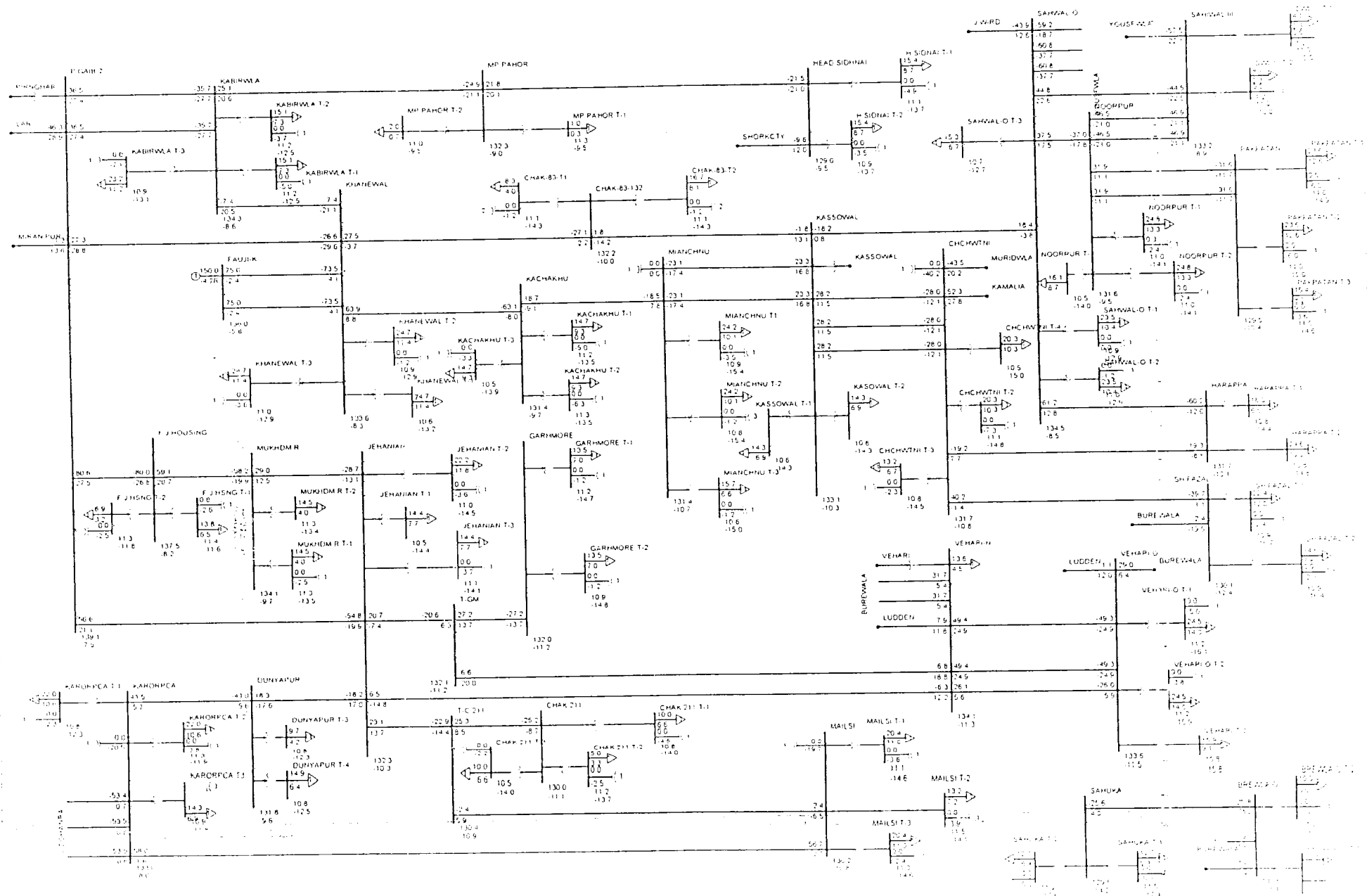
Exhibit-2020-1.4



LOAD FLOW FOR DIF

MEPCO YEAR 2020 WITHOUT REINFORCEMENT

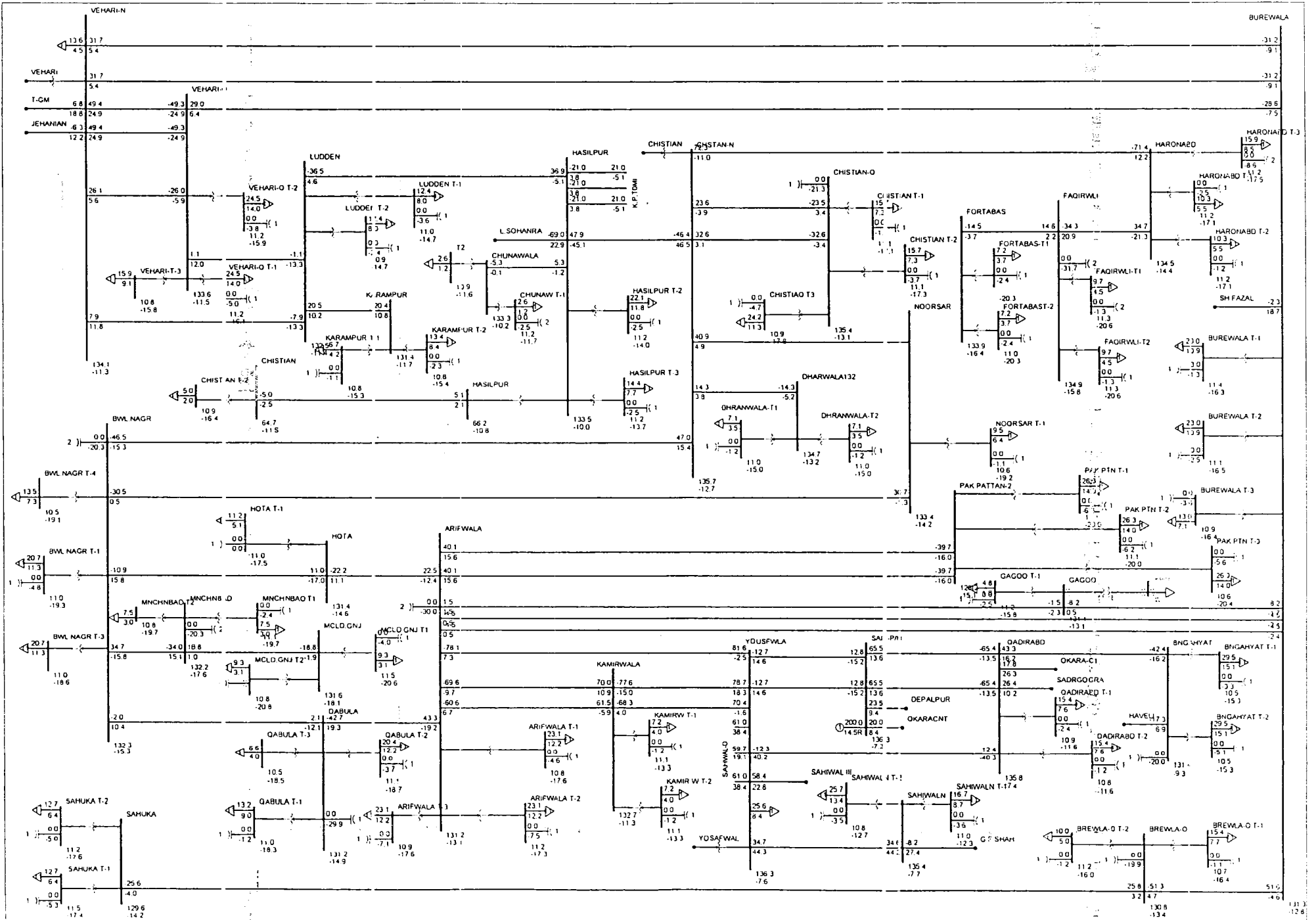
Exhibit-2020-1.5



LOAD FLOW FOR DLP

MEPCO YEAR 2020 WITHOUT REINFORCEMENT

Exhibit-2020-1.6

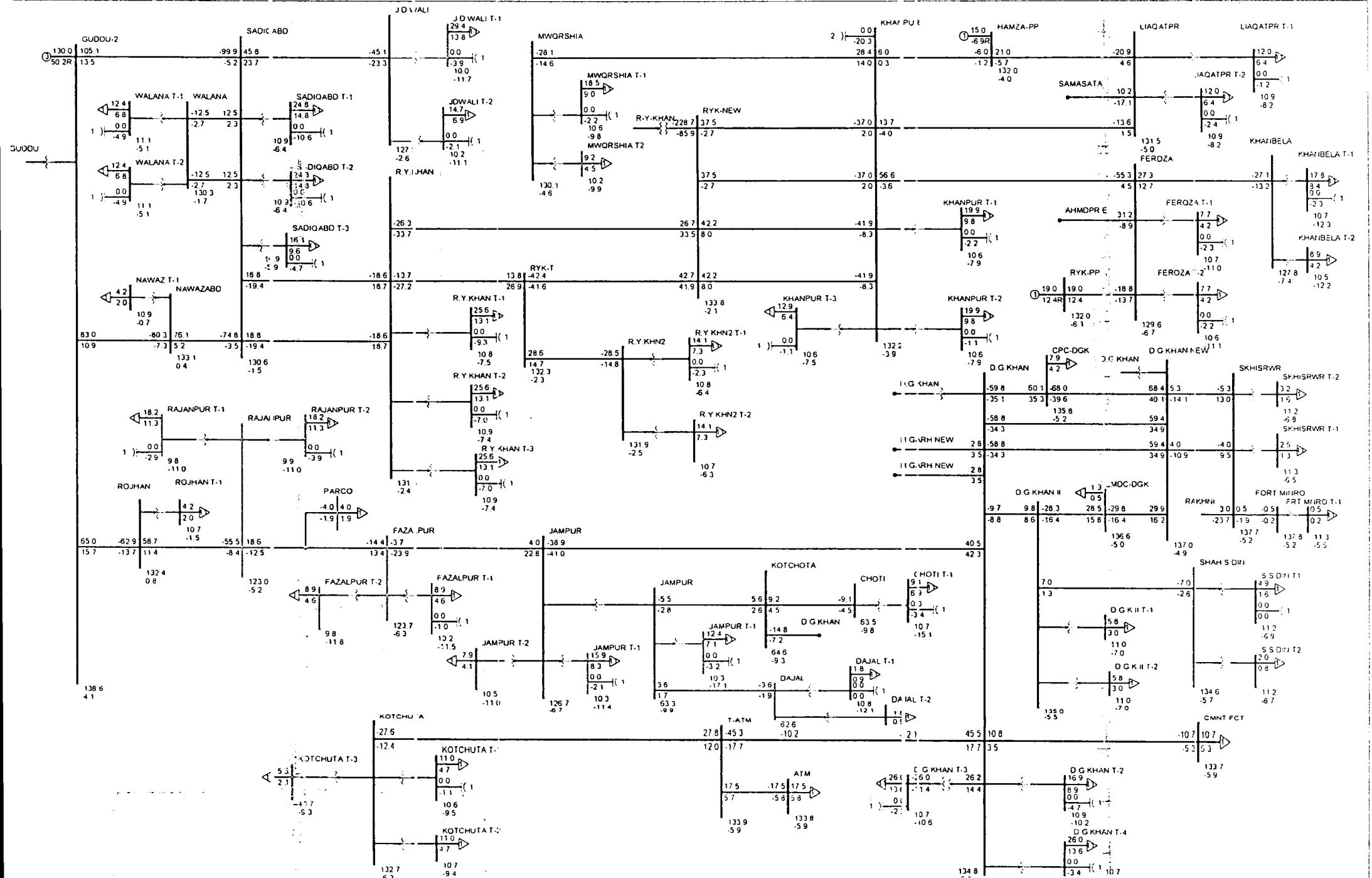


Annexure-7

(Single Line Diagram & Voltage Profile)

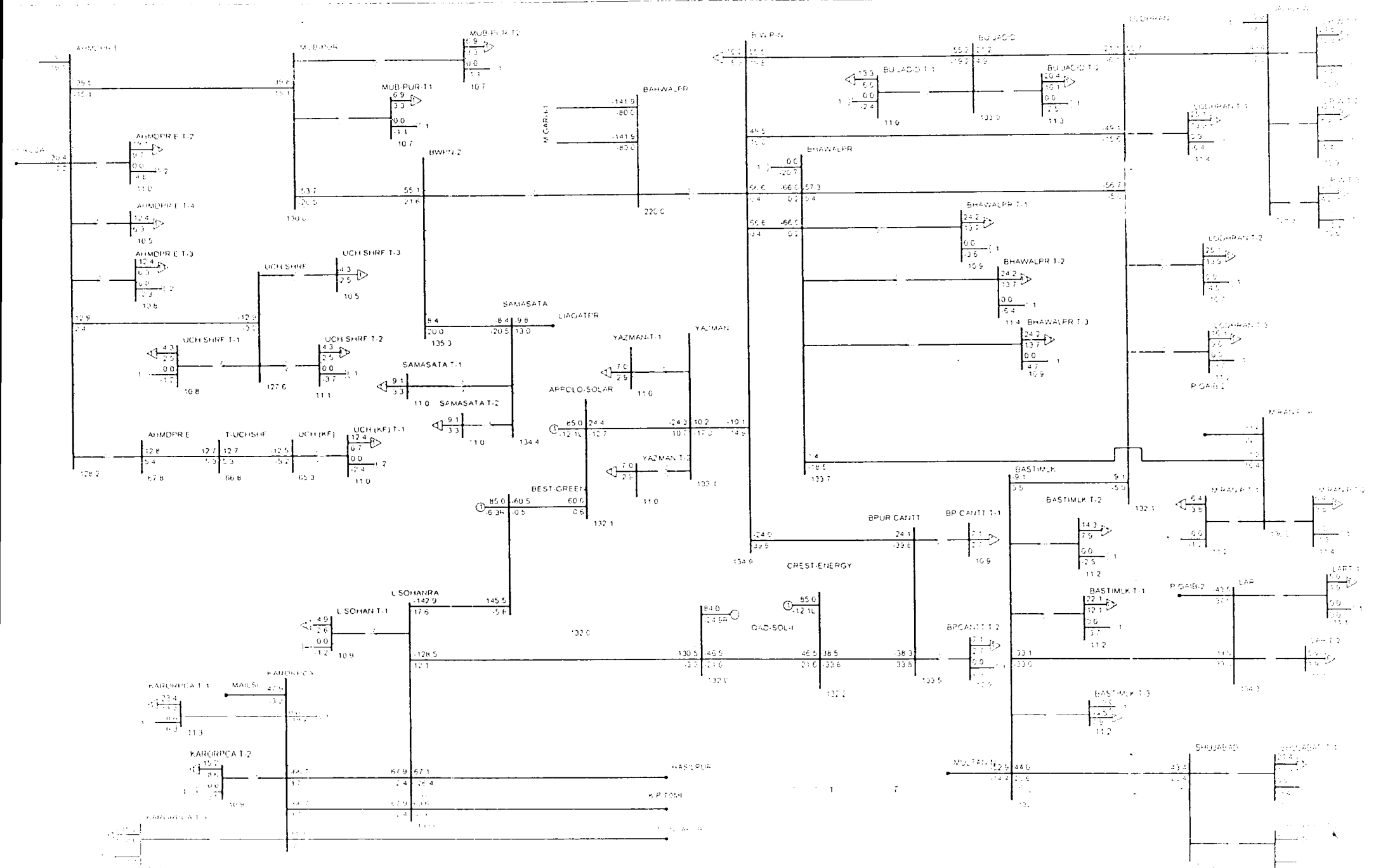
Optimally Achievable Case

Exhibit-2016-1 1



LOAD FLOW FOR DLF MEPCO YEAR 2016 WITH REINFORCEMENT

Exhibit-2016-12



LOAD FLOW FOR DIP

MEPCO YEAR 2016 WITH REINFORCEMENT

Exhibit-2016-1.3

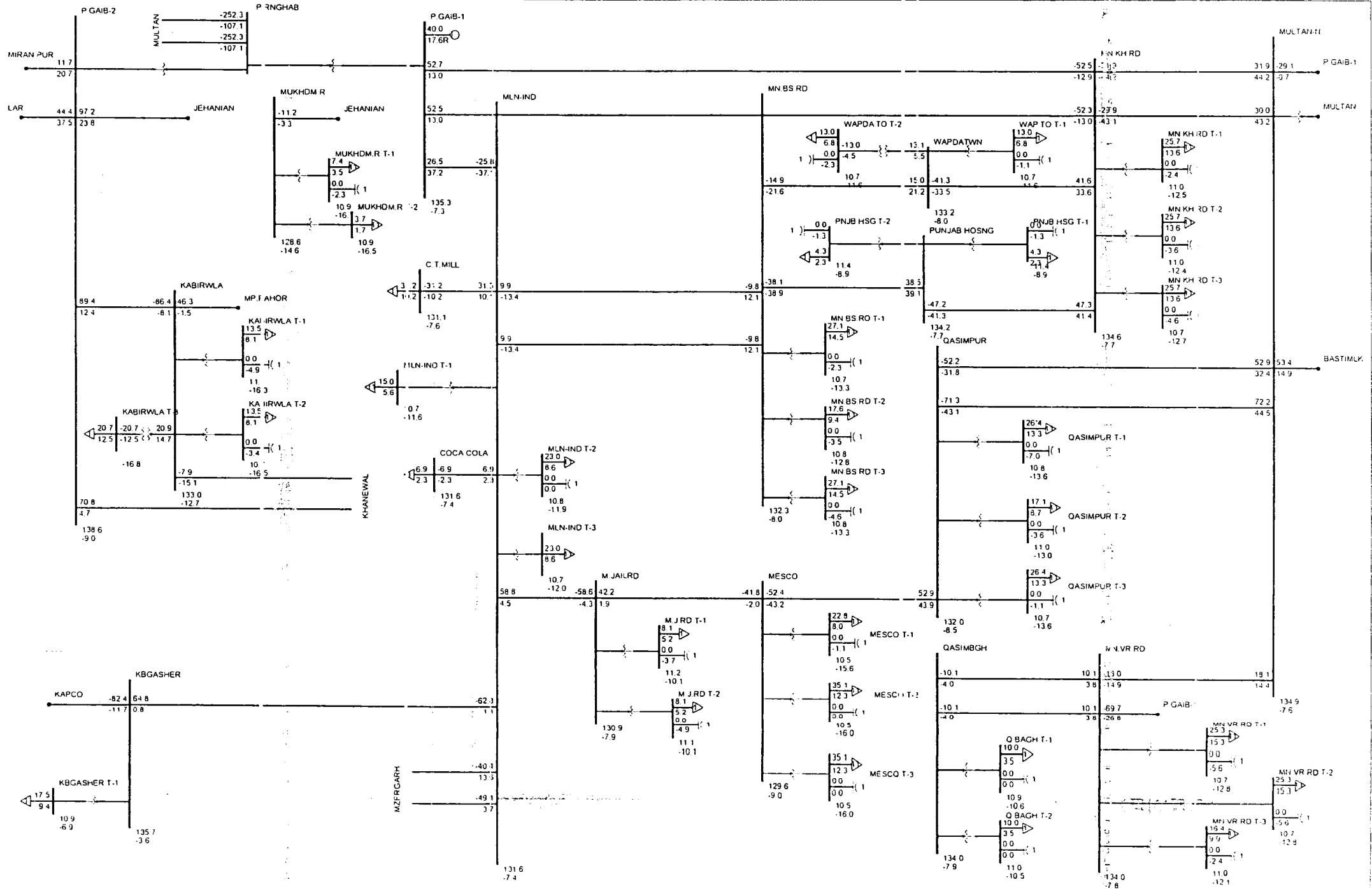
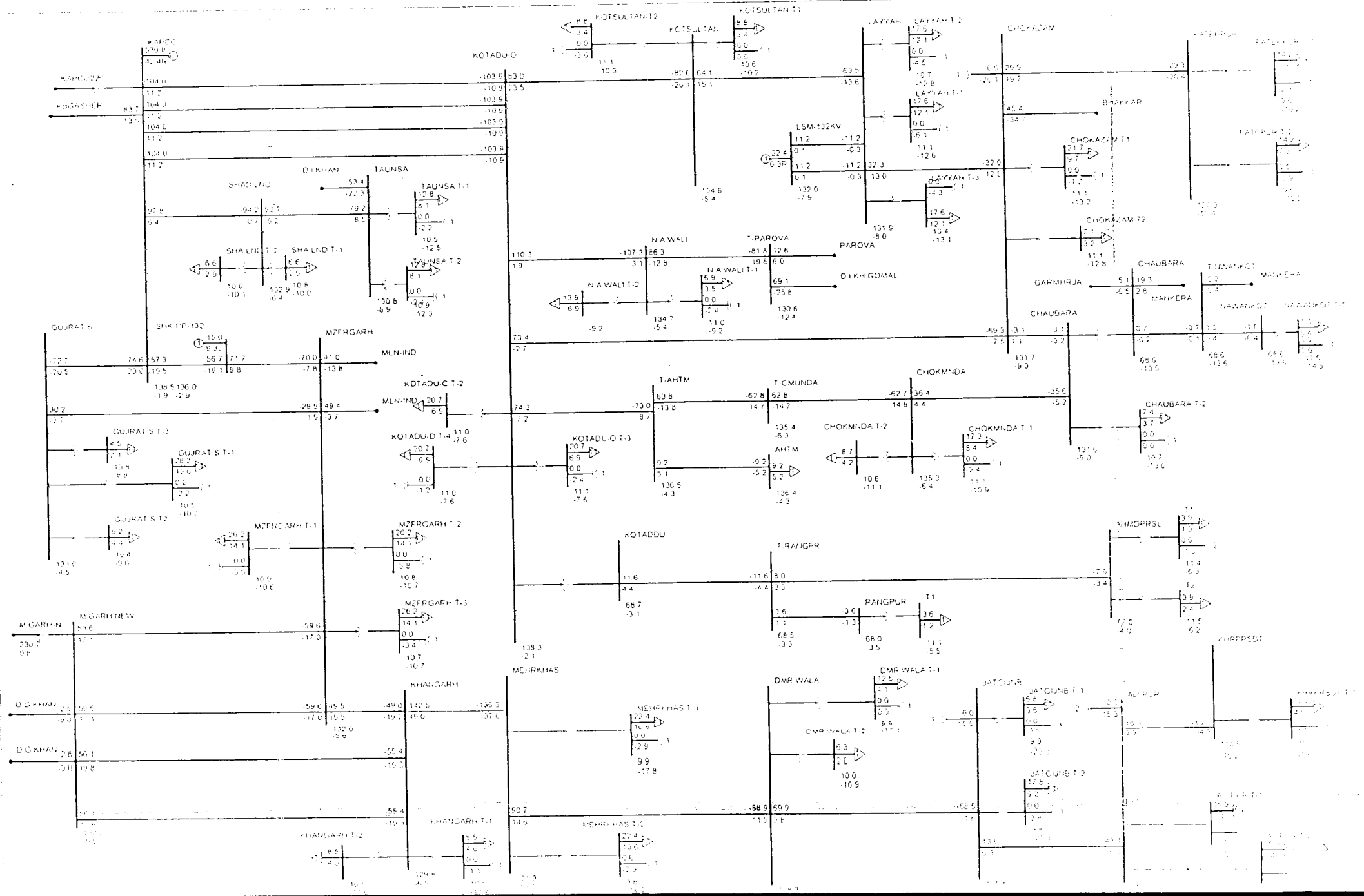
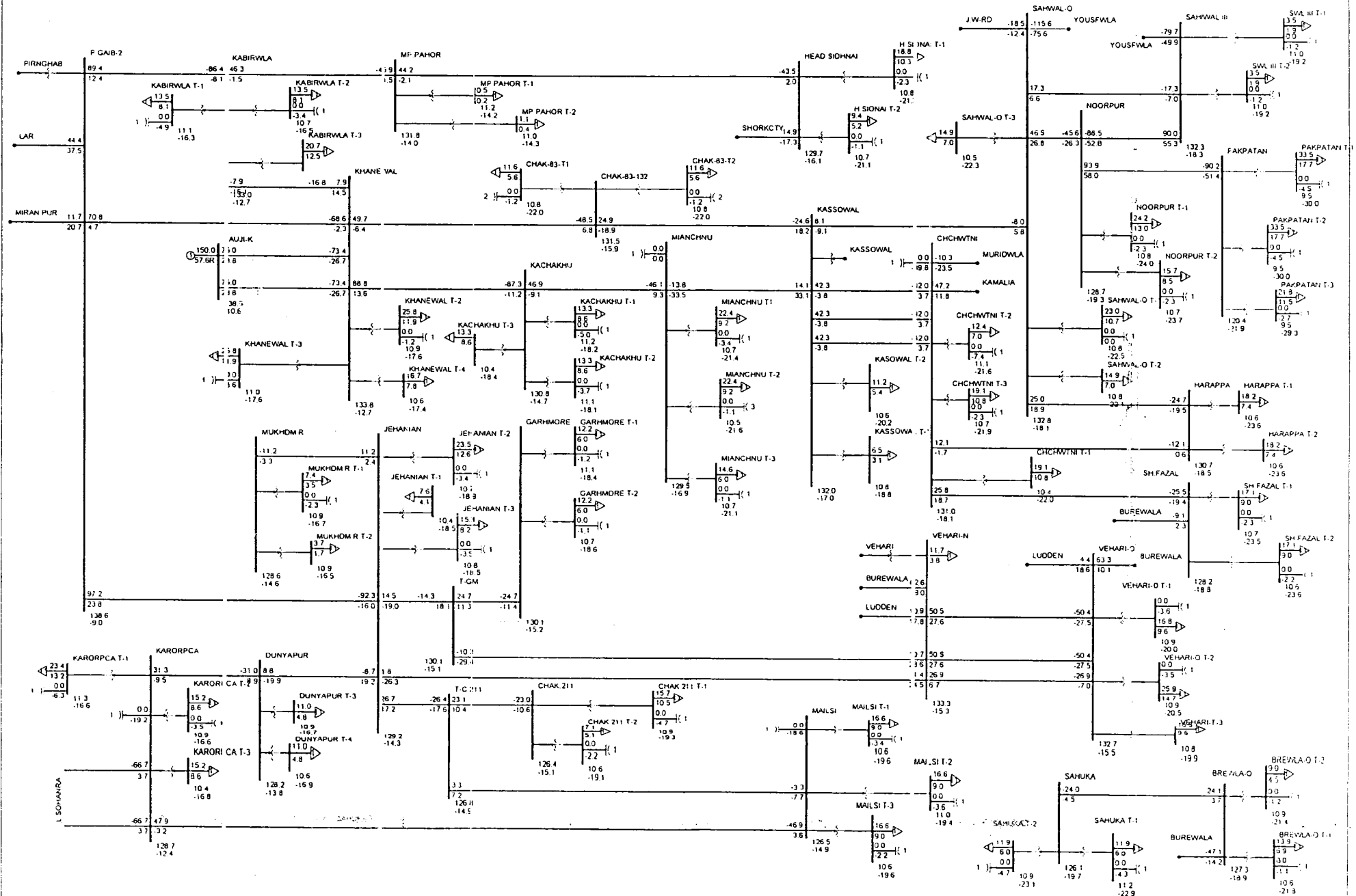


Exhibit 2616-1 4



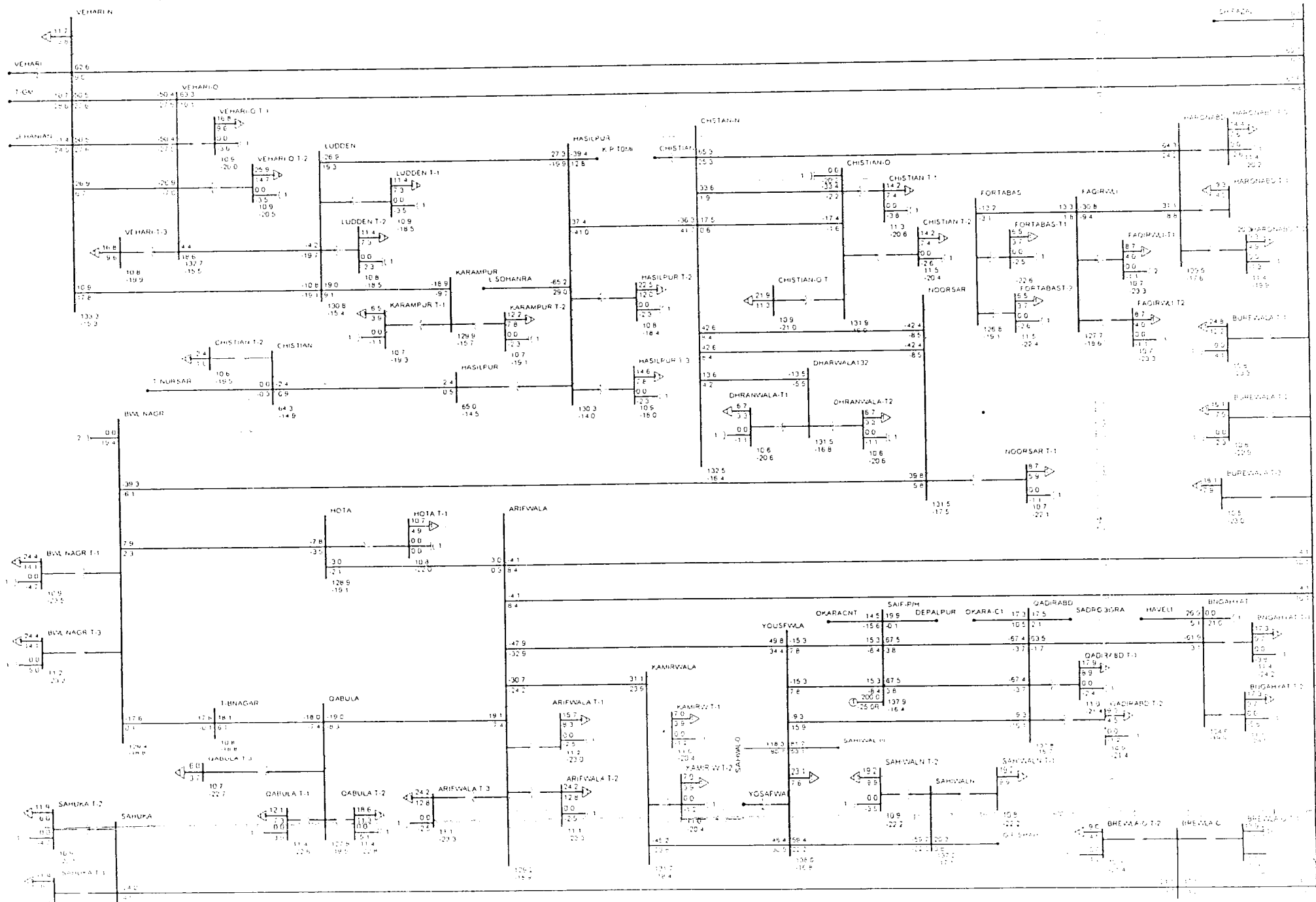
LOAD FLOW FOR JIL MEPCO YEAR 2016 WITH REINFORCEMENT

Exhibit-2016-1.5



LOCAL FLOW FOR D.P MEPCO YEAR 2016 WITH REINFORCEMENT

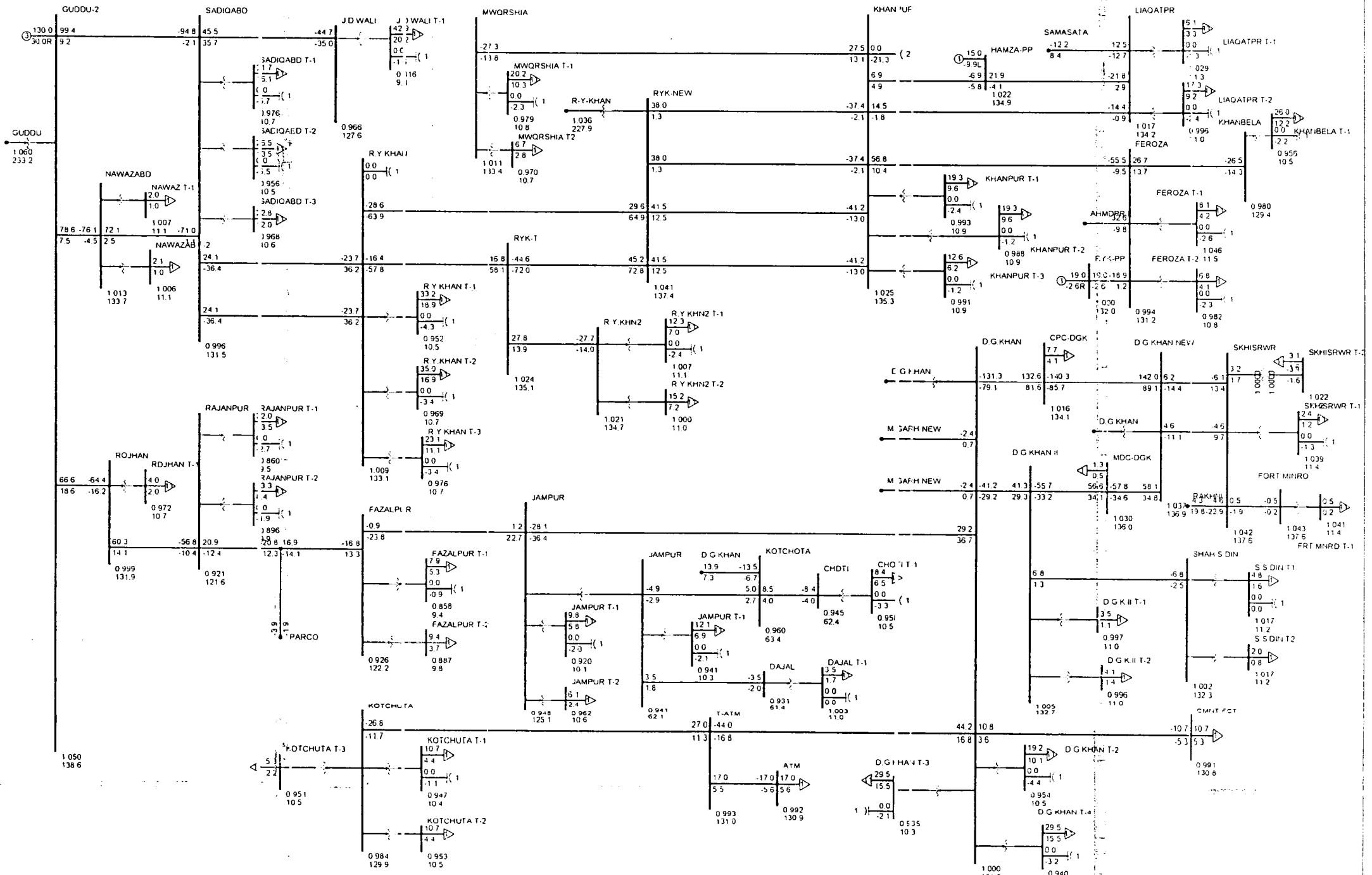
Exhibit-2016-16



LOAD FLOW FOR DIP

MEPCO YEAR 2016 WITHOUT REINFORCEMENT

Exhibit-2016-0.1



LOAD FLOW FOR DIP

MEPCO YEAR 2016 WITHOUT REINFORCEMENT

Exhibit-2016-01

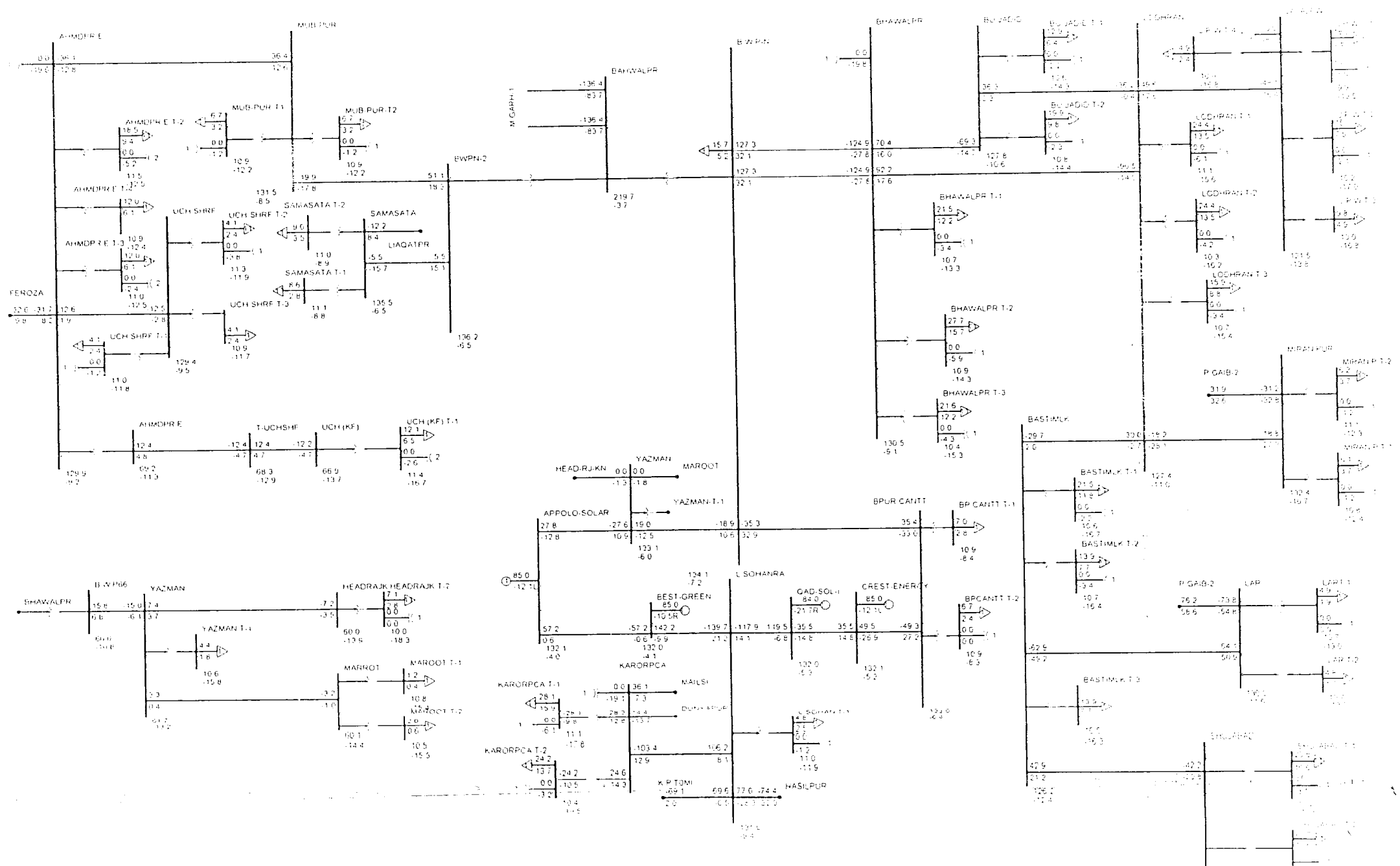
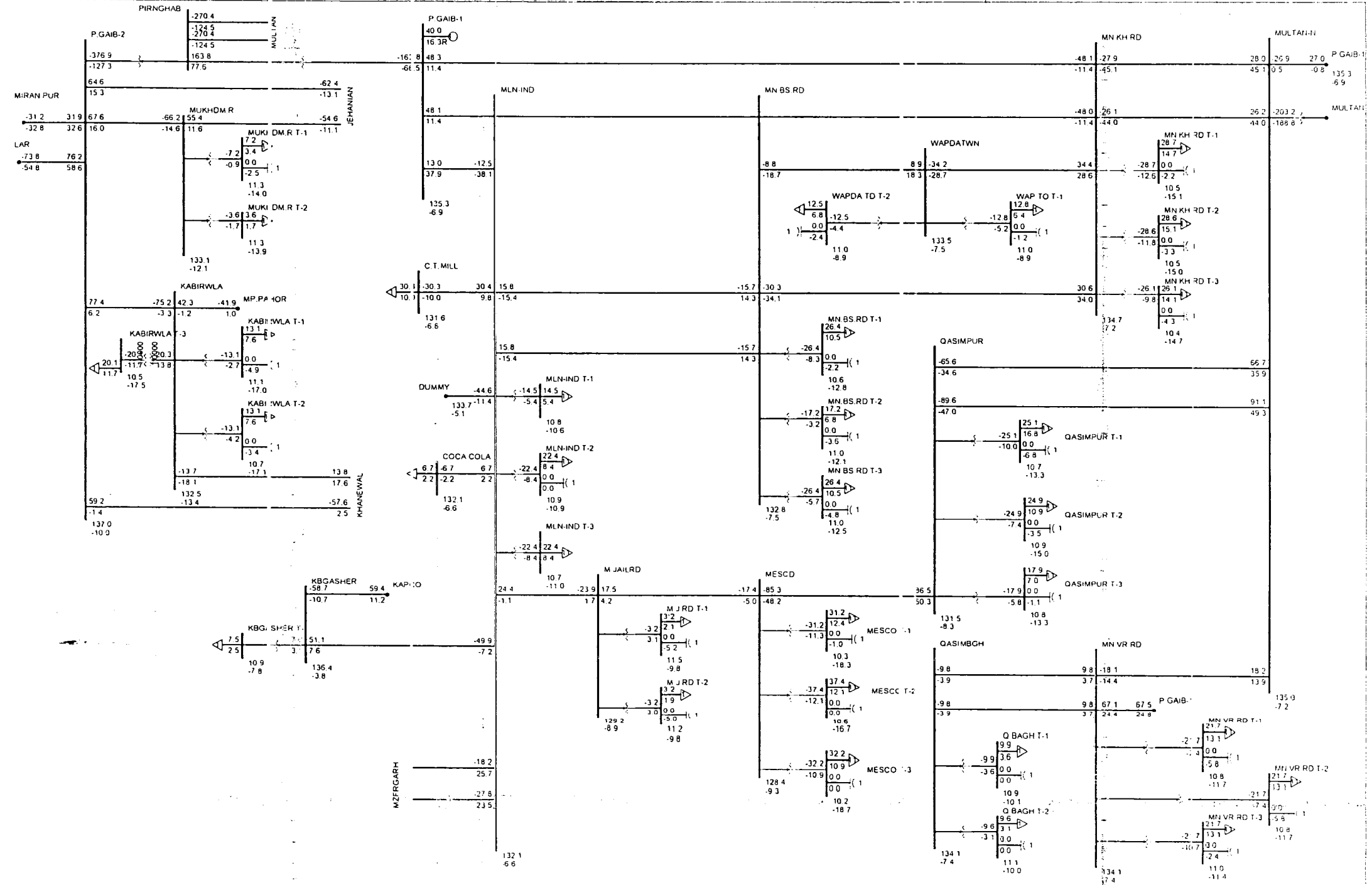
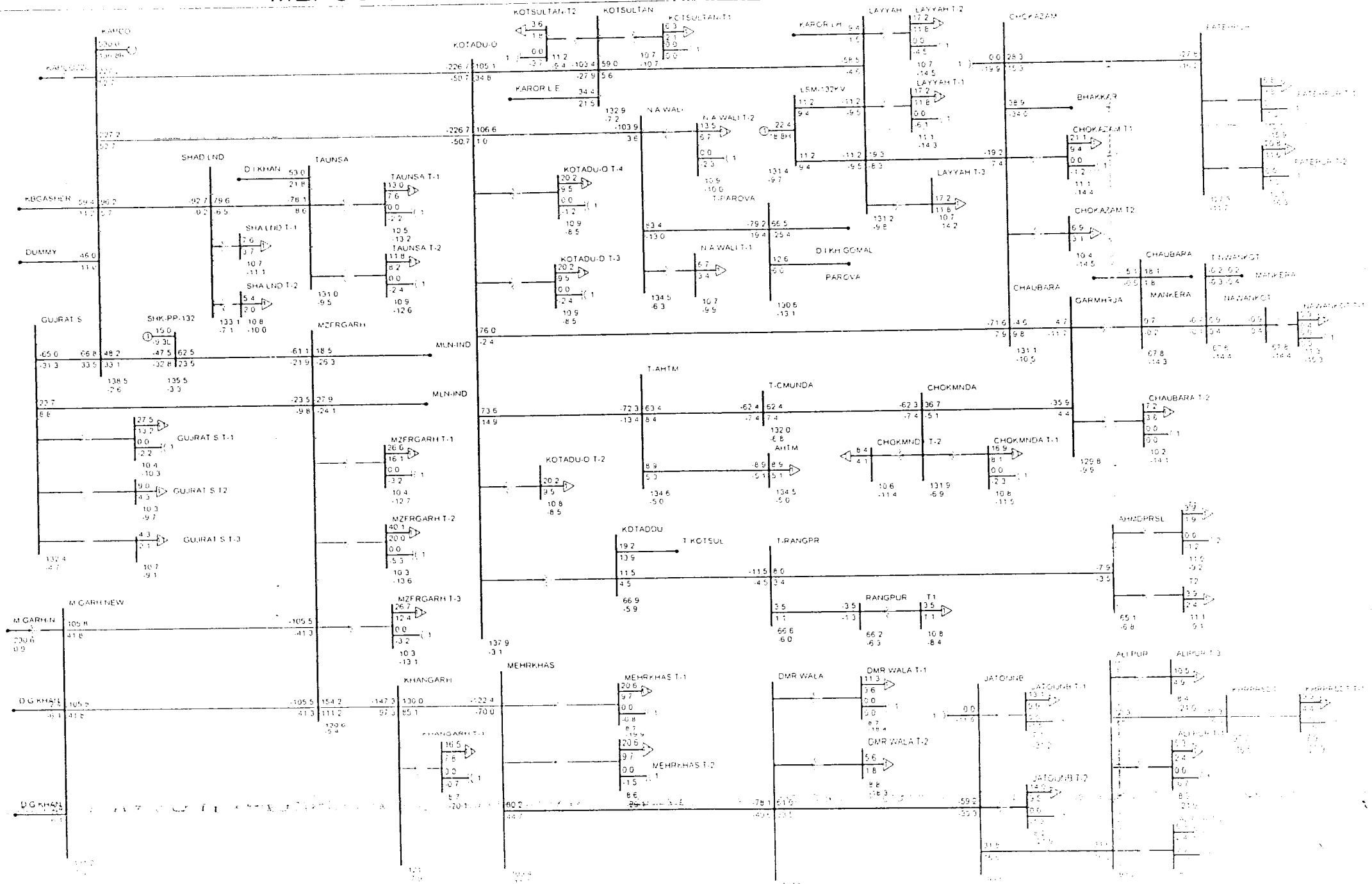


Exhibit-2016-0.34



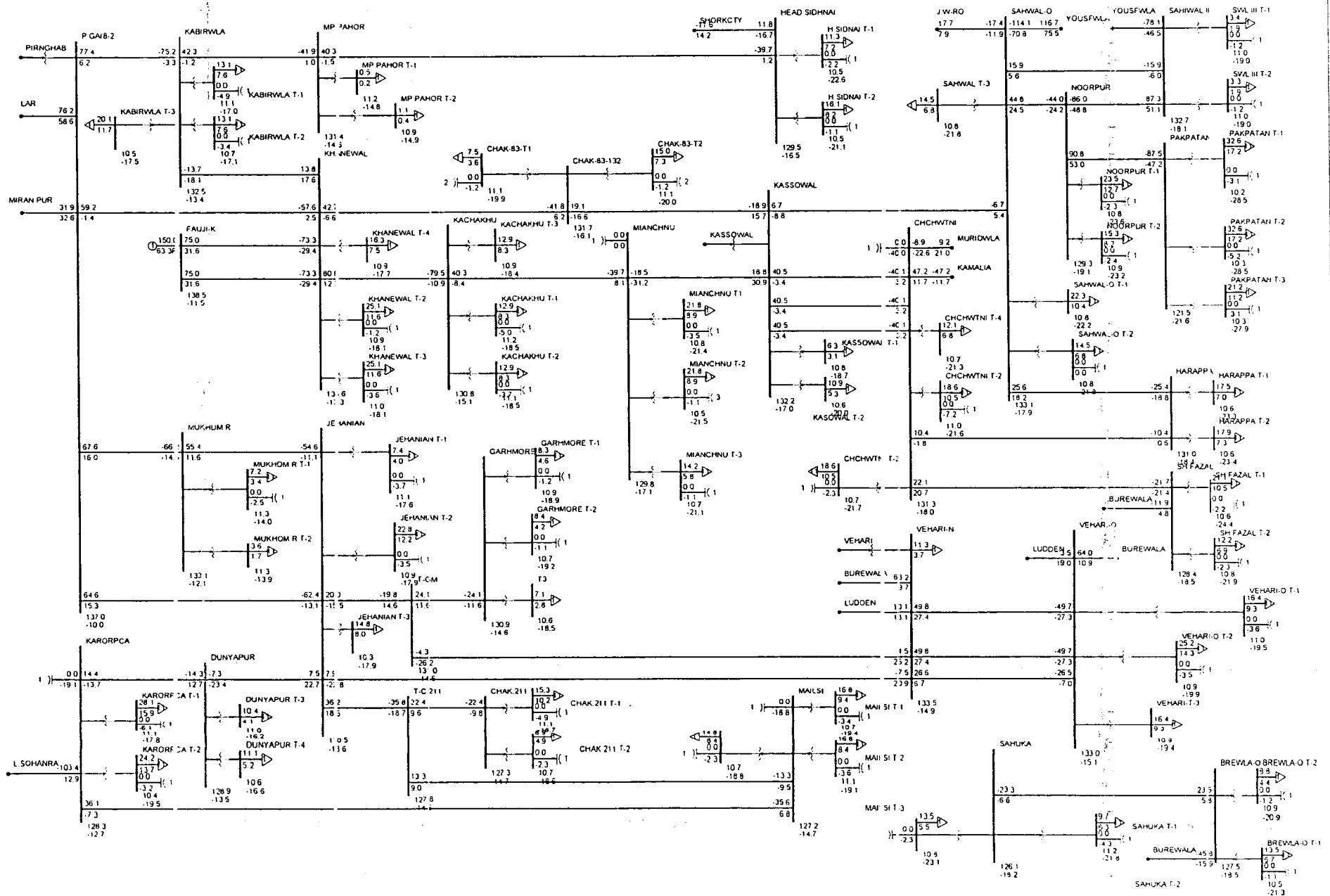
LOAD FLOW FOR DIIH MEPCO YEAR 2016 WITHOUT REINFORCEMENT

Exhibit-2016-04



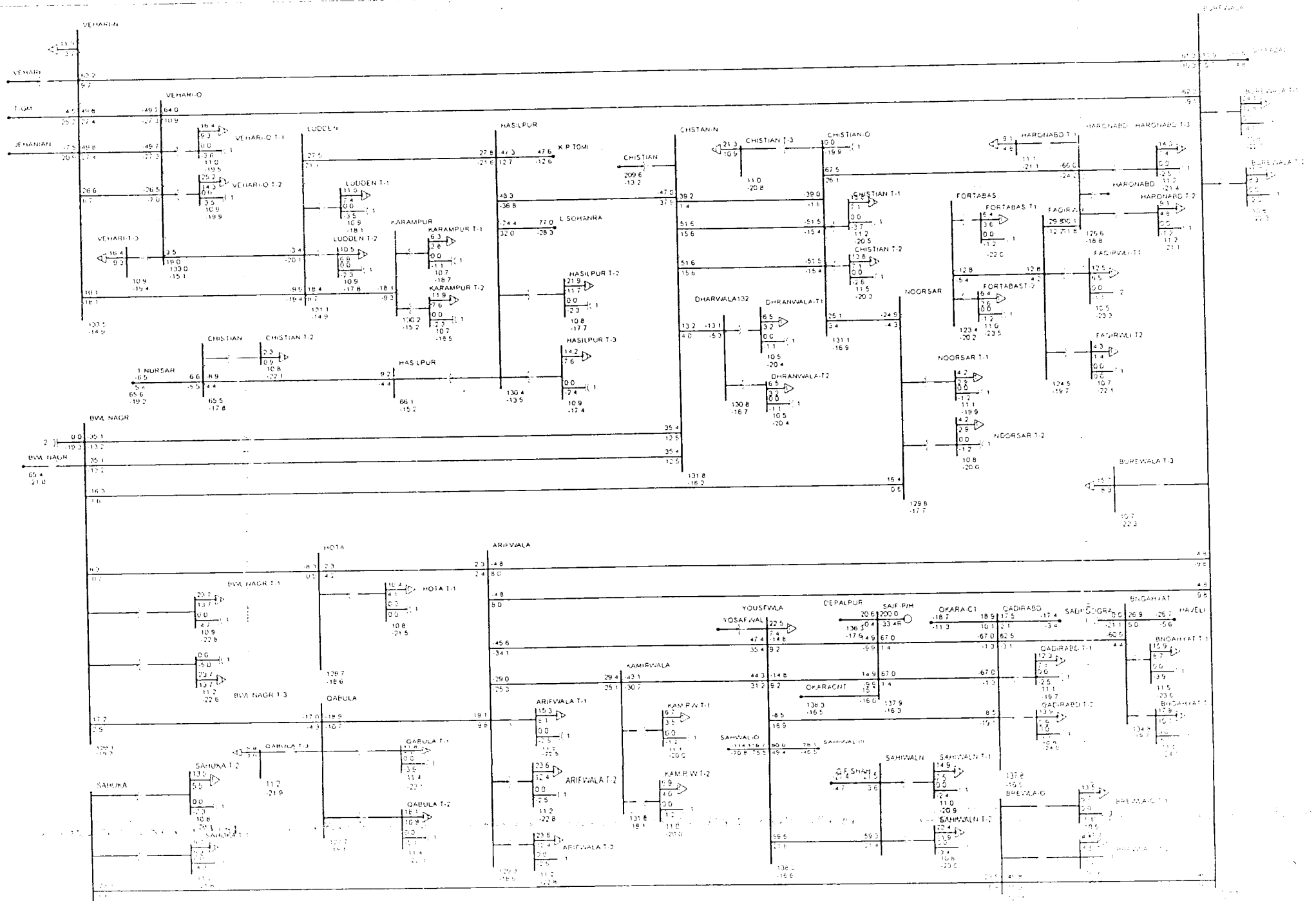
LOCAL FLOW FOR JIII MEPCO YEAR 2016 WITHOUT REINFORCEMENT

Exhibit-2016-0.5



LOAD, LC.V.F OR JII. MEPCO YEAR 2016 WITHOUT REINFORCEMENT

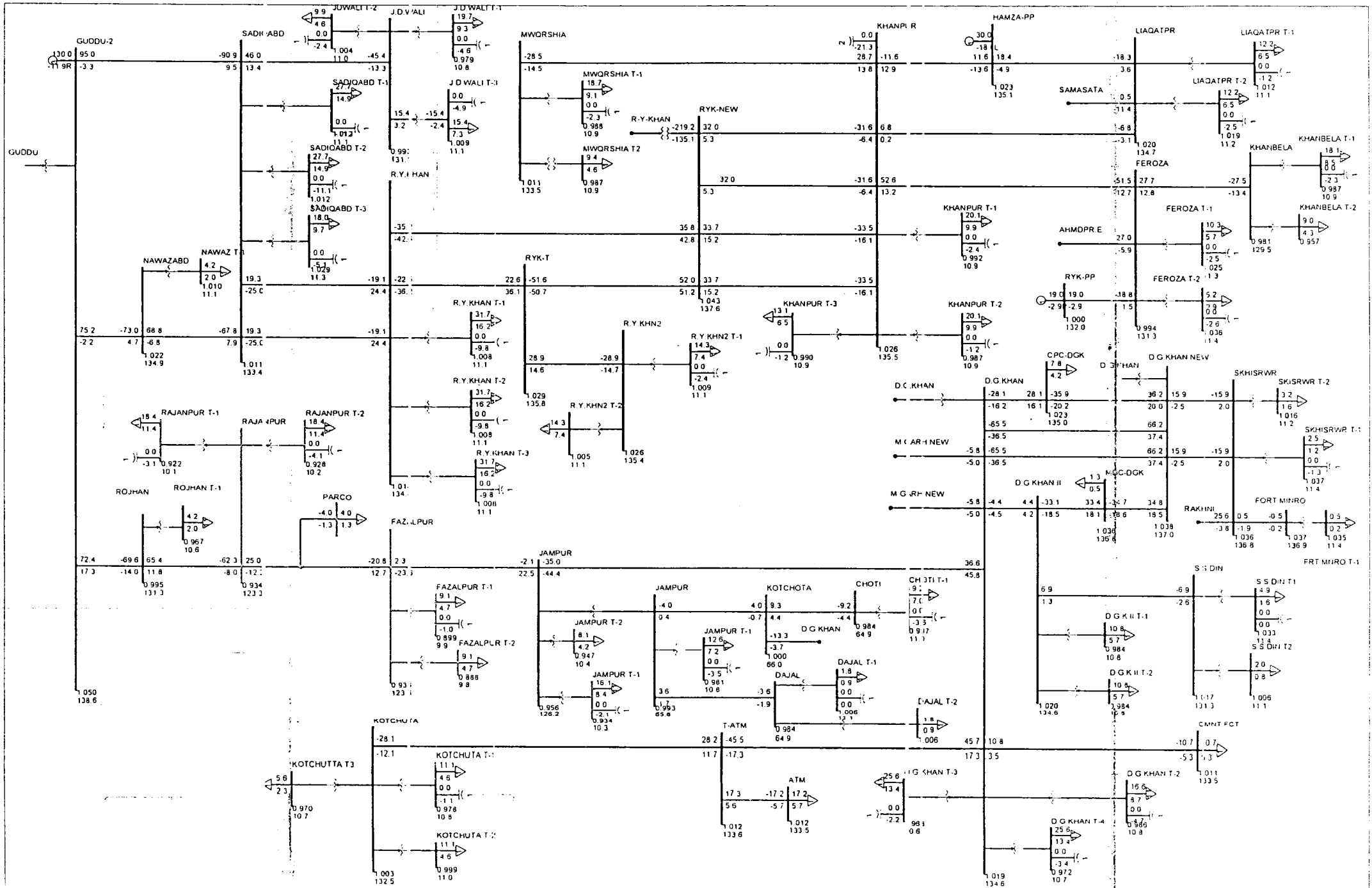
Exhibit-2015-0-6



LOAD FLOW FOR DIP

MEFCO YEAR 2017 WITH ADDITIONAL REINFORCEMENT

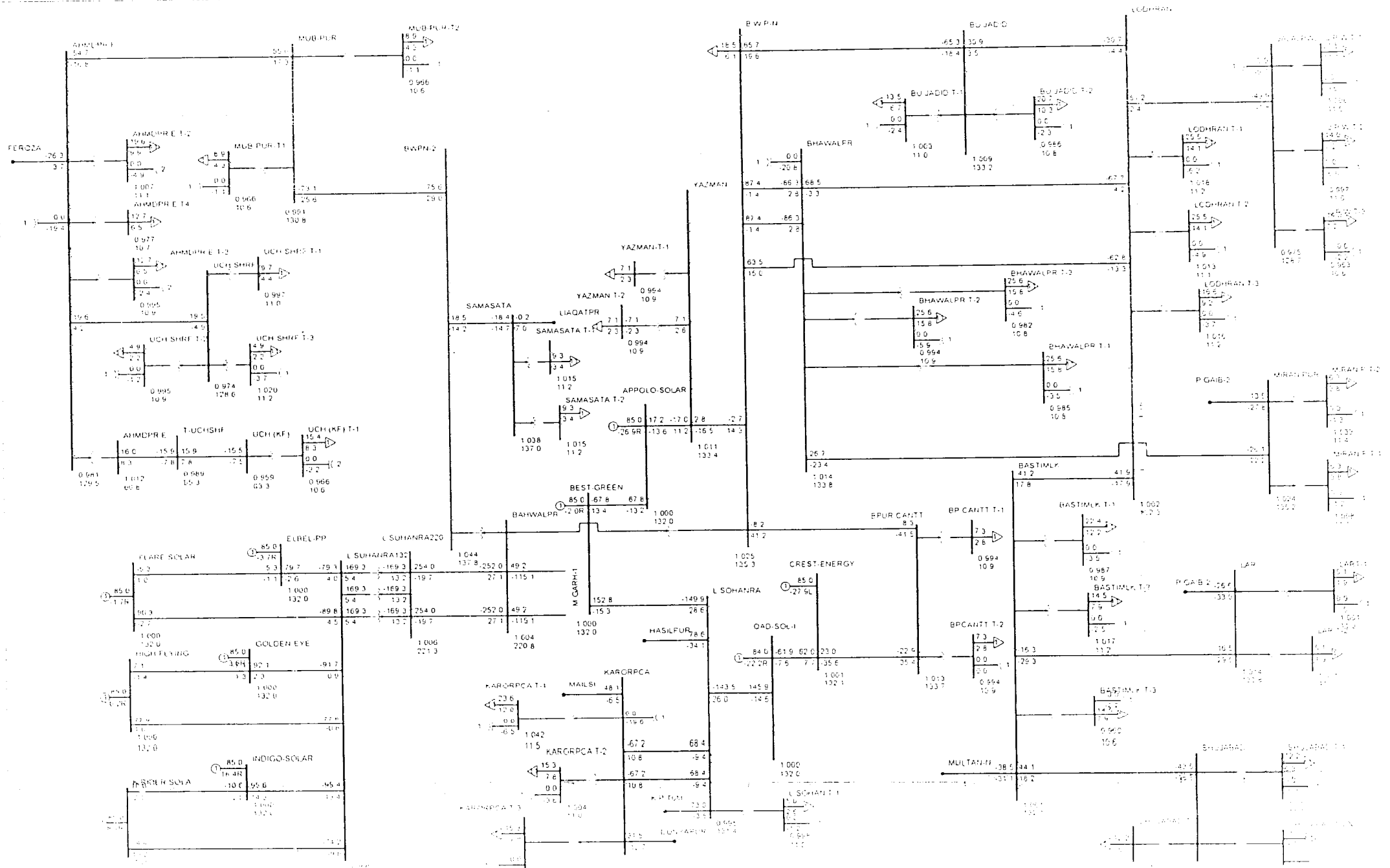
Exhibit 2017-1.1



LOAD FLOW FOR L.F

MEPCO YEAR 2017 WITH REINFORCEMENT

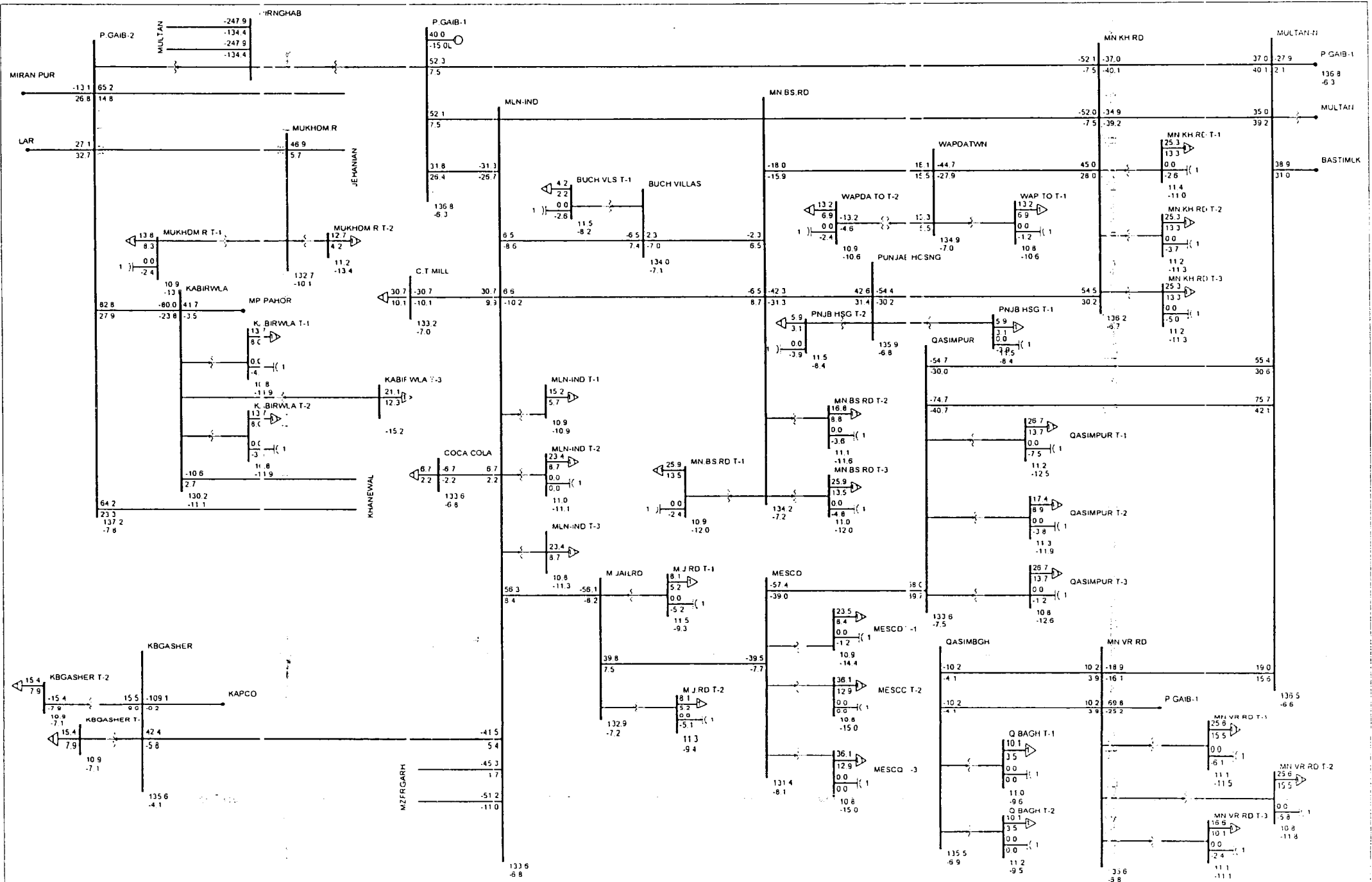
Exhibit-2017-1.2



LOAD FLOW FOR DIP

MEPCO YEAR 2017 WITH REINFORCEMENT

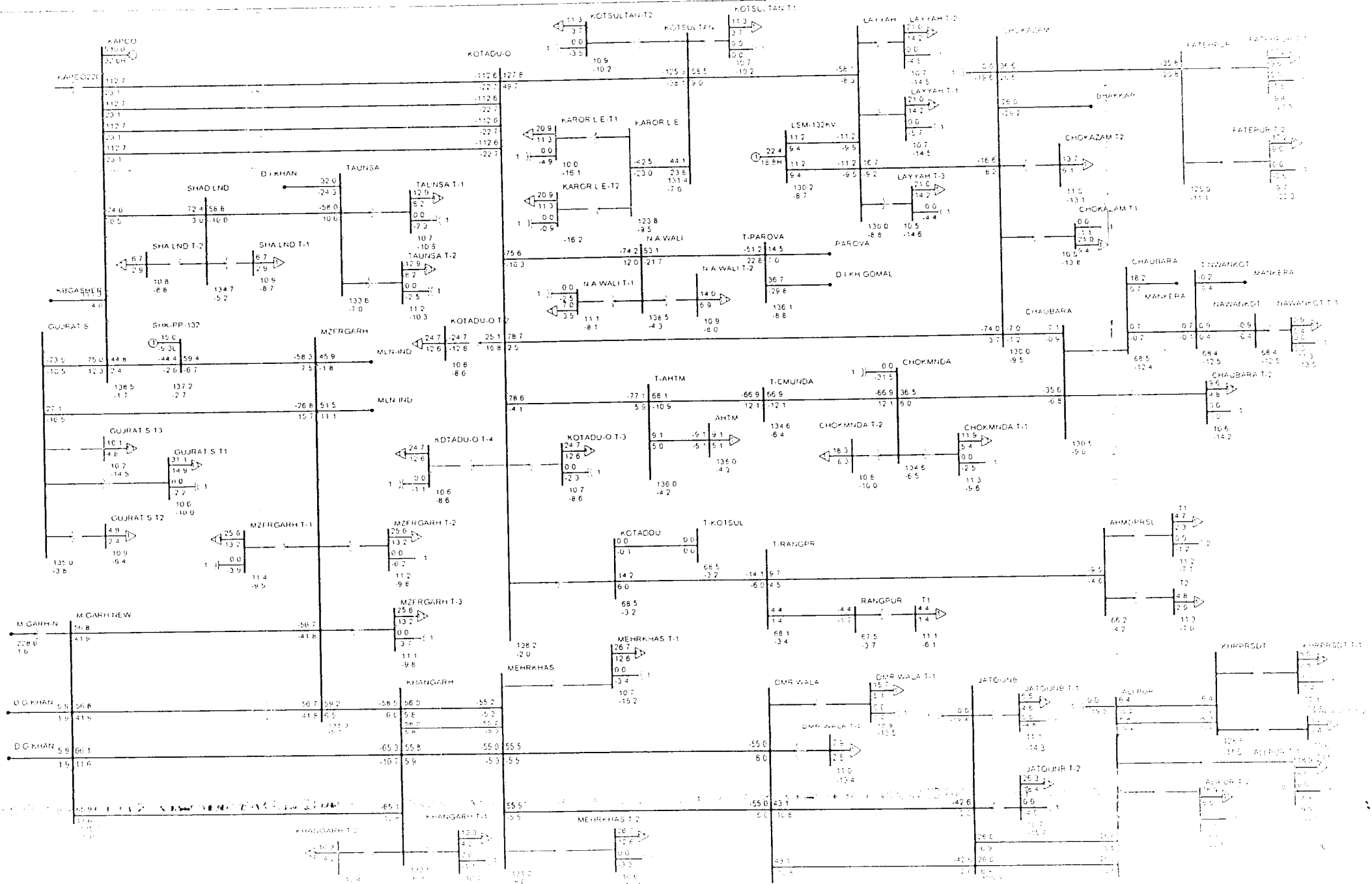
Exhibit-2017-1.3



LOAD FLOW FOR D.F.P

MEPCO YEAR 2017 WITH REINFORCEMENT

Exhibit-2017-14



LOCAL FLOW FOR JH

MEPCO YEAR 2017 WITH REINFORCEMENT

Exhibit-2017-1.5

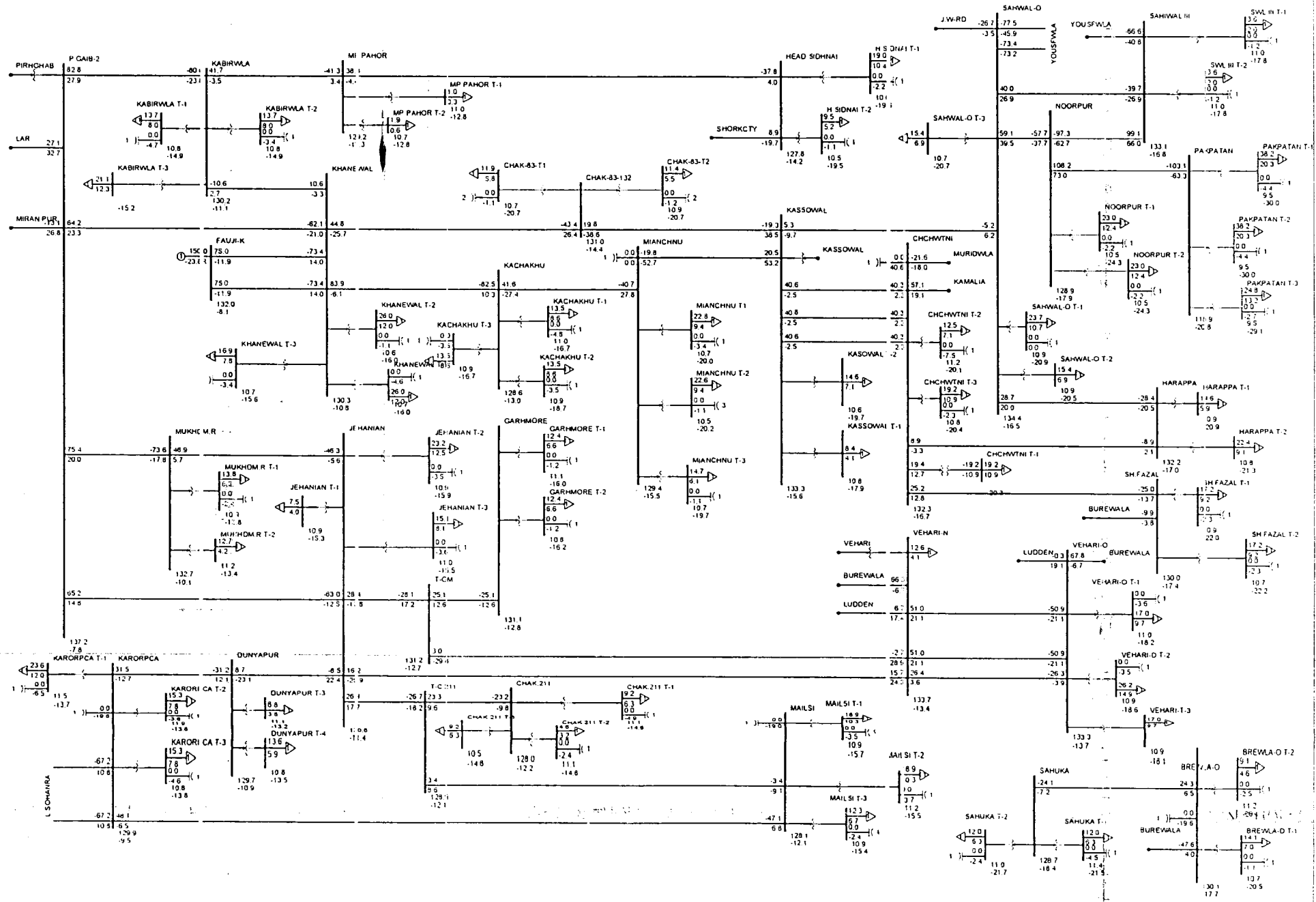


Exhibit-2017-16

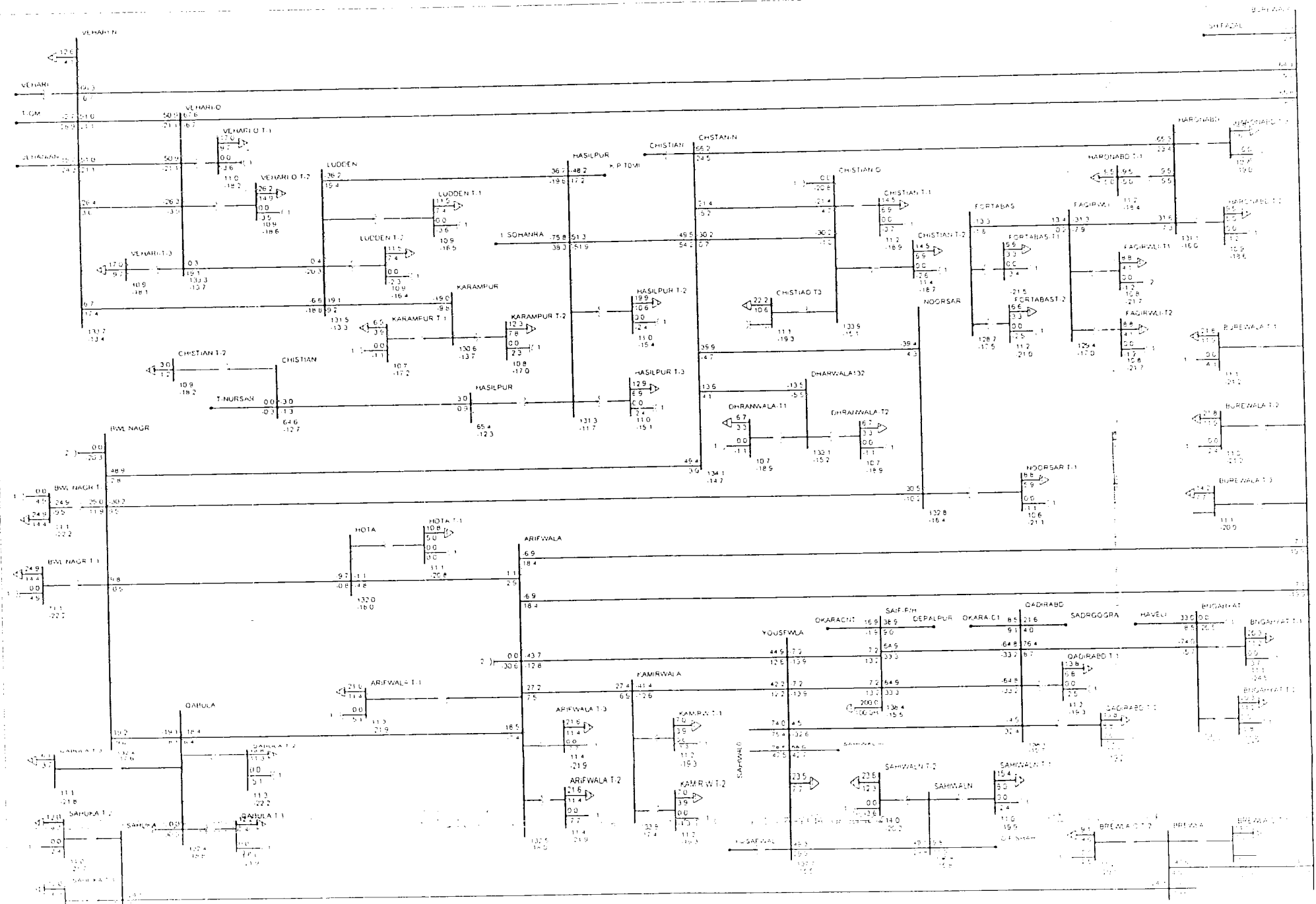


Exhibit-2017-1.1

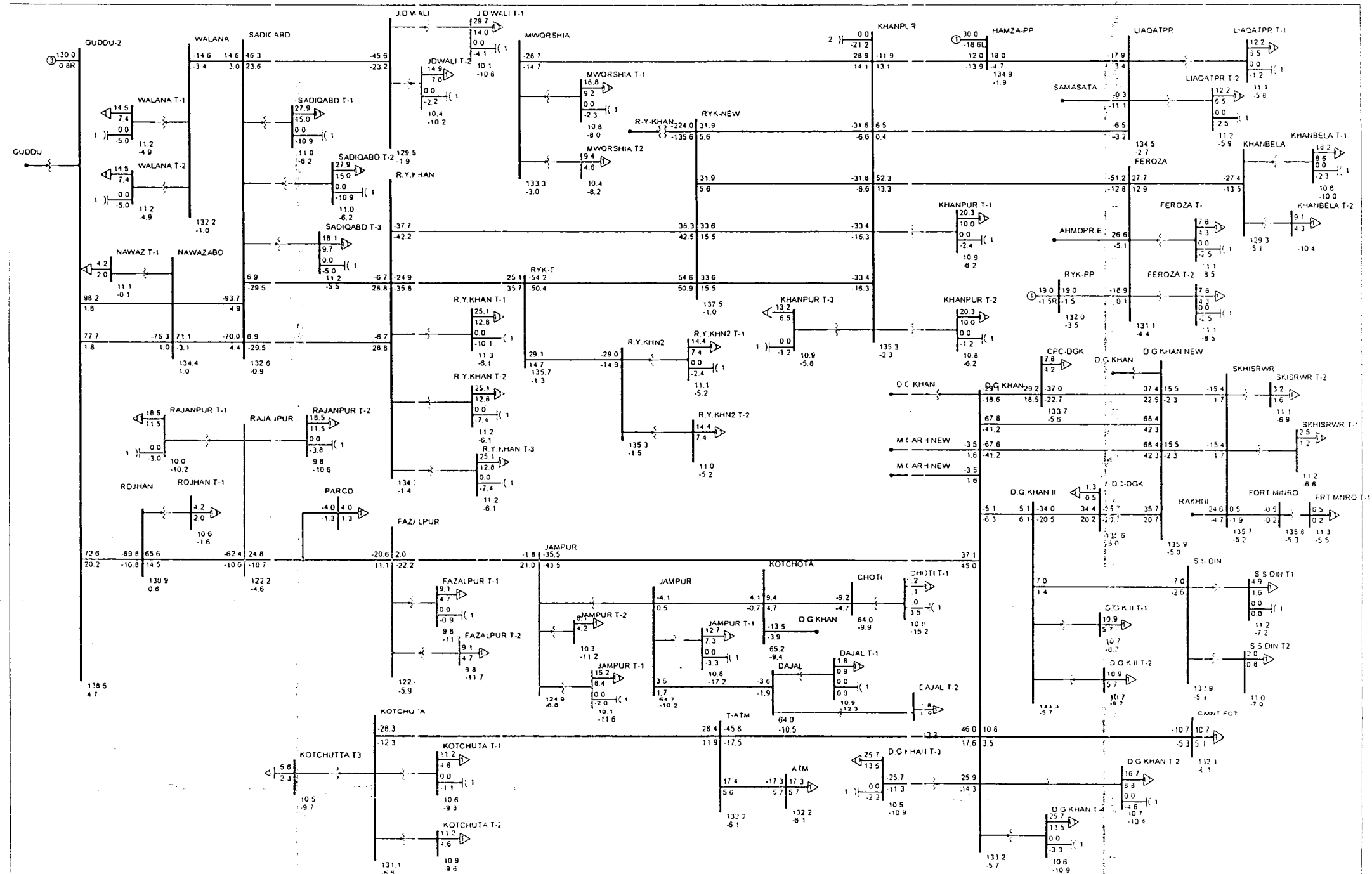
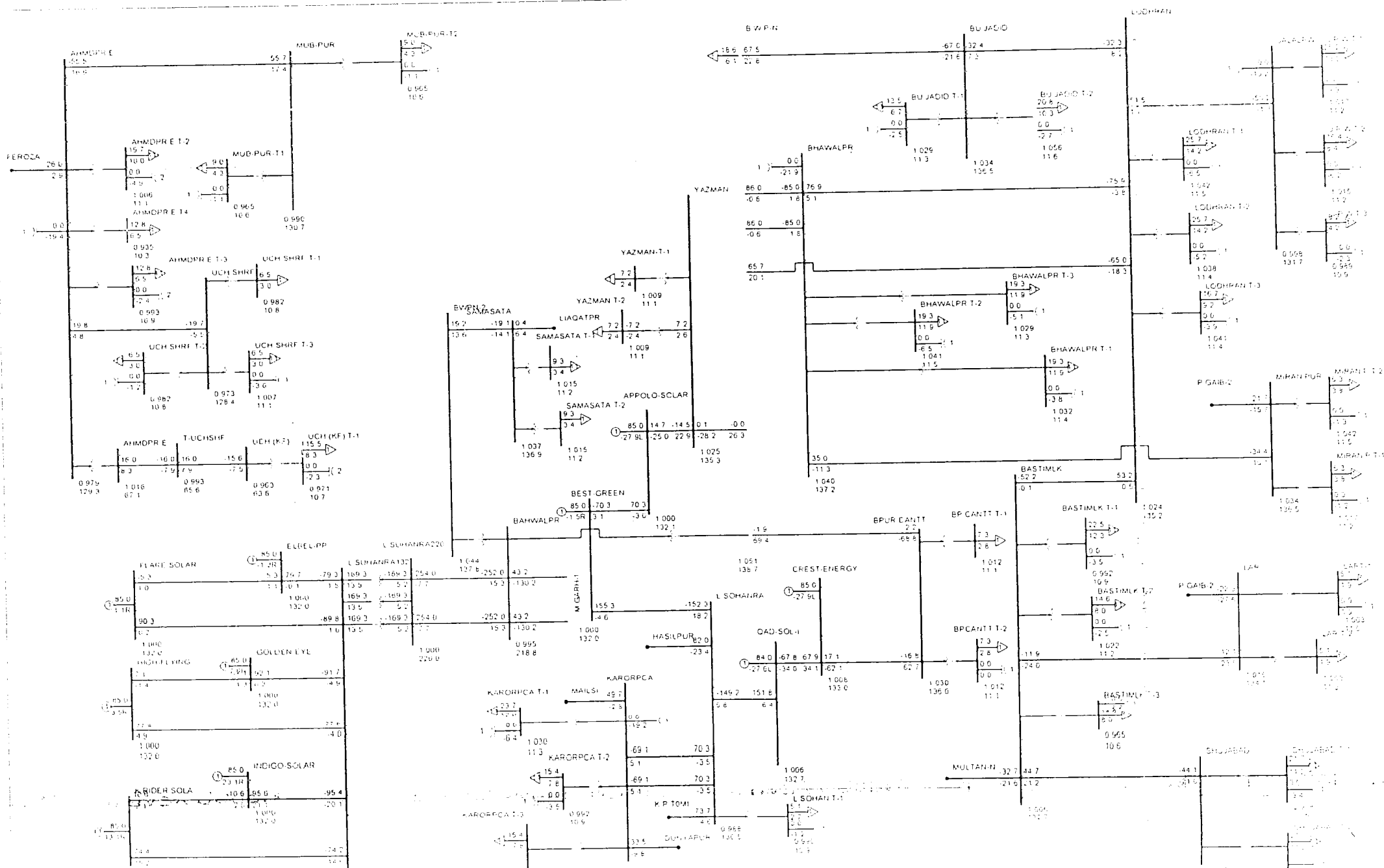


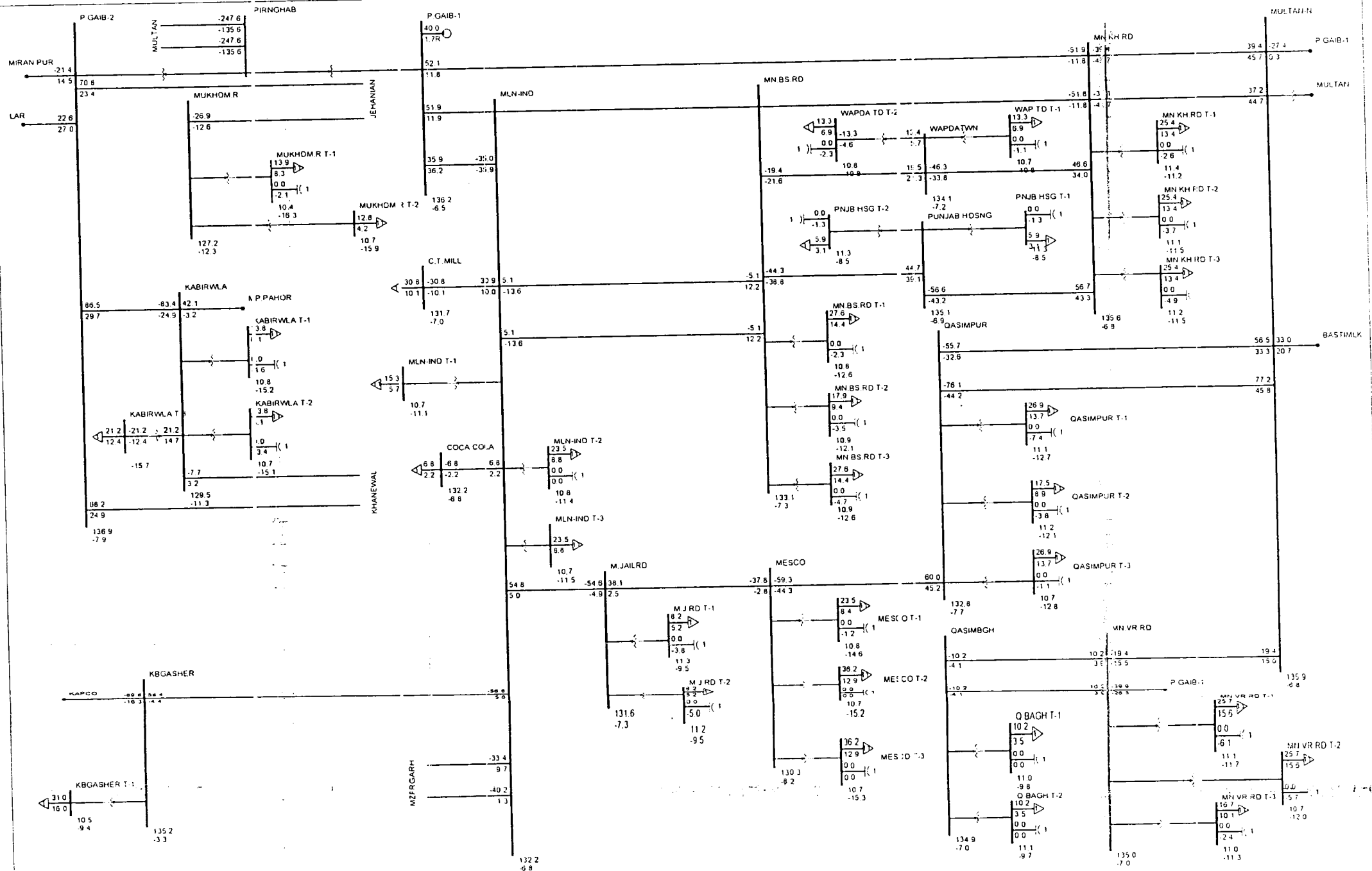
Exhibit-2017-1 2



LOAD FLOW FOR JIP

MEPCO YEAR 2017 WITHOUT REINFORCEMENT

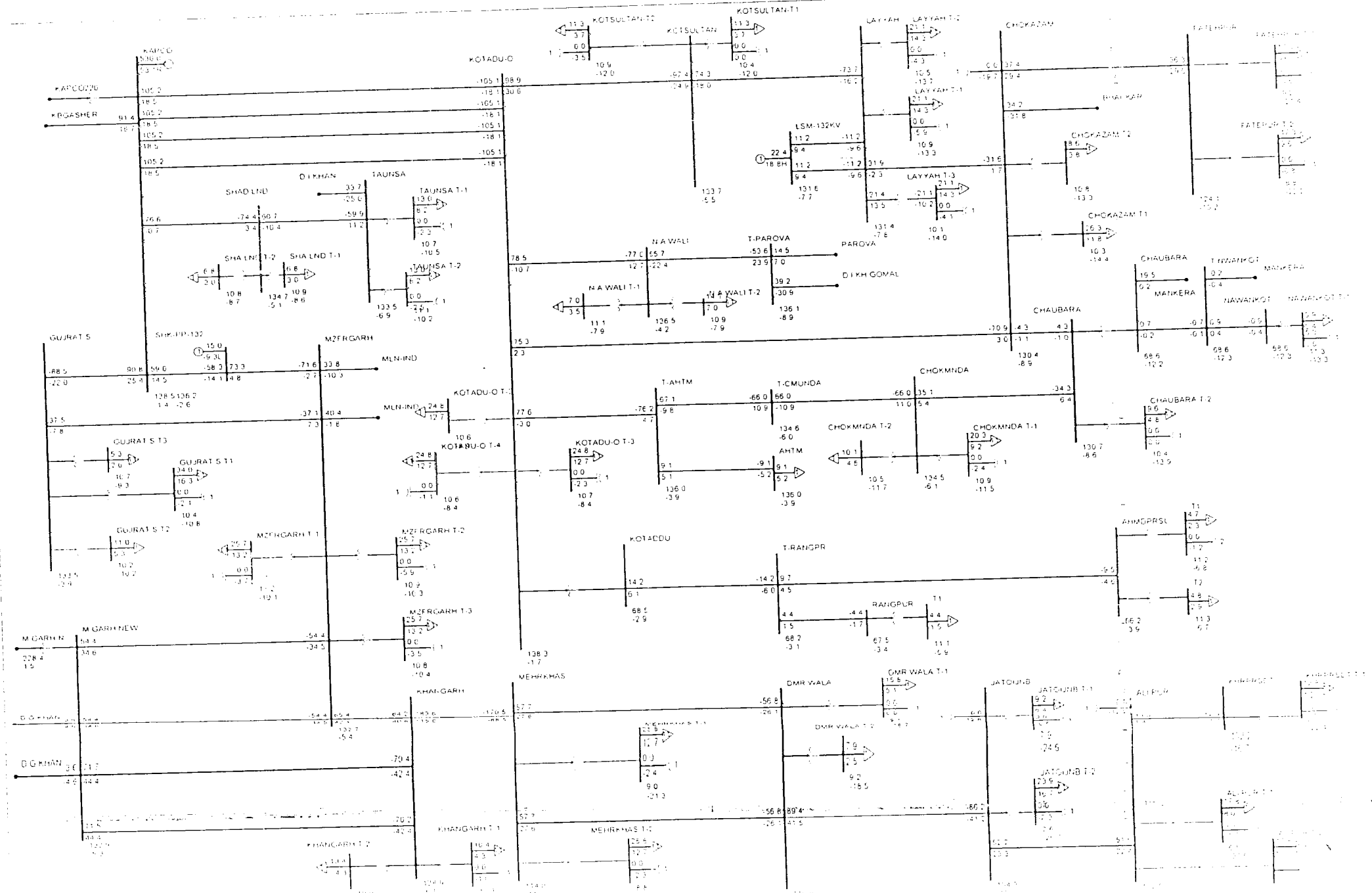
Exhibit-2017-1.3



LOAD FLOW FOR D.I.P

MEPCO YEAR 2017 WITHOUT REINFORCEMENT

Exhibit-2017-14



MEPCO YEAR 2017 WITHOUT REINFORCEMENT

Exhibit-2017-0.5

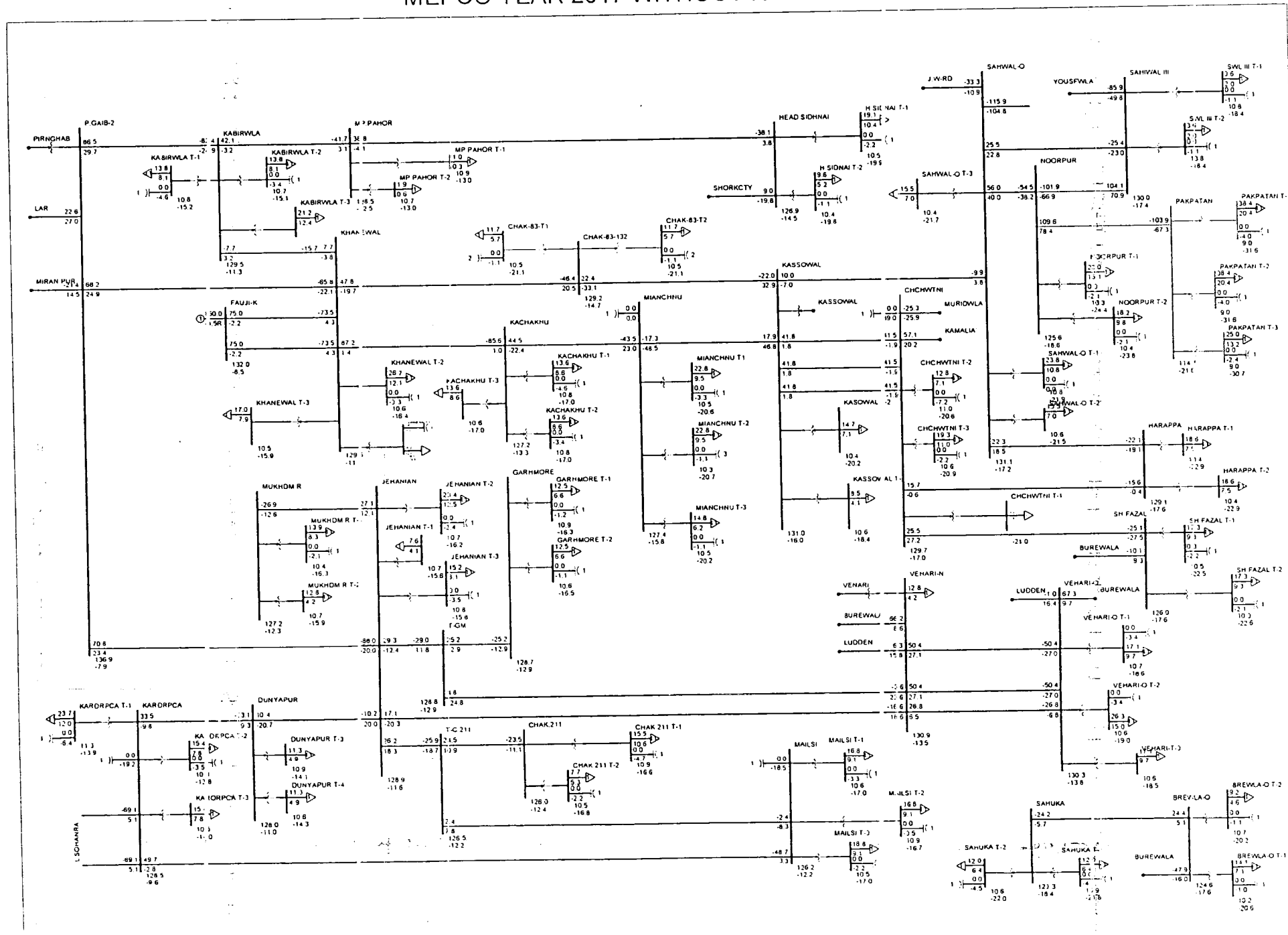
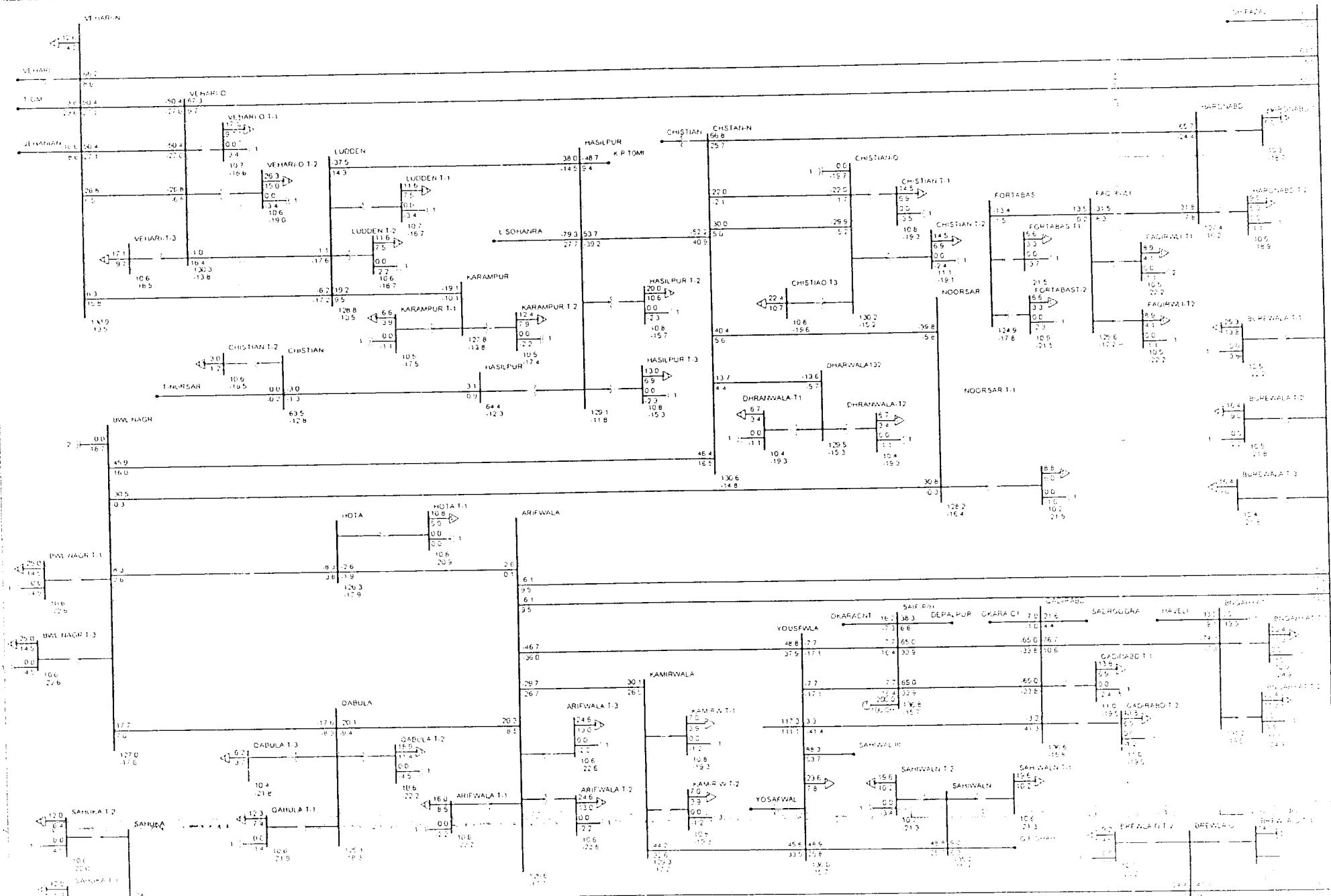


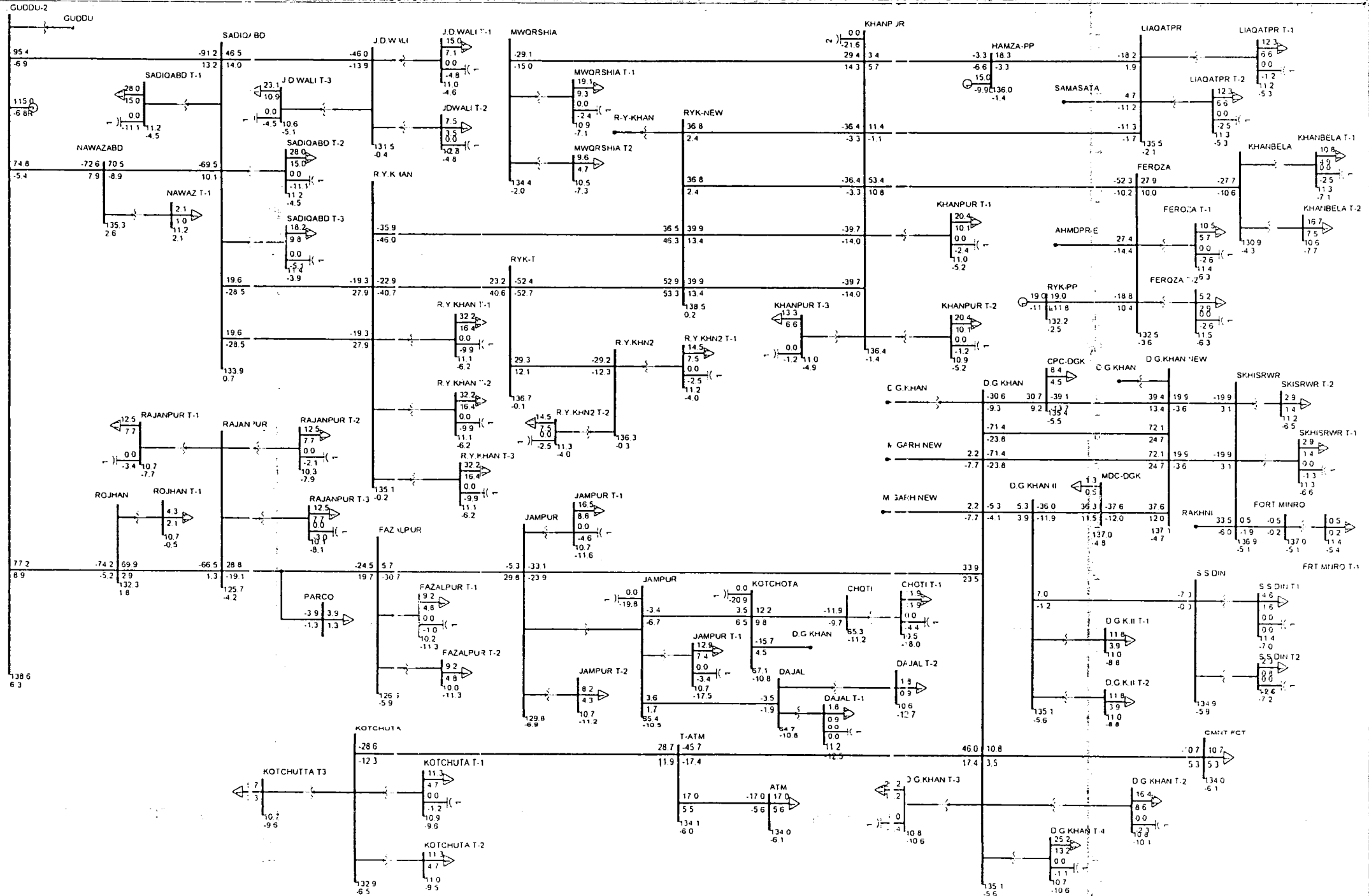
Exhibit-2017-16



LOAD FLOW FOR DIP

MEFCO YEAR 2018 WITH ADDITIONAL REINFORCEMENT

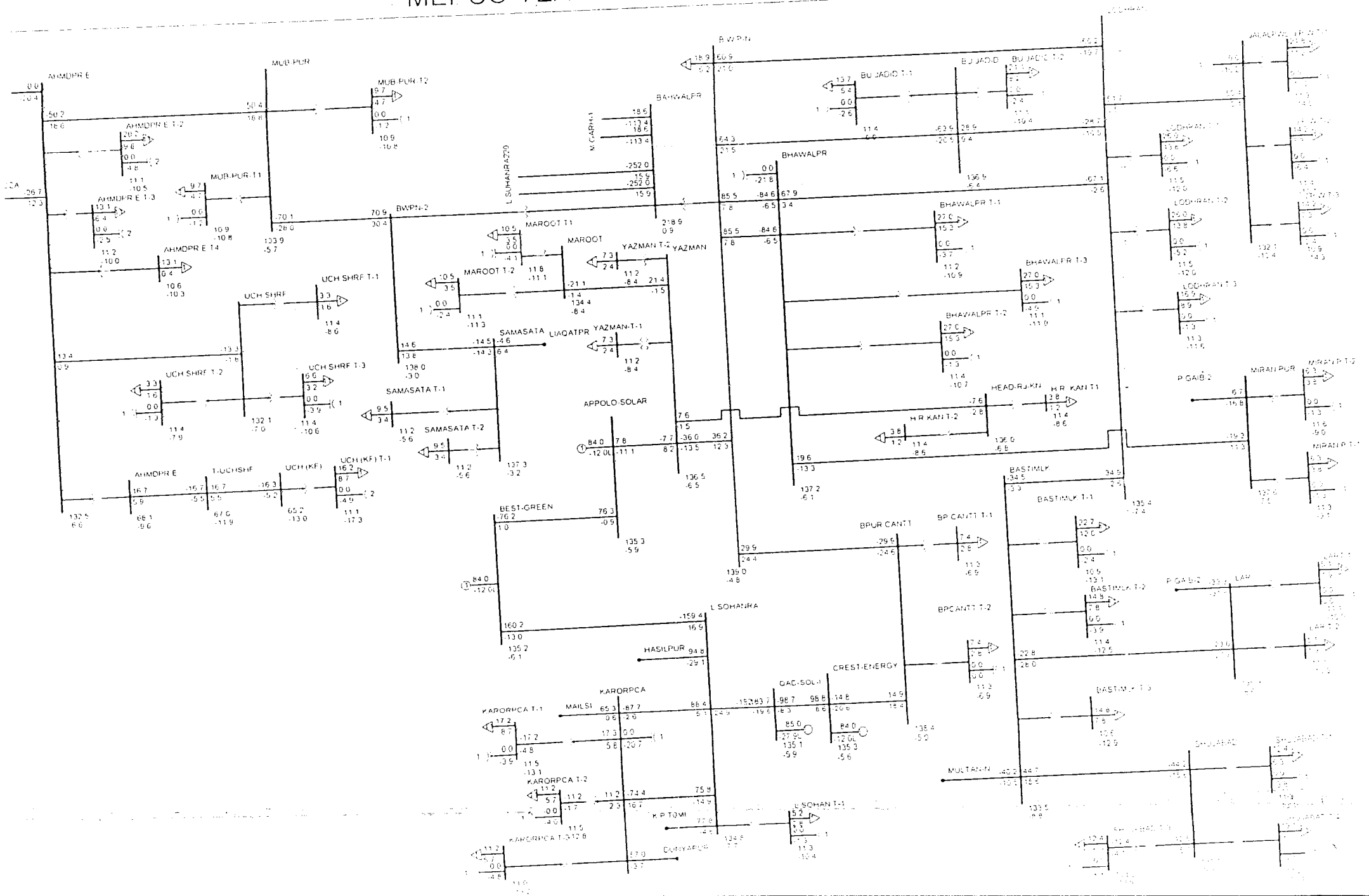
Exhibit-2018-1.1



LOAD FLOW FOR D.F.P

MEPCO YEAR 2018 WITH REINFORCEMENT

Exhibit-2018-12



LOAD FLOW FOR JIL MEPCO YEAR 2018 WITH REINFORCEMENT

Exhibit-2018-1.3

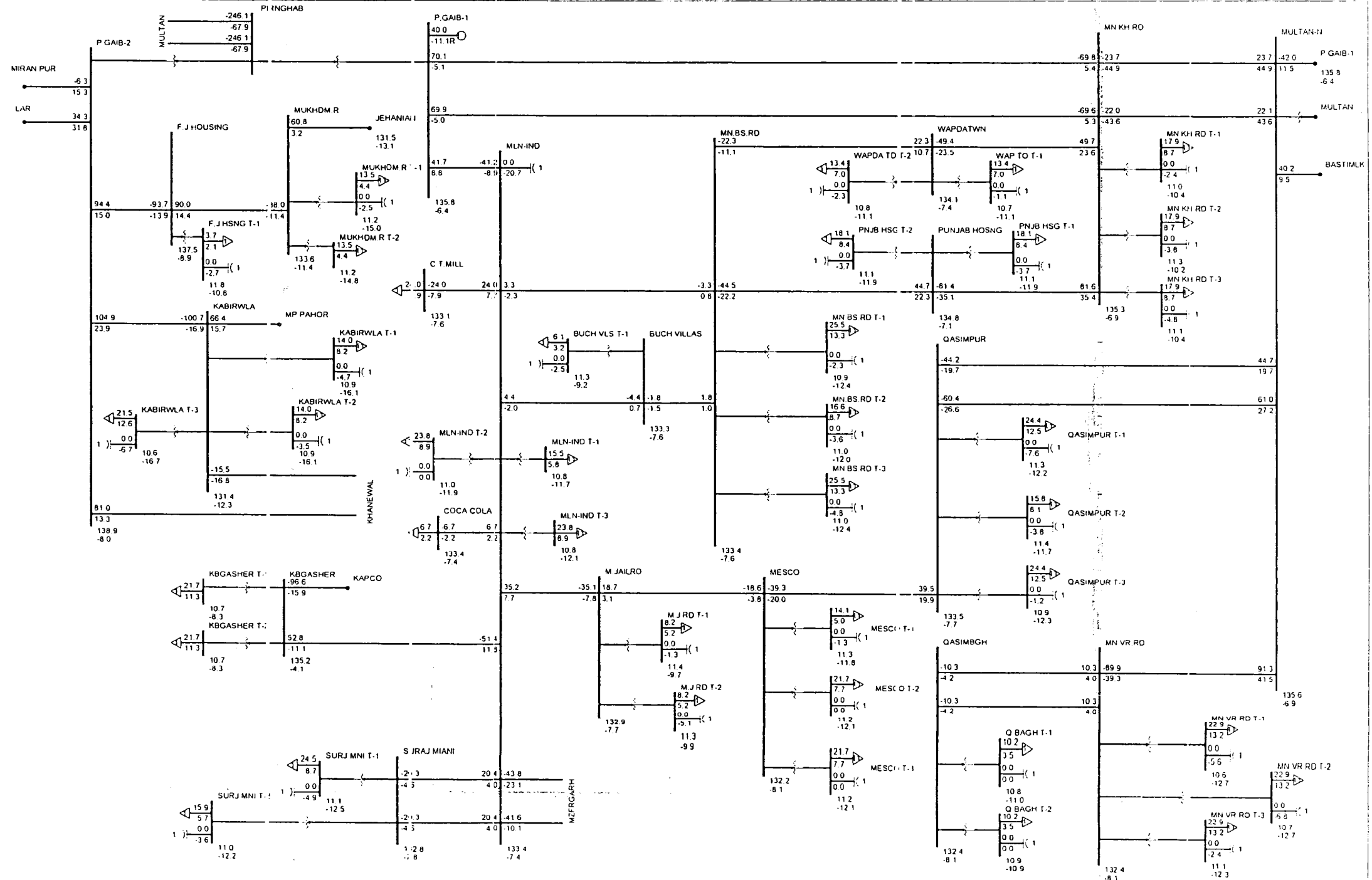


Exhibit-2018-1 4

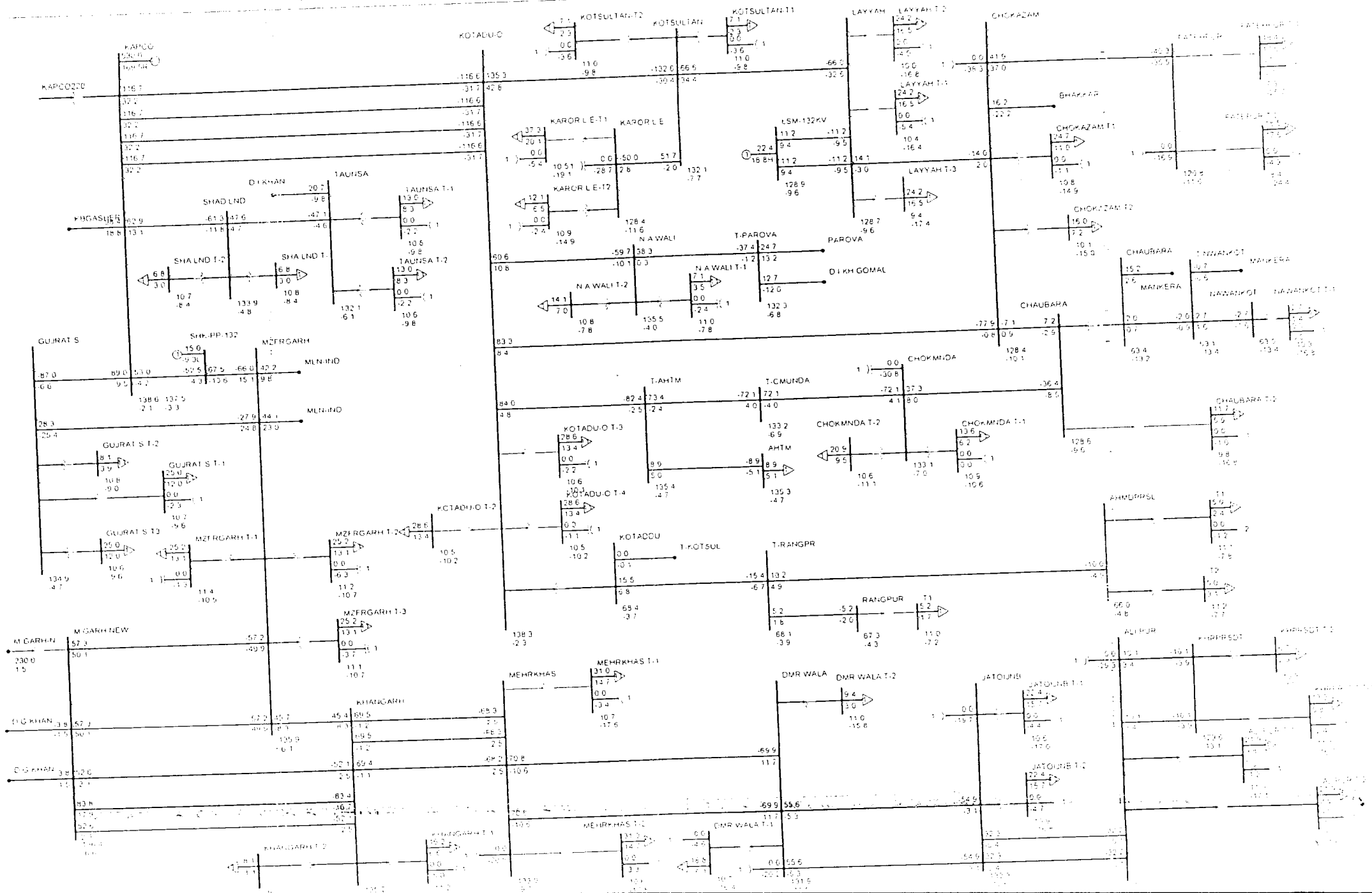


Exhibit-2018-1.5

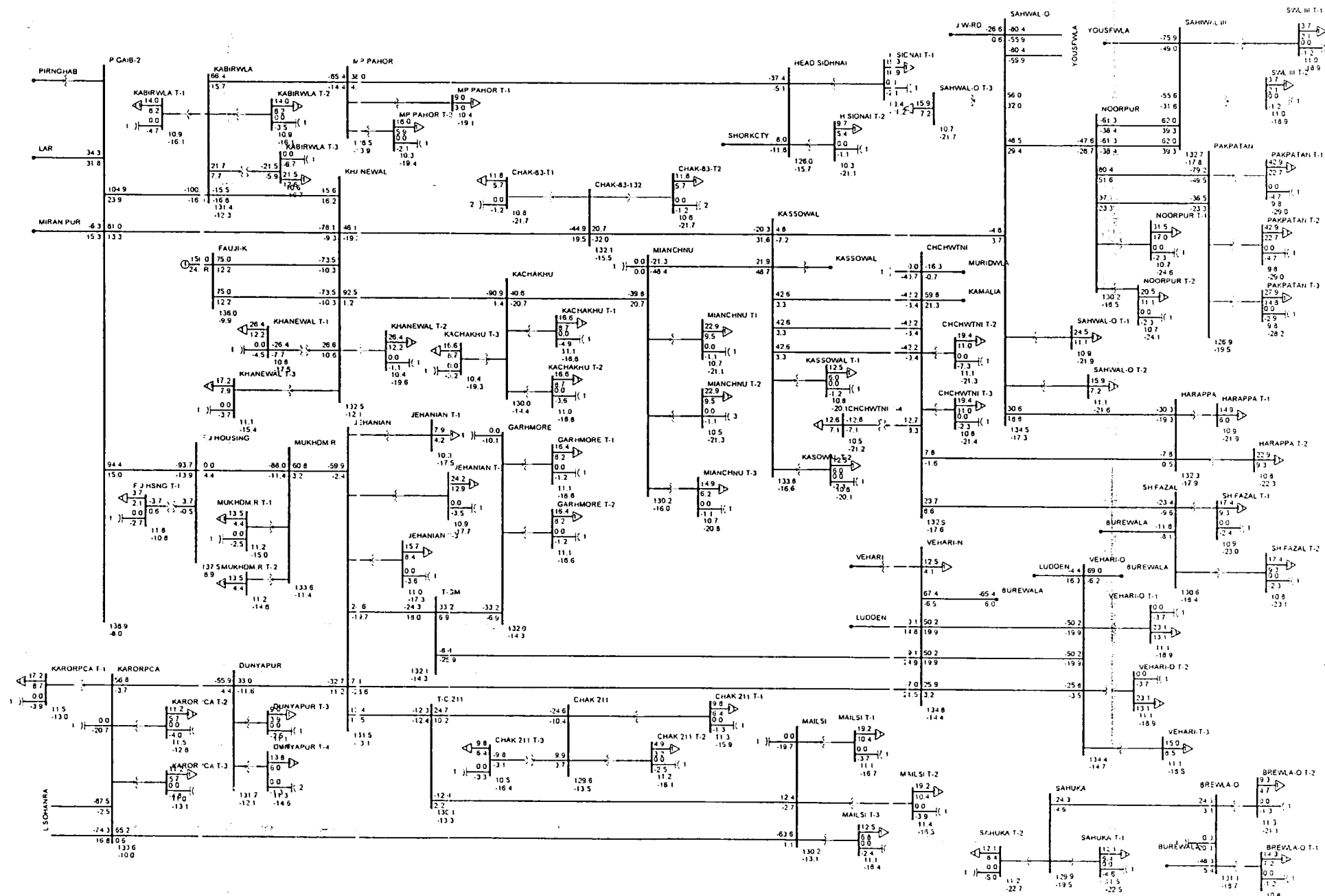
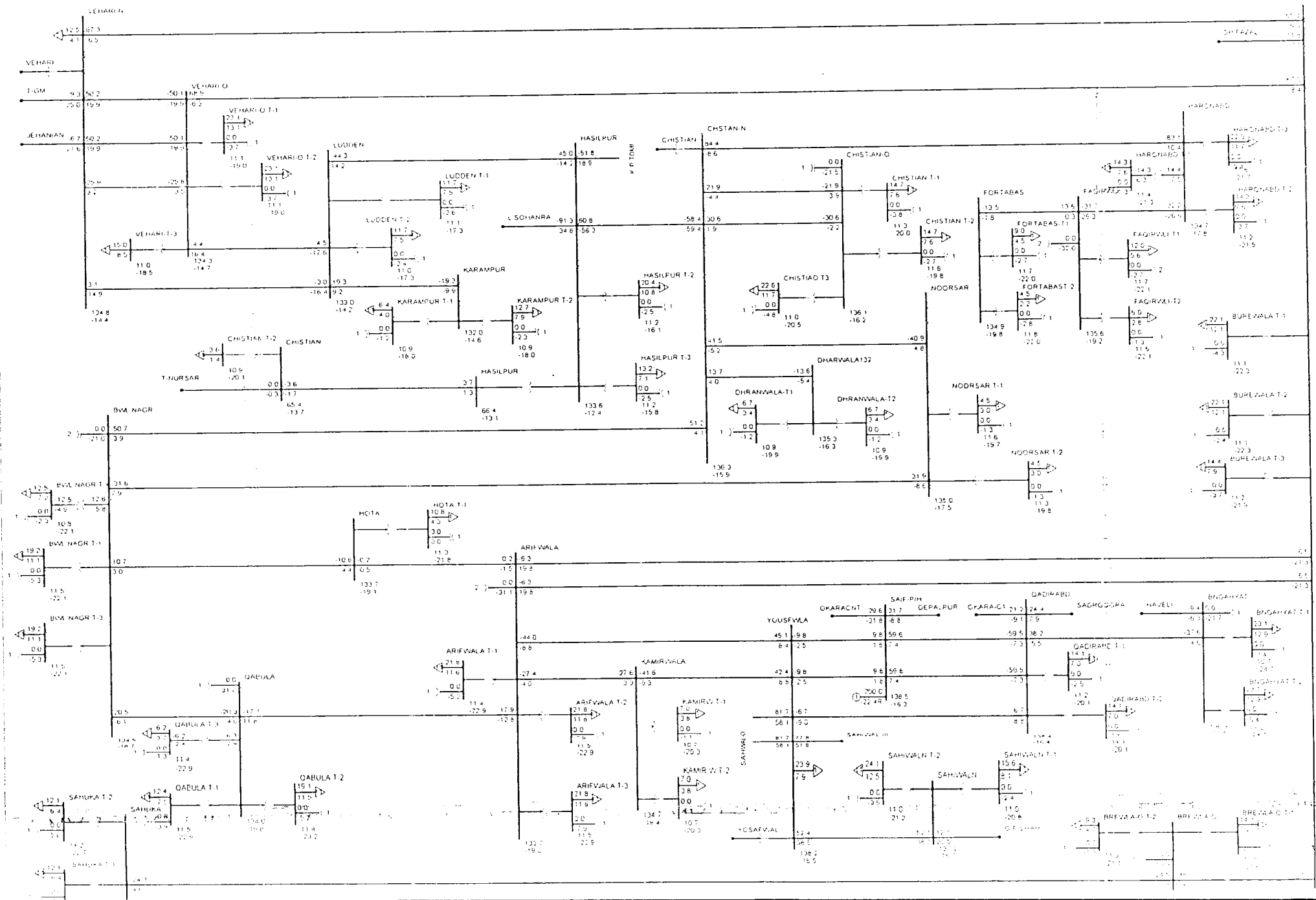


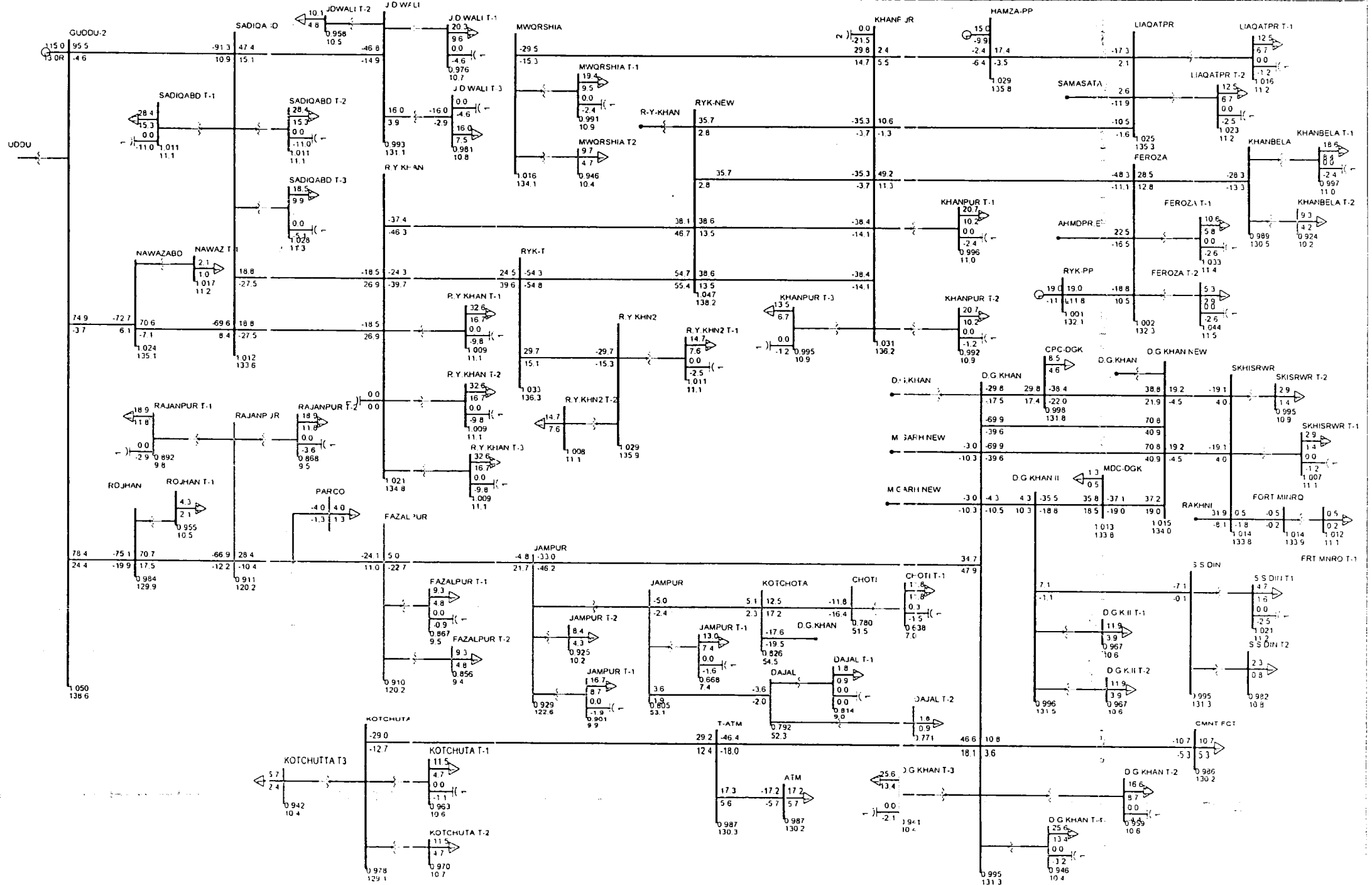
Exhibit-2018-16



LOAD FLOW FOR DTP

MEPCO YEAR 2018 WITHOUT ADDITIONAL REINFORCEMENT

Exhibit-2018-1.1



LOAD FLOW FOR LIF

MEPCO YEAR 2018 WITHOUT REINFORCEMENT

Exhibit-2018-1.2

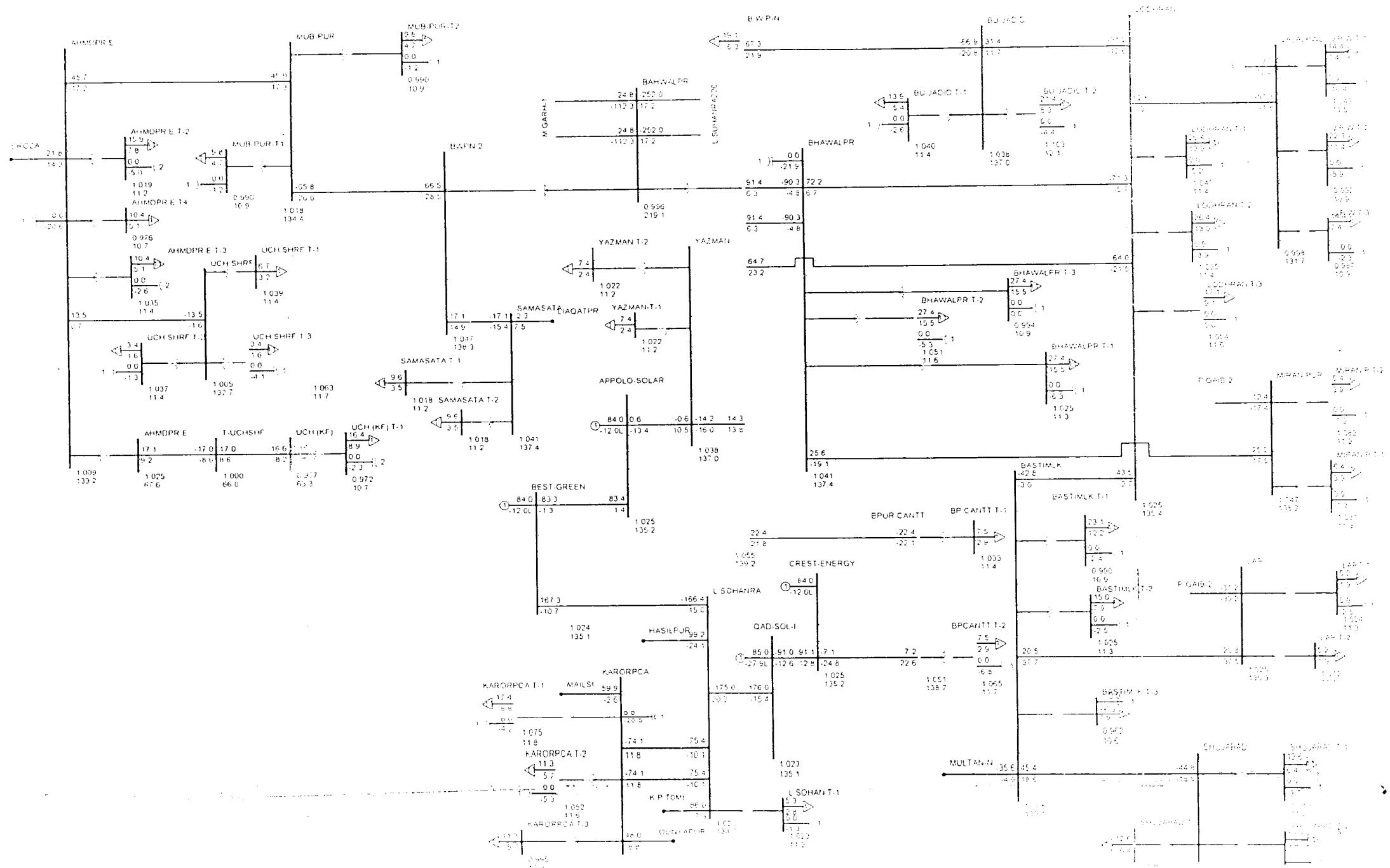


Exhibit-2018-1.3 ;

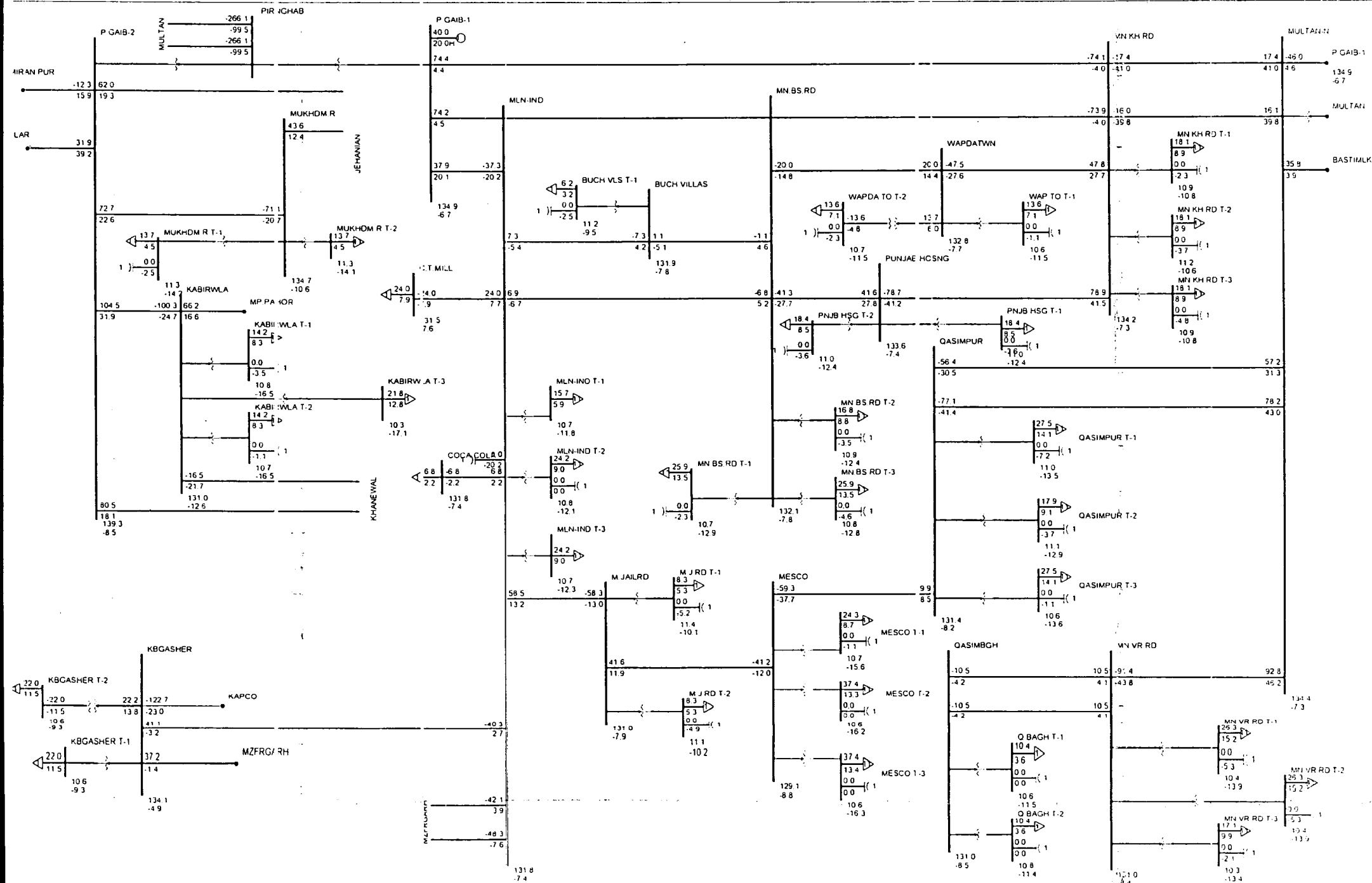
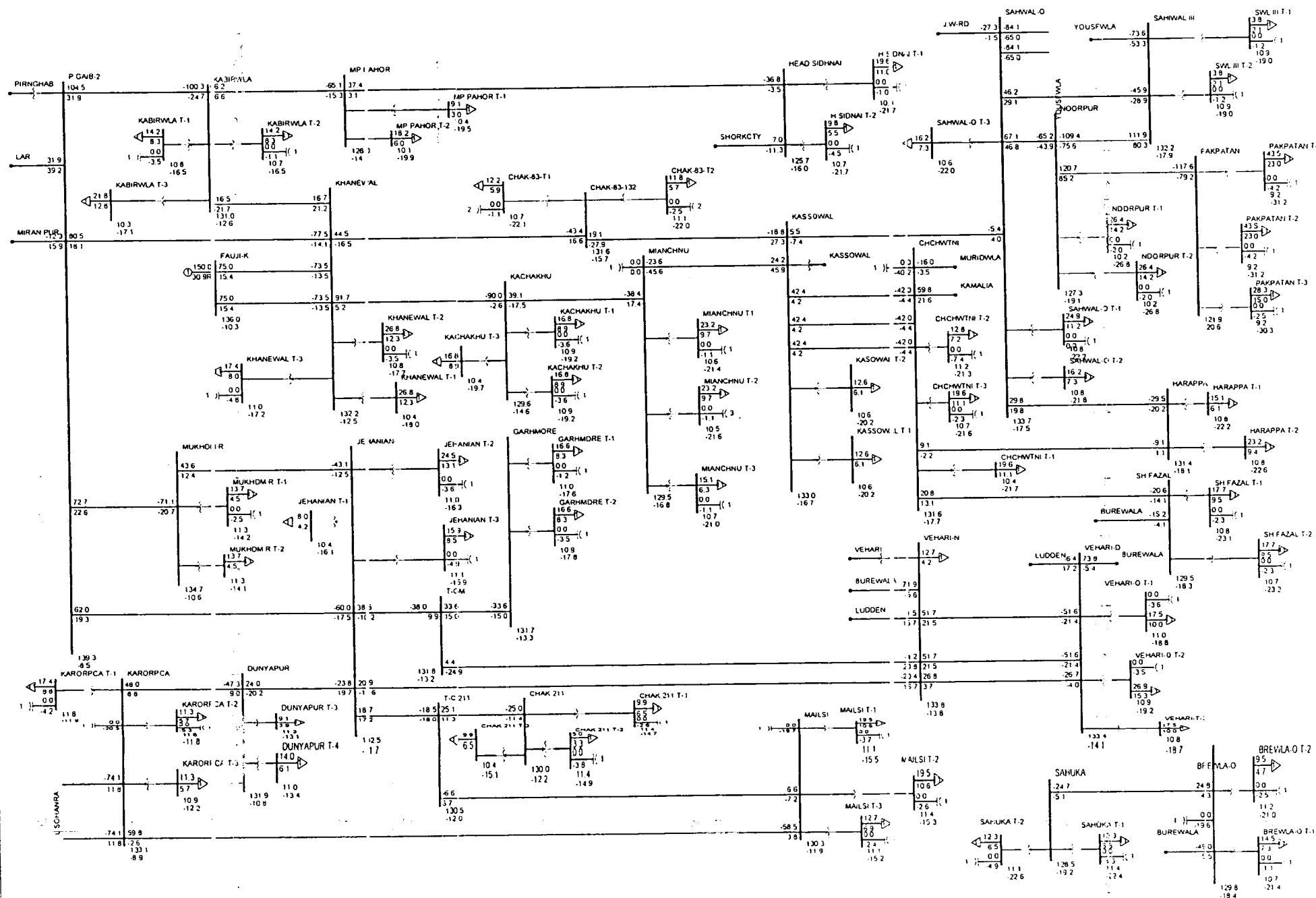
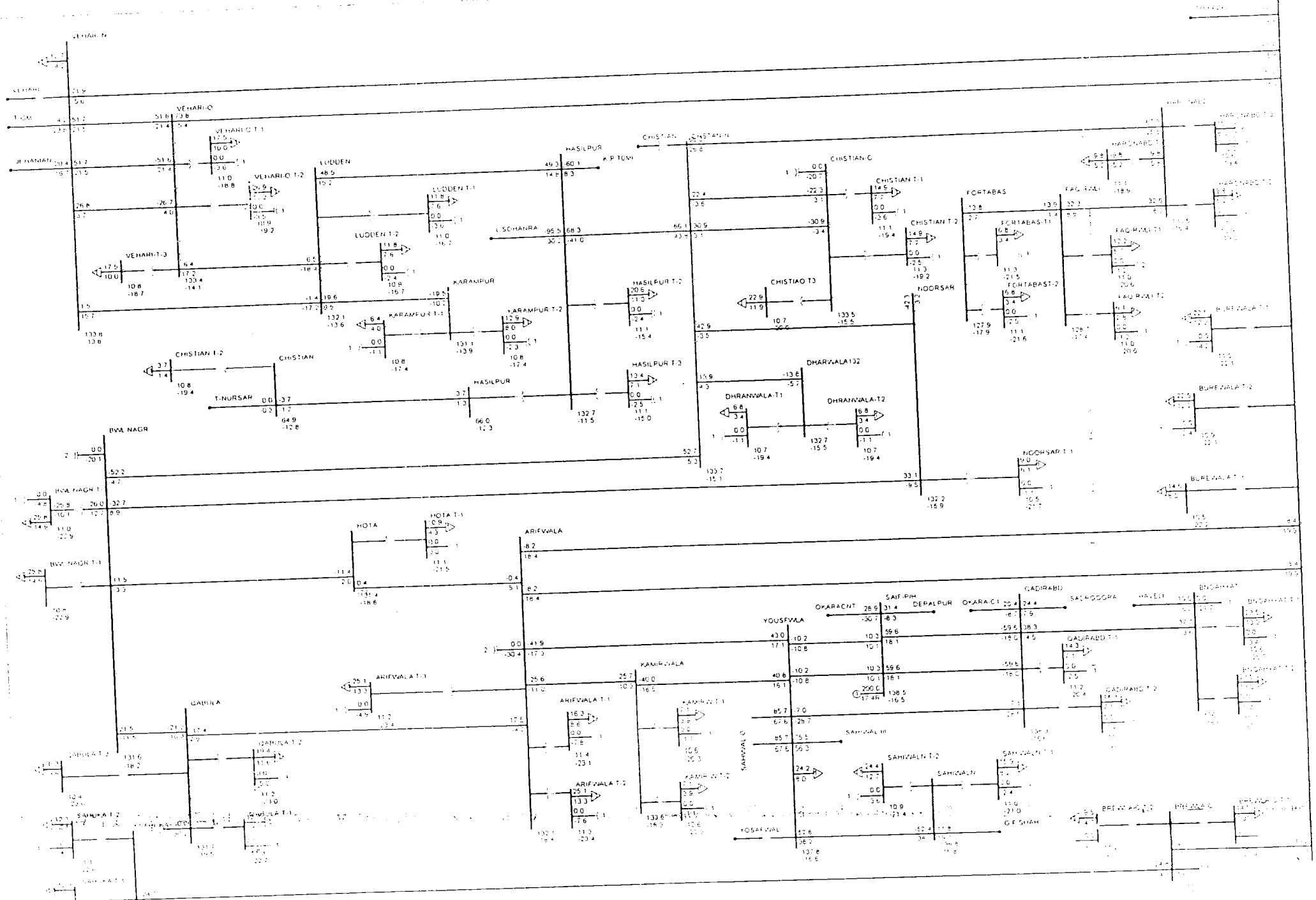


Exhibit-2018-1.5



LOAD FLOW CALCULATION MEPCO YEAR 2018 WITHOUT REINFORCEMENT

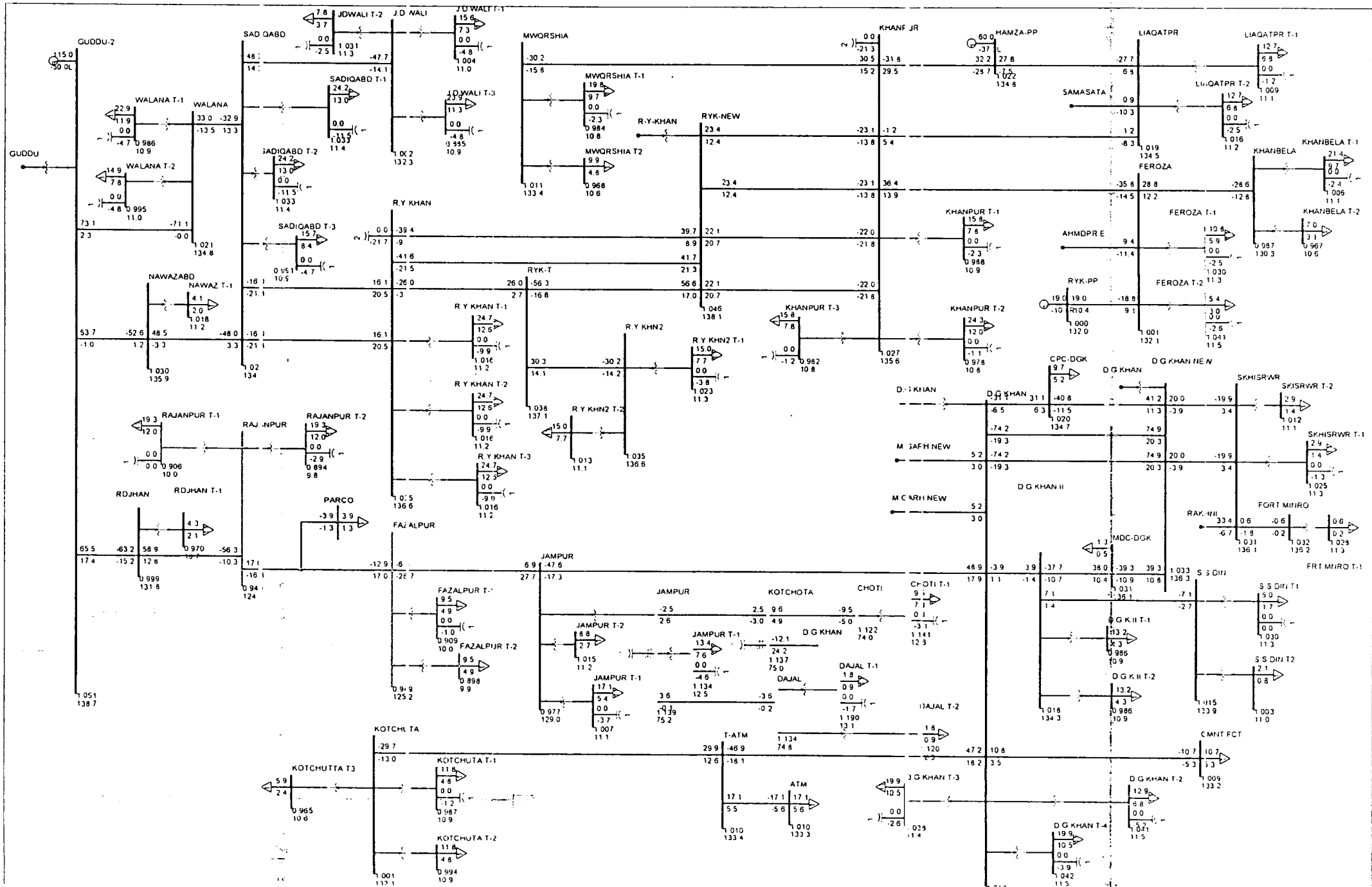
EXHIBIT-2018-05



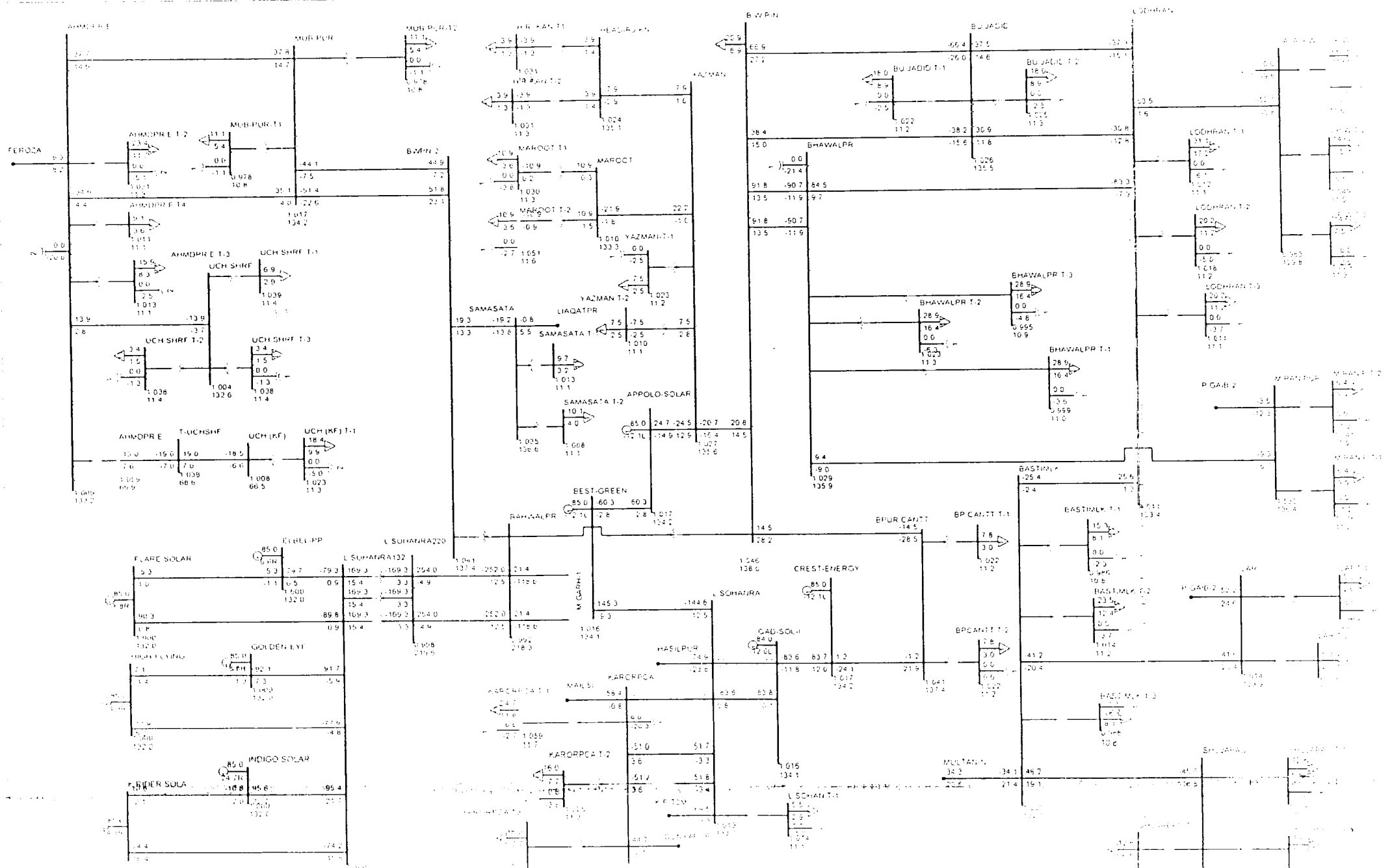
LOAD FLOW FOR DIP

MEPCO YEAR 2019 WITH ADDITIONAL REINFORCEMENT

Exhibit-2019-1.1



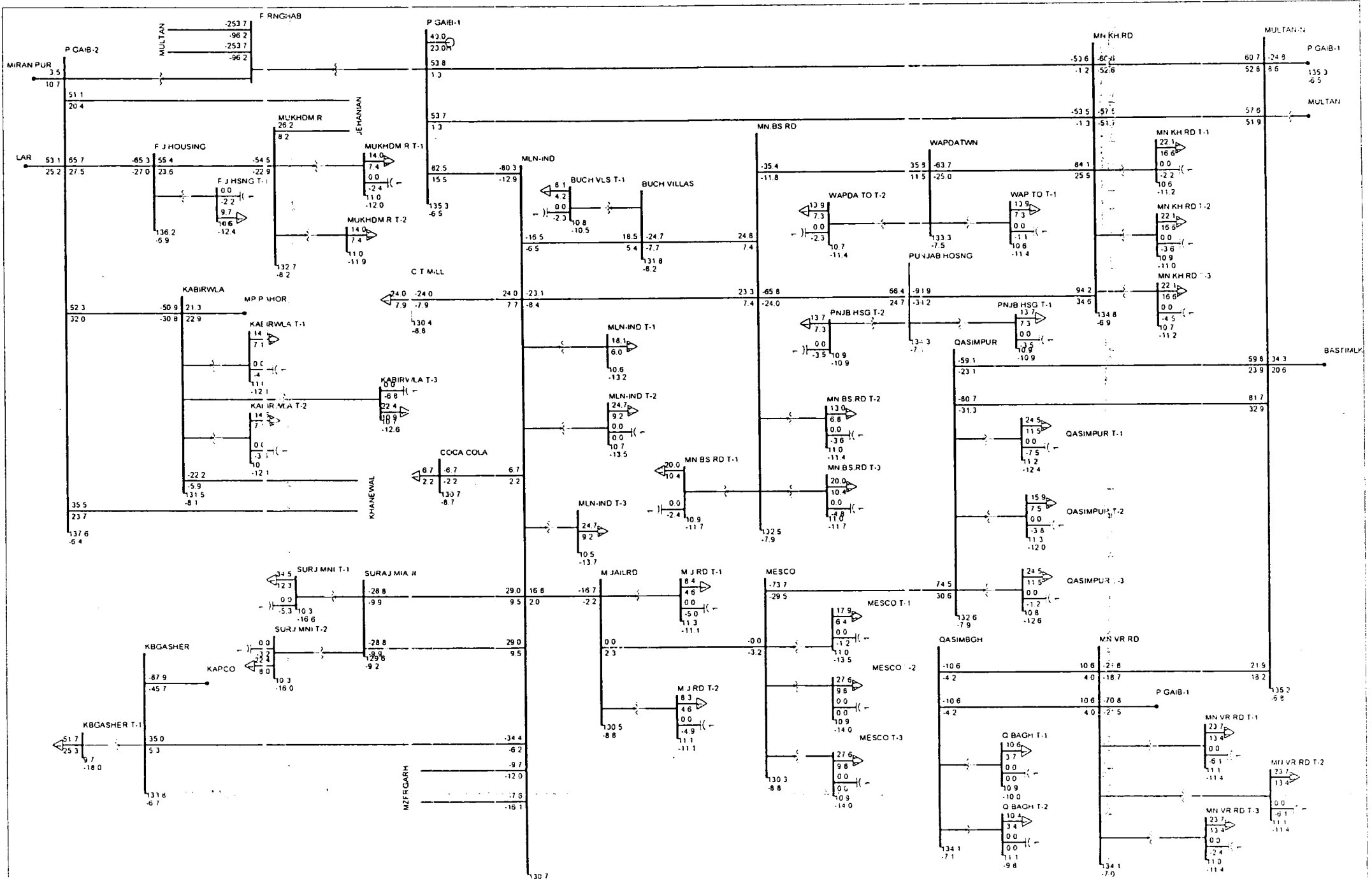
Enb1-2019-11



LOAD FLOW FOR DDP

MEPCO YEAR 2019 WITH REINFORCEMENT

Exhibit-2019-1.3



LOAD FLOW FOR DIP

MEPCO YEAR 2019 WITH REINFORCEMENT

Exhibit-2019-14

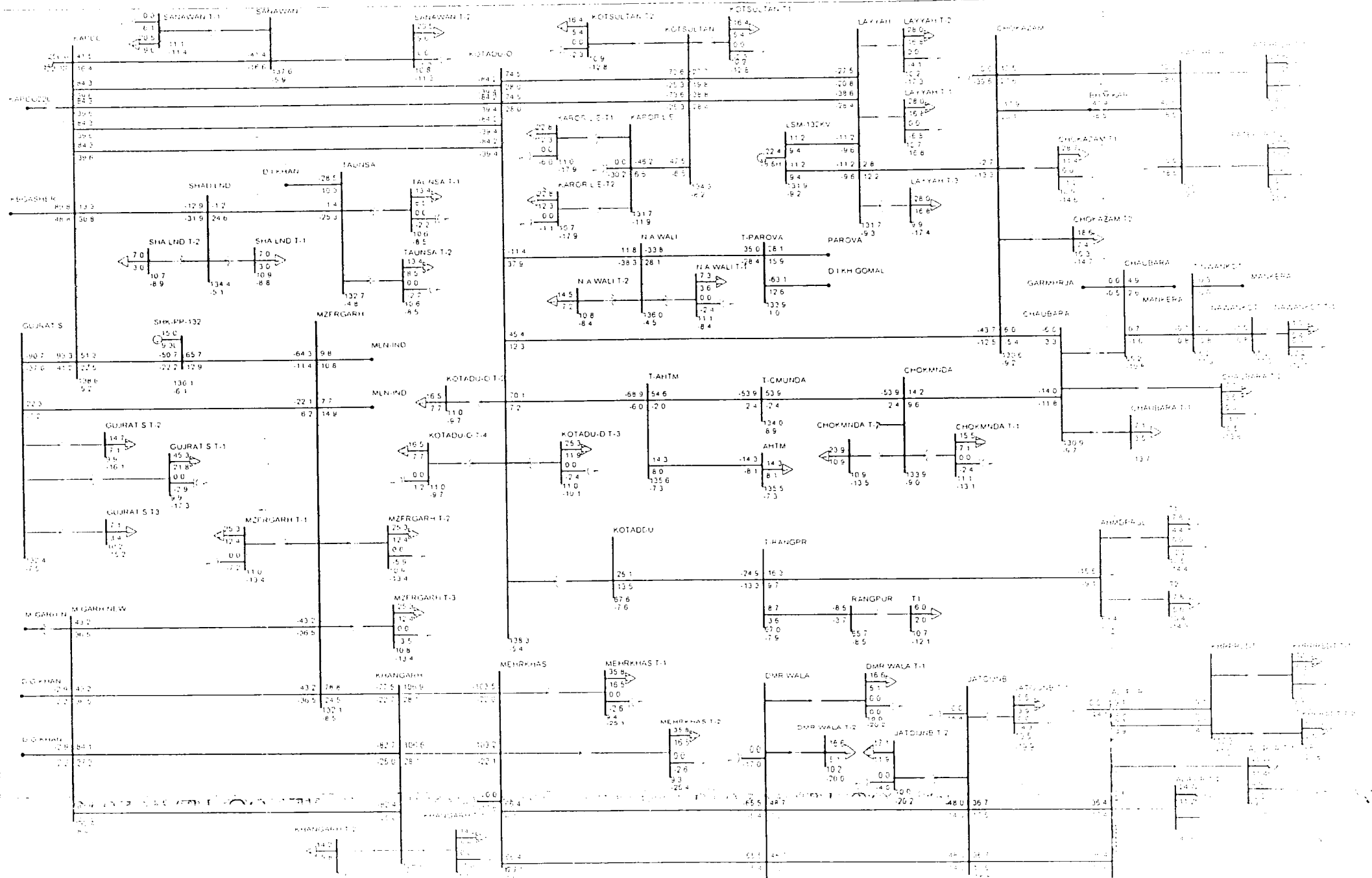


Exhibit-2019-1.5

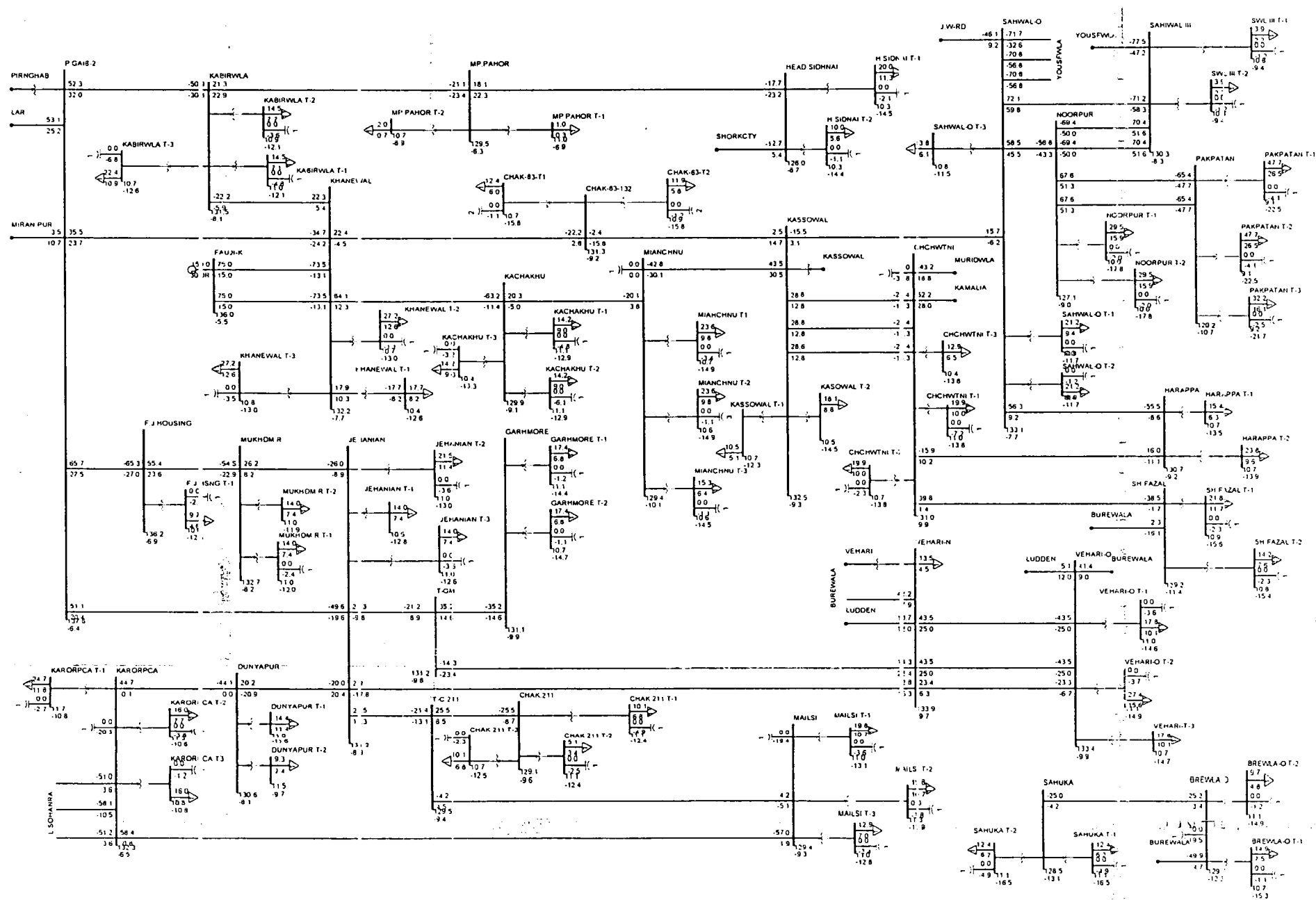
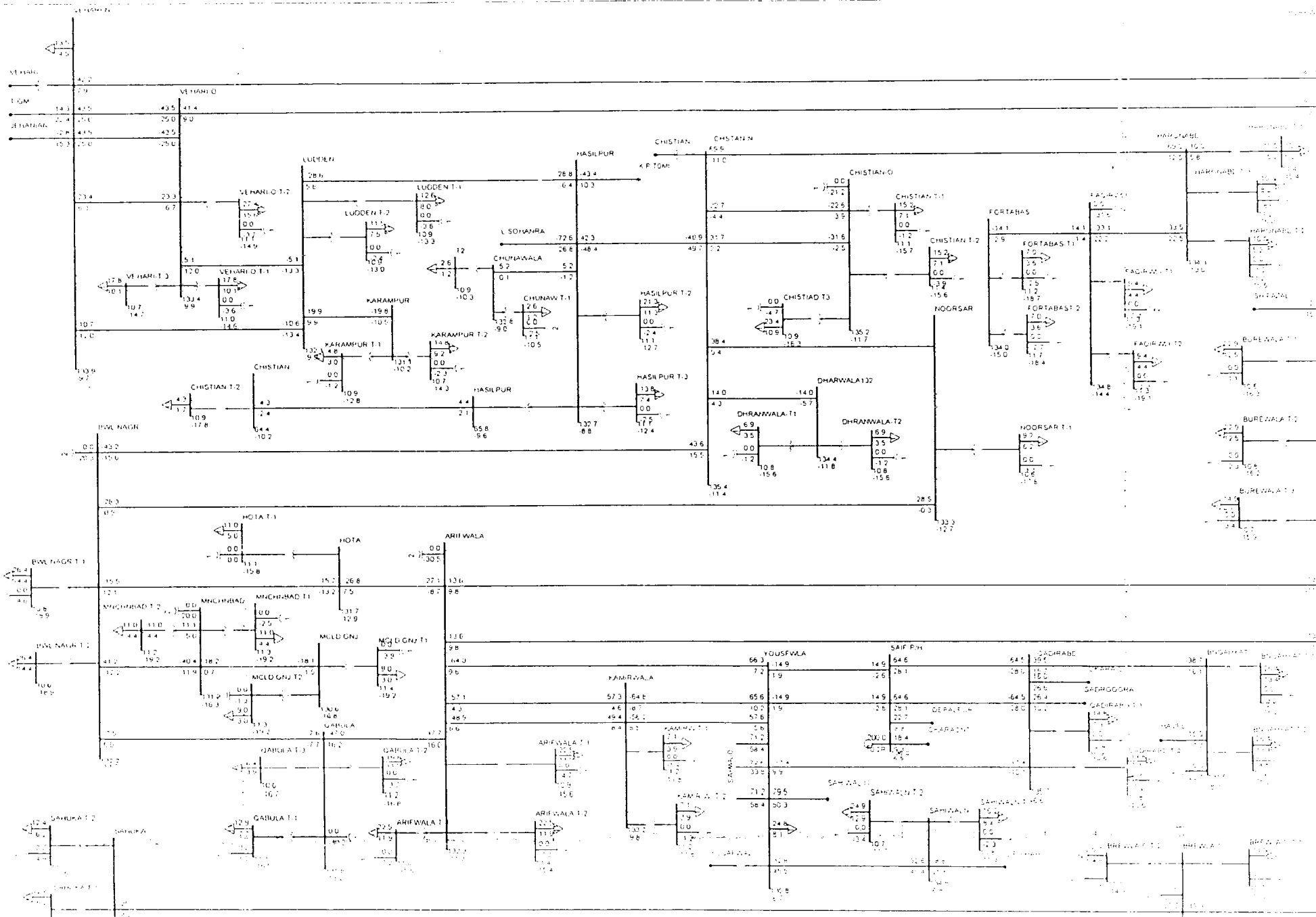


Exhibit-2019-15



LOAD FLOW FOR DTP MEPCO YEAR 2019 WITHOUT REINFORCEMENT

Exhib-2019-12

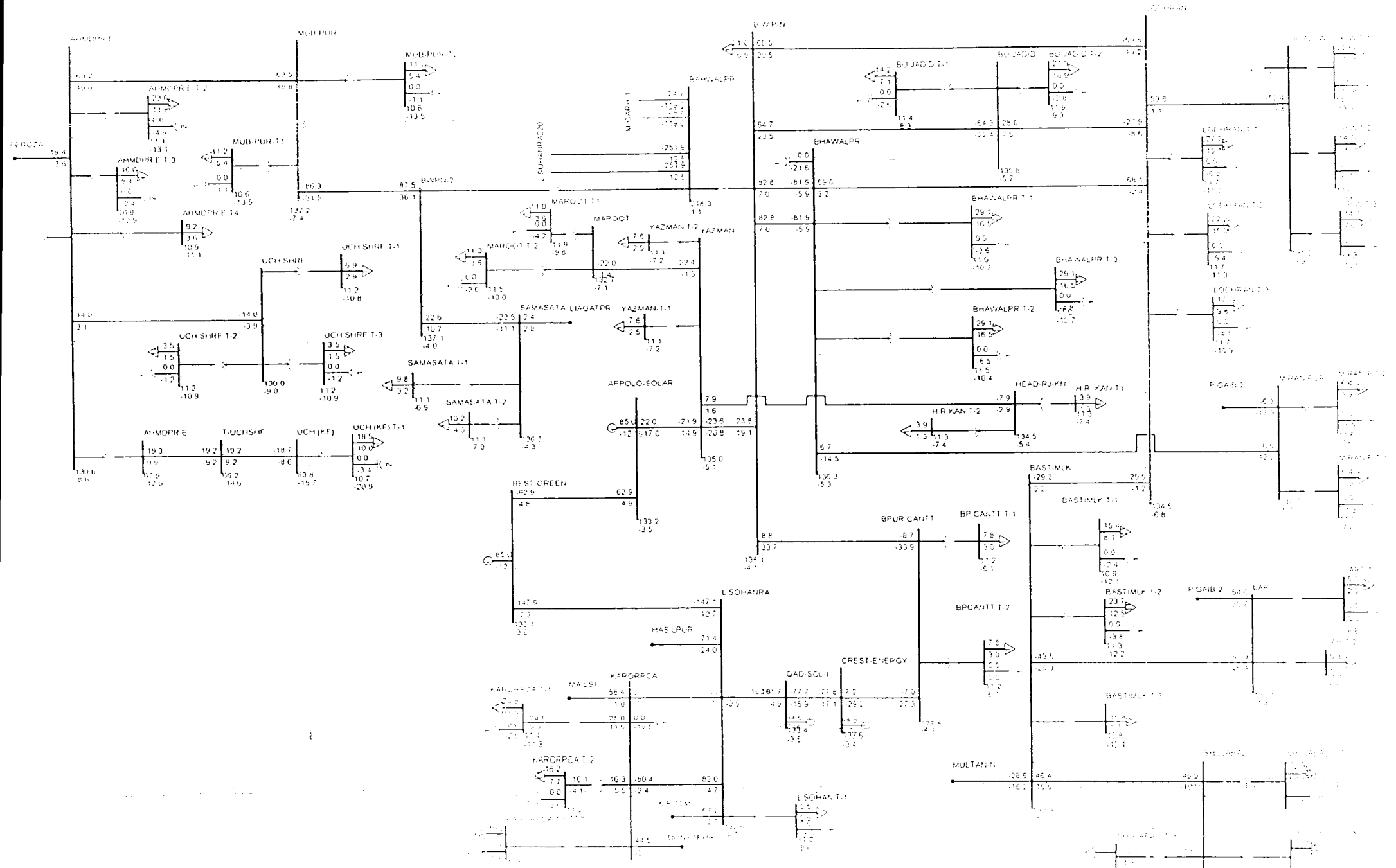
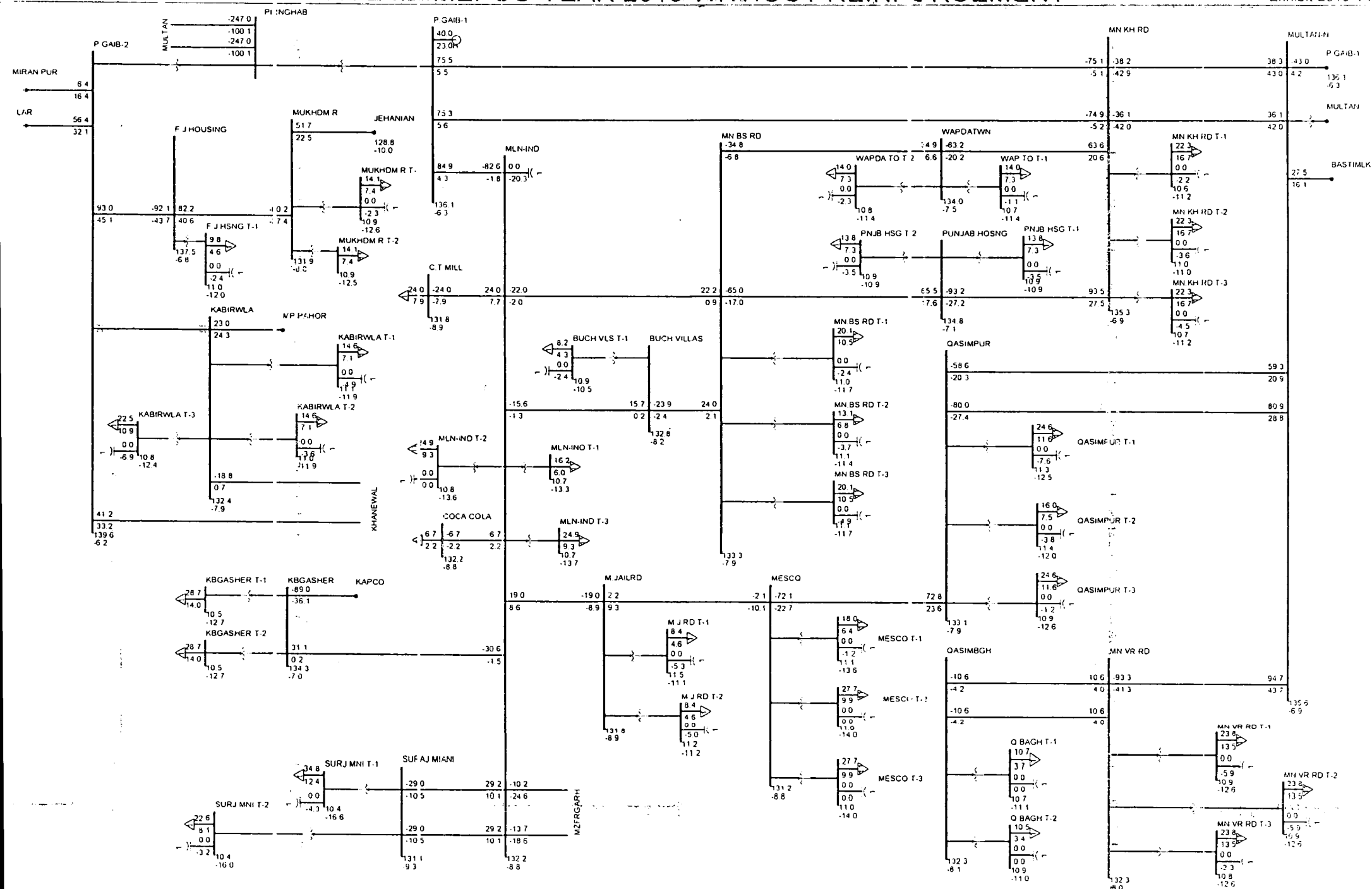


Exhibit-2019 13.



LOAD FLOW FOR DIP MEPCO YEAR 2019 WITHOUT REINFORCEMENT

Exhibit-2019-1-4

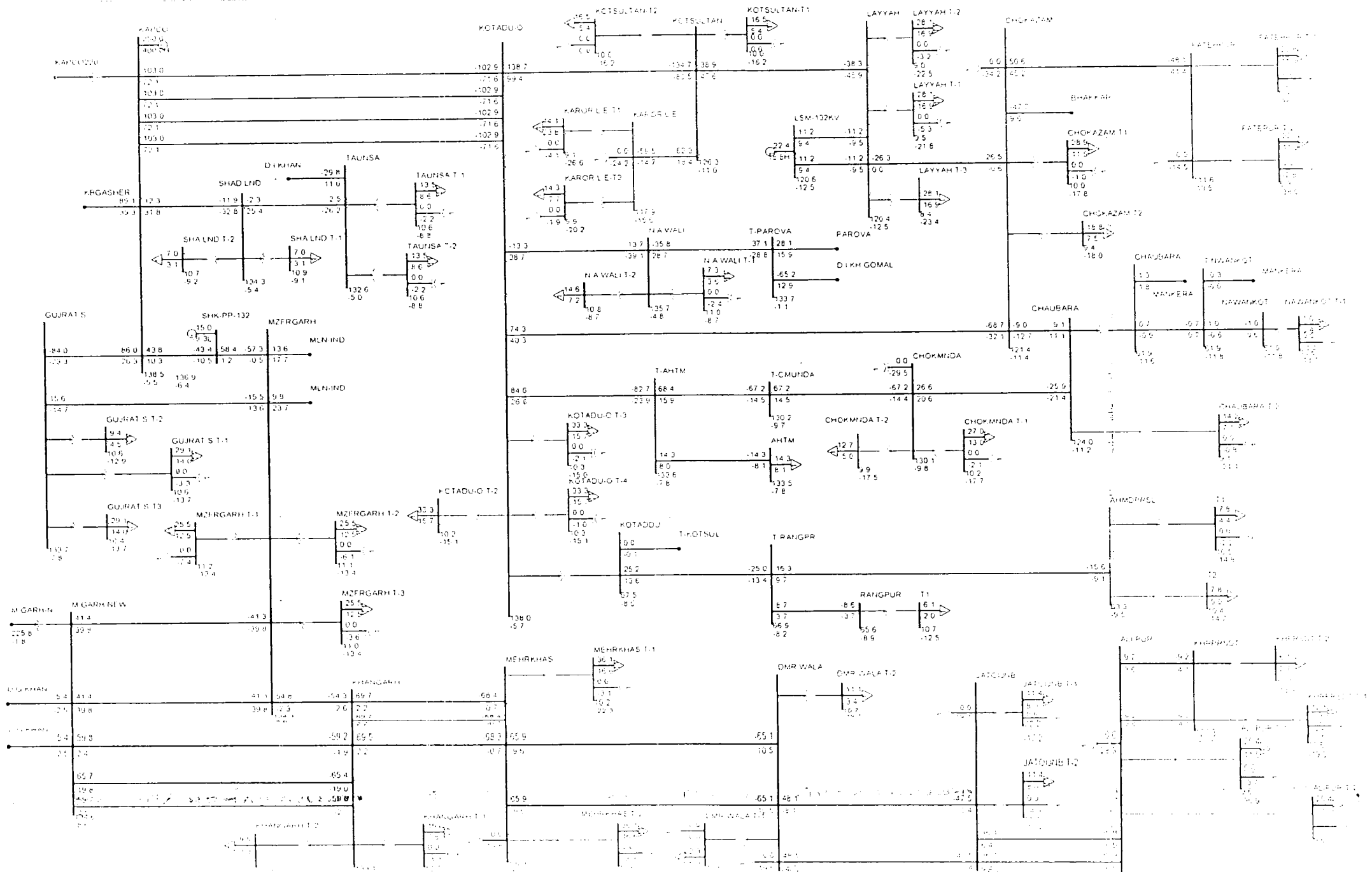
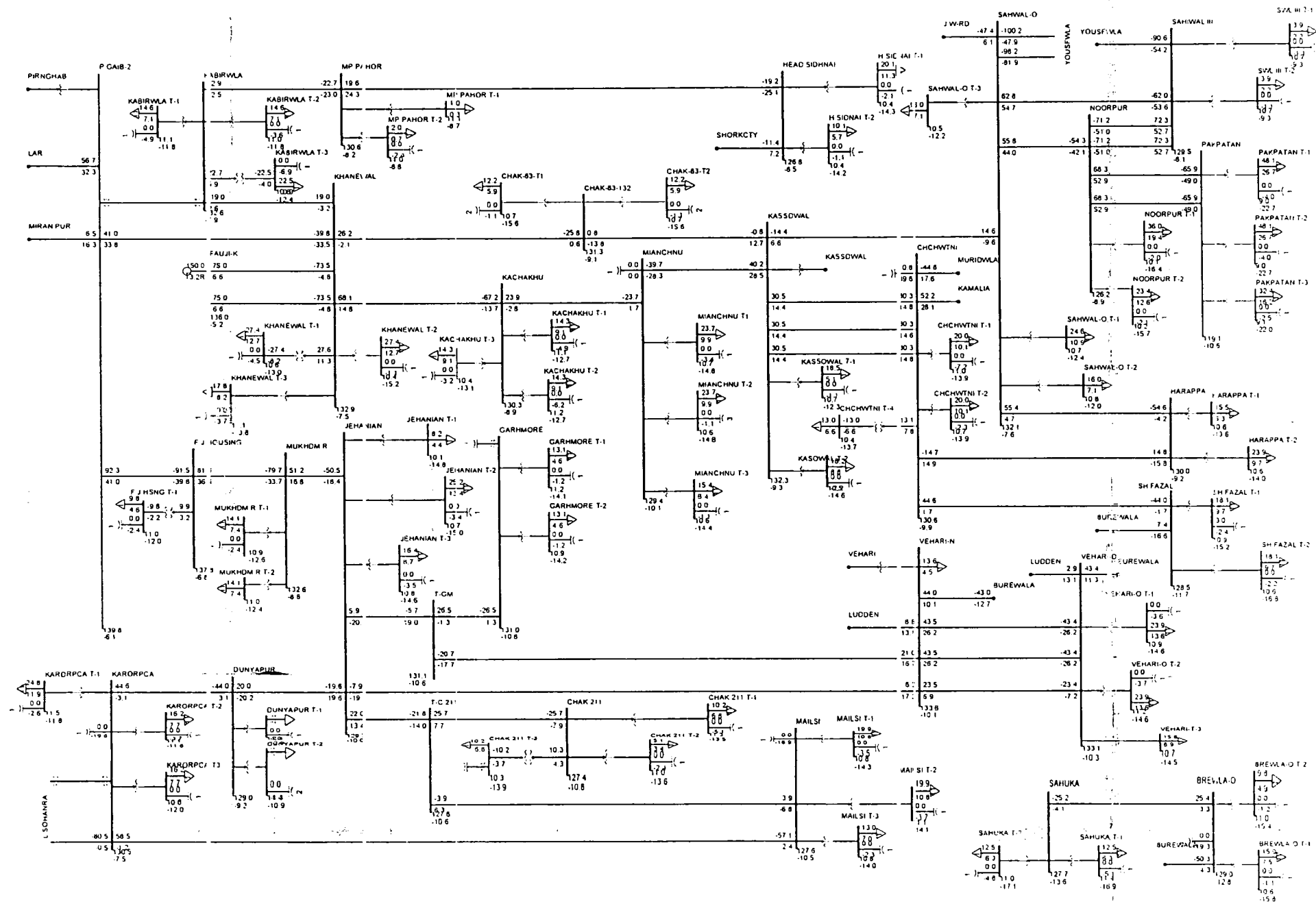


Exhibit-2019-1.5



LOAD, LOW OR DII. MEPCO YEAR 2019 WITHOUT REINFORCEMENT

Exhibit-2019-18

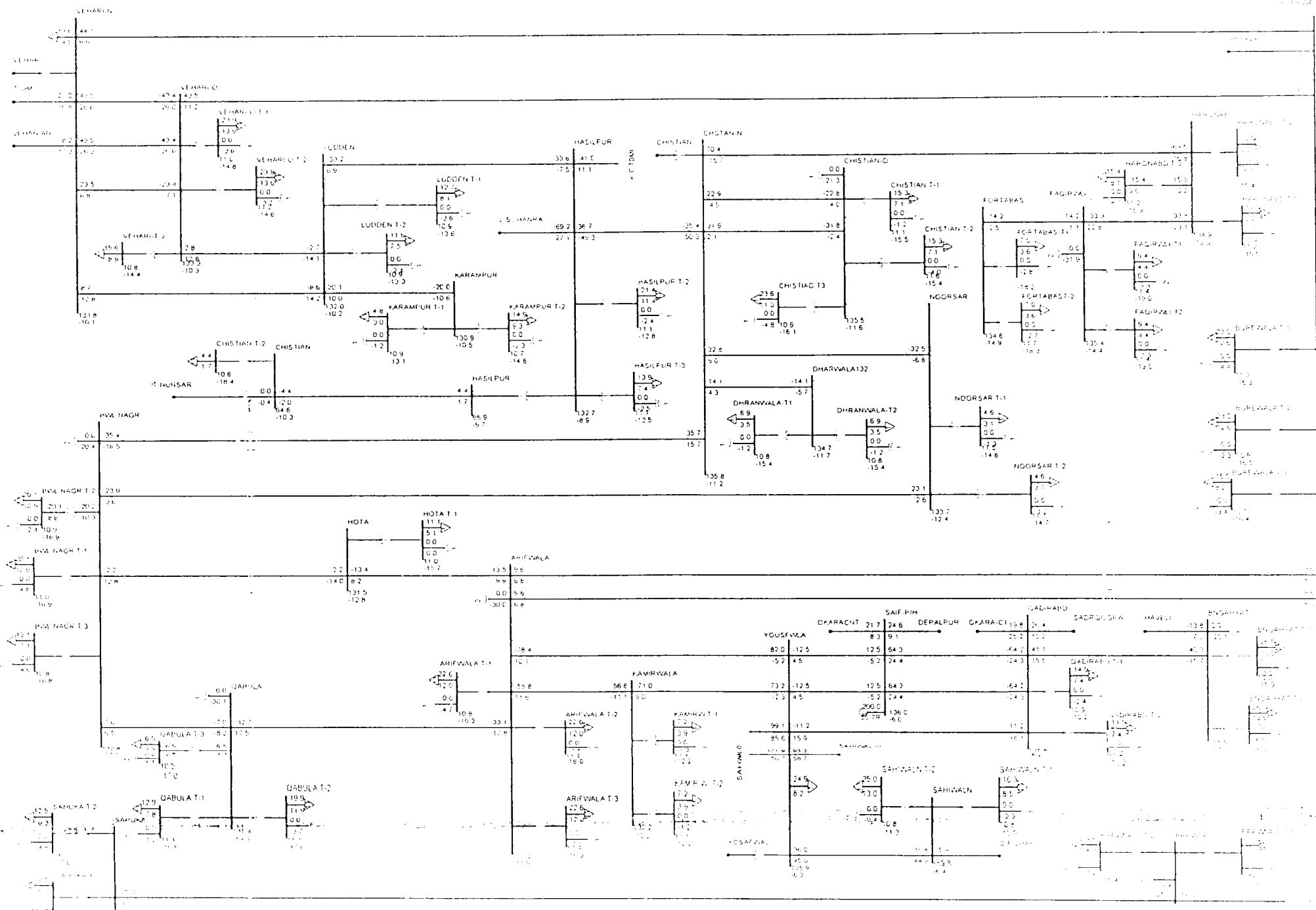
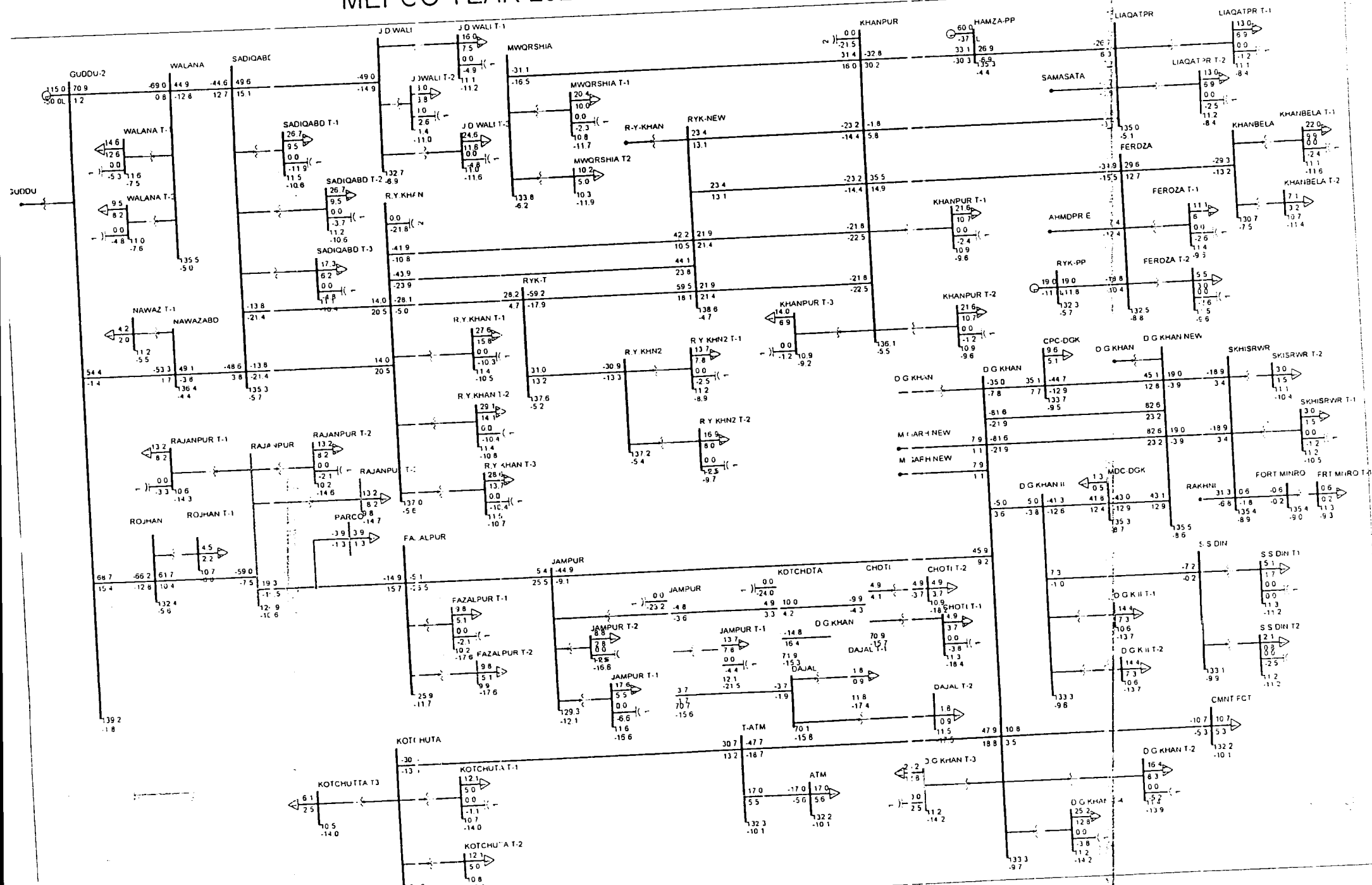


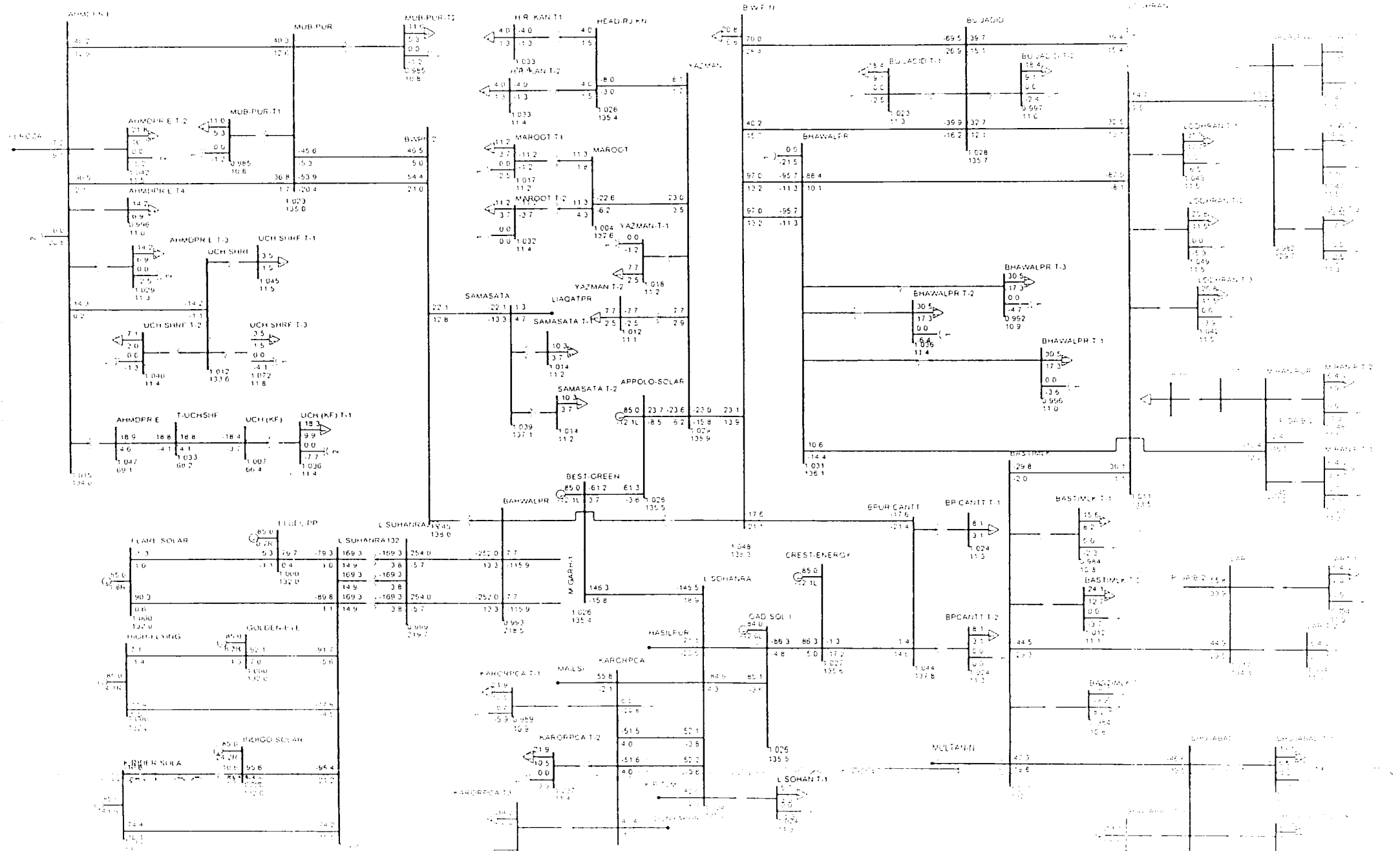
Exhibit-2020-1.1



LOAD FLOW FOR DLF

MEPCO YEAR 2020 WITH REINFORCEMENT

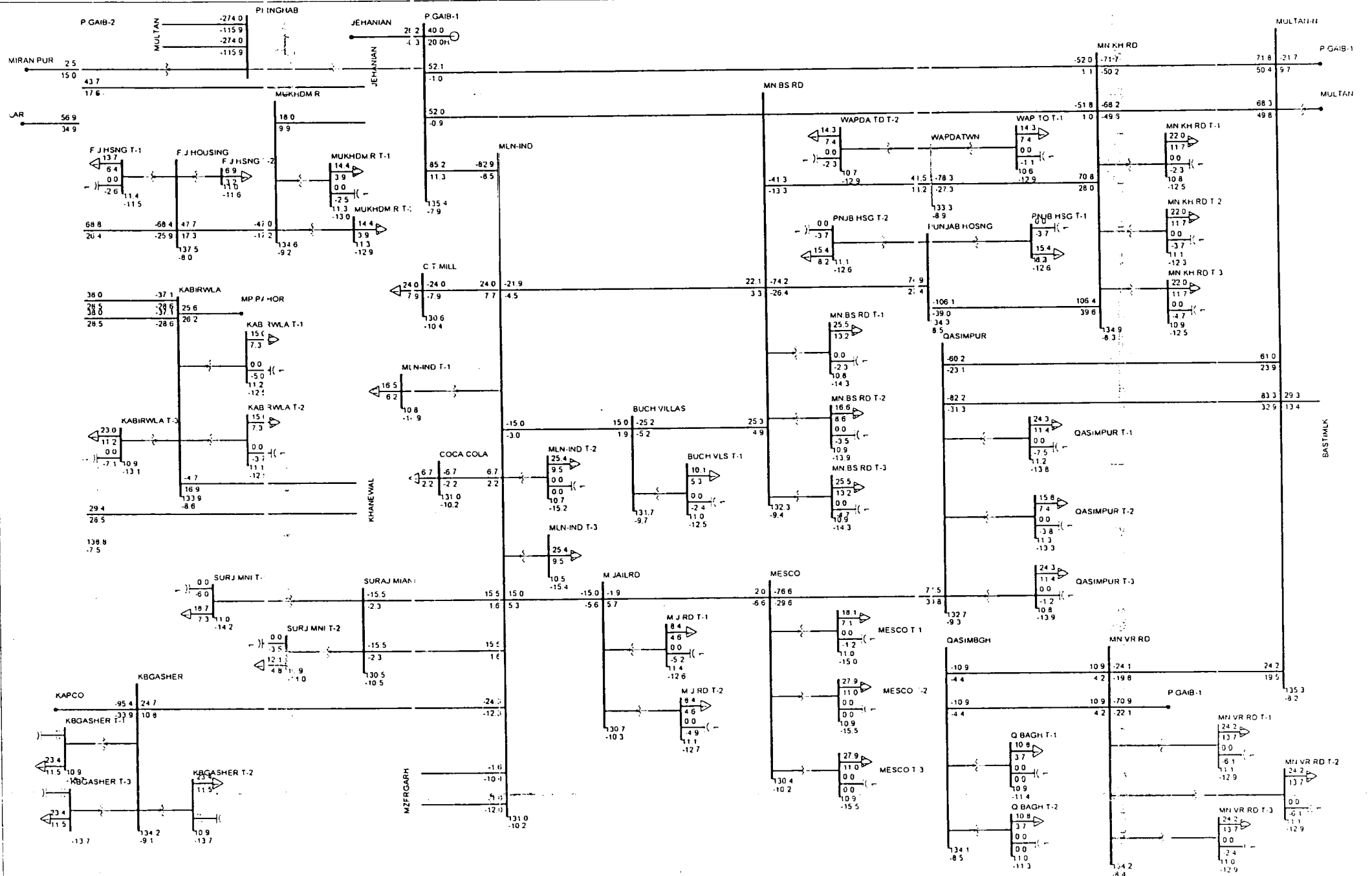
Exhibit-2020-12



LOAD FLOW FOR DLP

MEPCO YEAR 2020 WITH REINFORCEMENT

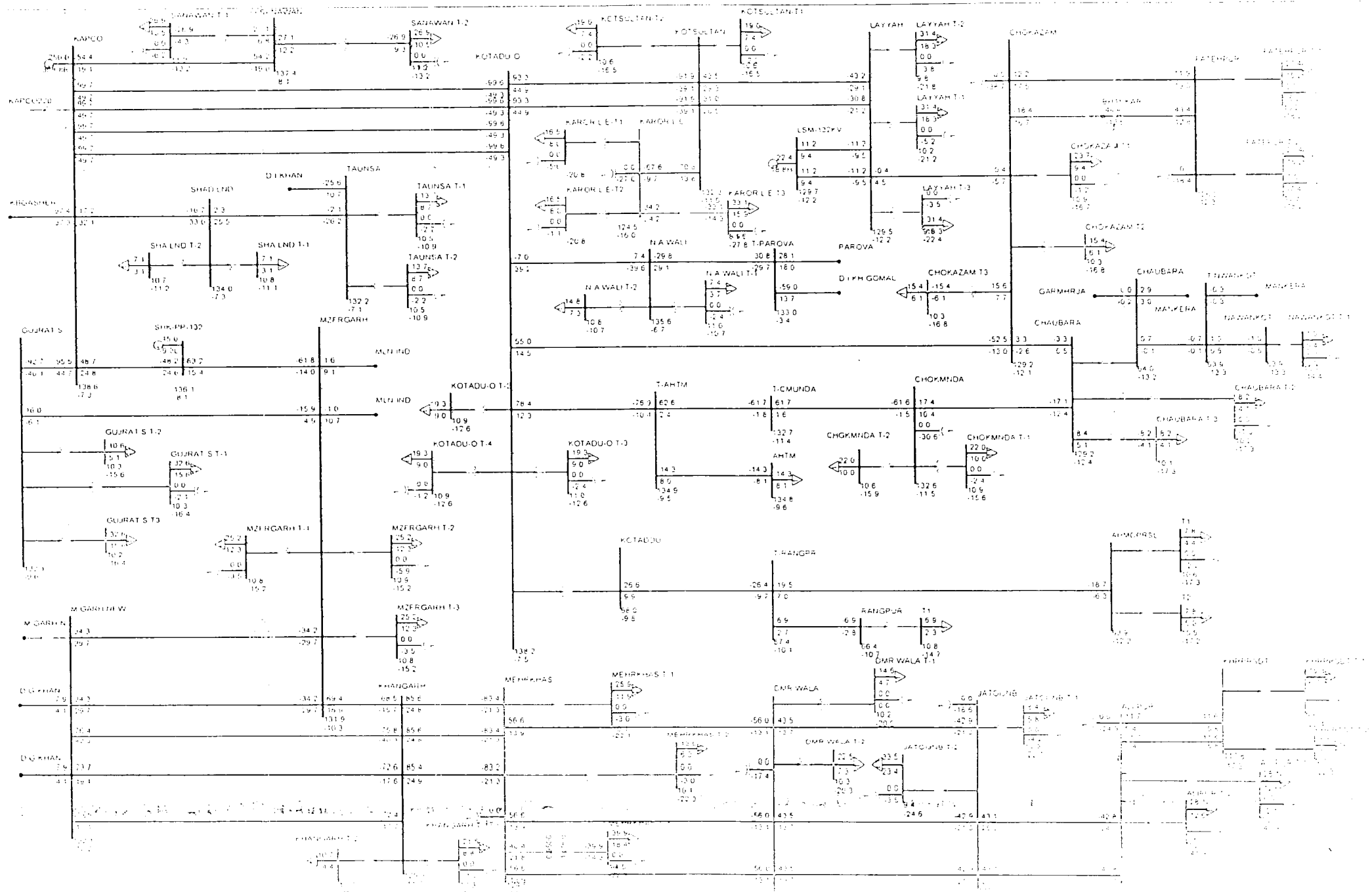
Exhibit-2020-1.3



LOAD FLOW FOR DLP

MEPCO YEAR 2020 WITH REINFORCEMENT

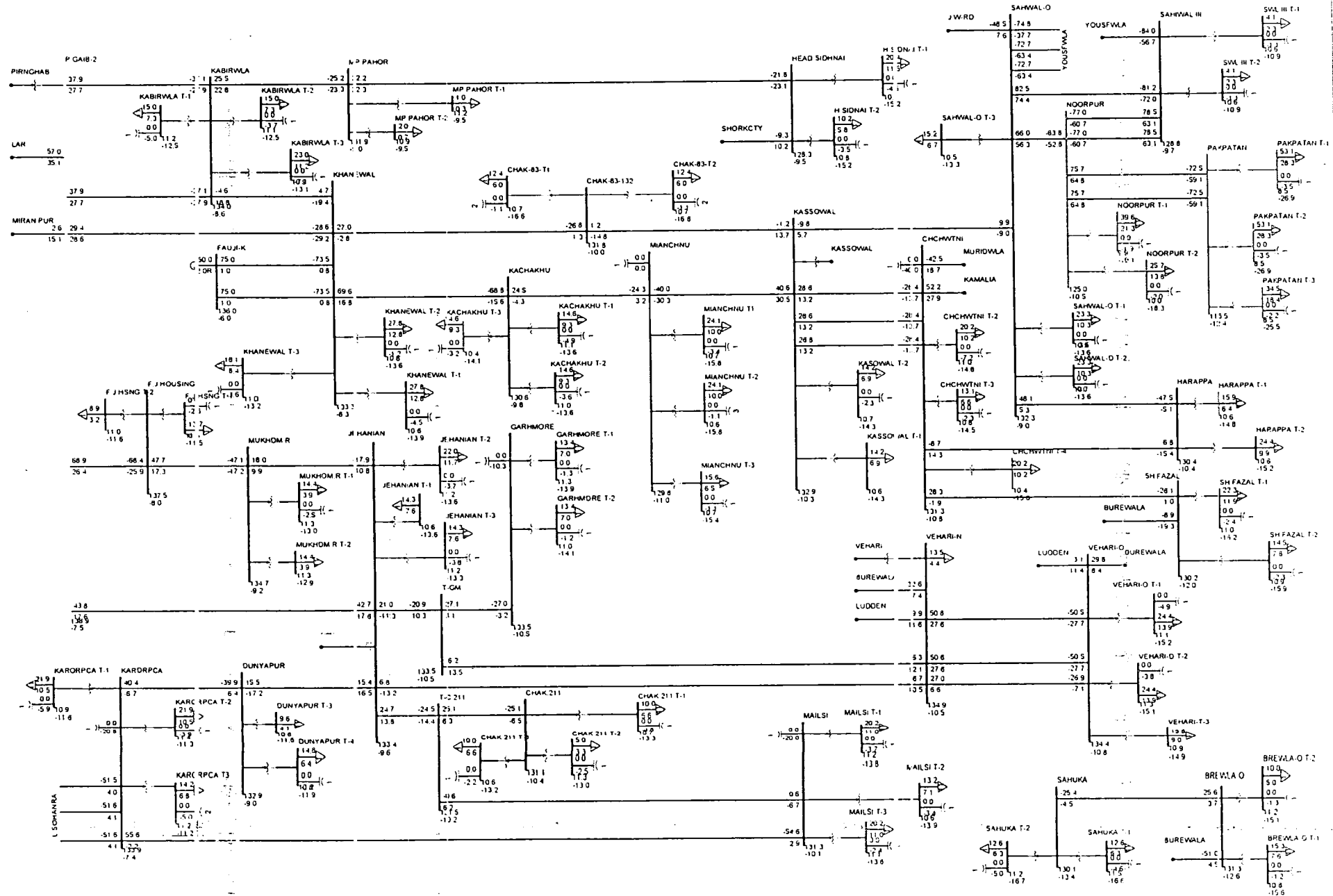
Exhibit-2020-14



LOAD FLOW FOR JIR

MEPCO YEAR 2020 WITH REINFORCEMENT

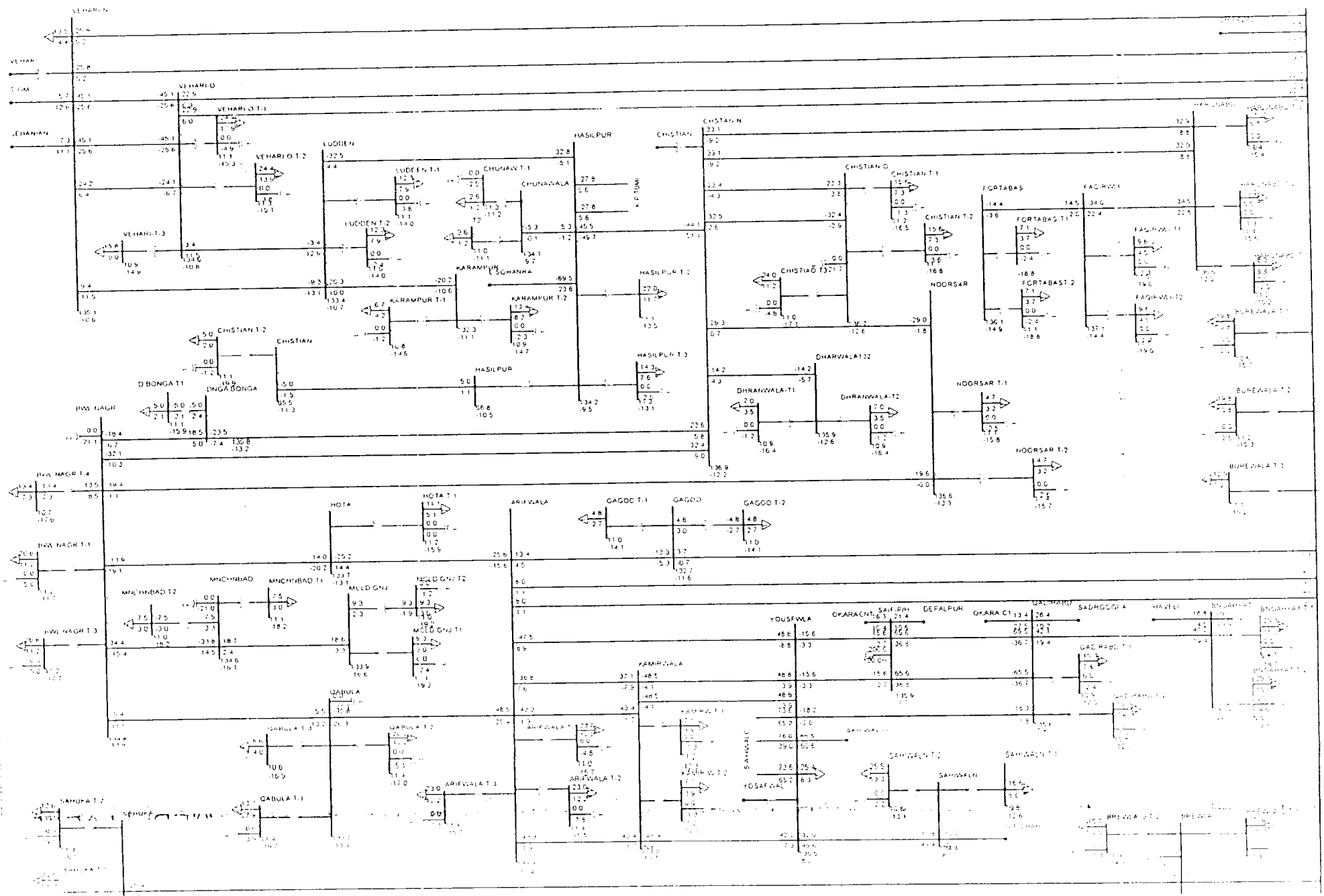
Exhibit-2020-1.5



LOAD FLOW FOR DIP

MEPCO YEAR 2020 WITH REINFORCEMENT

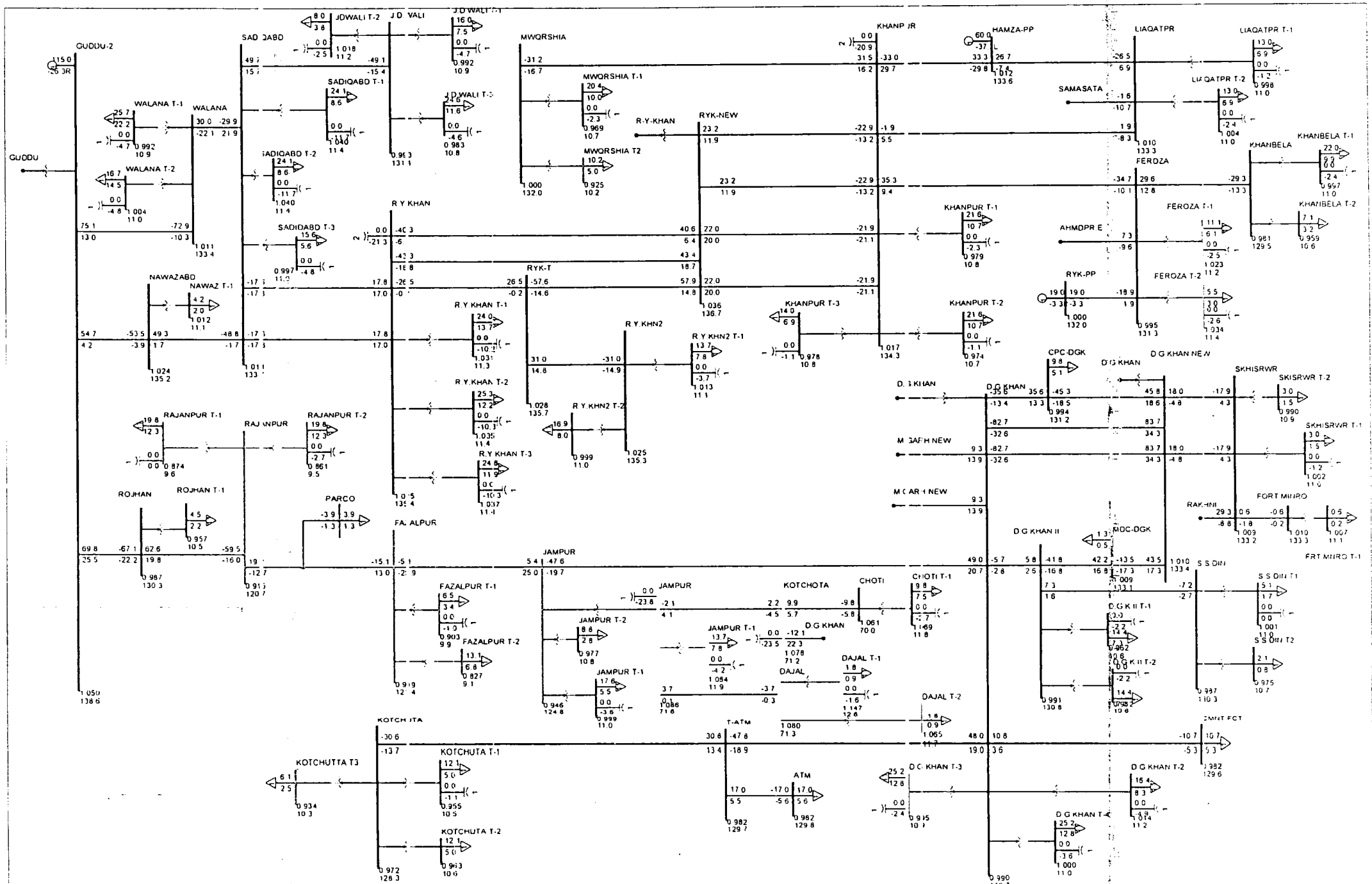
EXHIBIT-2020-18



LOAD FLOW FOR DIP

MEP'CO YEAR 2020 WITHOUT ADDITIONAL REINFORCEMENT

Exhibit-2020-1.1



LOAD FLOW FOR DLF

MEPCO YEAR 2020 WITHOUT REINFORCEMENT

EXHIBIT-2020-12

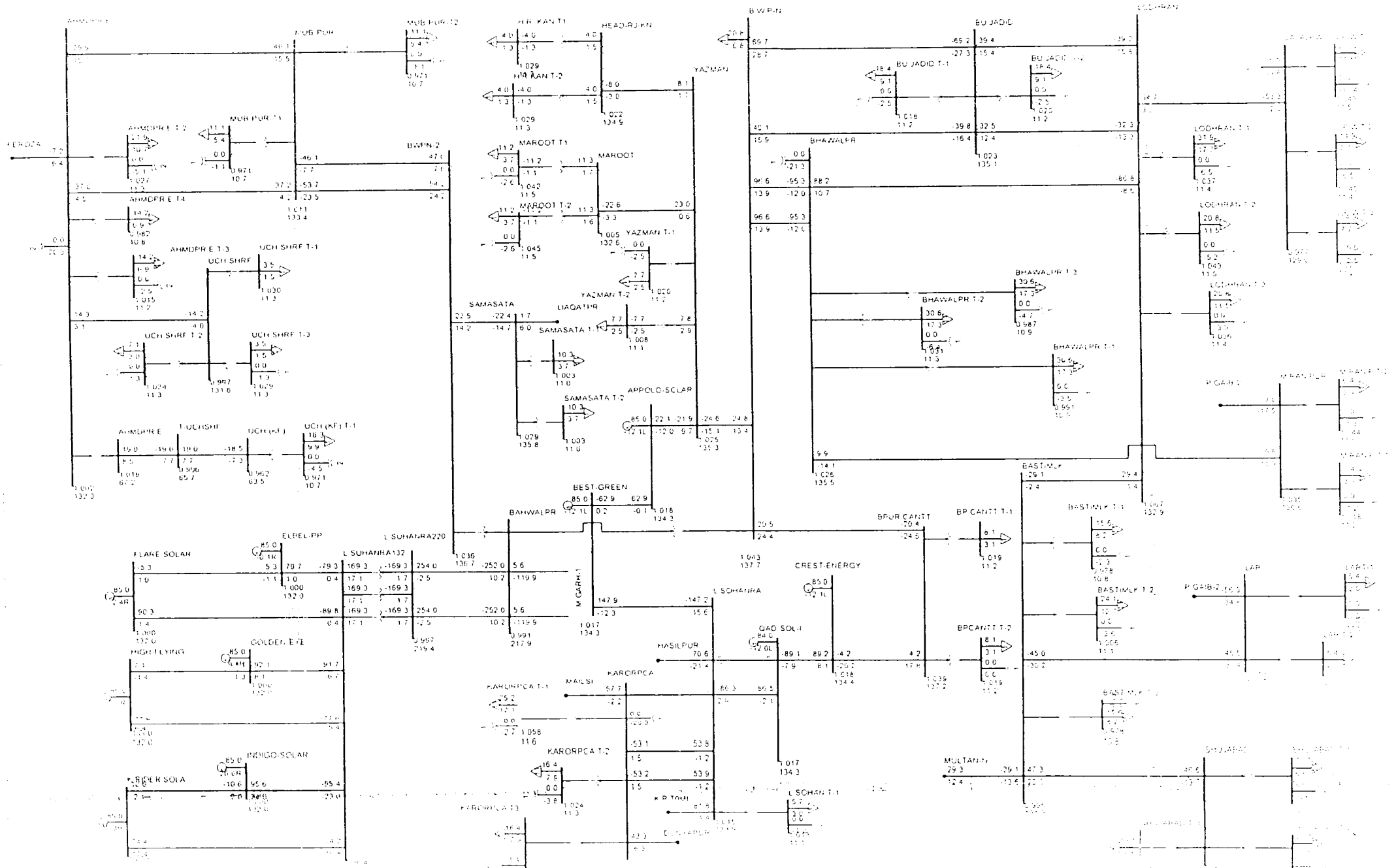


Exhibit-2020-1.3

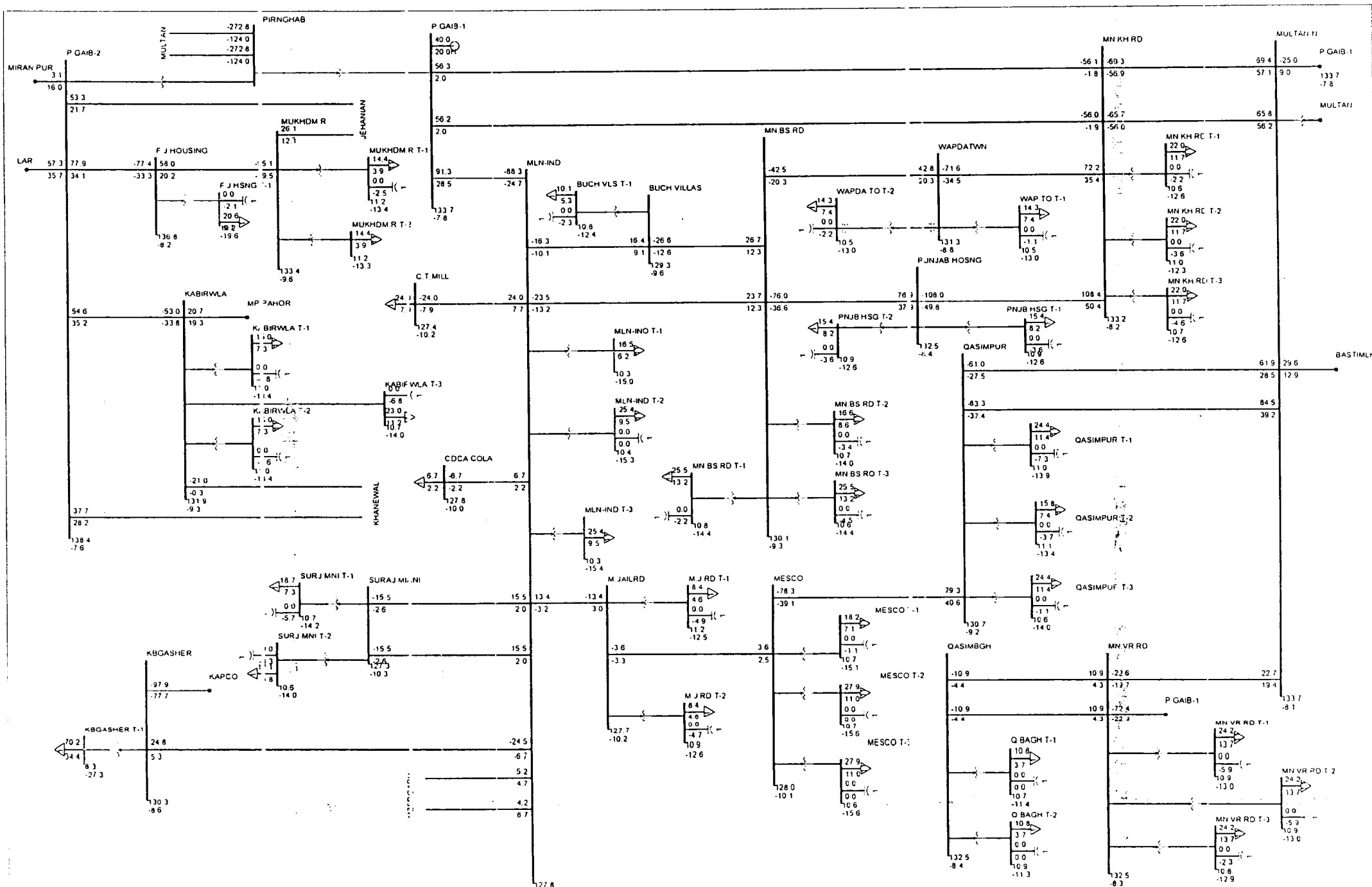


Exhibit-2020-14

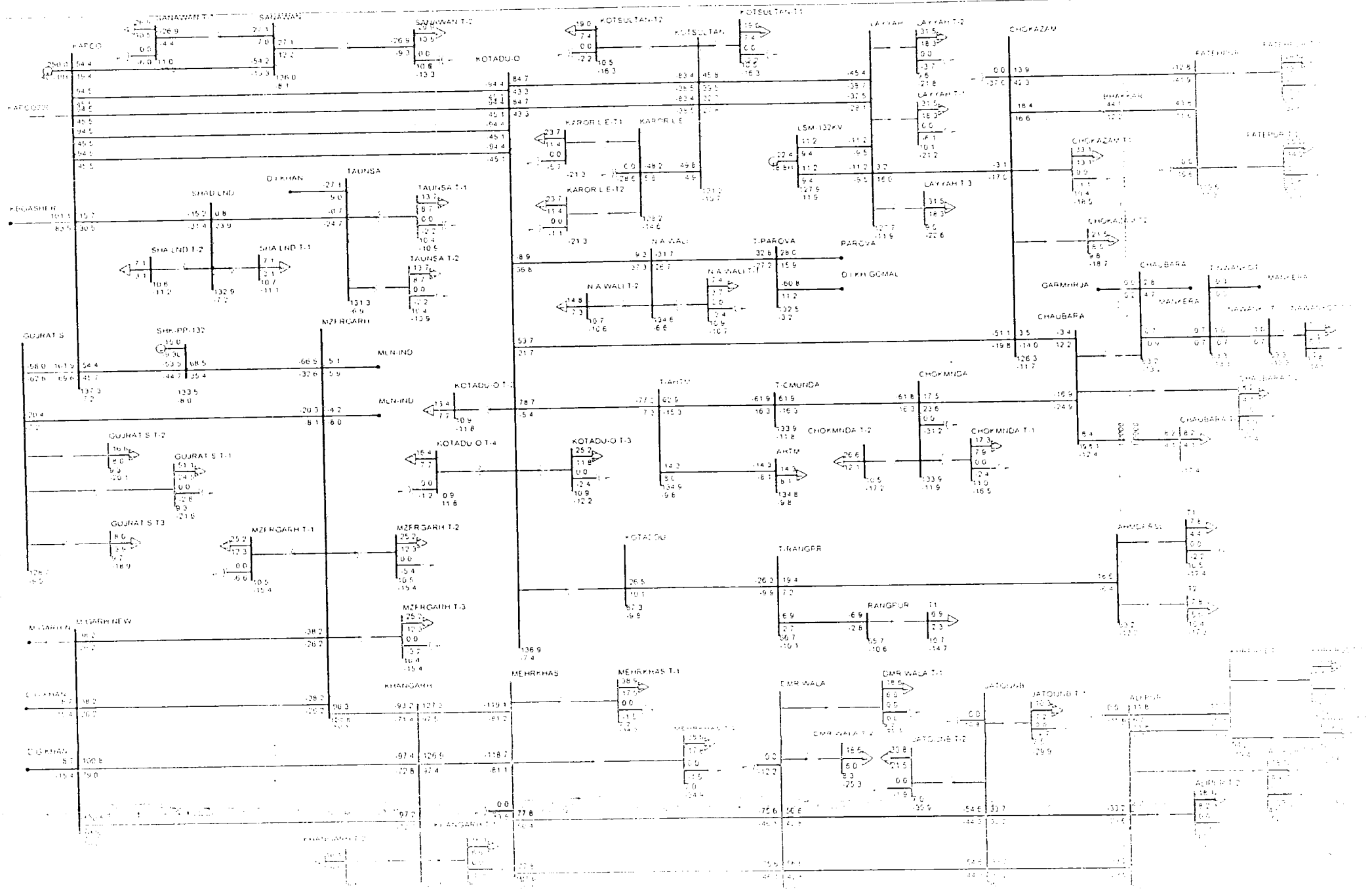
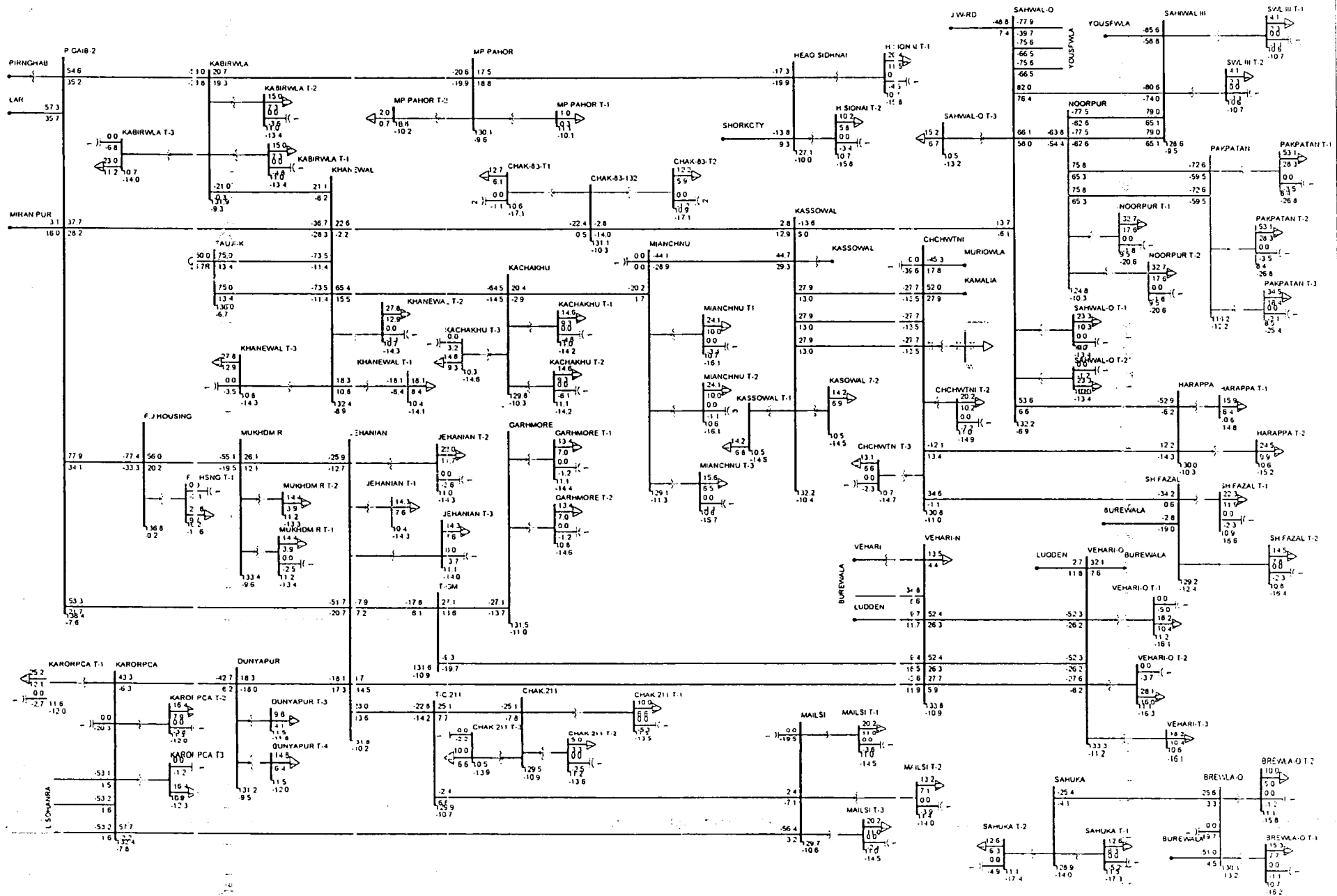
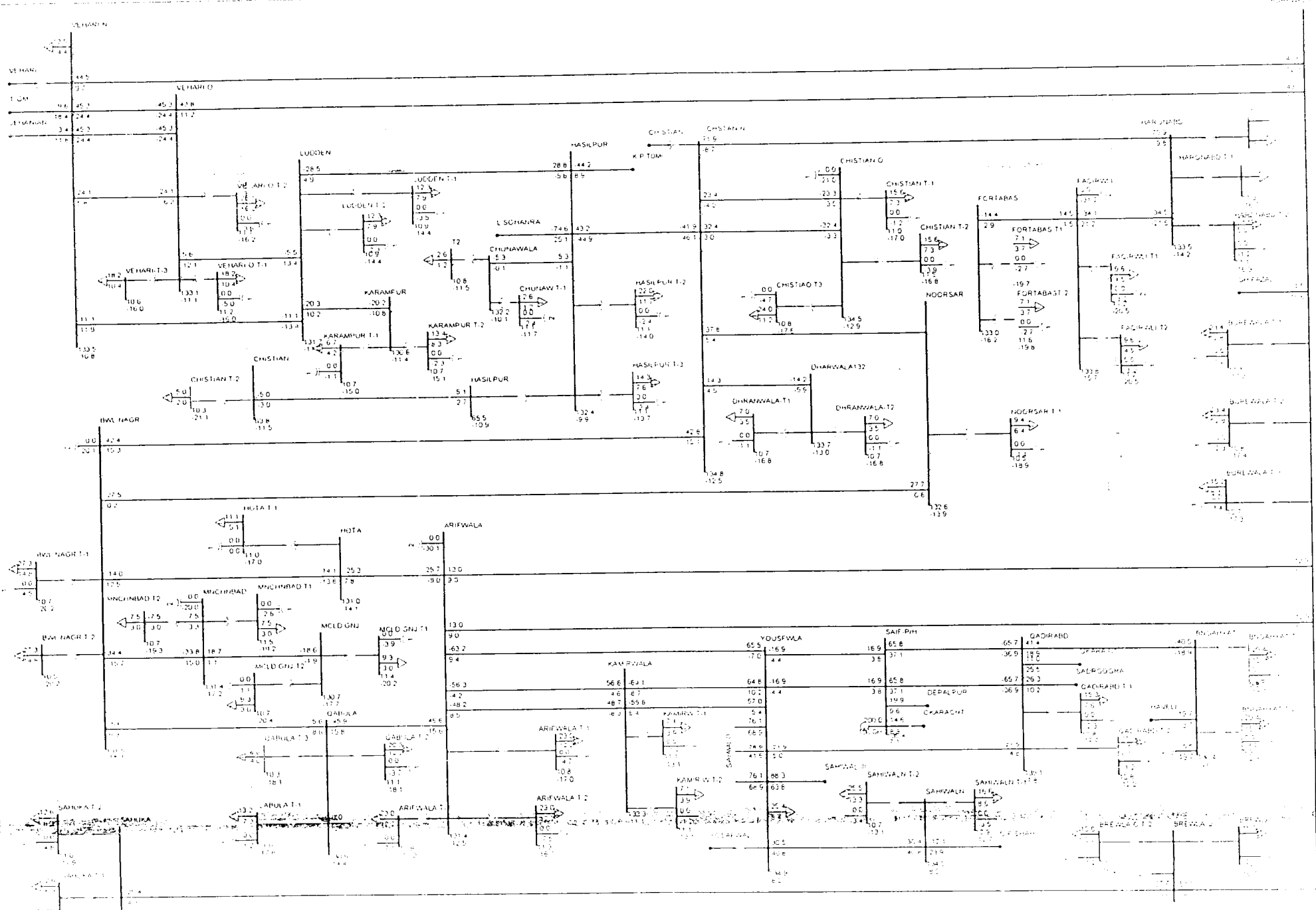


Exhibit-2020-1.5



MEPCO YEAR 2020 WITHOUT REINFORCEMENT

Exhibit-2020-16



Annexure-8

(Voltages after New STG Projects)

Ideal june 2016

Ideal
June 2016

With

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0469	230.31
601		APPOLO-SOLAR		132.00	6	1.0001	132.01	730		SHK-PP-132		132.00	6	1.0338	136.47
801		QAD-SOL-I		132.00	6	1.0024	132.32	1001		CREST-ENERGY		132.00	6	1.0036	132.47
6030		QADIRABD		132.00	6	1.0461	138.09	6050		BNGAHYAT		132.00	6	1.0231	135.05
6070		YOUSFWLA		132.00	6	1.0500	138.60	6080		SAHIWALN		132.00	6	1.0439	137.79
6090		SAHWAL-O		132.00	6	1.0392	137.17	6095		SAHIWAL III		132.00	6	1.0360	136.75
6100		NOORPUR		132.00	6	1.0306	136.04	6120		PAKPATAN		132.00	6	1.0253	135.34
6122		PAK PATTAN-2		132.00	6	0.9811	129.50	6130		HARAPPA		132.00	6	1.0145	133.91
6140		CHCHWTNI		132.00	6	1.0063	132.83	6150		SH.FAZAL		132.00	6	0.9820	129.63
6160		BUREWALA		132.00	6	0.9804	129.41	6162		BREWLA-O		132.00	6	0.9736	128.52
6169		VEHARI-N		132.00	6	1.0196	134.59	6170		VEHARI-O		132.00	6	1.0156	134.06
6175		LUDDEN		132.00	6	1.0006	132.08	6178		KARAMPUR		132.00	6	0.9934	131.13
6180		ARIFWALA		132.00	6	0.9828	129.73	6182		KAMIRWALA		132.00	6	1.0016	132.22
6190		BWL.NAGR		132.00	6	0.9829	129.75	6191		HOTA		132.00	6	0.9793	129.27
6200		QABULA		132.00	6	0.9713	128.22	6210		SAHUKA		132.00	6	0.9646	127.33
6220		HASILPUR		132.00	6	0.9943	131.24	6230		CHISTIAN-O		132.00	6	1.0053	132.70
6231		CHSTAN-N		132.00	6	1.0100	133.33	6232		DHARWALA132		132.00	6	1.0024	132.31
6410		HASILPUR		66.000	6	0.9921	65.477	6415		CHISTIAN		66.000	6	0.9827	64.858

Ideal june 2016

6419	L.SOHANRA	132.00	6	0.9962	131.49	6421	K.P.TOMI	132.00	6	0.9903	130.73
6461	T-NURSAR	66.000	6	0.9830	64.877	6462	NOORSAR	132.00	6	0.9924	130.99
6482	MNCHNBAD	132.00	6	0.9703	128.08	6491	MCLD.GNJ	132.00	6	0.9661	127.52
6501	HARONABD	132.00	6	0.9879	130.41	6512	FAQIRWLI	132.00	6	0.9742	128.60
6521	FORTABAS	132.00	6	0.9678	127.75	6666	MULTAN-N	132.00	6	1.0246	135.25
7000	MIANCHNU	132.00	6	1.0002	132.03	7001	CHAK-83-132	132.00	6	1.0060	132.79
7002	KASSOWAL	132.00	6	1.0117	133.55	7006	HEAD SIDHNAI	132.00	6	0.9873	130.32
7010	KACHAKHU	132.00	6	1.0010	132.13	7020	KHANEWAL	132.00	6	1.0179	134.36
7029	FAUJI-K	132.00	6	1.0490	138.47	7030	KABIRWLA	132.00	6	1.0113	133.49
7032	MP.PAHOR	132.00	6	1.0022	132.29	7040	GARHMORE	132.00	6	1.0022	132.29
7041	T-GM	132.00	6	1.0027	132.36	7050	JEHANIAN	132.00	6	1.0011	132.14
7055	T-C.211	132.00	6	0.9828	129.74	7060	CHAK.211	132.00	6	0.9795	129.29
7070	MAILSI	132.00	6	0.9794	129.28	7075	MUKHDM.R	132.00	6	1.0183	134.42
7076	F.J HOUSING	132.00	6	1.0418	137.52	7100	P.GAIB-1	132.00	6	1.0263	135.47
7109	P.GAIB-2	132.00	6	1.0501	138.61	7110	BASTIMLK	132.00	6	1.0022	132.29
7115	MIRAN PUR	132.00	6	1.0306	136.05	7120	LODHRAN	132.00	6	1.0005	132.06
7125	LAR	132.00	6	1.0185	134.44	7130	BU.JADID	132.00	6	1.0069	132.91
7138	BWPN-2	132.00	6	1.0244	135.22	7139	B.W.P-N	132.00	6	1.0214	134.82
7140	BHAWALPR	132.00	6	1.0125	133.65	7145	BPUR CANTT	132.00	6	1.0120	133.58
7147	KARORPCA	132.00	6	0.9912	130.83	7149	DUNYAPUR	132.00	6	0.9914	130.86
7150	SAMASATA	132.00	6	1.0182	134.41	7159	MUB-PUR	132.00	6	1.0029	132.38
7160	LIAQATPR	132.00	6	1.0003	132.04	7170	AHMDPR.E	132.00	6	0.9950	131.34
7175	RYK-PP	132.00	6	1.0000	132.00	7180	FEROZA	132.00	6	0.9898	130.66
7185	KHANBELA	132.00	6	0.9770	128.96	7190	HAMZA-PP	132.00	6	1.0040	132.52
7200	KHANPUR	132.00	6	1.0067	132.88	7210	MWQRSHIA	132.00	6	0.9915	130.88
7220	R.Y.KHAN	132.00	6	1.0010	132.13	7221	RYK-NEW	132.00	6	1.0190	134.51
7225	R.Y.KHN2	132.00	6	1.0050	132.65	7226	RYK-T	132.00	6	1.0082	133.08
7230	SADIQABD	132.00	6	0.9968	131.57	7231	WALANA	132.00	6	0.9949	131.32
7235	NAWAZABD	132.00	6	1.0130	133.72	7240	J.D.WALI	132.00	6	0.9795	129.30
7250	MN.KH.RD	132.00	6	1.0223	134.94	7255	WAPDATWN	132.00	6	1.0119	133.57
7260	MN.BS.RD	132.00	6	1.0058	132.77	7261	PUNJAB HOSNG	132.00	6	1.0191	134.53
7265	QASIMBGH	132.00	6	1.0170	134.24	7270	MLN-IND	132.00	6	1.0017	132.22
7272	COCA COLA	132.00	6	1.0017	132.22	7273	SURAJ MIANI	132.00	6	0.9995	131.94
7275	C.T.MILL	132.00	6	0.9982	131.76	7280	MN.VR.RD	132.00	6	1.0174	134.30
7285	QASIMPUR	132.00	6	1.0066	132.87	7287	M.JAILRD	132.00	6	0.9999	131.99
7288	SHUJABAD	132.00	6	0.9813	129.53	7289	JALALPWL	132.00	6	0.9731	128.45
7290	MESCO	132.00	6	0.9940	131.21	7300	KAPCO	132.00	6	1.0490	138.47

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7320 GUJRAT.S	132.00	6 1.0133	133.76	7325 LAYYAH	132.00	6 1.0110	133.46
7328 KBGASHER	132.00	6 1.0297	135.93	7330 MZFRGARH	132.00	6 1.0096	133.26
7331 KOTADU-O	132.00	6 1.0475	138.27	7332 N.A.WALI	132.00	6 1.0206	134.72
7333 SHAH.S.DIN	132.00	6 1.0149	133.97	7334 M GARH NEW	132.00	6 1.0099	133.30
7335 KOTSULTAN	132.00	6 1.0237	135.13	7336 KAROR L.E	132.00	6 0.9828	129.73
7340 MEHRKHAS	132.00	6 0.9858	130.13	7350 DMR WALA	132.00	6 0.9808	129.47
7360 JATOIJNB	132.00	6 0.9783	129.13	7370 KHRPRSDT	132.00	6 0.9760	128.84
7395 SHAD.LND	132.00	6 1.0078	133.03	7400 TAUNSA	132.00	6 0.9925	131.01
7435 PARCO	132.00	6 0.9788	129.21	7436 T-PARCO	132.00	6 0.9789	129.22
7440 CHOKMNDA	132.00	6 1.0290	135.83	7441 T-CMUNDA	132.00	6 1.0293	135.86
7442 T-AHTM	132.00	6 1.0357	136.71	7443 AHTM	132.00	6 1.0352	136.65
7450 CHAUBARA	132.00	6 1.0038	132.50	7456 CHOKAZAM	132.00	6 1.0071	132.94
7459 KHANGARH	132.00	6 0.9986	131.81	7460 D.G.KHAN	132.00	6 1.0168	134.21
7462 MDC-DGK	132.00	6 1.0284	135.74	7463 CPC-DGK	132.00	6 1.0229	135.02
7465 KOTCHUTA	132.00	6 1.0010	132.13	7466 T-ATM	132.00	6 1.0097	133.28
7467 ATM	132.00	6 1.0090	133.19	7470 ROJHAN	132.00	6 1.0211	134.79
7580 CMNT.FCT	132.00	6 1.0085	133.12	7590 SKHISRWR	132.00	6 1.0377	136.97
7781 YAZMAN	132.00	6 0.9974	131.65	7782 MAROOT	132.00	6 0.9806	129.44
7800 KOTADDU	66.000	6 1.0411	68.712	7810 KOTSULTN	66.000	6 1.0431	68.842
7811 T-KOTSUL	66.000	6 1.0430	68.840	7820 LAYYAH	66.000	6 1.0433	68.859
7831 FATEHPUR	132.00	6 0.9786	129.17	7840 RANGPUR	66.000	6 1.0301	67.987
7842 T-RANGPR	66.000	6 1.0373	68.460	7880 CHAUBARA	66.000	6 1.0458	69.023
7890 NAWANKOT	66.000	6 1.0448	68.957	7891 T.NWANKOT	66.000	6 1.0449	68.964
7909 D.G.KHAN II	132.00	6 1.0179	134.36	7910 D.G.KHAN	66.000	6 1.0248	67.638
7920 KOTCHOTA	66.000	6 0.9898	65.330	7921 JAMPUR	66.000	6 0.9786	64.589
7925 CHOTI	66.000	6 0.9738	64.274	7930 JAMPUR	132.00	6 0.9852	130.05
7933 FAZALPUR	132.00	6 0.9884	130.47	7935 DAJAL	66.000	6 0.9690	63.951
7951 RAJANPUR	132.00	6 0.9776	129.04	7970 AHMDPR.E	66.000	6 1.0263	67.736
7974 UCH.SHRF	132.00	6 0.9910	130.82	7975 UCH (KF)	66.000	6 0.9893	65.292
7977 T-UCHSHF	66.000	6 1.0113	66.748	7981 ALI PUR	132.00	6 0.9770	128.96
7984 HEAD-RJ-KN	132.00	6 0.9939	131.20	7996 FORT.MINRO	132.00	6 1.0382	137.05
60301 QADIRABD T-	111.000	6 1.0009	11.010	60302 QADIRABD T-	211.000	6 0.9976	10.974
60501 BNGAHYAT T-	111.000	6 1.0438	11.482	60502 BNGAHYAT T-	211.000	6 1.0326	11.358
60801 SAHIWALN T-	111.000	6 0.9917	10.908	60802 SAHIWALN T-	211.000	6 0.9981	10.979
60901 SAHWAL-O T-	111.000	6 1.0152	11.167	60902 SAHWAL-O T-	211.000	6 1.0162	11.179
60903 SAHWAL-O T-	311.000	6 0.9939	10.933	60951 SWL III T-1	11.000	6 1.0310	11.341
60952 SWL III T-2	11.000	6 1.0310	11.341	61001 NOORPUR T-1	11.000	6 1.0413	11.454

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61002 NOORPUR T-2 11.000	6 1.0317 11.349	61201 PAKPATAN T-111.000	6 1.0462 11.509
61202 PAKPATAN T-211.000	6 1.0462 11.509	61203 PAKPATAN T-311.000	6 1.0436 11.480
61221 PAK PTN T-1 11.000	6 1.0537 11.591	61222 PAK PTN T-2 11.000	6 1.0537 11.591
61301 HARAPPA T-1 11.000	6 0.9902 10.892	61302 HARAPPA T-2 11.000	6 0.9902 10.892
61401 CHCHWTNI T-111.000	6 0.9598 10.558	61402 CHCHWTNI T-211.000	6 1.0268 11.294
61403 CHCHWTNI T-311.000	6 0.9874 10.861	61501 SH.FAZAL T-111.000	6 0.9879 10.867
61502 SH.FAZAL T-211.000	6 0.9744 10.719	61601 BUREWALA T-111.000	6 0.9942 10.936
61602 BUREWALA T-211.000	6 0.9927 10.920	61603 BUREWALA T-311.000	6 0.9660 10.626
61621 BREWLA-O T-111.000	6 0.9732 10.705	61622 BREWLA-O T-211.000	6 1.0029 11.032
61701 VEHARI-O T-111.000	6 1.0069 11.075	61702 VEHARI-O T-211.000	6 0.9990 10.989
61703 VEHARI-T-3 11.000	6 0.9955 10.950	61751 LUDDEN T-1 11.000	6 1.0004 11.004
61752 LUDDEN T-2 11.000	6 0.9941 10.935	61781 KARAMPUR T-111.000	6 0.9801 10.782
61782 KARAMPUR T-211.000	6 0.9831 10.814	61801 ARIFWALA T-111.000	6 1.0237 11.261
61802 ARIFWALA T-211.000	6 1.0183 11.202	61803 ARIFWALA T-311.000	6 1.0183 11.202
61821 KAMIRW T-1 11.000	6 1.0086 11.095	61822 KAMIR W T-2 11.000	6 1.0086 11.095
61901 BWL.NAGR T-111.000	6 0.9925 10.917	61903 BWL.NAGR T-311.000	6 1.0229 11.252
61911 HOTA T-1 11.000	6 0.9866 10.853	62001 QABULA T-1 11.000	6 1.0407 11.447
62002 QABULA T-2 11.000	6 1.0380 11.418	62101 SAHUKA T-1 11.000	6 1.0275 11.303
62102 SAHUKA T-2 11.000	6 1.0015 11.016	62202 HASILPUR T-211.000	6 0.9906 10.896
62203 HASILPUR T-311.000	6 0.9970 10.967	62301 CHISTIAN T-111.000	6 1.0318 11.350
62302 CHISTIAN T-211.000	6 1.0557 11.612	62303 CHISTIAN-O T11.000	6 0.9967 10.964
62321 DHRANWALA-T111.000	6 0.9678 10.646	62322 DHRANWALA-T211.000	6 0.9678 10.646
63003 QABULA T-3 11.000	6 0.9749 10.724	64151 CHISTIAN T-211.000	6 0.9739 10.713
64191 L.SOHAN T-1 11.000	6 1.0001 11.002	64211 K.P.TOMI T-111.000	6 0.9840 10.824
64212 K.P.TOMI T-211.000	6 0.9732 10.705	64621 NOORSAR T-1 11.000	6 0.9812 10.793
64821 MNCHNBAD T1 11.000	6 1.0091 11.100	64822 MNCHNBAD T2 11.000	6 0.9711 10.682
64911 MCLD.GNJ T1 11.000	6 1.0140 11.154	64912 MCLD.GNJ T-2	6 1.0078
65011 HARONABD T-1	6 0.9691	65012 HARONABD T-211.000	6 1.0453 11.499
65013 HARONABD T-311.000	6 1.0472 11.519	65121 FAQIRWLI-T1 11.000	6 0.9804 10.784
65122 FAQIRWLI-T2 11.000	6 0.9804 10.784	65211 FORTABAS-T1	6 1.0244
65212 FORTABAST-2 11.000	6 1.0557 11.612	70001 MIANCHNU T1 11.000	6 0.9978 10.976
70002 MIANCHNU T-211.000	6 0.9754 10.729	70003 MIANCHNU T-311.000	6 0.9916 10.908
70011 CHAK-83-T1 11.000	6 1.0218 11.240	70012 CHAK-83-T2 11.000	6 1.0180 11.199
70021 KASSOWAL T-111.000	6 0.9920 10.912	70022 KASOWAL T-2 11.000	6 0.9765 10.742
70061 H SIDNAI T-111.000	6 0.9850 10.835	70062 H SIDNAI T-211.000	6 0.9815 10.797
70101 KACHAKHU T-111.000	6 1.0283 11.311	70102 KACHAKHU T-211.000	6 1.0217 11.239
70103 KACHAKHU T-311.000	6 0.9600 10.560	70202 KHANEWAL T-211.000	6 0.9963 10.959

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70203 KHANEWAL T-311.000	6 1.0052 11.057	70204 KHANEWAL T-411.000	6 0.9654 10.620
70301 KABIRWLA T-111.000	6 1.0126 11.139	70302 KABIRWLA T-211.000	6 0.9782 10.760
70303 KABIRWLA T-3	6 0.9579	70321 MP PAHOR T-111.000	6 1.0256 11.282
70322 MP PAHOR T-211.000	6 0.9998 10.998	70401 GARHMORE T-111.000	6 1.0242 11.266
70402 GARHMORE T-211.000	6 0.9958 10.954	70501 JEHANIAN T-111.000	6 0.9713 10.684
70502 JEHANIAN T-211.000	6 0.9999 10.999	70503 JEHANIAN T-311.000	6 1.0073 11.080
70601 CHAK.211 T-111.000	6 1.0219 11.241	70602 CHAK 211 T-211.000	6 0.9920 10.911
70701 MAILSI T-1 11.000	6 0.9918 10.910	70702 MAILSI T-2 11.000	6 1.0221 11.243
70703 MAILSI T-3 11.000	6 0.9854 10.840	70751 MUKHDM.R T-111.000	6 1.0358 11.394
70752 MUKHDM.R T-211.000	6 1.0358 11.394	70761 F.J HSNQ T-111.000	6 1.0467 11.514
71101 BASTIMLK T-211.000	6 1.0192 11.211	71102 BASTIMLK T-111.000	6 1.0184 11.202
71103 BASTIMLK T-311.000	6 1.0192 11.211	71151 MIRAN P T-1 11.000	6 1.0141 11.155
71152 MIRAN P T-2 11.000	6 1.0392 11.431	71201 LODHRAN T-1 11.000	6 1.0327 11.359
71202 LODHRAN T-2 11.000	6 0.9718 10.689	71203 LODHRAN T-3 11.000	6 1.0159 11.174
71251 LART-1 11.000	6 1.0064 11.070	71252 LAR T-2 11.000	6 1.0064 11.070
71301 BU.JADID T-111.000	6 1.0010 11.011	71302 BU.JADID T-211.000	6 1.0270 11.298
71401 BHAWALPR T-111.000	6 0.9935 10.928	71402 BHAWALPR T-211.000	6 1.0323 11.355
71403 BHAWALPR T-311.000	6 0.9899 10.889	71451 BP CANTT T-111.000	6 0.9942 10.936
71452 BPCANTT T-2 11.000	6 0.9942 10.936	71471 KARORPCA T-111.000	6 1.0471 11.518
71472 KARORPCA T-211.000	6 1.0086 11.095	71473 KARORPCA T-311.000	6 0.9636 10.600
71491 DUNYAPUR T-311.000	6 1.0131 11.144	71492 DUNYAPUR T-411.000	6 0.9855 10.840
71501 SAMASATA T-111.000	6 0.9961 10.957	71502 SAMASATA T-211.000	6 0.9961 10.957
71591 MUB-PUR-T1 11.000	6 0.9955 10.951	71592 MUB-PUR-T2 11.000	6 0.9955 10.951
71601 LIAQATPR T-111.000	6 0.9917 10.909	71602 LIAQATPR T-211.000	6 0.9980 10.978
71702 AHMDPR.E T-211.000	6 1.0250 11.275	71703 AHMDPR.E T-311.000	6 1.0121 11.134
71704 AHMDPR.E T-411.000	6 0.9801 10.781	71801 FEROZA T-1 11.000	6 0.9822 10.805
71802 FEROZA T-2 11.000	6 0.9743 10.717	71851 KHANBELA T-111.000	6 0.9962 10.958
71852 KHANBELA T-211.000	6 0.9861 10.847	72001 KHANPUR T-1 11.000	6 0.9678 10.646
72002 KHANPUR T-2 11.000	6 0.9721 10.693	72003 KHANPUR T-3 11.000	6 0.9707 10.678
72101 MWQRSHIA T-111.000	6 0.9682 10.650	72102 MWQRSHIA T2 11.000	6 0.9667 10.633
72201 R.Y.KHAN T-111.000	6 0.9903 10.894	72202 R.Y.KHAN T-211.000	6 0.9956 10.951
72203 R.Y.KHAN T-311.000	6 0.9956 10.951	72251 R.Y.KHN2 T-111.000	6 0.9875 10.863
72252 R.Y.KHN2 T-211.000	6 0.9840 10.824	72301 SADIQABD T-111.000	6 0.9989 10.988
72302 SADIQABD T-211.000	6 0.9989 10.988	72303 SADIQABD T-311.000	6 1.0006 11.006
72311 WALANA T-1 11.000	6 1.0164 11.180	72312 WALANA T-2 11.000	6 1.0164 11.180
72351 NAWAZ T-1 11.000	6 1.0006 11.007	72401 J.D.WALI T-111.000	6 0.9834 10.818
72402 JDWALI T-2 11.000	6 1.0093 11.102	72403 J D WALI T-311.000	6 0.9748 10.723

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72501	MN.KH.RD	T-111.000	6	0.9997	10.996	72502	MN.KH.RD	T-211.000	6	1.0042	11.046
72503	MN.KH.RD	T-311.000	6	0.9802	10.782	72551	WAP TO T-1	11.000	6	0.9739	10.713
72552	WAPDA TO	T-211.000	6	0.9801	10.781	72601	MN.BS.RD	T-111.000	6	0.9769	10.746
72602	MN.BS.RD	T-211.000	6	0.9890	10.879	72603	MN.BS.RD	T-311.000	6	0.9858	10.844
72611	PNJB HSG	T-111.000	6	1.0381	11.419	72612	PNJB HSG	T-211.000	6	1.0381	11.419
72651	Q BAGH T-1	11.000	6	0.9931	10.924	72652	Q BAGH T-2	11.000	6	1.0063	11.070
72701	MLN-IND	T-1 11.000	6	0.9777	10.755	72702	MLN-IND	T-2 11.000	6	0.9881	10.869
72703	MLN-IND	T-3 11.000	6	0.9745	10.719	72731	SURJ MNI	T-111.000	6	1.0192	11.212
72732	SURJ MNI	T-211.000	6	1.0097	11.107	72801	MN.VR.RD	T-111.000	6	0.9815	10.796
72802	MN.VR.RD	T-211.000	6	0.9815	10.796	72803	MN.VR.RD	T-311.000	6	1.0021	11.023
72851	QASIMPUR	T-111.000	6	0.9980	10.978	72852	QASIMPUR	T-211.000	6	1.0120	11.132
72853	QASIMPUR	T-311.000	6	0.9814	10.796	72871	M.J RD	T-1 11.000	6	1.0274	11.301
72872	M.J.RD	T-2 11.000	6	1.0198	11.218	72881	SHUJABAD	T-111.000	6	0.9782	10.760
72882	SHUJABAD	T-211.000	6	0.9782	10.760	72891	J.P.W	T-1 11.000	6	0.9905	10.895
72892	J.P.W	T-2 11.000	6	0.9882	10.870	72893	J.P.W	T-3 11.000	6	0.9633	10.597
72901	MESCO	T-1 11.000	6	0.9825	10.808	72902	MESCO	T-2 11.000	6	0.9898	10.888
72903	MESCO	T-3 11.000	6	0.9898	10.888	73201	GUJRAT.S	T-111.000	6	0.9597	10.557
73202	GUJRAT.S	T-311.000	6	0.9855	10.841	73203	GUJRAT.S	T2 11.000	6	0.9633	10.596
73251	LAYYAH	T-1 11.000	6	1.0238	11.262	73252	LAYYAH	T-2 11.000	6	0.9867	10.853
73254	LAYYAH	T-3 11.000	6	0.9576	10.534	73281	KBGASHER	T-111.000	6	1.0009	11.010
73282	KBGASHER	T-2	6	1.0009		73301	MZFRGARH	T-111.000	6	1.0024	11.027
73302	MZFRGARH	T-211.000	6	0.9968	10.965	73303	MZFRGARH	T-311.000	6	0.9878	10.866
73312	KOTADU-O	T-211.000	6	1.0059	11.064	73313	KOTADU-O	T-311.000	6	1.0143	11.158
73314	KOTADU-O	T-411.000	6	1.0122	11.134	73321	N.A.WALI	T-111.000	6	0.9980	10.978
73322	N.A.WALI	T-2	6	0.9756		73331	S S DIN	T1 11.000	6	1.0170	11.187
73332	S S DIN	T2 11.000	6	1.0168	11.185	73351	KOTSULTAN	T111.000	6	1.0011	11.012
73352	KOTSULTAN	T211.000	6	1.0198	11.217	73361	KAROR L.E	T1	6	0.9575	
73362	KAROR L.E	T2	6	0.9671		73401	MEHRKHAS	T-111.000	6	0.9841	10.825
73402	MEHRKHAS	T-211.000	6	0.9701	10.671	73501	DMR WALA	T-111.000	6	0.9901	10.891
73502	DMR WALA	T-211.000	6	1.0018	11.019	73601	JATOIJNB	T-111.000	6	1.0302	11.332
73602	JATOIJNB	T-211.000	6	1.0187	11.205	73701	KHRPRSDT	T-111.000	6	1.0332	11.365
73951	SHA.LND	T-1 11.000	6	0.9795	10.775	73952	SHA LND	T-2 11.000	6	0.9662	10.628
74001	TAUNSA	T-1 11.000	6	0.9660	10.626	74002	TAUNSA	T-2 11.000	6	0.9939	10.933
74401	CHOKMNDA	T-111.000	6	1.0143	11.157	74402	CHOKMNDA	T-211.000	6	0.9702	10.673
74502	CHAUBARA	T-211.000	6	0.9786	10.765	74561	CHOKAZAM	T1 11.000	6	1.0236	11.260
74562	CHOKAZAM	T2 11.000	6	1.0176	11.193	74591	KHANGARH	T-111.000	6	0.9684	10.653
74592	KHANGARH	T-211.000	6	0.9963	10.959	74602	D.G.KHAN	T-211.000	6	0.9558	10.513

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74603 D.G.KHAN T-311.000	6 0.9648 10.613	74604 D.G.KHAN T-411.000	6 0.9692 10.661
74651 KOTCHUTA T-111.000	6 0.9627 10.589	74652 KOTCHUTA T-211.000	6 0.9695 10.665
74653 KOTCHUTA T-311.000	6 0.9676 10.643	74701 ROJHAN T-1 11.000	6 0.9943 10.938
75901 SKHISRWR T-111.000	6 1.0123 11.135	75902 SKHISRWR T-211.000	6 1.0037 11.041
77811 YAZMAN-T-1 11.000	6 0.9957 10.953	77812 YAZMAN-T-2	6 0.9693
77821 MAROOT-T1 11.000	6 0.9991 10.990	77822 MAROT T-2 11.000	6 1.0204 11.224
78311 FATEHPUR T-111.000	6 0.9629 10.592	78312 FATEPUR T-2 11.000	6 0.9699 10.669
78401 T1 11.000	6 1.0052 11.057	78901 NAWANKOT T-111.000	6 1.0499 11.549
79091 D.G.K.II T-111.000	6 0.9994 10.994	79092 D.G.K.II T-211.000	6 0.9994 10.994
79211 JAMPUR T-1 11.000	6 0.9667 10.634	79251 CHOTI T-1 11.000	6 0.9872 10.859
79301 JAMPUR T-1 11.000	6 0.9680 10.648	79302 JAMPUR T-2 11.000	6 0.9813 10.794
79331 FAZALPUR T-111.000	6 0.9898 10.888	79332 FAZALPUR T-211.000	6 0.9627 10.589
79351 DAJAL T-1 11.000	6 1.0045 11.049	79352 DAJAL T-2	6 1.0045
79511 RAJANPUR T-111.000	6 0.9732 10.705	79512 RAJANPUR T-211.000	6 0.9774 10.751
79513 RAJANPUR T-3	6 0.9528	79741 UCH.SHRF T-111.000	6 1.0121 11.133
79742 UCH.SHRF T-211.000	6 1.0379 11.417	79743 UCH.SHRF T-311.000	6 0.9848 10.833
79751 UCH (KF) T-111.000	6 0.9981 10.979	79811 ALI PUR T-1 11.000	6 1.0433 11.476
79812 ALIPUR T-2 11.000	6 0.9706 10.677	79813 ALIPUR T-3	6 1.0087
79841 H.R. KAN T1 11.000	6 0.9876 10.864	79842 H.R. KAN T2	6 0.9748
79961 FRT MNRO T-111.000	6 1.0233 11.256	732512 LSM-132KV 132.00	6 1.0111 133.46

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IDEAL
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without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0469	230.31
601		APPOLO-SOLAR		132.00	6	1.0005	132.07	730		SHK-PP-132		132.00	6	1.0266	135.51
801		QAD-SOL-I		132.00	6	1.0000	132.00	1001		CREST-ENERGY		132.00	6	1.0010	132.13
6030		QADIRABD		132.00	6	1.0441	137.82	6050		BNGAHYAT		132.00	6	1.0212	134.80
6070		YOUSFWLA		132.00	6	1.0458	138.04	6080		SAHIWALN		132.00	6	1.0398	137.26
6090		SAHWAL-O		132.00	6	1.0081	133.08	6095		SAHIWAL III		132.00	6	1.0051	132.67
6100		NOORPUR		132.00	6	0.9794	129.29	6120		PAKPATAN		132.00	6	0.9206	121.52
6130		HARAPPA		132.00	6	0.9925	131.01	6140		CHCHWTNI		132.00	6	0.9947	131.30
6150		SH.FAZAL		132.00	6	0.9728	128.41	6160		BUREWALA		132.00	6	0.9730	128.43
6162		BREWLA-O		132.00	6	0.9657	127.48	6169		VEHARI-N		132.00	6	1.0117	133.55
6170		VEHARI-O		132.00	6	1.0077	133.01	6175		LUDDEN		132.00	6	0.9933	131.12
6178		KARAMPUR		132.00	6	0.9862	130.18	6180		ARIFWALA		132.00	6	0.9793	129.27
6182		KAMIRWALA		132.00	6	0.9981	131.75	6190		BWL.NAGR		132.00	6	0.9777	129.05
6191		HOTA		132.00	6	0.9751	128.71	6200		QABULA		132.00	6	0.9673	127.68

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6210 SAHUKA	132.00	6 0.9553	126.10	6220 HASILPUR	132.00	6 0.9880	130.41
6230 CHISTIAN-O	132.00	6 0.9930	131.08	6231 CHSTAN-N	132.00	6 0.9986	131.82
6232 DHARWALA132	132.00	6 0.9910	130.81	6410 HASILPUR	66.000	6 1.0015	66.098
6415 CHISTIAN	66.000	6 0.9920	65.473	6419 L.SOHANRA	132.00	6 0.9925	131.01
6421 K.P.TOMI	132.00	6 0.9857	130.11	6461 T-NURSAR	66.000	6 0.9933	65.556
6462 NOORSAR	132.00	6 0.9832	129.78	6470 BWL.NAGR	66.000	6 0.9911	65.410
6480 MNCHNBAD	66.000	6 0.8457	55.818	6481 T-MICHBD	66.000	6 0.8515	56.199
6490 MCLD.GNJ	66.000	6 0.8326	54.954	6500 HARONABD	66.000	6 0.9916	65.444
6501 HARONABD	132.00	6 0.9593	126.62	6512 FAQIRWLI	132.00	6 0.9432	124.51
6521 FORTABAS	132.00	6 0.9346	123.37	6666 MULTAN-N	132.00	6 1.0225	134.97
7000 MIANCHNU	132.00	6 0.9830	129.75	7001 CHAK-83-132	132.00	6 0.9975	131.67
7002 KASSOWAL	132.00	6 1.0017	132.22	7006 HEAD SIDHNAI	132.00	6 0.9809	129.48
7010 KACHAKHU	132.00	6 0.9912	130.83	7020 KHANEWAL	132.00	6 1.0120	133.58
7029 FAUJI-K	132.00	6 1.0490	138.47	7030 KABIRWLA	132.00	6 1.0041	132.54
7032 MP.PAHOR	132.00	6 0.9954	131.39	7040 GARHMORE	132.00	6 0.9918	130.92
7041 T-GM	132.00	6 0.9924	130.99	7050 JEHANIAN	132.00	6 0.9888	130.52
7055 T-C.211	132.00	6 0.9681	127.79	7060 CHAK.211	132.00	6 0.9647	127.35
7070 MAILSI	132.00	6 0.9635	127.18	7075 MUKHDM.R	132.00	6 1.0080	133.05
7100 P.GAIB-1	132.00	6 1.0250	135.30	7109 P.GAIB-2	132.00	6 1.0377	136.98
7110 BASTIMLK	132.00	6 0.9558	126.16	7115 MIRAN PUR	132.00	6 1.0029	132.38
7120 LODHRAN	132.00	6 0.9649	127.37	7125 LAR	132.00	6 0.9846	129.97
7130 BU.JADID	132.00	6 0.9683	127.82	7138 BWPN-2	132.00	6 1.0315	136.16
7139 B.W.P-N	132.00	6 1.0158	134.08	7140 BHAWALPR	132.00	6 0.9889	130.53
7141 B.W.P66	66.000	6 1.0002	66.015	7145 BPUR CANTT	132.00	6 1.0077	133.01
7147 KARORPCA	132.00	6 0.9721	128.32	7149 DUNYAPUR	132.00	6 0.9762	128.86
7150 SAMASATA	132.00	6 1.0266	135.52	7159 MUB-PUR	132.00	6 0.9959	131.45
7160 LIAQATPR	132.00	6 1.0170	134.24	7170 AHMDPR.E	132.00	6 0.9839	129.88
7175 RYK-PP	132.00	6 1.0000	132.00	7180 FEROZA	132.00	6 0.9942	131.24
7185 KHANBELA	132.00	6 0.9804	129.41	7190 HAMZA-PP	132.00	6 1.0219	134.88
7200 KHANPUR	132.00	6 1.0252	135.33	7210 MWQRSHIA	132.00	6 1.0106	133.40
7220 R.Y.KHAN	132.00	6 1.0085	133.13	7221 RYK-NEW	132.00	6 1.0406	137.36
7225 R.Y.KHN2	132.00	6 1.0206	134.71	7226 RYK-T	132.00	6 1.0236	135.12
7230 SADIQABD	132.00	6 0.9961	131.49	7235 NAWAZABD	132.00	6 1.0126	133.66
7240 J.D.WALI	132.00	6 0.9664	127.57	7250 MN.KH.RD	132.00	6 1.0203	134.68
7255 WAPDATWN	132.00	6 1.0111	133.46	7260 MN.BS.RD	132.00	6 1.0059	132.77
7265 QASIMBGH	132.00	6 1.0156	134.05	7270 MLN-IND	132.00	6 1.0007	132.09
7271 DUMMY	132.00	6 1.0129	133.70	7272 COCA COLA	132.00	6 1.0007	132.09

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7275 C.T.MILL	132.00	6	0.9973	131.65	7280 MN.VR.RD	132.00	6	1.0160	134.11
7285 QASIMPUR	132.00	6	0.9963	131.51	7287 M.JAILRD	132.00	6	0.9787	129.19
7288 SHUJABAD	132.00	6	0.9335	123.22	7289 JALALPWL	132.00	6	0.9203	121.48
7290 MESCO	132.00	6	0.9729	128.42	7300 KAPCO	132.00	6	1.0490	138.47
7320 GUJRAT.S	132.00	6	1.0027	132.36	7325 LAYYAH	132.00	6	0.9939	131.19
7328 KBGASHER	132.00	6	1.0333	136.40	7330 MZFRGARH	132.00	6	0.9894	130.59
7331 KOTADU-O	132.00	6	1.0450	137.94	7332 N.A.WALI	132.00	6	1.0188	134.48
7333 SHAH.S.DIN	132.00	6	1.0022	132.30	7334 M GARH NEW	132.00	6	0.9936	131.16
7335 KOTSULTAN	132.00	6	1.0064	132.85	7336 KAROR L.E	132.00	6	0.9780	129.10
7340 MEHRKHAS	132.00	6	0.8287	109.38	7350 DMR WALA	132.00	6	0.7916	104.50
7360 JATOIJNB	132.00	6	0.7534	99.455	7370 KHRPRSDT	132.00	6	0.7403	97.722
7395 SHAD.LND	132.00	6	1.0080	133.06	7400 TAUNSA	132.00	6	0.9928	131.05
7435 PARCO	132.00	6	0.9217	121.66	7436 T-PARCO	132.00	6	0.9218	121.68
7440 CHOKMNDA	132.00	6	0.9989	131.85	7441 T-CMUNDA	132.00	6	0.9997	131.97
7442 T-AHTM	132.00	6	1.0197	134.60	7443 AHTM	132.00	6	1.0193	134.55
7450 CHAUBARA	132.00	6	0.9830	129.76	7456 CHOKAZAM	132.00	6	0.9931	131.09
7459 KHANGARH	132.00	6	0.9164	120.97	7460 D.G.KHAN	132.00	6	0.9995	131.94
7462 MDC-DGK	132.00	6	1.0300	135.96	7463 CPC-DGK	132.00	6	1.0160	134.12
7465 KOTCHUTA	132.00	6	0.9839	129.88	7466 T-ATM	132.00	6	0.9925	131.01
7467 ATM	132.00	6	0.9919	130.93	7470 ROJHAN	132.00	6	0.9993	131.90
7580 CMNT.FCT	132.00	6	0.9911	130.82	7590 SKHISRWR	132.00	6	1.0422	137.57
7780 YAZMAN	66.000	6	0.9341	61.650	7781 YAZMAN	132.00	6	1.0081	133.07
7782 MAROOT	132.00	6	1.0088	133.17	7790 MARROT	66.000	6	0.9112	60.141
7800 KOTADDU	66.000	6	1.0135	66.891	7810 KOTSULTN	66.000	6	0.8875	58.575
7811 T-KOTSUL	66.000	6	0.8930	58.935	7820 LAYYAH	66.000	6	0.8903	58.760
7826 KAROR.LH	132.00	6	0.9874	130.34	7831 FATEHPUR	132.00	6	0.9642	127.27
7840 RANGPUR	66.000	6	1.0023	66.151	7842 T-RANGPR	66.000	6	1.0096	66.631
7880 CHAUBARA	66.000	6	1.0279	67.842	7890 NAWANKOT	66.000	6	1.0269	67.775
7891 T.NWANKOT	66.000	6	1.0270	67.783	7909 D.G.KHAN II	132.00	6	1.0052	132.69
7910 D.G.KHAN	66.000	6	1.0014	66.093	7920 KOTCHOTA	66.000	6	0.9605	63.391
7921 JAMPUR	66.000	6	0.9411	62.110	7925 CHOTI	66.000	6	0.9449	62.365
7930 JAMPUR	132.00	6	0.9480	125.13	7933 FAZALPUR	132.00	6	0.9258	122.21
7935 DAJAL	66.000	6	0.9309	61.438	7951 RAJANPUR	132.00	6	0.9215	121.64
7970 AHMDPR.E	66.000	6	1.0479	69.162	7974 UCH.SHRF	132.00	6	0.9800	129.36
7975 UCH (KF)	66.000	6	1.0139	66.914	7977 T-UCHSHF	66.000	6	1.0345	68.276
7981 ALI PUR	132.00	6	0.7437	98.167	7983 HEADRAJK	66.000	6	0.9093	60.015
7984 HEAD-RJ-KN	132.00	6	1.0084	133.11	7996 FORT.MINRO	132.00	6	1.0427	137.64

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60301 QADIRABD T-111.000	6 1.0131 11.144	60302 QADIRABD T-211.000	6 0.9645 10.609
60501 BNGAHYAT T-111.000	6 1.0411 11.452	60502 BNGAHYAT T-211.000	6 1.0430 11.473
60801 SAHIWALN T-111.000	6 1.0040 11.044	60802 SAHIWALN T-211.000	6 0.9779 10.757
60901 SAHWAL-O T-111.000	6 0.9827 10.809	60902 SAHWAL-O T-211.000	6 0.9838 10.821
60903 SAHWAL T-3 11.000	6 0.9838 10.821	60951 SWL III T-1 11.000	6 0.9997 10.996
60952 SWL III T-2 11.000	6 0.9997 10.997	61001 NOORPUR T-1 11.000	6 0.9847 10.831
61002 NOORPUR T-2 11.000	6 0.9901 10.891	61201 PAKPATAN T-111.000	6 0.9252 10.177
61202 PAKPATAN T-211.000	6 0.9339 10.273	61203 PAKPATAN T-311.000	6 0.9336 10.270
61301 HARAPPA T-1 11.000	6 0.9681 10.649	61302 HARAPPA T-2 11.000	6 0.9663 10.629
61402 CHCHWTNI T-211.000	6 1.0017 11.018	61403 CHCHWTNI T-311.000	6 0.9757 10.733
61404 CHCHWTNI T-411.000	6 0.9685 10.653	61501 SH.FAZAL T-111.000	6 0.9635 10.599
61502 SH.FAZAL T-211.000	6 0.9794 10.773	61601 BUREWALA T-111.000	6 0.9830 10.813
61602 BUREWALA T-211.000	6 0.9818 10.800	61603 BUREWALA T-311.000	6 0.9694 10.664
61621 BREWLA-O T-111.000	6 0.9547 10.501	61622 BREWLA-O T-211.000	6 0.9948 10.943
61701 VEHARI-O T-111.000	6 0.9991 10.990	61702 VEHARI-O T-211.000	6 0.9914 10.905
61703 VEHARI-T-3 11.000	6 0.9878 10.866	61751 LUDDEN T-1 11.000	6 0.9914 10.905
61752 LUDDEN T-2 11.000	6 0.9888 10.877	61781 KARAMPUR T-111.000	6 0.9732 10.705
61782 KARAMPUR T-211.000	6 0.9761 10.737	61801 ARIFWALA T-111.000	6 1.0206 11.227
61802 ARIFWALA T-211.000	6 1.0152 11.168	61803 ARIFWALA T-311.000	6 1.0152 11.168
61821 KAMIRW T-1 11.000	6 1.0069 11.076	61822 KAMIR W T-2 11.000	6 1.0037 11.040
61901 BWL.NAGR T-111.000	6 0.9876 10.863	61903 BWL.NAGR T-311.000	6 1.0178 11.195
61911 HOTA T-1 11.000	6 0.9861 10.848	62001 QABULA T-1 11.000	6 1.0367 11.404
62002 QABULA T-2 11.000	6 1.0341 11.375	62003 QABULA T-3 11.000	6 1.0153 11.168
62101 SAHUKA T-1 11.000	6 1.0170 11.187	62102 SAHUKA T-2 11.000	6 0.9795 10.775
62202 HASILPUR T-211.000	6 0.9846 10.830	62203 HASILPUR T-311.000	6 0.9909 10.900
62301 CHISTIAN T-111.000	6 1.0191 11.211	62302 CHISTIAN T-211.000	6 1.0427 11.470
62303 CHISTIAN T-311.000	6 0.9988 10.987	62321 DHRANWALA-T111.000	6 0.9565 10.522
62322 DHRANWALA-T211.000	6 0.9565 10.522	64151 CHISTIAN T-211.000	6 0.9845 10.830
64191 L.SOHAN T-1 11.000	6 0.9968 10.965	64211 K.P.TOMI T-111.000	6 0.9556 10.511
64212 K.P.TOMI T-211.000	6 0.9836 10.820	64621 NOORSAR T-1 11.000	6 0.9841 10.825
64622 NOORSAR T-2 11.000	6 1.0120 11.132	64801 MNCHNBAD T-111.000	6 0.8651 9.516
64802 MNCHNBAD T-211.000	6 0.8487 9.335	64901 MCLD.GNJ T-111.000	6 0.8574 9.432
65011 HARONABD T-111.000	6 1.0075 11.082	65012 HARONABD T-211.000	6 1.0137 11.151
65013 HARONABD T-311.000	6 1.0155 11.170	65121 FAQIRWLI-T1 11.000	6 0.9557 10.512
65122 FAQIRWLI-T2 11.000	6 0.9711 10.682	65211 FORTABAS-T1	6 0.9980
65212 FORTABAST-2 11.000	6 1.0040 11.044	70001 MIANCHNU T1 11.000	6 0.9797 10.777
70002 MIANCHNU T-211.000	6 0.9577 10.534	70003 MIANCHNU T-311.000	6 0.9737 10.711

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70011 CHAK-83-T1 11.000	6 1.0132 11.145	70012 CHAK-83-T2 11.000	6 1.0095 11.104
70021 KASSOWAL T-111.000	6 0.9821 10.803	70022 KASOWAL T-2 11.000	6 0.9667 10.633
70061 H SIDNAI T-111.000	6 0.9574 10.531	70062 H SIDNAI T-211.000	6 0.9543 10.497
70101 KACHAKHU T-111.000	6 1.0181 11.199	70102 KACHAKHU T-211.000	6 1.0116 11.127
70103 KACHAKHU T-311.000	6 0.9925 10.917	70202 KHANEWAL T-211.000	6 0.9908 10.899
70203 KHANEWAL T-311.000	6 0.9997 10.996	70204 KHANEWAL T-411.000	6 0.9877 10.864
70301 KABIRWLA T-111.000	6 1.0072 11.079	70302 KABIRWLA T-211.000	6 0.9731 10.704
70303 KABIRWLA T-311.000	6 0.9531 10.484	70321 MP PAHOR T-111.000	6 1.0186 11.205
70322 MP PAHOR T-211.000	6 0.9930 10.923	70401 GARHMORE T-111.000	6 0.9941 10.935
70402 GARHMORE T-211.000	6 0.9698 10.668	70403 T3 11.000	6 0.9623 10.585
70502 JEHANIAN T-111.000	6 1.0111 11.123	70503 JEHANIAN T-211.000	6 0.9872 10.860
70504 JEHANIAN T-311.000	6 0.9347 10.281	70601 CHAK.211 T-111.000	6 1.0056 11.062
70602 CHAK 211 T-211.000	6 0.9761 10.737	70701 MAILSI T-1 11.000	6 0.9700 10.670
70702 MAILSI T-2 11.000	6 1.0056 11.062	70703 MAILSI T-3 11.000	6 0.9719 10.690
70751 MUKHDM.R T-111.000	6 1.0252 11.277	70752 MUKHDM.R T-211.000	6 1.0252 11.277
71101 BASTIMLK T-111.000	6 0.9626 10.588	71102 BASTIMLK T-211.000	6 0.9740 10.714
71103 BASTIMLK T-311.000	6 0.9556 10.512	71151 MIRAN P T-1 11.000	6 0.9860 10.846
71152 MIRAN P T-2 11.000	6 1.0103 11.114	71201 LODHRAN T-1 11.000	6 1.0076 11.084
71202 LODHRAN T-2 11.000	6 0.9334 10.267	71203 LODHRAN T-3 11.000	6 0.9763 10.739
71251 LART-1 11.000	6 0.9715 10.687	71252 LAR T-2 11.000	6 0.9730 10.703
71301 BU.JADID T-111.000	6 0.9599 10.558	71302 BU.JADID T-211.000	6 0.9849 10.834
71401 BHAWALPR T-111.000	6 0.9741 10.715	71402 BHAWALPR T-211.000	6 0.9950 10.945
71403 BHAWALPR T-311.000	6 0.9468 10.414	71451 BP CANTT T-111.000	6 0.9891 10.880
71452 BPCANTT T-2 11.000	6 0.9911 10.902	71471 KARORPCA T-111.000	6 1.0111 11.122
71472 KARORPCA T-211.000	6 0.9467 10.414	71491 DUNYAPUR T-311.000	6 1.0002 11.003
71492 DUNYAPUR T-411.000	6 0.9668 10.635	71501 SAMASATA T-111.000	6 1.0070 11.077
71502 SAMASATA T-211.000	6 1.0032 11.035	71591 MUB-PUR-T1 11.000	6 0.9887 10.875
71592 MUB-PUR-T2 11.000	6 0.9887 10.875	71601 LIAQATPR T-111.000	6 1.0295 11.324
71602 LIAQATPR T-211.000	6 0.9962 10.958	71702 AHMDPR.E T-211.000	6 1.0431 11.474
71703 AHMDPR.E T-311.000	6 1.0007 11.007	71704 AHMDPR.E T-411.000	6 0.9882 10.870
71801 FEROZA T-1 11.000	6 1.0464 11.510	71802 FEROZA T-2 11.000	6 0.9823 10.805
71851 KHANBELA T-111.000	6 0.9563 10.519	72001 KHANPUR T-1 11.000	6 0.9882 10.870
72002 KHANPUR T-2 11.000	6 0.9925 10.918	72003 KHANPUR T-3 11.000	6 0.9910 10.901
72101 MWQRSHIA T-111.000	6 0.9795 10.774	72102 MWQRSHIA T2 11.000	6 0.9699 10.668
72201 R.Y.KHAN T-111.000	6 0.9517 10.469	72202 R.Y.KHAN T-211.000	6 0.9686 10.655
72203 R.Y.KHAN T-311.000	6 0.9758 10.734	72251 R.Y.KHN2 T-111.000	6 1.0072 11.079
72252 R.Y.KHN2 T-211.000	6 0.9999 10.999	72301 SADIQABD T-111.000	6 0.9756 10.731

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72302 SADIQABD T-211.000	6 0.9558 10.513	72303 SADIQABD T-311.000	6 0.9678 10.645
72351 NAWAZ T-1 11.000	6 1.0068 11.074	72352 NAWAZAB T-2 11.000	6 1.0064 11.071
72401 J.D.WALI T-111.000	6 0.8163 8.980	72501 MN.KH.RD T-111.000	6 0.9543 10.497
72502 MN.KH.RD T-211.000	6 0.9588 10.546	72503 MN.KH.RD T-311.000	6 0.9444 10.389
72551 WAP TO T-1 11.000	6 1.0003 11.004	72552 WAPDA TO T-211.000	6 1.0020 11.022
72601 MN.BS.RD T-111.000	6 0.9641 10.605	72602 MN.BS.RD T-211.000	6 1.0028 11.030
72603 MN.BS.RD T-311.000	6 1.0006 11.007	72651 Q BAGH T-1 11.000	6 0.9908 10.899
72652 Q BAGH T-2 11.000	6 1.0066 11.072	72701 MLN-IND T-1 11.000	6 0.9775 10.752
72702 MLN-IND T-2 11.000	6 0.9878 10.866	72703 MLN-IND T-3 11.000	6 0.9742 10.717
72801 MN.VR.RD T-111.000	6 0.9810 10.791	72802 MN.VR.RD T-211.000	6 0.9810 10.791
72803 MN.VR.RD T-311.000	6 1.0016 11.018	72851 QASIMPUR T-111.000	6 0.9698 10.668
72852 QASIMPUR T-211.000	6 0.9904 10.894	72853 QASIMPUR T-311.000	6 0.9781 10.759
72871 M.J RD T-1 11.000	6 1.0434 11.477	72872 M.J.RD T-2 11.000	6 1.0169 11.186
72881 SHUJABAD T-111.000	6 0.9234 10.157	72882 SHUJABAD T-211.000	6 0.9234 10.157
72891 J.P.W T-1 11.000	6 0.8975 9.872	72892 J.P.W T-2 11.000	6 0.9311 10.242
72893 J.P.W T-3 11.000	6 0.9100 10.010	72894 J.P.W T-4 11.000	6 0.9081 9.989
72901 MESCO T-1 11.000	6 0.9324 10.257	72902 MESCO T-2 11.000	6 0.9610 10.571
72903 MESCO T-3 11.000	6 0.9308 10.239	73201 GUJRAT.S T-111.000	6 0.9494 10.443
73202 GUJRAT.S T2 11.000	6 0.9392 10.331	73203 GUJRAT.S T-311.000	6 0.9750 10.725
73251 LAYYAH T-1 11.000	6 1.0050 11.055	73252 LAYYAH T-2 11.000	6 0.9684 10.653
73253 LAYYAH T-3 11.000	6 0.9726 10.699	73281 KBGASHER T-111.000	6 0.9948 10.942
73301 MZFRGARH T-111.000	6 0.9496 10.446	73302 MZFRGARH T-211.000	6 0.9378 10.316
73303 MZFRGARH T-311.000	6 0.9407 10.348	73312 KOTADU-O T-211.000	6 0.9805 10.786
73313 KOTADU-O T-311.000	6 0.9932 10.925	73314 KOTADU-O T-411.000	6 0.9868 10.855
73321 N.A.WALI T-111.000	6 0.9720 10.692	73322 N.A.WALI T-211.000	6 0.9868 10.854
73331 S S DIN T1 11.000	6 1.0174 11.192	73332 S S DIN T2 11.000	6 1.0172 11.189
73351 KOTSULTAN-T111.000	6 0.9739 10.713	73352 KOTSULTAN-T211.000	6 1.0195 11.215
73361 KAROR L.E-T1	6 0.8490	73362 KAROR L.E-T2	6 0.9386
73401 MEHRKHAS T-111.000	6 0.7925 8.718	73402 MEHRKHAS T-211.000	6 0.7857 8.643
73501 DMR WALA T-111.000	6 0.7888 8.677	73502 DMR WALA T-211.000	6 0.7976 8.774
73601 JATOIJNB T-111.000	6 0.6456 7.102	73602 JATOIJNB T-211.000	6 0.7446 8.190
73701 KHRPRSDT T-111.000	6 0.7164 7.880	73951 SHA.LND T-1 11.000	6 0.9691 10.660
73952 SHA LND T-2 11.000	6 0.9784 10.762	74001 TAUNSA T-1 11.000	6 0.9550 10.505
74002 TAUNSA T-2 11.000	6 0.9939 10.933	74401 CHOKMNDA T-111.000	6 0.9821 10.803
74402 CHOKMNDA T-211.000	6 0.9666 10.633	74502 CHAUBARA T-211.000	6 0.9302 10.232
74561 CHOKAZAM T1 11.000	6 1.0089 11.098	74562 CHOKAZAM T2 11.000	6 0.9479 10.427
74591 KHANGARH T-111.000	6 0.7901 8.691	74602 D.G.KHAN T-211.000	6 0.9539 10.493

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74603	D.G.KHAN T-3	11.000	6	0.9354	10.289	74604	D.G.KHAN T-4	11.000	6	0.9397	10.337
74651	KOTCHUTA T-1	11.000	6	0.9466	10.412	74652	KOTCHUTA T-2	11.000	6	0.9533	10.487
74653	KOTCHUTA T-3	11.000	6	0.9513	10.465	74701	ROJHAN T-1	11.000	6	0.9723	10.696
75901	SKHISRWR T-1	11.000	6	1.0393	11.432	75902	SKHISRWR T-2	11.000	6	1.0218	11.240
77801	YAZMAN T-1	11.000	6	0.9640	10.604	77811	YAZMAN-T-1	11.000	6	0.9814	10.795
77901	MAROOT T-1	11.000	6	0.9790	10.769	77902	MAROOT T-2	11.000	6	0.9500	10.451
78101	KOTSULTN T-1	11.000	6	0.8188	9.006	78102	KOTSULTN T-2	11.000	6	0.7996	8.795
78261	K. L. ESONT	11.000	6	0.9758	10.733	78292	T2	11.000	6	0.9874	10.861
78311	FATEHPUR T-1	11.000	6	0.9214	10.135	78312	FATEPUR T-2	11.000	6	0.9147	10.062
78401	T1	11.000	6	0.9776	10.753	78901	NAWANKOT T-1	11.000	6	1.0318	11.350
79091	D.G.K.II T-1	11.000	6	0.9974	10.971	79092	D.G.K.II T-2	11.000	6	0.9959	10.955
79211	JAMPUR T-1	11.000	6	0.9408	10.349	79251	CHOTI T-1	11.000	6	0.9578	10.535
79301	JAMPUR T-1	11.000	6	0.9200	10.120	79302	JAMPUR T-2	11.000	6	0.9620	10.582
79331	FAZALPUR T-1	11.000	6	0.8577	9.435	79332	FAZALPUR T-2	11.000	6	0.8867	9.753
79351	DAJAL T-1	11.000	6	1.0030	11.033	79511	RAJANPUR T-1	11.000	6	0.8601	9.461
79512	RAJANPUR T-2	11.000	6	0.8961	9.857	79741	UCH.SHRF T-1	11.000	6	1.0006	11.007
79742	UCH.SHRF T-2	11.000	6	1.0262	11.288	79743	UCH.SHRF T-3	11.000	6	0.9883	10.871
79751	UCH (KF) T-1	11.000	6	1.0405	11.446	79811	ALI PUR T-1	11.000	6	0.7689	8.458
79812	ALIPUR T-2	11.000	6	0.7689	8.458	79813	ALIPUR T-3	11.000	6	0.7617	8.379
79831	HEADRAJK T-2	11.000	6	0.9124	10.037	79961	FRT MNRO T-1	11.000	6	1.0407	11.448
732512	LSM-132KV	132.00	6	0.9952	131.37						

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WITH

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0469	230.31
601		APPOLO-SOLAR		132.00	6	1.0005	132.07	730		SHK-PP-132		132.00	6	1.0303	136.00
801		QAD-SOL-I		132.00	6	1.0000	132.00	1001		CREST-ENERGY		132.00	6	1.0013	132.18
6030		QADIRABD		132.00	6	1.0440	137.80	6050		BNGAHYAT		132.00	6	1.0193	134.55
6070		YOUSFWLA		132.00	6	1.0452	137.97	6080		SAHIWALN		132.00	6	1.0392	137.17
6090		SAHWAL-O		132.00	6	1.0059	132.77	6095		SAHIWAL III		132.00	6	1.0024	132.32
6100		NOORPUR		132.00	6	0.9752	128.72	6120		PAKPATAN		132.00	6	0.9121	120.40
6130		HARAPPA		132.00	6	0.9900	130.67	6140		CHCHWTNI		132.00	6	0.9926	131.03
6150		SH.FAZAL		132.00	6	0.9708	128.15	6160		BUREWALA		132.00	6	0.9716	128.25
6162		BREWLA-O		132.00	6	0.9646	127.32	6169		VEHARI-N		132.00	6	1.0096	133.27
6170		VEHARI-O		132.00	6	1.0055	132.73	6175		LUDDEN		132.00	6	0.9911	130.83
6178		KARAMPUR		132.00	6	0.9837	129.85	6180		ARIFWALA		132.00	6	0.9785	129.16
6182		KAMIRWALA		132.00	6	0.9972	131.63	6190		BWL.NAGR		132.00	6	0.9806	129.44
6191		HOTA		132.00	6	0.9761	128.84	6200		QABULA		132.00	6	0.9675	127.72
6210		SAHUKA		132.00	6	0.9552	126.08	6220		HASILPUR		132.00	6	0.9868	130.25
6230		CHISTIAN-O		132.00	6	0.9991	131.88	6231		CHSTAN-N		132.00	6	1.0040	132.53

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6232 DHARWALA132	132.00	6 0.9961	131.49	6410 HASILPUR	66.000	6 0.9843	64.961
6415 CHISTIAN	66.000	6 0.9746	64.325	6419 L.SOHANRA	132.00	6 0.9897	130.64
6421 K.P.TOMI	132.00	6 0.9832	129.79	6461 T-NURSAR	66.000	6 0.9749	64.344
6462 NOORSAR	132.00	6 0.9883	130.46	6501 HARONABD	132.00	6 0.9813	129.53
6512 FAQIRWLI	132.00	6 0.9671	127.65	6521 FORTABAS	132.00	6 0.9604	126.77
6666 MULTAN-N	132.00	6 1.0220	134.91	7000 MIANCHNU	132.00	6 0.9811	129.50
7001 CHAK-83-132	132.00	6 0.9958	131.45	7002 KASSOWAL	132.00	6 0.9998	131.97
7006 HEAD SIDHNAI	132.00	6 0.9828	129.72	7010 KACHAKHU	132.00	6 0.9910	130.81
7020 KHANEWAL	132.00	6 1.0136	133.79	7029 FAUJI-K	132.00	6 1.0490	138.47
7030 KABIRWLA	132.00	6 1.0076	133.00	7032 MP.PAHOR	132.00	6 0.9982	131.76
7040 GARHMORE	132.00	6 0.9853	130.06	7041 T-GM	132.00	6 0.9859	130.14
7050 JEHANIAN	132.00	6 0.9784	129.15	7055 T-C.211	132.00	6 0.9608	126.83
7060 CHAK.211	132.00	6 0.9572	126.36	7070 MAILSI	132.00	6 0.9581	126.47
7075 MUKHDM.R	132.00	6 0.9742	128.59	7100 P.GAIB-1	132.00	6 1.0250	135.30
7109 P.GAIB-2	132.00	6 1.0499	138.59	7110 BASTIMLK	132.00	6 1.0003	132.04
7115 MIRAN PUR	132.00	6 1.0306	136.05	7120 LODHRAN	132.00	6 1.0004	132.05
7125 LAR	132.00	6 1.0172	134.27	7130 BU.JADID	132.00	6 1.0073	132.96
7138 BWPN-2	132.00	6 1.0248	135.28	7139 B.W.P-N	132.00	6 1.0223	134.95
7140 BHAWALPR	132.00	6 1.0130	133.71	7145 BPUR CANTT	132.00	6 1.0115	133.52
7147 KARORPCA	132.00	6 0.9746	128.65	7149 DUNYAPUR	132.00	6 0.9711	128.18
7150 SAMASATA	132.00	6 1.0182	134.40	7159 MUB-PUR	132.00	6 0.9847	129.98
7160 LIAQATPR	132.00	6 0.9966	131.55	7170 AHMDPR.E	132.00	6 0.9710	128.17
7175 RYK-PP	132.00	6 1.0000	132.00	7180 FEROZA	132.00	6 0.9819	129.61
7185 KHANBELA	132.00	6 0.9683	127.82	7190 HAMZA-PP	132.00	6 1.0000	132.00
7200 KHANPUR	132.00	6 1.0014	132.19	7210 MWQRSHIA	132.00	6 0.9858	130.13
7220 R.Y.KHAN	132.00	6 0.9945	131.27	7221 RYK-NEW	132.00	6 1.0138	133.82
7225 R.Y.KHN2	132.00	6 0.9990	131.87	7226 RYK-T	132.00	6 1.0023	132.31
7230 SADIQABD	132.00	6 0.9894	130.60	7231 WALANA	132.00	6 0.9874	130.34
7235 NAWAZABD	132.00	6 1.0080	133.06	7240 J.D.WALI	132.00	6 0.9658	127.48
7250 MN.KH.RD	132.00	6 1.0198	134.62	7255 WAPDATWN	132.00	6 1.0089	133.17
7260 MN.BS.RD	132.00	6 1.0023	132.30	7261 PUNJAB HOSNG	132.00	6 1.0165	134.18
7265 QASIMBGH	132.00	6 1.0149	133.97	7270 MLN-IND	132.00	6 0.9966	131.55
7272 COCA COLA	132.00	6 0.9966	131.55	7275 C.T.MILL	132.00	6 0.9931	131.09
7280 MN.VR.RD	132.00	6 1.0154	134.03	7285 QASIMPUR	132.00	6 0.9996	131.95
7287 M.JAILRD	132.00	6 0.9917	130.91	7288 SHUJABAD	132.00	6 0.9790	129.23
7289 JALALPWL	132.00	6 0.9722	128.33	7290 MESCO	132.00	6 0.9819	129.62
7300 KAPCO	132.00	6 1.0490	138.47	7320 GUJRAT.S	132.00	6 1.0079	133.05

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7325 LAYYAH	132.00	6 0.9995	131.93	7328 KBGASHER	132.00	6 1.0281	135.70
7330 MZFRGARH	132.00	6 1.0002	132.03	7331 KOTADU-O	132.00	6 1.0477	138.29
7332 N.A.WALI	132.00	6 1.0202	134.67	7333 SHAH.S.DIN	132.00	6 1.0197	134.60
7334 M GARH NEW	132.00	6 1.0015	132.20	7335 KOTSULTAN	132.00	6 1.0197	134.60
7340 MEHRKHAS	132.00	6 0.9193	121.34	7350 DMR WALA	132.00	6 0.8965	118.33
7360 JATOIJNB	132.00	6 0.8769	115.75	7370 KHRPRSDT	132.00	6 0.8674	114.49
7395 SHAD.LND	132.00	6 1.0069	132.91	7400 TAUNSA	132.00	6 0.9912	130.84
7435 PARCO	132.00	6 0.9320	123.02	7436 T-PARCO	132.00	6 0.9320	123.03
7440 CHOKMNDA	132.00	6 1.0253	135.34	7441 T-CMUNDA	132.00	6 1.0257	135.39
7442 T-AHTM	132.00	6 1.0338	136.47	7443 AHTM	132.00	6 1.0334	136.41
7450 CHAUBARA	132.00	6 0.9971	131.62	7456 CHOKAZAM	132.00	6 0.9980	131.74
7459 KHANGARH	132.00	6 0.9832	129.78	7460 D.G.KHAN	132.00	6 1.0212	134.80
7462 MDC-DGK	132.00	6 1.0348	136.59	7463 CPC-DGK	132.00	6 1.0284	135.75
7465 KOTCHUTA	132.00	6 1.0053	132.70	7466 T-ATM	132.00	6 1.0140	133.85
7467 ATM	132.00	6 1.0134	133.77	7470 ROJHAN	132.00	6 1.0030	132.39
7580 CMNT.FCT	132.00	6 1.0130	133.71	7590 SKHISRWR	132.00	6 1.0434	137.72
7781 YAZMAN	132.00	6 1.0087	133.15	7800 KOTADDU	66.000	6 1.0413	68.723
7810 KOTSULTN	66.000	6 1.0432	68.853	7811 T-KOTSUL	66.000	6 1.0432	68.851
7820 LAYYAH	66.000	6 1.0435	68.870	7831 FATEHPUR	132.00	6 0.9641	127.26
7840 RANGPUR	66.000	6 1.0302	67.991	7842 T-RANGPR	66.000	6 1.0374	68.470
7880 CHAUBARA	66.000	6 1.0398	68.625	7890 NAWANKOT	66.000	6 1.0387	68.557
7891 T.NWANKOT	66.000	6 1.0388	68.564	7909 D.G.KHAN II	132.00	6 1.0227	135.00
7910 D.G.KHAN	66.000	6 1.0224	67.479	7920 KOTCHOTA	66.000	6 0.9789	64.608
7921 JAMPUR	66.000	6 0.9586	63.269	7925 CHOTI	66.000	6 0.9622	63.508
7930 JAMPUR	132.00	6 0.9601	126.73	7933 FAZALPUR	132.00	6 0.9369	123.67
7935 DAJAL	66.000	6 0.9486	62.608	7951 RAJANPUR	132.00	6 0.9316	122.97
7970 AHMDPR.E	66.000	6 1.0271	67.791	7974 UCH.SHRF	132.00	6 0.9667	127.60
7975 UCH (KF)	66.000	6 0.9895	65.310	7977 T-UCHSHF	66.000	6 1.0119	66.785
7981 ALI PUR	132.00	6 0.8698	114.81	7996 FORT.MINRO	132.00	6 1.0439	137.80
60301 QADIRABD T-111.000		6 0.9978	10.976	60302 QADIRABD T-211.000		6 0.9945	10.940
60501 BNGAHYAT T-111.000		6 1.0324	11.357	60502 BNGAHYAT T-211.000		6 1.0134	11.147
60801 SAHIWALN T-111.000		6 0.9857	10.843	60802 SAHIWALN T-211.000		6 0.9921	10.914
60901 SAHWAL-O T-111.000		6 0.9787	10.766	60902 SAHWAL-O T-211.000		6 0.9799	10.779
60903 SAHWAL-O T-311.000		6 0.9582	10.540	60951 SWL III T-1 11.000		6 0.9967	10.963
60952 SWL III T-2 11.000		6 0.9967	10.963	61001 NOORPUR T-1 11.000		6 0.9781	10.759
61002 NOORPUR T-2 11.000		6 0.9692	10.661	61201 PAKPATAN T-111.000		6 0.8620	9.482
61202 PAKPATAN T-211.000		6 0.8620	9.482	61203 PAKPATAN T-311.000		6 0.8625	9.488

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61301 HARAPPA T-1 11.000	6 0.9627 10.590	61302 HARAPPA T-2 11.000	6 0.9627 10.590
61401 CHCHWTNI T-111.000	6 0.9448 10.393	61402 CHCHWTNI T-211.000	6 1.0110 11.121
61403 CHCHWTNI T-311.000	6 0.9720 10.692	61501 SH.FAZAL T-111.000	6 0.9744 10.718
61502 SH.FAZAL T-211.000	6 0.9610 10.571	61601 BUREWALA T-111.000	6 0.9835 10.818
61602 BUREWALA T-211.000	6 0.9821 10.803	61603 BUREWALA T-311.000	6 0.9555 10.511
61621 BREWLA-O T-111.000	6 0.9632 10.595	61622 BREWLA-O T-211.000	6 0.9927 10.920
61701 VEHARI-O T-111.000	6 0.9948 10.943	61702 VEHARI-O T-211.000	6 0.9869 10.856
61703 VEHARI-T-3 11.000	6 0.9835 10.819	61751 LUDDEN T-1 11.000	6 0.9895 10.885
61752 LUDDEN T-2 11.000	6 0.9832 10.816	61781 KARAMPUR T-111.000	6 0.9689 10.658
61782 KARAMPUR T-211.000	6 0.9719 10.691	61801 ARIFWALA T-111.000	6 1.0180 11.199
61802 ARIFWALA T-211.000	6 1.0126 11.139	61803 ARIFWALA T-311.000	6 1.0126 11.139
61821 KAMIRW T-1 11.000	6 1.0036 11.040	61822 KAMIR W T-2 11.000	6 1.0036 11.040
61901 BWL.NAGR T-111.000	6 0.9890 10.879	61903 BWL.NAGR T-311.000	6 1.0194 11.213
61911 HOTA T-1 11.000	6 0.9827 10.810	62001 QABULA T-1 11.000	6 1.0357 11.393
62002 QABULA T-2 11.000	6 1.0330 11.363	62101 SAHUKA T-1 11.000	6 1.0162 11.178
62102 SAHUKA T-2 11.000	6 0.9903 10.894	62202 HASILPUR T-211.000	6 0.9816 10.798
62203 HASILPUR T-311.000	6 0.9880 10.868	62301 CHRISTIAN T-111.000	6 1.0242 11.267
62302 CHISTIAN T-211.000	6 1.0480 11.528	62303 CHRISTIAN-O T11.000	6 0.9893 10.882
62321 DHRANWALA-T111.000	6 0.9606 10.567	62322 DHRANWALA-T211.000	6 0.9606 10.567
63003 QABULA T-3 11.000	6 0.9701 10.671	64151 CHISTIAN T-211.000	6 0.9648 10.613
64191 L.SOHAN T-1 11.000	6 0.9927 10.920	64211 K.P.TOMI T-111.000	6 0.9754 10.730
64212 K.P.TOMI T-211.000	6 0.9646 10.611	64621 NOORSAR T-1 11.000	6 0.9606 10.566
65011 HARONABD T-1	6 0.9488	65012 HARONABD T-211.000	6 1.0375 11.413
65013 HARONABD T-311.000	6 1.0394 11.433	65121 FAQIRWLI-T1 11.000	6 0.9715 10.687
65122 FAQIRWLI-T2 11.000	6 0.9715 10.687	65211 FORTABAS-T1	6 1.0152
65212 FORTABAST-2 11.000	6 1.0463 11.509	70001 MIANCHNU T1 11.000	6 0.9764 10.740
70002 MIANCHNU T-211.000	6 0.9543 10.497	70003 MIANCHNU T-311.000	6 0.9704 10.674
70011 CHAK-83-T1 11.000	6 0.9797 10.777	70012 CHAK-83-T2 11.000	6 0.9797 10.777
70021 KASSOWAL T-111.000	6 0.9796 10.776	70022 KASOWAL T-2 11.000	6 0.9637 10.600
70061 H SIDNAI T-111.000	6 0.9789 10.768	70062 H SIDNAI T-211.000	6 0.9754 10.729
70101 KACHAKHU T-111.000	6 1.0163 11.179	70102 KACHAKHU T-211.000	6 1.0097 11.107
70103 KACHAKHU T-311.000	6 0.9486 10.434	70202 KHANEWAL T-211.000	6 0.9909 10.900
70203 KHANEWAL T-311.000	6 0.9998 10.998	70204 KHANEWAL T-411.000	6 0.9602 10.562
70301 KABIRWLA T-111.000	6 1.0079 11.087	70302 KABIRWLA T-211.000	6 0.9736 10.710
70303 KABIRWLA T-3	6 0.9533	70321 MP PAHOR T-111.000	6 1.0215 11.236
70322 MP PAHOR T-211.000	6 0.9957 10.953	70401 GARHMORE T-111.000	6 1.0051 11.056
70402 GARHMORE T-211.000	6 0.9772 10.749	70501 JEHANIAN T-111.000	6 0.9458 10.404

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70502 JEHANIAN T-211.000	6 0.9739 10.713	70503 JEHANIAN T-311.000	6 0.9812 10.793
70601 CHAK.211 T-111.000	6 0.9947 10.941	70602 CHAK 211 T-211.000	6 0.9653 10.618
70701 MAILSI T-1 11.000	6 0.9666 10.633	70702 MAILSI T-2 11.000	6 0.9963 10.960
70703 MAILSI T-3 11.000	6 0.9604 10.564	70751 MUKHDM.R T-111.000	6 0.9886 10.875
70752 MUKHDM.R T-211.000	6 0.9885 10.874	71101 BASTIMLK T-211.000	6 1.0165 11.181
71102 BASTIMLK T-111.000	6 1.0157 11.172	71103 BASTIMLK T-311.000	6 1.0165 11.181
71151 MIRAN P T-1 11.000	6 1.0139 11.153	71152 MIRAN P T-2 11.000	6 1.0390 11.429
71201 LODHRAN T-1 11.000	6 1.0318 11.350	71202 LODHRAN T-2 11.000	6 0.9709 10.680
71203 LODHRAN T-3 11.000	6 1.0150 11.165	71251 LART-1 11.000	6 1.0049 11.054
71252 LAR T-2 11.000	6 1.0049 11.054	71301 BU.JADID T-111.000	6 1.0010 11.011
71302 BU.JADID T-211.000	6 1.0270 11.297	71401 BHAWALPR T-111.000	6 0.9933 10.926
71402 BHAWALPR T-211.000	6 1.0321 11.353	71403 BHAWALPR T-311.000	6 0.9897 10.887
71451 BP CANTT T-111.000	6 0.9935 10.928	71452 BPCANTT T-2 11.000	6 0.9935 10.928
71471 KARORPCA T-111.000	6 1.0269 11.296	71472 KARORPCA T-211.000	6 0.9891 10.880
71473 KARORPCA T-311.000	6 0.9483 10.431	71491 DUNYAPUR T-311.000	6 0.9907 10.897
71492 DUNYAPUR T-411.000	6 0.9635 10.598	71501 SAMASATA T-111.000	6 0.9958 10.954
71502 SAMASATA T-211.000	6 0.9958 10.954	71591 MUB-PUR-T1 11.000	6 0.9750 10.725
71592 MUB-PUR-T2 11.000	6 0.9750 10.725	71601 LIAQATPR T-111.000	6 0.9872 10.859
71602 LIAQATPR T-211.000	6 0.9934 10.928	71702 AHMDPR.E T-211.000	6 0.9976 10.974
71703 AHMDPR.E T-311.000	6 0.9851 10.836	71704 AHMDPR.E T-411.000	6 0.9537 10.491
71801 FEROZA T-1 11.000	6 0.9726 10.699	71802 FEROZA T-2 11.000	6 0.9648 10.612
71851 KHANBELA T-111.000	6 0.9740 10.714	71852 KHANBELA T-211.000	6 0.9583 10.541
72001 KHANPUR T-1 11.000	6 0.9618 10.579	72002 KHANPUR T-2 11.000	6 0.9660 10.626
72003 KHANPUR T-3 11.000	6 0.9647 10.611	72101 MWQRSHIA T-111.000	6 0.9611 10.572
72102 MWQRSHIA T2 11.000	6 0.9314 10.246	72201 R.Y.KHAN T-111.000	6 0.9823 10.806
72202 R.Y.KHAN T-211.000	6 0.9876 10.863	72203 R.Y.KHAN T-311.000	6 0.9876 10.863
72251 R.Y.KHN2 T-111.000	6 0.9805 10.786	72252 R.Y.KHN2 T-211.000	6 0.9770 10.747
72301 SADIQABD T-111.000	6 0.9896 10.886	72302 SADIQABD T-211.000	6 0.9896 10.886
72303 SADIQABD T-311.000	6 0.9914 10.905	72311 WALANA T-1 11.000	6 1.0076 11.083
72312 WALANA T-2 11.000	6 1.0076 11.083	72351 NAWAZ T-1 11.000	6 0.9954 10.950
72401 J.D.WALI T-111.000	6 0.9060 9.966	72402 JDWALI T-2 11.000	6 0.9309 10.240
72501 MN.KH.RD T-111.000	6 0.9962 10.959	72502 MN.KH.RD T-211.000	6 1.0007 11.008
72503 MN.KH.RD T-311.000	6 0.9768 10.744	72551 WAP TO T-1 11.000	6 0.9702 10.672
72552 WAPDA TO T-211.000	6 0.9763 10.740	72601 MN.BS.RD T-111.000	6 0.9721 10.693
72602 MN.BS.RD T-211.000	6 0.9843 10.827	72603 MN.BS.RD T-311.000	6 0.9810 10.791
72611 PNJB HSG T-111.000	6 1.0352 11.387	72612 PNJB HSG T-211.000	6 1.0352 11.387
72651 Q BAGH T-1 11.000	6 0.9908 10.898	72652 Q BAGH T-2 11.000	6 1.0039 11.043

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72701	MLN-IND T-1	11.000	6	0.9719	10.691	72702	MLN-IND T-2	11.000	6	0.9822	10.804
72703	MLN-IND T-3	11.000	6	0.9686	10.655	72801	MN.VR.RD T-1	11.000	6	0.9697	10.667
72802	MN.VR.RD T-2	11.000	6	0.9697	10.667	72803	MN.VR.RD T-3	11.000	6	0.9969	10.965
72851	QASIMPUR T-1	11.000	6	0.9863	10.849	72852	QASIMPUR T-2	11.000	6	1.0005	11.006
72853	QASIMPUR T-3	11.000	6	0.9699	10.668	72871	M.J RD T-1	11.000	6	1.0180	11.198
72872	M.J.RD T-2	11.000	6	1.0105	11.115	72881	SHUJABAD T-1	11.000	6	0.9746	10.721
72882	SHUJABAD T-2	11.000	6	0.9746	10.721	72891	J.P.W T-1	11.000	6	0.9887	10.876
72892	J.P.W T-2	11.000	6	0.9864	10.850	72893	J.P.W T-3	11.000	6	0.9615	10.577
72901	MESCO T-1	11.000	6	0.9508	10.459	72902	MESCO T-2	11.000	6	0.9578	10.536
72903	MESCO T-3	11.000	6	0.9578	10.536	73201	GUJRAT.S T-1	11.000	6	0.9530	10.483
73202	GUJRAT.S T-2	11.000	6	0.9793	10.772	73203	GUJRAT.S T2	11.000	6	0.9428	10.370
73251	LAYYAH T-1	11.000	6	1.0093	11.102	73252	LAYYAH T-2	11.000	6	0.9724	10.697
73254	LAYYAH T-3	11.000	6	0.9436	10.380	73281	KBGASHER T-1	11.000	6	0.9883	10.871
73301	MZFRGARH T-1	11.000	6	0.9912	10.903	73302	MZFRGARH T-2	11.000	6	0.9856	10.841
73303	MZFRGARH T-3	11.000	6	0.9766	10.743	73312	KOTADU-O T-1	11.000	6	0.9968	10.964
73313	KOTADU-O T-2	11.000	6	1.0094	11.104	73314	KOTADU-O T-3	11.000	6	1.0031	11.034
73321	N.A.WALI T-1	11.000	6	0.9970	10.967	73322	N.A.WALI T-2	11.000	6	0.9746	11.034
73331	S S DIN T1	11.000	6	1.0218	11.240	73332	S S DIN T2	11.000	6	1.0216	11.238
73351	KOTSULTAN-T1	11.000	6	0.9673	10.640	73352	KOTSULTAN-T2	11.000	6	1.0052	11.057
73401	MEHRKHAS T-1	11.000	6	0.9044	9.948	73402	MEHRKHAS T-2	11.000	6	0.8911	9.802
73501	DMR WALA T-1	11.000	6	0.8987	9.886	73502	DMR WALA T-2	11.000	6	0.9090	9.999
73601	JATOIJNB T-1	11.000	6	0.9038	9.942	73602	JATOIJNB T-2	11.000	6	0.8887	9.775
73701	KHRPRSDT T-1	11.000	6	0.9105	10.015	73951	SHA.LND T-1	11.000	6	0.9781	10.759
73952	SHA.LND T-2	11.000	6	0.9647	10.612	74001	TAUNSA T-1	11.000	6	0.9505	10.455
74002	TAUNSA T-2	11.000	6	0.9919	10.911	74401	CHOKMNDA T-1	11.000	6	1.0096	11.105
74402	CHOKMNDA T-2	11.000	6	0.9656	10.621	74502	CHAUBARA T-1	11.000	6	0.9708	10.678
74561	CHOKAZAM T1	11.000	6	1.0130	11.144	74562	CHOKAZAM T2	11.000	6	1.0070	11.077
74591	KHANGARH T-1	11.000	6	0.9508	10.459	74592	KHANGARH T-2	11.000	6	0.9784	10.762
74602	D.G.KHAN T-1	11.000	6	0.9872	10.859	74603	D.G.KHAN T-3	11.000	6	0.9689	10.658
74604	D.G.KHAN T-4	11.000	6	0.9733	10.706	74651	KOTCHUTA T-1	11.000	6	0.9667	10.634
74652	KOTCHUTA T-2	11.000	6	0.9736	10.710	74653	KOTCHUTA T-3	11.000	6	0.9716	10.688
74701	ROJHAN T-1	11.000	6	0.9753	10.729	75901	SKHISRWR T-1	11.000	6	1.0309	11.340
75902	SKHISRWR T-2	11.000	6	1.0224	11.246	77811	YAZMAN-T-1	11.000	6	1.0027	11.030
77812	YAZMAN T-2	11.000	6	1.0027	11.030	78311	FATEHPUR T-1	11.000	6	0.8742	9.616
78312	FATEPUR T-2	11.000	6	0.8742	9.616	78401	T1	11.000	6	1.0051	11.057
78901	NAWANKOT T-1	11.000	6	1.0436	11.480	79091	D.G.K.II T-1	11.000	6	1.0042	11.046
79092	D.G.K.II T-2	11.000	6	1.0042	11.046	79211	JAMPUR T-1	11.000	6	0.9404	10.345

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79251	CHOTI T-1	11.000	6 0.9723 10.695	79301	JAMPUR T-1	11.000	6 0.9394 10.333
79302	JAMPUR T-2	11.000	6 0.9522 10.474	79331	FAZALPUR T-1	11.000	6 0.9297 10.226
79332	FAZALPUR T-2	11.000	6 0.8900 9.791	79351	DAJAL T-1	11.000	6 0.9825 10.807
79352	DAJAL T-2		6 0.9825	79511	RAJANPUR T-1	11.000	6 0.8918 9.810
79512	RAJANPUR T-2	11.000	6 0.8957 9.852	79741	UCH.SHRF T-1	11.000	6 0.9852 10.837
79742	UCH.SHRF T-2	11.000	6 1.0104 11.114	79743	UCH.SHRF T-3	11.000	6 0.9586 10.544
79751	UCH (KF) T-1	11.000	6 0.9979 10.976	79811	ALI PUR T-1	11.000	6 0.8326 9.159
79812	ALIPUR T-2	11.000	6 0.7531 8.284	79961	FRT MNRO T-1	11.000	6 1.0289 11.318
732512	LSM-132KV	132.00	6 1.0000 132.00				

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Without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0469	230.31
601		APPOLO-SOLAR		132.00	6	1.0005	132.07	730		SHK-PP-132		132.00	6	1.0266	135.51
801		QAD-SOL-I		132.00	6	1.0000	132.00	1001		CREST-ENERGY		132.00	6	1.0010	132.13
6030		QADIRABD		132.00	6	1.0441	137.82	6050		BNGAHYAT		132.00	6	1.0212	134.80
6070		YOUSFWLA		132.00	6	1.0458	138.04	6080		SAHIWALN		132.00	6	1.0398	137.26
6090		SAHWAL-O		132.00	6	1.0081	133.08	6095		SAHIWAL III		132.00	6	1.0051	132.67
6100		NOORPUR		132.00	6	0.9794	129.29	6120		PAKPATAN		132.00	6	0.9206	121.52
6130		HARAPPA		132.00	6	0.9925	131.01	6140		CHCHWTNI		132.00	6	0.9947	131.30
6150		SH.FAZAL		132.00	6	0.9728	128.41	6160		BUREWALA		132.00	6	0.9730	128.43
6162		BREWLA-O		132.00	6	0.9657	127.48	6169		VEHARI-N		132.00	6	1.0117	133.55
6170		VEHARI-O		132.00	6	1.0077	133.01	6175		LUDDEN		132.00	6	0.9933	131.12
6178		KARAMPUR		132.00	6	0.9862	130.18	6180		ARIFWALA		132.00	6	0.9793	129.27
6182		KAMIRWALA		132.00	6	0.9981	131.75	6190		BWL.NAGR		132.00	6	0.9777	129.05
6191		HOTA		132.00	6	0.9751	128.71	6200		QABULA		132.00	6	0.9673	127.68

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6210 SAHUKA	132.00	6 0.9553	126.10	6220 HASILPUR	132.00	6 0.9880	130.41
6230 CHISTIAN-O	132.00	6 0.9930	131.08	6231 CHSTAN-N	132.00	6 0.9986	131.82
6232 DHARWALA132	132.00	6 0.9910	130.81	6410 HASILPUR	66.000	6 1.0015	66.098
6415 CHISTIAN	66.000	6 0.9920	65.473	6419 L.SOHANRA	132.00	6 0.9925	131.01
6421 K.P.TOMI	132.00	6 0.9857	130.11	6461 T-NURSAR	66.000	6 0.9933	65.556
6462 NOORSAR	132.00	6 0.9832	129.78	6470 BWL.NAGR	66.000	6 0.9911	65.410
6480 MNCHNBAD	66.000	6 0.8457	55.818	6481 T-MICHB	66.000	6 0.8515	56.199
6490 MCLD.GNJ	66.000	6 0.8326	54.954	6500 HARONABD	66.000	6 0.9916	65.444
6501 HARONABD	132.00	6 0.9593	126.62	6512 FAQIRWLI	132.00	6 0.9432	124.51
6521 FORTABAS	132.00	6 0.9346	123.37	6666 MULTAN-N	132.00	6 1.0225	134.97
7000 MIANCHNU	132.00	6 0.9830	129.75	7001 CHAK-83-132	132.00	6 0.9975	131.67
7002 KASSOWAL	132.00	6 1.0017	132.22	7006 HEAD SIDHNAI	132.00	6 0.9809	129.48
7010 KACHAKHU	132.00	6 0.9912	130.83	7020 KHANEWAL	132.00	6 1.0120	133.58
7029 FAUJI-K	132.00	6 1.0490	138.47	7030 KABIRWLA	132.00	6 1.0041	132.54
7032 MP.PAHOR	132.00	6 0.9954	131.39	7040 GARHMORE	132.00	6 0.9918	130.92
7041 T-GM	132.00	6 0.9924	130.99	7050 JEHANIAN	132.00	6 0.9888	130.52
7055 T-C.211	132.00	6 0.9681	127.79	7060 CHAK.211	132.00	6 0.9647	127.35
7070 MAILSI	132.00	6 0.9635	127.18	7075 MUKHDM.R	132.00	6 1.0080	133.05
7100 P.GAIB-1	132.00	6 1.0250	135.30	7109 P.GAIB-2	132.00	6 1.0377	136.98
7110 BASTIMLK	132.00	6 0.9558	126.16	7115 MIRAN PUR	132.00	6 1.0029	132.38
7120 LODHRAN	132.00	6 0.9649	127.37	7125 LAR	132.00	6 0.9846	129.97
7130 BU.JADID	132.00	6 0.9683	127.82	7138 BWPN-2	132.00	6 1.0315	136.16
7139 B.W.P-N	132.00	6 1.0158	134.08	7140 BHAWALPR	132.00	6 0.9889	130.53
7141 B.W.P66	66.000	6 1.0002	66.015	7145 BPUR CANTT	132.00	6 1.0077	133.01
7147 KARORPCA	132.00	6 0.9721	128.32	7149 DUNYAPUR	132.00	6 0.9762	128.86
7150 SAMASATA	132.00	6 1.0266	135.52	7159 MUB-PUR	132.00	6 0.9959	131.45
7160 LIAQATPR	132.00	6 1.0170	134.24	7170 AHMDPR.E	132.00	6 0.9839	129.88
7175 RYK-PP	132.00	6 1.0000	132.00	7180 FEROZA	132.00	6 0.9942	131.24
7185 KHANBELA	132.00	6 0.9804	129.41	7190 HAMZA-PP	132.00	6 1.0219	134.88
7200 KHANPUR	132.00	6 1.0252	135.33	7210 MWQRSHIA	132.00	6 1.0106	133.40
7220 R.Y.KHAN	132.00	6 1.0085	133.13	7221 RYK-NEW	132.00	6 1.0406	137.36
7225 R.Y.KHN2	132.00	6 1.0206	134.71	7226 RYK-T	132.00	6 1.0236	135.12
7230 SADIQABD	132.00	6 0.9961	131.49	7235 NAWAZABD	132.00	6 1.0126	133.66
7240 J.D.WALI	132.00	6 0.9664	127.57	7250 MN.KH.RD	132.00	6 1.0203	134.68
7255 WAPDATWN	132.00	6 1.0111	133.46	7260 MN.BS.RD	132.00	6 1.0059	132.77
7265 QASIMBGH	132.00	6 1.0156	134.05	7270 MLN-IND	132.00	6 1.0007	132.09
7271 DUMMY	132.00	6 1.0129	133.70	7272 COCA COLA	132.00	6 1.0007	132.09

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7275	C.T.MILL	132.00	6	0.9973	131.65	7280	MN.VR.RD	132.00	6	1.0160	134.11
7285	QASIMPUR	132.00	6	0.9963	131.51	7287	M.JAILRD	132.00	6	0.9787	129.19
7288	SHUJABAD	132.00	6	0.9335	123.22	7289	JALALPWL	132.00	6	0.9203	121.48
7290	MESCO	132.00	6	0.9729	128.42	7300	KAPCO	132.00	6	1.0490	138.47
7320	GUJRAT.S	132.00	6	1.0027	132.36	7325	LAYYAH	132.00	6	0.9939	131.19
7328	KBGASHER	132.00	6	1.0333	136.40	7330	MZFRGARH	132.00	6	0.9894	130.59
7331	KOTADU-O	132.00	6	1.0450	137.94	7332	N.A.WALI	132.00	6	1.0188	134.48
7333	SHAH.S.DIN	132.00	6	1.0022	132.30	7334	M GARH NEW	132.00	6	0.9936	131.16
7335	KOTSULTAN	132.00	6	1.0064	132.85	7336	KAROR L.E	132.00	6	0.9780	129.10
7340	MEHRKHAS	132.00	6	0.8287	109.38	7350	DMR WALA	132.00	6	0.7916	104.50
7360	JATOIJNB	132.00	6	0.7534	99.455	7370	KHRPRSDT	132.00	6	0.7403	97.722
7395	SHAD.LND	132.00	6	1.0080	133.06	7400	TAUNSA	132.00	6	0.9928	131.05
7435	PARCO	132.00	6	0.9217	121.66	7436	T-PARCO	132.00	6	0.9218	121.68
7440	CHOKMNDA	132.00	6	0.9989	131.85	7441	T-CMUNDA	132.00	6	0.9997	131.97
7442	T-AHTM	132.00	6	1.0197	134.60	7443	AHTM	132.00	6	1.0193	134.55
7450	CHAUBARA	132.00	6	0.9830	129.76	7456	CHOKAZAM	132.00	6	0.9931	131.09
7459	KHANGARH	132.00	6	0.9164	120.97	7460	D.G.KHAN	132.00	6	0.9995	131.94
7462	MDC-DGK	132.00	6	1.0300	135.96	7463	CPC-DGK	132.00	6	1.0160	134.12
7465	KOTCHUTA	132.00	6	0.9839	129.88	7466	T-ATM	132.00	6	0.9925	131.01
7467	ATM	132.00	6	0.9919	130.93	7470	ROJHAN	132.00	6	0.9993	131.90
7580	CMNT.FCT	132.00	6	0.9911	130.82	7590	SKHISRWR	132.00	6	1.0422	137.57
7780	YAZMAN	66.000	6	0.9341	61.650	7781	YAZMAN	132.00	6	1.0081	133.07
7782	MAROOT	132.00	6	1.0088	133.17	7790	MARROT	66.000	6	0.9112	60.141
7800	KOTADDU	66.000	6	1.0135	66.891	7810	KOTSULTN	66.000	6	0.8875	58.575
7811	T-KOTSUL	66.000	6	0.8930	58.935	7820	LAYYAH	66.000	6	0.8903	58.760
7826	KAROR.LH	132.00	6	0.9874	130.34	7831	FATEHPUR	132.00	6	0.9642	127.27
7840	RANGPUR	66.000	6	1.0023	66.151	7842	T-RANGPR	66.000	6	1.0096	66.631
7880	CHAUBARA	66.000	6	1.0279	67.842	7890	NAWANKOT	66.000	6	1.0269	67.775
7891	T.NWANKOT	66.000	6	1.0270	67.783	7909	D.G.KHAN II	132.00	6	1.0052	132.69
7910	D.G.KHAN	66.000	6	1.0014	66.093	7920	KOTCHOTA	66.000	6	0.9605	63.391
7921	JAMPUR	66.000	6	0.9411	62.110	7925	CHOTI	66.000	6	0.9449	62.365
7930	JAMPUR	132.00	6	0.9480	125.13	7933	FAZALPUR	132.00	6	0.9258	122.21
7935	DAJAL	66.000	6	0.9309	61.438	7951	RAJANPUR	132.00	6	0.9215	121.64
7970	AHMDPR.E	66.000	6	1.0479	69.162	7974	UCH.SHRF	132.00	6	0.9800	129.36
7975	UCH (KF)	66.000	6	1.0139	66.914	7977	T-UCHSHF	66.000	6	1.0345	68.276
7981	ALI PUR	132.00	6	0.7437	98.167	7983	HEADRAJK	66.000	6	0.9093	60.015
7984	HEAD-RJ-KN	132.00	6	1.0084	133.11	7996	FORT.MINRO	132.00	6	1.0427	137.64

Realistic June 2016

60301 QADIRABD T-111.000	6 1.0131 11.144	60302 QADIRABD T-211.000	6 0.9645 10.609
60501 BNGAHYAT T-111.000	6 1.0411 11.452	60502 BNGAHYAT T-211.000	6 1.0430 11.473
60801 SAHIWALN T-111.000	6 1.0040 11.044	60802 SAHIWALN T-211.000	6 0.9779 10.757
60901 SAHWAL-O T-111.000	6 0.9827 10.809	60902 SAHWAL-O T-211.000	6 0.9838 10.821
60903 SAHWAL T-3 11.000	6 0.9838 10.821	60951 SWL III T-1 11.000	6 0.9997 10.996
60952 SWL III T-2 11.000	6 0.9997 10.997	61001 NOORPUR T-1 11.000	6 0.9847 10.831
61002 NOORPUR T-2 11.000	6 0.9901 10.891	61201 PAKPATAN T-111.000	6 0.9252 10.177
61202 PAKPATAN T-211.000	6 0.9339 10.273	61203 PAKPATAN T-311.000	6 0.9336 10.270
61301 HARAPPA T-1 11.000	6 0.9681 10.649	61302 HARAPPA T-2 11.000	6 0.9663 10.629
61402 CHCHWTNI T-211.000	6 1.0017 11.018	61403 CHCHWTNI T-311.000	6 0.9757 10.733
61404 CHCHWTNI T-411.000	6 0.9685 10.653	61501 SH.FAZAL T-111.000	6 0.9635 10.599
61502 SH.FAZAL T-211.000	6 0.9794 10.773	61601 BUREWALA T-111.000	6 0.9830 10.813
61602 BUREWALA T-211.000	6 0.9818 10.800	61603 BUREWALA T-311.000	6 0.9694 10.664
61621 BREWLA-O T-111.000	6 0.9547 10.501	61622 BREWLA-O T-211.000	6 0.9948 10.943
61701 VEHARI-O T-111.000	6 0.9991 10.990	61702 VEHARI-O T-211.000	6 0.9914 10.905
61703 VEHARI-T-3 11.000	6 0.9878 10.866	61751 LUDDEN T-1 11.000	6 0.9914 10.905
61752 LUDDEN T-2 11.000	6 0.9888 10.877	61781 KARAMPUR T-111.000	6 0.9732 10.705
61782 KARAMPUR T-211.000	6 0.9761 10.737	61801 ARIFWALA T-111.000	6 1.0206 11.227
61802 ARIFWALA T-211.000	6 1.0152 11.168	61803 ARIFWALA T-311.000	6 1.0152 11.168
61821 KAMIRW T-1 11.000	6 1.0069 11.076	61822 KAMIR W T-2 11.000	6 1.0037 11.040
61901 BWL.NAGR T-111.000	6 0.9876 10.863	61903 BWL.NAGR T-311.000	6 1.0178 11.195
61911 HOTA T-1 11.000	6 0.9861 10.848	62001 QABULA T-1 11.000	6 1.0367 11.404
62002 QABULA T-2 11.000	6 1.0341 11.375	62003 QABULA T-3 11.000	6 1.0153 11.168
62101 SAHUKA T-1 11.000	6 1.0170 11.187	62102 SAHUKA T-2 11.000	6 0.9795 10.775
62202 HASILPUR T-211.000	6 0.9846 10.830	62203 HASILPUR T-311.000	6 0.9909 10.900
62301 CHISTIAN T-111.000	6 1.0191 11.211	62302 CHISTIAN T-211.000	6 1.0427 11.470
62303 CHISTIAN T-311.000	6 0.9988 10.987	62321 DHRANWALA-T111.000	6 0.9565 10.522
62322 DHRANWALA-T211.000	6 0.9565 10.522	64151 CHISTIAN T-211.000	6 0.9845 10.830
64191 L.SOHAN T-1 11.000	6 0.9968 10.965	64211 K.P.TOMI T-111.000	6 0.9556 10.511
64212 K.P.TOMI T-211.000	6 0.9836 10.820	64621 NOORSAR T-1 11.000	6 0.9841 10.825
64622 NOORSAR T-2 11.000	6 1.0120 11.132	64801 MNCHNBAD T-111.000	6 0.8651 9.516
64802 MNCHNBAD T-211.000	6 0.8487 9.335	64901 MCLD.GNJ T-111.000	6 0.8574 9.432
65011 HARONABD T-111.000	6 1.0075 11.082	65012 HARONABD T-211.000	6 1.0137 11.151
65013 HARONABD T-311.000	6 1.0155 11.170	65121 FAQIRWLI-T1 11.000	6 0.9557 10.512
65122 FAQIRWLI-T2 11.000	6 0.9711 10.682	65211 FORTABAS-T1	6 0.9980
65212 FORTABAST-2 11.000	6 1.0040 11.044	70001 MIANCHNU T1 11.000	6 0.9797 10.777
70002 MIANCHNU T-211.000	6 0.9577 10.534	70003 MIANCHNU T-311.000	6 0.9737 10.711

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70011	CHAK-83-T1 11.000	6	1.0132 11.145	70012	CHAK-83-T2 11.000	6	1.0095 11.104
70021	KASSOWAL T-111.000	6	0.9821 10.803	70022	KASOWAL T-2 11.000	6	0.9667 10.633
70061	H SIDNAI T-111.000	6	0.9574 10.531	70062	H SIDNAI T-211.000	6	0.9543 10.497
70101	KACHAKHU T-111.000	6	1.0181 11.199	70102	KACHAKHU T-211.000	6	1.0116 11.127
70103	KACHAKHU T-311.000	6	0.9925 10.917	70202	KHANEWAL T-211.000	6	0.9908 10.899
70203	KHANEWAL T-311.000	6	0.9997 10.996	70204	KHANEWAL T-411.000	6	0.9877 10.864
70301	KABIRWLA T-111.000	6	1.0072 11.079	70302	KABIRWLA T-211.000	6	0.9731 10.704
70303	KABIRWLA T-311.000	6	0.9531 10.484	70321	MP PAHOR T-111.000	6	1.0186 11.205
70322	MP PAHOR T-211.000	6	0.9930 10.923	70401	GARHMORE T-111.000	6	0.9941 10.935
70402	GARHMORE T-211.000	6	0.9698 10.668	70403	T3 11.000	6	0.9623 10.585
70502	JEHANIAN T-111.000	6	1.0111 11.123	70503	JEHANIAN T-211.000	6	0.9872 10.860
70504	JEHANIAN T-311.000	6	0.9347 10.281	70601	CHAK.211 T-111.000	6	1.0056 11.062
70602	CHAK 211 T-211.000	6	0.9761 10.737	70701	MAILSI T-1 11.000	6	0.9700 10.670
70702	MAILSI T-2 11.000	6	1.0056 11.062	70703	MAILSI T-3 11.000	6	0.9719 10.690
70751	MUKHDM.R T-111.000	6	1.0252 11.277	70752	MUKHDM.R T-211.000	6	1.0252 11.277
71101	BASTIMLK T-111.000	6	0.9626 10.588	71102	BASTIMLK T-211.000	6	0.9740 10.714
71103	BASTIMLK T-311.000	6	0.9556 10.512	71151	MIRAN P T-1 11.000	6	0.9860 10.846
71152	MIRAN P T-2 11.000	6	1.0103 11.114	71201	LODHRAN T-1 11.000	6	1.0076 11.084
71202	LODHRAN T-2 11.000	6	0.9334 10.267	71203	LODHRAN T-3 11.000	6	0.9763 10.739
71251	LART-1 11.000	6	0.9715 10.687	71252	LAR T-2 11.000	6	0.9730 10.703
71301	BU.JADID T-111.000	6	0.9599 10.558	71302	BU.JADID T-211.000	6	0.9849 10.834
71401	BHAWALPR T-111.000	6	0.9741 10.715	71402	BHAWALPR T-211.000	6	0.9950 10.945
71403	BHAWALPR T-311.000	6	0.9468 10.414	71451	BP CANTT T-111.000	6	0.9891 10.880
71452	BPCANTT T-2 11.000	6	0.9911 10.902	71471	KARORPCA T-111.000	6	1.0111 11.122
71472	KARORPCA T-211.000	6	0.9467 10.414	71491	DUNYAPUR T-311.000	6	1.0002 11.003
71492	DUNYAPUR T-411.000	6	0.9668 10.635	71501	SAMASATA T-111.000	6	1.0070 11.077
71502	SAMASATA T-211.000	6	1.0032 11.035	71591	MUB-PUR-T1 11.000	6	0.9887 10.875
71592	MUB-PUR-T2 11.000	6	0.9887 10.875	71601	LIAQATPR T-111.000	6	1.0295 11.324
71602	LIAQATPR T-211.000	6	0.9962 10.958	71702	AHMDPR.E T-211.000	6	1.0431 11.474
71703	AHMDPR.E T-311.000	6	1.0007 11.007	71704	AHMDPR.E T-411.000	6	0.9882 10.870
71801	FEROZA T-1 11.000	6	1.0464 11.510	71802	FEROZA T-2 11.000	6	0.9823 10.805
71851	KHANBELA T-111.000	6	0.9563 10.519	72001	KHANPUR T-1 11.000	6	0.9882 10.870
72002	KHANPUR T-2 11.000	6	0.9925 10.918	72003	KHANPUR T-3 11.000	6	0.9910 10.901
72101	MWQRSHIA T-111.000	6	0.9795 10.774	72102	MWQRSHIA T2 11.000	6	0.9699 10.668
72201	R.Y.KHAN T-111.000	6	0.9517 10.469	72202	R.Y.KHAN T-211.000	6	0.9686 10.655
72203	R.Y.KHAN T-311.000	6	0.9758 10.734	72251	R.Y.KHN2 T-111.000	6	1.0072 11.079
72252	R.Y.KHN2 T-211.000	6	0.9999 10.999	72301	SADIQABD T-111.000	6	0.9756 10.731

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72302 SADIQABD T-211.000	6 0.9558 10.513	72303 SADIQABD T-311.000	6 0.9678 10.645
72351 NAWAZ T-1 11.000	6 1.0068 11.074	72352 NAWAZAB T-2 11.000	6 1.0064 11.071
72401 J.D.WALI T-111.000	6 0.8163 8.980	72501 MN.KH.RD T-111.000	6 0.9543 10.497
72502 MN.KH.RD T-211.000	6 0.9588 10.546	72503 MN.KH.RD T-311.000	6 0.9444 10.389
72551 WAP TO T-1 11.000	6 1.0003 11.004	72552 WAPDA TO T-211.000	6 1.0020 11.022
72601 MN.BS.RD T-111.000	6 0.9641 10.605	72602 MN.BS.RD T-211.000	6 1.0028 11.030
72603 MN.BS.RD T-311.000	6 1.0006 11.007	72651 Q BAGH T-1 11.000	6 0.9908 10.899
72652 Q BAGH T-2 11.000	6 1.0066 11.072	72701 MLN-IND T-1 11.000	6 0.9775 10.752
72702 MLN-IND T-2 11.000	6 0.9878 10.866	72703 MLN-IND T-3 11.000	6 0.9742 10.717
72801 MN.VR.RD T-111.000	6 0.9810 10.791	72802 MN.VR.RD T-211.000	6 0.9810 10.791
72803 MN.VR.RD T-311.000	6 1.0016 11.018	72851 QASIMPUR T-111.000	6 0.9698 10.668
72852 QASIMPUR T-211.000	6 0.9904 10.894	72853 QASIMPUR T-311.000	6 0.9781 10.759
72871 M.J RD T-1 11.000	6 1.0434 11.477	72872 M.J.RD T-2 11.000	6 1.0169 11.186
72881 SHUJABAD T-111.000	6 0.9234 10.157	72882 SHUJABAD T-211.000	6 0.9234 10.157
72891 J.P.W T-1 11.000	6 0.8975 9.872	72892 J.P.W T-2 11.000	6 0.9311 10.242
72893 J.P.W T-3 11.000	6 0.9100 10.010	72894 J.P.W T-4 11.000	6 0.9081 9.989
72901 MESCO T-1 11.000	6 0.9324 10.257	72902 MESCO T-2 11.000	6 0.9610 10.571
72903 MESCO T-3 11.000	6 0.9308 10.239	73201 GUJRAT.S T-111.000	6 0.9494 10.443
73202 GUJRAT.S T2 11.000	6 0.9392 10.331	73203 GUJRAT.S T-311.000	6 0.9750 10.725
73251 LAYYAH T-1 11.000	6 1.0050 11.055	73252 LAYYAH T-2 11.000	6 0.9684 10.653
73253 LAYYAH T-3 11.000	6 0.9726 10.699	73281 KBGASHER T-111.000	6 0.9948 10.942
73301 MZFRGARH T-111.000	6 0.9496 10.446	73302 MZFRGARH T-211.000	6 0.9378 10.316
73303 MZFRGARH T-311.000	6 0.9407 10.348	73312 KOTADU-O T-211.000	6 0.9805 10.786
73313 KOTADU-O T-311.000	6 0.9932 10.925	73314 KOTADU-O T-411.000	6 0.9868 10.855
73321 N.A.WALI T-111.000	6 0.9720 10.692	73322 N.A.WALI T-211.000	6 0.9868 10.854
73331 S S DIN T1 11.000	6 1.0174 11.192	73332 S S DIN T2 11.000	6 1.0172 11.189
73351 KOTSULTAN-T111.000	6 0.9739 10.713	73352 KOTSULTAN-T211.000	6 1.0195 11.215
73361 KAROR L.E-T1	6 0.8490	73362 KAROR L.E-T2	6 0.9386
73401 MEHRKHAS T-111.000	6 0.7925 8.718	73402 MEHRKHAS T-211.000	6 0.7857 8.643
73501 DMR WALA T-111.000	6 0.7888 8.677	73502 DMR WALA T-211.000	6 0.7976 8.774
73601 JATOIJNB T-111.000	6 0.6456 7.102	73602 JATOIJNB T-211.000	6 0.7446 8.190
73701 KHRPRSDT T-111.000	6 0.7164 7.880	73951 SHA.LND T-1 11.000	6 0.9691 10.660
73952 SHA LND T-2 11.000	6 0.9784 10.762	74001 TAUNSA T-1 11.000	6 0.9550 10.505
74002 TAUNSA T-2 11.000	6 0.9939 10.933	74401 CHOKMNDA T-111.000	6 0.9821 10.803
74402 CHOKMNDA T-211.000	6 0.9666 10.633	74502 CHAUBARA T-211.000	6 0.9302 10.232
74561 CHOKAZAM T1 11.000	6 1.0089 11.098	74562 CHOKAZAM T2 11.000	6 0.9479 10.427
74591 KHANGARH T-111.000	6 0.7901 8.691	74602 D.G.KHAN T-211.000	6 0.9539 10.493

				Realistic June 2016							
74603	D.G.KHAN T-3	11.000	6	0.9354	10.289	74604	D.G.KHAN T-4	11.000	6	0.9397	10.337
74651	KOTCHUTA T-1	11.000	6	0.9466	10.412	74652	KOTCHUTA T-2	11.000	6	0.9533	10.487
74653	KOTCHUTA T-3	11.000	6	0.9513	10.465	74701	ROJHAN T-1	11.000	6	0.9723	10.696
75901	SKHISRWR T-1	11.000	6	1.0393	11.432	75902	SKHISRWR T-2	11.000	6	1.0218	11.240
77801	YAZMAN T-1	11.000	6	0.9640	10.604	77811	YAZMAN-T-1	11.000	6	0.9814	10.795
77901	MAROOT T-1	11.000	6	0.9790	10.769	77902	MAROOT T-2	11.000	6	0.9500	10.451
78101	KOTSULTN T-1	11.000	6	0.8188	9.006	78102	KOTSULTN T-2	11.000	6	0.7996	8.795
78261	K. L. ESONT	11.000	6	0.9758	10.733	78292	T2	11.000	6	0.9874	10.861
78311	FATEHPUR T-1	11.000	6	0.9214	10.135	78312	FATEPUR T-2	11.000	6	0.9147	10.062
78401	T1	11.000	6	0.9776	10.753	78901	NAWANKOT T-1	11.000	6	1.0318	11.350
79091	D.G.K.II T-1	11.000	6	0.9974	10.971	79092	D.G.K.II T-2	11.000	6	0.9959	10.955
79211	JAMPUR T-1	11.000	6	0.9408	10.349	79251	CHOTI T-1	11.000	6	0.9578	10.535
79301	JAMPUR T-1	11.000	6	0.9200	10.120	79302	JAMPUR T-2	11.000	6	0.9620	10.582
79331	FAZALPUR T-1	11.000	6	0.8577	9.435	79332	FAZALPUR T-2	11.000	6	0.8867	9.753
79351	DAJAL T-1	11.000	6	1.0030	11.033	79511	RAJANPUR T-1	11.000	6	0.8601	9.461
79512	RAJANPUR T-2	11.000	6	0.8961	9.857	79741	UCH.SHRF T-1	11.000	6	1.0006	11.007
79742	UCH.SHRF T-2	11.000	6	1.0262	11.288	79743	UCH.SHRF T-3	11.000	6	0.9883	10.871
79751	UCH (KF) T-1	11.000	6	1.0405	11.446	79811	ALI PUR T-1	11.000	6	0.7689	8.458
79812	ALIPUR T-2	11.000	6	0.7689	8.458	79813	ALIPUR T-3	11.000	6	0.7617	8.379
79831	HEADRAJK T-2	11.000	6	0.9124	10.037	79961	FRT MNRO T-1	11.000	6	1.0407	11.448
732512	LSM-132KV	132.00	6	0.9952	131.37						

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IDEAL
June 2017

With:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0015	132.20	529		PARCO		220.00	6	1.0378	228.32
601		APPOLO-SOLAR		132.00	6	1.0018	132.24	730		SHK-PP-132		132.00	6	1.0424	137.60
801		QAD-SOL-I		132.00	6	1.0201	134.66	1001		CREST-ENERGY		132.00	6	1.0217	134.86
6030		QADIRABD		132.00	6	1.0483	138.37	6050		BNGAHYAT		132.00	6	1.0124	133.64
6070		YOUSFWLA		132.00	6	1.0483	138.37	6080		SAHIWALN		132.00	6	1.0417	137.51
6090		SAHWAL-O		132.00	6	1.0361	136.77	6095		SAHIWAL III		132.00	6	1.0289	135.81
6100		NOORPUR		132.00	6	1.0196	134.59	6120		PAKPATAN		132.00	6	1.0043	132.57
6122		PAK PATTAN-2		132.00	6	1.0007	132.10	6130		HARAPPA		132.00	6	1.0154	134.04
6140		CHCHWTNI		132.00	6	1.0116	133.54	6150		SH.FAZAL		132.00	6	0.9946	131.28
6160		BUREWALA		132.00	6	0.9984	131.79	6162		BREWLA-O		132.00	6	0.9957	131.43
6169		VEHARI-N		132.00	6	1.0248	135.27	6170		VEHARI-O		132.00	6	1.0215	134.84
6175		LUDDEN		132.00	6	1.0091	133.20	6178		KARAMPUR		132.00	6	1.0020	132.27
6180		ARIFWALA		132.00	6	1.0080	133.06	6182		KAMIRWALA		132.00	6	1.0178	134.35
6190		BWL.NAGR		132.00	6	1.0148	133.95	6191		HOTA		132.00	6	1.0086	133.14
6200		QABULA		132.00	6	1.0106	133.40	6210		SAHUKA		132.00	6	0.9869	130.27
6220		HASILPUR		132.00	6	1.0080	133.05	6230		CHISTIAN-O		132.00	6	1.0263	135.47
6231		CHSTAN-N		132.00	6	1.0275	135.63	6232		DHARWALA132		132.00	6	1.0201	134.65
6410		HASILPUR		66.000	6	1.0054	66.357	6415		CHISTIAN		66.000	6	0.9932	65.553
6419		L.SOHANRA		132.00	6	1.0087	133.15	6421		K.P.TOMI		132.00	6	1.0033	132.44
6461		T-NURSAR		66.000	6	0.9935	65.572	6462		NOORSAR		132.00	6	1.0174	134.30
6482		MNCHNBAD		132.00	6	1.0176	134.32	6491		MCLD.GNJ		132.00	6	1.0132	133.74

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6501	HARONABD	132.00	6	1.0063	132.83	6512	FAQIRWLI	132.00	6	0.9941	131.22
6521	FORTABAS	132.00	6	0.9893	130.59	6666	MULTAN-N	132.00	6	1.0437	137.77
7000	MIANCHNU	132.00	6	1.0014	132.18	7001	CHAK-83-132	132.00	6	1.0011	132.14
7002	KASSOWAL	132.00	6	1.0180	134.37	7006	HEAD SIDHNAI	132.00	6	0.9749	128.69
7010	KACHAKHU	132.00	6	0.9862	130.18	7020	KHANEWAL	132.00	6	0.9936	131.16
7029	FAUJI-K	132.00	6	1.0000	132.00	7030	KABIRWLA	132.00	6	0.9940	131.21
7032	MP.PAHOR	132.00	6	0.9864	130.21	7040	GARHMORE	132.00	6	1.0099	133.31
7041	T-GM	132.00	6	1.0105	133.38	7050	JEHANIAN	132.00	6	1.0121	133.59
7055	T-C.211	132.00	6	0.9957	131.43	7060	CHAK.211	132.00	6	0.9925	131.01
7070	MAILSI	132.00	6	0.9929	131.06	7075	MUKHDM.R	132.00	6	1.0196	134.58
7076	F.J HOUSING	132.00	6	1.0408	137.39	7100	P.GAIB-1	132.00	6	1.0451	137.96
7109	P.GAIB-2	132.00	6	1.0484	138.39	7110	BASTIMLK	132.00	6	1.0198	134.62
7115	MIRAN PUR	132.00	6	1.0438	137.78	7120	LODHRAN	132.00	6	1.0337	136.45
7125	LAR	132.00	6	1.0289	135.81	7130	BU.JADID	132.00	6	1.0418	137.52
7138	BWPN-2	132.00	6	1.0398	137.25	7139	B.W.P-N	132.00	6	1.0573	139.56
7140	BHAWALPR	132.00	6	1.0473	138.25	7145	BPUR CANTT	132.00	6	1.0400	137.28
7147	KARORPCA	132.00	6	1.0047	132.62	7149	DUNYAPUR	132.00	6	1.0035	132.46
7150	SAMASATA	132.00	6	1.0349	136.61	7159	MUB-PUR	132.00	6	1.0135	133.78
7160	LIAQATPR	132.00	6	1.0259	135.42	7170	AHMDPR.E	132.00	6	1.0062	132.82
7175	RYK-PP	132.00	6	1.0031	132.42	7180	FEROZA	132.00	6	1.0049	132.65
7185	KHANBELA	132.00	6	0.9922	130.97	7190	HAMZA-PP	132.00	6	1.0305	136.03
7200	KHANPUR	132.00	6	1.0344	136.54	7210	MWQRSHIA	132.00	6	1.0195	134.58
7220	R.Y.KHAN	132.00	6	1.0288	135.80	7221	RYK-NEW	132.00	6	1.0506	138.68
7225	R.Y.KHN2	132.00	6	1.0351	136.63	7226	RYK-T	132.00	6	1.0382	137.04
7230	SADIQABD	132.00	6	1.0170	134.25	7231	WALANA	132.00	6	1.0145	133.91
7235	NAWAZABD	132.00	6	1.0264	135.49	7240	J.D.WALI	132.00	6	1.0001	132.02
7250	MN.KH.RD	132.00	6	1.0415	137.48	7255	WAPDATWN	132.00	6	1.0317	136.18
7260	MN.BS.RD	132.00	6	1.0262	135.46	7261	PUNJAB HOSNG	132.00	6	1.0387	137.10
7262	BUCH VILLAS	132.00	6	1.0247	135.26	7265	QASIMBGH	132.00	6	1.0361	136.77
7270	MLN-IND	132.00	6	1.0213	134.81	7272	COCA COLA	132.00	6	1.0213	134.81
7273	SURAJ MIANI	132.00	6	1.0203	134.68	7275	C.T.MILL	132.00	6	1.0179	134.37
7280	MN.VR.RD	132.00	6	1.0366	136.83	7285	QASIMPUR	132.00	6	1.0257	135.39
7287	M.JAILRD	132.00	6	1.0194	134.57	7288	SHUJABAD	132.00	6	1.0007	132.10
7289	JALALPWL	132.00	6	1.0106	133.40	7290	MESCO	132.00	6	1.0121	133.60
7300	KAPCO	132.00	6	1.0490	138.47	7302	SANAWAN	132.00	6	1.0476	138.29
7303	PIR CHUGI SH	132.00	6	1.0419	137.53	7320	GUJRAT.S	132.00	6	1.0265	135.50
7325	LAYYAH	132.00	6	1.0114	133.50	7328	KBGASHER	132.00	6	1.0312	136.12

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7330	MZFRGARH	132.00	6	1.0332	136.38	7331	KOTADU-O	132.00	6	1.0474	138.26
7332	N.A.WALI	132.00	6	1.0346	136.57	7333	S.S.DIN	132.00	6	1.0251	135.31
7334	M GARH NEW	132.00	6	1.0355	136.69	7335	KOTSULTAN	132.00	6	1.0220	134.90
7336	KAROR L.E	132.00	6	0.9760	128.83	7340	MEHRKHAS	132.00	6	1.0096	133.26
7350	DMR WALA	132.00	6	1.0066	132.87	7360	JATOIJNB	132.00	6	1.0034	132.45
7370	KHRPRSDT	132.00	6	1.0014	132.18	7395	SHAD.LND	132.00	6	1.0213	134.81
7400	TAUNSA	132.00	6	1.0127	133.68	7435	PARCO	132.00	6	0.9856	130.10
7436	T-PARCO	132.00	6	0.9857	130.11	7440	CHOKMNDA	132.00	6	1.0273	135.60
7441	T-CMUNDA	132.00	6	1.0276	135.64	7442	T-AHTM	132.00	6	1.0348	136.60
7443	AHTM	132.00	6	1.0344	136.54	7450	CHAUBARA	132.00	6	1.0032	132.42
7456	CHOKAZAM	132.00	6	1.0049	132.65	7459	KHANGARH	132.00	6	1.0228	135.01
7460	D.G.KHAN	132.00	6	1.0275	135.63	7462	MDC-DGK	132.00	6	1.0428	137.65
7463	CPC-DGK	132.00	6	1.0305	136.03	7465	KOTCHUTA	132.00	6	1.0120	133.59
7466	T-ATM	132.00	6	1.0206	134.71	7467	ATM	132.00	6	1.0199	134.63
7470	ROJHAN	132.00	6	1.0184	134.43	7580	CMNT.FCT	132.00	6	1.0193	134.55
7590	SKHISRWR	132.00	6	1.0428	137.64	7781	YAZMAN	132.00	6	1.0214	134.83
7791	MAROOT	132.00	6	0.9907	130.78	7800	KOTADDU	66.000	6	1.0376	68.483
7811	T-KOTSUL	66.000	6	1.0377	68.490	7831	FATEHPUR	132.00	6	0.9762	128.86
7840	RANGPUR	66.000	6	1.0238	67.571	7842	T-RANGPR	66.000	6	1.0328	68.163
7880	CHAUBARA	66.000	6	1.0510	69.368	7890	NAWANKOT	66.000	6	1.0501	69.305
7891	T.NWANKOT	66.000	6	1.0502	69.312	7909	D.G.KHAN II	132.00	6	1.0280	135.70
7910	D.G.KHAN	66.000	6	1.0481	69.178	7920	KOTCHOTA	66.000	6	1.0253	67.670
7921	JAMPUR	66.000	6	1.0273	67.805	7925	CHOTI	66.000	6	1.0101	66.670
7930	JAMPUR	132.00	6	0.9917	130.91	7933	FAZALPUR	132.00	6	0.9949	131.33
7935	DAJAL	66.000	6	1.0182	67.200	7951	RAJANPUR	132.00	6	0.9844	129.94
7970	AHMDPR.E	66.000	6	1.0483	69.185	7974	UCH.SHRF	132.00	6	1.0001	132.02
7975	UCH (KF)	66.000	6	0.9997	65.983	7977	T-UCHSHF	66.000	6	1.0278	67.837
7981	ALI PUR	132.00	6	1.0021	132.27	7984	HEAD-RJ-KN	132.00	6	1.0182	134.40
7996	FORT.MINRO	132.00	6	1.0433	137.72	60301	QADIRABD T-111.000		6	1.0180	11.198
60302	QADIRABD T-211.000		6	1.0117	11.128	60501	BNGAHYAT T-111.000		6	1.0340	11.374
60502	BNGAHYAT T-211.000		6	1.0417	11.459	60801	SAHIWALN T-111.000		6	1.0036	11.040
60802	SAHIWALN T-211.000		6	1.0028	11.031	60901	SAHWAL-O T-111.000		6	1.0117	11.129
60902	SAHWAL-O T-211.000		6	1.0127	11.140	60903	SAHWAL-O T-311.000		6	0.9905	10.895
60951	SWL III T-1 11.000		6	1.0234	11.257	60952	SWL III T-2 11.000		6	1.0234	11.257
61001	NOORPUR T-1 11.000		6	1.0320	11.352	61002	NOORPUR T-2 11.000		6	1.0320	11.352
61201	PAKPATAN T-111.000		6	1.0273	11.300	61202	PAKPATAN T-211.000		6	1.0273	11.300
61203	PAKPATAN T-311.000		6	1.0254	11.280	61221	PAK PTN T-1 11.000		6	1.0251	11.276

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61222 PAK PTN T-2 11.000	6 1.0364 11.401	61301 HARAPPA T-1 11.000	6 1.0023 11.025
61302 HARAPPA T-2 11.000	6 1.0016 11.018	61381 BWP-2 132.00	6 1.0384 137.06
61401 CHCHWTNI T-1	6 0.9977	61402 CHCHWTNI T-211.000	6 1.0326 11.359
61403 CHCHWTNI T-311.000	6 0.9930 10.923	61501 SH.FAZAL T-111.000	6 1.0009 11.010
61502 SH.FAZAL T-211.000	6 0.9872 10.859	61601 BUREWALA T-111.000	6 1.0175 11.192
61602 BUREWALA T-211.000	6 1.0107 11.118	61603 BUREWALA T-311.000	6 1.0224 11.247
61621 BREWLA-O T-111.000	6 0.9853 10.839	61622 BREWLA-O T-211.000	6 1.0330 11.363
61701 VEHARI-O T-111.000	6 1.0142 11.156	61702 VEHARI-O T-211.000	6 1.0142 11.156
61703 VEHARI-T-3 11.000	6 1.0102 11.112	61751 LUDDEN T-1 11.000	6 1.0093 11.102
61752 LUDDEN T-2 11.000	6 1.0029 11.032	61781 KARAMPUR T-111.000	6 0.9893 10.883
61782 KARAMPUR T-211.000	6 0.9923 10.915	61801 ARIFWALA T-311.000	6 1.0416 11.458
61802 ARIFWALA T-211.000	6 1.0416 11.458	61803 ARIFWALA T-111.000	6 1.0323 11.356
61821 KAMIRW T-1 11.000	6 1.0258 11.283	61822 KAMIR W T-2 11.000	6 1.0258 11.283
61901 BWL.NAGR T-111.000	6 1.0434 11.477	61902 BWL.NAGR T-211.000	6 1.0264 11.291
61903 BWL.NAGR T-311.000	6 1.0434 11.477	61911 HOTA T-1 11.000	6 1.0180 11.199
62001 QABULA T-1 11.000	6 1.0397 11.437	62002 QABULA T-2 11.000	6 1.0370 11.407
62003 QABULA T-3 11.000	6 1.0182 11.200	62101 SAHUKA T-1 11.000	6 1.0517 11.568
62102 SAHUKA T-2 11.000	6 1.0250 11.275	62202 HASILPUR T-211.000	6 1.0125 11.138
62203 HASILPUR T-311.000	6 1.0187 11.205	62301 CHISTIAN T-111.000	6 1.0282 11.310
62302 CHISTIAN T-211.000	6 1.0511 11.562	62303 CHISTIAO T3 11.000	6 1.0259 11.284
62321 DHARANWALA-T111.000	6 0.9868 10.855	62322 DHARANWALA-T211.000	6 0.9868 10.855
64151 CHISTIAN T-211.000	6 1.0037 11.040	64191 L.SOHAN T-1 11.000	6 1.0128 11.140
64211 K.P.TOMI T-111.000	6 0.9984 10.983	64212 K.P.TOMI T-211.000	6 0.9876 10.864
64621 NOORSAR T-1 11.000	6 0.9795 10.774	64821 MNCHNBAD T1 11.000	6 1.0532 11.586
64822 MNCHNBAD T2 11.000	6 1.0001 11.001	64911 MCLD.GNJ T1 11.000	6 1.0653 11.718
64912 MCLD GNG T-2	6 1.0522	65012 HARONABD T-211.000	6 1.0078 11.086
65013 HARONABD T-111.000	6 1.0297 11.326	65014 HARONABD T-311.000	6 0.9826 10.809
65121 FAQIRWLI-T1 11.000	6 1.0021 11.023	65122 FAQIRWLI-T2 11.000	6 1.0021 11.023
65211 FORTABAS-T1	6 1.0460	65212 FORTABAST-2 11.000	6 1.0378 11.416
70001 MIANCHNU T1 11.000	6 0.9982 10.981	70002 MIANCHNU T-211.000	6 0.9757 10.733
70003 MIANCHNU T-311.000	6 0.9921 10.913	70011 CHAK-83-T1 11.000	6 1.0159 11.175
70012 CHAK-83-T2 11.000	6 1.0123 11.135	70021 KASSOWAL T-111.000	6 0.9923 10.915
70022 KASOWAL T-2 11.000	6 0.9716 10.687	70061 H SIDNAI T-111.000	6 0.9892 10.882
70062 H SIDNAI T-211.000	6 0.9830 10.813	70101 KACHAKHU T-111.000	6 1.0112 11.123
70102 KACHAKHU T-211.000	6 1.0047 11.052	70103 KACHAKHU T-311.000	6 1.0047 11.052
70201 KHANEWAL T-111.000	6 0.9895 10.884	70202 KHANEWAL T-211.000	6 0.9764 10.740
70203 KHANEWAL T-311.000	6 0.9851 10.836	70301 KABIRWLA T-111.000	6 0.9939 10.933

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70302 KABIRWLA T-211.000	6 0.9876 10.863	70303 KABIRWLA T-3	6 0.9730
70321 MP PAHOR T-111.000	6 1.0072 11.079	70322 MP PAHOR T-211.000	6 0.9821 10.803
70401 GARHMORE T-111.000	6 1.0297 11.326	70402 GARHMORE T-211.000	6 1.0010 11.011
70501 JEHANIAN T-111.000	6 1.0131 11.144	70502 JEHANIAN T-211.000	6 1.0130 11.143
70503 JEHANIAN T-311.000	6 1.0203 11.223	70601 CHAK.211 T-111.000	6 1.0337 11.371
70602 CHAK 211 T-211.000	6 1.0321 11.353	70603 CHAK 211 T-311.000	6 0.9802 10.782
70701 MAILSI T-1 11.000	6 1.0163 11.179	70702 MAILSI T-2 11.000	6 1.0462 11.508
70703 MAILSI T-3 11.000	6 1.0168 11.184	70751 MUKHDM.R T-111.000	6 1.0078 11.086
70752 MUKHDM.R T-211.000	6 1.0310 11.341	70761 F.J HSNQ T-111.000	6 1.0447 11.492
71101 BASTIMLK T-111.000	6 1.0084 11.093	71102 BASTIMLK T-211.000	6 1.0386 11.425
71103 BASTIMLK T-311.000	6 0.9813 10.794	71151 MIRAN P T-1 11.000	6 1.0279 11.307
71152 MIRAN P T-2 11.000	6 1.0533 11.587	71201 LODHRAN T-1 11.000	6 1.0545 11.600
71202 LODHRAN T-2 11.000	6 1.0498 11.548	71203 LODHRAN T-3 11.000	6 1.0528 11.581
71251 LART-1 11.000	6 1.0168 11.185	71252 LAR T-2 11.000	6 1.0168 11.185
71301 BU.JADID T-111.000	6 1.0383 11.422	71302 BU.JADID T-211.000	6 1.0356 11.392
71401 BHAWALPR T-111.000	6 1.0415 11.456	71402 BHAWALPR T-211.000	6 1.0508 11.559
71403 BHAWALPR T-311.000	6 1.0380 11.418	71451 BP CANTT T-111.000	6 1.0223 11.246
71452 BPCANTT T-2 11.000	6 1.0223 11.246	71471 KARORPCA T-111.000	6 1.0302 11.332
71472 KARORPCA T-211.000	6 1.0282 11.310	71473 KARORPCA T-311.000	6 1.0055 11.060
71491 DUNYAPUR T-311.000	6 1.0327 11.360	71492 DUNYAPUR T-411.000	6 1.0045 11.050
71501 SAMASATA T-111.000	6 1.0127 11.139	71502 SAMASATA T-211.000	6 1.0127 11.139
71591 MUB-PUR-T1 11.000	6 0.9921 10.913	71592 MUB-PUR-T2 11.000	6 0.9921 10.913
71601 LIAQATPR T-111.000	6 1.0190 11.209	71602 LIAQATPR T-211.000	6 1.0254 11.279
71702 AHMDPR.E T-211.000	6 1.0367 11.403	71703 AHMDPR.E T-311.000	6 1.0237 11.260
71704 AHMDPR.E T4 11.000	6 0.9912 10.903	71801 FEROZA T-1 11.000	6 1.0366 11.402
71802 FEROZA T-2 11.000	6 1.0479 11.527	71851 KHANBELA T-111.000	6 1.0126 11.139
71852 KHANBELA T-2	6 0.9707	72001 KHANPUR T-1 11.000	6 0.9966 10.962
72002 KHANPUR T-2 11.000	6 1.0010 11.011	72003 KHANPUR T-3 11.000	6 0.9995 10.994
72101 MWQRSHIA T-111.000	6 0.9986 10.985	72102 MWQRSHIA T2 11.000	6 0.9683 10.651
72201 R.Y.KHAN T-111.000	6 1.0381 11.419	72202 R.Y.KHAN T-211.000	6 1.0381 11.419
72203 R.Y.KHAN T-311.000	6 1.0381 11.419	72251 R.Y.KHN2 T-111.000	6 1.0197 11.217
72252 R.Y.KHN2 T-211.000	6 1.0160 11.176	72301 SADIQABD T-111.000	6 1.0286 11.314
72302 SADIQABD T-211.000	6 1.0286 11.314	72303 SADIQABD T-311.000	6 1.0446 11.491
72311 WALANA T-1 11.000	6 0.9997 10.996	72312 WALANA T-2 11.000	6 0.9997 10.996
72351 NAWAZ T-1 11.000	6 1.0142 11.156	72401 J.D.WALI T-111.000	6 1.0054 11.060
72402 JDWALI T-2 11.000	6 1.0319 11.351	72403 J D WALI T-311.000	6 0.9967 10.964
72501 MN.KH.RD T-111.000	6 1.0521 11.573	72502 MN.KH.RD T-211.000	6 1.0266 11.293

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72503 MN.KH.RD T-311.000	6 1.0312 11.343	72551 WAP TO T-1 11.000	6 0.9943 10.937
72552 WAPDA TO T-211.000	6 1.0006 11.006	72601 MN.BS.RD T-111.000	6 1.0041 11.046
72602 MN.BS.RD T-211.000	6 1.0161 11.178	72603 MN.BS.RD T-311.000	6 1.0132 11.145
72611 PNJB HSG T-111.000	6 1.0528 11.581	72612 PNJB HSG T-211.000	6 1.0528 11.581
72621 BUCH VLS T-111.000	6 1.0510 11.561	72651 Q BAGH T-1 11.000	6 1.0126 11.139
72652 Q BAGH T-2 11.000	6 1.0261 11.287	72701 MLN-IND T-1 11.000	6 0.9980 10.978
72702 MLN-IND T-2 11.000	6 1.0086 11.094	72703 MLN-IND T-3 11.000	6 0.9947 10.942
72731 SURJ MNI T-111.000	6 1.0477 11.525	72732 SURJ MNI T-211.000	6 1.0381 11.419
72801 MN.VR.RD T-111.000	6 1.0307 11.337	72802 MN.VR.RD T-211.000	6 1.0018 11.019
72803 MN.VR.RD T-311.000	6 1.0227 11.250	72851 QASIMPUR T-111.000	6 1.0406 11.447
72852 QASIMPUR T-211.000	6 1.0491 11.540	72853 QASIMPUR T-311.000	6 1.0030 11.033
72871 M.J RD T-1 11.000	6 1.0554 11.610	72872 M.J.RD T-2 11.000	6 1.0411 11.452
72881 SHUJABAD T-111.000	6 1.0341 11.375	72882 SHUJABAD T-211.000	6 1.0272 11.300
72883 SHUJABAD T-311.000	6 0.9866 10.853	72891 J.P.W T-1 11.000	6 1.0415 11.456
72892 J.P.W T-2 11.000	6 1.0386 11.425	72893 J.P.W T-3 11.000	6 1.0035 11.038
72901 MESCO T-1 11.000	6 1.0251 11.276	72902 MESCO T-2 11.000	6 1.0180 11.198
72903 MESCO T-3 11.000	6 1.0157 11.172	73021 SANAWAN T-1 11.000	6 1.0429 11.472
73022 SANAWAN T-2 11.000	6 1.0242 11.266	73031 PIR CHGI T-111.000	6 1.0255 11.280
73032 PIR CHGI T-211.000	6 0.9867 10.854	73201 GUJRAT.S T1 11.000	6 0.9905 10.895
73202 GUJRAT.S T3 11.000	6 0.9954 10.950	73203 GUJRAT.S T2 11.000	6 0.9803 10.784
73251 LAYYAH T-1 11.000	6 1.0298 11.328	73252 LAYYAH T-2 11.000	6 0.9929 10.922
73253 LAYYAH T-3 11.000	6 0.9641 10.605	73281 KBGASHER T-111.000	6 0.9919 10.911
73282 KBGASHER T-211.000	6 0.9909 10.899	73301 MZFRGARH T-111.000	6 1.0479 11.527
73302 MZFRGARH T-211.000	6 1.0271 11.298	73303 MZFRGARH T-311.000	6 1.0179 11.197
73312 KOTADU-O T-211.000	6 0.9931 10.924	73313 KOTADU-O T-311.000	6 1.0004 11.004
73314 KOTADU-O T-411.000	6 0.9994 10.994	73321 N.A.WALI T-211.000	6 0.9904 10.894
73322 N.A.WALI T-111.000	6 1.0132 11.145	73331 S S DIN T1 11.000	6 1.0410 11.451
73332 S S DIN T2 11.000	6 1.0142 11.156	73351 KOTSULTAN-T111.000	6 0.9960 10.957
73352 KOTSULTAN-T211.000	6 1.0147 11.162	73361 KAROR L.E-T111.000	6 0.9803 10.783
73362 KAROR L.E-T2	6 0.9660	73363 KAROR L.E.T3	6 0.9789
73401 MEHRKHAS T-111.000	6 1.0372 11.409	73402 MEHRKHAS T-211.000	6 1.0235 11.258
73403 MEHRKHAS T-3	6 1.0227	73501 DMR WALA T-111.000	6 1.0100 11.110
73502 DMR WALA T-211.000	6 1.0216 11.238	73601 JATOIJNB T-111.000	6 1.0329 11.362
73602 JATOIJNB T-211.000	6 0.9989 10.988	73701 KHRPRSDT T-111.000	6 1.0516 11.568
73702 KHRPRSDT T-2 11.000	6 0.9905 10.896	73951 SHA.LND T-1 11.000	6 0.9935 10.928
73952 SHA LND T-2 11.000	6 0.9799 10.779	74001 TAUNSA T-1 11.000	6 0.9738 10.712
74002 TAUNSA T-2 11.000	6 1.0160 11.176	74401 CHOKMNDA T-111.000	6 1.0324 11.357

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74402 CHOKMNDA T-211.000	6 0.9916 10.908	74502 CHAUBARA T-211.000	6 0.9616 10.578
74561 CHOKAZAM T2 11.000	6 1.0191 11.210	74562 CHOKAZAM T1 11.000	6 0.9671 10.638
74591 KHANGARH T-111.000	6 1.0070 11.077	74592 KHANGARH T-211.000	6 0.9823 10.805
74602 D.G.KHAN T-211.000	6 0.9960 10.956	74603 D.G.KHAN T-311.000	6 0.9777 10.755
74604 D.G.KHAN T-411.000	6 0.9822 10.804	74651 KOTCHUTA T-111.000	6 0.9875 10.862
74652 KOTCHUTA T-211.000	6 1.0082 11.091	74653 KOTCHUTTA T311.000	6 0.9794 10.774
74701 ROJHAN T-1 11.000	6 0.9916 10.908	75901 SKHISRWR T-111.000	6 1.0435 11.478
75902 SKISRWR T-2 11.000	6 1.0226 11.248	77811 YAZMAN-T-1 11.000	6 1.0056 11.061
77812 YAZMAN T-2 11.000	6 1.0056 11.061	77911 MAROOT T1 11.000	6 1.0222 11.244
77912 MAROOT T-2 11.000	6 1.0158 11.173	78311 FATEHPUR T-111.000	6 0.9890 10.879
78312 FATEPUR T-2 11.000	6 0.9767 10.744	78401 T1 11.000	6 1.0088 11.097
78901 NAWANKOT T-111.000	6 1.0421 11.463	79091 D.G.K.II T-111.000	6 0.9925 10.918
79092 D.G.K.II T-211.000	6 0.9925 10.918	79211 JAMPUR T-1 11.000	6 1.0246 11.271
79251 CHOTI T-1 11.000	6 1.0292 11.321	79301 JAMPUR T-1 11.000	6 0.9743 10.717
79302 JAMPUR T-2 11.000	6 0.9876 10.863	79331 FAZALPUR T-111.000	6 0.9670 10.637
79332 FAZALPUR T-211.000	6 0.9689 10.658	79351 DAJAL T-1 11.000	6 1.0430 11.473
79352 DAJAL T-2 11.000	6 1.0430	79511 RAJANPUR T-111.000	6 1.0088 11.097
79512 RAJANPUR T-211.000	6 0.9845 10.830	79513 RAJANPUR T-3 11.000	6 0.9668
79741 UCH.SHRF T-211.000	6 1.0234 11.258	79742 UCH.SHRF T-311.000	6 1.0495 11.545
79743 UCH.SHRF T-111.000	6 1.0255 11.280	79751 UCH (KF) T-111.000	6 1.0134 11.148
79811 ALI PUR T-1 11.000	6 1.0082 11.090	79812 ALIPUR T-2 11.000	6 1.0408 11.448
79813 ALIPUR T-3 11.000	6 1.0491 11.541	79841 H.R. KAN T1 11.000	6 1.0269 11.296
79842 H.R.KAN T-2 11.000	6 1.0003 11.003	79961 FRT MNRO T-111.000	6 1.0413 11.454
613811 BWP-2 T-1 11.000	6 1.0094 11.103	613812 BWP-2 T-2 11.000	6 1.0094 11.103
732512 LSM-132KV 132.00	6 1.0114 133.51		

Without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

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BUS#	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)
401	BEST-GREEN	132.00	6	1.0000	132.00
601	APPOLO-SOLAR	132.00	6	1.0002	132.03
801	QAD-SOL-I	132.00	6	1.0097	133.28
6030	QADIRABD	132.00	6	1.0442	137.83
6070	YOUSFWLA	132.00	6	1.0404	137.34
6090	SAHWAL-O	132.00	6	1.0274	135.62
6100	NOORPUR	132.00	6	1.0104	133.37
6122	PAK PATTAN-2	132.00	6	0.9491	125.28
6140	CHCHWTNI	132.00	6	0.9958	131.45
6160	BUREWALA	132.00	6	0.9575	126.40
6169	VEHARI-N	132.00	6	0.9997	131.96
6175	LUDDEN	132.00	6	0.9836	129.83
6180	ARIFWALA	132.00	6	0.9579	126.44
6190	BWL.NAGR	132.00	6	0.9569	126.30
6200	QABULA	132.00	6	0.9448	124.71
6220	HASILPUR	132.00	6	0.9838	129.86
6231	CHSTAN-N	132.00	6	0.9913	130.86
6410	HASILPUR	66.000	6	0.9809	64.741
6419	L.SOHANRA	132.00	6	0.9942	131.23
6461	T-NURSAR	66.000	6	0.9685	63.918
6482	MNCHNBAD	132.00	6	0.9363	123.59
6501	HARONABD	132.00	6	0.9679	127.76
6521	FORTABAS	132.00	6	0.9470	125.01
7000	MIANCHNU	132.00	6	0.9878	130.39
7002	KASSOWAL	132.00	6	1.0038	132.51
7010	KACHAKHU	132.00	6	0.9756	128.78
7029	FAUJI-K	132.00	6	1.0000	132.00
7032	MP.PAHOR	132.00	6	0.9786	129.17
7041	T-GM	132.00	6	0.9899	130.66
7055	T-C.211	132.00	6	0.9780	129.09
7070	MAILSI	132.00	6	0.9748	128.68
7076	F.J HOUSING	132.00	6	1.0309	136.08
7109	P.GAIB-2	132.00	6	1.0399	137.26
7115	MIRAN PUR	132.00	6	1.0363	136.80
7125	LAR	132.00	6	1.0205	134.70

BUS#	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)
529	PARCO	220.00	6	1.0378	228.32
730	SHK-PP-132	132.00	6	1.0406	137.36
1001	CREST-ENERGY	132.00	6	1.0116	133.53
6050	BNGAHYAT	132.00	6	1.0066	132.88
6080	SAHIWALN	132.00	6	1.0341	136.50
6095	SAHIWAL III	132.00	6	1.0200	134.64
6120	PAKPATAN	132.00	6	0.9947	131.30
6130	HARAPPA	132.00	6	1.0030	132.39
6150	SH.FAZAL	132.00	6	0.9640	127.24
6162	BREWLA-O	132.00	6	0.9502	125.42
6170	VEHARI-O	132.00	6	0.9956	131.42
6178	KARAMPUR	132.00	6	0.9761	128.85
6182	KAMIRWALA	132.00	6	0.9817	129.59
6191	HOTA	132.00	6	0.9536	125.87
6210	SAHUKA	132.00	6	0.9401	124.09
6230	CHISTIAN-O	132.00	6	0.9891	130.55
6232	DHARWALA132	132.00	6	0.9834	129.80
6415	CHISTIAN	66.000	6	0.9682	63.899
6421	K.P.TOMI	132.00	6	0.9842	129.92
6462	NOORSAR	132.00	6	0.9694	127.96
6491	MCLD.GNJ	132.00	6	0.9308	122.87
6512	FAQIRWLI	132.00	6	0.9535	125.86
6666	MULTAN-N	132.00	6	1.0377	136.97
7001	CHAK-83-132	132.00	6	0.9893	130.59
7006	HEAD SIDHNAI	132.00	6	0.9669	127.63
7020	KHANEWAL	132.00	6	0.9867	130.24
7030	KABIRWLA	132.00	6	0.9863	130.19
7040	GARMORE	132.00	6	0.9893	130.59
7050	JEHANIAN	132.00	6	0.9960	131.47
7060	CHAK.211	132.00	6	0.9745	128.63
7075	MUKHDM.R	132.00	6	1.0063	132.83
7100	P.GAIB-1	132.00	6	1.0393	137.19
7110	BASTIMLK	132.00	6	1.0115	133.52
7120	LODHRAN	132.00	6	1.0273	135.60
7130	BU.JADID	132.00	6	1.0363	136.79

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7138 BWPN-2	132.00	6 1.0468	138.18	7139 B.W.P-N	132.00	6 1.0525	138.93
7140 BHAWALPR	132.00	6 1.0418	137.52	7145 BPUR CANTT	132.00	6 1.0328	136.33
7147 KARORPCA	132.00	6 0.9888	130.52	7149 DUNYAPUR	132.00	6 0.9872	130.32
7150 SAMASATA	132.00	6 1.0413	137.45	7159 MUB-PUR	132.00	6 1.0194	134.55
7160 LIAQATPR	132.00	6 1.0271	135.58	7170 AHMDPR.E	132.00	6 1.0117	133.54
7175 RYK-PP	132.00	6 1.0046	132.61	7180 FEROZA	132.00	6 1.0063	132.84
7185 KHANBELA	132.00	6 0.9936	131.15	7190 HAMZA-PP	132.00	6 1.0308	136.06
7200 KHANPUR	132.00	6 1.0341	136.50	7210 MWQRSHIA	132.00	6 1.0192	134.53
7220 R.Y.KHAN	132.00	6 1.0273	135.61	7221 RYK-NEW	132.00	6 1.0497	138.56
7225 R.Y.KHN2	132.00	6 1.0339	136.47	7226 RYK-T	132.00	6 1.0370	136.88
7230 SADIQABD	132.00	6 1.0164	134.16	7231 WALANA	132.00	6 1.0141	133.87
7235 NAWAZABD	132.00	6 1.0260	135.43	7240 J.D.WALI	132.00	6 0.9993	131.91
7250 MN.KH.RD	132.00	6 1.0353	136.66	7255 WAPDATWN	132.00	6 1.0251	135.31
7260 MN.BS.RD	132.00	6 1.0192	134.54	7261 PUNJAB HOSNG	132.00	6 1.0321	136.24
7265 QASIMBGH	132.00	6 1.0301	135.97	7270 MLN-IND	132.00	6 1.0155	134.05
7272 COCA COLA	132.00	6 1.0155	134.05	7273 SURAJ MIANI	132.00	6 1.0145	133.91
7275 C.T.MILL	132.00	6 1.0122	133.60	7280 MN.VR.RD	132.00	6 1.0305	136.03
7285 QASIMPUR	132.00	6 1.0194	134.56	7287 M.JAILRD	132.00	6 1.0135	133.78
7288 SHUJABAD	132.00	6 0.9905	130.75	7289 JALALPWL	132.00	6 1.0022	132.29
7290 MESCO	132.00	6 1.0058	132.76	7300 KAPCO	132.00	6 1.0490	138.47
7320 GUJRAT.S	132.00	6 1.0231	135.05	7325 LAYYAH	132.00	6 0.9997	131.95
7328 KBGASHER	132.00	6 1.0293	135.87	7330 MZFRGARH	132.00	6 1.0282	135.72
7331 KOTADU-O	132.00	6 1.0470	138.20	7332 N.A.WALI	132.00	6 1.0341	136.51
7333 S.S.DIN	132.00	6 1.0220	134.90	7334 M GARH NEW	132.00	6 1.0305	136.03
7335 KOTSULTAN	132.00	6 1.0138	133.82	7336 KAROR L.E	132.00	6 0.9567	126.28
7340 MEHRKHAS	132.00	6 0.9997	131.97	7350 DMR WALA	132.00	6 0.9956	131.42
7360 JATOIJNB	132.00	6 0.9903	130.72	7370 KHRPRS DT	132.00	6 0.9878	130.40
7395 SHAD.LND	132.00	6 1.0210	134.78	7400 TAUNSA	132.00	6 1.0124	133.63
7435 PARCO	132.00	6 0.9833	129.79	7436 T-PARCO	132.00	6 0.9834	129.80
7440 CHOKMNDA	132.00	6 1.0220	134.90	7441 T-CMUNDA	132.00	6 1.0224	134.95
7442 T-AHTM	132.00	6 1.0320	136.22	7443 AHTM	132.00	6 1.0316	136.17
7450 CHAUBARA	132.00	6 0.9949	131.32	7456 CHOKAZAM	132.00	6 0.9939	131.20
7459 KHANGARH	132.00	6 1.0157	134.08	7460 D.G.KHAN	132.00	6 1.0244	135.22
7462 MDC-DGK	132.00	6 1.0400	137.29	7463 CPC-DGK	132.00	6 1.0275	135.62
7465 KOTCHUTA	132.00	6 1.0087	133.15	7466 T-ATM	132.00	6 1.0174	134.29
7467 ATM	132.00	6 1.0167	134.21	7470 ROJHAN	132.00	6 1.0174	134.29
7580 CMNT.FCT	132.00	6 1.0161	134.13	7590 SKHISRWR	132.00	6 1.0399	137.26

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7781 YAZMAN	132.00	6 1.0179	134.36	7791 MAROOT	132.00	6 0.9866	130.24
7800 KOTADDU	66.000	6 1.0372	68.453	7811 T-KOTSUL	66.000	6 1.0373	68.461
7831 FATEHPUR	132.00	6 0.9561	126.20	7840 RANGPUR	66.000	6 1.0233	67.537
7842 T-RANGPR	66.000	6 1.0323	68.133	7880 CHAUBARA	66.000	6 1.0435	68.868
7890 NAWANKOT	66.000	6 1.0425	68.803	7891 T.NWANKOT	66.000	6 1.0426	68.810
7909 D.G.KHAN II	132.00	6 1.0249	135.29	7910 D.G.KHAN	66.000	6 1.0445	68.939
7920 KOTCHOTA	66.000	6 1.0212	67.398	7921 JAMPUR	66.000	6 1.0231	67.528
7925 CHOTI	66.000	6 1.0058	66.381	7930 JAMPUR	132.00	6 0.9886	130.50
7933 FAZALPUR	132.00	6 0.9923	130.98	7935 DAJAL	66.000	6 1.0139	66.917
7951 RAJANPUR	132.00	6 0.9821	129.63	7970 AHMDPR.E	66.000	6 1.0542	69.578
7974 UCH. SHRF	132.00	6 1.0054	132.71	7975 UCH (KF)	66.000	6 1.0059	66.386
7977 T-UCHSHF	66.000	6 1.0339	68.236	7981 ALI PUR	132.00	6 0.9886	130.49
7984 HEAD-RJ-KN	132.00	6 1.0146	133.92	7996 FORT.MINRO	132.00	6 1.0404	137.33
60301 QADIRABD T-111.000		6 1.0134	11.147	60302 QADIRABD T-211.000		6 1.0070	11.077
60501 BNGAHYAT T-111.000		6 1.0164	11.180	60502 BNGAHYAT T-211.000		6 1.0350	11.386
60801 SAHIWALN T-111.000		6 0.9793	10.772	60802 SAHIWALN T-211.000		6 0.9857	10.842
60901 SAHWAL-O T-111.000		6 1.0021	11.023	60902 SAHWAL-O T-211.000		6 1.0031	11.034
60903 SAHWAL-O T-311.000		6 0.9810	10.791	60951 SWL III T-1 11.000		6 1.0143	11.157
60952 SWL III T-2 11.000		6 1.0143	11.157	61001 NOORPUR T-1 11.000		6 1.0090	11.098
61002 NOORPUR T-2 11.000		6 1.0148	11.163	61201 PAKPATAN T-111.000		6 1.0160	11.176
61202 PAKPATAN T-211.000		6 1.0160	11.176	61203 PAKPATAN T-311.000		6 1.0142	11.156
61221 PAK PTN T-1 11.000		6 0.9657	10.623	61222 PAK PTN T-2 11.000		6 0.9768	10.744
61301 HARAPPA T-1 11.000		6 0.9763	10.740	61302 HARAPPA T-2 11.000		6 0.9763	10.740
61401 CHCHWTNI T-1		6 0.9805		61402 CHCHWTNI T-211.000		6 1.0147	11.162
61403 CHCHWTNI T-311.000		6 0.9756	10.732	61501 SH.FAZAL T-111.000		6 0.9655	10.621
61502 SH.FAZAL T-211.000		6 0.9522	10.474	61601 BUREWALA T-111.000		6 0.9619	10.581
61602 BUREWALA T-211.000		6 0.9610	10.571	61603 BUREWALA T-311.000		6 0.9488	10.437
61621 BREWLA-O T-111.000		6 0.9371	10.308	61622 BREWLA-O T-211.000		6 0.9767	10.744
61701 VEHARI-O T-111.000		6 0.9833	10.816	61702 VEHARI-O T-211.000		6 0.9755	10.730
61703 VEHARI-T-3 11.000		6 0.9722	10.694	61751 LUDDEN T-1 11.000		6 0.9810	10.791
61752 LUDDEN T-2 11.000		6 0.9748	10.723	61781 KARAMPUR T-111.000		6 0.9605	10.566
61782 KARAMPUR T-211.000		6 0.9636	10.599	61801 ARIFWALA T-311.000		6 0.9592	10.551
61802 ARIFWALA T-211.000		6 0.9592	10.551	61803 ARIFWALA T-111.000		6 0.9646	10.610
61821 KAMIRW T-1 11.000		6 0.9875	10.862	61822 KAMIR W T-2 11.000		6 0.9875	10.862
61901 BWL.NAGR T-111.000		6 0.9608	10.569	61903 BWL.NAGR T-311.000		6 0.9608	10.569
61911 HOTA T-1 11.000		6 0.9585	10.544	62001 QABULA T-1 11.000		6 0.9653	10.618
62002 QABULA T-2 11.000		6 0.9625	10.587	62003 QABULA T-3 11.000		6 0.9448	10.393

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62101 SAHUKA T-1 11.000	6 0.9975 10.973	62102 SAHUKA T-2 11.000	6 0.9720 10.692
62202 HASILPUR T-211.000	6 0.9856 10.841	62203 HASILPUR T-311.000	6 0.9917 10.909
62301 CHISTIAN T-111.000	6 0.9870 10.857	62302 CHISTIAN T-211.000	6 1.0092 11.101
62303 CHISTIAO T3 11.000	6 0.9673 10.641	62321 DHRANWALA-T111.000	6 0.9473 10.421
62322 DHRANWALA-T211.000	6 0.9473 10.421	64151 CHISTIAN T-211.000	6 0.9756 10.732
64191 L.SOHAN T-1 11.000	6 0.9969 10.966	64211 K.P.TOMI T-111.000	6 0.9770 10.747
64212 K.P.TOMI T-211.000	6 0.9661 10.627	64621 NOORSAR T-1 11.000	6 0.9242 10.166
64821 MNCHNBAD T1 11.000	6 0.9660 10.626	64822 MNCHNBAD-T-211.000	6 0.9170 10.087
64911 MCLD.GNJ T1 11.000	6 0.9749 10.723	64912 MCLD GNG T-2	6 0.9629
65012 HARONABD T-211.000	6 0.9666 10.632	65013 HARONABD T-111.000	6 0.9877 10.864
65014 HARONABD T-311.000	6 0.9422 10.364	65121 FAQIRWLI-T1 11.000	6 0.9554 10.510
65122 FAQIRWLI-T2 11.000	6 0.9554 10.510	65211 FORTABAS-T1	6 1.0137
65212 FORTABAST-2 11.000	6 0.9890 10.879	70001 MIANCHNU T1 11.000	6 0.9832 10.815
70002 MIANCHNU T-211.000	6 0.9610 10.571	70003 MIANCHNU T-311.000	6 0.9772 10.749
70011 CHAK-83-T1 11.000	6 1.0023 11.026	70012 CHAK-83-T2 11.000	6 0.9988 10.987
70021 KASSOWAL T-111.000	6 0.9776 10.754	70022 KASOWAL T-2 11.000	6 0.9563 10.520
70061 H SIDNAI T-111.000	6 0.9607 10.567	70062 H SIDNAI T-211.000	6 0.9570 10.527
70101 KACHAKHU T-111.000	6 0.9988 10.987	70102 KACHAKHU T-211.000	6 0.9924 10.916
70103 KACHAKHU T-311.000	6 0.9736 10.709	70201 KHANEWAL T-111.000	6 0.9613 10.575
70202 KHANEWAL T-211.000	6 0.9700 10.670	70203 KHANEWAL T-311.000	6 0.9585 10.543
70301 KABIRWLA T-111.000	6 0.9851 10.836	70302 KABIRWLA T-211.000	6 0.9788 10.767
70303 KABIRWLA T-3	6 0.9644	70321 MP PAHOR T-111.000	6 0.9991 10.990
70322 MP PAHOR T-211.000	6 0.9742 10.717	70401 GARHMORE T-111.000	6 1.0066 11.073
70402 GARHMORE T-211.000	6 0.9785 10.763	70501 JEHANIAN T-111.000	6 0.9948 10.943
70502 JEHANIAN T-211.000	6 0.9947 10.942	70503 JEHANIAN T-311.000	6 1.0020 11.022
70601 CHAK.211 T-111.000	6 1.0158 11.174	70602 CHAK 211 T-211.000	6 0.9824 10.806
70701 MAILSI T-1 11.000	6 0.9857 10.843	70702 MAILSI T-2 11.000	6 1.0159 11.175
70703 MAILSI T-3 11.000	6 0.9794 10.773	70751 MUKHDM.R T-111.000	6 0.9929 10.922
70752 MUKHDM.R T-211.000	6 1.0165 11.182	70761 F.J HSNG T-111.000	6 1.0209 11.230
71101 BASTIMLK T-111.000	6 0.9990 10.989	71102 BASTIMLK T-211.000	6 1.0291 11.320
71103 BASTIMLK T-311.000	6 0.9721 10.693	71151 MIRAN P T-1 11.000	6 1.0202 11.222
71152 MIRAN P T-2 11.000	6 1.0454 11.499	71201 LODHRAN T-1 11.000	6 1.0469 11.516
71202 LODHRAN T-2 11.000	6 1.0421 11.464	71203 LODHRAN T-3 11.000	6 1.0452 11.497
71251 LART-1 11.000	6 1.0082 11.090	71252 LAR T-2 11.000	6 1.0082 11.090
71301 BU.JADID T-111.000	6 1.0322 11.354	71302 BU.JADID T-211.000	6 1.0589 11.648
71401 BHAWALPR T-111.000	6 1.0352 11.387	71402 BHAWALPR T-211.000	6 1.0445 11.489
71403 BHAWALPR T-311.000	6 1.0317 11.348	71451 BP CANTT T-111.000	6 1.0149 11.164

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71452 BPCANTT T-2 11.000	6 1.0149 11.164	71471 KARORPCA T-111.000	6 1.0484 11.533
71472 KARORPCA T-211.000	6 1.0099 11.109	71473 KARORPCA T-311.000	6 0.9687 10.655
71491 DUNYAPUR T-311.000	6 1.0080 11.088	71492 DUNYAPUR T-411.000	6 0.9804 10.784
71501 SAMASATA T-111.000	6 1.0191 11.210	71502 SAMASATA T-211.000	6 1.0191 11.210
71591 MUB-PUR-T1 11.000	6 0.9982 10.981	71592 MUB-PUR-T2 11.000	6 0.9982 10.981
71601 LIAQATPR T-111.000	6 1.0200 11.220	71602 LIAQATPR T-211.000	6 1.0264 11.291
71702 AHMDPR.E T-211.000	6 1.0425 11.467	71703 AHMDPR.E T-311.000	6 1.0294 11.324
71704 AHMDPR.E T4 11.000	6 0.9696 10.666	71801 FEROZA T-1 11.000	6 1.0294 11.324
71802 FEROZA T-2 11.000	6 1.0294 11.324	71851 KHANBELA T-111.000	6 1.0139 11.153
71852 KHANBELA T-2	6 0.9588	72001 KHANPUR T-1 11.000	6 0.9961 10.957
72002 KHANPUR T-2 11.000	6 1.0005 11.005	72003 KHANPUR T-3 11.000	6 0.9990 10.989
72101 MWQRSHIA T-111.000	6 0.9978 10.976	72102 MWQRSHIA T2 11.000	6 0.9535 10.489
72201 R.Y.KHAN T-111.000	6 1.0361 11.397	72202 R.Y.KHAN T-211.000	6 1.0267 11.293
72203 R.Y.KHAN T-311.000	6 1.0267 11.293	72251 R.Y.KHN2 T-111.000	6 1.0181 11.199
72252 R.Y.KHN2 T-211.000	6 1.0145 11.159	72301 SADIQABD T-111.000	6 1.0275 11.302
72302 SADIQABD T-211.000	6 1.0275 11.302	72303 SADIQABD T-311.000	6 1.0435 11.479
72311 WALANA T-1 11.000	6 1.0334 11.367	72312 WALANA T-2 11.000	6 1.0334 11.367
72351 NAWAZ T-1 11.000	6 1.0137 11.151	72401 J.D.WALI T-111.000	6 1.0042 11.047
72402 JDWALI T-2 11.000	6 1.0306 11.337	72403 J D WALI T-311.000	6 0.9955 10.950
72501 MN.KH.RD T-111.000	6 1.0448 11.493	72502 MN.KH.RD T-211.000	6 1.0194 11.214
72503 MN.KH.RD T-311.000	6 1.0240 11.264	72551 WAP TO T-1 11.000	6 0.9871 10.858
72552 WAPDA TO T-211.000	6 0.9933 10.926	72601 MN.BS.RD T-111.000	6 0.9921 10.913
72602 MN.BS.RD T-211.000	6 1.0042 11.046	72603 MN.BS.RD T-311.000	6 1.0011 11.012
72611 PNJB HSG T-111.000	6 1.0330 11.363	72612 PNJB HSG T-211.000	6 1.0330 11.363
72651 Q BAGH T-1 11.000	6 1.0062 11.069	72652 Q BAGH T-2 11.000	6 1.0196 11.216
72701 MLN-IND T-1 11.000	6 0.9916 10.908	72702 MLN-IND T-2 11.000	6 1.0022 11.024
72703 MLN-IND T-3 11.000	6 0.9884 10.872	72731 SURJ MNI T-111.000	6 1.0415 11.456
72732 SURJ MNI T-211.000	6 1.0319 11.351	72801 MN.VR.RD T-111.000	6 1.0236 11.259
72802 MN.VR.RD T-211.000	6 0.9948 10.943	72803 MN.VR.RD T-311.000	6 1.0157 11.172
72851 QASIMPUR T-111.000	6 1.0332 11.365	72852 QASIMPUR T-211.000	6 1.0417 11.459
72853 QASIMPUR T-311.000	6 0.9958 10.954	72871 M.J RD T-1 11.000	6 1.0422 11.464
72872 M.J.RD T-2 11.000	6 1.0345 11.379	72881 SHUJABAD T-111.000	6 0.9874 10.861
72882 SHUJABAD T-211.000	6 0.9874 10.861	72891 J.P.W T-1 11.000	6 1.0230 11.253
72892 J.P.W T-2 11.000	6 1.0205 11.225	72893 J.P.W T-3 11.000	6 0.9951 10.946
72901 MESCO T-1 11.000	6 1.0177 11.195	72902 MESCO T-2 11.000	6 1.0107 11.117
72903 MESCO T-3 11.000	6 1.0083 11.092	73201 GUJRAT.S T1 11.000	6 0.9560 10.515
73202 GUJRAT.S T3 11.000	6 0.9868 10.855	73203 GUJRAT.S T2 11.000	6 0.9454 10.399

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73251 LAYYAH T-1 11.000	6 0.9949 10.944	73252 LAYYAH T-2 11.000	6 0.9574 10.531
73253 LAYYAH T-3 11.000	6 0.9278 10.206	73281 KBGASHER T-111.000	6 0.9778 10.756
73282 KBGASHER T-211.000	6 0.9778 10.756	73301 MZFRGARH T-111.000	6 1.0419 11.461
73302 MZFRGARH T-211.000	6 1.0212 11.233	73303 MZFRGARH T-311.000	6 1.0120 11.132
73312 KOTADU-O T-211.000	6 0.9760 10.736	73313 KOTADU-O T-311.000	6 0.9825 10.808
73314 KOTADU-O T-411.000	6 0.9823 10.805	73321 N.A.WALI T-211.000	6 0.9896 10.886
73322 N.A.WALI T-111.000	6 1.0124 11.137	73331 S S DIN T1 11.000	6 1.0377 11.415
73332 S S DIN T2 11.000	6 1.0110 11.121	73351 KOTSULTAN-T111.000	6 0.9875 10.862
73352 KOTSULTAN-T211.000	6 1.0060 11.066	73361 KAROR L.E-T111.000	6 0.9247 10.171
73362 KAROR L.E-T2	6 0.9064	73401 MEHRKHAS T-111.000	6 0.9836 10.819
73402 MEHRKHAS T-211.000	6 0.9691 10.660	73501 DMR WALA T-111.000	6 0.9979 10.976
73502 DMR WALA T-211.000	6 1.0093 11.102	73601 JATOIJNB T-111.000	6 0.9786 10.765
73602 JATOIJNB T-211.000	6 0.9831 10.814	73701 KHRPRSDT T-111.000	6 1.0319 11.351
73951 SHA.LND T-1 11.000	6 0.9930 10.923	73952 SHA LND T-2 11.000	6 0.9795 10.774
74001 TAUNSA T-1 11.000	6 0.9731 10.704	74002 TAUNSA T-2 11.000	6 1.0153 11.169
74401 CHOKMNDA T-111.000	6 0.9992 10.992	74402 CHOKMNDA T-211.000	6 0.9545 10.499
74502 CHAUBARA T-211.000	6 0.9520 10.472	74561 CHOKAZAM T2 11.000	6 0.9928 10.921
74562 CHOKAZAM T1 11.000	6 0.9430 10.374	74591 KHANGARH T-111.000	6 0.9797 10.777
74592 KHANGARH T-211.000	6 0.9507 10.458	74602 D.G.KHAN T-211.000	6 0.9922 10.914
74603 D.G.KHAN T-311.000	6 0.9740 10.714	74604 D.G.KHAN T-411.000	6 0.9784 10.762
74651 KOTCHUTA T-111.000	6 0.9839 10.823	74652 KOTCHUTA T-211.000	6 1.0046 11.050
74653 KOTCHUTTA T311.000	6 0.9758 10.734	74701 ROJHAN T-1 11.000	6 0.9904 10.894
75901 SKHISRWR T-111.000	6 1.0278 11.306	75902 SKISRWR T-2 11.000	6 1.0195 11.214
77811 YAZMAN-T-1 11.000	6 1.0019 11.020	77812 YAZMAN-T-2 11.000	6 1.0019 11.020
77911 MAROOT T1 11.000	6 1.0174 11.191	77912 MAROOT T-2 11.000	6 1.0110 11.121
78311 FATEHPUR T-111.000	6 0.9527 10.480	78312 FATEPUR T-2 11.000	6 0.9177 10.095
78401 T1 11.000	6 1.0082 11.090	78901 NAWANKOT T-111.000	6 1.0343 11.378
79091 D.G.K.II T-111.000	6 0.9891 10.880	79092 D.G.K.II T-211.000	6 0.9891 10.880
79211 JAMPUR T-1 11.000	6 1.0189 11.208	79251 CHOTI T-1 11.000	6 1.0235 11.258
79301 JAMPUR T-1 11.000	6 0.9705 10.676	79302 JAMPUR T-2 11.000	6 0.9838 10.821
79331 FAZALPUR T-111.000	6 0.9636 10.600	79332 FAZALPUR T-211.000	6 0.9513 10.464
79351 DAJAL T-1 11.000	6 1.0384 11.422	79352 DAJAL T-2	6 1.0384
79511 RAJANPUR T-111.000	6 1.0060 11.066	79512 RAJANPUR T-211.000	6 0.9817 10.799
79513 RAJANPUR T-3	6 0.9641	79741 UCH.SHRF T-211.000	6 1.0183 11.202
79742 UCH.SHRF T-311.000	6 1.0445 11.490	79743 UCH.SHRF T-111.000	6 1.0189 11.208
79751 UCH (KF) T-111.000	6 1.0200 11.220	79811 ALI PUR T-1 11.000	6 1.0020 11.022
79812 ALIPUR T-2 11.000	6 1.0020 11.022	79813 ALIPUR T-3 11.000	6 1.0133 11.147

79841 H.R. KAN T1 11.000
79961 FRT MNRO T-111.000

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6	1.0230	11.253	79842 H.R. KAN T2 11.000	6	0.9965	10.962
6	1.0384	11.422	732512 LSM-132KV 132.00	6	1.0000	132.00

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REALISTIC
June 2017

With:
BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0378	228.32
601		APPOLO-SOLAR		132.00	6	1.0005	132.06	730		SHK-PP-132		132.00	6	1.0398	137.25
801		QAD-SOL-I		132.00	6	1.0136	133.80	1001		CREST-ENERGY		132.00	6	1.0153	134.02
6030		QADIRABD		132.00	6	1.0474	138.25	6050		BNGAHYAT		132.00	6	1.0087	133.14
6070		YOUSFWLA		132.00	6	1.0441	137.82	6080		SAHIWALN		132.00	6	1.0376	136.96
6090		SAHWAL-O		132.00	6	1.0196	134.59	6095		SAHIWAL III		132.00	6	1.0091	133.20
6100		NOORPUR		132.00	6	0.9780	129.10	6120		PAKPATAN		132.00	6	0.9021	119.07
6130		HARAPPA		132.00	6	1.0028	132.37	6140		CHCHWTNI		132.00	6	1.0039	132.52
6150		SH.FAZAL		132.00	6	0.9874	130.33	6160		BUREWALA		132.00	6	0.9920	130.95
6162		BREWLA-O		132.00	6	0.9886	130.49	6169		VEHARI-N		132.00	6	1.0165	134.17
6170		VEHARI-O		132.00	6	1.0131	133.73	6175		LUDDEN		132.00	6	1.0005	132.07
6178		KARAMPUR		132.00	6	0.9932	131.10	6180		ARIFWALA		132.00	6	1.0065	132.86
6182		KAMIRWALA		132.00	6	1.0155	134.05	6190		BWL.NAGR		132.00	6	1.0064	132.84
6191		HOTA		132.00	6	1.0030	132.39	6200		QABULA		132.00	6	1.0059	132.78
6210		SAHUKA		132.00	6	0.9778	129.07	6220		HASILPUR		132.00	6	0.9999	131.99
6230		CHISTIAN-O		132.00	6	1.0181	134.40	6231		CHSTAN-N		132.00	6	1.0195	134.58
6232		DHARWALA132		132.00	6	1.0119	133.57	6410		HASILPUR		66.000	6	0.9960	65.738
6415		CHISTIAN		66.000	6	0.9835	64.908	6419		L.SOHANRA		132.00	6	1.0015	132.20
6421		K.P.TOMI		132.00	6	0.9956	131.41	6461		T-NURSAR		66.000	6	0.9838	64.928
6462		NOORSAR		132.00	6	1.0094	133.24	6501		HARONABD		132.00	6	0.9976	131.69
6512		FAQIRWLI		132.00	6	0.9849	130.00	6521		FORTABAS		132.00	6	0.9799	129.35
6666		MULTAN-N		132.00	6	1.0369	136.88	7000		MIANCHNU		132.00	6	0.9821	129.64

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7001 CHAK-83-132	132.00	6 0.9943	131.24
7006 HEAD SIDHNAI	132.00	6 0.9689	127.89
7020 KHANEWAL	132.00	6 0.9886	130.50
7030 KABIRWLA	132.00	6 0.9888	130.52
7040 GARHMORE	132.00	6 0.9974	131.65
7050 JEHANIAN	132.00	6 0.9961	131.48
7060 CHAK.211	132.00	6 0.9756	128.78
7075 MUKHDM.R	132.00	6 1.0103	133.36
7109 P.GAIB-2	132.00	6 1.0444	137.86
7115 MIRAN PUR	132.00	6 1.0377	136.98
7125 LAR	132.00	6 1.0227	135.00
7138 BWPN-2	132.00	6 1.0437	137.76
7140 BHAWALPR	132.00	6 1.0386	137.10
7147 KARORPCA	132.00	6 0.9900	130.68
7150 SAMASATA	132.00	6 1.0375	136.95
7160 LIAQATPR	132.00	6 1.0186	134.45
7175 RYK-PP	132.00	6 1.0000	132.00
7185 KHANBELA	132.00	6 0.9798	129.33
7200 KHANPUR	132.00	6 1.0245	135.24
7220 R.Y.KHAN	132.00	6 1.0156	134.06
7225 R.Y.KHN2	132.00	6 1.0236	135.11
7230 SADIQABD	132.00	6 1.0069	132.90
7240 J.D.WALI	132.00	6 0.9835	129.82
7255 WAPDATWN	132.00	6 1.0246	135.25
7261 PUNJAB HOSNG	132.00	6 1.0318	136.20
7265 QASIMBGH	132.00	6 1.0293	135.87
7272 COCA COLA	132.00	6 1.0140	133.84
7280 MN.VR.RD	132.00	6 1.0298	135.93
7287 M.JAILRD	132.00	6 1.0089	133.18
7289 JALALPWL	132.00	6 1.0011	132.14
7300 KAPCO	132.00	6 1.0490	138.47
7325 LAYYAH	132.00	6 0.9836	129.84
7330 MZFRGARH	132.00	6 1.0257	135.40
7332 N.A.WALI	132.00	6 1.0341	136.51
7334 M GARH NEW	132.00	6 1.0288	135.80
7336 KAROR L.E	132.00	6 0.9368	123.66
7350 DMR WALA	132.00	6 0.9872	130.32
7002 KASSOWAL	132.00	6 1.0113	133.49
7010 KACHAKHU	132.00	6 0.9758	128.80
7029 FAUJI-K	132.00	6 1.0000	132.00
7032 MP.PAHOR	132.00	6 0.9809	129.48
7041 T-GM	132.00	6 0.9979	131.73
7055 T-C.211	132.00	6 0.9790	129.23
7070 MAILSI	132.00	6 0.9761	128.85
7100 P.GAIB-1	132.00	6 1.0389	137.13
7110 BASTIMLK	132.00	6 1.0124	133.64
7120 LODHRAN	132.00	6 1.0259	135.42
7130 BU.JADID	132.00	6 1.0353	136.65
7139 B.W.P-N	132.00	6 1.0518	138.84
7145 BPUR CANTT	132.00	6 1.0341	136.50
7149 DUNYAPUR	132.00	6 0.9878	130.39
7159 MUB-PUR	132.00	6 0.9908	130.78
7170 AHMDPR.E	132.00	6 0.9803	129.40
7180 FEROZA	132.00	6 0.9935	131.14
7190 HAMZA-PP	132.00	6 1.0216	134.85
7210 MWQRSHIA	132.00	6 1.0092	133.21
7221 RYK-NEW	132.00	6 1.0408	137.39
7226 RYK-T	132.00	6 1.0268	135.53
7235 NAWAZABD	132.00	6 1.0197	134.59
7250 MN.KH.RD	132.00	6 1.0348	136.59
7260 MN.BS.RD	132.00	6 1.0190	134.50
7262 BUCH VILLAS	132.00	6 1.0175	134.30
7270 MLN-IND	132.00	6 1.0140	133.84
7275 C.T.MILL	132.00	6 1.0106	133.40
7285 QASIMPUR	132.00	6 1.0150	133.98
7288 SHUJABAD	132.00	6 0.9927	131.04
7290 MESCO	132.00	6 0.9978	131.71
7320 GUJRAT.S	132.00	6 1.0232	135.06
7328 KBGASHER	132.00	6 1.0277	135.65
7331 KOTADU-O	132.00	6 1.0471	138.22
7333 S.S.DIN	132.00	6 1.0173	134.29
7335 KOTSULTAN	132.00	6 0.9951	131.36
7340 MEHRKHAS	132.00	6 0.9948	131.32
7360 JATOIJNB	132.00	6 0.9804	129.42

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7370 KHRPRSDT	132.00	6 0.9770	128.96	7395 SHAD.LND	132.00	6 1.0208	134.74
7400 TAUNSA	132.00	6 1.0120	133.59	7435 PARCO	132.00	6 0.9333	123.20
7436 T-PARCO	132.00	6 0.9334	123.21	7440 CHOKMNDA	132.00	6 1.0193	134.55
7441 T-CMUNDA	132.00	6 1.0197	134.61	7442 T-AHTM	132.00	6 1.0306	136.03
7443 AHTM	132.00	6 1.0301	135.98	7450 CHAUBARA	132.00	6 0.9885	130.48
7456 CHOKAZAM	132.00	6 0.9844	129.94	7459 KHANGARH	132.00	6 1.0125	133.65
7460 D.G.KHAN	132.00	6 1.0196	134.59	7462 MDC-DGK	132.00	6 1.0365	136.82
7463 CPC-DGK	132.00	6 1.0230	135.03	7465 KOTCHUTA	132.00	6 1.0037	132.49
7466 T-ATM	132.00	6 1.0125	133.65	7467 ATM	132.00	6 1.0118	133.56
7470 ROJHAN	132.00	6 0.9948	131.31	7580 CMNT.FCT	132.00	6 1.0113	133.50
7590 SKHISRWR	132.00	6 1.0366	136.84	7781 YAZMAN	132.00	6 1.0255	135.37
7800 KOTADDU	66.000	6 1.0373	68.459	7811 T-KOTSUL	66.000	6 1.0374	68.466
7831 FATEHPUR	132.00	6 0.9461	124.88	7840 RANGPUR	66.000	6 1.0233	67.537
7842 T-RANGPR	66.000	6 1.0324	68.137	7880 CHAUBARA	66.000	6 1.0371	68.446
7890 NAWANKOT	66.000	6 1.0360	68.379	7891 T.NWANKOT	66.000	6 1.0362	68.386
7909 D.G.KHAN II	132.00	6 1.0203	134.68	7910 D.G.KHAN	66.000	6 1.0324	68.137
7920 KOTCHOTA	66.000	6 1.0003	66.019	7921 JAMPUR	66.000	6 0.9934	65.563
7925 CHOTI	66.000	6 0.9840	64.942	7930 JAMPUR	132.00	6 0.9564	126.24
7933 FAZALPUR	132.00	6 0.9358	123.53	7935 DAJAL	66.000	6 0.9837	64.926
7951 RAJANPUR	132.00	6 0.9333	123.20	7970 AHMDPR.E	66.000	6 1.0114	66.753
7974 UCH.SHRF	132.00	6 0.9737	128.53	7975 UCH (KF)	66.000	6 0.9581	63.233
7977 T-UCHSHF	66.000	6 0.9885	65.241	7981 ALI PUR	132.00	6 0.9777	129.06
7996 FORT.MINRO	132.00	6 1.0372	136.91	60301 QADIRABD T-111.000		6 1.0164	11.181
60302 QADIRABD T-211.000		6 1.0100	11.110	60501 BNGAHYAT T-111.000		6 1.0087	11.096
60502 BNGAHYAT T-211.000		6 1.0199	11.218	60801 SAHIWALN T-111.000		6 0.9985	10.983
60802 SAHIWALN T-211.000		6 0.9976	10.974	60901 SAHWAL-O T-111.000		6 0.9933	10.926
60902 SAHWAL-O T-211.000		6 0.9944	10.938	60903 SAHWAL-O T-311.000		6 0.9724	10.696
60951 SWL III T-1 11.000		6 1.0031	11.034	60952 SWL III T-2 11.000		6 1.0031	11.034
61001 NOORPUR T-1 11.000		6 0.9565	10.522	61002 NOORPUR T-2 11.000		6 0.9565	10.522
61201 PAKPATAN T-111.000		6 0.8616	9.478	61202 PAKPATAN T-211.000		6 0.8616	9.478
61203 PAKPATAN T-311.000		6 0.8630	9.493	61301 HARAPPA T-1 11.000		6 0.9881	10.869
61302 HARAPPA T-2 11.000		6 0.9874	10.862	61401 CHCHWTNI T-1		6 0.9837	
61402 CHCHWTNI T-211.000		6 1.0234	11.257	61403 CHCHWTNI T-311.000		6 0.9840	10.824
61501 SH.FAZAL T-111.000		6 0.9918	10.909	61502 SH.FAZAL T-211.000		6 0.9782	10.760
61601 BUREWALA T-111.000		6 1.0095	11.105	61602 BUREWALA T-211.000		6 1.0028	11.031
61603 BUREWALA T-311.000		6 1.0145	11.160	61621 BREWLA-O T-111.000		6 0.9774	10.751
61622 BREWLA-O T-211.000		6 1.0248	11.273	61701 VEHARI-O T-111.000		6 1.0026	11.028

61702 VEHARI-O T-211.000
 61751 LUDDEN T-1 11.000
 61781 KARAMPUR T-111.000
 61801 ARIFWALA T-311.000
 61803 ARIFWALA T-111.000
 61822 KAMIR W T-2 11.000
 61903 BWL.NAGR T-311.000
 62001 QABULA T-1 11.000
 62003 QABULA T-3 11.000
 62102 SAHUKA T-2 11.000
 62203 HASILPUR T-311.000
 62302 CHISTIAN T-211.000
 62321 DHRANWALA-T111.000
 64151 CHISTIAN T-211.000
 64211 K.P.TOMI T-111.000
 64621 NOORSAR T-1 11.000
 65013 HARONABD T-111.000
 65121 FAQIRWLI-T1 11.000
 65211 FORTABAS-T1
 70001 MIANCHNU T1 11.000
 70003 MIANCHNU T-311.000
 70012 CHAK-83-T2 11.000
 70022 KASOWAL T-2 11.000
 70062 H SIDNAI T-211.000
 70102 KACHAKHU T-211.000
 70201 KHANEWAL T-111.000
 70203 KHANEWAL T-311.000
 70302 KABIRWLA T-211.000
 70321 MP PAHOR T-111.000
 70401 GARHMORE T-111.000
 70501 JEHANIAN T-111.000
 70503 JEHANIAN T-311.000
 70602 CHAK 211 T-211.000
 70701 MAILSI T-1 11.000
 70703 MAILSI T-3 11.000
 70752 MUKHDM.R T-211.000
 71102 BASTIMLK T-211.000

Realistic june 2017

6	0.9947	10.941
6	0.9992	10.992
6	0.9789	10.768
6	1.0392	11.432
6	1.0300	11.330
6	1.0230	11.253
6	1.0172	11.190
6	1.0338	11.372
6	1.0123	11.135
6	1.0014	11.016
6	1.0092	11.101
6	1.0414	11.455
6	0.9774	10.752
6	0.9922	10.914
6	0.9891	10.880
6	0.9691	10.661
6	1.0198	11.218
6	0.9908	10.899
6	1.0550	
6	0.9766	10.742
6	0.9706	10.676
6	0.9966	10.963
6	0.9638	10.602
6	0.9587	10.546
6	0.9921	10.913
6	0.9761	10.737
6	0.9787	10.765
6	0.9811	10.792
6	1.0014	11.016
6	1.0152	11.168
6	0.9945	10.939
6	1.0016	11.018
6	1.0125	11.138
6	0.9969	10.966
6	0.9975	10.972
6	1.0206	11.227
6	1.0296	11.326

61703 VEHARI-T-3 11.000
 61752 LUDDEN T-2 11.000
 61782 KARAMPUR T-211.000
 61802 ARIFWALA T-211.000
 61821 KAMIRW T-1 11.000
 61901 BWL.NAGR T-111.000
 61911 HOTA T-1 11.000
 62002 QABULA T-2 11.000
 62101 SAHUKA T-1 11.000
 62202 HASILPUR T-211.000
 62301 CHISTIAN T-111.000
 62303 CHISTIAO T3 11.000
 62322 DHRANWALA-T211.000
 64191 L.SOHAN T-1 11.000
 64212 K.P.TOMI T-211.000
 65012 HARONABD T-211.000
 65014 HARONABD T-311.000
 65122 FAQIRWLI-T2 11.000
 65212 FORTABAST-2 11.000
 70002 MIANCHNU T-211.000
 70011 CHAK-83-T1 11.000
 70021 KASSOWAL T-111.000
 70061 H SIDNAI T-111.000
 70101 KACHAKHU T-111.000
 70103 KACHAKHU T-311.000
 70202 KHANEWAL T-211.000
 70301 KABIRWLA T-111.000
 70303 KABIRWLA T-3
 70322 MP PAHOR T-211.000
 70402 GARHMORE T-211.000
 70502 JEHANIAN T-211.000
 70601 CHAK.211 T-111.000
 70603 CHAK 211 T-311.000
 70702 MAILSI T-2 11.000
 70751 MUKHDM.R T-111.000
 71101 BASTIMLK T-111.000
 71103 BASTIMLK T-311.000

6	0.9912	10.904
6	0.9929	10.922
6	0.9819	10.801
6	1.0392	11.432
6	1.0230	11.253
6	1.0172	11.190
6	1.0115	11.127
6	1.0311	11.342
6	1.0406	11.447
6	1.0030	11.033
6	1.0186	11.205
6	1.0163	11.179
6	0.9774	10.752
6	1.0045	11.050
6	0.9782	10.760
6	0.9981	10.979
6	0.9731	10.704
6	0.9908	10.899
6	1.0264	11.291
6	0.9544	10.499
6	0.9751	10.726
6	0.9850	10.835
6	0.9624	10.586
6	0.9985	10.984
6	0.9921	10.913
6	0.9630	10.593
6	0.9874	10.861
6	0.9608	
6	0.9765	10.741
6	0.9869	10.856
6	0.9943	10.938
6	1.0142	11.157
6	0.9616	10.577
6	1.0264	11.290
6	0.9969	10.966
6	0.9995	10.995
6	0.9726	10.698

Realistic june 2017

71151 MIRAN P T-1 11.000	6 1.0214 11.235	71152 MIRAN P T-2 11.000	6 1.0466 11.513
71201 LODHRAN T-1 11.000	6 1.0448 11.492	71202 LODHRAN T-2 11.000	6 1.0401 11.441
71203 LODHRAN T-3 11.000	6 1.0432 11.475	71251 LART-1 11.000	6 1.0104 11.114
71252 LAR T-2 11.000	6 1.0104 11.114	71301 BU.JADID T-111.000	6 1.0307 11.337
71302 BU.JADID T-211.000	6 1.0574 11.632	71401 BHAWALPR T-111.000	6 1.0134 11.147
71402 BHAWALPR T-211.000	6 1.0226 11.249	71403 BHAWALPR T-311.000	6 1.0097 11.106
71451 BP CANTT T-111.000	6 1.0161 11.177	71452 BPCANTT T-2 11.000	6 1.0161 11.177
71471 KARORPCA T-111.000	6 1.0494 11.544	71472 KARORPCA T-211.000	6 1.0108 11.119
71473 KARORPCA T-311.000	6 0.9883 10.872	71491 DUNYAPUR T-311.000	6 1.0154 11.170
71492 DUNYAPUR T-411.000	6 0.9877 10.864	71501 SAMASATA T-111.000	6 1.0150 11.165
71502 SAMASATA T-211.000	6 1.0150 11.165	71591 MUB-PUR-T1 11.000	6 0.9658 10.624
71592 MUB-PUR-T2 11.000	6 0.9658 10.624	71601 LIAQATPR T-111.000	6 1.0105 11.115
71602 LIAQATPR T-211.000	6 1.0168 11.185	71702 AHMDPR.E T-211.000	6 1.0070 11.077
71703 AHMDPR.E T-311.000	6 0.9944 10.939	71704 AHMDPR.E T4 11.000	6 0.9493 10.443
71801 FEROZA T-1 11.000	6 1.0235 11.258	71802 FEROZA T-2 11.000	6 1.0346 11.380
71851 KHANBELA T-111.000	6 0.9862 10.849	71852 KHANBELA T-2	6 0.9147
72001 KHANPUR T-1 11.000	6 0.9856 10.842	72002 KHANPUR T-2 11.000	6 0.9900 10.889
72003 KHANPUR T-3 11.000	6 0.9885 10.874	72101 MWQRSHIA T-111.000	6 0.9862 10.848
72102 MWQRSHIA T2 11.000	6 0.9421 10.363	72201 R.Y.KHAN T-111.000	6 1.0050 11.055
72202 R.Y.KHAN T-211.000	6 1.0050 11.055	72203 R.Y.KHAN T-311.000	6 1.0050 11.055
72251 R.Y.KHN2 T-111.000	6 1.0066 11.072	72252 R.Y.KHN2 T-211.000	6 1.0029 11.032
72301 SADIQABD T-111.000	6 1.0073 11.081	72302 SADIQABD T-211.000	6 1.0073 11.081
72303 SADIQABD T-311.000	6 1.0240 11.264	72351 NAWAZ T-1 11.000	6 1.0071 11.079
72401 J.D.WALI T-111.000	6 0.9252 10.177	72402 JDWALI T-2 11.000	6 0.9506 10.456
72501 MN.KH.RD T-111.000	6 1.0437 11.481	72502 MN.KH.RD T-211.000	6 1.0183 11.201
72503 MN.KH.RD T-311.000	6 1.0229 11.252	72551 WAP TO T-1 11.000	6 0.9862 10.848
72552 WAPDA TO T-211.000	6 0.9924 10.917	72601 MN.BS.RD T-111.000	6 0.9953 10.948
72602 MN.BS.RD T-211.000	6 1.0073 11.080	72603 MN.BS.RD T-311.000	6 1.0043 11.048
72611 PNJB HSG T-111.000	6 1.0453 11.499	72612 PNJB HSG T-211.000	6 1.0453 11.499
72621 BUCH VLS T-111.000	6 1.0432 11.475	72651 Q BAGH T-1 11.000	6 1.0053 11.058
72652 Q BAGH T-2 11.000	6 1.0187 11.205	72701 MLN-IND T-1 11.000	6 0.9897 10.886
72702 MLN-IND T-2 11.000	6 1.0002 11.002	72703 MLN-IND T-3 11.000	6 0.9864 10.850
72801 MN.VR.RD T-111.000	6 1.0138 11.152	72802 MN.VR.RD T-211.000	6 0.9848 10.832
72803 MN.VR.RD T-311.000	6 1.0122 11.134	72851 QASIMPUR T-111.000	6 1.0228 11.251
72852 QASIMPUR T-211.000	6 1.0316 11.347	72853 QASIMPUR T-311.000	6 0.9854 10.839
72871 M.J RD T-1 11.000	6 1.0435 11.478	72872 M.J.RD T-2 11.000	6 1.0292 11.322
72881 SHUJABAD T-111.000	6 1.0246 11.270	72882 SHUJABAD T-211.000	6 1.0178 11.195

			Realistic june 2017								
72883	SHUJABAD T-3	11.000	6	0.9775	10.752	72891	J.P.W T-1	11.000	6	1.0300	11.330
72892	J.P.W T-2	11.000	6	1.0272	11.299	72893	J.P.W T-3	11.000	6	0.9923	10.916
72901	MESCO T-1	11.000	6	0.9950	10.945	72902	MESCO T-2	11.000	6	0.9875	10.862
72903	MESCO T-3	11.000	6	0.9851	10.836	73201	GUJRAT.S T1	11.000	6	0.9626	10.589
73202	GUJRAT.S T3	11.000	6	0.9269	10.196	73203	GUJRAT.S T2	11.000	6	0.9913	10.904
73251	LAYYAH T-1	11.000	6	0.9747	10.721	73252	LAYYAH T-2	11.000	6	0.9376	10.313
73253	LAYYAH T-3	11.000	6	0.9083	9.991	73281	KBGASHER T-1	11.000	6	0.9943	10.938
73282	KBGASHER T-2	11.000	6	0.9943	10.938	73301	MZFRGARH T-1	11.000	6	1.0387	11.425
73302	MZFRGARH T-2	11.000	6	1.0180	11.198	73303	MZFRGARH T-3	11.000	6	1.0088	11.097
73312	KOTADU-O T-2	11.000	6	0.9600	10.561	73313	KOTADU-O T-3	11.000	6	0.9728	10.701
73314	KOTADU-O T-4	11.000	6	0.9664	10.630	73321	N.A.WALI T-2	11.000	6	0.9893	10.882
73322	N.A.WALI T-1	11.000	6	1.0120	11.132	73331	S S DIN T1	11.000	6	1.0328	11.361
73332	S S DIN T2	11.000	6	1.0062	11.069	73351	KOTSULTAN-T1	11.000	6	0.9680	10.648
73352	KOTSULTAN-T2	11.000	6	0.9862	10.848	73361	KAROR L.E-T1	11.000	6	0.9067	9.974
73362	KAROR L.E-T2		6	0.8827		73401	MEHRKHAS T-1	11.000	6	0.9768	10.745
73402	MEHRKHAS T-2	11.000	6	0.9624	10.586	73501	DMR WALA T-1	11.000	6	0.9885	10.873
73502	DMR WALA T-2	11.000	6	0.9998	10.997	73601	JATOIJNB T-1	11.000	6	1.0061	11.067
73602	JATOIJNB T-2	11.000	6	0.9709	10.680	73701	KHRPRSDT T-1	11.000	6	1.0254	11.280
73702	KHRPRSDT T-2	11.000	6	0.9657	10.622	73951	SHA.LND T-1	11.000	6	0.9924	10.916
73952	SHA.LND T-2	11.000	6	0.9788	10.767	74001	TAUNSA T-1	11.000	6	0.9723	10.696
74002	TAUNSA T-2	11.000	6	1.0145	11.160	74401	CHOKMNDA T-1	11.000	6	1.0233	11.257
74402	CHOKMNDA T-2	11.000	6	0.9828	10.810	74502	CHAUBARA T-2	11.000	6	0.9442	10.386
74561	CHOKAZAM T2	11.000	6	0.9959	10.955	74562	CHOKAZAM T1	11.000	6	0.9447	10.392
74591	KHANGARH T-1	11.000	6	0.9756	10.731	74592	KHANGARH T-2	11.000	6	0.9466	10.413
74602	D.G.KHAN T-2	11.000	6	0.9865	10.851	74603	D.G.KHAN T-3	11.000	6	0.9683	10.651
74604	D.G.KHAN T-4	11.000	6	0.9727	10.700	74651	KOTCHUTA T-1	11.000	6	0.9784	10.762
74652	KOTCHUTA T-2	11.000	6	0.9990	10.989	74653	KOTCHUTTA T3	11.000	6	0.9703	10.674
74701	ROJHAN T-1	11.000	6	0.9669	10.635	75901	SKHISRWR T-1	11.000	6	1.0370	11.407
75902	SKISRWR T-2	11.000	6	1.0160	11.176	77811	YAZMAN-T-1	11.000	6	1.0095	11.104
77812	YAZMAN T-2	11.000	6	1.0095	11.104	78311	FATEHPUR T-1	11.000	6	0.8579	9.436
78312	FATEHPUR T-2	11.000	6	0.8771	9.648	78401	T1		6	1.0081	11.089
78901	NAWANKOT T-1	11.000	6	1.0278	11.306	79091	D.G.K.II T-1	11.000	6	0.9841	10.825
79092	D.G.K.II T-2	11.000	6	0.9841	10.825	79211	JAMPUR T-1	11.000	6	0.9813	10.795
79251	CHOTI T-1	11.000	6	0.9969	10.966	79301	JAMPUR T-1	11.000	6	0.9342	10.276
79302	JAMPUR T-2	11.000	6	0.9469	10.416	79331	FAZALPUR T-1	11.000	6	0.8991	9.890
79332	FAZALPUR T-2	11.000	6	0.8875	9.762	79351	DAJAL T-1	11.000	6	1.0064	11.070
79352	DAJAL T-2		6	1.0064		79511	RAJANPUR T-1	11.000	6	0.9214	10.136

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79512 RAJANPUR T-211.000	6 0.8969	9.866	79741 UCH.SHRF T-211.000	6 0.9943	10.937
79742 UCH.SHRF T-311.000	6 1.0197	11.217	79743 UCH.SHRF T-111.000	6 0.9965	10.961
79751 UCH (KF) T-111.000	6 0.9655	10.621	79811 ALI PUR T-1 11.000	6 0.9007	9.908
79812 ALIPUR T-2 11.000	6 0.9007	9.908	79961 FRT MNRO T-111.000	6 1.0351	11.386
732512 LSM-132KV 132.00	6 0.9850	130.02			

Without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0378	228.32
601		APPOLO-SOLAR		132.00	6	1.0005	132.06	730		SHK-PP-132		132.00	6	1.0398	137.25
801		QAD-SOL-I		132.00	6	1.0136	133.80	1001		CREST-ENERGY		132.00	6	1.0153	134.02
6030		QADIRABD		132.00	6	1.0474	138.25	6050		BNGAHYAT		132.00	6	1.0087	133.14
6070		YOUSFWLA		132.00	6	1.0441	137.82	6080		SAHIWALN		132.00	6	1.0376	136.96
6090		SAHWAL-O		132.00	6	1.0196	134.59	6095		SAHIWAL III		132.00	6	1.0091	133.20
6100		NOORPUR		132.00	6	0.9780	129.10	6120		PAKPATAN		132.00	6	0.9021	119.07
6130		HARAPPA		132.00	6	1.0028	132.37	6140		CHCHWTNI		132.00	6	1.0039	132.52
6150		SH.FAZAL		132.00	6	0.9874	130.33	6160		BUREWALA		132.00	6	0.9920	130.95
6162		BREWLA-O		132.00	6	0.9886	130.49	6169		VEHARI-N		132.00	6	1.0165	134.17
6170		VEHARI-O		132.00	6	1.0131	133.73	6175		LUDDEN		132.00	6	1.0005	132.07
6178		KARAMPUR		132.00	6	0.9932	131.10	6180		ARIFWALA		132.00	6	1.0065	132.86
6182		KAMIRWALA		132.00	6	1.0155	134.05	6190		BWL.NAGR		132.00	6	1.0064	132.84
6191		HOTA		132.00	6	1.0030	132.39	6200		QABULA		132.00	6	1.0059	132.78
6210		SAHUKA		132.00	6	0.9778	129.07	6220		HASILPUR		132.00	6	0.9999	131.99
6230		CHISTIAN-O		132.00	6	1.0181	134.40	6231		CHSTAN-N		132.00	6	1.0195	134.58
6232		DHARWALA132		132.00	6	1.0119	133.57	6410		HASILPUR		66.000	6	0.9960	65.738
6415		CHISTIAN		66.000	6	0.9835	64.908	6419		L.SOHANRA		132.00	6	1.0015	132.20

6421	K.P.TOMI	132.00
6462	NOORSAR	132.00
6512	FAQIRWLI	132.00
6666	MULTAN-N	132.00
7001	CHAK-83-132	132.00
7006	HEAD SIDHNAI	132.00
7020	KHANEWAL	132.00
7030	KABIRWLA	132.00
7040	GARHMORE	132.00
7050	JEHANIAN	132.00
7060	CHAK.211	132.00
7075	MUKHDM.R	132.00
7109	P.GAIB-2	132.00
7115	MIRAN PUR	132.00
7125	LAR	132.00
7138	BWPN-2	132.00
7140	BHAWALPR	132.00
7147	KARORPCA	132.00
7150	SAMASATA	132.00
7160	LIAQATPR	132.00
7175	RYK-PP	132.00
7185	KHANBELA	132.00
7200	KHANPUR	132.00
7220	R.Y.KHAN	132.00
7225	R.Y.KHN2	132.00
7230	SADIQABD	132.00
7240	J.D.WALI	132.00
7255	WAPDATWN	132.00
7261	PUNJAB HOSNG	132.00
7265	QASIMBGH	132.00
7272	COCA COLA	132.00
7280	MN.VR.RD	132.00
7287	M.JAILRD	132.00
7289	JALALPWL	132.00
7300	KAPCO	132.00
7325	LAYYAH	132.00
7330	MZFRGARH	132.00

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6	0.9956	131.41
6	1.0094	133.24
6	0.9849	130.00
6	1.0369	136.88
6	0.9943	131.24
6	0.9689	127.89
6	0.9886	130.50
6	0.9888	130.52
6	0.9974	131.65
6	0.9961	131.48
6	0.9756	128.78
6	1.0103	133.36
6	1.0444	137.86
6	1.0377	136.98
6	1.0227	135.00
6	1.0437	137.76
6	1.0386	137.10
6	0.9900	130.68
6	1.0375	136.95
6	1.0186	134.45
6	1.0000	132.00
6	0.9798	129.33
6	1.0245	135.24
6	1.0156	134.06
6	1.0236	135.11
6	1.0069	132.90
6	0.9835	129.82
6	1.0246	135.25
6	1.0318	136.20
6	1.0293	135.87
6	1.0140	133.84
6	1.0298	135.93
6	1.0089	133.18
6	1.0011	132.14
6	1.0490	138.47
6	0.9836	129.84
6	1.0257	135.40

6461	T-NURSAR	66.000
6501	HARONABD	132.00
6521	FORTABAS	132.00
7000	MIANCHNU	132.00
7002	KASSOWAL	132.00
7010	KACHAKHU	132.00
7029	FAUJI-K	132.00
7032	MP.PAHOR	132.00
7041	T-GM	132.00
7055	T-C.211	132.00
7070	MAILSI	132.00
7100	P.GAIB-1	132.00
7110	BASTIMLK	132.00
7120	LODHRAN	132.00
7130	BU.JADID	132.00
7139	B.W.P-N	132.00
7145	BPUR CANTT	132.00
7149	DUNYAPUR	132.00
7159	MUB-PUR	132.00
7170	AHMDPR.E	132.00
7180	FEROZA	132.00
7190	HAMZA-PP	132.00
7210	MWQRSHIA	132.00
7221	RYK-NEW	132.00
7226	RYK-T	132.00
7235	NAWAZABD	132.00
7250	MN.KH.RD	132.00
7260	MN.BS.RD	132.00
7262	BUCH VILLAS	132.00
7270	MLN-IND	132.00
7275	C.T.MILL	132.00
7285	QASIMPUR	132.00
7288	SHUJABAD	132.00
7290	MESCO	132.00
7320	GUJRAT.S	132.00
7328	KBGASHER	132.00
7331	KOTADU-O	132.00

6	0.9838	64.928
6	0.9976	131.69
6	0.9799	129.35
6	0.9821	129.64
6	1.0113	133.49
6	0.9758	128.80
6	1.0000	132.00
6	0.9809	129.48
6	0.9979	131.73
6	0.9790	129.23
6	0.9761	128.85
6	1.0389	137.13
6	1.0124	133.64
6	1.0259	135.42
6	1.0353	136.65
6	1.0518	138.84
6	1.0341	136.50
6	0.9878	130.39
6	0.9908	130.78
6	0.9803	129.40
6	0.9935	131.14
6	1.0216	134.85
6	1.0092	133.21
6	1.0408	137.39
6	1.0268	135.53
6	1.0197	134.59
6	1.0348	136.59
6	1.0190	134.50
6	1.0175	134.30
6	1.0140	133.84
6	1.0106	133.40
6	1.0150	133.98
6	0.9927	131.04
6	0.9978	131.71
6	1.0232	135.06
6	1.0277	135.65
6	1.0471	138.22

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7332 N.A.WALI	132.00	6 1.0341	136.51	7333 S.S.DIN	132.00	6 1.0173	134.29
7334 M GARH NEW	132.00	6 1.0288	135.80	7335 KOTSULTAN	132.00	6 0.9951	131.36
7336 KAROR L.E	132.00	6 0.9368	123.66	7340 MEHRKHAS	132.00	6 0.9948	131.32
7350 DMR WALA	132.00	6 0.9872	130.32	7360 JATOIJNB	132.00	6 0.9804	129.42
7370 KHRPRSDT	132.00	6 0.9770	128.96	7395 SHAD.LND	132.00	6 1.0208	134.74
7400 TAUNSA	132.00	6 1.0120	133.59	7435 PARCO	132.00	6 0.9333	123.20
7436 T-PARCO	132.00	6 0.9334	123.21	7440 CHOKMNDA	132.00	6 1.0193	134.55
7441 T-CMUNDA	132.00	6 1.0197	134.61	7442 T-AHTM	132.00	6 1.0306	136.03
7443 AHTM	132.00	6 1.0301	135.98	7450 CHAUBARA	132.00	6 0.9885	130.48
7456 CHOKAZAM	132.00	6 0.9844	129.94	7459 KHANGARH	132.00	6 1.0125	133.65
7460 D.G.KHAN	132.00	6 1.0196	134.59	7462 MDC-DGK	132.00	6 1.0365	136.82
7463 CPC-DGK	132.00	6 1.0230	135.03	7465 KOTCHUTA	132.00	6 1.0037	132.49
7466 T-ATM	132.00	6 1.0125	133.65	7467 ATM	132.00	6 1.0118	133.56
7470 ROJHAN	132.00	6 0.9948	131.31	7580 CMNT.FCT	132.00	6 1.0113	133.50
7590 SKHISRWR	132.00	6 1.0366	136.84	7781 YAZMAN	132.00	6 1.0255	135.37
7800 KOTADDU	66.000	6 1.0373	68.459	7811 T-KOTSUL	66.000	6 1.0374	68.466
7831 FATEHPUR	132.00	6 0.9461	124.88	7840 RANGPUR	66.000	6 1.0233	67.537
7842 T-RANGPR	66.000	6 1.0324	68.137	7880 CHAUBARA	66.000	6 1.0371	68.446
7890 NAWANKOT	66.000	6 1.0360	68.379	7891 T.NWANKOT	66.000	6 1.0362	68.386
7909 D.G.KHAN II	132.00	6 1.0203	134.68	7910 D.G.KHAN	66.000	6 1.0324	68.137
7920 KOTCHOTA	66.000	6 1.0003	66.019	7921 JAMPUR	66.000	6 0.9934	65.563
7925 CHOTI	66.000	6 0.9840	64.942	7930 JAMPUR	132.00	6 0.9564	126.24
7933 FAZALPUR	132.00	6 0.9358	123.53	7935 DAJAL	66.000	6 0.9837	64.926
7951 RAJANPUR	132.00	6 0.9333	123.20	7970 AHMDPR.E	66.000	6 1.0114	66.753
7974 UCH.SHRF	132.00	6 0.9737	128.53	7975 UCH (KF)	66.000	6 0.9581	63.233
7977 T-UCHSHF	66.000	6 0.9885	65.241	7981 ALI PUR	132.00	6 0.9777	129.06
7996 FORT.MINRO	132.00	6 1.0372	136.91	60301 QADIRABD T-	111.000	6 1.0164	11.181
60302 QADIRABD T-	211.000	6 1.0100	11.110	60501 BNGAHYAT T-	111.000	6 1.0087	11.096
60502 BNGAHYAT T-	211.000	6 1.0199	11.218	60801 SAHIWALN T-	111.000	6 0.9985	10.983
60802 SAHIWALN T-	211.000	6 0.9976	10.974	60901 SAHWAL-O T-	111.000	6 0.9933	10.926
60902 SAHWAL-O T-	211.000	6 0.9944	10.938	60903 SAHWAL-O T-	311.000	6 0.9724	10.696
60951 SWL III T-1	11.000	6 1.0031	11.034	60952 SWL III T-2	11.000	6 1.0031	11.034
61001 NOORPUR T-1	11.000	6 0.9565	10.522	61002 NOORPUR T-2	11.000	6 0.9565	10.522
61201 PAKPATAN T-	111.000	6 0.8616	9.478	61202 PAKPATAN T-	211.000	6 0.8616	9.478
61203 PAKPATAN T-	311.000	6 0.8630	9.493	61301 HARAPPA T-1	11.000	6 0.9881	10.869
61302 HARAPPA T-2	11.000	6 0.9874	10.862	61401 CHCHWTNI T-1		6 0.9837	
61402 CHCHWTNI T-	211.000	6 1.0234	11.257	61403 CHCHWTNI T-	311.000	6 0.9840	10.824

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61501	SH.FAZAL T-111.000	6	0.9918	10.909	61502 SH.FAZAL T-211.000	6	0.9782	10.760
61601	BUREWALA T-111.000	6	1.0095	11.105	61602 BUREWALA T-211.000	6	1.0028	11.031
61603	BUREWALA T-311.000	6	1.0145	11.160	61621 BREWLA-O T-111.000	6	0.9774	10.751
61622	BREWLA-O T-211.000	6	1.0248	11.273	61701 VEHARI-O T-111.000	6	1.0026	11.028
61702	VEHARI-O T-211.000	6	0.9947	10.941	61703 VEHARI-T-3 11.000	6	0.9912	10.904
61751	LUDDEN T-1 11.000	6	0.9992	10.992	61752 LUDDEN T-2 11.000	6	0.9929	10.922
61781	KARAMPUR T-111.000	6	0.9789	10.768	61782 KARAMPUR T-211.000	6	0.9819	10.801
61801	ARIFWALA T-311.000	6	1.0392	11.432	61802 ARIFWALA T-211.000	6	1.0392	11.432
61803	ARIFWALA T-111.000	6	1.0300	11.330	61821 KAMIRW T-1 11.000	6	1.0230	11.253
61822	KAMIR W T-2 11.000	6	1.0230	11.253	61901 BWL.NAGR T-111.000	6	1.0172	11.190
61903	BWL.NAGR T-311.000	6	1.0172	11.190	61911 HOTA T-1 11.000	6	1.0115	11.127
62001	QABULA T-1 11.000	6	1.0338	11.372	62002 QABULA T-2 11.000	6	1.0311	11.342
62003	QABULA T-3 11.000	6	1.0123	11.135	62101 SAHUKA T-1 11.000	6	1.0406	11.447
62102	SAHUKA T-2 11.000	6	1.0014	11.016	62202 HASILPUR T-211.000	6	1.0030	11.033
62203	HASILPUR T-311.000	6	1.0092	11.101	62301 CHISTIAN T-111.000	6	1.0186	11.205
62302	CHISTIAN T-211.000	6	1.0414	11.455	62303 CHISTIAO T3 11.000	6	1.0163	11.179
62321	DHRANWALA-T111.000	6	0.9774	10.752	62322 DHRANWALA-T211.000	6	0.9774	10.752
64151	CHISTIAN T-211.000	6	0.9922	10.914	64191 L.SOHAN T-1 11.000	6	1.0045	11.050
64211	K.P.TOMI T-111.000	6	0.9891	10.880	64212 K.P.TOMI T-211.000	6	0.9782	10.760
64621	NOORSAR T-1 11.000	6	0.9691	10.661	65012 HARONABD T-211.000	6	0.9981	10.979
65013	HARONABD T-111.000	6	1.0198	11.218	65014 HARONABD T-311.000	6	0.9731	10.704
65121	FAQIRWLI-T1 11.000	6	0.9908	10.899	65122 FAQIRWLI-T2 11.000	6	0.9908	10.899
65211	FORTABAS-T1	6	1.0550		65212 FORTABAST-2 11.000	6	1.0264	11.291
70001	MIANCHNU T1 11.000	6	0.9766	10.742	70002 MIANCHNU T-211.000	6	0.9544	10.499
70003	MIANCHNU T-311.000	6	0.9706	10.676	70011 CHAK-83-T1 11.000	6	0.9751	10.726
70012	CHAK-83-T2 11.000	6	0.9966	10.963	70021 KASSOWAL T-111.000	6	0.9850	10.835
70022	KASOWAL T-2 11.000	6	0.9638	10.602	70061 H SIDNAI T-111.000	6	0.9624	10.586
70062	H SIDNAI T-211.000	6	0.9587	10.546	70101 KACHAKHU T-111.000	6	0.9985	10.984
70102	KACHAKHU T-211.000	6	0.9921	10.913	70103 KACHAKHU T-311.000	6	0.9921	10.913
70201	KHANEWAL T-111.000	6	0.9761	10.737	70202 KHANEWAL T-211.000	6	0.9630	10.593
70203	KHANEWAL T-311.000	6	0.9787	10.765	70301 KABIRWLA T-111.000	6	0.9874	10.861
70302	KABIRWLA T-211.000	6	0.9811	10.792	70303 KABIRWLA T-3	6	0.9608	
70321	MP PAHOR T-111.000	6	1.0014	11.016	70322 MP PAHOR T-211.000	6	0.9765	10.741
70401	GARMORE T-111.000	6	1.0152	11.168	70402 GARMORE T-211.000	6	0.9869	10.856
70501	JEHANIAN T-111.000	6	0.9945	10.939	70502 JEHANIAN T-211.000	6	0.9943	10.938
70503	JEHANIAN T-311.000	6	1.0016	11.018	70601 CHAK.211 T-111.000	6	1.0142	11.157
70602	CHAK 211 T-211.000	6	1.0125	11.138	70603 CHAK 211 T-311.000	6	0.9616	10.577

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70701 MAILSI T-1 11.000	6 0.9969 10.966	70702 MAILSI T-2 11.000	6 1.0264 11.290
70703 MAILSI T-3 11.000	6 0.9975 10.972	70751 MUKHDM.R T-111.000	6 0.9969 10.966
70752 MUKHDM.R T-211.000	6 1.0206 11.227	71101 BASTIMLK T-111.000	6 0.9995 10.995
71102 BASTIMLK T-211.000	6 1.0296 11.326	71103 BASTIMLK T-311.000	6 0.9726 10.698
71151 MIRAN P T-1 11.000	6 1.0214 11.235	71152 MIRAN P T-2 11.000	6 1.0466 11.513
71201 LODHRAN T-1 11.000	6 1.0448 11.492	71202 LODHRAN T-2 11.000	6 1.0401 11.441
71203 LODHRAN T-3 11.000	6 1.0432 11.475	71251 LART-1 11.000	6 1.0104 11.114
71252 LAR T-2 11.000	6 1.0104 11.114	71301 BU.JADID T-111.000	6 1.0307 11.337
71302 BU.JADID T-211.000	6 1.0574 11.632	71401 BHAWALPR T-111.000	6 1.0134 11.147
71402 BHAWALPR T-211.000	6 1.0226 11.249	71403 BHAWALPR T-311.000	6 1.0097 11.106
71451 BP CANTT T-111.000	6 1.0161 11.177	71452 BPCANTT T-2 11.000	6 1.0161 11.177
71471 KARORPCA T-111.000	6 1.0494 11.544	71472 KARORPCA T-211.000	6 1.0108 11.119
71473 KARORPCA T-311.000	6 0.9883 10.872	71491 DUNYAPUR T-311.000	6 1.0154 11.170
71492 DUNYAPUR T-411.000	6 0.9877 10.864	71501 SAMASATA T-111.000	6 1.0150 11.165
71502 SAMASATA T-211.000	6 1.0150 11.165	71591 MUB-PUR-T1 11.000	6 0.9658 10.624
71592 MUB-PUR-T2 11.000	6 0.9658 10.624	71601 LIAQATPR T-111.000	6 1.0105 11.115
71602 LIAQATPR T-211.000	6 1.0168 11.185	71702 AHMDPR.E T-211.000	6 1.0070 11.077
71703 AHMDPR.E T-311.000	6 0.9944 10.939	71704 AHMDPR.E T4 11.000	6 0.9493 10.443
71801 FEROZA T-1 11.000	6 1.0235 11.258	71802 FEROZA T-2 11.000	6 1.0346 11.380
71851 KHANBELA T-111.000	6 0.9862 10.849	71852 KHANBELA T-2 11.000	6 0.9147 10.889
72001 KHANPUR T-1 11.000	6 0.9856 10.842	72002 KHANPUR T-2 11.000	6 0.9900 10.889
72003 KHANPUR T-3 11.000	6 0.9885 10.874	72101 MWQRSHIA T-111.000	6 0.9862 10.848
72102 MWQRSHIA T2 11.000	6 0.9421 10.363	72201 R.Y.KHAN T-111.000	6 1.0050 11.055
72202 R.Y.KHAN T-211.000	6 1.0050 11.055	72203 R.Y.KHAN T-311.000	6 1.0050 11.055
72251 R.Y.KHN2 T-111.000	6 1.0066 11.072	72252 R.Y.KHN2 T-211.000	6 1.0029 11.032
72301 SADIQABD T-111.000	6 1.0073 11.081	72302 SADIQABD T-211.000	6 1.0073 11.081
72303 SADIQABD T-311.000	6 1.0240 11.264	72351 NAWAZ T-1 11.000	6 1.0071 11.079
72401 J.D.WALI T-111.000	6 0.9252 10.177	72402 JDWALI T-2 11.000	6 0.9506 10.456
72501 MN.KH.RD T-111.000	6 1.0437 11.481	72502 MN.KH.RD T-211.000	6 1.0183 11.201
72503 MN.KH.RD T-311.000	6 1.0229 11.252	72551 WAP TO T-1 11.000	6 0.9862 10.848
72552 WAPDA TO T-211.000	6 0.9924 10.917	72601 MN.BS.RD T-111.000	6 0.9953 10.948
72602 MN.BS.RD T-211.000	6 1.0073 11.080	72603 MN.BS.RD T-311.000	6 1.0043 11.048
72611 PNJB HSG T-111.000	6 1.0453 11.499	72612 PNJB HSG T-211.000	6 1.0453 11.499
72621 BUCH VLS T-111.000	6 1.0432 11.475	72651 Q BAGH T-1 11.000	6 1.0053 11.058
72652 Q BAGH T-2 11.000	6 1.0187 11.205	72701 MLN-IND T-1 11.000	6 0.9897 10.886
72702 MLN-IND T-2 11.000	6 1.0002 11.002	72703 MLN-IND T-3 11.000	6 0.9864 10.850
72801 MN.VR.RD T-111.000	6 1.0138 11.152	72802 MN.VR.RD T-211.000	6 0.9848 10.832

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72803	MN.VR.RD T-311.000	6	1.0122 11.134	72851	QASIMPUR T-111.000	6	1.0228 11.251
72852	QASIMPUR T-211.000	6	1.0316 11.347	72853	QASIMPUR T-311.000	6	0.9854 10.839
72871	M.J RD T-1 11.000	6	1.0435 11.478	72872	M.J.RD T-2 11.000	6	1.0292 11.322
72881	SHUJABAD T-111.000	6	1.0246 11.270	72882	SHUJABAD T-211.000	6	1.0178 11.195
72883	SHUJABAD T-311.000	6	0.9775 10.752	72891	J.P.W T-1 11.000	6	1.0300 11.330
72892	J.P.W T-2 11.000	6	1.0272 11.299	72893	J.P.W T-3 11.000	6	0.9923 10.916
72901	MESCO T-1 11.000	6	0.9950 10.945	72902	MESCO T-2 11.000	6	0.9875 10.862
72903	MESCO T-3 11.000	6	0.9851 10.836	73201	GUJRAT.S T1 11.000	6	0.9626 10.589
73202	GUJRAT.S T3 11.000	6	0.9269 10.196	73203	GUJRAT.S T2 11.000	6	0.9913 10.904
73251	LAYYAH T-1 11.000	6	0.9747 10.721	73252	LAYYAH T-2 11.000	6	0.9376 10.313
73253	LAYYAH T-3 11.000	6	0.9083 9.991	73281	KBGASHER T-111.000	6	0.9943 10.938
73282	KBGASHER T-211.000	6	0.9943 10.938	73301	MZFRGARH T-111.000	6	1.0387 11.425
73302	MZFRGARH T-211.000	6	1.0180 11.198	73303	MZFRGARH T-311.000	6	1.0088 11.097
73312	KOTADU-O T-211.000	6	0.9600 10.561	73313	KOTADU-O T-311.000	6	0.9728 10.701
73314	KOTADU-O T-411.000	6	0.9664 10.630	73321	N.A.WALI T-211.000	6	0.9893 10.882
73322	N.A.WALI T-111.000	6	1.0120 11.132	73331	S S DIN T1 11.000	6	1.0328 11.361
73332	S S DIN T2 11.000	6	1.0062 11.069	73351	KOTSULTAN-T111.000	6	0.9680 10.648
73352	KOTSULTAN-T211.000	6	0.9862 10.848	73361	KAROR L.E-T111.000	6	0.9067 9.974
73362	KAROR L.E-T2	6	0.8827	73401	MEHRKHAS T-111.000	6	0.9768 10.745
73402	MEHRKHAS T-211.000	6	0.9624 10.586	73501	DMR WALA T-111.000	6	0.9885 10.873
73502	DMR WALA T-211.000	6	0.9998 10.997	73601	JATOIJNB T-111.000	6	1.0061 11.067
73602	JATOIJNB T-211.000	6	0.9709 10.680	73701	KHRPRSDT T-111.000	6	1.0254 11.280
73702	KHRPRSDT T-2 11.000	6	0.9657 10.622	73951	SHA.LND T-1 11.000	6	0.9924 10.916
73952	SHA.LND T-2 11.000	6	0.9788 10.767	74001	TAUNSA T-1 11.000	6	0.9723 10.696
74002	TAUNSA T-2 11.000	6	1.0145 11.160	74401	CHOKMNDA T-111.000	6	1.0233 11.257
74402	CHOKMNDA T-211.000	6	0.9828 10.810	74502	CHAUBARA T-211.000	6	0.9442 10.386
74561	CHOKAZAM T2 11.000	6	0.9959 10.955	74562	CHOKAZAM T1 11.000	6	0.9447 10.392
74591	KHANGARH T-111.000	6	0.9756 10.731	74592	KHANGARH T-211.000	6	0.9466 10.413
74602	D.G.KHAN T-211.000	6	0.9865 10.851	74603	D.G.KHAN T-311.000	6	0.9683 10.651
74604	D.G.KHAN T-411.000	6	0.9727 10.700	74651	KOTCHUTA T-111.000	6	0.9784 10.762
74652	KOTCHUTA T-211.000	6	0.9990 10.989	74653	KOTCHUTTA T311.000	6	0.9703 10.674
74701	ROJHAN T-1 11.000	6	0.9669 10.635	75901	SKHISRWR T-111.000	6	1.0370 11.407
75902	SKISRWR T-2 11.000	6	1.0160 11.176	77811	YAZMAN-T-1 11.000	6	1.0095 11.104
77812	YAZMAN T-2 11.000	6	1.0095 11.104	78311	FATEHPUR T-111.000	6	0.8579 9.436
78312	FATEPUR T-2 11.000	6	0.8771 9.648	78401	T1 11.000	6	1.0081 11.089
78901	NAWANKOT T-111.000	6	1.0278 11.306	79091	D.G.K.II T-111.000	6	0.9841 10.825
79092	D.G.K.II T-211.000	6	0.9841 10.825	79211	JAMPUR T-1 11.000	6	0.9813 10.795

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79251	CHOTI T-1	11.000	6	0.9969	10.966	79301	JAMPUR T-1	11.000	6	0.9342	10.276
79302	JAMPUR T-2	11.000	6	0.9469	10.416	79331	FAZALPUR T-1	11.000	6	0.8991	9.890
79332	FAZALPUR T-2	11.000	6	0.8875	9.762	79351	DAJAL T-1	11.000	6	1.0064	11.070
79352	DAJAL T-2		6	1.0064		79511	RAJANPUR T-1	11.000	6	0.9214	10.136
79512	RAJANPUR T-2	11.000	6	0.8969	9.866	79741	UCH.SHRF T-1	11.000	6	0.9943	10.937
79742	UCH.SHRF T-2	11.000	6	1.0197	11.217	79743	UCH.SHRF T-2	11.000	6	0.9965	10.961
79751	UCH (KF) T-1	11.000	6	0.9655	10.621	79811	ALI PUR T-1	11.000	6	0.9007	9.908
79812	ALIPUR T-2	11.000	6	0.9007	9.908	79961	FRT MNRO T-1	11.000	6	1.0351	11.386
732512	LSM-132KV	132.00	6	0.9850	130.02						

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IDEAL
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With:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0248	135.28	529		PARCO		220.00	6	1.0448	229.87
601		APPOLO-SOLAR		132.00	6	1.0253	135.34	730		SHK-PP-132		132.00	6	1.0416	137.49
801		QAD-SOL-I		132.00	6	1.0235	135.10	1001		CREST-ENERGY		132.00	6	1.0246	135.25
6030		QADIRABD		132.00	6	1.0484	138.39	6050		BNGAHYAT		132.00	6	1.0372	136.91
6070		YOUSFWLA		132.00	6	1.0481	138.35	6080		SAHIWALN		132.00	6	1.0403	137.32
6090		SAHWAL-O		132.00	6	1.0329	136.34	6095		SAHIWAL III		132.00	6	1.0249	135.28
6100		NOORPUR		132.00	6	1.0141	133.86	6120		PAKPATAN		132.00	6	1.0036	132.47
6122		PAK PATTAN-2		132.00	6	0.9761	128.84	6130		HARAPPA		132.00	6	1.0094	133.23
6140		CHCHWTNI		132.00	6	1.0041	132.55	6150		SH.FAZAL		132.00	6	0.9866	130.23
6160		BUREWALA		132.00	6	0.9912	130.84	6162		BREWLA-O		132.00	6	0.9874	130.34
6169		VEHARI-N		132.00	6	1.0169	134.23	6170		VEHARI-O		132.00	6	1.0135	133.79
6175		LUDDEN		132.00	6	1.0049	132.65	6178		KARAMPUR		132.00	6	0.9971	131.62
6180		ARIFWALA		132.00	6	0.9947	131.30	6182		KAMIRWALA		132.00	6	1.0085	133.12
6190		BWL.NAGR		132.00	6	1.0056	132.74	6191		HOTA		132.00	6	0.9977	131.70
6200		QABULA		132.00	6	0.9979	131.72	6210		SAHUKA		132.00	6	0.9773	129.01
6220		HASILPUR		132.00	6	1.0131	133.73	6230		CHISTIAN-O		132.00	6	1.0226	134.98
6231		CHSTAN-N		132.00	6	1.0246	135.25	6232		DHARWALA132		132.00	6	1.0165	134.17
6410		HASILPUR		66.000	6	1.0088	66.581	6415		CHISTIAN		66.000	6	0.9925	65.505
6419		L.SOHANRA		132.00	6	1.0223	134.95	6421		K.P.TOMI		132.00	6	1.0173	134.28
6461		T-NURSAR		66.000	6	0.9928	65.525	6462		NOORSAR		132.00	6	1.0115	133.52
6482		MNCHNBAD		132.00	6	1.0066	132.87	6491		MCLD.GNJ		132.00	6	1.0020	132.27

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6501	HARONABD	132.00	6	1.0103	133.36	6512	FAQIRWLI	132.00	6	1.0154	134.03
6521	FORTABAS	132.00	6	1.0092	133.22	6666	MULTAN-N	132.00	6	1.0261	135.44
7000	MIANCHNU	132.00	6	0.9981	131.75	7001	CHAK-83-132	132.00	6	1.0024	132.32
7002	KASSOWAL	132.00	6	1.0138	133.82	7006	HEAD SIDHNAI	132.00	6	0.9608	126.82
7010	KACHAKHU	132.00	6	0.9910	130.81	7020	KHANEWAL	132.00	6	1.0068	132.90
7029	FAUJI-K	132.00	6	1.0300	135.96	7030	KABIRWLA	132.00	6	1.0054	132.72
7032	MP.PAHOR	132.00	6	0.9821	129.63	7040	GARHMORE	132.00	6	1.0046	132.61
7041	T-GM	132.00	6	1.0052	132.69	7050	JEHANIAN	132.00	6	1.0094	133.24
7055	T-C.211	132.00	6	0.9955	131.40	7060	CHAK.211	132.00	6	0.9918	130.91
7070	MAILSI	132.00	6	0.9948	131.31	7075	MUKHDM.R	132.00	6	1.0163	134.15
7076	F.J HOUSING	132.00	6	1.0358	136.72	7100	P.GAIB-1	132.00	6	1.0290	135.83
7109	P.GAIB-2	132.00	6	1.0434	137.73	7110	BASTIMLK	132.00	6	1.0068	132.90
7115	MIRAN PUR	132.00	6	1.0370	136.89	7120	LODHAN	132.00	6	1.0230	135.04
7125	LAR	132.00	6	1.0187	134.47	7130	BU.JADID	132.00	6	1.0346	136.57
7138	BWPN-2	132.00	6	1.0361	136.76	7139	B.W.P-N	132.00	6	1.0516	138.81
7140	BHAWALPR	132.00	6	1.0387	137.11	7145	BPUR CANTT	132.00	6	1.0472	138.23
7147	KARORPCA	132.00	6	1.0165	134.18	7149	DUNYAPUR	132.00	6	1.0075	132.99
7150	SAMASATA	132.00	6	1.0311	136.11	7159	MUB-PUR	132.00	6	1.0194	134.56
7160	LIAQATPR	132.00	6	1.0246	135.25	7170	AHMDPR.E	132.00	6	1.0119	133.58
7175	RYK-PP	132.00	6	1.0042	132.56	7180	FEROZA	132.00	6	1.0060	132.79
7185	KHANBELA	132.00	6	0.9931	131.09	7190	HAMZA-PP	132.00	6	1.0306	136.04
7200	KHANPUR	132.00	6	1.0346	136.57	7210	MWQRSHIA	132.00	6	1.0183	134.42
7220	R.Y.KHAN	132.00	6	1.0272	135.59	7221	RYK-NEW	132.00	6	1.0516	138.81
7225	R.Y.KHN2	132.00	6	1.0350	136.61	7226	RYK-T	132.00	6	1.0380	137.02
7230	SADIQABD	132.00	6	1.0131	133.73	7231	WALANA	132.00	6	1.0096	133.27
7235	NAWAZABD	132.00	6	1.0244	135.22	7240	J.D.WALI	132.00	6	0.9936	131.15
7250	MN.KH.RD	132.00	6	1.0241	135.19	7255	WAPDATWN	132.00	6	1.0140	133.85
7260	MN.BS.RD	132.00	6	1.0088	133.16	7261	PUNJAB HOSNG	132.00	6	1.0201	134.65
7262	BUCH VILLAS	132.00	6	1.0083	133.10	7265	QASIMBGH	132.00	6	1.0003	132.05
7270	MLN-IND	132.00	6	1.0089	133.17	7272	COCA COLA	132.00	6	1.0089	133.17
7273	SURAJ MIANI	132.00	6	1.0038	132.50	7275	C.T.MILL	132.00	6	1.0062	132.82
7280	MN.VR.RD	132.00	6	1.0008	132.11	7285	QASIMPUR	132.00	6	1.0098	133.29
7287	M.JAILRD	132.00	6	1.0068	132.90	7288	SHUJABAD	132.00	6	0.9869	130.26
7289	JALALPWL	132.00	6	0.9946	131.29	7290	MESCO	132.00	6	1.0001	132.01
7300	KAPCO	132.00	6	1.0500	138.60	7302	SANAWAN	132.00	6	1.0453	137.98
7303	PIR CHUGI SH	132.00	6	1.0342	136.52	7320	GUJRAT.S	132.00	6	1.0211	134.79
7325	LAYYAH	132.00	6	1.0169	134.24	7328	KBGASHER	132.00	6	1.0229	135.02

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7330 MZFRGARH	132.00	6 1.0295	135.90	7331 KOTADU-O	132.00	6 1.0483	138.37
7332 N.A.WALI	132.00	6 1.0268	135.53	7333 S.S.DIN	132.00	6 1.0332	136.38
7334 M GARH NEW	132.00	6 1.0322	136.25	7335 KOTSULTAN	132.00	6 1.0309	136.08
7336 KAROR L.E	132.00	6 1.0130	133.71	7340 MEHRKHA	132.00	6 1.0116	133.53
7350 DMR WALA	132.00	6 1.0064	132.85	7360 JATOIJNB	132.00	6 0.9942	131.23
7370 KHRPRSDT	132.00	6 0.9888	130.52	7395 SHAD.LND	132.00	6 1.0130	133.72
7400 TAUNSA	132.00	6 0.9989	131.86	7435 PARCO	132.00	6 0.9928	131.05
7436 T-PARCO	132.00	6 0.9929	131.06	7440 CHOKMNDA	132.00	6 1.0198	134.61
7441 T-CMUNDA	132.00	6 1.0203	134.68	7442 T-AHTM	132.00	6 1.0314	136.15
7443 AHTM	132.00	6 1.0310	136.09	7450 CHAUBARA	132.00	6 0.9991	131.88
7456 CHOKAZAM	132.00	6 1.0081	133.06	7459 KHANGARH	132.00	6 1.0271	135.58
7460 D.G.KHAN	132.00	6 1.0345	136.56	7462 MDC-DGK	132.00	6 1.0470	138.20
7463 CPC-DGK	132.00	6 1.0367	136.85	7465 KOTCHUTA	132.00	6 1.0180	134.38
7466 T-ATM	132.00	6 1.0271	135.58	7467 ATM	132.00	6 1.0265	135.50
7470 ROJHAN	132.00	6 1.0205	134.71	7580 CMNT.FCT	132.00	6 1.0264	135.48
7590 SKHISRWR	132.00	6 1.0464	138.12	7781 YAZMAN	132.00	6 1.0329	136.34
7782 MAROOT	132.00	6 1.0153	134.02	7800 KOTADDU	66.000	6 1.0370	68.443
7811 T-KOTSUL	66.000	6 1.0371	68.450	7831 FATEHPUR	132.00	6 0.9789	129.22
7840 RANGPUR	66.000	6 1.0202	67.334	7842 T-RANGPR	66.000	6 1.0316	68.083
7880 CHAUBARA	66.000	6 0.9825	64.842	7890 NAWANKOT	66.000	6 0.9770	64.483
7891 T.NWANKOT	66.000	6 0.9774	64.509	7909 D.G.KHAN II	132.00	6 1.0348	136.60
7910 D.G.KHAN	66.000	6 1.0494	69.257	7920 KOTCHOTA	66.000	6 1.0366	68.417
7921 JAMPUR	66.000	6 1.0162	67.071	7925 CHOTI	66.000	6 1.0094	66.623
7930 JAMPUR	132.00	6 1.0140	133.85	7933 FAZALPUR	132.00	6 1.0057	132.76
7935 DAJAL	66.000	6 1.0065	66.432	7951 RAJANPUR	132.00	6 0.9909	130.80
7970 AHMDPR.E	66.000	6 1.0439	68.898	7974 UCH.SHRF	132.00	6 1.0082	133.08
7975 UCH (KF)	66.000	6 0.9986	65.906	7977 T-UCHSHF	66.000	6 1.0264	67.746
7981 ALI PUR	132.00	6 0.9909	130.80	7984 HEAD-RJ-KN	132.00	6 1.0293	135.87
7996 FORT.MINRO	132.00	6 1.0469	138.20	60301 QADIRABD T-1	111.000	6 1.0142	11.157
60302 QADIRABD T-2	111.000	6 1.0079	11.086	60501 BNGAHYAT T-1	111.000	6 0.9929	10.922
60502 BNGAHYAT T-2	111.000	6 1.0004	11.005	60801 SAHIWALN T-1	111.000	6 0.9980	10.978
60802 SAHIWALN T-3	111.000	6 0.9971	10.968	60901 SAHWAL-O T-1	111.000	6 1.0110	11.121
60902 SAHWAL-O T-2	111.000	6 1.0245	11.269	60903 SAHWAL-O T-3	111.000	6 0.9898	10.888
60951 SWL III T-1	11.000	6 1.0182	11.200	60952 SWL III T-2	11.000	6 1.0182	11.200
61001 NOORPUR T-1	11.000	6 1.0314	11.345	61002 NOORPUR T-2	11.000	6 1.0314	11.345
61003 NOORPUR T-3	11.000	6 0.9675	10.642	61201 PAKPATAN T-1	111.000	6 0.9946	10.941
61202 PAKPATAN T-2	111.000	6 0.9946	10.941	61203 PAKPATAN T-3	111.000	6 0.9931	10.924

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61221 PAK PTN T-1 11.000	6 1.0029 11.032	61222 PAK PTN T-2 11.000	6 1.0029 11.032
61301 HARAPPA T-1 11.000	6 0.9924 10.917	61302 HARAPPA T-2 11.000	6 0.9917 10.908
61381 BWP-2 132.00	6 1.0347 136.58	61402 CHCHWTNI T-211.000	6 1.0081 11.089
61403 CHCHWTNI T-311.000	6 0.9818 10.800	61404 CHCHWTNI T-411.000	6 0.9558 10.513
61501 SH.FAZAL T-111.000	6 0.9970 10.967	61502 SH.FAZAL T-211.000	6 0.9889 10.878
61601 BUREWALA T-111.000	6 1.0055 11.060	61602 BUREWALA T-211.000	6 0.9987 10.986
61603 BUREWALA T-311.000	6 1.0106 11.116	61621 BREWLA-O T-111.000	6 0.9742 10.716
61622 BREWLA-O T-211.000	6 1.0154 11.169	61701 VEHARI-O T-111.000	6 1.0012 11.013
61702 VEHARI-O T-211.000	6 1.0012 11.013	61703 VEHARI-T-3 11.000	6 0.9974 10.972
61751 LUDDEN T-1 11.000	6 1.0015 11.017	61752 LUDDEN T-2 11.000	6 0.9952 10.947
61781 KARAMPUR T-111.000	6 0.9807 10.788	61782 KARAMPUR T-211.000	6 0.9831 10.815
61801 ARIFWALA T-111.000	6 1.0138 11.152	61802 ARIFWALA T-211.000	6 1.0230 11.252
61803 ARIFWALA T-311.000	6 1.0230 11.252	61821 KAMIRW T-1 11.000	6 0.9642 10.606
61822 KAMIR W T-2 11.000	6 0.9642 10.606	61901 BWL.NAGR T-111.000	6 1.0294 11.324
61902 BWL.NAGR T-411.000	6 0.9692 10.661	61903 BWL.NAGR T-311.000	6 1.0294 11.324
61911 HOTA T-1 11.000	6 1.0082 11.090	62001 QABULA T-1 11.000	6 1.0221 11.243
62002 QABULA T-2 11.000	6 1.0192 11.212	62003 QABULA T-3 11.000	6 1.0133 11.146
62101 SAHUKA T-1 11.000	6 1.0380 11.418	62102 SAHUKA T-2 11.000	6 1.0115 11.126
62202 HASILPUR T-211.000	6 1.0143 11.157	62203 HASILPUR T-311.000	6 1.0206 11.226
62301 CHISTIAN T-111.000	6 1.0174 11.192	62302 CHISTIAN T-211.000	6 1.0405 11.445
62303 CHISTIAO T3 11.000	6 0.9864 10.850	62321 DHRANWALA-T111.000	6 0.9799 10.779
62322 DHRANWALA-T211.000	6 0.9799 10.779	64151 CHISTIAN T-211.000	6 0.9897 10.887
64191 L.SOHAN T-1 11.000	6 1.0238 11.262	64211 K.P.TOMI T-111.000	6 1.0098 11.108
64212 K.P.TOMI T-211.000	6 0.9986 10.985	64621 NOORSAR T-1 11.000	6 1.0109 11.120
64622 NOORSAR T-2 11.000	6 1.0397 11.436	64821 MNCHNBAD T1 11.000	6 1.0401 11.441
64822 MNCHNBAD T-211.000	6 1.0275 11.302	64911 MCLD.GNJ T1 11.000	6 1.0541 11.596
64912 MCLD.GNJ T2 11.000	6 1.0412 11.453	65012 HARONABD T-211.000	6 1.0042 11.047
65013 HARONABD T-111.000	6 1.0205 11.226	65014 HARONABD T-311.000	6 1.0449 11.494
65121 FAQIRWLI-T1 11.000	6 1.0453 11.498	65122 FAQIRWLI-T2 11.000	6 1.0431 11.475
65211 FORTABAS-T1 11.000	6 1.0468 11.515	65212 FORTABAST-2 11.000	6 1.0438 11.482
70001 MIANCHNU T1 11.000	6 0.9828 10.811	70002 MIANCHNU T-211.000	6 0.9691 10.660
70003 MIANCHNU T-311.000	6 0.9855 10.841	70011 CHAK-83-T1 11.000	6 1.0136 11.150
70012 CHAK-83-T2 11.000	6 1.0101 11.112	70021 KASSOWAL T-111.000	6 0.9784 10.762
70022 KASOWAL T-2 11.000	6 0.9846 10.830	70061 H SIDNAI T-111.000	6 0.9678 10.646
70062 H SIDNAI T-211.000	6 0.9616 10.578	70101 KACHAKHU T-111.000	6 1.0097 11.107
70102 KACHAKHU T-211.000	6 1.0032 11.035	70103 KACHAKHU T-311.000	6 0.9599 10.559
70201 KHANEWAL T-111.000	6 0.9727 10.700	70202 KHANEWAL T-211.000	6 0.9873 10.860

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70203	KHANEWAL T-311.000	6	0.9961	10.957	70301	KABIRWLA T-111.000	6	1.0025	11.027
70302	KABIRWLA T-211.000	6	0.9960	10.956	70303	KABIRWLA T-311.000	6	0.9738	10.712
70321	MP PAHOR T-111.000	6	0.9567	10.523	70322	MP PAHOR T-211.000	6	0.9587	10.545
70401	GARHMORE T-111.000	6	1.0091	11.100	70402	GARHMORE T-211.000	6	1.0091	11.100
70501	JEHANIAN T-111.000	6	0.9601	10.561	70502	JEHANIAN T-211.000	6	1.0136	11.150
70503	JEHANIAN T-311.000	6	1.0208	11.229	70601	CHAK.211 T-111.000	6	1.0398	11.438
70602	CHAK 211 T-211.000	6	1.0278	11.305	70603	CHAK 211 T-311.000	6	0.9675	10.642
70701	MAILSI T-1 11.000	6	1.0153	11.168	70702	MAILSI T-2 11.000	6	1.0454	11.499
70703	MAILSI T-3 11.000	6	1.0159	11.175	70751	MUKHDM.R T-111.000	6	1.0224	11.246
70752	MUKHDM.R T-211.000	6	1.0238	11.262	70761	F.J HSNG T-111.000	6	1.0316	11.347
71101	BASTIMLK T-111.000	6	0.9870	10.857	71102	BASTIMLK T-211.000	6	1.0280	11.308
71103	BASTIMLK T-311.000	6	0.9659	10.625	71151	MIRAN P T-1 11.000	6	1.0198	11.218
71152	MIRAN P T-2 11.000	6	1.0450	11.496	71201	LODHRAN T-1 11.000	6	1.0400	11.440
71202	LODHRAN T-2 11.000	6	1.0353	11.388	71203	LODHRAN T-3 11.000	6	1.0251	11.277
71251	LART-1 11.000	6	1.0056	11.062	71252	LAR T-2 11.000	6	1.0056	11.062
71301	BU.JADID T-111.000	6	1.0377	11.415	71302	BU.JADID T-211.000	6	1.0122	11.134
71401	BHAWALPR T-111.000	6	1.0265	11.292	71402	BHAWALPR T-211.000	6	1.0472	11.519
71403	BHAWALPR T-311.000	6	1.0229	11.252	71451	BP CANTT T-111.000	6	1.0282	11.310
71452	BPCANTT T-2 11.000	6	1.0282	11.310	71471	KARORPCA T-111.000	6	1.0520	11.572
71472	KARORPCA T-211.000	6	1.0520	11.572	71473	KARORPCA T-311.000	6	1.0086	11.095
71491	DUNYAPUR T-311.000	6	1.0198	11.218	71492	DUNYAPUR T-411.000	6	1.0393	11.432
71501	SAMASATA T-111.000	6	1.0069	11.075	71502	SAMASATA T-211.000	6	1.0069	11.075
71591	MUB-PUR-T1 11.000	6	0.9890	10.879	71592	MUB-PUR-T2 11.000	6	0.9890	10.879
71601	LIAQATPR T-111.000	6	1.0147	11.161	71602	LIAQATPR T-211.000	6	1.0211	11.232
71702	AHMDPR.E T-211.000	6	1.0116	11.127	71703	AHMDPR.E T-311.000	6	1.0276	11.304
71704	AHMDPR.E T4 11.000	6	0.9811	10.792	71801	FEROZA T-1 11.000	6	1.0355	11.391
71802	FEROZA T-2 11.000	6	1.0467	11.514	71851	KHANBELA T-111.000	6	1.0120	11.132
71852	KHANBELA T-211.000	6	0.9720	10.692	72001	KHANPUR T-1 11.000	6	0.9936	10.930
72002	KHANPUR T-2 11.000	6	0.9980	10.978	72003	KHANPUR T-3 11.000	6	0.9966	10.963
72101	MWQRSHIA T-111.000	6	0.9920	10.912	72102	MWQRSHIA T2 11.000	6	0.9612	10.574
72201	R.Y.KHAN T-111.000	6	1.0338	11.372	72202	R.Y.KHAN T-211.000	6	1.0338	11.372
72203	R.Y.KHAN T-311.000	6	1.0338	11.372	72251	R.Y.KHN2 T-111.000	6	1.0161	11.178
72252	R.Y.KHN2 T-211.000	6	1.0254	11.279	72301	SADIQABD T-111.000	6	1.0216	11.238
72302	SADIQABD T-211.000	6	1.0216	11.238	72303	SADIQABD T-311.000	6	1.0378	11.416
72311	WALANA T-1 11.000	6	1.0230	11.253	72312	WALANA T-2 11.000	6	1.0230	11.253
72351	NAWAZ T-1 11.000	6	1.0181	11.199	72401	J.D.WALI T-111.000	6	0.9944	10.939
72402	JDWALI T-2 11.000	6	0.9637	10.601	72403	J D WALI T-311.000	6	0.9580	10.538

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72501 MN.KH.RD T-111.000	6 0.9935 10.929	72502 MN.KH.RD T-211.000	6 1.0257 11.282
72503 MN.KH.RD T-311.000	6 1.0023 11.026	72551 WAP TO T-1 11.000	6 0.9721 10.693
72552 WAPDA TO T-211.000	6 0.9783 10.761	72601 MN.BS.RD T-111.000	6 0.9823 10.805
72602 MN.BS.RD T-211.000	6 0.9943 10.937	72603 MN.BS.RD T-311.000	6 0.9912 10.903
72611 PNJB HSG T-111.000	6 1.0069 11.076	72612 PNJB HSG T-211.000	6 1.0069 11.076
72621 BUCH VLS T-111.000	6 1.0265 11.291	72651 Q BAGH T-1 11.000	6 0.9740 10.714
72652 Q BAGH T-2 11.000	6 0.9871 10.858	72701 MLN-IND T-1 11.000	6 0.9816 10.797
72702 MLN-IND T-2 11.000	6 0.9920 10.912	72703 MLN-IND T-3 11.000	6 0.9782 10.760
72731 SURJ MNI T-111.000	6 1.0044 11.049	72732 SURJ MNI T-211.000	6 0.9949 10.944
72801 MN.VR.RD T-111.000	6 0.9607 10.568	72802 MN.VR.RD T-211.000	6 0.9651 10.616
72803 MN.VR.RD T-311.000	6 1.0047 11.051	72851 QASIMPUR T-111.000	6 1.0203 11.223
72852 QASIMPUR T-211.000	6 1.0289 11.318	72853 QASIMPUR T-311.000	6 0.9832 10.815
72871 M.J RD T-1 11.000	6 1.0347 11.381	72872 M.J.RD T-2 11.000	6 1.0255 11.281
72881 SHUJABAD T-111.000	6 1.0161 11.177	72882 SHUJABAD T-211.000	6 1.0092 11.102
72883 SHUJABAD T-311.000	6 0.9678 10.646	72891 J.P.W T-1 11.000	6 1.0198 11.218
72892 J.P.W T-2 11.000	6 1.0250 11.275	72893 J.P.W T-3 11.000	6 0.9825 10.807
72901 MESCO T-1 11.000	6 1.0231 11.254	72902 MESCO T-2 11.000	6 1.0165 11.181
72903 MESCO T-3 11.000	6 1.0141 11.155	73021 SANAWAN T-1 11.000	6 1.0334 11.367
73022 SANAWAN T-2 11.000	6 1.0012 11.013	73031 PIR CHGI T-111.000	6 1.0025 11.028
73032 11.000	6 0.9836 10.820	73201 GUJRAT.S T-111.000	6 0.9733 10.706
73202 GUJRAT.S T-211.000	6 0.9768 10.745	73203 GUJRAT.S T3 11.000	6 0.9646 10.611
73251 LAYYAH T-1 11.000	6 1.0332 11.365	73252 LAYYAH T-2 11.000	6 0.9959 10.955
73253 LAYYAH T-3 11.000	6 0.9559 10.515	73281 KBGASHER T-111.000	6 0.9607 10.568
73282 KBGASHER T-211.000	6 0.9587 10.546	73301 MZFRGARH T-111.000	6 1.0315 11.347
73302 MZFRGARH T-211.000	6 1.0200 11.220	73303 MZFRGARH T-311.000	6 1.0108 11.119
73311 KOTADU-O T-211.000	6 0.9955 10.951	73313 KOTADU-O T-311.000	6 1.0030 11.033
73314 KOTADU-O T-411.000	6 1.0018 11.020	73321 N.A.WALI T-111.000	6 1.0014 11.015
73322 N.A.WALI T-211.000	6 0.9789 10.768	73331 S S DIN T1 11.000	6 1.0458 11.504
73332 S S DIN T2 11.000	6 1.0466 11.513	73351 KOTSULTAN-T111.000	6 1.0331 11.364
73352 KOTSULTAN-T211.000	6 1.0331 11.364	73361 KAROR L.E-T111.000	6 1.0393 11.432
73362 KAROR L.E-T211.000	6 1.0308 11.339	73363 KAROR L.E-T311.000	6 1.0308 11.339
73401 MEHRKHAS T-111.000	6 1.0282 11.310	73402 MEHRKHAS T-211.000	6 1.0069 11.076
73403 MEHRKHAS T-311.000	6 0.9737 10.711	73501 DMR WALA T-111.000	6 1.0039 11.043
73502 DMR WALA T-211.000	6 1.0338 11.372	73601 JATOIJNB T-111.000	6 0.9675 10.642
73602 JATOIJNB T-211.000	6 0.9970 10.967	73701 KHRPRSDT T-111.000	6 1.0137 11.150
73702 KHRPRSDT T-2 11.000	6 0.9570 10.528	73951 SHA.LND T-1 11.000	6 0.9820 10.802
73952 SHA LND T-2 11.000	6 0.9685 10.653	74001 TAUNSA T-1 11.000	6 0.9552 10.507

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74002	TAUNSA T-2	11.000	6	0.9552	10.507	74401	CHOKMNDA T-111.000	6	1.0041	11.045
74402	CHOKMNDA T-211.000		6	0.9757	10.732	74502	CHAUBARA T-211.000	6	0.9684	10.653
74503	CHAUBARA T-311.000		6	0.9563	10.520	74561	CHOKAZAM T1 11.000	6	1.0157	11.173
74562	CHOKAZAM T2 11.000		6	0.9561	10.517	74591	KHANGARH T-111.000	6	1.0211	11.232
74592	KHANGARH T-211.000		6	0.9762	10.738	74602	D.G.KHAN T-211.000	6	0.9885	10.873
74603	D.G.KHAN T-311.000		6	0.9873	10.861	74604	D.G.KHAN T-411.000	6	0.9785	10.763
74651	KOTCHUTA T-111.000		6	1.0048	11.053	74652	KOTCHUTA T-211.000	6	1.0123	11.135
74653	KOTCHUTTA T311.000		6	0.9831	10.814	74701	ROJHAN T-1 11.000	6	0.9916	10.908
75901	SKHISRWR T-111.000		6	1.0401	11.442	75902	SKISRWR T-2 11.000	6	1.0275	11.302
77811	YAZMAN-T-1 11.000		6	1.0159	11.175	77812	YAZMAN T-2 11.000	6	1.0159	11.175
77821	MAROOT T1 11.000		6	1.0497	11.547	77822	MAROOT T-2 11.000	6	1.0020	11.022
78311	FATEHPUR T-111.000		6	0.9908	10.899	78312	FATEPUR T-2 11.000	6	1.0184	11.203
78401	T1 11.000		6	1.0011	11.012	78901	NAWANKOT T-111.000	6	0.9583	10.541
79091	D.G.K.II T-111.000		6	1.0064	11.071	79092	D.G.K.II T-211.000	6	1.0064	11.071
79211	JAMPUR T-1 11.000		6	1.0022	11.024	79251	CHOTI T-1 11.000	6	0.9749	10.724
79301	JAMPUR T-1 11.000		6	1.0072	11.079	79302	JAMPUR T-2 11.000	6	1.0208	11.229
79331	FAZALPUR T-111.000		6	0.9738	10.712	79332	FAZALPUR T-211.000	6	0.9613	10.574
79351	DAJAL T-1 11.000		6	1.0440	11.484	79352	DAJAL T-2 11.000	6	0.9901	10.891
79511	RAJANPUR T-111.000		6	1.0127	11.140	79512	RAJANPUR T-211.000	6	0.9756	10.731
79513	RAJANPUR T-311.000		6	0.9565	10.522	79741	UCH.SHRF T-211.000	6	1.0450	11.495
79742	UCH.SHRF T-311.000		6	1.0426	11.469	79743	UCH.SHRF T-111.000	6	1.0401	11.441
79751	UCH (KF) T-111.000		6	1.0189	11.208	79811	ALI PUR T-1 11.000	6	1.0021	11.023
79812	ALIPUR T-2 11.000		6	1.0283	11.311	79813	ALIPUR T-3 11.000	6	1.0113	11.125
79841	H.R. KAN T1 11.000		6	1.0371	11.408	79842	H.R.KAN T-2 11.000	6	1.0371	11.408
79961	FRT MNRO T-111.000		6	1.0448	11.493	613811	BWP-2 T-1 11.000	6	1.0085	11.094
613812	BWP-2 T-2 11.000		6	1.0085	11.094	732512	LSM-132KV 132.00	6	1.0170	134.25

Without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

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BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0338	136.46
601		APPOLO-SOLAR		132.00	6	1.0344	136.54
801		QAD-SOL-I		132.00	6	1.0334	136.41
6030		QADIRABD		132.00	6	1.0485	138.40
6070		YOUSFWLA		132.00	6	1.0485	138.40
6090		SAHWAL-O		132.00	6	1.0335	136.42
6100		NOORPUR		132.00	6	1.0156	134.05
6122		PAK PATTAN-2		132.00	6	0.9766	128.91
6140		CHCHWTNI		132.00	6	1.0056	132.74
6160		BUREWALA		132.00	6	0.9891	130.56
6169		VEHARI-N		132.00	6	1.0218	134.87
6175		LUDDEN		132.00	6	1.0095	133.25
6180		ARIFWALA		132.00	6	0.9947	131.30
6190		BWL.NAGR		132.00	6	1.0047	132.62
6200		QABULA		132.00	6	0.9977	131.70
6220		HASILPUR		132.00	6	1.0154	134.03
6231		CHSTAN-N		132.00	6	1.0216	134.85
6410		HASILPUR		66.000	6	1.0100	66.662
6419		L.SOHANRA		132.00	6	1.0309	136.08
6461		T-NURSAR		66.000	6	0.9948	65.660
6482		MNCHNBAD		132.00	6	1.0067	132.89
6501		HARONABD		132.00	6	0.9994	131.92
6521		FORTABAS		132.00	6	0.9816	129.57
7000		MIANCHNU		132.00	6	1.0002	132.03
7002		KASSOWAL		132.00	6	1.0154	134.03
7010		KACHAKHU		132.00	6	0.9925	131.01
7029		FAUJI-K		132.00	6	1.0300	135.96
7032		MP.PAHOR		132.00	6	0.9761	128.84
7041		T-GM		132.00	6	1.0117	133.55
7055		T-C.211		132.00	6	1.0075	132.99
7070		MAILSI		132.00	6	1.0067	132.88
7076		F.J HOUSING		132.00	6	1.0515	138.79
7109		P.GAIB-2		132.00	6	1.0592	139.82
7115		MIRAN PUR		132.00	6	1.0543	139.16

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
529		PARCO		220.00	6	1.0448	229.87
730		SHK-PP-132		132.00	6	1.0355	136.69
1001		CREST-ENERGY		132.00	6	1.0346	136.57
6050		BNGAHYAT		132.00	6	1.0378	137.00
6080		SAHIWALN		132.00	6	1.0408	137.39
6095		SAHIWAL III		132.00	6	1.0259	135.42
6120		PAKPATAN		132.00	6	1.0057	132.75
6130		HARAPPA		132.00	6	1.0108	133.43
6150		SH.FAZAL		132.00	6	0.9862	130.18
6162		BREWLA-O		132.00	6	0.9859	130.14
6170		VEHARI-O		132.00	6	1.0183	134.42
6178		KAMPUR		132.00	6	1.0021	132.28
6182		KAMIRWALA		132.00	6	1.0089	133.17
6191		HOTA		132.00	6	0.9974	131.65
6210		SAHUKA		132.00	6	0.9765	128.90
6230		CHISTIAN-O		132.00	6	1.0198	134.62
6232		DHARWALA132		132.00	6	1.0139	133.83
6415		CHISTIAN		66.000	6	0.9945	65.640
6421		K.P.TOMI		132.00	6	1.0185	134.45
6462		NOORSAR		132.00	6	1.0091	133.20
6491		MCLD.GNJ		132.00	6	1.0023	132.31
6512		FAQIRWLI		132.00	6	0.9867	130.25
6666		MULTAN-N		132.00	6	1.0248	135.27
7001		CHAK-83-132		132.00	6	1.0045	132.60
7006		HEAD SIDHNAI		132.00	6	0.9589	126.57
7020		KHANEWAL		132.00	6	1.0069	132.91
7030		KABIRWLA		132.00	6	0.9977	131.70
7040		GARMORE		132.00	6	1.0110	133.46
7050		JEHANIAN		132.00	6	1.0211	134.79
7060		CHAK.211		132.00	6	1.0039	132.52
7075		MUKHDM.R		132.00	6	1.0303	136.00
7100		P.GAIB-1		132.00	6	1.0271	135.58
7110		BASTIMLK		132.00	6	1.0166	134.18
7120		LODHRAN		132.00	6	1.0351	136.64

7125	LAR	132.00	6	1.0314	136.15	7130	BU.JADID	132.00	6	1.0471	138.21
7138	BWPN-2	132.00	6	1.0497	138.56	7139	B.W.P-N	132.00	6	1.0626	140.27
7140	BHAWALPR	132.00	6	1.0513	138.77	7145	BPUR CANTT	132.00	6	1.0591	139.80
7147	KARORPCA	132.00	6	1.0263	135.47	7149	DUNYAPUR	132.00	6	1.0176	134.33
7150	SAMASATA	132.00	6	1.0445	137.88	7159	MUB-PUR	132.00	6	1.0365	136.82
7160	LIAQATPR	132.00	6	1.0346	136.56	7170	AHMDPR.E	132.00	6	1.0308	136.06
7175	RYK-PP	132.00	6	1.0172	134.27	7180	FEROZA	132.00	6	1.0189	134.49
7185	KHANBELA	132.00	6	1.0063	132.83	7190	HAMZA-PP	132.00	6	1.0394	137.20
7200	KHANPUR	132.00	6	1.0427	137.64	7210	MWQRSHIA	132.00	6	1.0274	135.61
7220	R.Y.KHAN	132.00	6	1.0334	136.40	7221	RYK-NEW	132.00	6	1.0572	139.55
7225	R.Y.KHN2	132.00	6	1.0406	137.36	7226	RYK-T	132.00	6	1.0438	137.78
7230	SADIQABD	132.00	6	1.0190	134.51	7231	WALANA	132.00	6	1.0158	134.09
7235	NAWAZABD	132.00	6	1.0284	135.74	7240	J.D.WALI	132.00	6	1.0009	132.12
7250	MN.KH.RD	132.00	6	1.0226	134.99	7255	WAPDATWN	132.00	6	1.0118	133.56
7260	MN.BS.RD	132.00	6	1.0056	132.74	7261	PUNJAB HOSNG	132.00	6	1.0183	134.42
7262	BUCH VILLAS	132.00	6	1.0037	132.49	7265	QASIMBGH	132.00	6	0.9998	131.97
7270	MLN-IND	132.00	6	1.0006	132.08	7272	COCA COLA	132.00	6	1.0006	132.08
7273	SURAJ MIANI	132.00	6	0.9957	131.43	7275	C.T.MILL	132.00	6	0.9980	131.73
7280	MN.VR.RD	132.00	6	1.0003	132.03	7285	QASIMPUR	132.00	6	1.0079	133.04
7287	M.JAILRD	132.00	6	0.9995	131.94	7288	SHUJABAD	132.00	6	0.9968	131.57
7289	JALALPWL	132.00	6	1.0096	133.27	7290	MESCO	132.00	6	0.9966	131.55
7300	KAPCO	132.00	6	1.0500	138.60	7302	SANAWAN	132.00	6	1.0456	138.02
7303	PIR CHUGI SH	132.00	6	1.0432	137.70	7320	GUJRAT.S	132.00	6	1.0140	133.85
7325	LAYYAH	132.00	6	1.0003	132.04	7328	KBGASHER	132.00	6	1.0212	134.80
7330	MZFRGARH	132.00	6	1.0128	133.69	7331	KOTADU-O	132.00	6	1.0479	138.32
7332	N.A.WALI	132.00	6	1.0260	135.44	7333	S.S.DIN	132.00	6	1.0045	132.59
7334	M GARH NEW	132.00	6	1.0151	134.00	7335	KOTSULTAN	132.00	6	1.0160	134.11
7336	KAROR L.E	132.00	6	0.9599	126.71	7340	MEHRKHAS	132.00	6	0.9626	127.06
7350	DMR WALA	132.00	6	0.9517	125.62	7360	JATOIJNB	132.00	6	0.9348	123.40
7370	KHRPRSDT	132.00	6	0.9280	122.50	7395	SHAD.LND	132.00	6	1.0138	133.83
7400	TAUNSA	132.00	6	0.9999	131.98	7435	PARCO	132.00	6	0.9694	127.97
7436	T-PARCO	132.00	6	0.9695	127.98	7440	CHOKMNDA	132.00	6	1.0180	134.38
7441	T-CMUNDA	132.00	6	1.0185	134.45	7442	T-AHTM	132.00	6	1.0305	136.03
7443	AHTM	132.00	6	1.0301	135.98	7450	CHAUBARA	132.00	6	0.9893	130.58
7456	CHOKAZAM	132.00	6	0.9853	130.06	7459	KHANGARH	132.00	6	0.9909	130.80
7460	D.G.KHAN	132.00	6	1.0049	132.65	7462	MDC-DGK	132.00	6	1.0217	134.87
7463	CPC-DGK	132.00	6	1.0082	133.08	7465	KOTCHUTA	132.00	6	0.9885	130.48

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7466 T-ATM	132.00	6 0.9976	131.68	7467 ATM	132.00	6 0.9970	131.60
7470 ROJHAN	132.00	6 1.0110	133.46	7580 CMNT.FCT	132.00	6 0.9965	131.54
7590 SKHISRWR	132.00	6 1.0218	134.88	7781 YAZMAN	132.00	6 1.0442	137.83
7782 MAROOT	132.00	6 1.0293	135.87	7800 KOTADDU	66.000	6 1.0368	68.428
7811 T-KOTSUL	66.000	6 1.0369	68.436	7831 FATEHPUR	132.00	6 0.9330	123.15
7840 RANGPUR	66.000	6 1.0205	67.355	7842 T-RANGPR	66.000	6 1.0314	68.074
7880 CHAUBARA	66.000	6 0.9738	64.272	7890 NAWANKOT	66.000	6 0.9686	63.925
7891 T.NWANKOT	66.000	6 0.9689	63.950	7909 D.G.KHAN II	132.00	6 1.0061	132.80
7910 D.G.KHAN	66.000	6 0.9403	62.062	7920 KOTCHOTA	66.000	6 0.8621	56.901
7921 JAMPUR	66.000	6 0.8485	56.000	7925 CHOTI	66.000	6 0.8206	54.159
7930 JAMPUR	132.00	6 0.9708	128.14	7933 FAZALPUR	132.00	6 0.9769	128.94
7935 DAJAL	66.000	6 0.8370	55.245	7951 RAJANPUR	132.00	6 0.9685	127.84
7970 AHMDPR.E	66.000	6 1.0510	69.368	7974 UCH.SHRF	132.00	6 1.0276	135.64
7975 UCH (KF)	66.000	6 0.9978	65.853	7977 T-UCHSHF	66.000	6 1.0283	67.867
7981 ALI PUR	132.00	6 0.9304	122.81	7984 HEAD-RJ-KN	132.00	6 1.0409	137.39
7996 FORT.MINRO	132.00	6 1.0224	134.95	60301 QADIRABD T-111.000		6 1.0163	11.179
60302 QADIRABD T-211.000		6 1.0099	11.109	60501 BNGAHYAT T-111.000		6 0.9961	10.957
60502 BNGAHYAT T-211.000		6 1.0036	11.040	60801 SAHIWALN T-111.000		6 1.0009	11.010
60802 SAHIWALN T-211.000		6 1.0001	11.001	60901 SAHWAL-O T-111.000		6 1.0065	11.071
60902 SAHWAL-O T-211.000		6 1.0075	11.083	60903 SAHWAL-O T-311.000		6 0.9853	10.838
60951 SWL III T-1 11.000		6 1.0197	11.217	60952 SWL III T-2 11.000		6 1.0197	11.217
61001 NOORPUR T-1 11.000		6 1.0191	11.210	61002 NOORPUR T-2 11.000		6 1.0191	11.210
61201 PAKPATAN T-111.000		6 0.9994	10.993	61202 PAKPATAN T-211.000		6 0.9994	10.993
61203 PAKPATAN T-311.000		6 0.9977	10.975	61221 PAK PTN T-1 11.000		6 0.9891	10.880
61222 PAK PTN T-2 11.000		6 1.0027	11.030	61301 HARAPPA T-1 11.000		6 0.9958	10.954
61302 HARAPPA T-2 11.000		6 0.9951	10.946	61381 BWP-2	132.00	6 1.0484	138.39
61402 CHCHWTNI T-211.000		6 1.0249	11.274	61403 CHCHWTNI T-311.000		6 0.9854	10.840
61404 CHCHWTNI T-111.000		6 0.9579	10.536	61501 SH.FAZAL T-111.000		6 0.9897	10.887
61502 SH.FAZAL T-211.000		6 0.9761	10.737	61601 BUREWALA T-111.000		6 1.0053	11.058
61602 BUREWALA T-211.000		6 0.9986	10.985	61603 BUREWALA T-311.000		6 0.9541	10.495
61621 BREWLA-O T-111.000		6 0.9739	10.713	61622 BREWLA-O T-211.000		6 1.0213	11.234
61701 VEHARI-O T-111.000		6 1.0090	11.098	61702 VEHARI-O T-211.000		6 1.0090	11.098
61703 VEHARI-T-3 11.000		6 1.0050	11.056	61751 LUDDEN T-1 11.000		6 1.0085	11.094
61752 LUDDEN T-2 11.000		6 1.0021	11.023	61781 KARAMPUR T-111.000		6 0.9885	10.873
61782 KARAMPUR T-211.000		6 0.9908	10.899	61801 ARIFWALA T-111.000		6 1.0315	11.346
61802 ARIFWALA T-211.000		6 1.0179	11.197	61803 ARIFWALA T-311.000		6 1.0087	11.096
61821 KAMIRW T-1 11.000		6 0.9655	10.621	61822 KAMIR W T-2 11.000		6 0.9655	10.621

		Ideal june 2018			
61901	BWL.NAGR T-111.000	6	1.0109 11.120	61902	BWL.NAGR T-411.000
61903	BWL.NAGR T-311.000	6	1.0290 11.319	61911	HOTA T-1 11.000
62001	QABULA T-1 11.000	6	1.0239 11.263	62002	QABULA T-2 11.000
62003	QABULA T-3 11.000	6	0.9470 10.417	62101	SAHUKA T-1 11.000
62102	SAHUKA T-2 11.000	6	1.0123 11.135	62202	HASILPUR T-211.000
62203	HASILPUR T-311.000	6	1.0250 11.275	62301	CHISTIAN T-111.000
62302	CHISTIAN T-211.000	6	1.0394 11.434	62303	CHISTIAO T3 11.000
62321	DHRANWALA-T111.000	6	0.9792 10.771	62322	DHRANWALA-T211.000
64151	CHISTIAN T-211.000	6	0.9945 10.940	64191	L.SOHAN T-1 11.000
64211	K.P.TOMI T-111.000	6	1.0134 11.148	64212	K.P.TOMI T-211.000
64621	NOORSAR T-1 11.000	6	0.9671 10.638	64821	MNCHNBAD T1 11.000
64822	MNCHNBAD T-211.000	6	1.0283 11.311	64911	MCLD.GNJ T1 11.000
64912	MCLD GNG T-2	6	0.9882	65012	HARONABD T-211.000
65013	HARONABD T-111.000	6	1.0207 11.228	65014	HARONABD T-311.000
65121	FAQIRWLI-T1 11.000	6	1.0088 11.097	65122	FAQIRWLI-T2 11.000
65211	FORTABAS-T1 11.000	6	1.0561 11.617	65212	FORTABAST-2 11.000
70001	MIANCHNU T1 11.000	6	0.9870 10.857	70002	MIANCHNU T-211.000
70003	MIANCHNU T-311.000	6	0.9897 10.886	70011	CHAK-83-T1 11.000
70012	CHAK-83-T2 11.000	6	1.0211 11.232	70021	KASSOWAL T-111.000
70022	KASOWAL T-2 11.000	6	0.9757 10.733	70061	H SIDNAI T-111.000
70062	H SIDNAI T-211.000	6	0.9805 10.786	70101	KACHAKHU T-111.000
70102	KACHAKHU T-211.000	6	1.0074 11.081	70103	KACHAKHU T-311.000
70201	KHANEWAL T-111.000	6	0.9620 10.582	70202	KHANEWAL T-211.000
70203	KHANEWAL T-311.000	6	1.0027 11.030	70301	KABIRWLA T-111.000
70302	KABIRWLA T-211.000	6	0.9773 10.750	70303	KABIRWLA T-311.000
70321	MP PAHOR T-111.000	6	0.9524 10.476	70322	MP PAHOR T-211.000
70401	GARHMORE T-111.000	6	1.0186 11.205	70402	GARHMORE T-211.000
70501	JEHANIAN T-111.000	6	0.9630 10.593	70502	JEHANIAN T-211.000
70503	JEHANIAN T-311.000	6	1.0342 11.377	70601	CHAK.211 T-111.000
70602	CHAK 211 T-211.000	6	1.0565 11.622	70603	CHAK 211 T-311.000
70701	MAILSI T-1 11.000	6	1.0304 11.335	70702	MAILSI T-2 11.000
70703	MAILSI T-3 11.000	6	1.0310 11.341	70751	MUKHDM.R T-111.000
70752	MUKHDM.R T-211.000	6	1.0402 11.443	70761	F.J HSNG T-111.000
71101	BASTIMLK T-111.000	6	1.0000 11.000	71102	BASTIMLK T-211.000
71103	BASTIMLK T-311.000	6	0.9711 10.683	71151	MIRAN P T-1 11.000
71152	MIRAN P T-2 11.000	6	1.0909 12.000	71201	LODHRAN T-1 11.000
71202	LODHRAN T-2 11.000	6	1.0469 11.516	71203	LODHRAN T-3 11.000
					6 0.9939 10.933
					6 1.0090 11.099
					6 1.0211 11.232
					6 1.0387 11.426
					6 1.0187 11.206
					6 1.0165 11.182
					6 0.9857 10.843
					6 0.9792 10.771
					6 1.0346 11.381
					6 1.0024 11.027
					6 1.0410 11.451
					6 1.0553 11.608
					6 0.9990 10.989
					6 0.9738 10.712
					6 1.0130 11.143
					6 1.0275 11.302
					6 0.9733 10.706
					6 1.0183 11.201
					6 0.9757 10.733
					6 0.9619 10.580
					6 1.0074 11.081
					6 0.9567 10.523
					6 0.9983 10.981
					6 0.9898 10.888
					6 0.9420 10.362
					6 0.9292 10.221
					6 1.0022 11.024
					6 1.0202 11.222
					6 1.0618 11.679
					6 0.9638 10.602
					6 1.0561 11.617
					6 1.0388 11.427
					6 1.0651 11.716
					6 1.0346 11.380
					6 1.0385 11.423
					6 1.0516 11.568
					6 1.0659 11.725

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71251 LART-1 11.000
71301 BU.JADID T-111.000
71401 BHAWALPR T-111.000
71403 BHAWALPR T-311.000
71452 BPCANTT T-2 11.000
71472 KARORPCA T-211.000
71491 DUNYAPUR T-311.000
71501 SAMASATA T-111.000
71591 MUB-PUR-T1 11.000
71601 LIAQATPR T-111.000
71702 AHMDPR.E T-211.000
71704 AHMDPR.E T4 11.000
71802 FEROZA T-2 11.000
71852 KHANBELA T-211.000
72002 KHANPUR T-2 11.000
72101 MWQRSHIA T-111.000
72201 R.Y.KHAN T-111.000
72203 R.Y.KHAN T-311.000
72252 R.Y.KHN2 T-211.000
72302 SADIQABD T-211.000
72311 WALANA T-1 11.000
72351 NAWAZ T-1 11.000
72402 JDWALI T-2 11.000
72501 MN.KH.RD T-111.000
72503 MN.KH.RD T-311.000
72552 WAPDA TO T-211.000
72602 MN.BS.RD T-211.000
72611 PNJB HSG T-111.000
72621 BUCH VLS T-111.000
72652 Q BAGH T-2 11.000
72702 MLN-IND T-2 11.000
72731 SURJ MNI T-111.000
72801 MN.VR.RD T-111.000
72803 MN.VR.RD T-311.000
72852 QASIMPUR T-211.000
72871 M.J RD T-1 11.000
72881 SHUJABAD T-111.000

6 1.0315 11.346
6 1.0498 11.548
6 1.0518 11.570
6 1.0206 11.226
6 1.0737 11.811
6 1.0726 11.799
6 1.0472 11.519
6 1.0216 11.238
6 1.0112 11.123
6 1.0272 11.299
6 1.0438 11.481
6 0.9991 10.990
6 1.0628 11.690
6 0.9624 10.586
6 1.0085 11.094
6 1.0049 11.054
6 1.0432 11.475
6 1.0432 11.475
6 1.0207 11.227
6 1.0309 11.339
6 1.0329 11.362
6 1.0224 11.246
6 0.9740 10.714
6 0.9936 10.929
6 1.0024 11.026
6 0.9780 10.758
6 0.9933 10.926
6 1.0075 11.083
6 1.0225 11.247
6 0.9876 10.863
6 0.9849 10.834
6 0.9975 10.972
6 0.9627 10.590
6 0.9497 10.447
6 1.0290 11.319
6 1.0474 11.522
6 1.0289 11.318

71252 LAR T-2 11.000
71302 BU.JADID T-211.000
71402 BHAWALPR T-211.000
71451 BP CANTT T-111.000
71471 KARORPCA T-111.000
71473 KARORPCA T-311.000
71492 DUNYAPUR T-411.000
71502 SAMASATA T-211.000
71592 MUB-PUR-T2 11.000
71602 LIAQATPR T-211.000
71703 AHMDPR.E T-311.000
71801 FEROZA T-1 11.000
71851 KHANBELA T-111.000
72001 KHANPUR T-1 11.000
72003 KHANPUR T-3 11.000
72102 MWQRSHIA T2 11.000
72202 R.Y.KHAN T-211.000
72251 R.Y.KHN2 T-111.000
72301 SADIQABD T-111.000
72303 SADIQABD T-311.000
72312 WALANA T-2 11.000
72401 J.D.WALI T-111.000
72403 J D WALI T-311.000
72502 MN.KH.RD T-211.000
72551 WAP TO T-1 11.000
72601 MN.BS.RD T-111.000
72603 MN.BS.RD T-311.000
72612 PNJB HSG T-211.000
72651 Q BAGH T-1 11.000
72701 MLN-IND T-1 11.000
72703 MLN-IND T-3 11.000
72732 SURJ MNI T-211.000
72802 MN.VR.RD T-211.000
72851 QASIMPUR T-111.000
72853 QASIMPUR T-311.000
72872 M.J.RD T-2 11.000
72882 SHUJABAD T-211.000

6 1.0190 11.209
6 1.1132 12.245
6 1.0775 11.852
6 1.0411 11.452
6 1.0960 12.056
6 1.0152 11.167
6 1.0186 11.205
6 1.0216 11.238
6 1.0112 11.123
6 1.0336 11.370
6 1.0594 11.653
6 1.0513 11.564
6 1.0284 11.313
6 1.0041 11.045
6 1.0070 11.077
6 0.9602 10.562
6 1.0432 11.475
6 1.0243 11.268
6 1.0309 11.339
6 1.0469 11.516
6 1.0329 11.362
6 1.0047 11.051
6 0.9682 10.650
6 1.0256 11.282
6 0.9718 10.690
6 0.9814 10.796
6 0.9903 10.893
6 1.0075 11.083
6 0.9745 10.720
6 0.9746 10.720
6 0.9713 10.684
6 0.9880 10.868
6 0.9627 10.590
6 1.0206 11.226
6 0.9836 10.819
6 1.0189 11.208
6 1.0221 11.243

72883 SHUJABAD T-3 11.000
 72892 J.P.W T-2 11.000
 72901 MESCO T-1 11.000
 72903 MESCO T-3 11.000
 73022 SANAWAN T-2 11.000
 73201 GUJRAT.S T-1 11.000
 73203 GUJRAT.S T3 11.000
 73252 LAYYAH T-2 11.000
 73281 KBGASHER T-1 11.000
 73301 MZFRGARH T-1 11.000
 73303 MZFRGARH T-3 11.000
 73313 KOTADU-O T-3 11.000
 73321 N.A.WALI T-1 11.000
 73331 S S DIN T1 11.000
 73351 KOTSULTAN-T 11.000
 73361 KAROR L.E-T1
 73363 KAROR L.E-T3 11.000
 73402 MEHRKHAS T-2 11.000
 73501 DMR WALA T-1 11.000
 73601 JATOIJNB T-1 11.000
 73701 KHRPRSDT T-1 11.000
 73951 SHA.LND T-1 11.000
 74001 TAUNSA T-1 11.000
 74401 CHOKMNDA T-1 11.000
 74502 CHAUBARA T-2 11.000
 74562 CHOKAZAM T2 11.000
 74592 KHANGARH T-2 11.000
 74603 D.G.KHAN T-3 11.000
 74651 KOTCHUTA T-1 11.000
 74653 KOTCHUTTA T3 11.000
 75901 SKHISRWR T-1 11.000
 77811 YAZMAN-T-1 11.000
 77821 MAROOT T1 11.000
 78311 FATEHPUR T-1 11.000
 78401 T1 11.000
 79091 D.G.K.II T-1 11.000
 79211 JAMPUR T-1 11.000

Ideal june 2018
 6 0.9548 10.503
 6 1.0074 11.081
 6 1.0208 11.228
 6 1.0118 11.130
 6 1.0033 11.037
 6 0.9680 10.649
 6 0.9594 10.554
 6 0.9801 10.781
 6 0.9616 10.578
 6 1.0289 11.318
 6 1.0038 11.042
 6 1.0094 11.104
 6 0.9900 10.890
 6 1.0321 11.353
 6 0.9998 10.998
 6 0.9261
 6 0.9368 10.305
 6 0.9614 10.575
 6 0.9408 10.348
 6 0.9315 10.246
 6 0.9416 10.357
 6 0.9846 10.831
 6 0.9585 10.544
 6 1.0166 11.182
 6 0.9478 10.426
 6 0.9341 10.275
 6 0.9399 10.338
 6 0.9535 10.488
 6 0.9750 10.725
 6 0.9539 10.492
 6 1.0156 11.171
 6 1.0281 11.309
 6 1.0805 11.886
 6 0.8602 9.463
 6 1.0023 11.025
 6 0.9780 10.758
 6 0.7322 8.054

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72891 J.P.W T-1 11.000
 72893 J.P.W T-3 11.000
 72902 MESCO T-2 11.000
 73021 SANAWAN T-1 11.000
 73031 PIR CHGI T-1 11.000
 73202 GUJRAT.S T-2 11.000
 73251 LAYYAH T-1 11.000
 73253 LAYYAH T-3 11.000
 73282 KBGASHER T-2 11.000
 73302 MZFRGARH T-2 11.000
 73311 KOTADU-O T-2 11.000
 73314 KOTADU-O T-4 11.000
 73322 N.A.WALI T-2 11.000
 73332 S S DIN T2 11.000
 73352 KOTSULTAN-T 2 11.000
 73362 KAROR L.E-T2
 73401 MEHRKHAS T-1 11.000
 73403 MEHRKHAS T-3 11.000
 73502 DMR WALA T-2 11.000
 73602 JATOIJNB T-2 11.000
 73702 KHRPRSDT T-2 11.000
 73952 SHA LND T-2 11.000
 74002 TAUNSA T-2 11.000
 74402 CHOKMNDA T-2 11.000
 74561 CHOKAZAM T1 11.000
 74591 KHANGARH T-1 11.000
 74602 D.G.KHAN T-2 11.000
 74604 D.G.KHAN T-4 11.000
 74652 KOTCHUTA T-2 11.000
 74701 ROJHAN T-1 11.000
 75902 SKISRWR T-2 11.000
 77812 YAZMAN T-2 11.000
 77822 MAROOT T-2 11.000
 78312 FATEPUR T-2 11.000
 78901 NAWANKOT T-1 11.000
 79092 D.G.K.II T-2 11.000
 79251 CHOTI T-1 11.000

6 1.0568 11.625
 6 1.0011 11.012
 6 1.0142 11.156
 6 1.0356 11.391
 6 1.0142 11.157
 6 0.9716 10.687
 6 1.0167 11.184
 6 0.9515 10.467
 6 0.9597 10.557
 6 0.9948 10.943
 6 0.9973 10.971
 6 1.0100 11.110
 6 0.9802 10.782
 6 0.9927 10.920
 6 1.0183 11.202
 6 0.9454
 6 0.9747 10.722
 6 0.8998 9.898
 6 0.9511 10.462
 6 0.8788 9.666
 6 0.8815 9.696
 6 0.9712 10.683
 6 0.9585 10.544
 6 0.9757 10.732
 6 0.9924 10.916
 6 0.9648 10.612
 6 0.9714 10.686
 6 0.9578 10.536
 6 0.9823 10.805
 6 0.9816 10.798
 6 1.0032 11.035
 6 1.0281 11.309
 6 1.0738 11.812
 6 0.8766 9.642
 6 0.9507 10.458
 6 0.9780 10.758
 6 0.7030 7.733

Ideal june 2018

79301 JAMPUR T-1 11.000	6 0.9488 10.437	79302 JAMPUR T-2 11.000	6 0.9741 10.715
79331 FAZALPUR T-111.000	6 0.9443 10.387	79332 FAZALPUR T-211.000	6 0.9321 10.254
79351 DAJAL T-1 11.000	6 0.8629 9.492	79352 DAJAL T-2	6 0.8178
79511 RAJANPUR T-111.000	6 0.9895 10.884	79512 RAJANPUR T-211.000	6 0.9654 10.620
79513 RAJANPUR T-311.000	6 0.9168 10.085	79741 UCH.SHRF T-211.000	6 1.0615 11.677
79742 UCH.SHRF T-311.000	6 1.0883 11.972	79743 UCH.SHRF T-111.000	6 1.0629 11.692
79751 UCH (KF) T-111.000	6 1.0074 11.081	79811 ALI PUR T-1 11.000	6 0.9776 10.753
79812 ALIPUR T-2 11.000	6 1.0092 11.101	79813 ALIPUR T-3	6 0.8815
79841 H.R. KAN T1 11.000	6 1.0499 11.549	79842 H.R.KAN T-2 11.000	6 1.0499 11.549
79961 FRT MNRO T-111.000	6 1.0203 11.223	613811 BWP-2 T-1 11.000	6 1.0237 11.260
613812 BWP-2 T-2 11.000	6 1.0237 11.260	732512 LSM-132KV 132.00	6 1.0004 132.05

Realistic june 2018

REALISTIC
June 2018

With:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0378	228.32
601		APPOLO-SOLAR		132.00	6	1.0005	132.06	730		SHK-PP-132		132.00	6	1.0398	137.25
801		QAD-SOL-I		132.00	6	1.0136	133.80	1001		CREST-ENERGY		132.00	6	1.0153	134.02
6030		QADIRABD		132.00	6	1.0474	138.25	6050		BNGAHYAT		132.00	6	1.0087	133.14
6070		YOUSFWLA		132.00	6	1.0441	137.82	6080		SAHIWALN		132.00	6	1.0376	136.96
6090		SAHWAL-O		132.00	6	1.0196	134.59	6095		SAHIWAL III		132.00	6	1.0091	133.20
6100		NOORPUR		132.00	6	0.9780	129.10	6120		PAKPATAN		132.00	6	0.9021	119.07
6130		HARAPPA		132.00	6	1.0028	132.37	6140		CHCHWTNI		132.00	6	1.0039	132.52
6150		SH.FAZAL		132.00	6	0.9874	130.33	6160		BUREWALA		132.00	6	0.9920	130.95
6162		BREWLA-O		132.00	6	0.9886	130.49	6169		VEHARI-N		132.00	6	1.0165	134.17
6170		VEHARI-O		132.00	6	1.0131	133.73	6175		LUDDEN		132.00	6	1.0005	132.07
6178		KARAMPUR		132.00	6	0.9932	131.10	6180		ARIFWALA		132.00	6	1.0065	132.86
6182		KAMIRWALA		132.00	6	1.0155	134.05	6190		BWL.NAGR		132.00	6	1.0064	132.84
6191		HOTA		132.00	6	1.0030	132.39	6200		QABULA		132.00	6	1.0059	132.78
6210		SAHUKA		132.00	6	0.9778	129.07	6220		HASILPUR		132.00	6	0.9999	131.99
6230		CHISTIAN-O		132.00	6	1.0181	134.40	6231		CHSTAN-N		132.00	6	1.0195	134.58
6232		DHARWALA132		132.00	6	1.0119	133.57	6410		HASILPUR		66.000	6	0.9960	65.738
6415		CHISTIAN		66.000	6	0.9835	64.908	6419		L.SOHANRA		132.00	6	1.0015	132.20
6421		K.P.TOMI		132.00	6	0.9956	131.41	6461		T-NURSAR		66.000	6	0.9838	64.928
6462		NOORSAR		132.00	6	1.0094	133.24	6501		HARONABD		132.00	6	0.9976	131.69
6512		FAQIRWLI		132.00	6	0.9849	130.00	6521		FORTABAS		132.00	6	0.9799	129.35

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6666	MULTAN-N	132.00	6	1.0369	136.88	7000	MIANCHNU	132.00	6	0.9821	129.64
7001	CHAK-83-132	132.00	6	0.9943	131.24	7002	KASSOWAL	132.00	6	1.0113	133.49
7006	HEAD SIDHNAI	132.00	6	0.9689	127.89	7010	KACHAKHU	132.00	6	0.9758	128.80
7020	KHANEWAL	132.00	6	0.9886	130.50	7029	FAUJI-K	132.00	6	1.0000	132.00
7030	KABIRWLA	132.00	6	0.9888	130.52	7032	MP. PAHOR	132.00	6	0.9809	129.48
7040	GARHMORE	132.00	6	0.9974	131.65	7041	T-GM	132.00	6	0.9979	131.73
7050	JEHANIAN	132.00	6	0.9961	131.48	7055	T-C.211	132.00	6	0.9790	129.23
7060	CHAK.211	132.00	6	0.9756	128.78	7070	MAILSI	132.00	6	0.9761	128.85
7075	MUKHDM.R	132.00	6	1.0103	133.36	7100	P.GAIB-1	132.00	6	1.0389	137.13
7109	P.GAIB-2	132.00	6	1.0444	137.86	7110	BASTIMLK	132.00	6	1.0124	133.64
7115	MIRAN PUR	132.00	6	1.0377	136.98	7120	LODHRAN	132.00	6	1.0259	135.42
7125	LAR	132.00	6	1.0227	135.00	7130	BU. JADID	132.00	6	1.0353	136.65
7138	BWPN-2	132.00	6	1.0437	137.76	7139	B.W.P-N	132.00	6	1.0518	138.84
7140	BHAWALPR	132.00	6	1.0386	137.10	7145	BPUR CANTT	132.00	6	1.0341	136.50
7147	KARORPCA	132.00	6	0.9900	130.68	7149	DUNYAPUR	132.00	6	0.9878	130.39
7150	SAMASATA	132.00	6	1.0375	136.95	7159	MUB-PUR	132.00	6	0.9908	130.78
7160	LIAQATPR	132.00	6	1.0186	134.45	7170	AHMDPR.E	132.00	6	0.9803	129.40
7175	RYK-PP	132.00	6	1.0000	132.00	7180	FEROZA	132.00	6	0.9935	131.14
7185	KHANBELA	132.00	6	0.9798	129.33	7190	HAMZA-PP	132.00	6	1.0216	134.85
7200	KHANPUR	132.00	6	1.0245	135.24	7210	MWQRSHIA	132.00	6	1.0092	133.21
7220	R.Y.KHAN	132.00	6	1.0156	134.06	7221	RYK-NEW	132.00	6	1.0408	137.39
7225	R.Y.KHN2	132.00	6	1.0236	135.11	7226	RYK-T	132.00	6	1.0268	135.53
7230	SADIQABD	132.00	6	1.0069	132.90	7235	NAWAZABD	132.00	6	1.0197	134.59
7240	J.D.WALI	132.00	6	0.9835	129.82	7250	MN.KH.RD	132.00	6	1.0348	136.59
7255	WAPDATWN	132.00	6	1.0246	135.25	7260	MN.BS.RD	132.00	6	1.0190	134.50
7261	PUNJAB HOSNG	132.00	6	1.0318	136.20	7262	BUCH VILLAS	132.00	6	1.0175	134.30
7265	QASIMBGH	132.00	6	1.0293	135.87	7270	MLN-IND	132.00	6	1.0140	133.84
7272	COCA COLA	132.00	6	1.0140	133.84	7275	C.T.MILL	132.00	6	1.0106	133.40
7280	MN.VR.RD	132.00	6	1.0298	135.93	7285	QASIMPUR	132.00	6	1.0150	133.98
7287	M.JAILRD	132.00	6	1.0089	133.18	7288	SHUJABAD	132.00	6	0.9927	131.04
7289	JALALPWL	132.00	6	1.0011	132.14	7290	MESCO	132.00	6	0.9978	131.71
7300	KAPCO	132.00	6	1.0490	138.47	7320	GUJRAT.S	132.00	6	1.0232	135.06
7325	LAYYAH	132.00	6	0.9836	129.84	7328	KBGASHER	132.00	6	1.0277	135.65
7330	MZFRGARH	132.00	6	1.0257	135.40	7331	KOTADU-O	132.00	6	1.0471	138.22
7332	N.A.WALI	132.00	6	1.0341	136.51	7333	S.S.DIN	132.00	6	1.0173	134.29
7334	M GARH NEW	132.00	6	1.0288	135.80	7335	KOTSULTAN	132.00	6	0.9951	131.36
7336	KAROR L.E	132.00	6	0.9368	123.66	7340	MEHRKHAS	132.00	6	0.9948	131.32

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7350 DMR WALA	132.00	6 0.9872 130.32	7360 JATOIJNB 132.00
7370 KHRPRSDT	132.00	6 0.9770 128.96	7395 SHAD.LND 132.00
7400 TAUNSA	132.00	6 1.0120 133.59	7435 PARCO 132.00
7436 T-PARCO	132.00	6 0.9334 123.21	7440 CHOKMNDA 132.00
7441 T-CMUNDA	132.00	6 1.0197 134.61	7442 T-AHTM 132.00
7443 AHTM	132.00	6 1.0301 135.98	7450 CHAUBARA 132.00
7456 CHOKAZAM	132.00	6 0.9844 129.94	7459 KHANGARH 132.00
7460 D.G.KHAN	132.00	6 1.0196 134.59	7462 MDC-DGK 132.00
7463 CPC-DGK	132.00	6 1.0230 135.03	7465 KOTCHUTA 132.00
7466 T-ATM	132.00	6 1.0125 133.65	7467 ATM 132.00
7470 ROJHAN	132.00	6 0.9948 131.31	7580 CMNT.FCT 132.00
7590 SKHISRWR	132.00	6 1.0366 136.84	7781 YAZMAN 132.00
7800 KOTADDU	66.000	6 1.0373 68.459	7811 T-KOTSUL 66.000
7831 FATEHPUR	132.00	6 0.9461 124.88	7840 RANGPUR 66.000
7842 T-RANGPR	66.000	6 1.0324 68.137	7880 CHAUBARA 66.000
7890 NAWANKOT	66.000	6 1.0360 68.379	7891 T.NWANKOT 66.000
7909 D.G.KHAN II	132.00	6 1.0203 134.68	7910 D.G.KHAN 66.000
7920 KOTCHOTA	66.000	6 1.0003 66.019	7921 JAMPUR 66.000
7925 CHOTI	66.000	6 0.9840 64.942	7930 JAMPUR 132.00
7933 FAZALPUR	132.00	6 0.9358 123.53	7935 DAJAL 66.000
7951 RAJANPUR	132.00	6 0.9333 123.20	7970 AHMDPR.E 66.000
7974 UCH.SHRF	132.00	6 0.9737 128.53	7975 UCH (KF) 66.000
7977 T-UCHSHF	66.000	6 0.9885 65.241	7981 ALI PUR 132.00
7996 FORT.MINRO	132.00	6 1.0372 136.91	60301 QADIRABD T-111.000
60302 QADIRABD T-211.000		6 1.0100 11.110	60501 BNGAHYAT T-111.000
60502 BNGAHYAT T-211.000		6 1.0199 11.218	60801 SAHIWALN T-111.000
60802 SAHIWALN T-211.000		6 0.9976 10.974	60901 SAHWAL-O T-111.000
60902 SAHWAL-O T-211.000		6 0.9944 10.938	60903 SAHWAL-O T-311.000
60951 SWL III T-1 11.000		6 1.0031 11.034	60952 SWL III T-2 11.000
61001 NOORPUR T-1 11.000		6 0.9565 10.522	61002 NOORPUR T-2 11.000
61201 PAKPATAN T-111.000		6 0.8616 9.478	61202 PAKPATAN T-211.000
61203 PAKPATAN T-311.000		6 0.8630 9.493	61301 HARAPPA T-1 11.000
61302 HARAPPA T-2 11.000		6 0.9874 10.862	61401 CHCHWTNI T-1
61402 CHCHWTNI T-211.000		6 1.0234 11.257	61403 CHCHWTNI T-311.000
61501 SH.FAZAL T-111.000		6 0.9918 10.909	61502 SH.FAZAL T-211.000
61601 BUREWALA T-111.000		6 1.0095 11.105	61602 BUREWALA T-211.000
61603 BUREWALA T-311.000		6 1.0145 11.160	61621 BREWLA-O T-111.000
			6 0.9804 129.42
			6 1.0208 134.74
			6 0.9333 123.20
			6 1.0193 134.55
			6 1.0306 136.03
			6 0.9885 130.48
			6 1.0125 133.65
			6 1.0365 136.82
			6 1.0037 132.49
			6 1.0118 133.56
			6 1.0113 133.50
			6 1.0255 135.37
			6 1.0374 68.466
			6 1.0233 67.537
			6 1.0371 68.446
			6 1.0362 68.386
			6 1.0324 68.137
			6 0.9934 65.563
			6 0.9564 126.24
			6 0.9837 64.926
			6 1.0114 66.753
			6 0.9581 63.233
			6 0.9777 129.06
			6 1.0164 11.181
			6 1.0087 11.096
			6 0.9985 10.983
			6 0.9933 10.926
			6 0.9724 10.696
			6 1.0031 11.034
			6 0.9565 10.522
			6 0.8616 9.478
			6 0.9881 10.869
			6 0.9837
			6 0.9840 10.824
			6 0.9782 10.760
			6 1.0028 11.031
			6 0.9774 10.751

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61622 BREWLA-O T-211.000	6 1.0248 11.273	61701 VEHARI-O T-111.000	6 1.0026 11.028
61702 VEHARI-O T-211.000	6 0.9947 10.941	61703 VEHARI-T-3 11.000	6 0.9912 10.904
61751 LUDDEN T-1 11.000	6 0.9992 10.992	61752 LUDDEN T-2 11.000	6 0.9929 10.922
61781 KARAMPUR T-111.000	6 0.9789 10.768	61782 KARAMPUR T-211.000	6 0.9819 10.801
61801 ARIFWALA T-311.000	6 1.0392 11.432	61802 ARIFWALA T-211.000	6 1.0392 11.432
61803 ARIFWALA T-111.000	6 1.0300 11.330	61821 KAMIRW T-1 11.000	6 1.0230 11.253
61822 KAMIR W T-2 11.000	6 1.0230 11.253	61901 BWL.NAGR T-111.000	6 1.0172 11.190
61903 BWL.NAGR T-311.000	6 1.0172 11.190	61911 HOTA T-1 11.000	6 1.0115 11.127
62001 QABULA T-1 11.000	6 1.0338 11.372	62002 QABULA T-2 11.000	6 1.0311 11.342
62003 QABULA T-3 11.000	6 1.0123 11.135	62101 SAHUKA T-1 11.000	6 1.0406 11.447
62102 SAHUKA T-2 11.000	6 1.0014 11.016	62202 HASILPUR T-211.000	6 1.0030 11.033
62203 HASILPUR T-311.000	6 1.0092 11.101	62301 CHISTIAN T-111.000	6 1.0186 11.205
62302 CHISTIAN T-211.000	6 1.0414 11.455	62303 CHISTIAO T3 11.000	6 1.0163 11.179
62321 DHRANWALA-T111.000	6 0.9774 10.752	62322 DHRANWALA-T211.000	6 0.9774 10.752
64151 CHISTIAN T-211.000	6 0.9922 10.914	64191 L.SOHAN T-1 11.000	6 1.0045 11.050
64211 K.P.TOMI T-111.000	6 0.9891 10.880	64212 K.P.TOMI T-211.000	6 0.9782 10.760
64621 NOORSAR T-1 11.000	6 0.9691 10.661	65012 HARONABD T-211.000	6 0.9981 10.979
65013 HARONABD T-111.000	6 1.0198 11.218	65014 HARONABD T-311.000	6 0.9731 10.704
65121 FAQIRWLI-T1 11.000	6 0.9908 10.899	65122 FAQIRWLI-T2 11.000	6 0.9908 10.899
65211 FORTABAS-T1	6 1.0550	65212 FORTABAST-2 11.000	6 1.0264 11.291
70001 MIANCHNU T1 11.000	6 0.9766 10.742	70002 MIANCHNU T-211.000	6 0.9544 10.499
70003 MIANCHNU T-311.000	6 0.9706 10.676	70011 CHAK-83-T1 11.000	6 0.9751 10.726
70012 CHAK-83-T2 11.000	6 0.9966 10.963	70021 KASSOWAL T-111.000	6 0.9850 10.835
70022 KASOWAL T-2 11.000	6 0.9638 10.602	70061 H SIDNAI T-111.000	6 0.9624 10.586
70062 H SIDNAI T-211.000	6 0.9587 10.546	70101 KACHAKHU T-111.000	6 0.9985 10.984
70102 KACHAKHU T-211.000	6 0.9921 10.913	70103 KACHAKHU T-311.000	6 0.9921 10.913
70201 KHANEWAL T-111.000	6 0.9761 10.737	70202 KHANEWAL T-211.000	6 0.9630 10.593
70203 KHANEWAL T-311.000	6 0.9787 10.765	70301 KABIRWLA T-111.000	6 0.9874 10.861
70302 KABIRWLA T-211.000	6 0.9811 10.792	70303 KABIRWLA T-3	6 0.9608
70321 MP PAHOR T-111.000	6 1.0014 11.016	70322 MP PAHOR T-211.000	6 0.9765 10.741
70401 GARHMORE T-111.000	6 1.0152 11.168	70402 GARHMORE T-211.000	6 0.9869 10.856
70501 JEHANIAN T-111.000	6 0.9945 10.939	70502 JEHANIAN T-211.000	6 0.9943 10.938
70503 JEHANIAN T-311.000	6 1.0016 11.018	70601 CHAK.211 T-111.000	6 1.0142 11.157
70602 CHAK 211 T-211.000	6 1.0125 11.138	70603 CHAK 211 T-311.000	6 0.9616 10.577
70701 MAILSI T-1 11.000	6 0.9969 10.966	70702 MAILSI T-2 11.000	6 1.0264 11.290
70703 MAILSI T-3 11.000	6 0.9975 10.972	70751 MUKHDM.R T-111.000	6 0.9969 10.966
70752 MUKHDM.R T-211.000	6 1.0206 11.227	71101 BASTIMLK T-111.000	6 0.9995 10.995

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71102 BASTIMLK T-211.000	6	1.0296	11.326	71103 BASTIMLK T-311.000	6	0.9726 10.698
71151 MIRAN P T-1 11.000	6	1.0214	11.235	71152 MIRAN P T-2 11.000	6	1.0466 11.513
71201 LODHRAN T-1 11.000	6	1.0448	11.492	71202 LODHRAN T-2 11.000	6	1.0401 11.441
71203 LODHRAN T-3 11.000	6	1.0432	11.475	71251 LART-1 11.000	6	1.0104 11.114
71252 LAR T-2 11.000	6	1.0104	11.114	71301 BU.JADID T-111.000	6	1.0307 11.337
71302 BU.JADID T-211.000	6	1.0574	11.632	71401 BHAWALPR T-111.000	6	1.0134 11.147
71402 BHAWALPR T-211.000	6	1.0226	11.249	71403 BHAWALPR T-311.000	6	1.0097 11.106
71451 BP CANTT T-111.000	6	1.0161	11.177	71452 BPCANTT T-2 11.000	6	1.0161 11.177
71471 KARORPCA T-111.000	6	1.0494	11.544	71472 KARORPCA T-211.000	6	1.0108 11.119
71473 KARORPCA T-311.000	6	0.9883	10.872	71491 DUNYAPUR T-311.000	6	1.0154 11.170
71492 DUNYAPUR T-411.000	6	0.9877	10.864	71501 SAMASATA T-111.000	6	1.0150 11.165
71502 SAMASATA T-211.000	6	1.0150	11.165	71591 MUB-PUR-T1 11.000	6	0.9658 10.624
71592 MUB-PUR-T2 11.000	6	0.9658	10.624	71601 LIAQATPR T-111.000	6	1.0105 11.115
71602 LIAQATPR T-211.000	6	1.0168	11.185	71702 AHMDPR.E T-211.000	6	1.0070 11.077
71703 AHMDPR.E T-311.000	6	0.9944	10.939	71704 AHMDPR.E T4 11.000	6	0.9493 10.443
71801 FEROZA T-1 11.000	6	1.0235	11.258	71802 FEROZA T-2 11.000	6	1.0346 11.380
71851 KHANBELA T-111.000	6	0.9862	10.849	71852 KHANBELA T-2	6	0.9147
72001 KHANPUR T-1 11.000	6	0.9856	10.842	72002 KHANPUR T-2 11.000	6	0.9900 10.889
72003 KHANPUR T-3 11.000	6	0.9885	10.874	72101 MWQRSHIA T-111.000	6	0.9862 10.848
72102 MWQRSHIA T2 11.000	6	0.9421	10.363	72201 R.Y.KHAN T-111.000	6	1.0050 11.055
72202 R.Y.KHAN T-211.000	6	1.0050	11.055	72203 R.Y.KHAN T-311.000	6	1.0050 11.055
72251 R.Y.KHN2 T-111.000	6	1.0066	11.072	72252 R.Y.KHN2 T-211.000	6	1.0029 11.032
72301 SADIQABD T-111.000	6	1.0073	11.081	72302 SADIQABD T-211.000	6	1.0073 11.081
72303 SADIQABD T-311.000	6	1.0240	11.264	72351 NAWAZ T-1 11.000	6	1.0071 11.079
72401 J.D.WALI T-111.000	6	0.9252	10.177	72402 JDWALI T-2 11.000	6	0.9506 10.456
72501 MN.KH.RD T-111.000	6	1.0437	11.481	72502 MN.KH.RD T-211.000	6	1.0183 11.201
72503 MN.KH.RD T-311.000	6	1.0229	11.252	72551 WAP TO T-1 11.000	6	0.9862 10.848
72552 WAPDA TO T-211.000	6	0.9924	10.917	72601 MN.BS.RD T-111.000	6	0.9953 10.948
72602 MN.BS.RD T-211.000	6	1.0073	11.080	72603 MN.BS.RD T-311.000	6	1.0043 11.048
72611 PNJB HSG T-111.000	6	1.0453	11.499	72612 PNJB HSG T-211.000	6	1.0453 11.499
72621 BUCH VLS T-111.000	6	1.0432	11.475	72651 Q BAGH T-1 11.000	6	1.0053 11.058
72652 Q BAGH T-2 11.000	6	1.0187	11.205	72701 MLN-IND T-1 11.000	6	0.9897 10.886
72702 MLN-IND T-2 11.000	6	1.0002	11.002	72703 MLN-IND T-3 11.000	6	0.9864 10.850
72801 MN.VR.RD T-111.000	6	1.0138	11.152	72802 MN.VR.RD T-211.000	6	0.9848 10.832
72803 MN.VR.RD T-311.000	6	1.0122	11.134	72851 QASIMPUR T-111.000	6	1.0228 11.251
72852 QASIMPUR T-211.000	6	1.0316	11.347	72853 QASIMPUR T-311.000	6	0.9854 10.839
72871 M.J RD T-1 11.000	6	1.0435	11.478	72872 M.J.RD T-2 11.000	6	1.0292 11.322

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72881 SHUJABAD T-111.000	6 1.0246 11.270	72882 SHUJABAD T-211.000	6 1.0178 11.195
72883 SHUJABAD T-311.000	6 0.9775 10.752	72891 J.P.W T-1 11.000	6 1.0300 11.330
72892 J.P.W T-2 11.000	6 1.0272 11.299	72893 J.P.W T-3 11.000	6 0.9923 10.916
72901 MESCO T-1 11.000	6 0.9950 10.945	72902 MESCO T-2 11.000	6 0.9875 10.862
72903 MESCO T-3 11.000	6 0.9851 10.836	73201 GUJRAT.S T1 11.000	6 0.9626 10.589
73202 GUJRAT.S T3 11.000	6 0.9269 10.196	73203 GUJRAT.S T2 11.000	6 0.9913 10.904
73251 LAYYAH T-1 11.000	6 0.9747 10.721	73252 LAYYAH T-2 11.000	6 0.9376 10.313
73253 LAYYAH T-3 11.000	6 0.9083 9.991	73281 KBGASHER T-111.000	6 0.9943 10.938
73282 KBGASHER T-211.000	6 0.9943 10.938	73301 MZFRGARH T-111.000	6 1.0387 11.425
73302 MZFRGARH T-211.000	6 1.0180 11.198	73303 MZFRGARH T-311.000	6 1.0088 11.097
73312 KOTADU-O T-211.000	6 0.9600 10.561	73313 KOTADU-O T-311.000	6 0.9728 10.701
73314 KOTADU-O T-411.000	6 0.9664 10.630	73321 N.A.WALI T-211.000	6 0.9893 10.882
73322 N.A.WALI T-111.000	6 1.0120 11.132	73331 S S DIN T1 11.000	6 1.0328 11.361
73332 S S DIN T2 11.000	6 1.0062 11.069	73351 KOTSULTAN-T111.000	6 0.9680 10.648
73352 KOTSULTAN-T211.000	6 0.9862 10.848	73361 KAROR L.E-T111.000	6 0.9067 9.974
73362 KAROR L.E-T2	6 0.8827	73401 MEHRKHAS T-111.000	6 0.9768 10.745
73402 MEHRKHAS T-211.000	6 0.9624 10.586	73501 DMR WALA T-111.000	6 0.9885 10.873
73502 DMR WALA T-211.000	6 0.9998 10.997	73601 JATOIJNB T-111.000	6 1.0061 11.067
73602 JATOIJNB T-211.000	6 0.9709 10.680	73701 KHRPRSDT T-111.000	6 1.0254 11.280
73702 KHRPRSDT T-2 11.000	6 0.9657 10.622	73951 SHA.LND T-1 11.000	6 0.9924 10.916
73952 SHA.LND T-2 11.000	6 0.9788 10.767	74001 TAUNSA T-1 11.000	6 0.9723 10.696
74002 TAUNSA T-2 11.000	6 1.0145 11.160	74401 CHOKMNDA T-111.000	6 1.0233 11.257
74402 CHOKMNDA T-211.000	6 0.9828 10.810	74502 CHAUBARA T-211.000	6 0.9442 10.386
74561 CHOKAZAM T2 11.000	6 0.9959 10.955	74562 CHOKAZAM T1 11.000	6 0.9447 10.392
74591 KHANGARH T-111.000	6 0.9756 10.731	74592 KHANGARH T-211.000	6 0.9466 10.413
74602 D.G.KHAN T-211.000	6 0.9865 10.851	74603 D.G.KHAN T-311.000	6 0.9683 10.651
74604 D.G.KHAN T-411.000	6 0.9727 10.700	74651 KOTCHUTA T-111.000	6 0.9784 10.762
74652 KOTCHUTA T-211.000	6 0.9990 10.989	74653 KOTCHUTTA T311.000	6 0.9703 10.674
74701 ROJHAN T-1 11.000	6 0.9669 10.635	75901 SKHISRWR T-111.000	6 1.0370 11.407
75902 SKISRWR T-2 11.000	6 1.0160 11.176	77811 YAZMAN-T-1 11.000	6 1.0095 11.104
77812 YAZMAN T-2 11.000	6 1.0095 11.104	78311 FATEHPUR T-111.000	6 0.8579 9.436
78312 FATEPUR T-2 11.000	6 0.8771 9.648	78401 T1 11.000	6 1.0081 11.089
78901 NAWANKOT T-111.000	6 1.0278 11.306	79091 D.G.K.II T-111.000	6 0.9841 10.825
79092 D.G.K.II T-211.000	6 0.9841 10.825	79211 JAMPUR T-1 11.000	6 0.9813 10.795
79251 CHOTI T-1 11.000	6 0.9969 10.966	79301 JAMPUR T-1 11.000	6 0.9342 10.276
79302 JAMPUR T-2 11.000	6 0.9469 10.416	79331 FAZALPUR T-111.000	6 0.8991 9.890
79332 FAZALPUR T-211.000	6 0.8875 9.762	79351 DAJAL T-1 11.000	6 1.0064 11.070

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79352 DAJAL T-2	6	1.0064		79511 RAJANPUR T-111.000	6	0.9214	10.136
79512 RAJANPUR T-211.000	6	0.8969	9.866	79741 UCH.SHRF T-211.000	6	0.9943	10.937
79742 UCH.SHRF T-311.000	6	1.0197	11.217	79743 UCH.SHRF T-111.000	6	0.9965	10.961
79751 UCH (KF) T-111.000	6	0.9655	10.621	79811 ALI PUR T-1 11.000	6	0.9007	9.908
79812 ALIPUR T-2 11.000	6	0.9007	9.908	79961 FRT MNRO T-111.000	6	1.0351	11.386
732512 LSM-132KV 132.00	6	0.9850	130.02				

without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0000	132.00	529		PARCO		220.00	6	1.0378	228.32
601		APPOLO-SOLAR		132.00	6	1.0005	132.06	730		SHK-PP-132		132.00	6	1.0398	137.25
801		QAD-SOL-I		132.00	6	1.0136	133.80	1001		CREST-ENERGY		132.00	6	1.0153	134.02
6030		QADIRABD		132.00	6	1.0474	138.25	6050		BNGAHYAT		132.00	6	1.0087	133.14
6070		YOUSFWLA		132.00	6	1.0441	137.82	6080		SAHIWALN		132.00	6	1.0376	136.96
6090		SAHWAL-O		132.00	6	1.0196	134.59	6095		SAHIWAL III		132.00	6	1.0091	133.20
6100		NOORPUR		132.00	6	0.9780	129.10	6120		PAKPATAN		132.00	6	0.9021	119.07
6130		HARAPPA		132.00	6	1.0028	132.37	6140		CHCHWTNI		132.00	6	1.0039	132.52
6150		SH.FAZAL		132.00	6	0.9874	130.33	6160		BUREWALA		132.00	6	0.9920	130.95
6162		BREWLA-O		132.00	6	0.9886	130.49	6169		VEHARI-N		132.00	6	1.0165	134.17
6170		VEHARI-O		132.00	6	1.0131	133.73	6175		LUDDEN		132.00	6	1.0005	132.07
6178		KARAMPUR		132.00	6	0.9932	131.10	6180		ARIFWALA		132.00	6	1.0065	132.86
6182		KAMIRWALA		132.00	6	1.0155	134.05	6190		BWL.NAGR		132.00	6	1.0064	132.84
6191		HOTA		132.00	6	1.0030	132.39	6200		QABULA		132.00	6	1.0059	132.78
6210		SAHUKA		132.00	6	0.9778	129.07	6220		HASILPUR		132.00	6	0.9999	131.99
6230		CHISTIAN-O		132.00	6	1.0181	134.40	6231		CHSTAN-N		132.00	6	1.0195	134.58
6232		DHARWALA132		132.00	6	1.0119	133.57	6410		HASILPUR		66.000	6	0.9960	65.738

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6415	CHISTIAN	66.000	6	0.9835	64.908	6419	L.SOHANRA	132.00	6	1.0015	132.20
6421	K.P.TOMI	132.00	6	0.9956	131.41	6461	T-NURSAR	66.000	6	0.9838	64.928
6462	NOORSAR	132.00	6	1.0094	133.24	6501	HARONABD	132.00	6	0.9976	131.69
6512	FAQIRWLI	132.00	6	0.9849	130.00	6521	FORTABAS	132.00	6	0.9799	129.35
6666	MULTAN-N	132.00	6	1.0369	136.88	7000	MIANCHNU	132.00	6	0.9821	129.64
7001	CHAK-83-132	132.00	6	0.9943	131.24	7002	KASSOWAL	132.00	6	1.0113	133.49
7006	HEAD SIDHNAI	132.00	6	0.9689	127.89	7010	KACHAKHU	132.00	6	0.9758	128.80
7020	KHANEWAL	132.00	6	0.9886	130.50	7029	FAUJI-K	132.00	6	1.0000	132.00
7030	KABIRWLA	132.00	6	0.9888	130.52	7032	MP.PAHOR	132.00	6	0.9809	129.48
7040	GARMORE	132.00	6	0.9974	131.65	7041	T-GM	132.00	6	0.9979	131.73
7050	JEHANIAN	132.00	6	0.9961	131.48	7055	T-C.211	132.00	6	0.9790	129.23
7060	CHAK.211	132.00	6	0.9756	128.78	7070	MAILSI	132.00	6	0.9761	128.85
7075	MUKHDM.R	132.00	6	1.0103	133.36	7100	P.GAIB-1	132.00	6	1.0389	137.13
7109	P.GAIB-2	132.00	6	1.0444	137.86	7110	BASTIMLK	132.00	6	1.0124	133.64
7115	MIRAN PUR	132.00	6	1.0377	136.98	7120	LODHAN	132.00	6	1.0259	135.42
7125	LAR	132.00	6	1.0227	135.00	7130	BU.JADID	132.00	6	1.0353	136.65
7138	BWPN-2	132.00	6	1.0437	137.76	7139	B.W.P-N	132.00	6	1.0518	138.84
7140	BHAWALPR	132.00	6	1.0386	137.10	7145	BPUR CANTT	132.00	6	1.0341	136.50
7147	KARORPCA	132.00	6	0.9900	130.68	7149	DUNYAPUR	132.00	6	0.9878	130.39
7150	SAMASATA	132.00	6	1.0375	136.95	7159	MUB-PUR	132.00	6	0.9908	130.78
7160	LIAQATPR	132.00	6	1.0186	134.45	7170	AHMDPR.E	132.00	6	0.9803	129.40
7175	RYK-PP	132.00	6	1.0000	132.00	7180	FEROZA	132.00	6	0.9935	131.14
7185	KHANBELA	132.00	6	0.9798	129.33	7190	HAMZA-PP	132.00	6	1.0216	134.85
7200	KHANPUR	132.00	6	1.0245	135.24	7210	MWQRSHIA	132.00	6	1.0092	133.21
7220	R.Y.KHAN	132.00	6	1.0156	134.06	7221	RYK-NEW	132.00	6	1.0408	137.39
7225	R.Y.KHN2	132.00	6	1.0236	135.11	7226	RYK-T	132.00	6	1.0268	135.53
7230	SADIQABD	132.00	6	1.0069	132.90	7235	NAWAZABD	132.00	6	1.0197	134.59
7240	J.D.WALI	132.00	6	0.9835	129.82	7250	MN.KH.RD	132.00	6	1.0348	136.59
7255	WAPDATWN	132.00	6	1.0246	135.25	7260	MN.BS.RD	132.00	6	1.0190	134.50
7261	PUNJAB HOSNG	132.00	6	1.0318	136.20	7262	BUCH VILLAS	132.00	6	1.0175	134.30
7265	QASIMBGH	132.00	6	1.0293	135.87	7270	MLN-IND	132.00	6	1.0140	133.84
7272	COCA COLA	132.00	6	1.0140	133.84	7275	C.T.MILL	132.00	6	1.0106	133.40
7280	MN.VR.RD	132.00	6	1.0298	135.93	7285	QASIMPUR	132.00	6	1.0150	133.98
7287	M.JAILRD	132.00	6	1.0089	133.18	7288	SHUJABAD	132.00	6	0.9927	131.04
7289	JALALPWL	132.00	6	1.0011	132.14	7290	MESCO	132.00	6	0.9978	131.71
7300	KAPCO	132.00	6	1.0490	138.47	7320	GUJRAT.S	132.00	6	1.0232	135.06
7325	LAYYAH	132.00	6	0.9836	129.84	7328	KBGASHER	132.00	6	1.0277	135.65

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7330	MZFRGARH	132.00	6	1.0257	135.40	7331	KOTADU-O	132.00
7332	N.A.WALI	132.00	6	1.0341	136.51	7333	S.S.DIN	132.00
7334	M GARH NEW	132.00	6	1.0288	135.80	7335	KOTSULTAN	132.00
7336	KAROR L.E	132.00	6	0.9368	123.66	7340	MEHRKHAS	132.00
7350	DMR WALA	132.00	6	0.9872	130.32	7360	JATOIJNB	132.00
7370	KHRPRSDT	132.00	6	0.9770	128.96	7395	SHAD.LND	132.00
7400	TAUNSA	132.00	6	1.0120	133.59	7435	PARCO	132.00
7436	T-PARCO	132.00	6	0.9334	123.21	7440	CHOKMNDA	132.00
7441	T-CMUNDA	132.00	6	1.0197	134.61	7442	T-AHTM	132.00
7443	AHTM	132.00	6	1.0301	135.98	7450	CHAUBARA	132.00
7456	CHOKAZAM	132.00	6	0.9844	129.94	7459	KHANGARH	132.00
7460	D.G.KHAN	132.00	6	1.0196	134.59	7462	MDC-DGK	132.00
7463	CPC-DGK	132.00	6	1.0230	135.03	7465	KOTCHUTA	132.00
7466	T-ATM	132.00	6	1.0125	133.65	7467	ATM	132.00
7470	ROJHAN	132.00	6	0.9948	131.31	7580	CMNT.FCT	132.00
7590	SKHISRWR	132.00	6	1.0366	136.84	7781	YAZMAN	132.00
7800	KOTADDU	66.000	6	1.0373	68.459	7811	T-KOTSUL	66.000
7831	FATEHPUR	132.00	6	0.9461	124.88	7840	RANGPUR	66.000
7842	T-RANGPR	66.000	6	1.0324	68.137	7880	CHAUBARA	66.000
7890	NAWANKOT	66.000	6	1.0360	68.379	7891	T.NWANKOT	66.000
7909	D.G.KHAN II	132.00	6	1.0203	134.68	7910	D.G.KHAN	66.000
7920	KOTCHOTA	66.000	6	1.0003	66.019	7921	JAMPUR	66.000
7925	CHOTI	66.000	6	0.9840	64.942	7930	JAMPUR	132.00
7933	FAZALPUR	132.00	6	0.9358	123.53	7935	DAJAL	66.000
7951	RAJANPUR	132.00	6	0.9333	123.20	7970	AHMDPR.E	66.000
7974	UCH.SHRF	132.00	6	0.9737	128.53	7975	UCH (KF)	66.000
7977	T-UCHSHF	66.000	6	0.9885	65.241	7981	ALI PUR	132.00
7996	FORT.MINRO	132.00	6	1.0372	136.91	60301	QADIRABD T-1	111.000
60302	QADIRABD T-2	111.000	6	1.0100	11.110	60501	BNGAHYAT T-1	111.000
60502	BNGAHYAT T-2	111.000	6	1.0199	11.218	60801	SAHIWALN T-1	111.000
60802	SAHIWALN T-2	111.000	6	0.9976	10.974	60901	SAHWAL-O T-1	111.000
60902	SAHWAL-O T-2	111.000	6	0.9944	10.938	60903	SAHWAL-O T-3	111.000
60951	SWL III T-1	11.000	6	1.0031	11.034	60952	SWL III T-2	11.000
61001	NOORPUR T-1	11.000	6	0.9565	10.522	61002	NOORPUR T-2	11.000
61201	PAKPATAN T-1	111.000	6	0.8616	9.478	61202	PAKPATAN T-2	111.000
61203	PAKPATAN T-3	111.000	6	0.8630	9.493	61301	HARAPPA T-1	11.000
61302	HARAPPA T-2	11.000	6	0.9874	10.862	61401	CHCHWTNI T-1	
								6 0.9837

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61402 CHCHWTNI T-211.000	6 1.0234 11.257	61403 CHCHWTNI T-311.000	6 0.9840 10.824
61501 SH.FAZAL T-111.000	6 0.9918 10.909	61502 SH.FAZAL T-211.000	6 0.9782 10.760
61601 BUREWALA T-111.000	6 1.0095 11.105	61602 BUREWALA T-211.000	6 1.0028 11.031
61603 BUREWALA T-311.000	6 1.0145 11.160	61621 BREWLA-O T-111.000	6 0.9774 10.751
61622 BREWLA-O T-211.000	6 1.0248 11.273	61701 VEHARI-O T-111.000	6 1.0026 11.028
61702 VEHARI-O T-211.000	6 0.9947 10.941	61703 VEHARI-T-3 11.000	6 0.9912 10.904
61751 LUDDEN T-1 11.000	6 0.9992 10.992	61752 LUDDEN T-2 11.000	6 0.9929 10.922
61781 KARAMPUR T-111.000	6 0.9789 10.768	61782 KARAMPUR T-211.000	6 0.9819 10.801
61801 ARIFWALA T-311.000	6 1.0392 11.432	61802 ARIFWALA T-211.000	6 1.0392 11.432
61803 ARIFWALA T-111.000	6 1.0300 11.330	61821 KAMIRW T-1 11.000	6 1.0230 11.253
61822 KAMIR W T-2 11.000	6 1.0230 11.253	61901 BWL.NAGR T-111.000	6 1.0172 11.190
61903 BWL.NAGR T-311.000	6 1.0172 11.190	61911 HOTA T-1 11.000	6 1.0115 11.127
62001 QABULA T-1 11.000	6 1.0338 11.372	62002 QABULA T-2 11.000	6 1.0311 11.342
62003 QABULA T-3 11.000	6 1.0123 11.135	62101 SAHUKA T-1 11.000	6 1.0406 11.447
62102 SAHUKA T-2 11.000	6 1.0014 11.016	62202 HASILPUR T-211.000	6 1.0030 11.033
62203 HASILPUR T-311.000	6 1.0092 11.101	62301 CHISTIAN T-111.000	6 1.0186 11.205
62302 CHISTIAN T-211.000	6 1.0414 11.455	62303 CHISTIAO T3 11.000	6 1.0163 11.179
62321 DHRANWALA-T111.000	6 0.9774 10.752	62322 DHRANWALA-T211.000	6 0.9774 10.752
64151 CHISTIAN T-211.000	6 0.9922 10.914	64191 L.SOHAN T-1 11.000	6 1.0045 11.050
64211 K.P.TOMI T-111.000	6 0.9891 10.880	64212 K.P.TOMI T-211.000	6 0.9782 10.760
64621 NOORSAR T-1 11.000	6 0.9691 10.661	65012 HARONABD T-211.000	6 0.9981 10.979
65013 HARONABD T-111.000	6 1.0198 11.218	65014 HARONABD T-311.000	6 0.9731 10.704
65121 FAQIRWLI-T1 11.000	6 0.9908 10.899	65122 FAQIRWLI-T2 11.000	6 0.9908 10.899
65211 FORTABAS-T1	6 1.0550	65212 FORTABAST-2 11.000	6 1.0264 11.291
70001 MIANCHNU T1 11.000	6 0.9766 10.742	70002 MIANCHNU T-211.000	6 0.9544 10.499
70003 MIANCHNU T-311.000	6 0.9706 10.676	70011 CHAK-83-T1 11.000	6 0.9751 10.726
70012 CHAK-83-T2 11.000	6 0.9966 10.963	70021 KASSOWAL T-111.000	6 0.9850 10.835
70022 KASOWAL T-2 11.000	6 0.9638 10.602	70061 H SIDNAI T-111.000	6 0.9624 10.586
70062 H SIDNAI T-211.000	6 0.9587 10.546	70101 KACHAKHU T-111.000	6 0.9985 10.984
70102 KACHAKHU T-211.000	6 0.9921 10.913	70103 KACHAKHU T-311.000	6 0.9921 10.913
70201 KHANEWAL T-111.000	6 0.9761 10.737	70202 KHANEWAL T-211.000	6 0.9630 10.593
70203 KHANEWAL T-311.000	6 0.9787 10.765	70301 KABIRWLA T-111.000	6 0.9874 10.861
70302 KABIRWLA T-211.000	6 0.9811 10.792	70303 KABIRWLA T-3	6 0.9608
70321 MP PAHOR T-111.000	6 1.0014 11.016	70322 MP PAHOR T-211.000	6 0.9765 10.741
70401 GARHMORE T-111.000	6 1.0152 11.168	70402 GARHMORE T-211.000	6 0.9869 10.856
70501 JEHANIAN T-111.000	6 0.9945 10.939	70502 JEHANIAN T-211.000	6 0.9943 10.938
70503 JEHANIAN T-311.000	6 1.0016 11.018	70601 CHAK.211 T-111.000	6 1.0142 11.157

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70602 CHAK 211 T-211.000	6	1.0125	11.138	70603 CHAK 211 T-311.000	6	0.9616 10.577
70701 MAILSI T-1 11.000	6	0.9969	10.966	70702 MAILSI T-2 11.000	6	1.0264 11.290
70703 MAILSI T-3 11.000	6	0.9975	10.972	70751 MUKHDM.R T-111.000	6	0.9969 10.966
70752 MUKHDM.R T-211.000	6	1.0206	11.227	71101 BASTIMLK T-111.000	6	0.9995 10.995
71102 BASTIMLK T-211.000	6	1.0296	11.326	71103 BASTIMLK T-311.000	6	0.9726 10.698
71151 MIRAN P T-1 11.000	6	1.0214	11.235	71152 MIRAN P T-2 11.000	6	1.0466 11.513
71201 LODHRAN T-1 11.000	6	1.0448	11.492	71202 LODHRAN T-2 11.000	6	1.0401 11.441
71203 LODHRAN T-3 11.000	6	1.0432	11.475	71251 LART-1 11.000	6	1.0104 11.114
71252 LAR T-2 11.000	6	1.0104	11.114	71301 BU.JADID T-111.000	6	1.0307 11.337
71302 BU.JADID T-211.000	6	1.0574	11.632	71401 BHAWALPR T-111.000	6	1.0134 11.147
71402 BHAWALPR T-211.000	6	1.0226	11.249	71403 BHAWALPR T-311.000	6	1.0097 11.106
71451 BP CANTT T-111.000	6	1.0161	11.177	71452 BPCANTT T-2 11.000	6	1.0161 11.177
71471 KARORPCA T-111.000	6	1.0494	11.544	71472 KARORPCA T-211.000	6	1.0108 11.119
71473 KARORPCA T-311.000	6	0.9883	10.872	71491 DUNYAPUR T-311.000	6	1.0154 11.170
71492 DUNYAPUR T-411.000	6	0.9877	10.864	71501 SAMASATA T-111.000	6	1.0150 11.165
71502 SAMASATA T-211.000	6	1.0150	11.165	71591 MUB-PUR-T1 11.000	6	0.9658 10.624
71592 MUB-PUR-T2 11.000	6	0.9658	10.624	71601 LIAQATPR T-111.000	6	1.0105 11.115
71602 LIAQATPR T-211.000	6	1.0168	11.185	71702 AHMDPR.E T-211.000	6	1.0070 11.077
71703 AHMDPR.E T-311.000	6	0.9944	10.939	71704 AHMDPR.E T4 11.000	6	0.9493 10.443
71801 FEROZA T-1 11.000	6	1.0235	11.258	71802 FEROZA T-2 11.000	6	1.0346 11.380
71851 KHANBELA T-111.000	6	0.9862	10.849	71852 KHANBELA T-2	6	0.9147
72001 KHANPUR T-1 11.000	6	0.9856	10.842	72002 KHANPUR T-2 11.000	6	0.9900 10.889
72003 KHANPUR T-3 11.000	6	0.9885	10.874	72101 MWQRSHIA T-111.000	6	0.9862 10.848
72102 MWQRSHIA T2 11.000	6	0.9421	10.363	72201 R.Y.KHAN T-111.000	6	1.0050 11.055
72202 R.Y.KHAN T-211.000	6	1.0050	11.055	72203 R.Y.KHAN T-311.000	6	1.0050 11.055
72251 R.Y.KHN2 T-111.000	6	1.0066	11.072	72252 R.Y.KHN2 T-211.000	6	1.0029 11.032
72301 SADIQABD T-111.000	6	1.0073	11.081	72302 SADIQABD T-211.000	6	1.0073 11.081
72303 SADIQABD T-311.000	6	1.0240	11.264	72351 NAWAZ T-1 11.000	6	1.0071 11.079
72401 J.D.WALI T-111.000	6	0.9252	10.177	72402 JDWALI T-2 11.000	6	0.9506 10.456
72501 MN.KH.RD T-111.000	6	1.0437	11.481	72502 MN.KH.RD T-211.000	6	1.0183 11.201
72503 MN.KH.RD T-311.000	6	1.0229	11.252	72551 WAP TO T-1 11.000	6	0.9862 10.848
72552 WAPDA TO T-211.000	6	0.9924	10.917	72601 MN.BS.RD T-111.000	6	0.9953 10.948
72602 MN.BS.RD T-211.000	6	1.0073	11.080	72603 MN.BS.RD T-311.000	6	1.0043 11.048
72611 PNJB HSG T-111.000	6	1.0453	11.499	72612 PNJB HSG T-211.000	6	1.0453 11.499
72621 BUCH VLS T-111.000	6	1.0432	11.475	72651 Q BAGH T-1 11.000	6	1.0053 11.058
72652 Q BAGH T-2 11.000	6	1.0187	11.205	72701 MLN-IND T-1 11.000	6	0.9897 10.886
72702 MLN-IND T-2 11.000	6	1.0002	11.002	72703 MLN-IND T-3 11.000	6	0.9864 10.850

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72801 MN.VR.RD T-111.000	6 1.0138 11.152	72802 MN.VR.RD T-211.000	6 0.9848 10.832
72803 MN.VR.RD T-311.000	6 1.0122 11.134	72851 QASIMPUR T-111.000	6 1.0228 11.251
72852 QASIMPUR T-211.000	6 1.0316 11.347	72853 QASIMPUR T-311.000	6 0.9854 10.839
72871 M.J RD T-1 11.000	6 1.0435 11.478	72872 M.J.RD T-2 11.000	6 1.0292 11.322
72881 SHUJABAD T-111.000	6 1.0246 11.270	72882 SHUJABAD T-211.000	6 1.0178 11.195
72883 SHUJABAD T-311.000	6 0.9775 10.752	72891 J.P.W T-1 11.000	6 1.0300 11.330
72892 J.P.W T-2 11.000	6 1.0272 11.299	72893 J.P.W T-3 11.000	6 0.9923 10.916
72901 MESCO T-1 11.000	6 0.9950 10.945	72902 MESCO T-2 11.000	6 0.9875 10.862
72903 MESCO T-3 11.000	6 0.9851 10.836	73201 GUJRAT.S T1 11.000	6 0.9626 10.589
73202 GUJRAT.S T3 11.000	6 0.9269 10.196	73203 GUJRAT.S T2 11.000	6 0.9913 10.904
73251 LAYYAH T-1 11.000	6 0.9747 10.721	73252 LAYYAH T-2 11.000	6 0.9376 10.313
73253 LAYYAH T-3 11.000	6 0.9083 9.991	73281 KBGASHER T-111.000	6 0.9943 10.938
73282 KBGASHER T-211.000	6 0.9943 10.938	73301 MZFRGARH T-111.000	6 1.0387 11.425
73302 MZFRGARH T-211.000	6 1.0180 11.198	73303 MZFRGARH T-311.000	6 1.0088 11.097
73312 KOTADU-O T-211.000	6 0.9600 10.561	73313 KOTADU-O T-311.000	6 0.9728 10.701
73314 KOTADU-O T-411.000	6 0.9664 10.630	73321 N.A.WALI T-211.000	6 0.9893 10.882
73322 N.A.WALI T-111.000	6 1.0120 11.132	73331 S S DIN T1 11.000	6 1.0328 11.361
73332 S S DIN T2 11.000	6 1.0062 11.069	73351 KOTSULTAN-T111.000	6 0.9680 10.648
73352 KOTSULTAN-T211.000	6 0.9862 10.848	73361 KAROR L.E-T111.000	6 0.9067 9.974
73362 KAROR L.E-T2	6 0.8827	73401 MEHRKHAS T-111.000	6 0.9768 10.745
73402 MEHRKHAS T-211.000	6 0.9624 10.586	73501 DMR WALA T-111.000	6 0.9885 10.873
73502 DMR WALA T-211.000	6 0.9998 10.997	73601 JATOIJNB T-111.000	6 1.0061 11.067
73602 JATOIJNB T-211.000	6 0.9709 10.680	73701 KHRPRSDT T-111.000	6 1.0254 11.280
73702 KHRPRSDT T-2 11.000	6 0.9657 10.622	73951 SHA.LND T-1 11.000	6 0.9924 10.916
73952 SHA.LND T-2 11.000	6 0.9788 10.767	74001 TAUNSA T-1 11.000	6 0.9723 10.696
74002 TAUNSA T-2 11.000	6 1.0145 11.160	74401 CHOKMNDA T-111.000	6 1.0233 11.257
74402 CHOKMNDA T-211.000	6 0.9828 10.810	74502 CHAUBARA T-211.000	6 0.9442 10.386
74561 CHOKAZAM T2 11.000	6 0.9959 10.955	74562 CHOKAZAM T1 11.000	6 0.9447 10.392
74591 KHANGARH T-111.000	6 0.9756 10.731	74592 KHANGARH T-211.000	6 0.9466 10.413
74602 D.G.KHAN T-211.000	6 0.9865 10.851	74603 D.G.KHAN T-311.000	6 0.9683 10.651
74604 D.G.KHAN T-411.000	6 0.9727 10.700	74651 KOTCHUTA T-111.000	6 0.9784 10.762
74652 KOTCHUTA T-211.000	6 0.9990 10.989	74653 KOTCHUTTA T311.000	6 0.9703 10.674
74701 ROJHAN T-1 11.000	6 0.9669 10.635	75901 SKHISRWR T-111.000	6 1.0370 11.407
75902 SKISRWR T-2 11.000	6 1.0160 11.176	77811 YAZMAN-T-1 11.000	6 1.0095 11.104
77812 YAZMAN T-2 11.000	6 1.0095 11.104	78311 FATEHPUR T-111.000	6 0.8579 9.436
78312 FATEPUR T-2 11.000	6 0.8771 9.648	78401 T1 11.000	6 1.0081 11.089
78901 NAWANKOT T-111.000	6 1.0278 11.306	79091 D.G.K.II T-111.000	6 0.9841 10.825

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79092 D.G.K.II T-2	11.000	6	0.9841	10.825	79211 JAMPUR T-1	11.000
79251 CHOTI T-1	11.000	6	0.9969	10.966	79301 JAMPUR T-1	11.000
79302 JAMPUR T-2	11.000	6	0.9469	10.416	79331 FAZALPUR T-1	11.000
79332 FAZALPUR T-2	11.000	6	0.8875	9.762	79351 DAJAL T-1	11.000
79352 DAJAL T-2		6	1.0064		79511 RAJANPUR T-1	11.000
79512 RAJANPUR T-2	11.000	6	0.8969	9.866	79741 UCH.SHRF T-2	11.000
79742 UCH.SHRF T-3	11.000	6	1.0197	11.217	79743 UCH.SHRF T-1	11.000
79751 UCH (KF) T-1	11.000	6	0.9655	10.621	79811 ALI PUR T-1	11.000
79812 ALIPUR T-2	11.000	6	0.9007	9.908	79961 FRT MNRO T-1	11.000
732512 LSM-132KV	132.00	6	0.9850	130.02		

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IDEAL
June 2019

With:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0215	134.84	529		PARCO		220.00	6	1.0248	225.45
601		APPOLO-SOLAR		132.00	6	1.0222	134.94	730		SHK-PP-132		132.00	6	1.0404	137.33
801		QAD-SOL-I		132.00	6	1.0212	134.80	1001		CREST-ENERGY		132.00	6	1.0226	134.98
6030		QADIRABD		132.00	6	1.0291	135.85	6050		BNGAHYAT		132.00	6	0.9994	131.92
6070		YOUSFWLA		132.00	6	1.0335	136.43	6080		SAHIWALN		132.00	6	1.0258	135.41
6090		SAHWAL-O		132.00	6	1.0206	134.71	6095		SAHIWAL III		132.00	6	1.0113	133.49
6100		NOORPUR		132.00	6	1.0001	132.01	6120		PAKPATAN		132.00	6	0.9839	129.87
6122		PAK PATTAN-2		132.00	6	0.9788	129.21	6130		HARAPPA		132.00	6	0.9995	131.93
6140		CHCHWTNI		132.00	6	0.9978	131.71	6150		SH.FAZAL		132.00	6	0.9835	129.82
6160		BUREWALA		132.00	6	0.9908	130.79	6162		BREWLA-O		132.00	6	0.9873	130.32
6163		GAGOO		132.00	6	0.9919	130.93	6169		VEHARI-N		132.00	6	1.0155	134.05
6170		VEHARI-O		132.00	6	1.0121	133.60	6175		LUDDEN		132.00	6	1.0033	132.44
6178		KARAMPUR		132.00	6	0.9956	131.42	6180		ARIFWALA		132.00	6	0.9955	131.41
6182		KAMIRWALA		132.00	6	1.0061	132.81	6190		BWL.NAGR		132.00	6	1.0025	132.33
6191		HOTA		132.00	6	0.9958	131.45	6200		QABULA		132.00	6	0.9950	131.34
6210		SAHUKA		132.00	6	0.9781	129.11	6220		HASILPUR		132.00	6	1.0105	133.39
6221		CHUNAWALA		132.00	6	1.0094	133.23	6230		CHISTIAN-O		132.00	6	1.0268	135.54
6231		CHSTAN-N		132.00	6	1.0286	135.78	6232		DHARWALA132		132.00	6	1.0207	134.73
6410		HASILPUR		66.000	6	1.0040	66.265	6415		CHISTIAN		66.000	6	0.9834	64.906
6419		L.SOHANRA		132.00	6	1.0183	134.41	6421		K.P.TOMI		132.00	6	1.0101	133.33
6462		NOORSAR		132.00	6	1.0114	133.50	6482		MNCHNBAD		132.00	6	0.9954	131.39
6491		MCLD.GNJ		132.00	6	0.9906	130.76	6501		HARONABD		132.00	6	1.0204	134.70

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6512	FAQIRWLI	132.00	6	1.0246	135.25	6521	FORTABAS	132.00	6	1.0182	134.40
6666	MULTAN-N	132.00	6	1.0304	136.01	7000	MIANCHNU	132.00	6	0.9960	131.48
7001	CHAK-83-132	132.00	6	1.0009	132.12	7002	KASSOWAL	132.00	6	1.0089	133.18
7006	HEAD SIDHNAI	132.00	6	0.9696	127.99	7010	KACHAKHU	132.00	6	0.9951	131.35
7020	KHANEWAL	132.00	6	1.0097	133.27	7024	KHANEWAL T-4	11.000	6	0.9664	10.630
7029	FAUJI-K	132.00	6	1.0300	135.96	7030	KABIRWLA	132.00	6	1.0124	133.64
7032	MP.PAHOR	132.00	6	0.9965	131.54	7040	GARHMORE	132.00	6	0.9953	131.38
7041	T-GM	132.00	6	0.9960	131.47	7050	JEHANIAN	132.00	6	0.9974	131.66
7055	T-C.211	132.00	6	0.9851	130.03	7060	CHAK.211	132.00	6	0.9817	129.59
7070	MAILSI	132.00	6	0.9846	129.96	7075	MUKHDM.R	132.00	6	1.0082	133.08
7076	F.J HOUSING	132.00	6	1.0353	136.66	7100	P.GAIB-1	132.00	6	1.0311	136.11
7109	P.GAIB-2	132.00	6	1.0452	137.96	7110	BASTIMLK	132.00	6	1.0148	133.96
7115	MIRAN PUR	132.00	6	1.0401	137.29	7116	MKD JAHANIAN	132.00	6	1.0399	137.26
7120	LODHRAN	132.00	6	1.0238	135.14	7125	LAR	132.00	6	1.0244	135.22
7130	BU.JADID	132.00	6	1.0373	136.92	7138	BWPN-2	132.00	6	1.0348	136.59
7139	B.W.P-N	132.00	6	1.0546	139.20	7140	BHAWALPR	132.00	6	1.0425	137.62
7145	BPUR CANTT	132.00	6	1.0496	138.55	7147	KARORPCA	132.00	6	1.0072	132.95
7149	DUNYAPUR	132.00	6	0.9930	131.08	7150	SAMASATA	132.00	6	1.0292	135.85
7159	MUB-PUR	132.00	6	1.0122	133.60	7160	LIAQATPR	132.00	6	1.0179	134.36
7170	AHMDPR.E	132.00	6	1.0043	132.57	7175	RYK-PP	132.00	6	1.0000	132.00
7180	FEROZA	132.00	6	0.9994	131.92	7185	KHANBELA	132.00	6	0.9859	130.13
7190	HAMZA-PP	132.00	6	1.0207	134.73	7200	KHANPUR	132.00	6	1.0268	135.54
7210	MWQRSHIA	132.00	6	1.0104	133.37	7220	R.Y.KHAN	132.00	6	1.0349	136.60
7221	RYK-NEW	132.00	6	1.0461	138.09	7225	R.Y.KHN2	132.00	6	1.0351	136.63
7226	RYK-T	132.00	6	1.0383	137.05	7230	SADIQABD	132.00	6	1.0224	134.96
7231	WALANA	132.00	6	1.0201	134.66	7235	NAWAZABD	132.00	6	1.0322	136.25
7240	J.D.WALI	132.00	6	1.0037	132.49	7250	MN.KH.RD	132.00	6	1.0276	135.64
7255	WAPDATWN	132.00	6	1.0179	134.36	7260	MN.BS.RD	132.00	6	1.0132	133.74
7261	PUNJAB HOSNG	132.00	6	1.0260	135.43	7262	BUCH VILLAS	132.00	6	1.0097	133.28
7265	QASIMBGH	132.00	6	1.0218	134.88	7270	MLN-IND	132.00	6	1.0041	132.54
7272	COCA COLA	132.00	6	1.0041	132.54	7273	SURAJ MIANI	132.00	6	0.9961	131.49
7275	C.T.MILL	132.00	6	1.0014	132.19	7280	MN.VR.RD	132.00	6	1.0223	134.94
7285	QASIMPUR	132.00	6	1.0119	133.57	7287	M.JAILRD	132.00	6	1.0027	132.36
7288	SHUJABAD	132.00	6	0.9943	131.25	7289	JALALPWL	132.00	6	0.9977	131.70
7290	MESCO	132.00	6	0.9976	131.69	7300	KAPCO	132.00	6	1.0500	138.60
7302	SANAWAN	132.00	6	1.0400	137.28	7303	PIR CHUGI SH	132.00	6	1.0254	135.35
7320	GUJRAT.S	132.00	6	1.0179	134.37	7325	LAYYAH	132.00	6	1.0084	133.11

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7328	KBGASHER	132.00	6	1.0209	134.77	7330	MZFRGARH	132.00	6	1.0254	135.36
7331	KOTADU-O	132.00	6	1.0476	138.28	7332	N.A.WALI	132.00	6	1.0298	135.94
7333	S.S.DIN	132.00	6	1.0169	134.24	7334	M GARH NEW	132.00	6	1.0277	135.66
7335	KOTSULTAN	132.00	6	1.0220	134.90	7336	KAROR L.E	132.00	6	0.9885	130.48
7340	MEHRKHAS	132.00	6	1.0155	134.05	7350	DMR WALA	132.00	6	1.0160	134.12
7360	JATOIJNB	132.00	6	1.0155	134.05	7370	KHRPRSDT	132.00	6	1.0111	133.46
7395	SHAD.LND	132.00	6	1.0178	134.35	7400	TAUNSA	132.00	6	1.0055	132.72
7435	PARCO	132.00	6	0.9789	129.22	7436	T-PARCO	132.00	6	0.9790	129.23
7440	CHOKMND	132.00	6	1.0190	134.51	7441	T-CMUNDA	132.00	6	1.0194	134.56
7442	T-AHTM	132.00	6	1.0295	135.90	7443	AHTM	132.00	6	1.0288	135.81
7450	CHAUBARA	132.00	6	1.0009	132.12	7456	CHOKAZAM	132.00	6	1.0018	132.24
7459	KHANGARH	132.00	6	1.0238	135.15	7460	D.G.KHAN	132.00	6	1.0212	134.80
7462	MDC-DGK	132.00	6	1.0282	135.72	7463	CPC-DGK	132.00	6	1.0221	134.92
7465	KOTCHUTA	132.00	6	1.0045	132.60	7466	T-ATM	132.00	6	1.0138	133.83
7467	ATM	132.00	6	1.0132	133.75	7468	D.G.KHAN NEW	132.00	6	1.0290	135.83
7470	ROJHAN	132.00	6	1.0187	134.47	7580	CMNT.FCT	132.00	6	1.0130	133.71
7590	SKHISRWR	132.00	6	1.0275	135.63	7781	YAZMAN	132.00	6	1.0347	136.58
7791	MAROOT	132.00	6	1.0177	134.33	7800	KOTADDU	66.000	6	1.0248	67.636
7831	FATEHPUR	132.00	6	0.9794	129.28	7840	RANGPUR	66.000	6	0.9958	65.724
7842	T-RANGPR	66.000	6	1.0152	67.005	7880	CHAUBARA	66.000	6	0.9999	65.991
7890	NAWANKOT	66.000	6	1.0007	66.043	7891	T.NWANKOT	66.000	6	1.0007	66.043
7909	D.G.KHAN II	132.00	6	1.0200	134.65	7910	D.G.KHAN	66.000	6	1.0390	68.574
7920	KOTCHOTA	66.000	6	1.0114	66.754	7921	JAMPUR	66.000	6	1.0154	67.019
7925	CHOTI	66.000	6	0.9924	65.501	7930	JAMPUR	132.00	6	0.9879	130.40
7933	FAZALPUR	132.00	6	0.9901	130.70	7935	DAJAL	66.000	6	1.0088	66.578
7951	RAJANPUR	132.00	6	0.9773	129.00	7970	AHMDPR.E	66.000	6	1.0631	70.164
7974	UCH.SHRF	132.00	6	0.9997	131.96	7975	UCH (KF)	66.000	6	1.0121	66.798
7977	T-UCHSHF	66.000	6	1.0429	68.832	7981	ALI PUR	132.00	6	1.0129	133.71
7984	HEAD-RJ-KN	132.00	6	1.0312	136.12	7996	FORT.MINRO	132.00	6	1.0280	135.69
60301	QADIRABD T-111.000		6	0.9934	10.928	60302	QADIRABD T-211.000		6	0.9872	10.859
60501	BNGAHYAT T-111.000		6	0.9499	10.449	60502	BNGAHYAT T-211.000		6	0.9572	10.529
60801	SAHIWALN T-111.000		6	0.9828	10.810	60802	SAHIWALN T-211.000		6	0.9817	10.799
60901	SAHWAL-O T-111.000		6	1.0004	11.004	60902	SAHWAL-O T-211.000		6	1.0047	11.052
60903	SAHWAL-O T-311.000		6	0.9794	10.773	60951	SWL III T-1 11.000		6	1.0042	11.046
60952	SWL III T-2 11.000		6	1.0042	11.046	61001	NOORPUR T-1 11.000		6	1.0113	11.124
61002	NOORPUR T-2 11.000		6	1.0113	11.124	61003	NOORUR T-3 11.000		6	0.9615	10.577
61201	PAKPATAN T-111.000		6	1.0019	11.021	61202	PAKPATAN T-211.000		6	1.0017	11.018

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61203	PAKPATAN T-311.000	6	1.0029	11.032	61221	PAK PTN T-1	11.000
61222	PAK PTN T-2	6	0.9740	10.714	61223	PAK PTN T-3	11.000
61301	HARAPPA T-1	6	0.9818	10.800	61302	HARAPPA T-2	11.000
61381	BWP-2	6	1.0332	136.38	61401	CHCHWTNI T-311.000	6
61402	CHCHWTNI T-111.000	6	1.0062	11.068	61403	CHCHWTNI T-211.000	6
61501	SH.FAZAL T-111.000	6	0.9940	10.933	61502	SH.FAZAL T-211.000	6
61601	BUREWALA T-111.000	6	0.9797	10.777	61602	BUREWALA T-211.000	6
61603	BUREWALA T-311.000	6	0.9816	10.798	61621	BREWLA-O T-111.000	6
61622	BREWLA-O T-211.000	6	1.0152	11.167	61631	GAGOO T-1	11.000
61632	GAGOO T-2	6	0.9790	10.769	61701	VEHARI-O T-111.000	6
61702	VEHARI-O T-211.000	6	1.0228	11.251	61703	VEHARI-T-3	11.000
61751	LUDDEN T-1	6	0.9979	10.977	61752	LUDDEN T-2	11.000
61781	KARAMPUR T-111.000	6	0.9948	10.943	61782	KARAMPUR T-211.000	6
61801	ARIFWALA T-111.000	6	0.9911	10.902	61802	ARIFWALA T-211.000	6
61803	ARIFWALA T-311.000	6	0.9953	10.948	61821	KAMIRW T-1	11.000
61822	KAMIR W T-211.000	6	1.0126	11.139	61901	BWL.NAGR T-111.000	6
61902	BWL.NAGR T-211.000	6	0.9883	10.871	61903	BWL.NAGR T-311.000	6
61911	HOTA T-1	6	1.0032	11.035	62001	QABULA T-1	11.000
62002	QABULA T-2	6	1.0117	11.129	62003	QABULA T-3	11.000
62101	SAHUKA T-1	6	1.0148	11.162	62102	SAHUKA T-2	11.000
62202	HASILPUR T-211.000	6	1.0112	11.123	62203	HASILPUR T-311.000	6
62211	CHUNAW T-1	6	1.0179	11.197	62212	T2	11.000
62301	CHISTIAN T-111.000	6	1.0135	11.149	62302	CHISTIAN T-211.000	6
62303	CHISTIAO T3	6	0.9958	10.953	62321	DHRANWALA-T111.000	6
62322	DHRANWALA-T211.000	6	0.9851	10.836	64151	CHISTIAN T-211.000	6
64191	L.SOHAN T-1	6	1.0193	11.212	64211	K.P.TOMI T-111.000	6
64212	K.P.TOMI T-211.000	6	0.9908	10.899	64621	NOORSAR T-1	11.000
64821	MNCHNBAD T1	6	1.0318	11.350	64822	MNCHNBAD T-211.000	6
64911	MCLD.GNJ T1	6	1.0416	11.458	64912	MCLD.GNJ T2	11.000
65011	HARONABD T-111.000	6	1.0429	11.472	65012	HARONABD T-211.000	6
65013	HARONABD T-311.000	6	1.0174	11.191	65121	FAQIRWLI-T1	11.000
65122	FAQIRWLI-T2	6	1.0319	11.351	65211	FORTABAS-T1	11.000
65212	FORTABAST-2	6	1.0666	11.732	70001	MIANCHNU T1	11.000
70002	MIANCHNU T-211.000	6	0.9844	10.828	70003	MIANCHNU T-311.000	6
70011	CHAK-83-T1	6	1.0126	11.138	70012	CHAK-83-T2	11.000
70021	KASSOWAL T-111.000	6	0.9757	10.733	70022	KASOWAL T-2	11.000
70061	H SIDNAI T-111.000	6	0.9977	10.975	70062	H SIDNAI T-211.000	6

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70101 KACHAKHU T-111.000	6 1.0176 11.193	70102 KACHAKHU T-211.000	6 1.0242 11.266
70103 KACHAKHU T-311.000	6 0.9678 10.646	70202 KHANEWAL T-211.000	6 0.9833 10.816
70203 KHANEWAL T-311.000	6 0.9959 10.954	70301 KABIRWLA T-111.000	6 1.0179 11.197
70302 KABIRWLA T-211.000	6 1.0114 11.126	70303 KABIRWLA T-311.000	6 0.9900 10.890
70321 MP PAHOR T-111.000	6 1.0173 11.190	70322 MP PAHOR T-211.000	6 0.9920 10.912
70401 GARHMORE T-111.000	6 1.0072 11.080	70402 GARHMORE T-211.000	6 0.9787 10.765
70501 JEHANIAN T-111.000	6 0.9747 10.721	70502 JEHANIAN T-211.000	6 1.0005 11.006
70503 JEHANIAN T-311.000	6 1.0076 11.084	70601 CHAK.211 T-111.000	6 1.0179 11.197
70602 CHAK 211 T-211.000	6 1.0160 11.177	70603 CHAK 211 T-311.000	6 0.9770 10.747
70701 MAILSI T-1 11.000	6 1.0042 11.046	70702 MAILSI T-2 11.000	6 1.0340 11.374
70703 MAILSI T-3 11.000	6 1.0048 11.053	70751 MUKHDM.R T-111.000	6 0.9992 10.991
70752 MUKHDM.R T-211.000	6 1.0008 11.009	70761 F.J HSNB T-111.000	6 1.0029 11.032
70762 F.J HSNB T-211.000	6 1.0142 11.157	71101 BASTIMLK T-111.000	6 1.0015 11.016
71102 BASTIMLK T-211.000	6 1.0297 11.327	71103 BASTIMLK T-311.000	6 1.0015 11.016
71151 MIRAN P T-1 11.000	6 1.0235 11.259	71152 MIRAN P T-2 11.000	6 1.0488 11.537
71161 MK JANIAN T111.000	6 1.0336 11.369	71201 LODHRAN T-1 11.000	6 1.0385 11.423
71202 LODHRAN T-2 11.000	6 1.0338 11.372	71203 LODHRAN T-3 11.000	6 1.0370 11.407
71251 LART-1 11.000	6 1.0114 11.126	71252 LAR T-2 11.000	6 1.0114 11.126
71301 BU.JADID T-111.000	6 1.0341 11.375	71302 BU.JADID T-211.000	6 1.0362 11.398
71401 BHAWALPR T-111.000	6 1.0362 11.398	71402 BHAWALPR T-211.000	6 1.0602 11.662
71403 BHAWALPR T-311.000	6 1.0326 11.359	71451 BP CANTT T-111.000	6 1.0305 11.335
71452 BPCANTT T-2 11.000	6 1.0305 11.335	71471 KARORPCA T-111.000	6 1.0444 11.488
71472 KARORPCA T-211.000	6 1.0304 11.335	71473 KARORPCA T3 11.000	6 0.9956 10.952
71491 DUNYAPUR T-111.000	6 1.0072 11.079	71492 DUNYAPUR T-211.000	6 1.0460 11.506
71501 SAMASATA T-111.000	6 1.0069 11.076	71502 SAMASATA T-211.000	6 1.0026 11.028
71591 MUB-PUR-T1 11.000	6 0.9999 10.999	71592 MUB-PUR-T2 11.000	6 0.9999 10.999
71601 LIAQATPR T-111.000	6 1.0078 11.086	71602 LIAQATPR T-211.000	6 1.0142 11.156
71702 AHMDPR.E T-211.000	6 1.0251 11.277	71703 AHMDPR.E T-311.000	6 1.0083 11.091
71704 AHMDPR.E T4 11.000	6 1.0062 11.069	71801 FEROZA T-1 11.000	6 1.0286 11.315
71802 FEROZA T-2 11.000	6 1.0397 11.437	71851 KHANBELA T-111.000	6 0.9980 10.977
71852 KHANBELA T-211.000	6 0.9745 10.720	72001 KHANPUR T-1 11.000	6 0.9779 10.757
72002 KHANPUR T-2 11.000	6 0.9978 10.975	72003 KHANPUR T-3 11.000	6 0.9812 10.793
72101 MWQRSHIA T-111.000	6 0.9833 10.816	72102 MWQRSHIA T2 11.000	6 0.9670 10.637
72201 R.Y.KHAN T-111.000	6 1.0106 11.116	72202 R.Y.KHAN T-211.000	6 1.0106 11.116
72203 R.Y.KHAN T-311.000	6 1.0106 11.116	72251 R.Y.KHN2 T-111.000	6 1.0231 11.254
72252 R.Y.KHN2 T-211.000	6 1.0130 11.143	72301 SADIQABD T-111.000	6 1.0310 11.341
72302 SADIQABD T-211.000	6 1.0311 11.342	72303 SADIQABD T-311.000	6 0.9887 10.876

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72311 WALANA T-1 11.000	6 0.9990 10.989	72312 WALANA T-2 11.000	6 1.0076 11.083
72351 NAWAZ T-1 11.000	6 1.0200 11.220	72401 J.D.WALI T-111.000	6 1.0058 11.064
72402 JDWALI T-2 11.000	6 1.0323 11.355	72403 J D WALI T-311.000	6 0.9970 10.966
72501 MN.KH.RD T-111.000	6 0.9668 10.634	72502 MN.KH.RD T-211.000	6 1.0000 11.000
72503 MN.KH.RD T-311.000	6 0.9756 10.732	72551 WAP TO T-1 11.000	6 0.9764 10.740
72552 WAPDA TO T-211.000	6 0.9826 10.809	72601 MN.BS.RD T-111.000	6 1.0037 11.040
72602 MN.BS.RD T-211.000	6 1.0151 11.166	72603 MN.BS.RD T-311.000	6 1.0140 11.154
72611 PNJB HSG T-111.000	6 0.9979 10.977	72612 PNJB HSG T-211.000	6 0.9979 10.977
72621 BUCH VLS T-111.000	6 0.9950 10.945	72651 Q BAGH T-1 11.000	6 0.9963 10.959
72652 Q BAGH T-2 11.000	6 1.0110 11.121	72701 MLN-IND T-1 11.000	6 0.9765 10.742
72702 MLN-IND T-2 11.000	6 0.9869 10.856	72703 MLN-IND T-3 11.000	6 0.9731 10.705
72731 SURJ MNI T-111.000	6 0.9674 10.642	72732 SURJ MNI T-211.000	6 0.9654 10.619
72801 MN.VR.RD T-111.000	6 1.0141 11.156	72802 MN.VR.RD T-211.000	6 1.0144 11.159
72803 MN.VR.RD T-311.000	6 1.0066 11.073	72851 QASIMPUR T-111.000	6 1.0283 11.312
72852 QASIMPUR T-211.000	6 1.0366 11.403	72853 QASIMPUR T-311.000	6 0.9914 10.906
72871 M.J RD T-1 11.000	6 1.0394 11.434	72872 M.J.RD T-2 11.000	6 1.0254 11.279
72881 SHUJABAD T-111.000	6 1.0248 11.272	72882 SHUJABAD T-211.000	6 1.0479 11.526
72883 SHUJABAD T-311.000	6 0.9775 10.753	72891 J.P.W T-1 11.000	6 1.0685 11.753
72892 J.P.W T-2 11.000	6 1.0655 11.721	72893 J.P.W T-3 11.000	6 1.0453 11.499
72901 MESCO T-1 11.000	6 1.0113 11.125	72902 MESCO T-2 11.000	6 1.0069 11.076
72903 MESCO T-3 11.000	6 1.0021 11.023	73031 PIR CHGI T-111.000	6 0.9823 10.805
73032 PIR CHGI T-211.000	6 0.9823 10.805	73033 PIR CHGI T-311.000	6 0.9823 10.805
73201 GUJRAT.S T-111.000	6 0.9830 10.813	73202 GUJRAT.S T-211.000	6 0.9836 10.820
73203 GUJRAT.S T3 11.000	6 0.9700 10.670	73251 LAYYAH T-1 11.000	6 1.0397 11.437
73252 LAYYAH T-2 11.000	6 0.9963 10.960	73253 LAYYAH T-3 11.000	6 0.9709 10.680
73281 KBGASHER T-111.000	6 0.9735 10.708	73282 KBGASHER T-211.000	6 0.9722 10.694
73283 KBGASHER T-311.000	6 0.9863 10.849	73301 MZFRGARH T-111.000	6 1.0252 11.278
73302 MZFRGARH T-211.000	6 1.0223 11.246	73303 MZFRGARH T-311.000	6 1.0171 11.188
73311 KOTADU-O T-211.000	6 0.9967 10.964	73313 KOTADU-O T-311.000	6 1.0043 11.047
73314 KOTADU-O T-411.000	6 1.0030 11.033	73321 N.A.WALI T-111.000	6 1.0053 11.059
73322 N.A.WALI T-211.000	6 0.9828 10.810	73331 S S DIN T1 11.000	6 1.0321 11.353
73332 S S DIN T2 11.000	6 1.0055 11.060	73351 KOTSULTAN-T111.000	6 1.0199 11.219
73352 KOTSULTAN-T211.000	6 1.0199 11.219	73361 KAROR L.E-T111.000	6 1.0126 11.138
73362 KAROR L.E-T211.000	6 0.9947 10.941	73363 KAROR L.E-T311.000	6 0.9758 10.734
73401 MEHRKHAS T-111.000	6 1.0358 11.393	73402 MEHRKHAS T-211.000	6 1.0220 11.242
73403 MEHRKHAS T-311.000	6 0.9656 10.621	73501 DMR WALA T-111.000	6 1.0272 11.299
73502 DMR WALA T-211.000	6 1.0415 11.457	73601 JATOIJNB T-111.000	6 1.0571 11.628

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73602 JATOIJNB T-211.000	6 1.0571 11.628	73701 KHRPRSDT T-111.000	6 1.0372 11.409
73702 KHRPRSDT T-2 11.000	6 1.0287 11.316	73951 SHA.LND T-1 11.000	6 0.9874 10.862
73952 SHA LND T-2 11.000	6 0.9739 10.713	74001 TAUNSA T-1 11.000	6 0.9627 10.590
74002 TAUNSA T-2 11.000	6 0.9627 10.590	74401 CHOKMNDA T-111.000	6 1.0112 11.124
74402 CHOKMNDA T-211.000	6 0.9975 10.973	74501 CHAUBARA T-1	6 0.9640
74502 CHAUBARA T-211.000	6 0.9605 10.565	74561 CHOKAZAM T1 11.000	6 1.0233 11.257
74562 CHOKAZAM T2 11.000	6 0.9645 10.609	74563 CHOKAZAM T3 11.000	6 0.9645 10.609
74591 KHANGARH T-111.000	6 1.0065 11.071	74592 KHANGARH T-211.000	6 0.9841 10.825
74602 D.G.KHAN T-211.000	6 1.0450 11.495	74603 D.G.KHAN T-311.000	6 1.0416 11.457
74604 D.G.KHAN T-411.000	6 1.0462 11.508	74651 KOTCHUTA T-111.000	6 0.9906 10.896
74652 KOTCHUTA T-211.000	6 0.9980 10.978	74653 KOTCHUTTA T311.000	6 0.9691 10.660
74701 ROJHAN T-1 11.000	6 0.9889 10.878	75901 SKHISRWR T-111.000	6 1.0211 11.232
75902 SKISRWR T-2 11.000	6 1.0086 11.095	77811 YAZMAN-T-1 11.000	6 1.0304 11.335
77812 YAZMAN T-2 11.000	6 1.0179 11.197	77911 MAROOT T1 11.000	6 1.0381 11.419
77912 MAROOT T-2 11.000	6 1.0602 11.662	78311 FATEHPUR T-111.000	6 0.9670 10.637
78312 FATEPUR T-2 11.000	6 0.9759 10.735	78401 T1 11.000	6 0.9734 10.708
78901 NAWANKOT T-111.000	6 1.0293 11.322	79091 D.G.K.II T-111.000	6 0.9887 10.876
79092 D.G.K.II T-211.000	6 0.9887 10.876	79211 JAMPUR T-1 11.000	6 0.9851 10.836
79251 CHOTI T-1 11.000	6 0.9902 10.892	79301 JAMPUR T-1 11.000	6 1.0194 11.213
79302 JAMPUR T-2 11.000	6 1.0268 11.295	79331 FAZALPUR T-111.000	6 0.9710 10.681
79332 FAZALPUR T-211.000	6 0.9732 10.706	79351 DAJAL T-1 11.000	6 1.0551 11.606
79352 DAJAL T-2 11.000	6 0.9927 10.919	79511 RAJANPUR T-111.000	6 0.9787 10.766
79512 RAJANPUR T-211.000	6 0.9670 10.637	79513 RAJANPUR T-311.000	6 0.9646 10.611
79741 UCH.SHRF T-211.000	6 1.0326 11.359	79742 UCH.SHRF T-311.000	6 1.0326 11.359
79743 UCH.SHRF T-111.000	6 1.0341 11.375	79751 UCH (KF) T-111.000	6 1.0285 11.313
79811 ALI PUR T-1 11.000	6 1.0345 11.379	79812 ALIPUR T-2 11.000	6 1.0406 11.446
79813 ALIPUR T-3 11.000	6 0.9731 10.705	79841 H.R. KAN T1 11.000	6 1.0392 11.431
79842 H.R.KAN T-2 11.000	6 1.0392 11.431	79961 FRT MNRO T-111.000	6 1.0256 11.281
613811 BWP-2 T-1 11.000	6 1.0031 11.034	613812 BWP-2 T-2 11.000	6 1.0031 11.034
730211 SANAWAN T-1 11.000	6 1.0093 11.102	732022 SANAWAN T-2 11.000	6 0.9914 10.905
732512 LSM-132KV 132.00	6 1.0085 133.12		

without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

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BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0301	135.97
601		APPOLO-SOLAR		132.00	6	1.0307	136.05
801		QAD-SOL-I		132.00	6	1.0298	135.93
6030		QADIRABD		132.00	6	1.0293	135.87
6070		YOUSFWLA		132.00	6	1.0347	136.58
6090		SAHWAL-O		132.00	6	1.0217	134.86
6100		NOORPUR		132.00	6	1.0011	132.15
6122		PAK PATTAN-2		132.00	6	0.9614	126.90
6140		CHCHWTNI		132.00	6	0.9985	131.80
6160		BUREWALA		132.00	6	0.9888	130.52
6169		VEHARI-N		132.00	6	1.0195	134.57
6175		LUDDEN		132.00	6	1.0081	133.06
6180		ARIFWALA		132.00	6	0.9834	129.81
6190		BWL.NAGR		132.00	6	1.0013	132.18
6200		QABULA		132.00	6	0.9871	130.30
6220		HASILPUR		132.00	6	1.0168	134.22
6231		CHSTAN-N		132.00	6	1.0306	136.03
6410		HASILPUR		66.000	6	1.0100	66.657
6419		L.SOHANRA		132.00	6	1.0272	135.59
6461		T-NURSAR		66.000	6	0.9918	65.461
6482		MNCHNBAD		132.00	6	1.0018	132.24
6501		HARONABD		132.00	6	1.0223	134.94
6521		FORTABAS		132.00	6	1.0202	134.67
7000		MIANCHNU		132.00	6	0.9974	131.66
7002		KASSOWAL		132.00	6	1.0100	133.32
7010		KACHAKHU		132.00	6	0.9979	131.72
7029		FAUJI-K		132.00	6	1.0300	135.96
7032		MP.PAHOR		132.00	6	1.0005	132.07
7041		T-GM		132.00	6	1.0108	133.42

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
529		PARCO		220.00	6	1.0248	225.45
730		SHK-PP-132		132.00	6	1.0394	137.20
1001		CREST-ENERGY		132.00	6	1.0309	136.08
6050		BNGAHYAT		132.00	6	0.9993	131.90
6080		SAHIWALN		132.00	6	1.0269	135.55
6095		SAHIWAL III		132.00	6	1.0123	133.63
6120		PAKPATAN		132.00	6	0.9848	129.99
6130		HARAPPA		132.00	6	1.0003	132.04
6150		SH.FAZAL		132.00	6	0.9825	129.69
6162		BREWLA-O		132.00	6	0.9852	130.05
6170		VEHARI-O		132.00	6	1.0159	134.10
6178		KARAMPUR		132.00	6	1.0003	132.04
6182		KAMIRWALA		132.00	6	0.9955	131.40
6191		HOTA		132.00	6	0.9902	130.70
6210		SAHUKA		132.00	6	0.9761	128.85
6230		CHISTIAN-O		132.00	6	1.0288	135.80
6232		DHARWALA132		132.00	6	1.0226	134.99
6415		CHISTIAN		66.000	6	0.9910	65.406
6421		K.P.TOMI		132.00	6	1.0172	134.27
6462		NOORSAR		132.00	6	1.0123	133.62
6491		MCLD.GNJ		132.00	6	0.9970	131.60
6512		FAQIRWLI		132.00	6	1.0264	135.48
6666		MULTAN-N		132.00	6	1.0319	136.21
7001		CHAK-83-132		132.00	6	1.0029	132.39
7006		HEAD SIDHNAI		132.00	6	0.9709	128.16
7020		KHANEWAL		132.00	6	1.0133	133.75
7030		KABIRWLA		132.00	6	1.0180	134.38
7040		GARHMORE		132.00	6	1.0103	133.36
7050		JEHANIAN		132.00	6	1.0152	134.01

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7055 T-C.211	132.00	6 1.0005	132.06	7060 CHAK.211	132.00	6 0.9969	131.58
7070 MAILSI	132.00	6 0.9992	131.90	7075 MUKHDM.R	132.00	6 1.0226	134.98
7076 F.J HOUSING	132.00	6 1.0455	138.00	7100 P.GAIB-1	132.00	6 1.0321	136.24
7109 P.GAIB-2	132.00	6 1.0544	139.18	7110 BASTIMLK	132.00	6 1.0151	133.99
7115 MIRAN PUR	132.00	6 1.0475	138.27	7120 LODHRAN	132.00	6 1.0314	136.14
7125 LAR	132.00	6 1.0280	135.70	7130 BU.JADID	132.00	6 1.0409	137.39
7138 BWPN-2	132.00	6 1.0388	137.12	7139 B.W.P-N	132.00	6 1.0578	139.63
7140 BHAWALPR	132.00	6 1.0474	138.25	7145 BPUR CANTT	132.00	6 1.0535	139.06
7147 KARORPCA	132.00	6 1.0185	134.44	7149 DUNYAPUR	132.00	6 1.0094	133.24
7150 SAMASATA	132.00	6 1.0342	136.52	7159 MUB-PUR	132.00	6 1.0160	134.11
7160 LIAQATPR	132.00	6 1.0306	136.04	7170 AHMDPR.E	132.00	6 1.0084	133.11
7175 RYK-PP	132.00	6 1.0073	132.97	7180 FEROZA	132.00	6 1.0091	133.20
7185 KHANBELA	132.00	6 0.9960	131.47	7190 HAMZA-PP	132.00	6 1.0342	136.51
7200 KHANPUR	132.00	6 1.0410	137.42	7210 MWQRSHIA	132.00	6 1.0248	135.28
7220 R.Y.KHAN	132.00	6 1.0412	137.44	7221 RYK-NEW	132.00	6 1.0615	140.12
7225 R.Y.KHN2	132.00	6 1.0465	138.14	7226 RYK-T	132.00	6 1.0497	138.56
7230 SADIQABD	132.00	6 1.0274	135.62	7231 WALANA	132.00	6 1.0251	135.31
7235 NAWAZABD	132.00	6 1.0362	136.78	7240 J.D.WALI	132.00	6 1.0088	133.17
7250 MN.KH.RD	132.00	6 1.0290	135.82	7255 WAPDATWN	132.00	6 1.0187	134.47
7260 MN.BS.RD	132.00	6 1.0134	133.77	7261 PUNJAB HOSNG	132.00	6 1.0253	135.34
7262 BUCH VILLAS	132.00	6 1.0102	133.35	7265 QASIMBGH	132.00	6 1.0230	135.04
7270 MLN-IND	132.00	6 1.0051	132.68	7272 COCA COLA	132.00	6 1.0051	132.68
7273 SURAJ MIANI	132.00	6 0.9968	131.58	7275 C.T.MILL	132.00	6 1.0025	132.33
7280 MN.VR.RD	132.00	6 1.0235	135.10	7285 QASIMPUR	132.00	6 1.0132	133.75
7287 M.JAILRD	132.00	6 1.0038	132.50	7288 SHUJABAD	132.00	6 0.9957	131.43
7289 JALALPWL	132.00	6 1.0059	132.78	7290 MESCO	132.00	6 0.9989	131.85
7300 KAPCO	132.00	6 1.0500	138.60	7302 SANAWAN	132.00	6 1.0386	137.09
7303 PIR CHUGI SH	132.00	6 1.0239	135.15	7320 GUJRAT.S	132.00	6 1.0158	134.08
7325 LAYYAH	132.00	6 1.0053	132.70	7328 KBGASHER	132.00	6 1.0182	134.40
7330 MZFRGARH	132.00	6 1.0227	134.99	7331 KOTADU-O	132.00	6 1.0475	138.26
7332 N.A.WALI	132.00	6 1.0296	135.90	7333 S.S.DIN	132.00	6 1.0114	133.51
7334 M GARH NEW	132.00	6 1.0248	135.27	7335 KOTSULTAN	132.00	6 1.0193	134.54
7336 KAROR L.E	132.00	6 0.9858	130.13	7340 MEHRKHAS	132.00	6 1.0086	133.13
7350 DMR WALA	132.00	6 1.0072	132.95	7360 JATOIJNB	132.00	6 1.0047	132.62
7370 KHRPRSDT	132.00	6 1.0002	132.02	7395 SHAD.LND	132.00	6 1.0176	134.32
7400 TAUNSA	132.00	6 1.0052	132.68	7435 PARCO	132.00	6 0.9753	128.75
7436 T-PARCO	132.00	6 0.9754	128.76	7440 CHOKMNDA	132.00	6 1.0172	134.27

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7441 T-CMUNDA	132.00	6 1.0177	134.33	7442 T-AHTM	132.00	6 1.0286	135.77
7443 AHTM	132.00	6 1.0279	135.68	7450 CHAUBARA	132.00	6 0.9977	131.70
7456 CHOKAZAM	132.00	6 0.9983	131.78	7459 KHANGARH	132.00	6 1.0197	134.60
7460 D.G.KHAN	132.00	6 1.0145	133.91	7462 MDC-DGK	132.00	6 1.0283	135.73
7463 CPC-DGK	132.00	6 1.0169	134.23	7465 KOTCHUTA	132.00	6 0.9975	131.68
7466 T-ATM	132.00	6 1.0070	132.92	7467 ATM	132.00	6 1.0063	132.84
7468 D.G.KHAN NEW	132.00	6 1.0296	135.91	7470 ROJHAN	132.00	6 1.0184	134.43
7580 CMNT.FCT	132.00	6 1.0061	132.81	7590 SKHISRWR	132.00	6 1.0281	135.71
7781 YAZMAN	132.00	6 1.0407	137.37	7782 MAROOT	132.00	6 1.0247	135.25
7800 KOTADDU	66.000	6 1.0247	67.630	7811 T-KOTSUL	66.000	6 1.0248	67.638
7831 FATEHPUR	132.00	6 0.9745	128.64	7840 RANGPUR	66.000	6 0.9956	65.712
7842 T-RANGPR	66.000	6 1.0151	66.998	7880 CHAUBARA	66.000	6 0.9945	65.640
7890 NAWANKOT	66.000	6 0.9953	65.690	7891 T.NWANKOT	66.000	6 0.9953	65.690
7909 D.G.KHAN II	132.00	6 1.0145	133.92	7910 D.G.KHAN	66.000	6 1.0309	68.038
7920 KOTCHOTA	66.000	6 1.0021	66.137	7921 JAMPUR	66.000	6 1.0054	66.359
7925 CHOTI	66.000	6 0.9827	64.856	7930 JAMPUR	132.00	6 0.9819	129.61
7933 FAZALPUR	132.00	6 0.9856	130.10	7935 DAJAL	66.000	6 0.9987	65.911
7951 RAJANPUR	132.00	6 0.9739	128.55	7970 AHMDPR.E	66.000	6 1.0523	69.454
7974 UCH.SHRF	132.00	6 1.0038	132.50	7975 UCH (KF)	66.000	6 0.9933	65.558
7977 T-UCHSHF	66.000	6 1.0274	67.809	7981 ALI PUR	132.00	6 1.0020	132.27
7984 HEAD-RJ-KN	132.00	6 1.0372	136.91	7996 FORT.MINRO	132.00	6 1.0286	135.77
60301 QADIRABD T-1	111.000	6 0.9934	10.927	60302 QADIRABD T-2	111.000	6 0.9871	10.858
60501 BNGAHYAT T-1	111.000	6 0.9495	10.445	60502 BNGAHYAT T-2	111.000	6 0.9568	10.524
60801 SAHIWALN T-1	111.000	6 0.9836	10.820	60802 SAHIWALN T-2	111.000	6 0.9826	10.809
60901 SAHWAL-O T-1	111.000	6 1.0014	11.015	60902 SAHWAL-O T-2	111.000	6 1.0057	11.063
60903 SAHWAL-O T-3	111.000	6 0.9803	10.784	60951 SWL III T-1	11.000	6 1.0052	11.057
60952 SWL III T-2	11.000	6 1.0052	11.057	61001 NOORPUR T-1	11.000	6 1.0122	11.134
61002 NOORPUR T-2	11.000	6 1.0122	11.134	61003 NOORUR T-3	11.000	6 0.9489	10.438
61201 PAKPATAN T-1	111.000	6 1.0028	11.030	61202 PAKPATAN T-2	111.000	6 1.0025	11.027
61203 PAKPATAN T-3	111.000	6 1.0037	11.041	61221 PAK PTN T-1	11.000	6 0.9520	10.472
61222 PAK PTN T-2	11.000	6 0.9472	10.420	61301 HARAPPA T-1	11.000	6 0.9825	10.808
61302 HARAPPA T-2	11.000	6 0.9817	10.799	61381 BWP-2	132.00	6 1.0372	136.91
61402 CHCHWTNI T-1	111.000	6 1.0067	11.074	61403 CHCHWTNI T-2	111.000	6 0.9807	10.788
61404 CHCHWTNI T-4	111.000	6 0.9546	10.500	61501 SH.FAZAL T-1	111.000	6 0.9926	10.919
61502 SH.FAZAL T-2	111.000	6 0.9845	10.829	61601 BUREWALA T-1	111.000	6 1.0331	11.364
61602 BUREWALA T-3	111.000	6 0.9961	10.957	61603 BUREWALA T-3	111.000	6 0.9791	10.770
61621 BREWLA-O T-1	111.000	6 0.9717	10.689	61622 BREWLA-O T-2	111.000	6 1.0128	11.141

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61701 VEHARI-O T-111.000
61703 VEHARI-T-3 11.000
61752 LUDDEN T-2 11.000
61782 KARAMPUR T-211.000
61802 ARIFWALA T-211.000
61821 KAMIRW T-1 11.000
61901 BWL.NAGR T-111.000
61903 BWL.NAGR T-311.000
62001 QABULA T-1 11.000
62003 QABULA T-3 11.000
62102 SAHUKA T-2 11.000
62203 HASILPUR T-311.000
62302 CHISTIAN T-211.000
62321 DHRANWALA-T111.000
64151 CHISTIAN T-211.000
64211 K.P.TOMI T-111.000
64621 NOORSAR T-1 11.000
64821 MNCHNBAD T1 11.000
64911 MCLD.GNJ T1 11.000
65012 HARONABD T-211.000
65014 HARONABD T-411.000
65122 FAQIRWLI-T2 11.000
65212 FORTABAST-2 11.000
70002 MIANCHNU T-211.000
70011 CHAK-83-T1 11.000
70021 KASSOWAL T-111.000
70061 H SIDNAI T-111.000
70101 KACHAKHU T-111.000
70103 KACHAKHU T-311.000
70202 KHANEWAL T-211.000
70301 KABIRWLA T-111.000
70303 KABIRWLA T-311.000
70322 MP PAHOR T-211.000
70402 GARHMORE T-211.000
70502 JEHANIAN T-211.000
70601 CHAK.211 T-111.000
70603 CHAK 211 T-311.000

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6 0.9960 10.956
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6 1.0201 11.221
6 1.0650 11.715
6 0.9541 10.495

61702 VEHARI-O T-211.000
61751 LUDDEN T-1 11.000
61781 KARAMPUR T-111.000
61801 ARIFWALA T-111.000
61803 ARIFWALA T-311.000
61822 KAMIR W T-211.000
61902 BWL.NAGR T-211.000
61911 HOTA T-1 11.000
62002 QABULA T-2 11.000
62101 SAHUKA T-1 11.000
62202 HASILPUR T-211.000
62301 CHISTIAN T-111.000
62303 CHISTIAO T3 11.000
62322 DHRANWALA-T211.000
64191 L.SOHAN T-1 11.000
64212 K.P.TOMI T-211.000
64622 NOORSAR T-2 11.000
64822 MNCHNBAD T-211.000
64912 MCLD.GNJ T2 11.000
65013 HARONABD T-311.000
65121 FAQIRWLI-T1 11.000
65211 FORTABAS-T1
70001 MIANCHNU T1 11.000
70003 MIANCHNU T-311.000
70012 CHAK-83-T2 11.000
70022 KASOWAL T-2 11.000
70062 H SIDNAI T-211.000
70102 KACHAKHU T-211.000
70201 KHANEWAL T-111.000
70203 KHANEWAL T-311.000
70302 KABIRWLA T-211.000
70321 MP PAHOR T-111.000
70401 GARHMORE T-111.000
70501 JEHANIAN T-111.000
70503 JEHANIAN T-311.000
70602 CHAK 211 T-211.000
70701 MAILSI T-1 11.000

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6 0.9804 10.784
6 0.9970 10.967
6 1.0026 11.029
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6 1.0179 11.197
6 1.0154 11.170
6 0.9977 10.974
6 0.9870 10.857
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6 0.9951 10.946
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6 0.9812 10.793
6 0.9959 10.955
6 1.0173 11.191
6 1.0214 11.236
6 1.0387 11.426
6 0.9663 10.629
6 1.0273 11.300
6 1.0329 11.362
6 1.0204 11.224

70702 MAILSI T-2 11.000
 70751 MUKHDM.R T-111.000
 70761 F.J HSG T-111.000
 71102 BASTIMLK T-211.000
 71151 MIRAN P T-1 11.000
 71201 LODHRAN T-1 11.000
 71203 LODHRAN T-3 11.000
 71252 LAR T-2 11.000
 71302 BU.JADID T-211.000
 71402 BHAWALPR T-211.000
 71451 BP CANTT T-111.000
 71471 KARORPCA T-111.000
 71473 KARORPCA T3 11.000
 71492 DUNYAPUR T-211.000
 71502 SAMASATA T-211.000
 71592 MUB-PUR-T2 11.000
 71602 LIAQATPR T-211.000
 71703 AHMDPR.E T-311.000
 71801 FEROZA T-1 11.000
 71851 KHANBELA T-111.000
 72001 KHANPUR T-1 11.000
 72003 KHANPUR T-3 11.000
 72102 MWQRSHIA T2 11.000
 72202 R.Y.KHAN T-211.000
 72251 R.Y.KHN2 T-111.000
 72301 SADIQABD T-111.000
 72303 SADIQABD T-311.000
 72312 WALANA T-2 11.000
 72401 J.D.WALI T-111.000
 72403 J D WALI T-311.000
 72502 MN.KH.RD T-211.000
 72551 WAP TO T-1 11.000
 72601 MN.BS.RD T-111.000
 72603 MN.BS.RD T-311.000
 72612 PNJB HSG T-211.000
 72651 Q BAGH T-1 11.000
 72701 MLN-IND T-1 11.000

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 6 1.0773 11.850
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 6 1.0807 11.888
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 6 1.0686 11.755
 6 1.0076 11.084
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 6 1.0036 11.039
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 6 1.0024 11.026
 6 1.0013 11.014
 6 0.9771 10.748
 6 1.0038 11.042
 6 1.0127 11.140
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 6 0.9973 10.971
 6 0.9774 10.752

70703 MAILSI T-3 11.000
 70752 MUKHDM.R T-211.000
 71101 BASTIMLK T-111.000
 71103 BASTIMLK T-311.000
 71152 MIRAN P T-2 11.000
 71202 LODHRAN T-2 11.000
 71251 LART-1 11.000
 71301 BU.JADID T-111.000
 71401 BHAWALPR T-111.000
 71403 BHAWALPR T-311.000
 71452 BPCANTT T-2 11.000
 71472 KARORPCA T-211.000
 71491 DUNYAPUR T-111.000
 71501 SAMASATA T-111.000
 71591 MUB-PUR-T1 11.000
 71601 LIAQATPR T-111.000
 71702 AHMDPR.E T-211.000
 71704 AHMDPR.E T4 11.000
 71802 FEROZA T-2 11.000
 71852 KHANBELA T-211.000
 72002 KHANPUR T-2 11.000
 72101 MWQRSHIA T-111.000
 72201 R.Y.KHAN T-111.000
 72203 R.Y.KHAN T-311.000
 72252 R.Y.KHN2 T-211.000
 72302 SADIQABD T-211.000
 72311 WALANA T-1 11.000
 72351 NAWAZ T-1 11.000
 72402 JDWALI T-2 11.000
 72501 MN.KH.RD T-111.000
 72503 MN.KH.RD T-311.000
 72552 WAPDA TO T-211.000
 72602 MN.BS.RD T-211.000
 72611 PNJB HSG T-111.000
 72621 BUCH VLS T-111.000
 72652 Q BAGH T-2 11.000
 72702 MLN-IND T-2 11.000

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 6 0.9769 10.745
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72703 MLN-IND T-3 11.000
 72732 SURJ MNI T-211.000
 72802 MN.VR.RD T-211.000
 72851 QASIMPUR T-111.000
 72853 QASIMPUR T-311.000
 72872 M.J.RD T-2 11.000
 72882 SHUJABAD T-211.000
 72891 J.P.W T-1 11.000
 72893 J.P.W T-3 11.000
 72902 MESCO T-2 11.000
 73021 SANAWAN T-1 11.000
 73031 PIR CHGI T-111.000
 73201 GUJRAT.S T-111.000
 73203 GUJRAT.S T3 11.000
 73252 LAYYAH T-2 11.000
 73281 KBGASHER T-111.000
 73301 MZFRGARH T-111.000
 73303 MZFRGARH T-311.000
 73313 KOTADU-O T-311.000
 73321 N.A.WALI T-111.000
 73331 S S DIN T1 11.000
 73351 KOTSULTAN-T111.000
 73361 KAROR L.E-T111.000
 73363 KAROR L.E-T311.000
 73402 MEHRKHAS T-211.000
 73501 DMR WALA T-111.000
 73601 JATOIJNB T-111.000
 73701 KHRPRSDT T-111.000
 73951 SHA.LND T-1 11.000
 74001 TAUNSA T-1 11.000
 74401 CHOKMNDA T-111.000
 74502 CHAUBARA T-211.000
 74561 CHOKAZAM T1 11.000
 74591 KHANGARH T-111.000
 74602 D.G.KHAN T-211.000
 74604 D.G.KHAN T-411.000
 74652 KOTCHUTA T-211.000

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72731 SURJ MNI T-111.000
 72801 MN.VR.RD T-111.000
 72803 MN.VR.RD T-311.000
 72852 QASIMPUR T-211.000
 72871 M.J RD T-1 11.000
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 72883 SHUJABAD T-311.000
 72892 J.P.W T-2 11.000
 72901 MESCO T-1 11.000
 72903 MESCO T-3 11.000
 73022 SANAWAN T-2 11.000
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 73202 GUJRAT.S T-211.000
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 73314 KOTADU-O T-411.000
 73322 N.A.WALI T-211.000
 73332 S S DIN T2 11.000
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 73362 KAROR L.E-T211.000
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 73403 MEHRKHAS T-311.000
 73502 DMR WALA T-211.000
 73602 JATOIJNB T-211.000
 73702 KHRPRSDT T-2 11.000
 73952 SHA LND T-2 11.000
 74002 TAUNSA T-2 11.000
 74402 CHOKMNDA T-211.000
 74503 CHAUBARA T-311.000
 74562 CHOKAZAM T2 11.000
 74592 KHANGARH T-211.000
 74603 D.G.KHAN T-311.000
 74651 KOTCHUTA T-111.000
 74653 KOTCHUTTA T311.000

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 6 0.9560 10.516
 6 0.9634 10.597
 6 1.0358 11.394
 6 0.9394 10.333
 6 0.9373 10.311
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 6 0.9998 10.998
 6 0.9791 10.770
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 6 0.9470 10.417
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 6 0.9607 10.567
 6 1.0338 11.372
 6 0.9830 10.813
 6 0.9616 10.578

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74701	ROJHAN T-1	11.000	6	0.9884	10.872	75901	SKHISRWR T-111.000
75902	SKISRWR T-2	11.000	6	1.0092	11.101	77811	YAZMAN-T-1 11.000
77812	YAZMAN T-2	11.000	6	1.0239	11.263	77821	MAROOT T1 11.000
77822	MAROOT T-2	11.000	6	1.0677	11.745	78311	FATEHPUR T-111.000
78312	FATEPUR T-2	11.000	6	0.9701	10.671	78401	T1 11.000
78901	NAWANKOT T-111.000		6	1.0236	11.260	79091	D.G.K.II T-111.000
79092	D.G.K.II T-211.000		6	0.9829	10.812	79211	JAMPUR T-1 11.000
79251	CHOTI T-1 11.000		6	0.9782	10.760	79301	JAMPUR T-1 11.000
79302	JAMPUR T-2 11.000		6	1.0199	11.219	79331	FAZALPUR T-111.000
79332	FAZALPUR T-211.000		6	0.9387	10.326	79351	DAJAL T-1 11.000
79352	DAJAL T-2 11.000		6	0.9823	10.805	79511	RAJANPUR T-111.000
79512	RAJANPUR T-211.000		6	0.9630	10.594	79513	RAJANPUR T-311.000
79741	UCH.SHRF T-211.000		6	1.0369	11.406	79742	UCH.SHRF T-311.000
79743	UCH.SHRF T-111.000		6	1.0384	11.422	79751	UCH (KF) T-111.000
79811	ALI PUR T-1 11.000		6	1.0526	11.578	79812	ALIPUR T-2 11.000
79813	ALIPUR T-3 11.000		6	0.9612	10.573	79841	H.R. KAN T1 11.000
79845	H.R.KAN T-2 11.000		6	1.0454	11.499	79961	FRT MNRO T-111.000
613811	BWP-2 T-1 11.000		6	1.0071	11.079	613812	BWP-2 T-2 11.000
732512	LSM-132KV 132.00		6	1.0054	132.71		
						6	1.0216 11.238
						6	1.0365 11.402
						6	1.1048 12.153
						6	0.9483 10.431
						6	0.9731 10.705
						6	0.9829 10.812
						6	0.9251 10.176
						6	1.0423 11.465
						6	0.9510 10.461
						6	1.0583 11.642
						6	0.9748 10.722
						6	0.9203 10.123
						6	1.0369 11.406
						6	0.9999 10.999
						6	1.0870 11.957
						6	1.0454 11.499
						6	1.0262 11.288
						6	1.0071 11.079

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BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *							

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0159	134.09
601		APPOLO-SOLAR		132.00	6	1.0165	134.18
801		QAD-SOL-I		132.00	6	1.0156	134.06
6030		QADIRABD		132.00	6	1.0283	135.74
6070		YOUSFWLA		132.00	6	1.0285	135.76
6090		SAHWAL-O		132.00	6	1.0085	133.12
6100		NOORPUR		132.00	6	0.9627	127.08
6130		HARAPPA		132.00	6	0.9903	130.72
6150		SH.FAZAL		132.00	6	0.9784	129.15
6162		BREWLA-O		132.00	6	0.9826	129.70
6170		VEHARI-O		132.00	6	1.0108	133.43
6178		KARAMPUR		132.00	6	0.9928	131.05
6182		KAMIRWALA		132.00	6	1.0091	133.21
6191		HOTA		132.00	6	0.9978	131.71
6210		SAHUKA		132.00	6	0.9732	128.47
6221		CHUNAWALA		132.00	6	1.0042	132.55
6231		CHSTAN-N		132.00	6	1.0261	135.44
6410		HASILPUR		66.000	6	0.9968	65.790
6419		L.SOHANRA		132.00	6	1.0129	133.70
6462		NOORSAR		132.00	6	1.0095	133.26
6491		MCLD.GNJ		132.00	6	0.9893	130.59
6512		FAQIRWLI		132.00	6	1.0213	134.81
6666		MULTAN-N		132.00	6	1.0244	135.22
7001		CHAK-83-132		132.00	6	0.9944	131.26
7006		HEAD SIDHNAI		132.00	6	0.9547	126.02
7020		KHANEWAL		132.00	6	1.0019	132.24
7030		KABIRWLA		132.00	6	0.9966	131.55

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
529		PARCO		220.00	6	1.0248	225.45
730		SHK-PP-132		132.00	6	1.0313	136.13
1001		CREST-ENERGY		132.00	6	1.0168	134.22
6050		BNGAHYAT		132.00	6	0.9966	131.55
6080		SAHIWALN		132.00	6	1.0210	134.78
6095		SAHIWAL III		132.00	6	0.9868	130.26
6120		PAKPATAN		132.00	6	0.9104	120.17
6140		CHCHWTNI		132.00	6	0.9922	130.97
6160		BUREWALA		132.00	6	0.9862	130.17
6169		VEHARI-N		132.00	6	1.0144	133.91
6175		LUDDEN		132.00	6	1.0006	132.08
6180		ARIFWALA		132.00	6	1.0022	132.28
6190		BWL.NAGR		132.00	6	1.0013	132.17
6200		QABULA		132.00	6	0.9984	131.79
6220		HASILPUR		132.00	6	1.0053	132.70
6230		CHISTIAN-O		132.00	6	1.0243	135.21
6232		DHARWALA132		132.00	6	1.0182	134.40
6415		CHISTIAN		66.000	6	0.9760	64.418
6421		K.P.TOMI		132.00	6	1.0041	132.54
6482		MNCHNBAD		132.00	6	0.9941	131.21
6501		HARONABD		132.00	6	1.0176	134.32
6521		FORTABAS		132.00	6	1.0148	133.96
7000		MIANCHNU		132.00	6	0.9801	129.38
7002		KASSOWAL		132.00	6	1.0039	132.52
7010		KACHAKHU		132.00	6	0.9842	129.91
7029		FAUJI-K		132.00	6	1.0300	135.96
7032		MP.PAHOR		132.00	6	0.9810	129.49

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7040	GARHMORE	132.00	6	0.9931	131.09	7041	T-GM	132.00	6	0.9939	131.19			
7050	JEHANIAN	132.00	6	0.9943	131.25	7055	T-C.211	132.00	6	0.9812	129.52			
7060	CHAK.211	132.00	6	0.9778	129.07	7070	MAILSI	132.00	6	0.9803	129.40			
7075	MUKHDM.R	132.00	6	1.0050	132.66	7076	F.J HOUSING	132.00	6	1.0320	136.23			
7100	P.GAIB-1	132.00	6	1.0250	135.31	7109	P.GAIB-2	132.00	6	1.0425	137.61			
7110	BASTIMLK	132.00	6	1.0004	132.05	7115	MIRAN PUR	132.00	6	1.0330	136.36			
7120	LODHRAN	132.00	6	1.0107	133.41	7125	LAR	132.00	6	1.0143	133.88			
7130	BU.JADID	132.00	6	1.0264	135.48	7138	BWPN-2	132.00	6	1.0405	137.34			
7139	B.W.P-N	132.00	6	1.0456	138.02	7140	BHAWALPR	132.00	6	1.0294	135.88			
7145	BPUR CANTT	132.00	6	1.0410	137.42	7147	KARORPCA	132.00	6	1.0023	132.30			
7149	DUNYAPUR	132.00	6	0.9891	130.56	7150	SAMASATA	132.00	6	1.0343	136.53			
7159	MUB-PUR	132.00	6	1.0166	134.20	7160	LIAQATPR	132.00	6	1.0183	134.41			
7170	AHMDPR.E	132.00	6	1.0085	133.12	7175	RYK-PP	132.00	6	1.0000	132.00			
7180	FEROZA	132.00	6	1.0001	132.01	7185	KHANBELA	132.00	6	0.9866	130.23			
7190	HAMZA-PP	132.00	6	1.0205	134.71	7200	KHANPUR	132.00	6	1.0260	135.44			
7210	MWQRSHIA	132.00	6	1.0096	133.27	7220	R.Y.KHAN	132.00	6	1.0331	136.37			
7221	RYK-NEW	132.00	6	1.0448	137.92	7225	R.Y.KHN2	132.00	6	1.0336	136.44			
7226	RYK-T	132.00	6	1.0368	136.86	7230	SADIQABD	132.00	6	1.0183	134.42			
7231	WALANA	132.00	6	1.0147	133.95	7235	NAWAZABD	132.00	6	1.0278	135.66			
7240	J.D.WALI	132.00	6	0.9995	131.93	7250	MN.KH.RD	132.00	6	1.0214	134.83			
7255	WAPDATWN	132.00	6	1.0100	133.32	7260	MN.BS.RD	132.00	6	1.0034	132.46			
7261	PUNJAB HOSNG	132.00	6	1.0173	134.28	7262	BUCH VILLAS	132.00	6	0.9988	131.84			
7265	QASIMBGH	132.00	6	1.0158	134.08	7270	MLN-IND	132.00	6	0.9902	130.71			
7272	COCA COLA	132.00	6	0.9902	130.71	7273	SURAJ MIANI	132.00	6	0.9819	129.62			
7275	C.T.MILL	132.00	6	0.9875	130.35	7280	MN.VR.RD	132.00	6	1.0162	134.14			
7285	QASIMPUR	132.00	6	1.0042	132.55	7287	M.JAILRD	132.00	6	0.9887	130.51			
7288	SHUJABAD	132.00	6	0.9794	129.27	7289	JALALPWL	132.00	6	0.9831	129.77			
7290	MESCO	132.00	6	0.9875	130.34	7300	KAPCO	132.00	6	1.0500	138.60			
7302	SANAWAN	132.00	6	1.0423	137.58	7320	GUJRAT.S	132.00	6	1.0031	132.42			
7325	LAYYAH	132.00	6	0.9977	131.69	7328	KBGASHER	132.00	6	1.0137	133.81			
7330	MZFRGARH	132.00	6	1.0007	132.10	7331	KOTADU-O	132.00	6	1.0477	138.29			
7332	N.A.WALI	132.00	6	1.0300	135.96	7333	S.S.DIN	132.00	6	0.9967	131.57			
7334	M GARH NEW	132.00	6	1.0027	132.36	7335	KOTSULTAN	132.00	6	1.0172	134.28			
7336	KAROR L.E	132.00	6	0.9974	131.65	7340	MEHRKHAS	132.00	6	0.9327	123.12			
7350	DMR WALA	132.00	6	0.9177	121.14	7360	JATOIJNB	132.00	6	0.8997	118.76			
7370	KHRPRSDT	132.00	6	0.8885	117.28	7395	SHAD.LND	132.00	6	1.0179	134.37			
7400	TAUNSA	132.00	6	1.0056	132.74	7435	PARCO	132.00	6	0.9122	120.41			

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7436 T-PARCO	132.00	6 0.9123	120.42	7440 CHOKMNDA	132.00	6 1.0144	133.90
7441 T-CMUNDA	132.00	6 1.0150	133.97	7442 T-AHTM	132.00	6 1.0273	135.60
7443 AHTM	132.00	6 1.0266	135.51	7450 CHAUBARA	132.00	6 0.9914	130.86
7456 CHOKAZAM	132.00	6 0.9894	130.60	7459 KHANGARH	132.00	6 0.9765	128.90
7460 D.G.KHAN	132.00	6 0.9993	131.91	7462 MDC-DGK	132.00	6 1.0160	134.11
7463 CPC-DGK	132.00	6 1.0024	132.32	7465 KOTCHUTA	132.00	6 0.9821	129.64
7466 T-ATM	132.00	6 0.9917	130.91	7467 ATM	132.00	6 0.9911	130.82
7468 D.G.KHAN NEW	132.00	6 1.0175	134.31	7470 ROJHAN	132.00	6 0.9863	130.20
7580 CMNT.FCT	132.00	6 0.9908	130.79	7590 SKHISRWR	132.00	6 1.0162	134.14
7781 YAZMAN	132.00	6 1.0270	135.56	7791 MAROOT	132.00	6 1.0096	133.26
7800 KOTADDU	66.000	6 1.0249	67.642	7831 FATEHPUR	132.00	6 0.9564	126.24
7840 RANGPUR	66.000	6 0.9959	65.732	7842 T-RANGPR	66.000	6 1.0153	67.011
7880 CHAUBARA	66.000	6 0.9875	65.174	7890 NAWANKOT	66.000	6 0.9882	65.223
7891 T.NWANKOT	66.000	6 0.9882	65.223	7909 D.G.KHAN II	132.00	6 0.9999	131.99
7910 D.G.KHAN	66.000	6 1.0075	66.494	7920 KOTCHOTA	66.000	6 0.9693	63.975
7921 JAMPUR	66.000	6 0.9634	63.585	7925 CHOTI	66.000	6 0.9489	62.625
7930 JAMPUR	132.00	6 0.9370	123.68	7933 FAZALPUR	132.00	6 0.9147	120.74
7935 DAJAL	66.000	6 0.9560	63.096	7951 RAJANPUR	132.00	6 0.9122	120.41
7970 AHMDPR.E	66.000	6 1.0588	69.878	7974 UCH.SHRF	132.00	6 1.0040	132.52
7975 UCH (KF)	66.000	6 1.0072	66.478	7977 T-UCHSHF	66.000	6 1.0383	68.527
7981 ALI PUR	132.00	6 0.8907	117.57	7984 HEAD-RJ-KN	132.00	6 1.0234	135.10
7996 FORT.MINRO	132.00	6 1.0167	134.20	60301 QADIRABD T-	111.000	6 0.9926	10.918
60302 QADIRABD T-	211.000	6 0.9863	10.849	60501 BNGAHYAT T-	111.000	6 0.9140	10.054
60502 BNGAHYAT T-	211.000	6 0.9245	10.170	60801 SAHIWALN T-	111.000	6 0.9776	10.754
60802 SAHIWALN T-	211.000	6 0.9766	10.742	60901 SAHWAL-O T-	111.000	6 0.9875	10.862
60902 SAHWAL-O T-	211.000	6 0.9918	10.910	60903 SAHWAL-O T-	311.000	6 0.9667	10.634
60951 SWL III T-1	11.000	6 0.9792	10.771	60952 SWL III T-2	11.000	6 0.9792	10.771
61001 NOORPUR T-1	11.000	6 0.9072	9.980	61002 NOORPUR T-2	11.000	6 0.9072	9.980
61201 PAKPATAN T-	111.000	6 0.8283	9.112	61202 PAKPATAN T-	211.000	6 0.8283	9.112
61203 PAKPATAN T-	311.000	6 0.8387	9.226	61301 HARAPPA T-1	11.000	6 0.9720	10.692
61302 HARAPPA T-2	11.000	6 0.9712	10.683	61401 CHCHWTNI T-	311.000	6 0.9482	10.430
61402 CHCHWTNI T-	111.000	6 1.0001	11.001	61403 CHCHWTNI T-	211.000	6 0.9742	10.716
61501 SH.FAZAL T-	111.000	6 0.9882	10.871	61502 SH.FAZAL T-	211.000	6 0.9802	10.782
61601 BUREWALA T-	111.000	6 0.9605	10.566	61602 BUREWALA T-	211.000	6 0.9790	10.769
61603 BUREWALA T-	311.000	6 0.9765	10.741	61621 BREWLA-O T-	111.000	6 0.9690	10.659
61622 BREWLA-O T-	211.000	6 1.0101	11.111	61701 VEHARI-O T-	111.000	6 0.9966	10.963
61702 VEHARI-O T-	211.000	6 1.0117	11.128	61703 VEHARI-T-3	11.000	6 0.9709	10.679

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61751	LUDDEN T-1	11.000	6 0.9950 10.945
61781	KARAMPUR T-1	11.000	6 0.9918 10.910
61801	ARIFWALA T-1	11.000	6 0.9937 10.930
61803	ARIFWALA T-3	11.000	6 1.0027 11.030
61822	KAMIR W T-2	11.000	6 1.0159 11.174
61902	BWL.NAGR T-2	11.000	6 0.9633 10.596
62001	QABULA T-1	11.000	6 1.0101 11.111
62003	QABULA T-3	11.000	6 0.9593 10.552
62102	SAHUKA T-2	11.000	6 1.0093 11.103
62203	HASILPUR T-3	11.000	6 1.0118 11.130
62212	T2	11.000	6 0.9879 10.867
62302	CHISTIAN T-2	11.000	6 1.0383 11.421
62321	DHRANWALA-T1	11.000	6 0.9824 10.807
64151	CHISTIAN T-2	11.000	6 0.9905 10.896
64211	K.P.TOMI T-1	11.000	6 0.9953 10.948
64621	NOORSAR T-1	11.000	6 0.9651 10.616
64822	MNCHNBAD T-2	11.000	6 1.0177 11.195
64912	MCLD.GNJ T2	11.000	6 1.0274 11.302
65012	HARONABD T-2	11.000	6 1.0177 11.195
65121	FAQIRWLI-T1	11.000	6 1.0282 11.310
65211	FORTABAS-T1	11.000	6 1.0179 11.197
70001	MIANCHNU T1	11.000	6 0.9724 10.696
70003	MIANCHNU T-3	11.000	6 0.9665 10.631
70012	CHAK-83-T2	11.000	6 0.9936 10.930
70022	KASOWAL T-2	11.000	6 0.9544 10.499
70062	H SIDNAI T-2	11.000	6 0.9356 10.292
70102	KACHAKHU T-2	11.000	6 1.0116 11.128
70201	KHANEWAL T-1	11.000	6 0.9444 10.388
70203	KHANEWAL T-3	11.000	6 0.9835 10.819
70302	KABIRWLA T-2	11.000	6 0.9940 10.934
70321	MP PAHOR T-1	11.000	6 1.0013 11.015
70401	GARHMORE T-1	11.000	6 1.0049 11.054
70501	JEHANIAN T-1	11.000	6 0.9577 10.535
70503	JEHANIAN T-3	11.000	6 1.0042 11.047
70602	CHAK 211 T-2	11.000	6 1.0117 11.128
70701	MAILSI T-1	11.000	6 0.9994 10.994
70703	MAILSI T-3	11.000	6 1.0001 11.001
61752	LUDDEN T-2	11.000	6 0.9928 10.920
61782	KARAMPUR T-2	11.000	6 0.9714 10.686
61802	ARIFWALA T-2	11.000	6 1.0321 11.353
61821	KAMIRW T-1	11.000	6 1.0159 11.174
61901	BWL.NAGR T-1	11.000	6 0.9809 10.790
61911	HOTA T-1	11.000	6 1.0053 11.059
62002	QABULA T-2	11.000	6 1.0156 11.172
62101	SAHUKA T-1	11.000	6 1.0093 11.103
62202	HASILPUR T-2	11.000	6 1.0055 11.060
62211	CHUNAW T-1	11.000	6 1.0125 11.137
62301	CHISTIAN T-1	11.000	6 1.0108 11.119
62303	CHISTIAO T3	11.000	6 0.9931 10.924
62322	DHRANWALA-T2	11.000	6 0.9824 10.807
64191	L.SOHAN T-1	11.000	6 1.0135 11.148
64212	K.P.TOMI T-2	11.000	6 0.9842 10.826
64821	MNCHNBAD T1	11.000	6 1.0304 11.334
64911	MCLD.GNJ T1	11.000	6 1.0402 11.442
65011	HARONABD T-1	11.000	6 1.0398 11.438
65013	HARONABD T-3	11.000	6 1.0143 11.157
65122	FAQIRWLI-T2	11.000	6 1.0282 11.310
65212	FORTABAST-2	11.000	6 1.0628 11.690
70002	MIANCHNU T-2	11.000	6 0.9638 10.602
70011	CHAK-83-T1	11.000	6 0.9711 10.682
70021	KASSOWAL T-1	11.000	6 0.9705 10.676
70061	H SIDNAI T-1	11.000	6 0.9396 10.335
70101	KACHAKHU T-1	11.000	6 1.0051 11.056
70103	KACHAKHU T-3	11.000	6 0.9422 10.364
70202	KHANEWAL T-2	11.000	6 0.9748 10.722
70301	KABIRWLA T-1	11.000	6 1.0004 11.004
70303	KABIRWLA T-3	11.000	6 0.9728 10.701
70322	MP PAHOR T-2	11.000	6 0.9764 10.740
70402	GARHMORE T-2	11.000	6 0.9764 10.740
70502	JEHANIAN T-2	11.000	6 0.9971 10.968
70601	CHAK.211 T-1	11.000	6 1.0135 11.149
70603	CHAK 211 T-3	11.000	6 0.9728 10.701
70702	MAILSI T-2	11.000	6 1.0291 11.320
70751	MUKHDM.R T-1	11.000	6 0.9957 10.953

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70752 MUKHDM.R T-211.000	6 0.9974 10.971	70761 F.J HSNQ T-111.000	6 0.9634 10.597
71101 BASTIMLK T-111.000	6 0.9856 10.842	71102 BASTIMLK T-211.000	6 1.0138 11.151
71103 BASTIMLK T-311.000	6 0.9856 10.842	71151 MIRAN P T-1 11.000	6 1.0162 11.178
71152 MIRAN P T-2 11.000	6 1.0414 11.455	71201 LODHRAN T-1 11.000	6 1.0123 11.135
71202 LODHRAN T-2 11.000	6 1.0181 11.199	71203 LODHRAN T-3 11.000	6 1.0114 11.126
71251 LART-1 11.000	6 1.0012 11.013	71252 LAR T-2 11.000	6 1.0012 11.013
71301 BU.JADID T-111.000	6 1.0224 11.246	71302 BU.JADID T-211.000	6 1.0245 11.270
71401 BHAWALPR T-111.000	6 0.9988 10.986	71402 BHAWALPR T-211.000	6 1.0231 11.255
71403 BHAWALPR T-311.000	6 0.9950 10.945	71451 BP CANTT T-111.000	6 1.0218 11.239
71452 BPCANTT T-2 11.000	6 1.0218 11.239	71471 KARORPCA T-111.000	6 1.0592 11.651
71472 KARORPCA T-211.000	6 1.0246 11.271	71473 KARORPCA T3 11.000	6 0.9828 10.811
71491 DUNYAPUR T-111.000	6 1.0027 11.029	71492 DUNYAPUR T-211.000	6 1.0417 11.458
71501 SAMASATA T-111.000	6 1.0122 11.134	71502 SAMASATA T-211.000	6 1.0079 11.087
71591 MUB-PUR-T1 11.000	6 0.9774 10.752	71592 MUB-PUR-T2 11.000	6 0.9774 10.752
71601 LIAQATPR T-111.000	6 1.0083 11.091	71602 LIAQATPR T-211.000	6 1.0146 11.161
71702 AHMDPR.E T-211.000	6 1.0302 11.332	71703 AHMDPR.E T-311.000	6 1.0130 11.144
71704 AHMDPR.E T4 11.000	6 1.0107 11.118	71801 FEROZA T-1 11.000	6 1.0294 11.323
71802 FEROZA T-2 11.000	6 1.0405 11.446	71851 KHANBELA T-111.000	6 1.0051 11.056
71852 KHANBELA T-211.000	6 0.9667 10.634	72001 KHANPUR T-1 11.000	6 0.9772 10.749
72002 KHANPUR T-2 11.000	6 0.9867 10.854	72003 KHANPUR T-3 11.000	6 0.9804 10.785
72101 MWQRSHIA T-111.000	6 0.9825 10.807	72102 MWQRSHIA T2 11.000	6 0.9662 10.628
72201 R.Y.KHAN T-111.000	6 1.0136 11.150	72202 R.Y.KHAN T-211.000	6 1.0136 11.150
72203 R.Y.KHAN T-311.000	6 1.0136 11.150	72251 R.Y.KHN2 T-111.000	6 1.0215 11.237
72252 R.Y.KHN2 T-211.000	6 1.0114 11.125	72301 SADIQABD T-111.000	6 1.0299 11.329
72302 SADIQABD T-211.000	6 1.0299 11.329	72303 SADIQABD T-311.000	6 0.9877 10.864
72311 WALANA T-1 11.000	6 0.9791 10.771	72312 WALANA T-2 11.000	6 0.9882 10.870
72351 NAWAZ T-1 11.000	6 1.0155 11.170	72401 J.D.WALI T-111.000	6 1.0012 11.013
72402 JDWALI T-2 11.000	6 1.0275 11.302	72403 J D WALI T-311.000	6 0.9923 10.915
72501 MN.KH.RD T-111.000	6 0.9601 10.561	72502 MN.KH.RD T-211.000	6 0.9932 10.925
72503 MN.KH.RD T-311.000	6 0.9689 10.658	72551 WAP TO T-1 11.000	6 0.9681 10.649
72552 WAPDA TO T-211.000	6 0.9742 10.717	72601 MN.BS.RD T-111.000	6 0.9932 10.925
72602 MN.BS.RD T-211.000	6 1.0045 11.049	72603 MN.BS.RD T-311.000	6 1.0020 11.022
72611 PNJB HSG T-111.000	6 0.9886 10.874	72612 PNJB HSG T-211.000	6 0.9886 10.874
72621 BUCH VLS T-111.000	6 0.9837 10.821	72651 Q BAGH T-1 11.000	6 0.9900 10.890
72652 Q BAGH T-2 11.000	6 1.0047 11.052	72701 MLN-IND T-1 11.000	6 0.9617 10.579
72702 MLN-IND T-2 11.000	6 0.9719 10.691	72703 MLN-IND T-3 11.000	6 0.9583 10.542
72731 SURJ MNI T-111.000	6 0.9377 10.314	72732 SURJ MNI T-211.000	6 0.9358 10.294

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72801	MN.VR.RD T-111.000	6	1.0077	11.084	72802	MN.VR.RD T-211.000	6	1.0077	11.084
72803	MN.VR.RD T-311.000	6	0.9999	10.999	72851	QASIMPUR T-111.000	6	1.0199	11.219
72852	QASIMPUR T-211.000	6	1.0280	11.308	72853	QASIMPUR T-311.000	6	0.9830	10.813
72871	M.J RD T-1 11.000	6	1.0241	11.265	72872	M.J.RD T-2 11.000	6	1.0102	11.112
72881	SHUJABAD T-111.000	6	1.0080	11.088	72882	SHUJABAD T-211.000	6	1.0308	11.339
72883	SHUJABAD T-311.000	6	0.9615	10.576	72891	J.P.W T-1 11.000	6	1.0513	11.564
72892	J.P.W T-2 11.000	6	1.0485	11.533	72893	J.P.W T-3 11.000	6	1.0286	11.314
72901	MESCO T-1 11.000	6	1.0000	11.000	72902	MESCO T-2 11.000	6	0.9931	10.924
72903	MESCO T-3 11.000	6	0.9908	10.899	73201	GUJRAT.S T-111.000	6	0.9023	9.925
73202	GUJRAT.S T-211.000	6	0.9024	9.927	73203	GUJRAT.S T3 11.000	6	0.9296	10.226
73251	LAYYAH T-1 11.000	6	0.9741	10.715	73252	LAYYAH T-2 11.000	6	0.9284	10.213
73253	LAYYAH T-3 11.000	6	0.9029	9.932	73281	KBGASHER T-111.000	6	0.8774	9.652
73301	MZFRGARH T-111.000	6	0.9976	10.974	73302	MZFRGARH T-211.000	6	0.9931	10.924
73303	MZFRGARH T-311.000	6	0.9842	10.826	73311	KOTADU-O T-211.000	6	0.9968	10.965
73313	KOTADU-O T-311.000	6	1.0044	11.048	73314	KOTADU-O T-411.000	6	1.0031	11.034
73321	N.A.WALI T-111.000	6	1.0055	11.061	73322	N.A.WALI T-211.000	6	0.9830	10.813
73331	S S DIN T1 11.000	6	1.0111	11.122	73332	S S DIN T2 11.000	6	0.9850	10.835
73351	KOTSULTAN-T111.000	6	0.9894	10.884	73352	KOTSULTAN-T211.000	6	0.9894	10.884
73361	KAROR L.E-T111.000	6	1.0002	11.002	73362	KAROR L.E-T211.000	6	0.9741	10.715
73401	MEHRKHAS T-111.000	6	0.8573	9.431	73402	MEHRKHAS T-211.000	6	0.8420	9.262
73501	DMR WALA T-111.000	6	0.9114	10.025	73502	DMR WALA T-211.000	6	0.9246	10.171
73601	JATOIJNB T-111.000	6	0.9501	10.451	73602	JATOIJNB T-211.000	6	0.9094	10.003
73701	KHRPRSDT T-111.000	6	0.9018	9.920	73702	KHRPRSDT T-2 11.000	6	0.8938	9.832
73951	SHA.LND T-1 11.000	6	0.9876	10.863	73952	SHA LND T-2 11.000	6	0.9740	10.714
74001	TAUNSA T-1 11.000	6	0.9629	10.592	74002	TAUNSA T-2 11.000	6	0.9629	10.592
74401	CHOKMNDA T-111.000	6	1.0063	11.069	74402	CHOKMNDA T-211.000	6	0.9926	10.919
74501	CHAUBARA T-1	6	0.9405		74502	CHAUBARA T-211.000	6	0.9525	10.477
74561	CHOKAZAM T1 11.000	6	0.9933	10.926	74562	CHOKAZAM T2 11.000	6	0.9343	10.277
74591	KHANGARH T-111.000	6	0.9038	9.942	74592	KHANGARH T-211.000	6	0.8747	9.622
74602	D.G.KHAN T-211.000	6	1.0206	11.227	74603	D.G.KHAN T-311.000	6	1.0172	11.189
74604	D.G.KHAN T-411.000	6	1.0217	11.239	74651	KOTCHUTA T-111.000	6	0.9669	10.636
74652	KOTCHUTA T-211.000	6	0.9741	10.716	74653	KOTCHUTTA T311.000	6	0.9457	10.403
74701	ROJHAN T-1 11.000	6	0.9569	10.526	75901	SKHISRWR T-111.000	6	1.0095	11.104
75902	SKISRWR T-2 11.000	6	0.9972	10.969	77811	YAZMAN-T-1 11.000	6	1.0225	11.247
77812	YAZMAN T-2 11.000	6	1.0101	11.111	77911	MAROOT T1 11.000	6	1.0294	11.324
77912	MAROOT T-2 11.000	6	1.0514	11.565	78311	FATEHPUR T-111.000	6	0.7644	8.408
78312	FATEPUR T-2 11.000	6	0.7971	8.768	78401	T1 11.000	6	0.9736	10.709

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78901 NAWANKOT T-111.000	6	1.0163	11.179	79091 D.G.K.II T-111.000	6	0.9678	10.646
79092 D.G.K.II T-211.000	6	0.9678	10.646	79211 JAMPUR T-1 11.000	6	0.9203	10.123
79251 CHOTI T-1 11.000	6	0.9383	10.321	79301 JAMPUR T-1 11.000	6	0.9621	10.583
79302 JAMPUR T-2 11.000	6	0.9690	10.659	79331 FAZALPUR T-111.000	6	0.8703	9.573
79332 FAZALPUR T-211.000	6	0.8589	9.448	79351 DAJAL T-1 11.000	6	0.9982	10.980
79352 DAJAL T-2 11.000	6	0.9389	10.328	79511 RAJANPUR T-111.000	6	0.8738	9.612
79512 RAJANPUR T-211.000	6	0.8612	9.473	79741 UCH.SHRF T-211.000	6	1.0372	11.409
79742 UCH.SHRF T-311.000	6	1.0372	11.409	79743 UCH.SHRF T-111.000	6	1.0386	11.425
79751 UCH (KF) T-111.000	6	1.0229	11.252	79811 ALI PUR T-1 11.000	6	0.6815	7.496
79812 ALIPUR T-2 11.000	6	0.6348	6.983	79841 H.R. KAN T1 11.000	6	1.0311	11.342
79842 H.R.KAN T-2 11.000	6	1.0311	11.342	79961 FRT MNRO T-111.000	6	1.0143	11.157
730211 SANAWAN T-1 11.000	6	1.0090	11.099	732022 SANAWAN T-2 11.000	6	0.9831	10.814
732512 LSM-132KV 132.00	6	0.9990	131.87				

Without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0094	133.24	529		PARCO		220.00	6	1.0248	225.45
601		APPOLO-SOLAR		132.00	6	1.0102	133.34	730		SHK-PP-132		132.00	6	1.0357	136.71
801		QAD-SOL-I		132.00	6	1.0117	133.55	1001		CREST-ENERGY		132.00	6	1.0131	133.73
6030		QADIRABD		132.00	6	1.0284	135.74	6050		BNGAHYAT		132.00	6	0.9961	131.49
6070		YOUSFWLA		132.00	6	1.0290	135.83	6080		SAHIWALN		132.00	6	1.0215	134.84
6090		SAHWAL-O		132.00	6	0.9998	131.97	6095		SAHIWAL III		132.00	6	0.9801	129.38
6100		NOORPUR		132.00	6	0.9553	126.10	6120		PAKPATAN		132.00	6	0.9013	118.98
6130		HARAPPA		132.00	6	0.9834	129.80	6140		CHCHWTNI		132.00	6	0.9875	130.36
6150		SH.FAZAL		132.00	6	0.9711	128.18	6160		BUREWALA		132.00	6	0.9774	129.02
6162		BREWLA-O		132.00	6	0.9736	128.52	6169		VEHARI-N		132.00	6	1.0076	133.01
6170		VEHARI-O		132.00	6	1.0039	132.52	6175		LUDDEN		132.00	6	0.9938	131.18

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6178 KARAMPUR	132.00	6 0.9858	130.12
6182 KAMIRWALA	132.00	6 0.9980	131.74
6191 HOTA	132.00	6 0.9903	130.72
6210 SAHUKA	132.00	6 0.9641	127.27
6230 CHISTIAN-O	132.00	6 1.0197	134.60
6232 DHARWALA132	132.00	6 1.0135	133.78
6415 CHISTIAN	66.000	6 0.9722	64.167
6421 K.P.TOMI	132.00	6 0.9973	131.64
6462 NOORSAR	132.00	6 1.0061	132.80
6512 FAQIRWLI	132.00	6 1.0162	134.14
6666 MULTAN-N	132.00	6 1.0287	135.79
7001 CHAK-83-132	132.00	6 0.9931	131.10
7006 HEAD SIDHNAI	132.00	6 0.9587	126.55
7020 KHANEWAL	132.00	6 1.0057	132.75
7030 KABIRWLA	132.00	6 1.0031	132.41
7040 GARHMORE	132.00	6 0.9839	129.87
7050 JEHANIAN	132.00	6 0.9762	128.86
7060 CHAK.211	132.00	6 0.9570	126.33
7075 MUKHDM.R	132.00	6 1.0001	132.01
7100 P.GAIB-1	132.00	6 1.0291	135.84
7110 BASTIMLK	132.00	6 1.0104	133.37
7120 LODHRAN	132.00	6 1.0202	134.67
7130 BU.JADID	132.00	6 1.0297	135.92
7139 B.W.P-N	132.00	6 1.0469	138.19
7145 BPUR CANTT	132.00	6 1.0417	137.51
7149 DUNYAPUR	132.00	6 0.9718	128.27
7159 MUB-PUR	132.00	6 1.0031	132.41
7170 AHMDPR.E	132.00	6 0.9914	130.87
7180 FEROZA	132.00	6 0.9986	131.82
7190 HAMZA-PP	132.00	6 1.0257	135.40
7210 MWQRSHIA	132.00	6 1.0153	134.02
7221 RYK-NEW	132.00	6 1.0525	138.93
7226 RYK-T	132.00	6 1.0391	137.16
7235 NAWAZABD	132.00	6 1.0273	135.60
7250 MN.KH.RD	132.00	6 1.0257	135.40
7260 MN.BS.RD	132.00	6 1.0093	133.23
7262 BUCH VILLAS	132.00	6 1.0056	132.74
6180 ARIFWALA	132.00	6 0.9894	130.60
6190 BWL.NAGR	132.00	6 0.9973	131.65
6200 QABULA	132.00	6 0.9890	130.55
6220 HASILPUR	132.00	6 0.9991	131.88
6231 CHSTAN-N	132.00	6 1.0216	134.85
6410 HASILPUR	66.000	6 0.9918	65.461
6419 L.SOHANRA	132.00	6 1.0057	132.76
6461 T-NURSAR	66.000	6 0.9731	64.222
6501 HARONABD	132.00	6 1.0127	133.67
6521 FORTABAS	132.00	6 1.0098	133.30
7000 MIANCHNU	132.00	6 0.9783	129.14
7002 KASSOWAL	132.00	6 1.0003	132.04
7010 KACHAKHU	132.00	6 0.9859	130.13
7029 FAUJI-K	132.00	6 1.0300	135.96
7032 MP.PAHOR	132.00	6 0.9866	130.23
7041 T-GM	132.00	6 0.9844	129.94
7055 T-C.211	132.00	6 0.9609	126.84
7070 MAILSI	132.00	6 0.9600	126.72
7076 F.J HOUSING	132.00	6 1.0422	137.58
7109 P.GAIB-2	132.00	6 1.0578	139.63
7115 MIRAN PUR	132.00	6 1.0439	137.79
7125 LAR	132.00	6 1.0263	135.47
7138 BWPN-2	132.00	6 1.0398	137.26
7140 BHAWALPR	132.00	6 1.0337	136.45
7147 KARORPCA	132.00	6 0.9840	129.89
7150 SAMASATA	132.00	6 1.0343	136.53
7160 LIAQATPR	132.00	6 1.0229	135.03
7175 RYK-PP	132.00	6 1.0000	132.00
7185 KHANBELA	132.00	6 0.9853	130.06
7200 KHANPUR	132.00	6 1.0318	136.20
7220 R.Y.KHAN	132.00	6 1.0287	135.79
7225 R.Y.KHN2	132.00	6 1.0358	136.73
7230 SADIQABD	132.00	6 1.0177	134.33
7240 J.D.WALI	132.00	6 0.9986	131.82
7255 WAPDATWN	132.00	6 1.0150	133.99
7261 PUNJAB HOSNG	132.00	6 1.0219	134.89
7265 QASIMBGH	132.00	6 1.0198	134.62

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7270 MLN-IND	132.00	6 0.9995	131.93	7272 COCA COLA	132.00	6 0.9995	131.93
7273 SURAJ MIANI	132.00	6 0.9910	130.82	7275 C.T.MILL	132.00	6 0.9968	131.58
7280 MN.VR.RD	132.00	6 1.0203	134.68	7285 QASIMPUR	132.00	6 1.0093	133.22
7287 M.JAILRD	132.00	6 0.9972	131.63	7288 SHUJABAD	132.00	6 0.9907	130.78
7289 JALALPWL	132.00	6 0.9933	131.12	7290 MESCO	132.00	6 0.9938	131.18
7300 KAPCO	132.00	6 1.0500	138.60	7320 GUJRAT.S	132.00	6 1.0108	133.43
7325 LAYYAH	132.00	6 0.9312	122.92	7328 KBGASHER	132.00	6 1.0170	134.24
7330 MZFRGARH	132.00	6 1.0127	133.68	7331 KOTADU-O	132.00	6 1.0465	138.14
7332 N.A.WALI	132.00	6 1.0289	135.82	7333 S.S.DIN	132.00	6 1.0018	132.24
7334 M GARH NEW	132.00	6 1.0151	133.99	7335 KOTSULTAN	132.00	6 0.9679	127.77
7336 KAROR L.E	132.00	6 0.9086	119.93	7340 MEHRKHAS	132.00	6 0.9832	129.78
7350 DMR WALA	132.00	6 0.9748	128.68	7360 JATOIJNB	132.00	6 0.9649	127.37
7370 KHRPRSDT	132.00	6 0.9571	126.33	7395 SHAD.LND	132.00	6 1.0177	134.33
7400 TAUNSA	132.00	6 1.0053	132.69	7435 PARCO	132.00	6 0.9186	121.26
7436 T-PARCO	132.00	6 0.9187	121.27	7440 CHOKMNDA	132.00	6 0.9937	131.16
7441 T-CMUNDA	132.00	6 0.9946	131.29	7442 T-AHTM	132.00	6 1.0164	134.16
7443 AHTM	132.00	6 1.0157	134.07	7450 CHAUBARA	132.00	6 0.9550	126.06
7456 CHOKAZAM	132.00	6 0.9439	124.59	7459 KHANGARH	132.00	6 1.0029	132.39
7460 D.G.KHAN	132.00	6 1.0046	132.60	7462 MDC-DGK	132.00	6 1.0203	134.68
7463 CPC-DGK	132.00	6 1.0075	132.99	7465 KOTCHUTA	132.00	6 0.9874	130.34
7466 T-ATM	132.00	6 0.9970	131.60	7467 ATM	132.00	6 0.9963	131.51
7468 D.G.KHAN NEW	132.00	6 1.0218	134.88	7470 ROJHAN	132.00	6 0.9891	130.57
7580 CMNT.FCT	132.00	6 0.9961	131.49	7590 SKHISRWR	132.00	6 1.0204	134.70
7781 YAZMAN	132.00	6 1.0249	135.29	7782 MAROOT	132.00	6 1.0080	133.06
7800 KOTADDU	66.000	6 1.0237	67.564	7811 T-KOTSUL	66.000	6 1.0238	67.572
7831 FATEHPUR	132.00	6 0.9105	120.18	7840 RANGPUR	66.000	6 0.9946	65.640
7842 T-RANGPR	66.000	6 1.0141	66.931	7880 CHAUBARA	66.000	6 0.9509	62.761
7890 NAWANKOT	66.000	6 0.9515	62.797	7891 T.NWANKOT	66.000	6 0.9515	62.798
7909 D.G.KHAN II	132.00	6 1.0050	132.66	7910 D.G.KHAN	66.000	6 1.0124	66.821
7920 KOTCHOTA	66.000	6 0.9737	64.267	7921 JAMPUR	66.000	6 0.9672	63.838
7925 CHOTI	66.000	6 0.9533	62.916	7930 JAMPUR	132.00	6 0.9426	124.43
7933 FAZALPUR	132.00	6 0.9208	121.55	7935 DAJAL	66.000	6 0.9599	63.353
7951 RAJANPUR	132.00	6 0.9187	121.26	7970 AHMDPR.E	66.000	6 1.0314	68.074
7974 UCH.SHRF	132.00	6 0.9867	130.24	7975 UCH (KF)	66.000	6 0.9693	63.971
7977 T-UCHSHF	66.000	6 1.0048	66.320	7981 ALI PUR	132.00	6 0.9591	126.60
7984 HEAD-RJ-KN	132.00	6 1.0214	134.82	7996 FORT.MINRO	132.00	6 1.0209	134.76
60301 QADIRABD T-	111.000	6 0.9923	10.915	60302 QADIRABD T-	211.000	6 0.9860	10.846

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60501 BNGAHYAT T-111.000	6 0.9126 10.039	60502 BNGAHYAT T-211.000	6 0.9232 10.155
60801 SAHIWALN T-111.000	6 0.9777 10.754	60802 SAHIWALN T-211.000	6 0.9766 10.743
60901 SAHWAL-O T-111.000	6 0.9705 10.675	60902 SAHWAL-O T-211.000	6 0.9777 10.755
60903 SAHWAL-O T-311.000	6 0.9500 10.449	60951 SWL III T-1 11.000	6 0.9723 10.695
60952 SWL III T-2 11.000	6 0.9723 10.695	61001 NOORPUR T-1 11.000	6 0.9208 10.128
61002 NOORPUR T-2 11.000	6 0.9279 10.207	61201 PAKPATAN T-111.000	6 0.8143 8.957
61202 PAKPATAN T-211.000	6 0.8143 8.957	61203 PAKPATAN T-311.000	6 0.8253 9.078
61301 HARAPPA T-1 11.000	6 0.9641 10.605	61302 HARAPPA T-2 11.000	6 0.9633 10.596
61402 CHCHWTNI T-111.000	6 0.9946 10.941	61403 CHCHWTNI T-211.000	6 0.9688 10.657
61404 CHCHWTNI T-411.000	6 0.9429 10.372	61501 SH.FAZAL T-111.000	6 0.9894 10.884
61502 SH.FAZAL T-211.000	6 0.9561 10.517	61601 BUREWALA T-111.000	6 1.0198 11.217
61602 BUREWALA T-211.000	6 0.9831 10.814	61603 BUREWALA T-311.000	6 0.9663 10.629
61621 BREWLA-O T-111.000	6 0.9593 10.553	61622 BREWLA-O T-211.000	6 1.0000 11.000
61701 VEHARI-O T-111.000	6 0.9905 10.895	61702 VEHARI-O T-211.000	6 1.0131 11.144
61703 VEHARI-T-3 11.000	6 0.9726 10.698	61751 LUDDEN T-1 11.000	6 0.9871 10.858
61752 LUDDEN T-2 11.000	6 0.9849 10.834	61781 KARAMPUR T-111.000	6 0.9839 10.823
61782 KARAMPUR T-211.000	6 0.9632 10.595	61801 ARIFWALA T-111.000	6 0.9791 10.771
61802 ARIFWALA T-211.000	6 1.0171 11.188	61803 ARIFWALA T-311.000	6 0.9880 10.868
61821 KAMIRW T-1 11.000	6 1.0039 11.043	61822 KAMIR W T-211.000	6 1.0039 11.043
61901 BWL.NAGR T-111.000	6 0.9934 10.927	61902 BWL.NAGR T-211.000	6 0.9759 10.735
61903 BWL.NAGR T-311.000	6 0.9748 10.723	61911 HOTA T-1 11.000	6 0.9971 10.968
62001 QABULA T-1 11.000	6 0.9993 10.992	62002 QABULA T-2 11.000	6 1.0047 11.052
62003 QABULA T-3 11.000	6 0.9355 10.290	62101 SAHUKA T-1 11.000	6 1.0281 11.309
62102 SAHUKA T-2 11.000	6 0.9988 10.986	62202 HASILPUR T-211.000	6 0.9982 10.981
62203 HASILPUR T-311.000	6 1.0046 11.050	62301 CHISTIAN T-111.000	6 1.0054 11.060
62302 CHISTIAN T-211.000	6 1.0477 11.525	62303 CHISTIAO T3 11.000	6 0.9877 10.865
62321 DHRANWALA-T111.000	6 0.9771 10.748	62322 DHRANWALA-T211.000	6 0.9771 10.748
64151 CHISTIAN T-211.000	6 0.9551 10.507	64191 L.SOHAN T-1 11.000	6 1.0055 11.060
64211 K.P.TOMI T-111.000	6 0.9906 10.896	64212 K.P.TOMI T-211.000	6 0.9731 10.704
64621 NOORSAR T-1 11.000	6 1.0053 11.058	64622 NOORSAR T-2 11.000	6 1.0338 11.372
65012 HARONABD T-211.000	6 1.0122 11.135	65013 HARONABD T-311.000	6 1.0088 11.097
65014 HARONABD T-411.000	6 1.0343 11.377	65121 FAQIRWLI-T1 11.000	6 1.0219 11.241
65122 FAQIRWLI-T2 11.000	6 1.0219 11.241	65211 FORTABAS-T1	6 1.0723
65212 FORTABAST-2 11.000	6 1.0567 11.624	70001 MIANCHNU T1 11.000	6 0.9700 10.670
70002 MIANCHNU T-211.000	6 0.9615 10.576	70003 MIANCHNU T-311.000	6 0.9642 10.606
70011 CHAK-83-T1 11.000	6 0.9709 10.680	70012 CHAK-83-T2 11.000	6 0.9709 10.680
70021 KASSOWAL T-111.000	6 0.9665 10.632	70022 KASOWAL T-2 11.000	6 0.9382 10.321

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70061 H SIDNAI T-111.000	6 0.9436 10.380	70062 H SIDNAI T-211.000	6 0.9397 10.336
70101 KACHAKHU T-111.000	6 1.0066 11.073	70102 KACHAKHU T-211.000	6 1.0132 11.145
70103 KACHAKHU T-311.000	6 0.9436 10.380	70201 KHANEWAL T-111.000	6 0.9636 10.600
70202 KHANEWAL T-211.000	6 0.9449 10.394	70203 KHANEWAL T-311.000	6 1.0092 11.101
70301 KABIRWLA T-111.000	6 1.0073 11.080	70302 KABIRWLA T-211.000	6 1.0009 11.010
70303 KABIRWLA T-311.000	6 0.9796 10.775	70321 MP PAHOR T-111.000	6 1.0071 11.078
70322 MP PAHOR T-211.000	6 0.9820 10.802	70401 GARHMORE T-111.000	6 1.0097 11.106
70402 GARHMORE T-211.000	6 0.9819 10.801	70501 JEHANIAN T-111.000	6 0.9118 10.029
70502 JEHANIAN T-211.000	6 0.9670 10.637	70503 JEHANIAN T-311.000	6 0.9745 10.719
70601 CHAK.211 T-111.000	6 1.0189 11.208	70602 CHAK 211 T-211.000	6 0.9878 10.866
70603 CHAK 211 T-311.000	6 0.9121 10.033	70701 MAILSI T-1 11.000	6 0.9763 10.739
70702 MAILSI T-2 11.000	6 1.0054 11.060	70703 MAILSI T-3 11.000	6 0.9770 10.747
70751 MUKHDM.R T-111.000	6 0.9900 10.890	70752 MUKHDM.R T-211.000	6 0.9916 10.908
70761 F.J HSNQ T-111.000	6 1.0021 11.023	71101 BASTIMLK T-111.000	6 0.9962 10.959
71102 BASTIMLK T-211.000	6 1.0247 11.271	71103 BASTIMLK T-311.000	6 0.9962 10.959
71151 MIRAN P T-1 11.000	6 1.0273 11.300	71152 MIRAN P T-2 11.000	6 1.0527 11.579
71201 LODHRAN T-1 11.000	6 1.0657 11.722	71202 LODHRAN T-2 11.000	6 1.0609 11.670
71203 LODHRAN T-3 11.000	6 1.0641 11.705	71251 LART-1 11.000	6 1.0133 11.146
71252 LAR T-2 11.000	6 1.0133 11.146	71301 BU.JADID T-111.000	6 1.0341 11.375
71302 BU.JADID T-211.000	6 1.0795 11.874	71401 BHAWALPR T-111.000	6 1.0031 11.034
71402 BHAWALPR T-211.000	6 1.0432 11.475	71403 BHAWALPR T-311.000	6 0.9993 10.993
71451 BP CANTT T-111.000	6 1.0223 11.245	71452 BPCANTT T-2 11.000	6 1.0223 11.245
71471 KARORPCA T-111.000	6 1.0375 11.413	71472 KARORPCA T-211.000	6 1.0035 11.039
71473 KARORPCA T3 11.000	6 0.9624 10.587	71491 DUNYAPUR T-111.000	6 0.9947 10.942
71492 DUNYAPUR T-211.000	6 1.0266 11.292	71501 SAMASATA T-111.000	6 1.0120 11.132
71502 SAMASATA T-211.000	6 1.0076 11.084	71591 MUB-PUR-T1 11.000	6 0.9613 10.575
71592 MUB-PUR-T2 11.000	6 0.9613 10.575	71601 LIAQATPR T-111.000	6 1.0130 11.143
71602 LIAQATPR T-211.000	6 1.0194 11.213	71702 AHMDPR.E T-211.000	6 1.0104 11.115
71703 AHMDPR.E T-311.000	6 0.9934 10.928	71704 AHMDPR.E T4 11.000	6 0.9925 10.918
71801 FEROZA T-1 11.000	6 1.0275 11.302	71802 FEROZA T-2 11.000	6 1.0386 11.424
71851 KHANBELA T-111.000	6 1.0169 11.186	71852 KHANBELA T-211.000	6 0.9760 10.736
72001 KHANPUR T-1 11.000	6 0.9829 10.812	72002 KHANPUR T-2 11.000	6 0.9925 10.917
72003 KHANPUR T-3 11.000	6 0.9862 10.848	72101 MWQRSHIA T-111.000	6 0.9884 10.872
72102 MWQRSHIA T2 11.000	6 0.9437 10.380	72201 R.Y.KHAN T-111.000	6 1.0153 11.169
72202 R.Y.KHAN T-211.000	6 1.0153 11.169	72203 R.Y.KHAN T-311.000	6 1.0153 11.169
72251 R.Y.KHN2 T-111.000	6 1.0236 11.259	72252 R.Y.KHN2 T-211.000	6 1.0135 11.148
72301 SADIQABD T-111.000	6 1.0165 11.182	72302 SADIQABD T-211.000	6 1.0165 11.182

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72303 SADIQABD T-311.000	6 0.9743 10.718	72351 NAWAZ T-1 11.000	6 1.0149 11.164
72401 J.D.WALI T-111.000	6 0.9998 10.998	72402 JDWALI T-2 11.000	6 1.0261 11.287
72403 J D WALI T-311.000	6 0.9909 10.900	72501 MN.KH.RD T-111.000	6 0.9643 10.607
72502 MN.KH.RD T-211.000	6 0.9975 10.972	72503 MN.KH.RD T-311.000	6 0.9731 10.704
72551 WAP TO T-1 11.000	6 0.9731 10.704	72552 WAPDA TO T-211.000	6 0.9793 10.772
72601 MN.BS.RD T-111.000	6 0.9992 10.991	72602 MN.BS.RD T-211.000	6 1.0106 11.116
72603 MN.BS.RD T-311.000	6 1.0081 11.089	72611 PNJB HSG T-111.000	6 0.9932 10.925
72612 PNJB HSG T-211.000	6 0.9932 10.925	72621 BUCH VLS T-111.000	6 0.9906 10.897
72651 Q BAGH T-1 11.000	6 0.9940 10.934	72652 Q BAGH T-2 11.000	6 1.0087 11.096
72701 MLN-IND T-1 11.000	6 0.9712 10.684	72702 MLN-IND T-2 11.000	6 0.9816 10.797
72703 MLN-IND T-3 11.000	6 0.9679 10.647	72731 SURJ MNI T-111.000	6 0.9429 10.372
72732 SURJ MNI T-211.000	6 0.9454 10.399	72801 MN.VR.RD T-111.000	6 1.0118 11.130
72802 MN.VR.RD T-211.000	6 1.0118 11.130	72803 MN.VR.RD T-311.000	6 1.0040 11.044
72851 QASIMPUR T-111.000	6 1.0252 11.277	72852 QASIMPUR T-211.000	6 1.0333 11.367
72853 QASIMPUR T-311.000	6 0.9882 10.870	72871 M.J RD T-1 11.000	6 1.0476 11.523
72872 M.J.RD T-2 11.000	6 1.0192 11.211	72881 SHUJABAD T-111.000	6 1.0205 11.225
72882 SHUJABAD T-211.000	6 1.0435 11.479	72883 SHUJABAD T-311.000	6 0.9587 10.546
72891 J.P.W T-1 11.000	6 1.0629 11.692	72892 J.P.W T-2 11.000	6 1.0600 11.660
72893 J.P.W T-3 11.000	6 1.0399 11.439	72901 MESCO T-1 11.000	6 1.0067 11.074
72902 MESCO T-2 11.000	6 0.9998 10.998	72903 MESCO T-3 11.000	6 0.9975 10.972
73201 GUJRAT.S T-111.000	6 0.9586 10.545	73202 GUJRAT.S T-211.000	6 0.9578 10.536
73203 GUJRAT.S T3 11.000	6 0.9457 10.402	73251 LAYYAH T-1 11.000	6 0.8876 9.764
73252 LAYYAH T-2 11.000	6 0.8435 9.279	73253 LAYYAH T-3 11.000	6 0.7894 8.684
73281 KBGASHER T-111.000	6 0.9524 10.476	73282 KBGASHER T-211.000	6 0.9524 10.476
73301 MZFRGARH T-111.000	6 1.0106 11.117	73302 MZFRGARH T-211.000	6 1.0060 11.067
73303 MZFRGARH T-311.000	6 0.9970 10.967	73311 KOTADU-O T-211.000	6 0.9286 10.215
73313 KOTADU-O T-311.000	6 0.9415 10.357	73314 KOTADU-O T-411.000	6 0.9351 10.286
73321 N.A.WALI T-111.000	6 1.0040 11.044	73322 N.A.WALI T-211.000	6 0.9815 10.796
73331 S S DIN T1 11.000	6 1.0163 11.179	73332 S S DIN T2 11.000	6 0.9901 10.891
73351 KOTSULTAN-T111.000	6 0.9249 10.174	73352 KOTSULTAN-T211.000	6 0.9249 10.174
73361 KAROR L.E-T111.000	6 0.8455 9.301	73362 KAROR L.E-T211.000	6 0.9135 10.049
73401 MEHRKHAS T-111.000	6 0.9228 10.151	73402 MEHRKHAS T-211.000	6 0.9554 10.510
73501 DMR WALA T-111.000	6 0.9579 10.537	73502 DMR WALA T-211.000	6 0.9681 10.649
73601 JATOIJNB T-111.000	6 1.0009 11.010	73602 JATOIJNB T-211.000	6 1.0009 11.010
73701 KHRPRSDT T-111.000	6 0.9775 10.753	73702 KHRPRSDT T-2 11.000	6 0.9692 10.661
73951 SHA.LND T-1 11.000	6 0.9870 10.857	73952 SHA LND T-2 11.000	6 0.9734 10.708
74001 TAUNSA T-1 11.000	6 0.9621 10.584	74002 TAUNSA T-2 11.000	6 0.9621 10.584

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74401	CHOKMNDA T-111.000	6 0.9356	10.292	74402	CHOKMNDA T-211.000	6 0.9095	10.005	
74502	CHAUBARA T-211.000	6 0.8432	9.275	74561	CHOKAZAM T1 11.000	6 0.9412	10.354	
74562	CHOKAZAM T2 11.000	6 0.8846	9.731	74591	KHANGARH T-111.000	6 0.9684	10.652	
74592	KHANGARH T-211.000	6 0.9425	10.367	74602	D.G.KHAN T-211.000	6 1.0409	11.450	
74603	D.G.KHAN T-311.000	6 1.0227	11.250	74604	D.G.KHAN T-411.000	6 1.0273	11.300	
74651	KOTCHUTA T-111.000	6 0.9722	10.694	74652	KOTCHUTA T-211.000	6 0.9795	10.774	
74653	KOTCHUTTA T311.000	6 0.9509	10.460	74701	ROJHAN T-1 11.000	6 0.9596	10.555	
75901	SKHISRWR T-111.000	6 1.0137	11.150	75902	SKISRWR T-2 11.000	6 1.0013	11.015	
77811	YAZMAN-T-1 11.000	6 1.0203	11.223	77812	YAZMAN T-2 11.000	6 1.0078	11.086	
77821	MAROOT T1 11.000	6 1.0860	11.946	77822	MAROOT T-2 11.000	6 1.0495	11.544	
78311	FATEHPUR T-111.000	6 0.6296	6.926	78312	FATEPUR T-2 11.000	6 0.6999	7.699	
78401	T1 11.000	6 0.9720	10.692	78901	NAWANKOT T-111.000	6 0.9777	10.754	
79091	D.G.K.II T-111.000	6 0.9729	10.702	79092	D.G.K.II T-211.000	6 0.9729	10.702	
79211	JAMPUR T-1 11.000	6 0.8779	9.657	79251	CHOTI T-1 11.000	6 0.9429	10.372	
79301	JAMPUR T-1 11.000	6 0.9969	10.966	79302	JAMPUR T-2 11.000	6 0.9751	10.727	
79331	FAZALPUR T-111.000	6 0.8767	9.644	79332	FAZALPUR T-211.000	6 0.8652	9.518	
79351	DAJAL T-1 11.000	6 1.0159	11.175	79352	DAJAL T-2 11.000	6 0.9428	10.370	
79511	RAJANPUR T-111.000	6 0.9128	10.041	79512	RAJANPUR T-211.000	6 0.9015	9.917	
79513	RAJANPUR T-311.000	6 0.8609	9.470	79741	UCH.SHRF T-211.000	6 1.0185	11.203	
79742	UCH.SHRF T-311.000	6 1.0185	11.203	79743	UCH.SHRF T-111.000	6 1.0199	11.219	
79751	UCH (KF) T-111.000	6 0.9719	10.691	79811	ALI PUR T-1 11.000	6 0.8635	9.498	
79812	ALIPUR T-2 11.000	6 0.8635	9.498	79841	H.R. KAN T1 11.000	6 1.0288	11.317	
79842	H.R.KAN T-2 11.000	6 1.0288	11.317	79961	FRT MNRO T-111.000	6 1.0185	11.203	
732512	LSM-132KV 132.00	6 0.9327	123.11					

IDEAL
June 2020

Ideal June 2020

With:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *							

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0304	136.01
601		APPOLO-SOLAR		132.00	6	1.0308	136.07
801		QAD-SOL-I		132.00	6	1.0307	136.05
6030		QADIRABD		132.00	6	1.0287	135.79
6070		YOUSFWLA		132.00	6	1.0314	136.15
6090		SAHWAL-O		132.00	6	1.0179	134.37
6100		NOORPUR		132.00	6	0.9957	131.44
6122		PAK PATTAN-2		132.00	6	0.9747	128.66
6140		CHCHWTNI		132.00	6	0.9984	131.79
6160		BUREWALA		132.00	6	0.9954	131.39
6163		GAGOO		132.00	6	0.9941	131.22
6170		VEHARI-O		132.00	6	1.0175	134.31
6178		KARAMPUR		132.00	6	1.0013	132.17
6182		KAMIRWALA		132.00	6	1.0074	132.97
6191		HOTA		132.00	6	1.0001	132.02
6210		SAHUKA		132.00	6	0.9818	129.60
6221		CHUNAWALA		132.00	6	1.0164	134.16
6231		CHSTAN-N		132.00	6	1.0338	136.46
6410		HASILPUR		66.000	6	1.0138	66.911
6419		L.SOHANRA		132.00	6	1.0283	135.74
6462		NOORSAR		132.00	6	1.0187	134.47
529		PARCO		220.00	6	1.0248	225.45
730		SHK-PP-132		132.00	6	1.0373	136.93
1001		CREST-ENERGY		132.00	6	1.0317	136.19
6050		BNGAHYAT		132.00	6	0.9952	131.36
6080		SAHIWALN		132.00	6	1.0232	135.06
6095		SAHIWAL III		132.00	6	1.0078	133.02
6120		PAKPATAN		132.00	6	0.9795	129.29
6130		HARAPPA		132.00	6	0.9980	131.73
6150		SH.FAZAL		132.00	6	0.9861	130.16
6162		BREWLA-O		132.00	6	0.9915	130.88
6169		VEHARI-N		132.00	6	1.0217	134.87
6175		LUDDEN		132.00	6	1.0093	133.22
6180		ARIFWALA		132.00	6	0.9971	131.61
6190		BWL.NAGR		132.00	6	1.0089	133.18
6200		QABULA		132.00	6	0.9995	131.94
6220		HASILPUR		132.00	6	1.0175	134.32
6230		CHISTIAN-O		132.00	6	1.0319	136.21
6232		DHARWALA132		132.00	6	1.0257	135.39
6415		CHISTIAN		66.000	6	0.9948	65.655
6421		K.P.TOMI		132.00	6	1.0179	134.36
6482		MNCHNBAD		132.00	6	1.0088	133.16

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6491 MCLD.GNJ 132.00
6512 FAQIRWLI 132.00
6666 MULTAN-N 132.00
7001 CHAK-83-132 132.00
7006 HEAD SIDHNAI 132.00
7020 KHANEWAL 132.00
7030 KABIRWLA 132.00
7040 GARHMORE 132.00
7050 JEHANIAN 132.00
7060 CHAK.211 132.00
7075 MUKHDM.R 132.00
7100 P.GAIB-1 132.00
7110 BASTIMLK 132.00
7116 MKD JAHANIAN 132.00
7125 LAR 132.00
7138 BWPN-2 132.00
7140 BHAWALPR 132.00
7147 KARORPCA 132.00
7150 SAMASATA 132.00
7160 LIAQATPR 132.00
7175 RYK-PP 132.00
7185 KHANBELA 132.00
7200 KHANPUR 132.00
7220 R.Y.KHAN 132.00
7225 R.Y.KHN2 132.00
7230 SADIQABD 132.00
7235 NAWAZABD 132.00
7250 MN.KH.RD 132.00
7260 MN.BS.RD 132.00
7262 BUCH VILLAS 132.00
7270 MLN-IND 132.00
7273 SURAJ MIANI 132.00
7280 MN.VR.RD 132.00
7287 M.JAILRD 132.00
7289 JALALPWL 132.00
7300 KAPCO 132.00
7303 PIR CHUGI SH132.00

6 1.0038 132.50
6 1.0289 135.82
6 1.0287 135.79
6 1.0023 132.30
6 0.9703 128.08
6 1.0127 133.68
6 1.0178 134.34
6 1.0123 133.62
6 1.0137 133.81
6 0.9970 131.60
6 1.0234 135.08
6 1.0290 135.82
6 1.0136 133.79
6 1.0472 138.23
6 1.0275 135.62
6 1.0387 137.11
6 1.0430 137.68
6 1.0182 134.40
6 1.0333 136.40
6 1.0248 135.27
6 1.0024 132.32
6 0.9902 130.71
6 1.0346 136.56
6 1.0438 137.78
6 1.0442 137.84
6 1.0319 136.22
6 1.0411 137.43
6 1.0257 135.39
6 1.0085 133.12
6 1.0052 132.68
6 1.0012 132.16
6 0.9980 131.73
6 1.0199 134.63
6 0.9997 131.96
6 0.9952 131.37
6 1.0500 138.60
6 1.0196 134.58

6501 HARONABD 132.00
6521 FORTABAS 132.00
7000 MIANCHNU 132.00
7002 KASSOWAL 132.00
7010 KACHAKHU 132.00
7029 FAUJI-K 132.00
7032 MP.PAHOR 132.00
7041 T-GM 132.00
7055 T-C.211 132.00
7070 MAILSI 132.00
7076 F.J HOUSING 132.00
7109 P.GAIB-2 132.00
7115 MIRAN PUR 132.00
7120 LODHRAN 132.00
7130 BU.JADID 132.00
7139 B.W.P-N 132.00
7145 BPUR CANTT 132.00
7149 DUNYAPUR 132.00
7159 MUB-PUR 132.00
7170 AHMDPR.E 132.00
7180 FEROZA 132.00
7190 HAMZA-PP 132.00
7210 MWQRSHIA 132.00
7221 RYK-NEW 132.00
7226 RYK-T 132.00
7231 WALANA 132.00
7240 J.D.WALI 132.00
7255 WAPDATWN 132.00
7261 PUNJAB HOSNG 132.00
7265 QASIMBGH 132.00
7272 COCA COLA 132.00
7275 C.T.MILL 132.00
7285 QASIMPUR 132.00
7288 SHUJABAD 132.00
7290 MESCO 132.00
7302 SANAWAN 132.00
7320 GUJRAT.S 132.00

6 1.0255 135.37
6 1.0222 134.93
6 0.9965 131.54
6 1.0098 133.30
6 0.9960 131.47
6 1.0300 135.96
6 1.0001 132.02
6 1.0126 133.67
6 1.0001 132.01
6 0.9985 131.80
6 1.0451 137.95
6 1.0556 139.34
6 1.0468 138.18
6 1.0233 135.08
6 1.0375 136.94
6 1.0555 139.33
6 1.0515 138.80
6 1.0106 133.40
6 1.0170 134.24
6 1.0099 133.31
6 1.0042 132.55
6 1.0280 135.70
6 1.0182 134.40
6 1.0551 139.28
6 1.0473 138.25
6 1.0294 135.88
6 1.0126 133.67
6 1.0145 133.92
6 1.0238 135.15
6 1.0194 134.56
6 1.0012 132.16
6 0.9985 131.80
6 1.0094 133.25
6 0.9922 130.97
6 0.9942 131.23
6 1.0402 137.30
6 1.0101 133.33

7325 LAYYAH	132.00	6 0.9998	131.97	7328 KBGASHER	132.00	6 1.0190	134.51
7330 MZFRGARH	132.00	6 1.0171	134.25	7331 KOTADU-O	132.00	6 1.0469	138.19
7332 N.A.WALI	132.00	6 1.0272	135.59	7333 S.S.DIN	132.00	6 1.0203	134.68
7334 M GARH NEW	132.00	6 1.0192	134.53	7335 KOTSULTAN	132.00	6 1.0142	133.87
7336 KAROR L.E	132.00	6 0.9681	127.79	7340 MEHRKHAS	132.00	6 0.9966	131.55
7350 DMR WALA	132.00	6 0.9906	130.76	7360 JATOIJNB	132.00	6 0.9827	129.72
7370 KHRPRSDT	132.00	6 0.9759	128.81	7395 SHAD.LND	132.00	6 1.0150	133.97
7400 TAUNSA	132.00	6 1.0012	132.16	7435 PARCO	132.00	6 0.9924	130.99
7436 T-PARCO	132.00	6 0.9925	131.00	7440 CHOKMNDA	132.00	6 0.9836	129.84
7441 T-CMUNDA	132.00	6 0.9848	129.99	7442 T-AHTM	132.00	6 1.0118	133.56
7443 AHTM	132.00	6 1.0111	133.47	7450 CHAUBARA	132.00	6 0.9738	128.54
7456 CHOKAZAM	132.00	6 0.9865	130.22	7459 KHANGARH	132.00	6 1.0109	133.44
7460 D.G.KHAN	132.00	6 1.0234	135.08	7462 MDC-DGK	132.00	6 1.0323	136.27
7463 CPC-DGK	132.00	6 1.0247	135.26	7465 KOTCHUTA	132.00	6 1.0061	132.81
7466 T-ATM	132.00	6 1.0158	134.08	7467 ATM	132.00	6 1.0151	134.00
7468 D.G.KHAN NEW	132.00	6 1.0334	136.40	7470 ROJHAN	132.00	6 1.0286	135.78
7580 CMNT.FCT	132.00	6 1.0151	134.00	7590 SKHISRWR	132.00	6 1.0318	136.19
7781 YAZMAN	132.00	6 1.0351	136.63	7791 MAROOT	132.00	6 1.0080	133.06
7800 KOTADDU	66.000	6 1.0258	67.705	7831 FATEHPUR	132.00	6 0.9614	126.90
7840 RANGPUR	66.000	6 1.0017	66.112	7842 T-RANGPR	66.000	6 1.0169	67.119
7880 CHAUBARA	66.000	6 0.9711	64.090	7890 NAWANKOT	66.000	6 0.9697	64.003
7891 T.NWANKOT	66.000	6 0.9699	64.012	7909 D.G.KHAN II	132.00	6 1.0220	134.91
7910 D.G.KHAN	66.000	6 1.0245	67.618	7920 KOTCHOTA	66.000	6 1.0412	68.722
7921 JAMPUR	66.000	6 1.0369	68.435	7925 CHOTI	66.000	6 1.0245	67.617
7930 JAMPUR	132.00	6 1.0093	133.23	7933 FAZALPUR	132.00	6 1.0040	132.53
7935 DAJAL	66.000	6 1.0274	67.805	7951 RAJANPUR	132.00	6 0.9907	130.77
7970 AHMDPR.E	66.000	6 1.0452	68.985	7974 UCH.SHRF	132.00	6 1.0064	132.85
7975 UCH (KF)	66.000	6 1.0042	66.278	7977 T-UCHSHF	66.000	6 1.0313	68.067
7981 ALI PUR	132.00	6 0.9784	129.15	7984 HEAD-RJ-KN	132.00	6 1.0315	136.16
7996 FORT.MINRO	132.00	6 1.0322	136.26	60301 QADIRABD T-1	111.000	6 0.9907	10.897
60302 QADIRABD T-2	111.000	6 0.9844	10.828	60501 BNGAHYAT T-1	111.000	6 0.9504	10.455
60502 BNGAHYAT T-2	111.000	6 0.9577	10.535	60801 SAHIWALN T-1	111.000	6 0.9654	10.619
60802 SAHIWALN T-3	111.000	6 0.9723	10.695	60901 SAHWAL-O T-1	111.000	6 1.0060	11.066
60902 SAHWAL-O T-2	111.000	6 0.9927	10.920	60903 SAHWAL-O T-3	111.000	6 0.9718	10.690
60951 SWL III T-1	11.000	6 0.9998	10.998	60952 SWL III T-2	11.000	6 0.9998	10.998
61001 NOORPUR T-1	11.000	6 0.9998	10.998	61002 NOORPUR T-2	11.000	6 0.9998	10.998
61003 NOORPUR T-3	11.000	6 0.9640	10.604	61201 PAKPATAN T-1	111.000	6 0.9983	10.982

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61202	PAKPATAN T-211.000	6	0.9983	10.982	61203	PAKPATAN T-311.000	6	0.9967	10.963
61221	PAK PTN T-1 11.000	6	1.0162	11.178	61222	PAK PTN T-2 11.000	6	1.0162	11.178
61223	PAK PTN T-3 11.000	6	0.9858	10.843	61301	HARAPPA T-1 11.000	6	0.9784	10.763
61302	HARAPPA T-2 11.000	6	0.9776	10.754	61381	BWP-2 132.00	6	1.0371	136.90
61402	CHCHWTNI T-211.000	6	1.0058	11.064	61403	CHCHWTNI T-311.000	6	0.9846	10.830
61404	CHCHWTNI T-411.000	6	0.9657	10.622	61501	SH.FAZAL T-111.000	6	0.9953	10.948
61502	SH.FAZAL T-211.000	6	0.9872	10.859	61601	BUREWALA T-111.000	6	1.0480	11.529
61602	BUREWALA T-211.000	6	1.0111	11.122	61603	BUREWALA T-311.000	6	0.9940	10.934
61621	BREWLA-O T-111.000	6	0.9773	10.751	61622	BREWLA-O T-211.000	6	1.0188	11.206
61631	GAGOO T-1 11.000	6	0.9839	10.823	61632	GAGOO T-2 11.000	6	0.9839	10.823
61701	VEHARI-O T-111.000	6	0.9906	10.897	61702	VEHARI-O T-211.000	6	1.0270	11.297
61703	VEHARI-T-3 11.000	6	1.0050	11.055	61751	LUDDEN T-1 11.000	6	1.0051	11.056
61752	LUDDEN T-2 11.000	6	0.9987	10.986	61781	KARAMPUR T-111.000	6	0.9843	10.827
61782	KARAMPUR T-211.000	6	0.9867	10.854	61801	ARIFWALA T-111.000	6	0.9863	10.850
61802	ARIFWALA T-211.000	6	1.0246	11.271	61803	ARIFWALA T-311.000	6	0.9953	10.948
61821	KAMIRW T-1 11.000	6	1.0137	11.150	61822	KAMIR W T-2 11.000	6	1.0137	11.150
61901	BWL.NAGR T-111.000	6	1.0045	11.050	61902	BWL.NAGR T-311.000	6	1.0045	11.050
61903	BWL.NAGR T-411.000	6	0.9882	10.871	61911	HOTA T-1 11.000	6	1.0072	11.079
62001	QABULA T-1 11.000	6	1.0226	11.249	62002	QABULA T-2 11.000	6	1.0197	11.217
62003	QABULA T-3 11.000	6	0.9866	10.852	62101	SAHUKA T-1 11.000	6	1.0444	11.489
62102	SAHUKA T-2 11.000	6	1.0179	11.196	62202	HASILPUR T-211.000	6	1.0079	11.087
62203	HASILPUR T-311.000	6	1.0233	11.256	62211	CHUNAW T-1 11.000	6	1.0250	11.274
62212	T2 11.000	6	1.0000	11.000	62301	CHISTIAN T-111.000	6	1.0173	11.190
62302	CHISTIAN T-211.000	6	1.0601	11.661	62303	CHISTIAO T3 11.000	6	0.9994	10.993
62321	DHRANWALA-T111.000	6	0.9893	10.882	62322	DHRANWALA-T211.000	6	0.9893	10.882
64151	CHISTIAN T-211.000	6	1.0117	11.129	64191	L.SOHAN T-1 11.000	6	1.0279	11.307
64211	K.P.TOMI T-111.000	6	1.0087	11.095	64212	K.P.TOMI T-211.000	6	0.9973	10.971
64621	NOORSAR T-1 11.000	6	1.0308	11.338	64622	NOORSAR T-2 11.000	6	1.0601	11.661
64821	MNCHNBAD T1 11.000	6	1.0559	11.614	64822	MNCHNBAD T2 11.000	6	1.0152	11.167
64911	MCLD.GNJ T1 11.000	6	1.0552	11.608	64912	MCLD.GNJ T2	6	1.0010	
65012	HARONABD T-211.000	6	1.0245	11.269	65013	HARONABD T-111.000	6	1.0599	11.659
65014	HARONABD T-311.000	6	1.0210	11.231	65121	FAQIRWLI-T1 11.000	6	1.0344	11.378
65122	FAQIRWLI-T2 11.000	6	1.0344	11.378	65211	FORTABAS-T1	6	1.0541	
65212	FORTABAST-2 11.000	6	1.0541	11.595	70001	MIANCHNU T1 11.000	6	0.9889	10.878
70002	MIANCHNU T-211.000	6	0.9802	10.782	70003	MIANCHNU T-311.000	6	0.9829	10.812
70011	CHAK-83-T1 11.000	6	1.0124	11.137	70012	CHAK-83-T2 11.000	6	1.0090	11.099
70021	KASSOWAL T-111.000	6	0.9631	10.594	70022	KASOWAL T-2 11.000	6	0.9753	10.729

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70061 H SIDNAI T-111.000	6 0.9647 10.611	70062 H SIDNAI T-211.000	6 0.9834 10.817
70101 KACHAKHU T-111.000	6 1.0165 11.182	70102 KACHAKHU T-211.000	6 1.0100 11.110
70103 KACHAKHU T-311.000	6 0.9667 10.633	70201 KHANEWAL T-111.000	6 0.9778 10.755
70202 KHANEWAL T-211.000	6 0.9925 10.917	70203 KHANEWAL T-311.000	6 1.0013 11.015
70301 KABIRWLA T-111.000	6 1.0220 11.242	70302 KABIRWLA T-211.000	6 1.0155 11.170
70303 KABIRWLA T-311.000	6 0.9938 10.932	70321 MP PAHOR T-111.000	6 1.0210 11.232
70322 MP PAHOR T-211.000	6 0.9956 10.952	70401 GARHMORE T-111.000	6 1.0286 11.315
70402 GARHMORE T-211.000	6 0.9998 10.997	70501 JEHANIAN T-111.000	6 0.9767 10.744
70502 JEHANIAN T-211.000	6 1.0170 11.186	70503 JEHANIAN T-311.000	6 1.0242 11.266
70601 CHAK.211 T-111.000	6 1.0663 11.729	70602 CHAK 211 T-211.000	6 1.0342 11.377
70603 CHAK 211 T-311.000	6 0.9809 10.790	70701 MAILSI T-1 11.000	6 1.0183 11.202
70702 MAILSI T-2 11.000	6 1.0558 11.613	70703 MAILSI T-3 11.000	6 1.0138 11.152
70751 MUKHDM.R T-111.000	6 1.0328 11.360	70752 MUKHDM.R T-211.000	6 1.0342 11.376
70761 F.J HSNB T-111.000	6 1.0441 11.486	70762 F.J HSNB T-211.000	6 1.0007 11.007
71101 BASTIMLK T-111.000	6 0.9986 10.984	71102 BASTIMLK T-211.000	6 1.0271 11.298
71103 BASTIMLK T-311.000	6 0.9986 10.984	71151 MIRAN P T-1 11.000	6 1.0303 11.333
71152 MIRAN P T-2 11.000	6 1.0558 11.613	71161 MK JANIAN T111.000	6 1.0467 11.514
71201 LODHRAN T-1 11.000	6 1.0674 11.742	71202 LODHRAN T-2 11.000	6 1.0626 11.688
71203 LODHRAN T-3 11.000	6 1.0659 11.725	71251 LART-1 11.000	6 1.0142 11.156
71252 LAR T-2 11.000	6 1.0142 11.156	71301 BU.JADID T-111.000	6 1.0330 11.363
71302 BU.JADID T-211.000	6 1.0646 11.710	71401 BHAWALPR T-111.000	6 1.0320 11.352
71402 BHAWALPR T-211.000	6 1.0563 11.619	71403 BHAWALPR T-311.000	6 1.0284 11.313
71451 BP CANTT T-111.000	6 1.0316 11.348	71452 BPCANTT T-2 11.000	6 1.0316 11.348
71471 KARORPCA T-111.000	6 1.0506 11.557	71472 KARORPCA T-211.000	6 1.0413 11.454
71473 KARORPCA T3 11.000	6 1.0254 11.280	71491 DUNYAPUR T-311.000	6 1.0672 11.739
71492 DUNYAPUR T-411.000	6 1.0508 11.559	71501 SAMASATA T-111.000	6 1.0078 11.086
71502 SAMASATA T-211.000	6 1.0078 11.086	71591 MUB-PUR-T1 11.000	6 0.9926 10.919
71592 MUB-PUR-T2 11.000	6 0.9926 10.919	71601 LIAQATPR T-111.000	6 1.0139 11.153
71602 LIAQATPR T-211.000	6 1.0203 11.223	71702 AHMDPR.E T-211.000	6 1.0360 11.396
71703 AHMDPR.E T-311.000	6 1.0319 11.350	71704 AHMDPR.E T4 11.000	6 1.0190 11.209
71801 FEROZA T-1 11.000	6 1.0326 11.359	71802 FEROZA T-2 11.000	6 1.0438 11.481
71851 KHANBELA T-111.000	6 1.0077 11.084	71852 KHANBELA T-211.000	6 0.9690 10.659
72001 KHANPUR T-1 11.000	6 0.9924 10.916	72002 KHANPUR T-2 11.000	6 0.9968 10.965
72003 KHANPUR T-3 11.000	6 0.9954 10.950	72101 MWQRSHIA T-111.000	6 1.0080 11.088
72102 MWQRSHIA T2 11.000	6 0.9677 10.645	72201 R.Y.KHAN T-111.000	6 1.0411 11.452
72202 R.Y.KHAN T-211.000	6 1.0463 11.510	72203 R.Y.KHAN T-311.000	6 1.0482 11.530
72251 R.Y.KHN2 T-111.000	6 1.0269 11.296	72252 R.Y.KHN2 T-211.000	6 1.0321 11.353

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72301 SADIQABD T-111.000	6 1.0270 11.297	72302 SADIQABD T-211.000	6 1.0270 11.297
72303 SADIQABD T-311.000	6 1.0124 11.137	72311 WALANA T-1 11.000	6 1.0544 11.599
72312 WALANA T-2 11.000	6 1.0495 11.544	72351 NAWAZ T-1 11.000	6 1.0287 11.316
72401 J.D.WALI T-111.000	6 1.0138 11.152	72402 JDWALI T-2 11.000	6 1.0405 11.445
72403 J D WALI T-311.000	6 1.0048 11.053	72501 MN.KH.RD T-111.000	6 0.9832 10.815
72502 MN.KH.RD T-211.000	6 1.0158 11.173	72503 MN.KH.RD T-311.000	6 0.9920 10.912
72551 WAP TO T-1 11.000	6 0.9712 10.683	72552 WAPDA TO T-211.000	6 0.9773 10.751
72601 MN.BS.RD T-111.000	6 0.9846 10.830	72602 MN.BS.RD T-211.000	6 0.9965 10.961
72603 MN.BS.RD T-311.000	6 0.9935 10.928	72611 PNJB HSG T-111.000	6 1.0167 11.184
72612 PNJB HSG T-211.000	6 1.0167 11.184	72621 BUCH VLS T-111.000	6 1.0102 11.112
72651 Q BAGH T-1 11.000	6 0.9930 10.923	72652 Q BAGH T-2 11.000	6 1.0063 11.069
72701 MLN-IND T-1 11.000	6 0.9717 10.689	72702 MLN-IND T-2 11.000	6 0.9821 10.803
72703 MLN-IND T-3 11.000	6 0.9683 10.651	72731 SURJ MNI T-111.000	6 1.0123 11.135
72732 SURJ MNI T-211.000	6 0.9986 10.984	72801 MN.VR.RD T-111.000	6 1.0098 11.108
72802 MN.VR.RD T-211.000	6 1.0098 11.108	72803 MN.VR.RD T-311.000	6 1.0020 11.022
72851 QASIMPUR T-111.000	6 1.0257 11.282	72852 QASIMPUR T-211.000	6 1.0338 11.372
72853 QASIMPUR T-311.000	6 0.9887 10.875	72871 M.J RD T-1 11.000	6 1.0500 11.550
72872 M.J.RD T-2 11.000	6 1.0215 11.237	72881 SHUJABAD T-111.000	6 1.0213 11.234
72882 SHUJABAD T-211.000	6 1.0443 11.488	72883 SHUJABAD T-311.000	6 0.9741 10.715
72891 J.P.W T-1 11.000	6 1.0640 11.704	72892 J.P.W T-2 11.000	6 1.0611 11.672
72893 J.P.W T-3 11.000	6 1.0409 11.450	72901 MESCO T-1 11.000	6 1.0030 11.033
72902 MESCO T-2 11.000	6 0.9958 10.953	72903 MESCO T-3 11.000	6 0.9934 10.928
73021 SANAWAN T-1 11.000	6 1.0138 11.151	73022 SANAWAN T-2 11.000	6 0.9915 10.906
73031 PIR CHGI T-111.000	6 0.9809 10.790	73032 PIR CHGI T-211.000	6 0.9622 10.584
73033 PIR CHGI T-311.000	6 0.9622 10.584	73201 GUJRAT.S T-111.000	6 0.9628 10.591
73202 GUJRAT.S T-211.000	6 0.9679 10.647	73203 GUJRAT.S T3 11.000	6 0.9679 10.647
73251 LAYYAH T-1 11.000	6 1.0244 11.268	73252 LAYYAH T-2 11.000	6 0.9881 10.869
73253 LAYYAH T-3 11.000	6 0.9598 10.558	73281 KBGASHER T-111.000	6 0.9681 10.649
73282 KBGASHER T-211.000	6 0.9893 10.882	73283 KBGASHER T-3	6 0.9893
73301 MZFRGARH T-111.000	6 1.0021 11.023	73302 MZFRGARH T-211.000	6 1.0111 11.122
73303 MZFRGARH T-311.000	6 1.0021 11.023	73311 KOTADU-O T-211.000	6 0.9961 10.957
73313 KOTADU-O T-311.000	6 1.0036 11.040	73314 KOTADU-O T-411.000	6 1.0024 11.026
73321 N.A.WALI T-111.000	6 1.0012 11.013	73322 N.A.WALI T-211.000	6 0.9788 10.766
73331 S S DIN T1 11.000	6 1.0353 11.388	73332 S S DIN T2 11.000	6 1.0336 11.370
73351 KOTSULTAN-T111.000	6 0.9721 10.693	73352 KOTSULTAN-T211.000	6 0.9721 10.693
73361 KAROR L.E-T1	6 0.9862	73362 KAROR L.E-T2	6 0.9686
73363 KAROR L.E T311.000	6 0.9639 10.603	73401 MEHRKHAS T-111.000	6 1.0087 11.096

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73402	MEHRKHAS T-211.000	6 0.9951 10.946	73403	MEHRKHAS T-311.000	6 1.0133 11.146			
73501	DMR WALA T-111.000	6 0.9947 10.941	73502	DMR WALA T-211.000	6 1.0086 11.094			
73601	JATOIJNB T-111.000	6 0.9910 10.901	73602	JATOIJNB T-211.000	6 0.9910 10.901			
73701	KHRPRSDT T-111.000	6 0.9879 10.867	73702	KHRPRSDT T-2 11.000	6 0.9789 10.768			
73951	SHA.LND T-1 11.000	6 0.9831 10.814	73952	SHA LND T-2 11.000	6 0.9695 10.665			
74001	TAUNSA T-1 11.000	6 0.9564 10.520	74002	TAUNSA T-2 11.000	6 0.9564 10.520			
74401	CHOKMNDA T-111.000	6 0.9717 10.689	74402	CHOKMNDA T-211.000	6 0.9632 10.595			
74502	CHAUBARA T-211.000	6 0.9646 10.611	74503	CHAUBARA T-311.000	6 0.9666 10.633			
74561	CHOKAZAM T1 11.000	6 0.9999 10.999	74562	CHOKAZAM T2 11.000	6 0.9683 10.651			
74563	CHOKAZAM T3 11.000	6 0.9683 10.651	74591	KHANGARH T-111.000	6 0.9862 10.848			
74592	KHANGARH T-211.000	6 0.9639 10.603	74602	D.G.KHAN T-211.000	6 0.9788 10.767			
74603	D.G.KHAN T-311.000	6 0.9609 10.570	74604	D.G.KHAN T-411.000	6 0.9652 10.617			
74651	KOTCHUTA T-111.000	6 0.9909 10.900	74652	KOTCHUTA T-211.000	6 0.9984 10.982			
74653	KOTCHUTTA T311.000	6 0.9693 10.663	74701	ROJHAN T-1 11.000	6 0.9994 10.994			
75901	SKHISRWR T-111.000	6 1.0250 11.275	75902	SKISRWR T-2 11.000	6 1.0125 11.137			
77811	YAZMAN-T-1 11.000	6 1.0239 11.263	77812	YAZMAN T-2 11.000	6 1.0177 11.195			
77911	MAROOT T1 11.000	6 1.0596 11.655	77912	MAROOT T-2 11.000	6 1.0022 11.024			
78311	FATEHPUR T-111.000	6 0.9643 10.607	78312	FATEPUR T-2 11.000	6 0.9732 10.706			
78401	T1 11.000	6 0.9759 10.735	78901	NAWANKOT T-111.000	6 0.9727 10.700			
79091	D.G.K.II T-111.000	6 0.9737 10.711	79092	D.G.K.II T-211.000	6 0.9737 10.711			
79211	JAMPUR T-1 11.000	6 1.0071 11.078	79251	CHOTI T-1 11.000	6 0.9885 10.874			
79252	CHOTI T-2 11.000	6 0.9913 10.904	79301	JAMPUR T-1 11.000	6 1.0552 11.607			
79302	JAMPUR T-2 11.000	6 1.0453 11.499	79331	FAZALPUR T-111.000	6 0.9959 10.955			
79332	FAZALPUR T-211.000	6 0.9859 10.845	79351	DAJAL T-1 11.000	6 1.0112 11.124			
79352	DAJAL T-2 11.000	6 1.0112 11.124	79511	RAJANPUR T-111.000	6 1.0110 11.121			
79512	RAJANPUR T-211.000	6 0.9738 10.712	79513	RAJANPUT T-311.000	6 0.9636 10.600			
79741	UCH.SHRF T-211.000	6 1.0470 11.517	79742	UCH.SHRF T-311.000	6 1.0654 11.720			
79743	UCH.SHRF T-111.000	6 1.0394 11.434	79751	UCH (KF) T-111.000	6 1.0327 11.359			
79811	ALI PUR T-1 11.000	6 1.0345 11.380	79812	ALIPUR T-2 11.000	6 1.0345 11.380			
79813	ALI PUR T-3	6 0.9726	79841	H.R. KAN T1 11.000	6 1.0389 11.428			
79842	H.R.KAN T2 11.000	6 1.0389 11.428	79961	FRT MNRO T-111.000	6 1.0298 11.328			
613811	BWP-2 T-1 11.000	6 1.0071 11.078	613812	BWP-2 T-2 11.000	6 1.0071 11.078			
732512	LSM-132KV 132.00	6 1.0000 132.00						

Without:

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BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0258	135.41
601		APPOLO-SOLAR		132.00	6	1.0264	135.49
801		QAD-SOL-I		132.00	6	1.0256	135.38
6030		QADIRABD		132.00	6	1.0289	135.82
6070		YOUSFWLA		132.00	6	1.0329	136.35
6090		SAHWAL-O		132.00	6	1.0191	134.52
6100		NOORPUR		132.00	6	0.9970	131.61
6122		PAK PATTAN-2		132.00	6	0.9720	128.30
6140		CHCHWTNI		132.00	6	0.9980	131.74
6160		BUREWALA		132.00	6	0.9959	131.46
6163		GAGOO		132.00	6	0.9941	131.22
6170		VEHARI-O		132.00	6	1.0138	133.82
6178		KARAMPUR		132.00	6	0.9972	131.64
6182		KAMIRWALA		132.00	6	1.0055	132.73
6191		HOTA		132.00	6	0.9966	131.55
6210		SAHUKA		132.00	6	0.9829	129.75
6221		CHUNAWALA		132.00	6	1.0123	133.63
6231		CHSTAN-N		132.00	6	1.0298	135.94
6410		HASILPUR		66.000	6	1.0037	66.246
6419		L.SOHANRA		132.00	6	1.0229	135.02
6462		NOORSAR		132.00	6	1.0127	133.68
6491		MCLD.GNJ		132.00	6	0.9987	131.83
6512		FAQIRWLI		132.00	6	1.0248	135.28
6666		MULTAN-N		132.00	6	1.0284	135.75
7001		CHAK-83-132		132.00	6	1.0017	132.22
7006		HEAD SIDHNAI		132.00	6	0.9776	129.05
7020		KHANEWAL		132.00	6	1.0123	133.63

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
529		PARCO		220.00	6	1.0248	225.45
730		SHK-PP-132		132.00	6	1.0370	136.88
1001		CREST-ENERGY		132.00	6	1.0268	135.54
6050		BNGAHYAT		132.00	6	0.9950	131.35
6080		SAHIWALN		132.00	6	1.0255	135.37
6095		SAHIWAL III		132.00	6	1.0090	133.19
6120		PAKPATAN		132.00	6	0.9809	129.47
6130		HARAPPA		132.00	6	0.9984	131.79
6150		SH.FAZAL		132.00	6	0.9862	130.18
6162		BREWLA-O		132.00	6	0.9922	130.97
6169		VEHARI-N		132.00	6	1.0175	134.32
6175		LUDDEN		132.00	6	1.0052	132.69
6180		ARIFWALA		132.00	6	0.9950	131.34
6190		BWL.NAGR		132.00	6	1.0042	132.56
6200		QABULA		132.00	6	0.9948	131.32
6220		HASILPUR		132.00	6	1.0135	133.78
6230		CHISTIAN-O		132.00	6	1.0279	135.68
6232		DHARWALA132		132.00	6	1.0222	134.93
6415		CHISTIAN		66.000	6	0.9790	64.616
6421		K.P.TOMI		132.00	6	1.0134	133.77
6482		MNCHNBAD		132.00	6	1.0038	132.50
6501		HARONABD		132.00	6	1.0215	134.84
6521		FORTABAS		132.00	6	1.0183	134.42
7000		MIANCHNU		132.00	6	0.9961	131.48
7002		KASSOWAL		132.00	6	1.0091	133.20
7010		KACHAKHU		132.00	6	0.9963	131.51
7029		FAUJI-K		132.00	6	1.0300	135.96

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7030	KABIRWLA	132.00	6	1.0182	134.40	7032	MP.PAHOR	132.00	6	1.0031	132.41
7040	GARHMORE	132.00	6	1.0017	132.22	7041	T-GM	132.00	6	1.0023	132.30
7050	JEHANIAN	132.00	6	1.0045	132.59	7055	T-C.211	132.00	6	0.9909	130.80
7060	CHAK.211	132.00	6	0.9877	130.38	7070	MAILSI	132.00	6	0.9894	130.60
7075	MUKHDM.R	132.00	6	1.0176	134.32	7076	F.J HOUSING	132.00	6	1.0433	137.72
7100	P.GAIB-1	132.00	6	1.0290	135.82	7109	P.GAIB-2	132.00	6	1.0548	139.23
7110	BASTIMLK	132.00	6	1.0136	133.80	7115	MIRAN PUR	132.00	6	1.0464	138.13
7116	MKD JAHANIAN	132.00	6	1.0468	138.17	7120	LODHRAN	132.00	6	1.0234	135.09
7125	LAR	132.00	6	1.0271	135.58	7130	BU.JADID	132.00	6	1.0376	136.96
7138	BWPN-2	132.00	6	1.0383	137.06	7139	B.W.P-N	132.00	6	1.0556	139.34
7140	BHAWALPR	132.00	6	1.0431	137.69	7145	BPUR CANTT	132.00	6	1.0510	138.73
7147	KARORPCA	132.00	6	1.0104	133.38	7149	DUNYAPUR	132.00	6	1.0008	132.11
7150	SAMASATA	132.00	6	1.0335	136.42	7159	MUB-PUR	132.00	6	1.0155	134.05
7160	LIAQATPR	132.00	6	1.0292	135.86	7170	AHMDPR.E	132.00	6	1.0076	133.00
7175	RYK-PP	132.00	6	1.0052	132.68	7180	FEROZA	132.00	6	1.0069	132.91
7185	KHANBELA	132.00	6	0.9930	131.08	7190	HAMZA-PP	132.00	6	1.0329	136.35
7200	KHANPUR	132.00	6	1.0399	137.27	7210	MWQRSHIA	132.00	6	1.0230	135.03
7220	R.Y.KHAN	132.00	6	1.0499	138.59	7221	RYK-NEW	132.00	6	1.0613	140.10
7225	R.Y.KHN2	132.00	6	1.0501	138.62	7226	RYK-T	132.00	6	1.0534	139.05
7230	SADIQABD	132.00	6	1.0377	136.98	7231	WALANA	132.00	6	1.0352	136.65
7235	NAWAZABD	132.00	6	1.0460	138.07	7240	J.D.WALI	132.00	6	1.0186	134.46
7250	MN.KH.RD	132.00	6	1.0254	135.36	7255	WAPDATWN	132.00	6	1.0141	133.87
7260	MN.BS.RD	132.00	6	1.0080	133.05	7261	PUNJAB HOSNG	132.00	6	1.0235	135.11
7262	BUCH VILLAS	132.00	6	1.0045	132.59	7265	QASIMBGH	132.00	6	1.0193	134.55
7270	MLN-IND	132.00	6	1.0001	132.01	7272	COCA COLA	132.00	6	1.0001	132.01
7273	SURAJ MIANI	132.00	6	0.9968	131.58	7275	C.T.MILL	132.00	6	0.9974	131.65
7280	MN.VR.RD	132.00	6	1.0198	134.61	7285	QASIMPUR	132.00	6	1.0091	133.20
7287	M.JAILRD	132.00	6	0.9986	131.82	7288	SHUJABAD	132.00	6	0.9922	130.97
7289	JALALPWL	132.00	6	0.9953	131.39	7290	MESCO	132.00	6	0.9936	131.15
7300	KAPCO	132.00	6	1.0500	138.60	7302	SANAWAN	132.00	6	1.0406	137.36
7303	PIR CHUGI SH	132.00	6	1.0169	134.23	7320	GUJRAT.S	132.00	6	1.0101	133.33
7325	LAYYAH	132.00	6	0.9999	131.98	7328	KBGASHER	132.00	6	1.0128	133.69
7330	MZFRGARH	132.00	6	1.0161	134.13	7331	KOTADU-O	132.00	6	1.0471	138.22
7332	N.A.WALI	132.00	6	1.0274	135.62	7333	S.S.DIN	132.00	6	1.0222	134.93
7334	M GARH NEW	132.00	6	1.0181	134.40	7335	KOTSULTAN	132.00	6	1.0143	133.88
7336	KAROR L.E	132.00	6	0.9678	127.75	7340	MEHRKHAS	132.00	6	0.9872	130.32
7350	DMR WALA	132.00	6	0.9807	129.45	7360	JATOIJNB	132.00	6	0.9722	128.33

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7370 KHRPRSDT	132.00	6 0.9650	127.37	7395 SHAD.LND	132.00	6 1.0150	133.98
7400 TAUNSA	132.00	6 1.0013	132.17	7435 PARCO	132.00	6 0.9935	131.14
7436 T-PARCO	132.00	6 0.9936	131.15	7440 CHOKMNDA	132.00	6 1.0089	133.17
7441 T-CMUNDA	132.00	6 1.0095	133.25	7442 T-AHTM	132.00	6 1.0242	135.19
7443 AHTM	132.00	6 1.0235	135.10	7450 CHAUBARA	132.00	6 0.9872	130.31
7456 CHOKAZAM	132.00	6 0.9898	130.66	7459 KHANGARH	132.00	6 1.0088	133.16
7460 D.G.KHAN	132.00	6 1.0274	135.62	7462 MDC-DGK	132.00	6 1.0338	136.46
7463 CPC-DGK	132.00	6 1.0281	135.71	7465 KOTCHUTA	132.00	6 1.0102	133.35
7466 T-ATM	132.00	6 1.0198	134.62	7467 ATM	132.00	6 1.0192	134.54
7468 D.G.KHAN NEW	132.00	6 1.0346	136.57	7470 ROJHAN	132.00	6 1.0308	136.07
7580 CMNT.FCT	132.00	6 1.0192	134.53	7590 SKHISRWR	132.00	6 1.0330	136.36
7781 YAZMAN	132.00	6 1.0366	136.83	7791 MAROOT	132.00	6 1.0179	134.37
7800 KOTADDU	66.000	6 1.0261	67.721	7831 FATEHPUR	132.00	6 0.9637	127.20
7840 RANGPUR	66.000	6 1.0020	66.130	7842 T-RANGPR	66.000	6 1.0172	67.135
7880 CHAUBARA	66.000	6 0.9843	64.961	7890 NAWANKOT	66.000	6 0.9850	65.009
7891 T.NWANKOT	66.000	6 0.9850	65.009	7909 D.G.KHAN II	132.00	6 1.0254	135.35
7910 D.G.KHAN	66.000	6 1.1256	74.293	7920 KOTCHOTA	66.000	6 1.1630	76.756
7921 JAMPUR	66.000	6 1.1742	77.496	7925 CHOTI	66.000	6 1.1476	75.743
7930 JAMPUR	132.00	6 1.0120	133.59	7933 FAZALPUR	132.00	6 1.0063	132.83
7935 DAJAL	66.000	6 1.1693	77.175	7951 RAJANPUR	132.00	6 0.9916	130.89
7970 AHMDPR.E	66.000	6 1.0250	67.648	7974 UCH.SHRF	132.00	6 1.0028	132.37
7975 UCH (KF)	66.000	6 0.9684	63.917	7977 T-UCHSHF	66.000	6 1.0018	66.121
7981 ALI PUR	132.00	6 0.9676	127.72	7984 HEAD-RJ-KN	132.00	6 1.0330	136.35
7996 FORT.MINRO	132.00	6 1.0335	136.42	60301 QADIRABD T-1	111.000	6 0.9910	10.901
60302 QADIRABD T-2	111.000	6 0.9847	10.832	60501 BNGAHYAT T-1	111.000	6 0.9364	10.300
60502 BNGAHYAT T-2	111.000	6 0.9436	10.380	60801 SAHIWALN T-1	111.000	6 0.9996	10.996
60802 SAHIWALN T-3	111.000	6 0.9793	10.772	60901 SAHWAL-O T-1	111.000	6 0.9940	10.934
60902 SAHWAL-O T-2	111.000	6 0.9984	10.982	60903 SAHWAL-O T-3	111.000	6 0.9731	10.704
60951 SWL III T-1	11.000	6 1.0011	11.013	60952 SWL III T-2	11.000	6 1.0011	11.013
61001 NOORPUR T-1	11.000	6 1.0014	11.015	61002 NOORPUR T-2	11.000	6 1.0014	11.015
61003 NOORPUR T-3	11.000	6 0.9381	10.319	61201 PAKPATAN T-1	111.000	6 0.9999	10.999
61202 PAKPATAN T-2	111.000	6 0.9997	10.997	61203 PAKPATAN T-3	111.000	6 0.9983	10.981
61221 PAK PTN T-1	11.000	6 1.0131	11.144	61222 PAK PTN T-2	11.000	6 1.0131	11.144
61223 PAK PTN T-3	11.000	6 0.9262	10.188	61301 HARAPPA T-1	11.000	6 0.9790	10.768
61302 HARAPPA T-2	11.000	6 0.9781	10.759	61381 BWP-2	132.00	6 1.0367	136.85
61402 CHCHWTNI T-2	111.000	6 1.0053	11.058	61403 CHCHWTNI T-3	111.000	6 0.9842	10.827
61404 CHCHWTNI T-4	111.000	6 0.9520	10.472	61501 SH.FAZAL T-1	111.000	6 0.9955	10.950

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61502 SH.FAZAL T-211.000	6 0.9873 10.861	61601 BUREWALA T-111.000	6 1.0372 11.409
61602 BUREWALA T-211.000	6 1.0118 11.129	61603 BUREWALA T-311.000	6 0.9946 10.941
61621 BREWLA-O T-111.000	6 0.9781 10.759	61622 BREWLA-O T-211.000	6 1.0195 11.215
61631 GAGOO T-1 11.000	6 1.0175 11.192	61632 GAGOO T-2 11.000	6 0.9925 10.918
61701 VEHARI-O T-111.000	6 1.0183 11.202	61702 VEHARI-O T-211.000	6 1.0229 11.252
61703 VEHARI-T-3 11.000	6 0.9819 10.801	61751 LUDDEN T-1 11.000	6 1.0007 11.008
61752 LUDDEN T-2 11.000	6 0.9943 10.938	61781 KARAMPUR T-111.000	6 0.9798 10.778
61782 KARAMPUR T-211.000	6 0.9823 10.806	61801 ARIFWALA T-111.000	6 0.9841 10.825
61802 ARIFWALA T-211.000	6 1.0223 11.245	61803 ARIFWALA T-311.000	6 0.9931 10.924
61821 KAMIRW T-1 11.000	6 1.0117 11.129	61822 KAMIR W T-2 11.000	6 1.0117 11.129
61901 BWL.NAGR T-111.000	6 0.9992 10.991	61902 BWL.NAGR T-311.000	6 1.0036 11.039
61903 BWL.NAGR T-411.000	6 0.9561 10.517	61911 HOTA T-1 11.000	6 1.0034 11.037
62001 QABULA T-1 11.000	6 1.0045 11.050	62002 QABULA T-2 11.000	6 1.0099 11.109
62003 QABULA T-3 11.000	6 0.9402 10.343	62101 SAHUKA T-1 11.000	6 1.0491 11.540
62102 SAHUKA T-2 11.000	6 1.0192 11.211	62202 HASILPUR T-211.000	6 1.0215 11.236
62203 HASILPUR T-311.000	6 1.0188 11.207	62211 CHUNAW T-1 11.000	6 1.0207 11.228
62212 T2 11.000	6 0.9959 10.955	62301 CHRISTIAN T-111.000	6 1.0130 11.143
62302 CHRISTIAN T-211.000	6 1.0556 11.612	62303 CHRISTIAO T3 11.000	6 0.9951 10.946
62321 DHRANWALA-T111.000	6 0.9998 10.998	62322 DHRANWALA-T211.000	6 0.9998 10.998
64151 CHRISTIAN T-211.000	6 0.9505 10.456	64191 L.SOHAN T-1 11.000	6 1.0221 11.243
64211 K.P.TOMI T-111.000	6 1.0038 11.041	64212 K.P.TOMI T-211.000	6 0.9925 10.917
64621 NOORSAR T-1 11.000	6 0.9657 10.623	64821 MNCHNBAD T1 11.000	6 1.0504 11.555
64822 MNCHNBAD T2 11.000	6 0.9837 10.821	64911 MCLD.GNJ T1 11.000	6 1.0497 11.547
64912 MCLD.GNJ T2 11.000	6 0.9827 10.810	65012 HARONABD T-211.000	6 1.0202 11.222
65013 HARONABD T-111.000	6 1.0555 11.610	65014 HARONABD T-311.000	6 1.0167 11.183
65121 FAQIRWLI-T1 11.000	6 1.0298 11.328	65122 FAQIRWLI-T2 11.000	6 1.0298 11.328
65211 FORTABAS-T1	6 1.0809	65212 FORTABAST-2 11.000	6 1.0651 11.716
70001 MIANCHNU T1 11.000	6 0.9884 10.873	70002 MIANCHNU T-211.000	6 0.9797 10.777
70003 MIANCHNU T-311.000	6 0.9824 10.807	70011 CHAK-83-T1 11.000	6 1.0118 11.130
70012 CHAK-83-T2 11.000	6 1.0084 11.092	70021 KASSOWAL T-111.000	6 0.9624 10.586
70022 KASOWAL T-2 11.000	6 0.9624 10.586	70061 H SIDNAI T-111.000	6 1.0113 11.125
70062 H SIDNAI T-211.000	6 0.9918 10.910	70101 KACHAKHU T-111.000	6 1.0170 11.187
70102 KACHAKHU T-211.000	6 1.0236 11.260	70103 KACHAKHU T-311.000	6 0.9533 10.486
70201 KHANEWAL T-111.000	6 0.9601 10.561	70202 KHANEWAL T-211.000	6 0.9921 10.913
70203 KHANEWAL T-311.000	6 1.0010 11.011	70301 KABIRWLA T-111.000	6 1.0225 11.247
70302 KABIRWLA T-211.000	6 1.0160 11.176	70303 KABIRWLA T-311.000	6 0.9943 10.937
70321 MP PAHOR T-111.000	6 1.0241 11.265	70322 MP PAHOR T-211.000	6 0.9986 10.985

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70401 GARHMORE T-111.000	6 1.0169 11.186	70402 GARHMORE T-211.000	6 0.9883 10.872
70501 JEHANIAN T-111.000	6 0.9534 10.487	70502 JEHANIAN T-211.000	6 1.0067 11.073
70503 JEHANIAN T-311.000	6 1.0139 11.153	70601 CHAK.211 T-111.000	6 1.0556 11.612
70602 CHAK 211 T-211.000	6 1.0238 11.262	70603 CHAK 211 T-311.000	6 0.9577 10.535
70701 MAILSI T-1 11.000	6 1.0082 11.091	70702 MAILSI T-2 11.000	6 1.0454 11.499
70703 MAILSI T-3 11.000	6 1.0038 11.041	70751 MUKHDM.R T-111.000	6 1.0266 11.292
70752 MUKHDM.R T-211.000	6 1.0280 11.308	70761 F.J HSNQ T-111.000	6 1.0423 11.465
70762 F.J HSNQ T-211.000	6 1.0244 11.268	71101 BASTIMLK T-111.000	6 0.9987 10.985
71102 BASTIMLK T-211.000	6 1.0269 11.295	71103 BASTIMLK T-311.000	6 0.9987 10.985
71151 MIRAN P T-1 11.000	6 1.0299 11.329	71152 MIRAN P T-2 11.000	6 1.0554 11.609
71161 MK JANIAN T111.000	6 1.0463 11.509	71201 LODHRAN T-1 11.000	6 1.0675 11.743
71202 LODHRAN T-2 11.000	6 1.0627 11.690	71203 LODHRAN T-3 11.000	6 1.0660 11.726
71251 LART-1 11.000	6 1.0139 11.153	71252 LAR T-2 11.000	6 1.0139 11.153
71301 BU.JADID T-111.000	6 1.0333 11.366	71302 BU.JADID T-211.000	6 1.0957 12.053
71401 BHAWALPR T-111.000	6 1.0322 11.354	71402 BHAWALPR T-211.000	6 1.0718 11.790
71403 BHAWALPR T-311.000	6 1.0286 11.315	71451 BP CANTT T-111.000	6 1.0311 11.342
71452 BPCANTT T-2 11.000	6 1.0311 11.342	71471 KARORPCA T-111.000	6 1.0743 11.817
71472 KARORPCA T-211.000	6 1.0327 11.360	71473 KARORPCA T3 11.000	6 0.9978 10.975
71491 DUNYAPUR T-311.000	6 1.0564 11.620	71492 DUNYAPUR T-411.000	6 1.0560 11.616
71501 SAMASATA T-111.000	6 1.0080 11.088	71502 SAMASATA T-211.000	6 1.0080 11.088
71591 MUB-PUR-T1 11.000	6 1.0035 11.039	71592 MUB-PUR-T2 11.000	6 1.0035 11.039
71601 LIAQATPR T-111.000	6 1.0188 11.206	71602 LIAQATPR T-211.000	6 1.0252 11.277
71702 AHMDPR.E T-211.000	6 1.0333 11.366	71703 AHMDPR.E T-311.000	6 1.0205 11.225
71704 AHMDPR.E T4 11.000	6 0.9879 10.867	71801 FEROZA T-1 11.000	6 1.0357 11.393
71802 FEROZA T-2 11.000	6 1.0469 11.516	71851 KHANBELA T-111.000	6 1.0108 11.119
71852 KHANBELA T-211.000	6 0.9721 10.693	72001 KHANPUR T-1 11.000	6 0.9981 10.979
72002 KHANPUR T-2 11.000	6 1.0025 11.028	72003 KHANPUR T-3 11.000	6 1.0011 11.012
72101 MWQRSHIA T-111.000	6 0.9947 10.942	72102 MWQRSHIA T2 11.000	6 0.9495 10.445
72201 R.Y.KHAN T-111.000	6 1.0482 11.530	72202 R.Y.KHAN T-211.000	6 1.0533 11.587
72203 R.Y.KHAN T-311.000	6 1.0551 11.607	72251 R.Y.KHN2 T-111.000	6 1.0400 11.440
72252 R.Y.KHN2 T-211.000	6 1.0256 11.282	72301 SADIQABD T-111.000	6 1.0625 11.688
72302 SADIQABD T-211.000	6 1.0625 11.688	72303 SADIQABD T-311.000	6 1.0187 11.206
72311 WALANA T-1 11.000	6 1.0610 11.671	72312 WALANA T-2 11.000	6 1.0712 11.783
72351 NAWAZ T-1 11.000	6 1.0337 11.370	72401 J.D.WALI T-111.000	6 1.0206 11.226
72402 JDWALI T-2 11.000	6 1.0474 11.522	72403 J D WALI T-311.000	6 1.0115 11.127
72501 MN.KH.RD T-111.000	6 0.9830 10.812	72502 MN.KH.RD T-211.000	6 1.0155 11.171
72503 MN.KH.RD T-311.000	6 0.9918 10.910	72551 WAP TO T-1 11.000	6 0.9708 10.679

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72552	WAPDA TO T-211.000	6	0.9770	10.747	72601 MN.BS.RD T-111.000	6	0.9841	10.825
72602	MN.BS.RD T-211.000	6	0.9959	10.955	72603 MN.BS.RD T-311.000	6	0.9930	10.923
72611	PNJB HSG T-111.000	6	1.0164	11.181	72612 PNJB HSG T-211.000	6	1.0164	11.181
72621	BUCH VLS T-111.000	6	1.0094	11.104	72651 Q BAGH T-1 11.000	6	0.9929	10.922
72652	Q BAGH T-2 11.000	6	1.0062	11.068	72701 MLN-IND T-1 11.000	6	0.9706	10.676
72702	MLN-IND T-2 11.000	6	0.9809	10.790	72703 MLN-IND T-3 11.000	6	0.9671	10.639
72731	SURJ MNI T-111.000	6	1.0111	11.122	72732 SURJ MNI T-211.000	6	0.9974	10.971
72801	MN.VR.RD T-111.000	6	1.0097	11.107	72802 MN.VR.RD T-211.000	6	1.0097	11.107
72803	MN.VR.RD T-311.000	6	1.0020	11.022	72851 QASIMPUR T-111.000	6	1.0254	11.279
72852	QASIMPUR T-211.000	6	1.0335	11.368	72853 QASIMPUR T-311.000	6	1.0011	11.012
72871	M.J RD T-1 11.000	6	1.0489	11.537	72872 M.J.RD T-2 11.000	6	1.0204	11.225
72881	SHUJABAD T-111.000	6	1.0213	11.234	72882 SHUJABAD T-211.000	6	1.0444	11.488
72883	SHUJABAD T-311.000	6	0.9473	10.421	72891 J.P.W T-1 11.000	6	1.0642	11.706
72892	J.P.W T-2 11.000	6	1.0613	11.674	72893 J.P.W T-3 11.000	6	1.0411	11.453
72901	MESCO T-1 11.000	6	1.0024	11.026	72902 MESCO T-2 11.000	6	0.9952	10.947
72903	MESCO T-3 11.000	6	0.9928	10.921	73021 SANAWAN T-1 11.000	6	1.0143	11.157
73022	SANAWAN T-2 11.000	6	0.9964	10.960	73031 PIR CHGI T-111.000	6	0.9594	10.554
73032	PIR CHGI T-211.000	6	0.9594	10.554	73033 PIR CHGI T-311.000	6	0.9594	10.554
73201	GUJRAT.S T-111.000	6	0.9671	10.638	73202 GUJRAT.S T-211.000	6	0.9679	10.647
73203	GUJRAT.S T3 11.000	6	0.9542	10.497	73251 LAYYAH T-1 11.000	6	1.0313	11.344
73252	LAYYAH T-2 11.000	6	0.9883	10.871	73253 LAYYAH T-3 11.000	6	0.9354	10.290
73282	KBGASHER T-211.000	6	0.9726	10.699	73283 KBGASHER T-311.000	6	0.9706	10.677
73284	KBGASHER T-311.000	6	0.9726	10.699	73301 MZFRGARH T-111.000	6	1.0147	11.162
73302	MZFRGARH T-211.000	6	1.0119	11.131	73303 MZFRGARH T-311.000	6	1.0068	11.075
73311	KOTADU-O T-211.000	6	0.9963	10.960	73313 KOTADU-O T-311.000	6	1.0039	11.043
73314	KOTADU-O T-411.000	6	1.0026	11.029	73321 N.A.WALI T-111.000	6	1.0015	11.016
73322	N.A.WALI T-211.000	6	0.9790	10.769	73331 S S DIN T1 11.000	6	1.0373	11.410
73332	S S DIN T2 11.000	6	1.0105	11.116	73351 KOTSULTAN-T111.000	6	0.9723	10.695
73352	KOTSULTAN-T211.000	6	0.9723	10.695	73361 KAROR L.E-T1	6	0.9860	
73362	KAROR L.E-T2	6	0.9684		73363 KAROR L.E T311.000	6	0.9228	10.151
73401	MEHRKHAS T-111.000	6	0.9981	10.980	73402 MEHRKHAS T-211.000	6	0.9846	10.831
73403	MEHRKHAS T-3	6	0.9292		73501 DMR WALA T-111.000	6	0.9839	10.823
73502	DMR WALA T-211.000	6	0.9977	10.975	73601 JATOIJNB T-111.000	6	0.9789	10.768
73602	JATOIJNB T-211.000	6	0.9789	10.768	73701 KHRPRSDT T-111.000	6	0.9758	10.733
73702	KHRPRSDT T-2 11.000	6	0.9668	10.635	73951 SHA.LND T-1 11.000	6	0.9832	10.815
73952	SHA LND T-2 11.000	6	0.9697	10.666	74001 TAUNSA T-1 11.000	6	0.9565	10.522
74002	TAUNSA T-2 11.000	6	0.9565	10.522	74401 CHOKMNDA T-111.000	6	0.9993	10.993

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74402	CHOKMNDA T-211.000	6	0.9633	10.596	74502	CHAUBARA T-211.000	6	0.9350	10.285
74503	CHAUBARA T-3	6	0.9260		74561	CHOKAZAM T1 11.000	6	1.0037	11.040
74562	CHOKAZAM T2 11.000	6	0.9451	10.396	74563	CHOKAZAM T3 11.000	6	0.9451	10.396
74591	KHANGARH T-111.000	6	0.9860	10.846	74592	KHANGARH T-211.000	6	0.9638	10.602
74602	D.G.KHAN T-211.000	6	1.0559	11.615	74603	D.G.KHAN T-311.000	6	1.0371	11.408
74604	D.G.KHAN T-411.000	6	1.0417	11.459	74651	KOTCHUTA T-111.000	6	0.9954	10.949
74652	KOTCHUTA T-211.000	6	1.0028	11.031	74653	KOTCHUTTA T311.000	6	0.9737	10.711
74701	ROJHAN T-1 11.000	6	1.0003	11.003	75901	SKHISRWR T-111.000	6	1.0263	11.289
75902	SKISRWR T-2 11.000	6	1.0138	11.152	77811	YAZMAN-T-1 11.000	6	1.0318	11.349
77812	YAZMAN T-2 11.000	6	1.0192	11.211	77911	MAROOT T1 11.000	6	1.0964	12.060
77912	MAROOT T-2 11.000	6	1.0397	11.436	78311	FATEHPUR T-111.000	6	0.9381	10.319
78312	FATEPUR T-2 11.000	6	0.9469	10.415	78401	T1 11.000	6	0.9762	10.738
78901	NAWANKOT T-111.000	6	1.0128	11.141	79091	D.G.K.II T-111.000	6	0.9773	10.750
79092	D.G.K.II T-211.000	6	0.9773	10.750	79211	JAMPUR T-1 11.000	6	1.1905	13.096
79251	CHOTI T-1 11.000	6	1.1687	12.856	79301	JAMPUR T-1 11.000	6	1.0756	11.831
79302	JAMPUR T-2 11.000	6	1.0526	11.579	79331	FAZALPUR T-111.000	6	0.9985	10.983
79332	FAZALPUR T-211.000	6	0.9884	10.872	79351	DAJAL T-1 11.000	6	1.2440	13.684
79352	DAJAL T-2 11.000	6	1.1553	12.709	79511	RAJANPUR T-111.000	6	0.9931	10.924
79512	RAJANPUR T-211.000	6	0.9812	10.793	79513	RAJANPUT T-311.000	6	0.9376	10.314
79741	UCH.SHRF T-211.000	6	1.0302	11.332	79742	UCH.SHRF T-311.000	6	1.0353	11.388
79743	UCH.SHRF T-111.000	6	1.0356	11.391	79751	UCH (KF) T-111.000	6	0.9777	10.755
79811	ALI PUR T-1 11.000	6	1.0149	11.164	79812	ALIPUR T-2 11.000	6	1.0238	11.262
79813	ALI PUR T-3	6	0.9265		79841	H.R. KAN T1 11.000	6	1.0461	11.508
79842	H.R.KAN T-2 11.000	6	1.0461	11.508	79961	FRT MNRO T-111.000	6	1.0311	11.342
613811	BWP-2 T-1 11.000	6	1.0067	11.074	613812	BWP-2 T-2 11.000	6	1.0067	11.074
732512	LSM-132KV 132.00	6	1.0000	132.00					

REALISTIC
June 2020

Realistic june 2020

With:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

BUSES WITH VOLTAGE LESS THAN 1.7000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0290	135.83	529		PARCO		220.00	6	1.0248	225.45
601		APPOLO-SOLAR		132.00	6	1.0293	135.87	730		SHK-PP-132		132.00	6	1.0308	136.07
801		QAD-SOL-I		132.00	6	1.0292	135.86	1001		CREST-ENERGY		132.00	6	1.0301	135.98
6030		QADIRABD		132.00	6	1.0261	135.44	6050		BNGAHYAT		132.00	6	0.9901	130.69
6070		YOUSFWLA		132.00	6	1.0247	135.26	6080		SAHIWALN		132.00	6	1.0168	134.22
6090		SAHWAL-O		132.00	6	1.0025	132.34	6095		SAHIWAL III		132.00	6	0.9762	128.86
6100		NOORPUR		132.00	6	0.9476	125.08	6120		PAKPATAN		132.00	6	0.8835	116.62
6130		HARAPPA		132.00	6	0.9882	130.45	6140		CHCHWTNI		132.00	6	0.9951	131.35
6150		SH.FAZAL		132.00	6	0.9875	130.34	6160		BUREWALA		132.00	6	1.0000	132.00
6162		BREWLA-O		132.00	6	0.9964	131.52	6163		GAGOO		132.00	6	1.0014	132.19
6169		VEHARI-N		132.00	6	1.0233	135.08	6170		VEHARI-O		132.00	6	1.0193	134.55
6175		LUDDEN		132.00	6	1.0105	133.38	6178		KARAMPUR		132.00	6	1.0026	132.35
6180		ARIFWALA		132.00	6	1.0061	132.81	6182		KAMIRWALA		132.00	6	1.0114	133.50
6190		BWL.NAGR		132.00	6	1.0141	133.86	6191		HOTA		132.00	6	1.0070	132.92
6200		QABULA		132.00	6	1.0073	132.97	6210		SAHUKA		132.00	6	0.9869	130.27
6220		HASILPUR		132.00	6	1.0175	134.31	6221		CHUNAWALA		132.00	6	1.0163	134.16
6230		CHISTIAN-O		132.00	6	1.0344	136.55	6231		CHSTAN-N		132.00	6	1.0363	136.79
6232		DHARWALA132		132.00	6	1.0283	135.74	6410		HASILPUR		66.000	6	1.0120	66.795
6415		CHISTIAN		66.000	6	0.9932	65.549	6419		L.SOHANRA		132.00	6	1.0271	135.58
6421		K.P.TOMI		132.00	6	1.0175	134.31	6462		NOORSAR		132.00	6	1.0228	135.01
6482		MNCHNBAD		132.00	6	1.0131	133.73	6491		MCLD.GNJ		132.00	6	1.0076	133.00
6501		HARONABD		132.00	6	1.0286	135.77	6512		FAQIRWLI		132.00	6	1.0324	136.28

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6521 FORTABAS	132.00	6 1.0261	135.45	6666 MULTAN-N	132.00	6 1.0261	135.45
7000 MIANCHNU	132.00	6 0.9837	129.84	7001 CHAK-83-132	132.00	6 0.9988	131.84
7002 KASSOWAL	132.00	6 1.0069	132.91	7006 HEAD SIDHNAI	132.00	6 0.9669	127.63
7010 KACHAKHU	132.00	6 0.9895	130.61	7020 KHANEWAL	132.00	6 1.0098	133.30
7029 FAUJI-K	132.00	6 1.0300	135.96	7030 KABIRWLA	132.00	6 1.0149	133.96
7032 MP.PAHOR	132.00	6 0.9970	131.61	7040 GARHMORE	132.00	6 1.0127	133.67
7041 T-GM	132.00	6 1.0131	133.72	7050 JEHANIAN	132.00	6 1.0129	133.70
7055 T-C.211	132.00	6 0.9994	131.92	7060 CHAK.211	132.00	6 0.9963	131.52
7070 MAILSI	132.00	6 0.9978	131.71	7075 MUKHDM.R	132.00	6 1.0218	134.87
7076 F.J HOUSING	132.00	6 1.0426	137.62	7100 P.GAIB-1	132.00	6 1.0262	135.46
7109 P.GAIB-2	132.00	6 1.0528	138.96	7110 BASTIMLK	132.00	6 1.0012	132.16
7115 MIRAN PUR	132.00	6 1.0411	137.43	7116 MKD JAHANIAN	132.00	6 1.0414	137.47
7120 LODHRAN	132.00	6 1.0135	133.78	7125 LAR	132.00	6 1.0186	134.46
7130 BU.JADID	132.00	6 1.0299	135.94	7138 BWPN-2	132.00	6 1.0518	138.83
7139 B.W.P-N	132.00	6 1.0498	138.57	7140 BHAWALPR	132.00	6 1.0330	136.35
7145 BPUR CANTT	132.00	6 1.0463	138.11	7147 KARORPCA	132.00	6 1.0173	134.28
7149 DUNYAPUR	132.00	6 1.0099	133.30	7150 SAMASATA	132.00	6 1.0461	138.09
7159 MUB-PUR	132.00	6 1.0308	136.06	7160 LIAQATPR	132.00	6 1.0349	136.61
7170 AHMDPR.E	132.00	6 1.0239	135.16	7175 RYK-PP	132.00	6 1.0141	133.86
7180 FEROZA	132.00	6 1.0158	134.09	7185 KHANBELA	132.00	6 1.0022	132.30
7190 HAMZA-PP	132.00	6 1.0377	136.98	7200 KHANPUR	132.00	6 1.0438	137.78
7210 MWQRSHIA	132.00	6 1.0271	135.58	7220 R.Y.KHAN	132.00	6 1.0514	138.79
7221 RYK-NEW	132.00	6 1.0633	140.36	7225 R.Y.KHN2	132.00	6 1.0523	138.90
7226 RYK-T	132.00	6 1.0553	139.30	7230 SADIQABD	132.00	6 1.0381	137.03
7231 WALANA	132.00	6 1.0357	136.71	7235 NAWAZABD	132.00	6 1.0453	137.98
7240 J.D.WALI	132.00	6 1.0193	134.55	7250 MN.KH.RD	132.00	6 1.0230	135.04
7255 WAPDATWN	132.00	6 1.0105	133.38	7260 MN.BS.RD	132.00	6 1.0029	132.38
7261 PUNJAB HOSNG	132.00	6 1.0183	134.42	7262 BUCH VILLAS	132.00	6 0.9988	131.84
7265 QASIMBGH	132.00	6 1.0168	134.22	7270 MLN-IND	132.00	6 0.9929	131.06
7272 COCA COLA	132.00	6 0.9929	131.06	7273 SURAJ MIANI	132.00	6 0.9896	130.63
7275 C.T.MILL	132.00	6 0.9902	130.70	7280 MN.VR.RD	132.00	6 1.0173	134.28
7285 QASIMPUR	132.00	6 1.0057	132.76	7287 M.JAILRD	132.00	6 0.9910	130.81
7288 SHUJABAD	132.00	6 0.9796	129.31	7289 JALALPWL	132.00	6 0.9847	129.98
7290 MESCO	132.00	6 0.9886	130.50	7300 KAPCO	132.00	6 1.0497	138.56
7302 SANAWAN	132.00	6 1.0400	137.28	7320 GUJRAT.S	132.00	6 1.0008	132.10
7325 LAYYAH	132.00	6 0.9778	129.06	7328 KBGASHER	132.00	6 1.0170	134.24
7330 MZFRGARH	132.00	6 0.9999	131.99	7331 KOTADU-O	132.00	6 1.0465	138.14

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7332 N.A.WALI	132.00	6 1.0270	135.57	7333 S.S.DIN	132.00	6 1.0104	133.37
7334 M GARH NEW	132.00	6 1.0015	132.20	7335 KOTSULTAN	132.00	6 0.9998	131.98
7336 KAROR L.E	132.00	6 0.9404	124.13	7340 MEHRKHAS	132.00	6 0.9439	124.60
7350 DMR WALA	132.00	6 0.9280	122.49	7360 JATOIJNB	132.00	6 0.9078	119.83
7370 KHRPRSDT	132.00	6 0.8933	117.92	7395 SHAD.LND	132.00	6 1.0150	133.99
7400 TAUNSA	132.00	6 1.0014	132.19	7435 PARCO	132.00	6 0.9503	125.44
7436 T-PARCO	132.00	6 0.9504	125.45	7440 CHOKMNDA	132.00	6 0.9787	129.19
7441 T-CMUNDA	132.00	6 0.9799	129.35	7442 T-AHTM	132.00	6 1.0092	133.21
7443 AHTM	132.00	6 1.0085	133.12	7450 CHAUBARA	132.00	6 0.9638	127.22
7456 CHOKAZAM	132.00	6 0.9728	128.41	7459 KHANGARH	132.00	6 0.9804	129.42
7460 D.G.KHAN	132.00	6 1.0123	133.63	7462 MDC-DGK	132.00	6 1.0273	135.60
7463 CPC-DGK	132.00	6 1.0150	133.99	7465 KOTCHUTA	132.00	6 0.9950	131.34
7466 T-ATM	132.00	6 1.0047	132.62	7467 ATM	132.00	6 1.0041	132.54
7468 D.G.KHAN NEW	132.00	6 1.0287	135.79	7470 ROJHAN	132.00	6 1.0097	133.27
7580 CMNT.FCT	132.00	6 1.0040	132.53	7590 SKHISRWR	132.00	6 1.0272	135.60
7781 YAZMAN	132.00	6 1.0321	136.24	7791 MAROOT	132.00	6 1.0078	133.03
7800 KOTADDU	66.000	6 1.0255	67.681	7831 FATEHPUR	132.00	6 0.9495	125.33
7840 RANGPUR	66.000	6 1.0015	66.098	7842 T-RANGPR	66.000	6 1.0166	67.096
7880 CHAUBARA	66.000	6 0.9611	63.431	7890 NAWANKOT	66.000	6 0.9597	63.343
7891 T.NWANKOT	66.000	6 0.9599	63.352	7909 D.G.KHAN II	132.00	6 1.0121	133.60
7910 D.G.KHAN	66.000	6 1.1048	72.915	7920 KOTCHOTA	66.000	6 1.1344	74.873
7921 JAMPUR	66.000	6 1.1353	74.929	7925 CHOTI	66.000	6 1.1206	73.956
7930 JAMPUR	132.00	6 0.9797	129.32	7933 FAZALPUR	132.00	6 0.9550	126.06
7935 DAJAL	66.000	6 1.1268	74.367	7951 RAJANPUR	132.00	6 0.9499	125.39
7970 AHMDPR.E	66.000	6 1.0573	69.780	7974 UCH.SHRF	132.00	6 1.0206	134.72
7975 UCH (KF)	66.000	6 1.0188	67.240	7977 T-UCHSHF	66.000	6 1.0447	68.951
7981 ALI PUR	132.00	6 0.8962	118.30	7984 HEAD-RJ-KN	132.00	6 1.0285	135.77
7996 FORT.MINRO	132.00	6 1.0277	135.66	60301 QADIRABD T-1	111.000	6 0.9883	10.871
60302 QADIRABD T-2	111.000	6 0.9820	10.802	60501 BNGAHYAT T-1	111.000	6 0.8916	9.807
60502 BNGAHYAT T-2	111.000	6 0.9021	9.923	60801 SAHIWALN T-1	111.000	6 0.9591	10.550
60802 SAHIWALN T-2	111.000	6 0.9659	10.625	60901 SAHWAL-O T-1	111.000	6 0.9896	10.885
60902 SAHWAL-O T-2	111.000	6 0.9765	10.742	60903 SAHWAL-O T-3	111.000	6 0.9559	10.515
60951 SWL III T-1	11.000	6 0.9677	10.645	60952 SWL III T-2	11.000	6 0.9677	10.645
61001 NOORPUR T-1	11.000	6 0.8994	9.894	61002 NOORPUR T-2	11.000	6 0.9074	9.981
61201 PAKPATAN T-1	111.000	6 0.7697	8.467	61202 PAKPATAN T-2	111.000	6 0.7697	8.467
61203 PAKPATAN T-3	111.000	6 0.7772	8.550	61301 HARAPPA T-1	11.000	6 0.9683	10.651
61302 HARAPPA T-2	11.000	6 0.9674	10.642	61402 CHCHWTNI T-2	111.000	6 1.0025	11.027

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61403 CHCHWTNI T-311.000	6 0.9813 10.795	61404 CHCHWTNI T-411.000	6 0.9492 10.441
61501 SH.FAZAL T-111.000	6 0.9973 10.970	61502 SH.FAZAL T-211.000	6 0.9891 10.880
61601 BUREWALA T-111.000	6 1.0538 11.591	61602 BUREWALA T-211.000	6 1.0167 11.184
61603 BUREWALA T-311.000	6 0.9995 10.994	61621 BREWLA-O T-111.000	6 0.9827 10.810
61622 BREWLA-O T-211.000	6 1.0243 11.267	61631 GAGOO T-1 11.000	6 0.9920 10.912
61632 GAGOO T-2 11.000	6 0.9920 10.912	61701 VEHARI-O T-111.000	6 0.9931 10.924
61702 VEHARI-O T-211.000	6 1.0295 11.325	61703 VEHARI-T-3 11.000	6 1.0075 11.082
61751 LUDDEN T-1 11.000	6 1.0068 11.075	61752 LUDDEN T-2 11.000	6 1.0004 11.005
61781 KARAMPUR T-111.000	6 0.9862 10.848	61782 KARAMPUR T-211.000	6 0.9886 10.875
61801 ARIFWALA T-111.000	6 0.9968 10.965	61802 ARIFWALA T-211.000	6 1.0354 11.389
61803 ARIFWALA T-311.000	6 1.0059 11.065	61821 KAMIRW T-1 11.000	6 1.0181 11.199
61822 KAMIR W T-2 11.000	6 1.0181 11.199	61901 BWL.NAGR T-111.000	6 1.0106 11.117
61902 BWL.NAGR T-311.000	6 1.0106 11.117	61903 BWL.NAGR T-411.000	6 0.9668 10.635
61911 HOTA T-1 11.000	6 1.0148 11.163	62001 QABULA T-1 11.000	6 1.0318 11.350
62002 QABULA T-2 11.000	6 1.0290 11.318	62003 QABULA T-3 11.000	6 0.9539 10.493
62101 SAHUKA T-1 11.000	6 1.0506 11.557	62102 SAHUKA T-2 11.000	6 1.0239 11.263
62202 HASILPUR T-211.000	6 1.0082 11.090	62203 HASILPUR T-311.000	6 1.0236 11.259
62211 CHUNAW T-1 11.000	6 1.0250 11.275	62212 T2 11.000	6 1.0001 11.001
62301 CHISTIAN T-111.000	6 1.0205 11.225	62302 CHISTIAN T-211.000	6 1.0633 11.697
62303 CHISTIAO T3 11.000	6 1.0026 11.028	62321 DHRANWALA-T111.000	6 0.9925 10.917
62322 DHRANWALA-T211.000	6 0.9925 10.917	64151 CHISTIAN T-211.000	6 1.0105 11.115
64191 L.SOHAN T-1 11.000	6 1.0270 11.297	64211 K.P.TOMI T-111.000	6 1.0086 11.095
64212 K.P.TOMI T-211.000	6 0.9974 10.971	64621 NOORSAR T-1 11.000	6 1.0355 11.390
64622 NOORSAR T-2 11.000	6 1.0649 11.714	64821 MNCHNBAD T1 11.000	6 1.0607 11.668
64822 MNCHNBAD T2 11.000	6 0.9934 10.927	64911 MCLD.GNJ T1 11.000	6 1.0530 11.583
64912 MCLD.GNJ T2 11.000	6 0.9920 10.912	65012 HARONABD T-211.000	6 1.0280 11.308
65013 HARONABD T-111.000	6 1.0635 11.698	65014 HARONABD T-311.000	6 1.0245 11.269
65121 FAQIRWLI-T1 11.000	6 1.0389 11.428	65122 FAQIRWLI-T2 11.000	6 1.0389 11.428
65211 FORTABAS-T1	6 1.0903	65212 FORTABAST-2 11.000	6 1.0744 11.819
70001 MIANCHNU T1 11.000	6 0.9751 10.727	70002 MIANCHNU T-211.000	6 0.9665 10.632
70003 MIANCHNU T-311.000	6 0.9693 10.662	70011 CHAK-83-T1 11.000	6 0.9761 10.738
70012 CHAK-83-T2 11.000	6 0.9761 10.738	70021 KASSOWAL T-111.000	6 0.9604 10.564
70022 KASOWAL T-2 11.000	6 0.9726 10.699	70061 H SIDNAI T-111.000	6 0.9393 10.333
70062 H SIDNAI T-211.000	6 0.9733 10.707	70101 KACHAKHU T-111.000	6 1.0096 11.105
70102 KACHAKHU T-211.000	6 1.0030 11.034	70103 KACHAKHU T-311.000	6 0.9463 10.409
70201 KHANEWAL T-111.000	6 0.9672 10.639	70202 KHANEWAL T-211.000	6 0.9821 10.803
70203 KHANEWAL T-311.000	6 0.9982 10.980	70301 KABIRWLA T-111.000	6 1.0191 11.211

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70302	KABIRWLA T-211.000	6	1.0126	11.139	70303	KABIRWLA T-311.000	6	0.9911	10.902
70321	MP PAHOR T-111.000	6	1.0179	11.197	70322	MP PAHOR T-211.000	6	0.9926	10.918
70401	GARHMORE T-111.000	6	1.0294	11.324	70402	GARHMORE T-211.000	6	1.0006	11.006
70501	JEHANIAN T-111.000	6	0.9627	10.589	70502	JEHANIAN T-211.000	6	1.0164	11.180
70503	JEHANIAN T-311.000	6	1.0236	11.260	70601	CHAK.211 T-111.000	6	1.0658	11.724
70602	CHAK 211 T-211.000	6	1.0338	11.372	70603	CHAK 211 T-311.000	6	0.9672	10.639
70701	MAILSI T-1 11.000	6	1.0180	11.198	70702	MAILSI T-2 11.000	6	1.0554	11.609
70703	MAILSI T-3 11.000	6	1.0135	11.148	70751	MUKHDM.R T-111.000	6	1.0313	11.344
70752	MUKHDM.R T-211.000	6	1.0327	11.359	70761	F.J HSNQ T-111.000	6	1.0417	11.459
70762	F.J HSNQ T-211.000	6	0.9984	10.982	71101	BASTIMLK T-111.000	6	0.9854	10.839
71102	BASTIMLK T-211.000	6	1.0136	11.149	71103	BASTIMLK T-311.000	6	0.9854	10.839
71151	MIRAN P T-1 11.000	6	1.0246	11.270	71152	MIRAN P T-2 11.000	6	1.0499	11.549
71161	MK JANIAN T111.000	6	1.0410	11.451	71201	LODHRAN T-1 11.000	6	1.0453	11.498
71202	LODHRAN T-2 11.000	6	1.0511	11.562	71203	LODHRAN T-3 11.000	6	1.0443	11.487
71251	LART-1 11.000	6	1.0053	11.059	71252	LAR T-2 11.000	6	1.0053	11.059
71301	BU.JADID T-111.000	6	1.0252	11.277	71302	BU.JADID T-211.000	6	1.0872	11.959
71401	BHAWALPR T-111.000	6	0.9982	10.980	71402	BHAWALPR T-211.000	6	1.0384	11.422
71403	BHAWALPR T-311.000	6	0.9944	10.938	71451	BP CANTT T-111.000	6	1.0264	11.290
71452	BPCANTT T-2 11.000	6	1.0264	11.290	71471	KARORPCA T-111.000	6	1.0970	12.067
71472	KARORPCA T-211.000	6	1.0407	11.447	71473	KARORPCA T3 11.000	6	1.0248	11.273
71491	DUNYAPUR T-311.000	6	1.0666	11.732	71492	DUNYAPUR T-411.000	6	1.0801	11.881
71501	SAMASATA T-111.000	6	1.0212	11.233	71502	SAMASATA T-211.000	6	1.0212	11.233
71591	MUB-PUR-T1 11.000	6	0.9939	10.933	71592	MUB-PUR-T2 11.000	6	0.9939	10.933
71601	LIAQATPR T-111.000	6	1.0252	11.278	71602	LIAQATPR T-211.000	6	1.0317	11.349
71702	AHMDPR.E T-211.000	6	1.0521	11.574	71703	AHMDPR.E T-311.000	6	1.0389	11.428
71704	AHMDPR.E T4 11.000	6	1.0058	11.064	71801	FEROZA T-1 11.000	6	1.0458	11.504
71802	FEROZA T-2 11.000	6	1.0571	11.628	71851	KHANBELA T-111.000	6	1.0214	11.235
71852	KHANBELA T-211.000	6	0.9824	10.807	72001	KHANPUR T-1 11.000	6	1.0025	11.028
72002	KHANPUR T-2 11.000	6	1.0069	11.076	72003	KHANPUR T-3 11.000	6	1.0055	11.061
72101	MWQRSHIA T-111.000	6	0.9998	10.998	72102	MWQRSHIA T2 11.000	6	0.9546	10.501
72201	R.Y.KHAN T-111.000	6	1.0504	11.554	72202	R.Y.KHAN T-211.000	6	1.0555	11.611
72203	R.Y.KHAN T-311.000	6	1.0573	11.631	72251	R.Y.KHN2 T-111.000	6	1.0361	11.397
72252	R.Y.KHN2 T-211.000	6	1.0414	11.455	72301	SADIQABD T-111.000	6	1.0633	11.696
72302	SADIQABD T-211.000	6	1.0633	11.696	72303	SADIQABD T-311.000	6	1.0195	11.214
72311	WALANA T-1 11.000	6	1.0619	11.680	72312	WALANA T-2 11.000	6	1.0720	11.792
72351	NAWAZ T-1 11.000	6	1.0331	11.364	72401	J.D.WALI T-111.000	6	1.0216	11.238
72402	JDWALI T-2 11.000	6	1.0485	11.534	72403	J D WALI T-311.000	6	1.0126	11.139

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72501 MN.KH.RD T-111.000	6 0.9807 10.788	72502 MN.KH.RD T-211.000	6 1.0132 11.146
72503 MN.KH.RD T-311.000	6 0.9895 10.885	72551 WAP TO T-1 11.000	6 0.9673 10.640
72552 WAPDA TO T-211.000	6 0.9734 10.708	72601 MN.BS.RD T-111.000	6 0.9789 10.768
72602 MN.BS.RD T-211.000	6 0.9907 10.898	72603 MN.BS.RD T-311.000	6 0.9878 10.865
72611 PNJB HSG T-111.000	6 1.0110 11.121	72612 PNJB HSG T-211.000	6 1.0110 11.121
72621 BUCH VLS T-111.000	6 1.0036 11.040	72651 Q BAGH T-1 11.000	6 0.9905 10.896
72652 Q BAGH T-2 11.000	6 1.0038 11.042	72701 MLN-IND T-1 11.000	6 0.9632 10.595
72702 MLN-IND T-2 11.000	6 0.9734 10.708	72703 MLN-IND T-3 11.000	6 0.9598 10.558
72731 SURJ MNI T-111.000	6 1.0035 11.039	72732 SURJ MNI T-211.000	6 0.9899 10.889
72801 MN.VR.RD T-111.000	6 1.0074 11.081	72802 MN.VR.RD T-211.000	6 1.0074 11.081
72803 MN.VR.RD T-311.000	6 0.9996 10.996	72851 QASIMPUR T-111.000	6 1.0219 11.241
72852 QASIMPUR T-211.000	6 1.0300 11.330	72853 QASIMPUR T-311.000	6 0.9850 10.835
72871 M.J RD T-1 11.000	6 1.0405 11.446	72872 M.J.RD T-2 11.000	6 1.0123 11.135
72881 SHUJABAD T-111.000	6 1.0074 11.082	72882 SHUJABAD T-211.000	6 1.0302 11.332
72883 SHUJABAD T-311.000	6 0.9343 10.278	72891 J.P.W T-1 11.000	6 1.0520 11.572
72892 J.P.W T-2 11.000	6 1.0492 11.541	72893 J.P.W T-3 11.000	6 1.0292 11.321
72901 MESCO T-1 11.000	6 0.9972 10.969	72902 MESCO T-2 11.000	6 0.9900 10.890
72903 MESCO T-3 11.000	6 0.9877 10.864	73021 SANAWAN T-1 11.000	6 1.0140 11.154
73022 SANAWAN T-2 11.000	6 0.9917 10.909	73201 GUJRAT.S T-111.000	6 0.9337 10.271
73202 GUJRAT.S T-211.000	6 0.9373 10.311	73203 GUJRAT.S T3 11.000	6 0.9252 10.177
73251 LAYYAH T-1 11.000	6 0.9266 10.193	73252 LAYYAH T-2 11.000	6 0.8871 9.758
73253 LAYYAH T-3 11.000	6 0.8552 9.408	73281 KBGASHER T-111.000	6 0.9876 10.863
73282 KBGASHER T-211.000	6 0.9876 10.863	73283 KBGASHER T-3	6 0.9876
73301 MZFRGARH T-111.000	6 0.9835 10.819	73302 MZFRGARH T-211.000	6 0.9924 10.917
73303 MZFRGARH T-311.000	6 0.9835 10.819	73311 KOTADU-O T-211.000	6 0.9857 10.843
73313 KOTADU-O T-311.000	6 0.9984 10.982	73314 KOTADU-O T-411.000	6 0.9920 10.912
73321 N.A.WALI T-111.000	6 1.0014 11.015	73322 N.A.WALI T-211.000	6 0.9790 10.769
73331 S S DIN T1 11.000	6 1.0251 11.276	73332 S S DIN T2 11.000	6 1.0234 11.257
73351 KOTSULTAN-T111.000	6 0.9570 10.527	73352 KOTSULTAN-T211.000	6 0.9570 10.527
73361 KAROR L.E-T1	6 0.9645	73362 KAROR L.E-T2	6 0.9399
73363 KAROR L.E T311.000	6 0.8087 8.896	73401 MEHRKHAS T-111.000	6 0.9206 10.127
73402 MEHRKHAS T-211.000	6 0.9199 10.119	73403 MEHRKHAS T-311.000	6 0.9162 10.078
73501 DMR WALA T-111.000	6 0.9270 10.197	73502 DMR WALA T-211.000	6 0.9400 10.340
73601 JATOIJNB T-111.000	6 0.9336 10.269	73602 JATOIJNB T-211.000	6 0.8548 9.403
73701 KHRPRSDT T-111.000	6 0.8956 9.851	73702 KHRPRSDT T-2 11.000	6 0.8868 9.755
73951 SHA.LND T-1 11.000	6 0.9835 10.819	73952 SHA LND T-2 11.000	6 0.9700 10.670
74001 TAUNSA T-1 11.000	6 0.9571 10.528	74002 TAUNSA T-2 11.000	6 0.9571 10.528

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74401	CHOKMNDA	T-111.000	6 0.9668 10.634	74402	CHOKMNDA	T-211.000	6 0.9317 10.249				
74502	CHAUBARA	T-211.000	6 0.9128 10.041	74503	CHAUBARA	T-311.000	6 0.9012 9.913				
74561	CHOKAZAM	T1 11.000	6 0.9850 10.835	74562	CHOKAZAM	T2 11.000	6 0.9274 10.202				
74563	CHOKAZAM	T3 11.000	6 0.9274 10.202	74591	KHANGARH	T-111.000	6 0.9349 10.284				
74592	KHANGARH	T-211.000	6 0.9085 9.994	74602	D.G.KHAN	T-211.000	6 1.0391 11.430				
74603	D.G.KHAN	T-311.000	6 1.0205 11.225	74604	D.G.KHAN	T-411.000	6 1.0250 11.276				
74651	KOTCHUTA	T-111.000	6 0.9794 10.774	74652	KOTCHUTA	T-211.000	6 0.9868 10.855				
74653	KOTCHUTTA	T311.000	6 0.9580 10.538	74701	ROJHAN	T-1 11.000	6 0.9801 10.781				
75901	SKHISRWR	T-111.000	6 1.0205 11.225	75902	SKISRWR	T-2 11.000	6 1.0080 11.088				
77811	YAZMAN-T-1	11.000	6 1.0210 11.231	77812	YAZMAN	T-2 11.000	6 1.0148 11.163				
77911	MAROOT	T1 11.000	6 1.0784 11.863	77912	MAROOT	T-2 11.000	6 1.0358 11.394				
78311	FATEHPUR	T-111.000	6 0.9223 10.145	78312	FATEPUR	T-2 11.000	6 0.9310 10.241				
78401	T1	11.000	6 0.9759 10.735	78901	NAWANKOT	T-111.000	6 0.9626 10.588				
79091	D.G.K.II	T-111.000	6 0.9636 10.600	79092	D.G.K.II	T-211.000	6 0.9636 10.600				
79211	JAMPUR	T-1 11.000	6 1.1447 12.591	79251	CHOTI	T-1 11.000	6 1.1396 12.536				
79301	JAMPUR	T-1 11.000	6 1.0520 11.572	79302	JAMPUR	T-2 11.000	6 1.0421 11.463				
79331	FAZALPUR	T-111.000	6 0.9141 10.055	79332	FAZALPUR	T-211.000	6 0.9023 9.925				
79351	DAJAL	T-1 11.000	6 1.1724 12.896	79352	DAJAL	T-2 11.000	6 1.1123 12.235				
79511	RAJANPUR	T-111.000	6 0.9652 10.617	79512	RAJANPUR	T-211.000	6 0.9293 10.222				
79513	RAJANPUT	T-311.000	6 0.8934 9.828	79741	UCH.SHRF	T-211.000	6 1.0493 11.542				
79742	UCH.SHRF	T-311.000	6 1.0812 11.893	79743	UCH.SHRF	T-111.000	6 1.0548 11.603				
79751	UCH (KF)	T-111.000	6 1.0502 11.553	79811	ALI PUR	T-1 11.000	6 0.6590 7.249				
79812	ALIPUR	T-2 11.000	6 0.6590 7.249	79841	H.R. KAN	T1 11.000	6 1.0360 11.396				
79842	H.R. KAN	T-211.000	6 1.0360 11.396	79961	FRT MNRO	T-111.000	6 1.0253 11.279				
732512	LSM-132KV	132.00	6 0.9792 129.25								

without:

BUSES WITH VOLTAGE GREATER THAN 2.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 1.7000:

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BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
401		BEST-GREEN		132.00	6	1.0290	135.83
601		APPOLO-SOLAR		132.00	6	1.0293	135.87
801		QAD-SOL-I		132.00	6	1.0292	135.86
6030		QADIRABD		132.00	6	1.0261	135.44
6070		YOUSFWLA		132.00	6	1.0247	135.26
6090		SAHWAL-O		132.00	6	1.0025	132.34
6100		NOORPUR		132.00	6	0.9476	125.08
6130		HARAPPA		132.00	6	0.9882	130.45
6150		SH.FAZAL		132.00	6	0.9875	130.34
6162		BREWLA-O		132.00	6	0.9964	131.52
6169		VEHARI-N		132.00	6	1.0233	135.08
6175		LUDDEN		132.00	6	1.0105	133.38
6180		ARIFWALA		132.00	6	1.0061	132.81
6190		BWL.NAGR		132.00	6	1.0141	133.86
6200		QABULA		132.00	6	1.0073	132.97
6220		HASILPUR		132.00	6	1.0175	134.31
6230		CHISTIAN-O		132.00	6	1.0344	136.55
6232		DHARWALA132		132.00	6	1.0283	135.74
6415		CHISTIAN		66.000	6	0.9932	65.549
6421		K.P.TOMI		132.00	6	1.0175	134.31
6482		MNCHNBAD		132.00	6	1.0131	133.73
6501		HARONABD		132.00	6	1.0286	135.77
6521		FORTABAS		132.00	6	1.0261	135.45
7000		MIANCHNU		132.00	6	0.9837	129.84
7002		KASSOWAL		132.00	6	1.0069	132.91
7010		KACHAKHU		132.00	6	0.9895	130.61
7029		FAUJI-K		132.00	6	1.0300	135.96
7032		MP.PAHOR		132.00	6	0.9970	131.61
7041		T-GM		132.00	6	1.0131	133.72
7055		T-C.211		132.00	6	0.9994	131.92
7070		MAILSI		132.00	6	0.9978	131.71
7076		F.J HOUSING		132.00	6	1.0426	137.62
7109		P.GAIB-2		132.00	6	1.0528	138.96
7115		MIRAN PUR		132.00	6	1.0411	137.43
7120		LODHRAN		132.00	6	1.0135	133.78
7130		BU.JADID		132.00	6	1.0299	135.94

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
529		PARCO		220.00	6	1.0248	225.45
730		SHK-PP-132		132.00	6	1.0308	136.07
1001		CREST-ENERGY		132.00	6	1.0301	135.98
6050		BNGAHYAT		132.00	6	0.9901	130.69
6080		SAHIWALN		132.00	6	1.0168	134.22
6095		SAHIWAL III		132.00	6	0.9762	128.86
6120		PAKPATAN		132.00	6	0.8835	116.62
6140		CHCHWTNI		132.00	6	0.9951	131.35
6160		BUREWALA		132.00	6	1.0000	132.00
6163		GAGOO		132.00	6	1.0014	132.19
6170		VEHARI-O		132.00	6	1.0193	134.55
6178		KARAMPUR		132.00	6	1.0026	132.35
6182		KAMIRWALA		132.00	6	1.0114	133.50
6191		HOTA		132.00	6	1.0070	132.92
6210		SAHUKA		132.00	6	0.9869	130.27
6221		CHUNAWALA		132.00	6	1.0163	134.16
6231		CHSTAN-N		132.00	6	1.0363	136.79
6410		HASILPUR		66.000	6	1.0120	66.795
6419		L.SOHANRA		132.00	6	1.0271	135.58
6462		NOORSAR		132.00	6	1.0228	135.01
6491		MCLD.GNJ		132.00	6	1.0076	133.00
6512		FAQIRWLI		132.00	6	1.0324	136.28
6666		MULTAN-N		132.00	6	1.0261	135.45
7001		CHAK-83-132		132.00	6	0.9988	131.84
7006		HEAD SIDHNAI		132.00	6	0.9669	127.63
7020		KHANEWAL		132.00	6	1.0098	133.30
7030		KABIRWLA		132.00	6	1.0149	133.96
7040		GARMORE		132.00	6	1.0127	133.67
7050		JEHANIAN		132.00	6	1.0129	133.70
7060		CHAK.211		132.00	6	0.9963	131.52
7075		MUKHDM.R		132.00	6	1.0218	134.87
7100		P.GAIB-1		132.00	6	1.0262	135.46
7110		BASTIMLK		132.00	6	1.0012	132.16
7116		MKD JAHANIAN		132.00	6	1.0414	137.47
7125		LAR		132.00	6	1.0186	134.46
7138		BWPN-2		132.00	6	1.0518	138.83

			Realistic june 2020								
7139	B.W.P-N	132.00	6	1.0498	138.57	7140	BHAWALPR	132.00	6	1.0330	136.35
7145	BPUR CANTT	132.00	6	1.0463	138.11	7147	KARORPCA	132.00	6	1.0173	134.28
7149	DUNYAPUR	132.00	6	1.0099	133.30	7150	SAMASATA	132.00	6	1.0461	138.09
7159	MUB-PUR	132.00	6	1.0308	136.06	7160	LIAQATPR	132.00	6	1.0349	136.61
7170	AHMDPR.E	132.00	6	1.0239	135.16	7175	RYK-PP	132.00	6	1.0141	133.86
7180	FEROZA	132.00	6	1.0158	134.09	7185	KHANBELA	132.00	6	1.0022	132.30
7190	HAMZA-PP	132.00	6	1.0377	136.98	7200	KHANPUR	132.00	6	1.0438	137.78
7210	MWQRSHIA	132.00	6	1.0271	135.58	7220	R.Y.KHAN	132.00	6	1.0514	138.79
7221	RYK-NEW	132.00	6	1.0633	140.36	7225	R.Y.KHN2	132.00	6	1.0523	138.90
7226	RYK-T	132.00	6	1.0553	139.30	7230	SADIQABD	132.00	6	1.0381	137.03
7231	WALANA	132.00	6	1.0357	136.71	7235	NAWAZABD	132.00	6	1.0453	137.98
7240	J.D.WALI	132.00	6	1.0193	134.55	7250	MN.KH.RD	132.00	6	1.0230	135.04
7255	WAPDATWN	132.00	6	1.0105	133.38	7260	MN.BS.RD	132.00	6	1.0029	132.38
7261	PUNJAB HOSNG	132.00	6	1.0183	134.42	7262	BUCH VILLAS	132.00	6	0.9988	131.84
7265	QASIMBGH	132.00	6	1.0168	134.22	7270	MLN-IND	132.00	6	0.9929	131.06
7272	COCA COLA	132.00	6	0.9929	131.06	7273	SURAJ MIANI	132.00	6	0.9896	130.63
7275	C.T.MILL	132.00	6	0.9902	130.70	7280	MN.VR.RD	132.00	6	1.0173	134.28
7285	QASIMPUR	132.00	6	1.0057	132.76	7287	M.JAILRD	132.00	6	0.9910	130.81
7288	SHUJABAD	132.00	6	0.9796	129.31	7289	JALALPWL	132.00	6	0.9847	129.98
7290	MESCO	132.00	6	0.9886	130.50	7300	KAPCO	132.00	6	1.0497	138.56
7302	SANAWAN	132.00	6	1.0400	137.28	7320	GUJRAT.S	132.00	6	1.0008	132.10
7325	LAYYAH	132.00	6	0.9778	129.06	7328	KBGASHER	132.00	6	1.0170	134.24
7330	MZFRGARH	132.00	6	0.9999	131.99	7331	KOTADU-O	132.00	6	1.0465	138.14
7332	N.A.WALI	132.00	6	1.0270	135.57	7333	S.S.DIN	132.00	6	1.0104	133.37
7334	M GARH NEW	132.00	6	1.0015	132.20	7335	KOTSULTAN	132.00	6	0.9998	131.98
7336	KAROR L.E	132.00	6	0.9404	124.13	7340	MEHRKHAS	132.00	6	0.9439	124.60
7350	DMR WALA	132.00	6	0.9280	122.49	7360	JATOIJNB	132.00	6	0.9078	119.83
7370	KHRPRSDT	132.00	6	0.8933	117.92	7395	SHAD.LND	132.00	6	1.0150	133.99
7400	TAUNSA	132.00	6	1.0014	132.19	7435	PARCO	132.00	6	0.9503	125.44
7436	T-PARCO	132.00	6	0.9504	125.45	7440	CHOKMNDA	132.00	6	0.9787	129.19
7441	T-CMUNDA	132.00	6	0.9799	129.35	7442	T-AHTM	132.00	6	1.0092	133.21
7443	AHTM	132.00	6	1.0085	133.12	7450	CHAUBARA	132.00	6	0.9638	127.22
7456	CHOKAZAM	132.00	6	0.9728	128.41	7459	KHANGARH	132.00	6	0.9804	129.42
7460	D.G.KHAN	132.00	6	1.0123	133.63	7462	MDC-DGK	132.00	6	1.0273	135.60
7463	CPC-DGK	132.00	6	1.0150	133.99	7465	KOTCHUTA	132.00	6	0.9950	131.34
7466	T-ATM	132.00	6	1.0047	132.62	7467	ATM	132.00	6	1.0041	132.54
7468	D.G.KHAN NEW	132.00	6	1.0287	135.79	7470	ROJHAN	132.00	6	1.0097	133.27

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 7781 YAZMAN 132.00
 7800 KOTADDU 66.000
 7840 RANGPUR 66.000
 7880 CHAUBARA 66.000
 7891 T.NWANKOT 66.000
 7910 D.G.KHAN 66.000
 7921 JAMPUR 66.000
 7930 JAMPUR 132.00
 7935 DAJAL 66.000
 7970 AHMDPR.E 66.000
 7975 UCH (KF) 66.000
 7981 ALI PUR 132.00
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 60502 BNGAHYAT T-211.000
 60802 SAHIWALN T-211.000
 60902 SAHWAL-O T-211.000
 60951 SWL III T-1 11.000
 61001 NOORPUR T-1 11.000
 61201 PAKPATAN T-111.000
 61203 PAKPATAN T-311.000
 61302 HARAPPA T-2 11.000
 61403 CHCHWTNI T-311.000
 61501 SH.FAZAL T-111.000
 61601 BUREWALA T-111.000
 61603 BUREWALA T-311.000
 61622 BREWLA-O T-211.000
 61632 GAGOO T-2 11.000
 61702 VEHARI-O T-211.000
 61751 LUDDEN T-1 11.000
 61781 KARAMPUR T-111.000
 61801 ARIFWALA T-111.000
 61803 ARIFWALA T-311.000
 61822 KAMIR W T-2 11.000
 61902 BWL.NAGR T-311.000
 61911 HOTA T-1 11.000

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 7831 FATEHPUR 132.00
 7842 T-RANGPR 66.000
 7890 NAWANKOT 66.000
 7909 D.G.KHAN II 132.00
 7920 KOTCHOTA 66.000
 7925 CHOTI 66.000
 7933 FAZALPUR 132.00
 7951 RAJANPUR 132.00
 7974 UCH.SHRF 132.00
 7977 T-UCHSHF 66.000
 7984 HEAD-RJ-KN 132.00
 60301 QADIRABD T-111.000
 60501 BNGAHYAT T-111.000
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 60901 SAHWAL-O T-111.000
 60903 SAHWAL-O T-311.000
 60952 SWL III T-2 11.000
 61002 NOORPUR T-2 11.000
 61202 PAKPATAN T-211.000
 61301 HARAPPA T-1 11.000
 61402 CHCHWTNI T-211.000
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 61502 SH.FAZAL T-211.000
 61602 BUREWALA T-211.000
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 61631 GAGOO T-1 11.000
 61701 VEHARI-O T-111.000
 61703 VEHARI-T-3 11.000
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 61782 KARAMPUR T-211.000
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 62001 QABULA T-1 11.000

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 6 0.9591 10.550
 6 0.9896 10.885
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62101 SAHUKA T-1 11.000
62202 HASILPUR T-2 11.000
62211 CHUNAW T-1 11.000
62301 CHISTIAN T-1 11.000
62303 CHISTIAO T3 11.000
62322 DHRANWALA-T2 11.000
64191 L.SOHAN T-1 11.000
64212 K.P.TOMI T-2 11.000
64622 NOORSAR T-2 11.000
64822 MNCHNBAD T2 11.000
64912 MCLD.GNJ T2 11.000
65013 HARONABD T-1 11.000
65121 FAQIRWLI-T1 11.000
65211 FORTABAS-T1
70001 MIANCHNU T1 11.000
70003 MIANCHNU T-3 11.000
70012 CHAK-83-T2 11.000
70022 KASOWAL T-2 11.000
70062 H SIDNAI T-2 11.000
70102 KACHAKHU T-2 11.000
70201 KHANEWAL T-1 11.000
70203 KHANEWAL T-3 11.000
70302 KABIRWLA T-2 11.000
70321 MP PAHOR T-1 11.000
70401 GARHMORE T-1 11.000
70501 JEHANIAN T-1 11.000
70503 JEHANIAN T-3 11.000
70602 CHAK 211 T-2 11.000
70701 MAILSI T-1 11.000
70703 MAILSI T-3 11.000
70752 MUKHDM.R T-2 11.000
70762 F.J HSNB T-2 11.000
71102 BASTIMLK T-2 11.000
71151 MIRAN P T-1 11.000
71161 MK JANIAN T1 11.000
71202 LODHRAN T-2 11.000

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6 1.0205 11.225
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6 1.0511 11.562

62003 QABULA T-3 11.000
62102 SAHUKA T-2 11.000
62203 HASILPUR T-3 11.000
62212 T2 11.000
62302 CHISTIAN T-2 11.000
62321 DHRANWALA-T1 11.000
64151 CHISTIAN T-2 11.000
64211 K.P.TOMI T-1 11.000
64621 NOORSAR T-1 11.000
64821 MNCHNBAD T1 11.000
64911 MCLD.GNJ T1 11.000
65012 HARONABD T-2 11.000
65014 HARONABD T-3 11.000
65122 FAQIRWLI-T2 11.000
65212 FORTABAST-2 11.000
70002 MIANCHNU T-2 11.000
70011 CHAK-83-T1 11.000
70021 KASSOWAL T-1 11.000
70061 H SIDNAI T-1 11.000
70101 KACHAKHU T-1 11.000
70103 KACHAKHU T-3 11.000
70202 KHANEWAL T-2 11.000
70301 KABIRWLA T-1 11.000
70303 KABIRWLA T-3 11.000
70322 MP PAHOR T-2 11.000
70402 GARHMORE T-2 11.000
70502 JEHANIAN T-2 11.000
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70603 CHAK 211 T-3 11.000
70702 MAILSI T-2 11.000
70751 MUKHDM.R T-1 11.000
70761 F.J HSNB T-1 11.000
71101 BASTIMLK T-1 11.000
71103 BASTIMLK T-3 11.000
71152 MIRAN P T-2 11.000
71201 LODHRAN T-1 11.000
71203 LODHRAN T-3 11.000

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71251 LART-1	11.000	6 1.0053	11.059	71252 LAR T-2	11.000	6 1.0053	11.059
71301 BU.JADID T-1	11.000	6 1.0252	11.277	71302 BU.JADID T-2	11.000	6 1.0872	11.959
71401 BHAWALPR T-1	11.000	6 0.9982	10.980	71402 BHAWALPR T-2	11.000	6 1.0384	11.422
71403 BHAWALPR T-3	11.000	6 0.9944	10.938	71451 BP CANTT T-1	11.000	6 1.0264	11.290
71452 BPCANTT T-2	11.000	6 1.0264	11.290	71471 KARORPCA T-1	11.000	6 1.0970	12.067
71472 KARORPCA T-2	11.000	6 1.0407	11.447	71473 KARORPCA T3	11.000	6 1.0248	11.273
71491 DUNYAPUR T-3	11.000	6 1.0666	11.732	71492 DUNYAPUR T-4	11.000	6 1.0801	11.881
71501 SAMASATA T-1	11.000	6 1.0212	11.233	71502 SAMASATA T-2	11.000	6 1.0212	11.233
71591 MUB-PUR-T1	11.000	6 0.9939	10.933	71592 MUB-PUR-T2	11.000	6 0.9939	10.933
71601 LIAQATPR T-1	11.000	6 1.0252	11.278	71602 LIAQATPR T-2	11.000	6 1.0317	11.349
71702 AHMDPR.E T-2	11.000	6 1.0521	11.574	71703 AHMDPR.E T-3	11.000	6 1.0389	11.428
71704 AHMDPR.E T4	11.000	6 1.0058	11.064	71801 FEROZA T-1	11.000	6 1.0458	11.504
71802 FEROZA T-2	11.000	6 1.0571	11.628	71851 KHANBELA T-1	11.000	6 1.0214	11.235
71852 KHANBELA T-2	11.000	6 0.9824	10.807	72001 KHANPUR T-1	11.000	6 1.0025	11.028
72002 KHANPUR T-2	11.000	6 1.0069	11.076	72003 KHANPUR T-3	11.000	6 1.0055	11.061
72101 MWQRSHIA T-1	11.000	6 0.9998	10.998	72102 MWQRSHIA T2	11.000	6 0.9546	10.501
72201 R.Y.KHAN T-1	11.000	6 1.0504	11.554	72202 R.Y.KHAN T-2	11.000	6 1.0555	11.611
72203 R.Y.KHAN T-3	11.000	6 1.0573	11.631	72251 R.Y.KHN2 T-1	11.000	6 1.0361	11.397
72252 R.Y.KHN2 T-2	11.000	6 1.0414	11.455	72301 SADIQABD T-1	11.000	6 1.0633	11.696
72302 SADIQABD T-2	11.000	6 1.0633	11.696	72303 SADIQABD T-3	11.000	6 1.0195	11.214
72311 WALANA T-1	11.000	6 1.0619	11.680	72312 WALANA T-2	11.000	6 1.0720	11.792
72351 NAWAZ T-1	11.000	6 1.0331	11.364	72401 J.D.WALI T-1	11.000	6 1.0216	11.238
72402 JDWALI T-2	11.000	6 1.0485	11.534	72403 J D WALI T-3	11.000	6 1.0126	11.139
72501 MN.KH.RD T-1	11.000	6 0.9807	10.788	72502 MN.KH.RD T-2	11.000	6 1.0132	11.146
72503 MN.KH.RD T-3	11.000	6 0.9895	10.885	72551 WAP TO T-1	11.000	6 0.9673	10.640
72552 WAPDA TO T-2	11.000	6 0.9734	10.708	72601 MN.BS.RD T-1	11.000	6 0.9789	10.768
72602 MN.BS.RD T-2	11.000	6 0.9907	10.898	72603 MN.BS.RD T-3	11.000	6 0.9878	10.865
72611 PNJB HSG T-1	11.000	6 1.0110	11.121	72612 PNJB HSG T-2	11.000	6 1.0110	11.121
72621 BUCH VLS T-1	11.000	6 1.0036	11.040	72651 Q BAGH T-1	11.000	6 0.9905	10.896
72652 Q BAGH T-2	11.000	6 1.0038	11.042	72701 MLN-IND T-1	11.000	6 0.9632	10.595
72702 MLN-IND T-2	11.000	6 0.9734	10.708	72703 MLN-IND T-3	11.000	6 0.9598	10.558
72731 SURJ MNI T-1	11.000	6 1.0035	11.039	72732 SURJ MNI T-2	11.000	6 0.9899	10.889
72801 MN.VR.RD T-1	11.000	6 1.0074	11.081	72802 MN.VR.RD T-3	11.000	6 1.0074	11.081
72803 MN.VR.RD T-2	11.000	6 0.9996	10.996	72851 QASIMPUR T-1	11.000	6 1.0219	11.241
72852 QASIMPUR T-3	11.000	6 1.0300	11.330	72853 QASIMPUR T-2	11.000	6 0.9850	10.835
72871 M.J RD T-1	11.000	6 1.0405	11.446	72872 M.J.RD T-2	11.000	6 1.0123	11.135
72881 SHUJABAD T-1	11.000	6 1.0074	11.082	72882 SHUJABAD T-3	11.000	6 1.0302	11.332

			Realistic june 2020								
72883	SHUJABAD T-3	11.000	6	0.9343	10.278	72891	J.P.W T-1	11.000	6	1.0520	11.572
72892	J.P.W T-2	11.000	6	1.0492	11.541	72893	J.P.W T-3	11.000	6	1.0292	11.321
72901	MESCO T-1	11.000	6	0.9972	10.969	72902	MESCO T-2	11.000	6	0.9900	10.890
72903	MESCO T-3	11.000	6	0.9877	10.864	73021	SANAWAN T-1	11.000	6	1.0140	11.154
73022	SANAWAN T-2	11.000	6	0.9917	10.909	73201	GUJRAT.S T-1	11.000	6	0.9337	10.271
73202	GUJRAT.S T-2	11.000	6	0.9373	10.311	73203	GUJRAT.S T3	11.000	6	0.9252	10.177
73251	LAYYAH T-1	11.000	6	0.9266	10.193	73252	LAYYAH T-2	11.000	6	0.8871	9.758
73253	LAYYAH T-3	11.000	6	0.8552	9.408	73281	KBGASHER T-1	11.000	6	0.9876	10.863
73282	KBGASHER T-2	11.000	6	0.9876	10.863	73283	KBGASHER T-3	11.000	6	0.9876	10.863
73301	MZFRGARH T-1	11.000	6	0.9835	10.819	73302	MZFRGARH T-2	11.000	6	0.9924	10.917
73303	MZFRGARH T-3	11.000	6	0.9835	10.819	73311	KOTADU-O T-1	11.000	6	0.9857	10.843
73313	KOTADU-O T-2	11.000	6	0.9984	10.982	73314	KOTADU-O T-4	11.000	6	0.9920	10.912
73321	N.A.WALI T-1	11.000	6	1.0014	11.015	73322	N.A.WALI T-2	11.000	6	0.9790	10.769
73331	S S DIN T1	11.000	6	1.0251	11.276	73332	S S DIN T2	11.000	6	1.0234	11.257
73351	KOTSULTAN-T1	11.000	6	0.9570	10.527	73352	KOTSULTAN-T2	11.000	6	0.9570	10.527
73361	KAROR L.E-T1	11.000	6	0.9645	10.527	73362	KAROR L.E-T2	11.000	6	0.9399	10.527
73363	KAROR L.E T3	11.000	6	0.8087	8.896	73401	MEHRKHAS T-1	11.000	6	0.9206	10.127
73402	MEHRKHAS T-2	11.000	6	0.9199	10.119	73403	MEHRKHAS T-3	11.000	6	0.9162	10.078
73501	DMR WALA T-1	11.000	6	0.9270	10.197	73502	DMR WALA T-2	11.000	6	0.9400	10.340
73601	JATOIJNB T-1	11.000	6	0.9336	10.269	73602	JATOIJNB T-2	11.000	6	0.8548	9.403
73701	KHRPRSDT T-1	11.000	6	0.8956	9.851	73702	KHRPRSDT T-2	11.000	6	0.8868	9.755
73951	SHA.LND T-1	11.000	6	0.9835	10.819	73952	SHA LND T-2	11.000	6	0.9700	10.670
74001	TAUNSA T-1	11.000	6	0.9571	10.528	74002	TAUNSA T-2	11.000	6	0.9571	10.528
74401	CHOKMNDA T-1	11.000	6	0.9668	10.634	74402	CHOKMNDA T-2	11.000	6	0.9317	10.249
74502	CHAUBARA T-1	11.000	6	0.9128	10.041	74503	CHAUBARA T-3	11.000	6	0.9012	9.913
74561	CHOKAZAM T1	11.000	6	0.9850	10.835	74562	CHOKAZAM T2	11.000	6	0.9274	10.202
74563	CHOKAZAM T3	11.000	6	0.9274	10.202	74591	KHANGARH T-1	11.000	6	0.9349	10.284
74592	KHANGARH T-2	11.000	6	0.9085	9.994	74602	D.G.KHAN T-1	11.000	6	1.0391	11.430
74603	D.G.KHAN T-3	11.000	6	1.0205	11.225	74604	D.G.KHAN T-4	11.000	6	1.0250	11.276
74651	KOTCHUTA T-1	11.000	6	0.9794	10.774	74652	KOTCHUTA T-2	11.000	6	0.9868	10.855
74653	KOTCHUTTA T3	11.000	6	0.9580	10.538	74701	ROJHAN T-1	11.000	6	0.9801	10.781
75901	SKHISRWR T-1	11.000	6	1.0205	11.225	75902	SKISRWR T-2	11.000	6	1.0080	11.088
77811	YAZMAN-T-1	11.000	6	1.0210	11.231	77812	YAZMAN T-2	11.000	6	1.0148	11.163
77911	MAROOT T1	11.000	6	1.0784	11.863	77912	MAROOT T-2	11.000	6	1.0358	11.394
78311	FATEHPUR T-1	11.000	6	0.9223	10.145	78312	FATEPUR T-2	11.000	6	0.9310	10.241
78401	T1	11.000	6	0.9759	10.735	78901	NAWANKOT T-1	11.000	6	0.9626	10.588
79091	D.G.K.II T-1	11.000	6	0.9636	10.600	79092	D.G.K.II T-2	11.000	6	0.9636	10.600

		Realistic	june 2020			
79211 JAMPUR T-1	11.000	6	1.1447	12.591	79251 CHOTI T-1	11.000
79301 JAMPUR T-1	11.000	6	1.0520	11.572	79302 JAMPUR T-2	11.000
79331 FAZALPUR T-1	11.000	6	0.9141	10.055	79332 FAZALPUR T-2	11.000
79351 DAJAL T-1	11.000	6	1.1724	12.896	79352 DAJAL T-2	11.000
79511 RAJANPUR T-1	11.000	6	0.9652	10.617	79512 RAJANPUR T-2	11.000
79513 RAJANPUT T-3	11.000	6	0.8934	9.828	79741 UCH.SHRF T-2	11.000
79742 UCH.SHRF T-3	11.000	6	1.0812	11.893	79743 UCH.SHRF T-1	11.000
79751 UCH (KF) T-1	11.000	6	1.0502	11.553	79811 ALI PUR T-1	11.000
79812 ALIPUR T-2	11.000	6	0.6590	7.249	79841 H.R. KAN T1	11.000
79842 H.R. KAN T-2	11.000	6	1.0360	11.396	79961 FRT MNRO T-1	11.000
732512 LSM-132KV	132.00	6	0.9792	129.25		

Annexure-9

(New STG Projects)

Year	Proposed Reinforcement Under IGTD/ DIP (Achievable Case)				
2015-16	New Grids	Punjab Housing Society	2 x 26 MVA TFs		
	Conversion	Yazman	2 x 26 MVA TFs		
	Lines		Cond.	Length	
		D/C: 132 kV D G Khan-new - 132 kV D G Khan	Lynx	12	
		Interconnection of Chistian (I/O Chistian - Haroonabad & D/C Noor Sar & I/O Chistian - Hasilpur)	Rail / Lynx	34	
		I/O 220 kV B/Pur - Lal Suhanra (F/F Yazman)	Rail	18	
		D/C: I/O Bosan Road - Khanewal Road F/F Punjab Housing	Lynx	0.5	
	132 kV Capacitors	Name	T/F	Orig	New
		Jataoi - JNB (7360)	T-1	3.6	4.8
			T-2	2.4	4.8
		66 kV Ali Pur (7981)	T-1	1.2	4.8
			T-2	1.2	4.8
		Ali Pur 132 KV (7981)		0	20.22
		Mehr-Khas (7340)	T-1	1.2	3.6
			T-2	2.4	3.6
		Pak Pattan (6120)	T-1	3.2	6
		66 kV RYK-Old (7220)	T-1	4.8	9.6
			T-2	3.6	9.6
			T-3	3.6	9.6

2015-16	132 kV Capacitors	Sadiqabad (7230)	T-1	6	10.8
			T-2	5	10.3
			T-3	0	4.8
		J.D. Wali (7240)	T-1	2.4	4.8
			T-2	0	2.4
			T-3	0	4.8
		J.P.W (7289)	T-3	0	2.4
			T-1	4.8	9.6
			T-2	2.4	6
		R.Y.Khan (7220)	132 kV	0	20.22
2016-17	New Grids	Khan Pur Bagga Sher	2 x 26 MVA		
		Buch Villas	1 x 26 MVA		
	Conversion	Kot Sultan	2 x 26 MVA TFs		
		Karor Lal-e-Saan	2 x 26 MVA TFs		
	Lines		Cond.	Length	
		D/C: 132 kV Muzaffar Garh - K/Grah - M/Khas - D/wala - Jatoi Janubi - Ali-pur - Khairpur Sadaat	Lynx	98	
		D/C: I/O KAPCO - Multan Industrial Estate F/F K B Baggasher	Lynx	10	
		D/C: I/O Industrial State to Bosan Road F/F Buch Villas	Lynx	3.5	
		S/C Kot Addu - Kot Sultan (F/F Kot Sultan) - Layyah	Rail	70	
		S/C Kot Sultan - Karor Lal-e-Saan (F/F Karor Lal-e-Saan)	Lynx	55	
		3rd Circuit: Khan Garh - Mahra Khas	Lynx	24	
		D/C: Yousafwala - Sahiwal Old	Rail	13	
	Augmentation	132 kV Burewala New	T-2 (26 MVA)	T-2 (40MVA)	
		132 kV Vehari Road	T-3 (26 MVA)	T-3 (40 MVA)	

2016-17	Extension	132 kV Jamal Din Wali	T-1 (26 MVA) & T-2 (13 MVA)	T-3 (40 MVA)	
	132 kV Capacitor	Name		Orig	New
		Arifwala (6180)	T-1	2.4	4.8
			T-2	2.4	7.2
			T-3	2.4	7.2
		Arifwala (6180)	132kV	0	30.33
		Minchanabad (6482)	132 kV	0	20.22
		Qabula (6200)	132	0	30.33
		Karor L.E. (7336)	T-1	1.2	6
			T-3	0	2.4
		Burewala-O (6162)	132	0	20.22
		Burewala (6160)	T-3	0	3.6
		Chishtian-O (6230)	T-3	0	4.8
		Kacha-Khu (7010)	T-3	0	3.6
		Khanewal (7020)	T-1	0	4.8
		Karor Pakka (7147)	T-3	0	4.8
		Fatehpur (78311)	T-1	1.2	2.4
			T-2	1.2	7.2
2017-18	New Grids	Suraj Miani	1 x 40 MVA and 1 x 26 MVA		
		Fatima Jinnah Housing	2 x 13 MVA TFs		
	Conversion	Maroot	2 x 26 MVA TFs		
		Head Rajkan	2 x 13 MVA TFs		

Lines		Cond.	Length	
	D/C: Sahiwal-Ili - Noorpur - Pakpatan	Lynx	38	
	D/C: Suraj Miani - Multan Industrial	Lynx	15	
	D/C: I/O P.Gaib to Makhdoom Rasheed F/F Fatima Jinnah Housing	Lynx	2	
	SDT - Lal-Sohanra - Karor Pakka	Rail	22	
	S/C Yazman - Maroot (F/F Maroot)	Lynx	66	
	SDT - Lal-Sohanra - Karor Pakka	Rail	22	
	S/C Yazman - Head Raj Kan (F/F Head Raj Kan)	Lynx	25	
Augmentation	132 kV Gujrat South	T-1 (40 MVA), -2 (40MVA)	T-3 (40 MVA)	
	132 kV Khanbela	T-2(26 MVA)	T-2(40 MVA)	
	132 kV Khan Garh	T-1 (13 MVA)	T-1(26 MVA)	
	132 kV Vehari	T-1 (26 MVA)	T-1 (40 MVA)	
	132 kV Noor Pur	T-2 (26 MVA)	T-2 (40 MVA)	
Extension	132 kV Bahawal Nagar	T-1 (40 MVA), -2 (40MVA)	T-3 (40 MVA)	
	132 kV Rajan pur	T-1 (26 MAV) T-2 (26 MVA)	T- 3 (26 MVA)	
132 kV Capacitor	Name	T/F	Orig	New
	Ali Pur (7981)	T-3	0	2.4
		132 kV	20.22	30.33
	Damar Wala (7350)	132 kV	0	20.22
	Mehra Khas (7340)	132 kV	0	20.22
	Jampur (7921)	66 kV	0	20.22
	Kot Chutta (7920)	66 kV	0	20.22
	Garhamore (7040)	T-3	0	2.4

2017-18	132 kV Capacitor		132 kV	0	10.11
		Haroonabad (6501)	T-3	0	3.4
		Faqirwali (6512)	132 kV	0	30.33
		Fatehpur (7831)	T-2	7.2	8.4
		Chowkizam (7456)	132 kV	20.22	40.44
		Karor L.E. San (7336)	132 kV	0	30.33
		Fatehpur (7831)	132 kV	0	20.22
		Kabirwala (7030)	T-3	T-3	7.2
2018-19	Grid	Walana	2 x 13 MVA TFs		
		Sanawan	2 x 26 MVA		
	Conversion	Minchabad	2 x 26 MVA TFs		
		Macloor jung	2 x 26 MVA TFs		
	Lines	Name	Cond.	Length	
		Sadiqabad - Guddu (F/F Walana)	Lynx	2	
		F/F Sanawan	Lynx	20	
		SDT: 132 kV Yousafwala - Sahiwal Old	Rail	13	
		S/C Bahawalnagar - Minchabad (F/F Minchabad)	Lynx	43	
		D/C: BWPN-2 - Mubarakpur - Ahmedpur East	Lynx	54	
		S/C: KotAddu-O - Kot Sultan to Layyah	Rail	70	
		D/C : Jehanian - P-Gaib- 2			
		D/C: Lal-Sohanra 132kV - Quaid-e-Azam Solar 132kV	Rail	26.6	
		D/C: Yousafwala-Kamirwala-Arifwala	Rail	61	
		D/C: R.Y. Khan New - R.Y. Khan	Rail	18	

2018-19	Lines	S/C Minchabad - Macloor jung (F/F Macloor jung)	Lynx	20	
	Augumentation	132 kV Sahiwal Old	T-2 (26 MVA)	T-2 (40MVA)	
		132 kV Baghdad ul Jadid	T-3 (6.3 MVA)	T-3 (26 MVA)	
		132 kV Jehanian	T-1(13 MVA)	T-1(26 MVA)	
		132 kV Jatio Janobi	T-1(10 MVA)	T-1(40 MVA)	
		132 kV Khan Garh	T-1 (13 MVA)	T-1(26 MVA)	
		132 Kv Sheikh Fazal	T-1 (26 MVA)	T-1(40 MVA)	
	Extension	132 kV Choubara	T-2 (13 MVA)	T-3 (13 MVA)	
	132 kV Capacitor	Name	T/F	Orig	New
		Pak-pattan (6122)	T-3	2.4	6
		Chak-211 (7060)	T-3	0	2.4
		Suraj Miani (7273)	T-1	4.8	6
		Kot Sultan (7335)	T-1	0	2.4
			T-2	0	2.4
		Chaubara (7450)	T-2	0	1.2
		Fatehpur (7831)	T-1	2.4	6
		Jampur (7921)	T-1	0	3.6
		Uch (KF) (7975)	T-1	3.6	4.8
2019-20	Lines	Name	Cond.	Length	
		3rd circuit: Damarwala - mehrakhas 132kv	Lynx	20	
		3rd Circuit: Mehakhas - DMR Wala	Lynx	16	
		2nd Circuit String 220 kV Chistian New - 132 kV Haroonabad	Lynx	17.5	
		S/C: KAPCO - Sanawan	Rail	15	

2019-20

	Lines	S/C: Miranpur - Makhdoom Jehanian	Lynx	25	
		D/C: Burewala - Vehari New	Lynx	42	
		D/C: P-Gaib-2 - Kabirwala	Lynx	36	
		D/C: D.G.Khan - D.G. Khan New	Rail	12	
		3rd Circuit: DMR Wala - Jatoi Janoobi	Lynx	21	
	New Grids	Gagoo Mandi	2 x 13 MVA TFs		
		Dunga Bunga	1 x 13 MVA TFs		
		Makhdoom Jehanian	1 x 13 MVA TF		
	Conversion	Choti	2 x 13 MVA TFs		
	Augumentation	132 kV Chowk Munda	T-1 (26 MVA)	T-1 (40 MVA)	
		132 kV Damara Wala	T-2 (13 MVA)	T-2 (40 MVA)	
		132 kV Karor Pacca	T-2 (26 MVA)	T-2 (40 MVA)	
		Fateh Pur	T-1 (13 MVA)	T-1 (40 MVA)	
	Extension	132 kV Chowk Azam	T-1 (13 MVA) , T-2 (13 MVA)	T-3 (26 MVA)	
		132 kV Kot Addu	T-2 (26 MVA) , T-3 (26 MVA)	T-1 (26 MVA)	
		132 kV Mehra Khas	T-1 (13 MVA) , T-2 (26 MVA)	T-3 (40 MVA)	
		132 kV Karor lal e San	T-1 (13 MVA) , T-2 (13 MVA)	T-3 (26 MVA)	
	132 kV Capacitor	Name	T/F	Orig	New
		KPGASHER (7328)	T-1	0	6
			T-2	0	6
			T-3	0	6
		MehraKhas (7340)	T-3	0	4.8

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Year	Proposed Reinforcement Under IGTDP/DIIP (BEST CASE)		
2015-16	New Grids		TF Scope Description
		Punjab Housing Society	2 x 26 MVA TFs
		Khan Pur Bagga Sher	2 x 26 MVA
		Suraj Miani	1 x 40 MVA and 1 x 26 MVA
		Pak Pattan-II	2 x 26 MVA TFs
		Fatima Jinnah Housing	2 x 13 MVA TFs
		Walana	2 x 13 MVA TFs
	Conversion		
		Yazman	2 x 26 MVA TFs
		Maroot	2 x 26 MVA TFs
		Head Rajkan	2 x 13 MVA TFs
		Kot Sultan	2 x 26 MVA TFs
		Karor Lal-e-Saan	2 x 26 MVA TFs
		Minchabad	2 x 26 MVA TFs
		Macloor jung	2 x 26 MVA TFs
	Lines		Conductor Length
		D/C: 132 kV Muzaffar Garh - K/Grah - M/Khas - D/wala - Jatoi Janubi - Ali-pur - Khairpur	Lynx 98
		SDT: 132 kV Yousafwala - Sahiwal Old	Rail 13
		D/C: 132 kV D G Khan-new - 132 kV D G Khan	Lynx 12
		D/C: KAPCO - Kot addu	Rail 2
		D/C: I/O KAPCO - Multan Industrial Estate F/F K B Baggasher	Lynx 10
		S/C Lal-Sohanra to Karor Pakka (String 2nd circuit)	Lynx 22
		I/O 220 kV B/Pur - Lal Suhanra (F/F Yazman)	Rail 18
		S/C Yazman - Maroot (F/F Maroot)	Lynx 66
		S/C Yazman - Head Raj Kan (F/F Head Raj Kan)	Lynx 25
		S/C Kot Addu - Kot Sultan (F/F Kot Sultan) - Layyah	Rail 70
		S/C Kot Sultan - Karor Lal-e-Saan (F/F Karor Lal-e-Saan)	Lynx 55
		S/C Bahawalnagar - Minchabad (F/F Minchabad)	Lynx 43
		S/C Minchabad - Macloor jung (F/F Macloor jung)	Lynx 21
		2nd Circuit Yousafwala to Sahiwal Old	Rail 13
		2nd Circuit - Sahiwal-III - Noorpur - Pakpatan	Lynx 38
		2nd CCT BWPN-2 - Mubarakpur - Ahmedpur East (change in 2nd and 7th old circuit ----)	Lynx 54

Lines	Multan-New to Basti Maluk	Rail	40	
	Khan Garh to Mahra Khas 3rd Circuit	Lynx	24	
	Multan Industrial to Multan Jail Road Circuit	Lynx	6.5	
	SDT - Lal-Sohanra - Karor Pakka	Rail	22	
	S/C (string 2nd Circuit?) Kassowal to MianCannu	Lynx	20	
	Reconductor M.Garh to M.Garh New on Rail Conductor	lynx	30	
	S/C (string 2nd Circuit?) KotAddu-O to Kot Sultan to Layyah	Rail	70	
	Guddu-2 - Fazalpur (154 km) - D.G. Khan 80.5 km	-	-	
	I/O Punjab Housing Society - Mn.Bosan Road to Mn.Khanewal Road	Lynx	0.5	
	I/O Khan Pur Bagga Sher - Kapco to Multan Industrial	Lynx	10	
	D/C: 132 kV Multan Industrial - Suraj Miani	Lynx	15	
	D/C: 132 kV Pakpattan-II - Arifwala	Rail	43	
	I/O Fatima Jinnah Housing - P-Gaib to Makhdoom Rasheed	Lynx	2	
	I/O Sadiqabad - Guddu F/F 132 kV Walana	Lynx	10	
	Interconnection of Chistian (I/O Chistian - Haroonabad & D/C Noor Sar & I/O Chistian - Hasilpur	Rail / Lynx	34	
Augmentation		Original	new	
	132 kV Bhawalpur	T-1 (26 MVA), -3(26 MVA)	T-1 (40 MVA), -3(40 MVA)	
	132 kV Bonga Hayat	T-1 (26MVA)	T-1 (40MVA)	
	132 kV Jatoi	T-2 (26MVA)	T-2 (40MVA)	
	132 kV Khanbela	T-1 (26 MVA)	T-1 (40 MVA)	
	132 kV Kot Adu	T-3 (26 MVA)	T-3 (40 MVA)	
	132 kV Noor pur	T-1 (26 MVA)	T-1 (40 MVA)	
	132 kV Vehari road	T-3 (26 MVA)	T-3 (40 MVA)	
	132 kV Chak No 83	T-2 (12.5 MVA)	T-2 (26 MVA)	
	132 kV karor L.E	T-1(13 MVA)	T-1 (40 MVA)	
Extension		Original	new	
	132 kV Jamal Din Wali	T-1(26MVA), -2(13MVA)	T-3 (40 MVA)	
	132 kV Rajan Pur	T-1(26MVA), -2(26MVA)	T-3 (26 MVA)	
	132 kV Alipur	T-1(13MVA), -2(13MVA)	T-3 (26 MVA)	
	132 kV Fatehpur	T-1 (13 MVA)	T-2 (40 MVA)	
Capacitors			Original	New
	Jatoi Janobi (7360)	T-1	3.6	4.8
		T-2	2.4	4.8
	Ali Pur (7981)	T-1	1.2	4.8
		T-2	1.2	4.8
		132kV	0	20.22
	MehraKhas (7340)	T-1	1.2	3.6
		T-2	2.4	3.6
		T-1	3.2	6

2015-16	Capacitor	RYK-OLD (7220)	T-1	4.8	9.6
			T-2	3.6	9.6
			T-3	3.6	9.6
		Sadiqabad (7230)	T-1	6	10.8
			T-2	6	10.8
			T-3	0	4.8
		J.D.Wali (7240)	T-1	2.4	4.8
			T-2	0	2.4
			T-3	0	4.8
		J.P.W. (7289)	T-1	4.8	9.6
	T-2	2.4	6		
		T-3	0	2.4	
	R.Y.Khan (7220)	132 kV	0	20.22	
2016-17	New Grids		TF Scope Description		
		Bahawalpur-2	2 x 26 MVA TFs		
		Buch Villas	1 x 26 MVA TF		
		Sanawan	2 x 26 MVA		
		Pir Chuggi Shah	2 x 13 MVA TF		
	Extension		original	NEW	
		132 kV Bhawalnagar	T-1 (40MVA)	T-3 (26 MVA)	
		132 kV Mehra Khas	T-1& T-2 (26 MVA)	T-3 (40MVA)	
		132 kV K.P Bgasher	T-1 (40MVA)	T-2 (40MVA)	
		132 kV karor L.E	T-1(40MVA), -2(13MVA)	T-3 (26 MVA)	
	Lines		Conductor	Length	
		Jehanian to P-Gaib- 2 132 kV D/C to avoid N-1	Lynx	48	
		3rd circuit : 132kV Damarwala to Mehrakhas	Lynx	16	
		D/C: 132 kV BWP-New - BWPN-2	Rail	10	
		I/O Buch Villas - Industrial Estate to Mn.Bosan Road	Lynx	3.5	
		S/C: 132 kV Kapco - Sanawan	Rail	15	
		S/C: 132 kV Kot-Adu - Pir Chugi Shah	Rail	35	
		S/C: 132 kV Kot-Adu - Pir Chugi Shah	Rail		
	Augmentation		original	NEW	
		132 kV Arifwala	T-1 (26 MVA)	T-1 (40 MVA)	
		132 kV Bonga Hayat	T-2 (26 MVA)	T-2 (40 MVA)	
		132 kV Burewala-new	T-2 (26 MVA)	T-2 (40 MVA)	
132 kV Gujrat South		T-3 (6.3 MVA)	T-3 (40MVA)		

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2016-17	Augmentation	132 kV J.P.W		
		132 kV Khanewal	T-3 (13 MVA)	T-3 (26 MVA)
		132 k V Khan Garh	T-4 (26 MVA)	T-4 (40 MVA)
		132kV Lodhran	T-1 (13 MVA)	T-1 (26 MVA)
		132 kV Noor pur	T-2 (26 MVA)	T-2 (40 MVA)
		132 kV Vehari-old	T-2 (26 MVA)	T-2 (40 MVA)
		132 kV Head Sidnai	T-1 (26 MVA)	T-1 (40 MVA)
		132 kV Pakpattan-II	T-2 (13 MVA)	T-2 (26 MVA)
		132 kV Alipur	T-1 (26 MVA)	T-1 (40 MVA)
			T-1 (13 MVA)	T-1 (40MVA)
	Capacitor			
		Arifwala (6180)		Original
			T-1	New
			T-2	
		Minchabad (6482)	T-3	2.4
			132kV	4.8
			132kV	7.2
		Qabula (6200)	132kV	2.4
			132kV	7.2
			132kV	0
		Karor Lal-e-Saan (7336)	132kV	30.33
			T-1	0
			T-3	20.22
		Burewala- O (6162)	T-3	30.33
			132kV	1.2
			132kV	6
		Burewala (6160)	T-3	0
			T-3	2.4
			T-3	20.22
		Chishtian-O (6230)	T-3	0
			T-3	3.6
			T-3	4.8
		Kacha-Khu (7010)	T-3	0
			T-3	3.6
			T-3	4.8
		Khanewal (7020)	T-1	0
			T-3	4.8
			T-3	0
		Karor Pacca (7147)	T-1	2.4
			T-1	7.2
			T-2	
2017-18	Lines			
			Conductor	Length
		M.Garh -New to Khangarh SDT - 4th Circuit	Rail	12
		Mehakhas to DMR Wala - 3rd Circuit	Lynx	16
		Burewala to Vehari New 2nd Circuit	Lynx	42
		Hasilpur - K.P. Tomi - 3rd Circuit - SDT	Rail	30
		Lal-Sohanra to Quaid-e-Azam Solar 2nd Circuit	Rail	26.6
		P-Gaib-2 to Kabirwala	Lynx	36
	Augmentation			
			original	NEW
		132 kV Sahiwal-O	T-2 (26 MVA)	T-2 (40 MVA)
		132 kV Damarwala	T-2 (13 MVA)	T-2 (40 MVA)
		132 kV Jahania	T-1 (13 MVA)	T-1 (26 MVA)

2017-18	Augmentation	132 KV Jatoi	T-1 (10 MVA)	T-1 (40 MVA)	
		132 kV Karor Pacca	T-2 (26 MVA)	T-2 (40 MVA)	
		132 kV Mehra Khas	T-2 (26 MVA)	T-2 (40 MVA)	
		132 kV Sheikh Fazal	T-1 (26 MVA)	T-1 (40 MVA)	
		132 kV Pakpattan-II	T-2 (26 MVA)	T-2 (40 MVA)	
		132 kV Fatehpur	T-1 (13 MVA)	T-1 (40MVA)	
	Extension		original	NEW	
		132 kV Chaubara	T-2 (13 MVA)	T-3 (13 MVA)	
		132 kV Sanawan	T-1 (40 MVA)	T-2 (40 MVA)	
		132 kV Pirchuggi Shah	T-1 (26 MVA)	T-2 (26 MVA)	
		132 kV Noorpur	T-1& T-2 (26 MVA)	T-3 (26 MVA)	
	Capacitors			Original	New
		Ali Pur (7981)	T-3	0	2.4
			132 kV	20.22	30.33
		Damar Wala (7350)	132 kV	0	20.22
		Mehra Khas (7340)	132 kV	0	20.22
		Jampur (7921)	132 kV	0	20.22
		Kot Chutta (7920)	132 kV	0	20.22
		Garhamore (7040)	T-3	0	2.4
			132 kV	0	10.11
		Haroonabad (6501)	T-3	0	8.4
		Faqirwali (6512)	132 kV	0	30.33
		Fatehpur (7831)	T-2	7.2	8.4
		Chowkizam (7456)	132 kV	20.22	40.44
		Karor L.E. San (7336)	132 kV	0	30.33
		Fatehpur	132 kV	0	20.22
		Kabirwala	T-3	3.6	7.2
		2018-19	New Grids	Gagoo Mandi - Loop in-out Arifwala to Burewala at Gagoo Mandi - 2 x 13 MVA TF - 1x 2.4 MVA Caps	
Lines			Conductor	Length	
	Yousafwala-Kamirwala-Arifwala D/C Rail		Rail	61	
	Multan Khanewal Road to Punjab Housing SDT		Rail	2.3	
	Stringing of 2nd Circuit - Multan new to Basti Malook		Rail	40	
	R.Y. Khan New to R.Y. Khan 2nd Circuit - SDT		Rail	18	
	D.G.Khan to D.G. Khan New		Rail	12	

			original		NEW	
2018-19	Augmer tation	132 kV Gujrat South				
		132 kV Khan Garh	T-2 (13 MVA)		T-2 (40 MVA)	
		132 kV F.J Housing	T-2 (13 MVA)		T-2 (26 MVA)	
		132 kV Walna	T-1 (13 MVA)		T-1 (26 MVA)	
		K.P.Tomi	T-1 (26 MVA)		T-1 (40 MVA)	
		132 kV Mehra Khas	T-2 (13 MVA)		T-2 (26 MVA)	
		132 kV Karoor L.E	T-1 (26 MVA)		T-1 (40 MVA)	
			T-2 (13 MVA)		T-2 (40 MVA)	
	Extension					
		132 kV K.P Bgasher		original		NEW
		132 kV Pakpattan-II	T-1(40MVA), -2(40MVA)		T-3 (26 MVA)	
		132 kV Pirchuggi Shah	T-1(40MVA), -2(40MVA)		T-3 (40MVA)	
		132 kV F.J Housing	T-1& T-2 (26 MVA)		T-3 (26 MVA)	
		132 kV Chowk azam	T-1 (26 MVA)		T-2 (13 MVA)	
	Capacitors		T-1(40MVA), -2(26MVA)		T-3 (26 MVA)	
		Pak-pattan (6122)			Original	New
		Chak-211 (7060)	T-3		2.4	6
		Suraj Miani (7273)	T-3		0	2.4
		Kot Sultan (7335)	T-1		4.8	6
			T-1		0	2.4
		Chaubara (7450)	T-2		0	2.4
		Fatehpur (7831)	T-2		0	1.2
		Jampur (7921)	T-1		2.4	6
		Uch (KF) (7975)	T-1		0	3.6
2019-20	New Grids					
		Makhdoom Jehanian		TF Scope Description		
		Dunga Bunga		1 x 13 MVA TF		
	Conversion			1 x 13 MVA TF		
		Choti		TF Scope Description		
				2x 13 MVA TF		
	Lines					
		DMR Wala to Jatoti Janoobi 3rd Circuit - Lynx	Conductor		Length	
		Khan Garh to Mahra Khas 4th Circuit	Lynx		21	
		Multan-New to Qasimpur 3rd Circuit	Lynx		24	
		S/C: 132 kV Miran Pur - Mekhdoom Jehanian	Lynx		17.1	
		2nd Circuit String 220 kV Chistian New - 132 kV Haroonabad	Lynx		30	

2019-20	Augmentation		original	NEW	
		132 kV Chowk Munda	T-1 (26 MVA)	T-1 (40 MVA)	
		132 kV Mian Wali Qureshian	T-2 (13 MVA)	T-2 (26 MVA)	
		132 kV K.P Bgasher	T-3 (26 MVA)	T-3 (40MVA)	
		132 kV Alipur	T-2 (13 MVA)	T-2 (40 MVA)	
	Capacitor			Original	New
		KBGASHER	T-1	0	6
		MehraKhas	T-3	0	4.8

Annexure-10

(HHU's Scope & Cost)



	Other Equipment
17 Desktops (PCs) + 05 Spares	142
18 Printers + 05 Spares	142
19 DSL Connectivity	137
20 Furniture & Aecessries + Vehari Cirlice (13 Subdivisions)	150
21 Split AC + Vehari Cirlice (13 Subdivisions)	150



Staffing Requirement - Additional Hiring for Operations

22 Sanctioned Strength of MRs in MEPCO:	2200
23 Working MRs in MEPCO:	1500
24 Total MRs Required for HHUs Project to work Successfully:	2326
25 Additional Hiring required (Adding 3% Cushion for Retirements):	850
26 85% Hiring in FY 2016:	723
27 Rest 15% in FY 2017:	128



Staffing Requirement - For Project Implementation Including IMR

28 Project to be Completed in Duration (in Months)	12
29 Number of Subdivisions to be Covered in the given Duration	137
30 Duration to Implement HHUs project (with meters and cables corrections, (in months))	3
31 Number of Subdivisions that are required to be covered in a Quarter to meet the schedule	34
32 Number of Teams Required to Work in Parallel (one team per subdiv)	34
33 Each Team Comprises of Contracted MRs in numbers	12
34 Total Number of Contracted MRs Required for an Year	419
35 With one Supervisor per 5 teams, number of Supervisors required	7



Mobility - Motor Bikes



36 Total Requirement:	2326
37 Procurement Staggered Year Wise - for Distribution to Subdivision with Largest Areas and so on. Procurement in FY 2016 (40%)	930
38 Procurement in FY 2017 (60%)	1395



Improved Metering and Cabling



40 Meters covered under AMR-Electr Meters Section	
41 Total Number of Customers:	5,000,000

Opex									
1	HHUs	1,788	500	893,911	893,911	893,911	893,911	893,911	4,469,557
Other Equipment and Transportation:									
2	PCs	142	3,000	213,000	213,000	213,000	213,000	213,000	1,065,000
3	Printers	142	24,000	1,704,000	1,704,000	1,704,000	1,704,000	1,704,000	8,520,000
4	DSL Connectivity	137	24,000	1,644,000	1,644,000	1,644,000	1,644,000	1,644,000	8,220,000
5	Furniture & Aecessries	150		-	-	-	-	-	-
6	Split Acs	150	2,500	187,500	187,500	187,500	187,500	187,500	937,500
7	Bikes	2,326	30,000	13,953,125	55,812,500	55,812,500	55,812,500	55,812,500	237,203,125
8	MEPCO-MRs	850	300,000						-
9	Contracted-MRs	419	336,000						-
10	Contracted-Supervisors	7	720,000						-
Total Opex Required:				18,595,536	60,454,911	60,454,911	60,454,911	60,454,911	260,415,182

Annexure-11

(AMR's Scope & Cost)

	AP IS-W Die (r-f Tubewells)	56,599	19,563	210,120,876	787,938,908	21,013,038	13,759,770	13,759,770	1,080,651,870
1	AMRS-Whole Curr-Supply-Inst 15-20kW	61,608	6,000	73,929,888	277,237,080	7,392,989	5,544,742	5,544,742	369,649,440
2	AMRS-HT/LT-Supp-Inst	6,252	8,900	11,128,916	11,128,916	11,128,916	11,128,916	11,128,916	55,644,580
3	AMRS-Whole Curr-Supply-Inst Tubewell	56,599	6,000	67,919,100	254,696,625	6,791,910	5,093,933	5,093,933	339,595,500
Other Equipment:									
2	PCs	Already given under HHUs to all subdivisions	70,000						-
3	Printers		70,000						-
5	MDC (164K>100k)	1	24,425,000		24,425,000				24,425,000
Total Capex Required:				617,977,980	2,239,344,798	95,342,477	80,824,824	80,824,824	3,114,314,902

8 Operational Expenditure Year Wise (In Million Rs.)

	Description	units	Annual Opex Unit	2015	2016	2017	2018	2019	Total
Opex									
1	Maintenance	1	22,521,860	4,504,372	22,521,860	22,521,860	22,521,860	22,521,860	94,591,814
2	Comm. Cost	124,460	594	14,785,811	70,232,603	73,929,055.86	73,929,056	73,929,056	306,805,582
Total Opex Required:				19,290,183	92,754,464	96,450,916	96,450,916	96,450,916	401,397,396

Annexure-12

(CIS) Extension



Scope & Cost - CIS

1	Circles already completed-covered through CIS by	2
2	Roll-out to other Circles in FY2016	2
3	Roll-out to other Circles in FY2017	3
4	Roll-out to other Circles in FY2018	2
	Total numbers of Circles	9

COSTS

B

Capital Expenditure Year Wise (In Million Rs.)

	CAPEX							
1	Cisco Router	35	130,000	1,300,000	1,690,000	1,700,000		4,690,000
2	Router Installation charges	35	8,000	80,000	104,000	96,000		280,000
3	PC's with UPS, Win 7 & office Pack	70	120,000	2,400,000	3,120,000	2,880,000		8,400,000
4	Laser Printers	35	100,000	1,000,000	1,300,000	1,200,000		3,500,000
5	Bar Code Scanner	80	10,000	200,000	260,000	340,000		800,000
6	Network with all equipment & Installations	35	50,000	500,000	650,000	600,000		1,750,000
7	DXX Circuit Charges	35	1,267,500	12,675,000	16,477,500	15,207,500		44,360,000
8	Additional Database Licenses for Primary & DR Site	1	80,000,000	80,000,000	-			
	Total Capex Required:			98,155,000	23,601,500	22,023,500	-	143,780,000

C

Operational Expenditure Year.Wise (In Million Rs.)

#	Description	Units	Annual Opex Unit	FY 16	FY 17	FY 18	FY 19	FY 20	Total
	Opex								

Annexure-13

Customers Service Center (CSC) Up-grade
and Complaints Management System (CMS)

SCOPE

Scope - CSCs

CSCs Scope

1	Total number of CSCs to be covered (subdivisions+Divs+Circles+ROs & Reg) including 30 new subdivisions CSCs to be revamped	272
2	Total CSCs established / revamped	18
3	Net number of CSCs to be revamped (subdivisions+Divs+Circles+Ros)	254

Detailed Scope of CSC

		Unit Costs
5	Revamp (paint job) - maintenance - paint job of the the CSC rooms in numbers	150,000
6	Provision of Furniture and Fixtures (Counter Table with 2xchairs, Six Visitors Chairs, Branding Materia and 1x1Ton Split AC) No of Units required	108,000
7	Desktop with UPS	75,000
8	Printers	35,000
9	<u>Servers and other allied Equipment</u>	2,000,000
11	Cell phonse costs for CSCs Office	5,000
11	Cell mobile charges for CSCs Office	2,000
12	CMS - Upgradation and furter Customization	3,000,000

C-1

Staffing Requirement - For Project Implementation

28 Turnkey

0

COSTS:

Capital Expenditure Year Wise (in Million Rs.)

CAPEX									
1	Revamp (Paint job) of the the CSC rooms in numbers	254	150,000	7,620,000	30,480,000				38,100,000
2	Provision of Furniture and Fixtures Units required	254	108,000	5,486,400	21,945,600				27,432,000
3	Desktops with UPS	254	75,000	3,810,000	15,240,000				19,050,000
4	Printers	254	35,000	1,778,000	7,112,000				8,890,000
5	Servers & other allied equip.	1	2,000,000	400,000	1,600,000				2,000,000
7	Cell Phones	254	5,000	254,000	1,016,000				1,270,000
8	CMS upgrade	1	3,000,000	0	1,800,000	1,200,000			3,000,000
Total Capex Required:				19,348,400	79,193,600	1,200,000	-	-	99,742,000



Operational Expenditure Year Wise (In Million Rs.)

Opex									
3	Desktops with UPS	254	3,000	152,400	762,000	762,000	762,000	762,000	3,200,400
4	Printers	254	36,000	1,828,800	9,144,000	9,144,000	9,144,000	9,144,000	38,404,800
7	Cell Phones	254	12,000	609,600	3,048,000	3,048,000	3,048,000	3,048,000	12,801,600
Total Opex Required:				2,590,800	12,954,000	12,954,000	12,954,000	12,954,000	54,406,800

Annexure-14

(Surveillance)

Scope - Surveillance (Anti-theft-activity)

Scope

1	Toyota Hilux one per division (Surveillance Team already exist for AMRs theft control and other meters theft control)	36
2	Toyota Hilux (Single Cabin with Hood) (Anti-theft Cell) under Commercial Dir.	1
3	TOOL (Ladder, tool and plants, power analyzer, clip on meters) in Units	37
4	Mobile Phones	37

Staffing Requirement - CSCs

21	Data Analyst for AMI - CIS Integration Commercial	5
	Assistant Manager Data Analysis, Reporting and Compliance	1
	Deputy Manager Anti-Theft Cell and AMI Commercial Analysis	1
	Manager Customer Services	1

Staffing Requirement - For Project Implementation

28	Turnkey	0

COSTS:

Capital Expenditure Year Wise (In Million Rs.)

Sl. No.	Description	Quantity	Unit Price (Rs.)	Material Cost (Rs.)	Labour Cost (Rs.)	Overhead Cost (Rs.)	Contingency (Rs.)	Total Cost (Rs.)
CAPEX								
1	Toyota Hilux for Divisions	36	2,200,000	15,840,000	63,360,000			79,200,000
1	Toyota Hilux for Comm HQ	1	2,200,000	440,000	1,760,000			2,200,000
2	Tools	37	60,000	444,000	1,776,000			2,220,000
3	Phones	37	20,000	148,000	592,000			740,000
Total Capex Required:				16,872,000	67,488,000	-	-	84,360,000

Operational Expenditure Year Wise (in Million Rs.)

	Opex									
	Hilux POL and Maint	37	360,000	2,664,000	13,320,000	13,320,000	13,320,000	13,320,000	13,320,000	69,264,000
	Mobile	37	18,000	133,200	666,000	666,000	666,000	666,000	666,000	3,463,200
	Total Opex Required:			2,797,200	13,986,000	13,986,000	13,986,000	13,986,000	13,986,000	72,727,200

Annexure-15

(Financial Management Improvement)

Assests Tagging

Scope

Conducting the Assests Tagging Exercies

A Firm To Be Hired to Conduct the Exercies:

Subject Matter Experts Required up to:	2
Support Staff:	6
Duration of Assisgnement in months:	12

Cost of the Assignment

Monhtly Salary of a SMEs	500,000
Monthly Salary of Support Staff for Stores	50,000
Total Salary Cost of SMEs and Support Stafffor the complete duration	14,700,000
All Overheads	8,820,000
Total Cost for the Assignment	23,520,000

Assests Valuation

Scope

Conducting the Assests Valuation Exercies

A Firm To Be Hired to Conduct the Exercies:

Subject Matter Experts Required up to:	2
Support Staff:	3
Duration of Assisgnement in months:	12

Cost of the Assignment

Monhtly Salary of a SMEs	500,000
Monthly Salary of Support Staff for Stores	50,000
Total Salary Cost of SMEs and Support Stafffor the complete duration	13,350,000
All Overheads	8,010,000
Total Cost for the Assignment	21,360,000

Opex for ERP Communications

10 Large Locations	10Mbps for each Monthly Charges Rs. 25,050/-	25,050.00	25,050.00	25,050.00
122 Small Locations	512Kbps for each Monthly Charges Rs. 16,000/-	16,000.00	1,952,000.00	23,424,000.00
Head Quarter	10Mbps Monthly Charges Rs. 169,344/-	169,344.00	169,344.00	2,032,128.00
		5,800,000.00		28,462,128.00 used in computation

CAPEX							
Physical Infrastructure for Internal Communication							
Mail Server & Other Equipment for Email Communication	1	5,000,000		5,000,000			
Scanners to support internal email communication	250	3,000		750,000			
Smart Phones for Officers for Internal Communications	475	20,000		9,500,000			
			0	15,250,000	0	0	0
OPEX							
Annual Operating Expense for Mobile Phones	475	24,000		11,400,000	11,400,000	11,970,000	12,568,500
Annual Employee Recognition Event	1	700,000	700,000	735,000	771,750	810,338	850,854
			700,000	12,135,000	12,171,750	12,780,338	13,419,354

Annexure-16

HR Dev Training and Capacity Building

~~CONFIDENTIAL~~

A	Management Training from Renowned Local Institutions:	
	Number of Officers:	475
	Two Management Related Courses (5 days each) per Year per officer, total number of individual officer's management trainings per year:	950
B	Modern Technology Related Trainings from Individual International Consultancy Man Days Required approx. per year (10 technical persons for 20 days each per year)	200
	Exchange Programs:	
C	Four International Exchanges per year with up to 20 officers / staff per exchange, total exchanges in a year	4
	Total number of officers / staff to be trained through exchanges per year	80

MEPCO's Strength up to 05/2014

Sr. #	Category	Working				Total
		Distribution	GSO	GSC	IT Staff	
1	Officers Grade 18 & above	141	8	6	7	162
2	Assistant Managers	231	32	9	16	288
3	Assistant Managers (CS)	25	0	0	0	25
	Sum of Officers	397	40	15	23	475
4	Computer Operator	0	0	0	32	32
5	Supervisor (DE)	0	0	0	60	60
6	Supervisor (DC)	0	0	0	41	41
7	Data Entry Operator	0	0	0	20	20
8	Data Coder	0	0	0	32	32
9	P.C Operator	0	0	0	8	8
10	LS-I	512	26	6	0	544
11	SSO-I	5	111	0	0	116
12	LS-I, MS-I, II	385	5	6	0	396
13	SSO-II	0	202	0	0	202
14	LFM-I	27	0	0	0	27
15	Foreman	2	23	3	0	28
16	LFM-II	60	1	0	0	61
17	Commercial Assistant	613	0	0	0	613

18	LM	1539	71	43	0	1553
19	LM-II	1539	71	43	0	1553
30	ALM	4189	55	64	0	4308
21	Meter Reader	1647	0	0	0	1647
22	Bill Distributor	303	0	0	0	303
23	Chowkidar / NQ	788	26	31	24	869
24	Clerks all Types	876	23	13	4	916
25	Other Staff	1603	1179	107	25	2914
Sum of Officials		14092	1785	341	246	16464
Grand Total		14489	1825	356	269	16939

Costs								
Description								
CAPEX								
Consultancy Man Days for different Individual Consultants providing Technical Trainings (Man days)	800	71,400		14,280,000	14,280,000	14,280,000	14,280,000	57,120,000
TOTAL=>	800	71,400	-	14,280,000	14,280,000	14,280,000	14,280,000	57,120,000
OPEX								
Management Trainings from Renowned Local Institutions	4,275	140,000	71,820,000	131,670,000	131,670,000	131,670,000	131,670,000	598,500,000
International exchange with a duration of approx. 10-15 days	16	21,576,923		86,307,692	86,307,692	86,307,692	86,307,692	345,230,769
TOTAL=>			71,820,000	217,977,692	217,977,692	217,977,692	217,977,692	943,730,769

Revamp of CTCs:

Total number of CTCs in MEPCO

7

CTCs revamped by USAID PDP

4

CTCs to be revamped under DIIP

3

Sl. #	Materials	Per Unit Cost	CTC1	CTC2	CTC3	Total Units	Total Cost in USD	Total Cost in PKR
Furniture & Fixtures	AV Mobile Trolley (Media Roller Desk)	\$ 25.0	2	2	2	6	\$ 150.0	15300
	Printer Table	\$ 100.0	1	1	1	3	\$ 300.0	30600
	White Boards	\$ 125.0	3	2	2	7	\$ 875.0	89250
	Classrooms Chairs - 2 per Table	\$ 30.0	0	0	0	0	\$ -	0
	Tables for Classrooms	\$ 20.0	0	0	0	0	\$ -	0
	Tablet Arm Chair/Desk for classrooms	\$ 30.0	40	15	20	75	\$ 2,250.0	229500
	Visitors chairs	\$ 50.0	4	4	4	12	\$ 600.0	61200
	Office Tables	\$ 100.0	1	1	0	2	\$ 200.0	20400
	Office Chairs (rotating)	\$ 50.0	1	1	0	2	\$ 100.0	10200
	Principal's Table	\$ 250.0	1	1	1	3	\$ 750.0	76500
	Principal's chair	\$ 100.0	1	1	1	3	\$ 300.0	30600
	Metal Storage Shelving/Racking	\$ 92.0	1	1	3	5	\$ 460.0	46920
	Wooden file Shelving/Racking	\$ 75.0	2	1	1	4	\$ 300.0	30600
	Conference Table	\$ 500.0	0	0	0	0	\$ -	0
	Rostrum	\$ 50.0	0	1	2	3	\$ 150.0	15300
Stationary Supplies	Flip Charts boards	\$ 145.0	2	2	2	6	\$ 870.0	88740
	Tack board/Bulletin Board	\$ 75.0	1	1	1	3	\$ 225.0	22950
IT Equipments	Laptop	\$ 800.0	2	2	2	6	\$ 4,800.0	489600
	Desktop Computers	\$ 500.0	1	1	1	3	\$ 1,500.0	153000
	Projector	\$ 600.0	2	2	2	6	\$ 3,600.0	367200
	Wall mount screen	\$ 130.0	2	2	2	6	\$ 780.0	79560
	Copier/scaner/fax	\$ 300.0	1	1	1	3	\$ 900.0	91800
	All in One high speed printer/photo copier	\$ 700.0	1	1	1	3	\$ 2,100.0	214200
	Flash drives	\$ 15.0	2	2	2	6	\$ 90.0	9180
	Wi-Fi Unit	\$ 92.0	1	1	1	3	\$ 276.0	28152
Misc Item	UPS	\$ 125.0	1	1	1	3	\$ 375.0	38250
	Sound system	\$ 1,500.0	0	0	0	0	\$ -	0
	Generator	\$ 5,000.0	0	0	0	0	\$ -	0

Electrical & Electron	Split Air Conditioner	\$ 850.0	2	2	2	6	\$ 5,100.0	520200
	Water Cooler	\$ 400.0	1	1	1	3	\$ 1,200.0	122400
	Water Dispenser	\$ 280.0	1	1	1	3	\$ 840.0	85680
	DVD Player	\$ 250.0	1	1	1	3	\$ 750.0	76500
	Point-and-Shoot Camera / Camcorder	\$ 350.0	1	1	1	3	\$ 1,050.0	107100
	LCD	\$ 300.0	2	1	1	4	\$ 1,200.0	122400
	Emergency Lights	\$ 10.0	4	4	4	12	\$ 120.0	12240
Furniture & Fixtures	Bunk beds (adjustable - both beds can be used separately)	\$ 240.0	7	7	7	21	\$ 5,040.0	0
	Tables 4 x 4	\$ 100.0	0	0	0	0	\$ -	514080
	Plastic Table	\$ 20.0	3	3	3	9	\$ 180.0	0
	Plastic chairs	\$ 8.0	15	15	15	45	\$ 360.0	18360
	Almirah	\$ 150.0	2	2	2	6	\$ 900.0	36720
Linen	Mattress	\$ 50.0	14	14	12	40	\$ 2,000.0	91800
	Pillows	\$ 5.0	14	14	12	40	\$ 200.0	204000
	Bed Sheets	\$ 5.0	14	14	12	40	\$ 200.0	20400
	Blankets	\$ 20.0	14	14	12	40	\$ 800.0	20400
	Curtains / Blinds	\$ 25.0	7	9	6	22	\$ 550.0	81600
Appliances	Refrigerator	\$ 405.0	1	1	1	3	\$ 1,215.0	56100
	Oscillating, rechargeable, Fan	\$ 73.0	8	7	2	17	\$ 1,241.0	123930
	Heater (Gas Heater - Portable)	\$ 30.0	2	1	1	4	\$ 120.0	126582
	Stove (Gas Cooking Range)	\$ 450.0	1	1	1	3	\$ 1,350.0	12240
	Desert Cooler	\$ 150.0	0	0	0	0	\$ -	137700
	Deep Freezer	\$ 300.0	0	0	0	0	\$ -	0
Kitchenware	Dinner Plates	\$ 4.0	15	15	15	45	\$ 180.0	0
	Quarter Plates	\$ 2.5	15	15	15	45	\$ 112.5	18360
	Soup/Sweet Bowl	\$ 3.0	15	15	15	45	\$ 135.0	11475
	Mugs	\$ 2.0	15	15	15	45	\$ 90.0	13770
	Glass	\$ 1.3	15	15	15	45	\$ 56.3	9180
	Jugs	\$ 5.0	3	3	3	9	\$ 45.0	5737.5
	Cutlery set	\$ 5.0	3	3	3	9	\$ 45.0	4590
	Serving Bowls	\$ 10.0	3	3	3	9	\$ 90.0	4590
	Serving Dishes	\$ 15.0	3	3	3	9	\$ 135.0	9180
	Saucepan	\$ 25.0	2	2	2	6	\$ 150.0	13770
	Rice Cooking Pan	\$ 40.0	1	1	2	4	\$ 160.0	15300
	Frying Pan	\$ 24.0	2	2	2	6	\$ 144.0	16320
	Cutting Board	\$ 18.0	1	1	1	3	\$ 54.0	14688
	Knife Set for kitchen use	\$ 22.0	1	1	1	3	\$ 66.0	5508

6732

	Cooking; Spoons set	\$ 22.0	1	1	1	3	\$ 66.0	6732
	Storage Boxes - Plastic	\$ 10.0	1	1	1	3	\$ 30.0	3060
	Vacuum Flask	\$ 45.0	1	1	1	3	\$ 135.0	13770
	Sugar pot	\$ 2.5	1	1	1	3	\$ 7.5	765
	Milk pot	\$ 2.5	1	1	1	3	\$ 7.5	765
	Salt/Pepper cellars	\$ 2.5	1	1	1	3	\$ 7.5	765
Washroom	Geyser	\$ 140.0	1	1	1	3	\$ 420.0	42840
	Wash Basin	\$ 50.0	1	3	1	5	\$ 250.0	25500
	Flush tanks/ WC seats	\$ 50.0	2	2	2	6	\$ 300.0	30600
	Shower Set	\$ 50.0	2	2	2	6	\$ 300.0	30600

Vehicle	Suzuki Bolan Carry	\$ 7,500.0	0	0	0	0	\$ -	0
Consumable Items	Water Dispenser Bottles	\$ 50.0	2	2	2	6	\$ 300.0	30600
	A4 papers (5 rim box)	\$ 30.0	5	5	5	15	\$ 450.0	45900
	white board markers (Black, blue, red,	\$ 5.0	4	4	4	12	\$ 60.0	6120
	White Board Duster	\$ 1.5	3	2	2	7	\$ 10.5	1071
	Flip chart papers	\$ 0.3	40	40	40	120	\$ 36.0	3672
	Tack board - thumb pins (boxes)	\$ 0.3	5	5	5	15	\$ 4.5	459
	water cooler filters	\$ 50.0	1	1	1	3	\$ 150.0	15300
	hand wash soap (dozens)	\$ 1.0	2	2	2	6	\$ 6.0	612
	Basic stationary items	\$ 100.0	1	1	1	3	\$ 300.0	30600
	Trash bins	\$ 2.0	5	5	5	15	\$ 30.0	3060
	wall clocks	\$ 5.0	3	3	3	9	\$ 45.0	4590
	Diaries / writing pads	\$ 1.5	100	100	100	300	\$ 450.0	45900
	plastic file covers	\$ 0.2	100	100	100	300	\$ 60.0	6120
	box files	\$ 2.0	30	30	30	90	\$ 180.0	18360
	cartridges	\$ 5.0	1	1	1	3	\$ 15.0	1530

Civil Works for CTCs Scope and Cost							
Incharge Office	White Wash	2,000,000			3		6,000,000
	Ducts for open wires						
	Cupboard repair						
Corridor	White Wash						
	Lighting						
Class room 1	White Wash						
	Door repair works						
	main door glass (2x1)						
Class Room	white wash						
	wall removal , extension of sitting space						
Kitchen	Cabinets						
	White Wash						

Total CTC Material and Civil Works Cost 11,247,926

Miscellaneous 15% 1,687,189

Total Cost 12,935,114

CAPEX								
Cost of revamping and upgrding the training facilities			2,587,023	10,348,091			-	12,935,114
TOTAL=>	-	-	2,587,023	10,348,091			-	12,935,114
OPEX								
Cost of annual maintenance and repair work			258,702	1,293,511	1,293,511	1,293,511	1,293,511	5,432,748
TOTAL=>			258,702	1,293,511	1,293,511	1,293,511	1,293,511	5,432,748

Improving the Working Environment of Existing Offices

A: Scope and Cost:

Capex

	Improving Existing Offices:	Numbers	Budget per Unit	FY2016	FY2017	FY2018	FY2019	FY2020	Total
1	Total subdivisions	160	200,000	6,400,000	25,600,000		8000000		40,000,000
2	Total Divisions	35	100,000	720,000	2,880,000		900000		4,500,000
3	Total Revenue Offices	35	100,000	720,000	2,880,000		900000		4,500,000
4	Total Circles	9	100,000	180,000	720,000		225000		1,125,000
5	Total Grid Stations	115	100,000	2,300,000	9,200,000		2875000		14,375,000
6	Head Quarter	1	4,000,000	800,000	3,200,000		1000000		5,000,000
	Total			11,120,000	44,480,000	-	13,900,000	-	69,500,000

Improving the Transportation for Officers

B: Scope and Cost:

Capex

Breakup of Officers	Numbers	Cars Proposed	Unit Cost	50% Cost to the Company, rest by Employee	FY2016	FY2017	Total
Total BPS 20 Officers (Directors) and above	12	1800 CC	2,400,000	1,200,000	2,880,000	11520000	14,400,000
Total BPS 18 and 19 Officers	150	1300 CC	1,900,000	950,000	28,500,000	114000000	142,500,000
Total BPS 17 Officers	313	1000 CC	1,300,000	650,000	40,690,000	162760000	203,450,000
Total				2,800,000	72,070,000	288,280,000	360,350,000

Total A+B:

Capex

FY2016	FY2017	FY2018	FY2019	FY2020	Total
83,190,000	332,760,000	-	13,900,000	-	429,850,000

Yard Stick Study

Scope

Conducting the Yard Stick Study as per NERPA's Requirement
a Firm To Be Hired to Conduct the Study:

Subject Matter Experts Required up to:	5
Duration of Assignment in months:	6

Cost of the Assignment

Monthly Salary of a SMEs	500,000
Total Salary Cost of SMEs for the complete duration	15,000,000
All Overheads	7,500,000
Total Cost for the Assignment	22,500,000
In FY2016	9000000
In FY2017	13500000
Total	22,500,000

Stepping Plan

2: Commercial

#	Title	Number	Estimated Annual Salary	FY2016	FY2017	FY2018	FY2019	FY2020
1	Meter Readers for Operations (HHUs)	850						
2	Meter Readers for Projects Implementation on Contract (HHUs)	419	336,000	140,853,125				
3	Supervisors for Projects Implementation on Contract (HHUs)	7	720,000	4,932,000				
4	Data Analyst for AMI - CIS Integration Commercial	5	420,000	1,050,000	2,310,000	2,541,000	2,795,100	3,074,610
5	Assistant Manager Data Analysis, Reporting and Compliance	1	720,000	360,000	792,000	871,200	958,320	1,054,152
6	Deputy Manager Anti-Theft Cell and AMI Commercial Analysis	1	1,200,000	600,000	1,320,000	1,452,000	1,597,200	1,756,920
	Manager Customer Services	1						
	Meter reading data analyst for HHUs (25K)	160						
7	Drivers for Anti-theft Cells	5	264,000	660,000	1,452,000	1,597,200	1,756,920	1,932,612
Total		1,449		148,455,125	5,874,000	6,461,400	7,107,540	7,818,294

3: IT

#	Title	Number	Estimated Annual Salary	FY2016	FY2017	FY2018	FY2019	FY2020
Officers-IT								
1	Chief Information Officer	1	6,937,320		7,631,052	8,394,157	9,233,573	10,156,930
2	Manager Applications	1	4,466,760		4,913,436	5,404,780	5,945,258	6,539,783
3	Manager System & Infrastructure	1	4,466,760		4,913,436	5,404,780	5,945,258	6,539,783
4	Deputy Manager - Networks	2	1,200,000	600,000	2,640,000	2,904,000	3,194,400	3,513,840
5	Assistant Manager Networks	2	1,200,000		2,640,000	2,904,000	3,194,400	3,513,840
6	Deputy Manager - Systems	2	1,200,000	600,000	2,640,000	2,904,000	3,194,400	3,513,840
7	Assistant Manager Systems	4	720,000	720,000	3,168,000	3,484,800	3,833,280	4,216,608
8	Deputy Manager Database	1	1,200,000	600,000	1,320,000	1,452,000	1,597,200	1,756,920
9	Assistant Manager DBA	8	720,000	720,000	6,336,000	6,969,600	7,666,560	8,433,216
10	Deputy Manager IT Security	1	1,200,000		1,320,000	1,452,000	1,597,200	1,756,920
11	Assistant Manager - IT Security	2	720,000		1,584,000	1,742,400	1,916,640	2,108,304
12	Deputy Manager ERP	1	1,200,000	600,000	1,320,000	1,452,000	1,597,200	1,756,920
13	Deputy Manager Billing and CC&B	1	1,200,000		1,320,000	1,452,000	1,597,200	1,756,920
14	Deputy Manager Customized Applications	1	1,200,000		1,320,000	1,452,000	1,597,200	1,756,920
15	Assistant Manager (Application Developers) for ERP	4	720,000	360,000	3,168,000	3,484,800	3,833,280	4,216,608
16	Assistant Manager (Application Developers) for Billing/CIS	3	720,000	360,000	2,376,000	2,613,600	2,874,960	3,162,456
17	Business Analysts - ERP	3	600,000		1,980,000	2,178,000	2,395,800	2,635,380
18	Business Analysts - Billing and CIS	2	600,000		1,320,000	1,452,000	1,597,200	1,756,920
19	Assistant Manager (Web services)	1	720,000	360,000	792,000	871,200	958,320	1,054,152
20	Assistant Manager (GIS)	1	720,000	360,000	792,000	871,200	958,320	1,054,152
21	Assistant Manager (AMR, HHU)	2	720,000	720,000	1,584,000	1,742,400	1,916,640	2,108,304
22	Assistant Manager - Customized Applications	1	720,000		792,000	871,200	958,320	1,054,152
Sub -Total		45	33,150,840	6,000,000	55,869,924	61,456,916	67,602,608	74,362,869
Staff -IT								
	Network Assistants	12	420,000	840,000	5,544,000	6,098,400	6,708,240	7,379,064
	Network Systems Assoc	12	420,000	840,000	5,544,000	6,098,400	6,708,240	7,379,064
Sub -Total		24	840,000	1,680,000	11,088,000	12,196,800	13,416,480	14,758,128
Total - IT		69	33,990,840	7,680,000	66,957,924	73,653,716	81,019,088	89,120,997

4: Finance

#	Title	Number	Estimated Annual Salary	FY2016	FY2017	FY2018	FY2019	FY2020
1								
2								
3								
Total		0		0	0	0	0	0

5: Communications - PR

#	Title	Number	Estimated Annual Salary	FY2016	FY2017	FY2018	FY2019	FY2020
1	Asst. Manager Communication & Outreach	1	600,000	300,000	600,000	660,000	726,000	798,600
2	Communication Assistant	1	420,000	210,000	420,000	462,000	508,200	559,020
3	Graphic Designer	1	360,000	180,000	360,000	396,000	435,600	479,160
Total		3		690,000	1,380,000	1,518,000	1,669,800	1,836,780

6: Transmission and Distribution

#	Title	Number	Estimated Annual Salary	FY2016	FY2017	FY2018	FY2019	FY2020	
<u>Safety Department</u>									
1	Manager Safety _____ 1 Post	1	1560000	1560000	1716000	1887600	2076360	2283996	130,000.00
2	Deputy Manager Safety _____ 2 Posts	2	960000	1920000	2112000	2323200	2555520	2811072	80,000.00
3	SDOs _____ 2 Posts in Safety Office	2	600000	1200000	1320000	1452000	1597200	1756920	50,000.00
4	SDOs _____ 9 Posts (1 in Each Circle)	9	600000	5400000	5940000	6534000	7187400	7906140	50,000.00
5	LSs _____ 9 Posts (1 in Each Circle)	9	420000	3780000	4158000	4573800	5031180	5534298	35,000.00
<u>Existing Staff Shortage</u>									
6	Managers	8	1560000	7800000	12480000	13728000	15100800	16610880	130,000.00
7	Deputy Managers	19	960000	10560000	18240000	20064000	22070400	24277440	80,000.00
8	Assistant Managers	133	600000	44400000	79800000	87780000	96558000	106213800	50,000.00
9	Line Superintendents	374	420000	86520000	157080000	172788000	190066800	209073480	35,000.00
10	Line Men	473	300000	78000000	141900000	156090000	171699000	188868900	25,000.00
11	Assistant Linemen	1280	240000	168960000	307200000	337920000	371712000	408883200	20,000.00
12	Clerks	641	300000	105900000	192300000	211530000	232683000	255951300	25,000.00
13	SDC	101	420000	23520000	42420000	46662000	51328200	56461020	35,000.00
14	Drivers	272	240000	35760000	65280000	71808000	78988800	86887680	20,000.00
15	Naib Qasids	142	240000	18720000	34080000	37488000	41236800	45360480	20,000.00
16	Security Guards	583	240000	77040000	139920000	153912000	169303200	186233520	20,000.00
17	Sweepers	141	180000	14040000	25380000	27918000	30709800	33780780	15,000.00
18	Draftsmen	43	420000	10080000	18060000	19860000	21852600	24037860	35,000.00
19	Tracers	50	420000	11760000	21000000	23100000	25410000	27951000	35,000.00
20	Surveyers	5	360000	1080000	1800000	1980000	2178000	2395800	30,000.00
21	Mali	68	180000	6660000	12240000	13464000	14810400	16291440	15,000.00
22	Data Control Supervisors	20	420000	4620000	8400000	9240000	10164000	11180400	35,000.00
23	Others	2697	240000	355920000	647280000	712008000	783208800	861529680	20,000.00
<u>Expansion Required for Future Expansion (Achievable Case)</u>									
24	Managers	5	1560000	3120000	4680000	6240000	6240000	7800000	130,000.00
25	Deputy Managers	5	960000	2880000	3840000	3840000	4800000	4800000	80,000.00

26	Asst. Int. Analysts	128	600000	42600000	57200000	65700000	71100000	77100000	83100000	89100000
27	Line Superintendents	211	400000	84000000	110200000	136600000	163000000	189400000	215800000	242200000
28	Line Men	701	200000	140000000	185100000	230200000	275300000	320400000	365500000	410600000
29	Assistant Linemen	1025	240000	24600000	144240000	190030000	213360000	236690000	260020000	283350000
30	Clerks	66	300000	19800000	123000000	159000000	180000000	192000000	198000000	204000000
31	SDC	142	420000	59640000	344400000	436800000	504000000	571200000	596400000	621600000
32	Drivers	0	240000	0	0	0	0	0	0	0
33	Naib Casids	4	240000	0	240000	480000	720000	960000	1200000	1440000
34	Security Guards	275	240000	24720000	429600000	528000000	607200000	655200000	693600000	732000000
35	Sweepers	10	180000	0	720000	1260000	1620000	1800000	1980000	2160000
36	Draftsmen	57	420000	8820000	159600000	205800000	231000000	239400000	247000000	254600000
37	Tracers	112	420000	15540000	277200000	365400000	424200000	470400000	516600000	563000000
38	Surveyors	0	360000	0	0	0	0	0	0	0
39	Mali	0	180000	0	0	0	0	0	0	0
40	Data Control Supervisors	140	420000	17220000	306600000	420000000	516600000	586000000	655400000	724800000
41	Others	825	240000	77040000	131520000	157440000	180480000	198000000	215520000	233060000
Total		10832		1,638,240,000	2,747,826,000	3,084,336,600	3,405,328,260	3,713,881,086	4,022,932,846	4,332,000,646

Total Staffing Cost

Total Staffing Cost for DIIP

1,795,065,125	2,822,037,924	3,165,969,716	3,495,124,688	3,812,657,157	15,090,854,610
1795065125	2822037924	3165969716	3495124688	3812657157	

1: Commercial

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
1	Meter Readers for Operations (HHUs)	850	340	510			
2	Meter Readers for Projects Implementation on Contract (HHUs)	419	419				
3	Supervisors for Projects Implementation on Contract (HHUs)	7	7				
4	Data Analyst for AMI - CIS Integration Commercial	5	2	3			
5	Assistant Manager Data Analysis, Reporting and Compliance	1	1				
6	Deputy Manager Anti-Theft Cell and AMI Commercial Analysis	1	1				
	Manager Customer Services	1	1				
	Meter reading data analyst for HHUs (25K)	190	40	132	6	6	6
7	Drivers for Anti-theft Cells	5	2	3			
Total		1,479	813	648	6	6	6

2: IT

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
Officers-IT							
1	Chief Information Officer	1		1			
2	Manager Applications	1		1			
3	Manager System & Infrastructure	1		1			
4	Deputy Manager - Networks	2	1	1			
5	Assistant Manager Networks	2		2			
6	Deputy Manager - Systems	2	1	1			
7	Assistant Manager Systems	4	2	2			
8	Deputy Manager Database	1	1				
9	Assistant Manager DBA	8	2	6			
10	Deputy Manager IT Security	1		1			
11	Assistant Manager - IT Security	2		2			
12	Deputy Manager ERP	1	1				
13	Deputy Manager Billing and CC&B	1		1			
14	Deputy Manager Customized Applications	1		1			
15	Assistant Manager (Application Developers) for ERP	4	1	3			
16	Assistant Manager (Application Developers) for Billing/CIS	3	1	2			
17	Business Analysts - ERP	3		3			

350,000 12
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150,000
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18	Business Analysts - BMS, GIS	2		2			
19	Assistant Manager (Web services)	1	1				50,000
20	Assistant Manager (GIS)	1	1				60,000
21	Assistant Manager (AMR, HHU)	2	2				50,000
22	Assistant Manager - Customized Applications	1		1			

Sub -		45	14	31	-	-	-
Total							

Staff -IT

Network Assistants	12	4	8				
Network Systems Assoc	12	4	8				

Sub -		24	8	16	-	-	-
Total							

Total -		69	22	47	-	-	-
IT							

3: Strategy Planning and Planning and Engineering

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
1	Chief Strategy Officer	1	1				
2	P&E Managers	3	3				
3	Other Staff	2	12				
Total		6	16	0	0	0	0

4: Communications - PR

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
1	Asst. Manager Communication & Outreach	1		1			
2	Communication Assistant	1		1			
3	Graphic Designer	1		1			
Total		3	0	3	0	0	0

5: Transmission and Distribution

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
	<u>To fill existing staff shortage</u>			-	-	-	-
6	Managers	8	5	3	-	-	-
7	Deputy Managers	19	11	8	-	-	-
8	Assistant Managers	133	74	59	-	-	-
9	Line Superintendents	374	206	168	-	-	-
10	Line Men	473	260	213	-	-	-
11	Assistant Linemen	1280	704	576	-	-	-
12	Clerks	641	353	288	-	-	-
13	SDC	101	56	45	-	-	-
14	Drivers	272	149	123	-	-	-
15	Naib Qasids	142	78	64	-	-	-
16	Security Guards	583	321	262	-	-	-

17	Sweepers	14	78	63	-	-	-
18	Draftsmen	43	24	19	-	-	-
19	Tracers	50	28	22	-	-	-
20	Surveyers	5	3	2	-	-	-
21	Mali	68	37	31	-	-	-
22	Data Control Supervisors	20	11	9	-	-	-
23	Others	2697	1483	1214	-	-	-

5: Transmission and Distribution

<u>Expansion Required for Future Expansion (Achievable Case)</u>							
24	Managers	5	2	1	1	0	1
25	Deputy Managers	5	3	1	0	1	0
26	Assistant Managers	136	71	21	17	16	11
27	Line Superintendents	235	131	37	31	23	13
28	Line Men	724	417	163	81	41	22
29	Assistant Linemen	1025	601	191	97	73	63
30	Clerks	66	41	12	7	4	2
31	SDC	142	82	22	16	16	6
32	Drivers	0	0	0	0	0	0
33	Naib Qasids	4	0	1	1	1	1
34	Security Guards	273	103	76	41	33	20
35	Sweepers	10	0	4	3	2	1
36	Draftsmen	57	21	17	11	6	2
37	Tracers	112	37	29	21	14	11
38	Surveyers	0	0	0	0	0	0
39	Mali	0	0	0	0	0	0
40	Data Control Supervisors	140	41	32	27	23	17
41	Others	825	321	227	108	96	73
Total		10832	5775	4003	462	349	243

6: Transmission and Distribution

#	Title	Number	FY2016	FY2017	FY2018	FY2019	FY2020
<u>Safety Department</u>							
1	Manager Safety	1	1				
2	Deputy Manager Safety	2	2				
3	SDO Safety Head Quarters	2	9				1
4	SDO Safety per Circle	10	9				1
5	LS Safety per Circle	10	9				1
Total		25	30	0	0	0	3

Annexure-17

(External Communications)

Internal and External Communication

A: Internal Communications

CAPEX

Physical Infrastructure for Internal Communication							
Mail Server & Other Equipment for Email Communication	1	5,000,000		5,000,000			
Scanners to support internal email communication	250	3,000		750,000			
Smart Phones for Officers for Internal Communications	475	20,000		9,500,000			
			0	15,250,000	0	0	0

OPEX

Annual Operating Expense for Mobile Phones	475	24,000		11,400,000	11,400,000	11,970,000	12,568,500
Annual Employee Recognition Event	1	700,000	700,000	735,000	771,750	810,338	850,854
			700,000	12,135,000	12,171,750	12,780,338	13,419,354

B: External Communications & Outreach

CAPEX	Units	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Toyota Hiace for Mobility of Communication Staff	1	3,500,000	3,500,000				
OPEX	Units	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mass Media Campaigns							
Newspaper Ads in leading local newspapers	4	1,500,000	6,000,000	6,300,000	6,615,000	6,945,750	7,293,038
TV/Cable Spots throughout Peshawar and its surroundings	4	600,000	2,400,000	2,520,000	2,646,000	2,778,300	2,917,215
Public Service announcement on local FM Radio	4	600,000	2,400,000	2,520,000	2,646,000	2,778,300	2,917,215
Billboards & Street Pole Streamers	4	1,100,000	4,400,000	4,620,000	4,851,000	5,093,550	5,348,228
			15,200,000	15,960,000	16,758,000	17,595,900	18,475,695
Public Outreach & Awareness Programmes							
University Campus Sessions	4	50,000	200,000	210,000	220,500	231,525	243,101
Local Imam Masjid sessions	4	50,000	200,000	210,000	220,500	231,525	243,101
Community Center Sessions	4	50,000	200,000	210,000	220,500	231,525	243,101
Chamber of Commerce sessions	4	50,000	200,000	210,000	220,500	231,525	243,101
Press Club Meetings	4	50,000	200,000	210,000	220,500	231,525	243,101
Energy Conservation Walk	2	200,000	400,000	420,000	441,000	463,050	486,203
Painting & Debate Competition	1	500,000	500,000	525,000	551,250	578,813	607,753
			1,900,000	1,995,000	2,094,750	2,199,488	2,309,462

Design and printing of Customer Awareness Material		5,000,000	6,000,000	6,200,000	715,000	6,185,000	7,170,000
Monthly Newsletter	12	40,000	480,000	528,000	580,800	638,880	702,768
Student Energy Conservation Programmes	24	50,000	1,200,000	1,260,000	1,323,000	1,389,150	1,458,608
Radio Talk shows	26	107,690	2,799,940	3,079,934	3,387,927	3,726,720	4,099,392
Mobility							
Fuel for Toyota Hiace	1	300,000	300,000	330,000	363,000	399,300	439,230
TOTAL OPEX External Communication			27,879,940	29,452,934	31,122,477	32,895,188	34,778,192
Manpower Requirement - Opex							
Asst. Manager Communication & Outreach	1	600,000	300,000	600,000	660,000	726,000	798,600
Communication Assistant	1	420,000	210,000	420,000	462,000	508,200	559,020
Graphic Designer	1	360,000	180,000	360,000	396,000	435,600	479,160
Total Manapower -Opex			690,000	1,380,000	1,518,000	1,669,800	1,836,780

Total Capex Communications (Internal + External)	3,500,000	15,250,000	0	0	0	18,750,000
Total Opex (Internal + External + Manpower) - Communications	29,269,940	42,967,934	44,812,227	47,345,325	50,034,326	214,429,753

Annexure-18

(Linemen Training, Tools and Equipment)

Total LM (LM1&2) at MEPCO Sanctioned	3730
Total LM (LM1&2) at MEPCO Working	3409
Total LM (LM1&2) at MEPCO Vacant	321
	5451
Total ALM at MEPCO Sanctioned	4199
Total ALM at MEPCO Working	1252
Total ALM at MEPCO Vacant	
	160
Total number of subdivisions in MEPCO	30
New Subdivisions that will be added (6 per year in next 5 years)	190
Total number of Subdivisions:	

a-1

Transportation:		No. of Items	Unit Price	Total Price
Bucket Mounted Trucks 01 per subdivision:	190	PKR	5,000,000	PKR 950,000,000
Ravis 01 per subdivision for complaint handling	190	PKR	637,000	PKR 121,030,000
Ravis already provided by USAID to Multan Circle	30	PKR	637,000	PKR 19,110,000
Net Ravis Requirement	160	PKR	637,000	PKR 101,920,000
4x4 Vehicles for Manager Safety and DM Safety	3	PKR	2,400,000	PKR 7,200,000
Jeeps for Safety Staff mobility	10	PKR	1,000,000	PKR 10,000,000
Mobile Safety Trainings Unit(Hino Bus)	1	PKR	3,000,000	PKR 3,000,000
	Sub-Total			PKR 1,212,260,000

a-2 Communication Devices		No. of Items	Unit Price	Total Price
Mobile Phones for Complaint Handling LM Team field Teams (01 per subdivision)		190	8000	PKR 1,520,000

a-3

Tools:

a-3.a

Sr. no		Total Subdivisions of MEPCO	Total number of items or sets required per subdivision	Total No. of Items or Pairs required	No. of time the material will be required from FY2016-2020	Total Material Requirement in 5 Years	Unit Cost	Total Cost	Tools Age
1	Chain Pulley Blocks 5 per subdivisions	190	5	950	1	950	PKR 10,000	PKR 9,500,000	More than 5 years
2	Hoist 3/4 ton chain 5 per SubDivision Ten per Sub Division	190	5	950	1	950	PKR 37,712	PKR 35,826,400	More than 5 years
3	Conductor Pulling Grip 10 per sub division	190	10	1900	1	1900	PKR 25,394	PKR 48,248,600	More than 5 years
4	Hydraulic Tools for 12 Ton 2 per Sub Divisions	190	2	380	1	380	PKR 114,000	PKR 43,320,000	More than 5 years
5	Dies for Hydraulic Tools for 12 Ton of different size 5 Per Sub Division	190	5	950	1	950	PKR 6,600	PKR 6,270,000	More than 5 years
6	First Aid Boxes 2 per sub-Divisions	190	2	380	1	380	PKR 3,860	PKR 1,466,800	More than 5 years
7	Line Guards HT/LT Lines 10 Per Sub Division	190	10	1900	1	1900	PKR 100,600	PKR 191,140,000	More than 5 years
8	Line Guards LT Lines 10 Per Sub Division	190	10	1900	1	1900	PKR 3,700	PKR 7,030,000	More than 5 years
9	15/25KV Insulated Single	190	10	1900	1	1900	PKR 13,500	PKR 25,650,000	More than 5 years
10	15/25KV Insulated Single	190	10	1900	1	1900	PKR 23,900	PKR 45,410,000	More than 5 years
11	10 feet Hot Jumper 10 Per Sub Division	190	10	1900	1	1900	PKR 23,600	PKR 44,840,000	More than 5 years
12	Grounding Sets: 3 Phase, yellow, 1/0 copper Grd. cable, Duck bill main clamps up to 556 MCM. 15 Per	190	10	1900	1	1900	PKR 107,800	PKR 204,820,000	More than 5 years
13	Cluster Bar Assembly 5 per Sub Division	190	5	950	1	950	PKR 10,200	PKR 9,690,000	More than 5 years

14	High Voltage Detector, verifies presence of voltage non contact AC voltage detector, verifies presence of voltage non contact 122,000 V (12.2KV) 8 Per Sub Division	190	10	1900	1	1900	PKR	38,000	PKR	12,200,000	More than 5 years
15	Fibber Glass Ladders_10 Per Sub Division	190	10	1900	1	1900	PKR	12,090	PKR	22,982,400	More than 5 years
16	Fiberglass Roperting rod_10 Per Sub Division	190	10	1900	2	3800	PKR	3,800	PKR	11,780,000	Less than 2 years
17	Epoxy Kits_10 per Sub Division	190	10	1900	1	1900	PKR	322	PKR	611,800	More than 5 years
18	Canvas Bag for Hot Stick_10 Per Sub Division	190	10	1900	1	1900	PKR	21,200	PKR	40,280,000	More than 5 years
19	Shot Guns_10 Per Sub Division	190	10	1900	1	3800	PKR	500	PKR	1,900,000	More than 5 years
20	Universal Disconnect Hook_20 Per Sub Division	190	20	3800	1	1900	PKR	23,400	PKR	44,460,000	More than 5 years
21	HV Telescopic_10 per Sub Division	190	10	1900	1	1900	PKR	256	PKR	486,400	More than 5 years
22	Canvas Bag for Shot Gun_10 Per Sub Division	190	10	1900	1	1900	PKR	220,000	PKR	41,800,000	More than 5 years
23	Ground Cable Tester	190	1	190	1	190	PKR	27,500	PKR	15,675,000	More than 5 years
24	Manual pneumatic pump for inflation testing rubber gloves 3 Per Sub Division	190	3	570	1	570	PKR	26,500	PKR	15,105,000	More than 5 years
25	Burndy MD7/MD8_3 per Sub Division	190	3	570	1	570	PKR	3,900	PKR	4,446,000	More than 5 years
26	Burndy Metal Case Dies of different Size_6 per Sub Division	190	6	1140	1	1140	PKR	9,500	PKR	10,830,000	More than 5 years
27	Metal Case with Die Holder_6 per Sub Division	190	6	1140	1	1140	PKR	5,500	PKR	10,450,000	More than 5 years
28	Rubber Blanket_10 per Sub Division	190	10	1900	1	1900	PKR	735	PKR	4,189,500	More than 5 years
29	Rubber Blanket Clamps_30 per Sub Division	190	30	5700	1	5700	PKR	126,600	PKR	24,054,000	More than 5 years
30	Hot Stick Tester_1 per Sub Division	190	1	190	1	190	PKR	10,500	PKR	9,975,000	More than 5 years
31	Handline Complete_5 per Sub Division	190	5	950	1	950	PKR	5,900	PKR	11,210,000	More than 5 years
32	Handline Rope_10 Per Sub Division	190	10	1900	1	1900	PKR	1,600	PKR	7,600,000	More than 5 years
33	Hand U Brush_25 Per Sub Division	190	25	4750	1	4750	PKR	1,048	PKR	398,240	More than 5 years
34	Extension Cord_2 per sub division	190	2	380	1	380	PKR	65,800	PKR	25,004,000	More than 5 years
35	Drill Machines_2 per Sub Division	190	2	380	1	380	PKR	6,600	PKR	25,080,000	Less than 2 years
36	Hacksaw_10 per Sub Division	190	10	1900	2	3800	PKR	152,500	PKR	28,975,000	More than 5 years
37	Fiber Glass Tripod_1 per Sub Division	190	1	190	1	190	PKR	7,800	PKR	29,640,000	Less than 2 year
38	Anti Oxidant Paste_10 per Sub-Division	190	10	1900	2	3800	PKR	12,900	PKR	49,020,000	Less then 2 year
39	Complete Cleaning Kit_10 per Sub Division	190	10	1900	2	3800	PKR	17,500	PKR	66,500,000	Less then 2 year
40	Boom Wax_10 Per Sub Division	190	10	1900	2	3800	PKR	2,398	PKR	4,556,200	More than 5 years
41	Pruning Saw_10 per Sub Division	190	10	1900	1	1900	PKR	17,150	PKR	9,775,500	More than 5 years
42	Pruner_3 per Sub Division	190	3	570	1	570	PKR	2,235	PKR	4,246,500	More than 5 years
43	Bolt Cutter Manual_10 Per Sub Division	190	10	1900	1	1900	PKR	4,469	PKR	4,245,550	More than 5 years
44	Combination Box_10 per Sub Division	190	5	950	1	950	PKR	75	PKR	1,425,000	More than 5 years
45	Utility se-rvices rope yellow polyporplyene 5/8 inch tensile strength 8200 lbs_100 meter per Sub Division	190	1	190	100	19000	PKR	49,800	PKR	28,386,000	More than 5 years
46	Tree Trimmer Chain	190	3	570	1	570	PKR		PKR		
a-3.b	Sr. no	Total no. of Linemen of MEPCO	Total number of items or sets required per Linemen	Items or Pairs Required for All LM	No. of times the material will be required from FY2016-2020	Total Requirement	Unit Cost	Total Cost	Tools Age		
1	Wrenches set 01 required for one LM good for two years: Total required	3730	1	3730	2	7460	PKR 1,600	PKR 11,936,000	less than 2 years		
2	Adjustble Wrenches set_1 per Lineman	3730	1	3730	2	7460	PKR 1,900	PKR 14,174,000	less than 2 years		
3	Screw Drivers set_1 per Lineman	3730	1	3730	3	11190	PKR 471	PKR 5,270,490	less than 1.5 years		
4	Pliers_1 set per Lineman	3730	1	3730	2	7460	PKR 3,800	PKR 28,348,000	less than 2 years		
5	Hammers_2 per Lineman	3730	2	7460	2	14920	PKR 790	PKR 11,786,800	less than 2 years		
6	Srow Drives	3730	2	7460	2	14920	PKR 970	PKR 14,472,400	less than 2 years		
7	AC Clamp Meters_1 Per Lineman	3730	1	3730	2	7460	PKR 5,100	PKR 19,023,000	more than 5 years		
8	Water Pump Pliers set_1 per Lineman	3730	1	3730	2	7460	PKR 2,800	PKR 20,888,000	less than 2 years		
9	Torch Light_1 per lineman	3730	1	3730	2	7460	PKR 2,000	PKR 14,920,000	less than 2 years		
10	OPT Cable Cutter_1 Per Lineman	3730	1	3730	2	7460	PKR 287	PKR 2,141,020	less than 2 years		
11	ACSR Cable Cutter_1 pe Lineman	3730	1	3730	2	7460	PKR 1,450	PKR 10,817,000	less than 2 years		

14	Imported Lineman Tools for LM	3730	1	3730	2	7460	PKR	1,500	PKR	11,190,000	less than 2 years
15	Bandana's	3730	1	3730	2	7460	PKR	165	PKR	1,230,900	less than 2 years
16	High Visibility Vests	3730	1	3730	2	7460	PKR	100	PKR	746,000	less than 2 years
17	Lineman Safety Lanyard	3730	1	3730	2	7460	PKR	2,900	PKR	21,634,000	less than 2 years
18	Hold Card Tool for Tagging	3730	1	3730	1	3730	PKR	800	PKR	2,984,000	more than 5 years
19	Hold Card	3730	1	3730	1	3730	PKR	2,200	PKR	8,206,000	more than 5 years
20	Lineman Nut Bag	3730	1	3730	2	7460	PKR	1,800	PKR	13,428,000	less than 2 years
21	Rain Coat	3730	1	3730	1	3730	PKR	800	PKR	2,984,000	more than 5 years
22	Measuring Tape	3730	1	3730	1	3730	PKR	795	PKR	2,965,350	more than 5 years
23	Binocular shift it to Gangs (3730/5)	3730	1	3730	1	3730	PKR	1,700	PKR	13,891,000	more than 5 years

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Sr. no		Total no. of Lineman or ALM of MEPCO	Total number of items or sets required per LM or ALM	Total No. of Items or Pairs Required for All MEPCO's LM and ALMs	No. of times the material will be required from FY2016-2020	Total Requirement	Unit Cost	Total Cost	Tools Age
1	Imported Safety Helmet per LM, good for two years	3730	1	3730	1	3730	PKR 1,500	PKR 5,595,000	more then 5 years
2	Imported Safety Helmet per ALM	5451	1	5451	1	5451	PKR 1,500	PKR 8,176,500	more then 5 years
3	Imported Rubber Gloves purchased every six months for LM	3730	1	3730	10	37300	PKR 1,900	PKR 70,870,000	not more then 6 months
4	Imported Protective Gloves purchased every six months for LM	3730	1	3730	10	37300	PKR 2,764	PKR 103,097,200	not more then 6 months
5	Rubber Gloves Bag	3730	1	3730	2	7460	PKR 2,700	PKR 20,142,000	not more than 2 years
6	Imported Working Gloves purchased every six months for LM	3730	1	3730	10	37300	PKR 1,632	PKR 60,873,600	not more then 6 months
7	Imported Working Gloves purchased every six months for ALM	5451	1	5451	10	54510	PKR 1,632	PKR 88,960,320	not more then 6 months
8	Imported Safety Glasses purchased every 12 months for LM	3730	1	3730	5	18650	PKR 700	PKR 13,055,000	not more then 12 months
9	Imported Safety Glasses purchased every 12 months for ALM	5451	1	5451	5	27255	PKR 700	PKR 19,078,500	not more then 12 months
10	Imported Safety Rubber Sleeves for LM	3730	1	3730	1	3730	PKR 22,800	PKR 85,044,000	more then 5 Years
11	Harness or Rubber Sleeves with Buttons	3730	1	3730	1	3730	PKR 1,386	PKR 5,169,780	more then 5 Years
12	Bags for Rubber Sleeves	3730	1	3730	1	3730	PKR 3,800	PKR 14,174,000	more then 5 Years
13	Imported High Quality Safety Shoes for LM (different Size)	3730	1	3730	5	18650	PKR 12,000	PKR 223,800,000	less then 1 Years
14	Imported High Quality Safety Shoes for ALM (different Size)	5451	1	5451	5	27255	PKR 12,000	PKR 327,060,000	less then 1 Years
15	Imported High Quality Safety Belt for LM (different Size)	3730	1	3730	2	7460	PKR 17,300	PKR 129,058,000	less then 2.5 Years
16	Safety Belt Strip	3730	1	3730	2	7460	PKR 10,200	PKR 76,092,000	less then 2.5 Years
17	Tool Pouch	3730	1	3730	2	7460	PKR 3,400	PKR 25,364,000	less then 2.5 Years

a-3.d

Sr. No		Total No. of Subdivisions of MEPCO	Total number of items or sets required per sub Division	Total No. of Items or Pairs MEPCO-Wide	No. of times the material will be required from FY2016-2020	Total Requirement	Unit Cost	Total Cost	Tools Age
1	HT/LT Compression Conectors	190	1000	190000	1	190000	PKR 2,700	PKR 513,000,000	More than 5 years
2	HT/LT Automatic Connectors	190	1000	190000	1	190000	PKR 800	PKR 152,000,000	More than 5 years
3	Cut Out Fuses	190	10	1900	1	1900	PKR 25,000	PKR 47,500,000	More than 5 years

a-3.e

Sr. No	Training	No. of Lineman of MEPCO	training cost per Lineman	Total
1	Customized Training for each LM (No of of LM)	3730	PKR 30,000.00	PKR 111,900,000

Capex									
	Description	Units	2025	2026	2027	2028	2029	2030	Total
1	Bucket Mounted Trucks 01 per subdivision:	190	5,000,000	190,000,000	670,000,000	30,000,000	30,000,000	30,000,000	950,000,000
2	Net Ravis Requirement	160	637,000	20,384,000	70,070,000	3,822,000	3,822,000	3,822,000	101,520,000
3	4x4 Vehicles for Manager Safety and DM Safety	3	2,400,000	2,400,000	4,800,000				
4	Jeeps for Safety Staff mobility	10	1,000,000	3,000,000	7,000,000				
5	Mobile Safety Trainings Unit(Hino Bus)	1	3,000,000	3,000,000					
6	Mobile Phones for Complaint Handling LM Team field Teams (01 per subdivision)	190	8,000	304,000	1,072,000	48,000	48,000	48,000	1,520,000
7	Gang Tools Required	98,420		268,277,378	938,970,823	134,138,689			1,341,386,890
8	Individual Tools Required	175,310		50,766,792	177,683,772	25,383,396			253,833,960
9	Lineman Personal Protective Equipment (PPE)	308,431		255,121,980	510,243,960	255,121,980	127,560,990	127,560,990	1,275,609,900
10	Essential Material For Maintenance	381,900		142,500,000	142,500,000	142,500,000	142,500,000	142,500,000	712,500,000
Total Capex Cost				935,754,150	2,522,340,555	591,014,065	303,930,990	303,930,990	4,656,970,750

8.

Operational Expenditure Year Wise (In Million Rs.)

	Description	Units	2025	2026	2027	2028	2029	2030	Total
Opex									
1	Bucket Mounted Trucks 01 per subdivision:	190	408,000	7,752,000	70,176,000	72,624,000	75,072,000	77,520,000	303,144,000
2	Net Ravis Requirement	160	204,000	3,264,000	28,968,000	30,192,000	31,416,000	32,640,000	126,480,000
3	4x4 Vehicles for Manager Safety and DM Safety	3	276,000	276,000	828,000	828,000	828,000	828,000	3,588,000
4	Jeeps for Safety Staff mobility	10	276,000	828,000	2,760,000	2,760,000	2,760,000	2,760,000	11,868,000
5	Mobile Safety Trainings Unit(Hino Bus)	1	480,000	480,000	480,000	480,000	480,000	480,000	2,400,000
6	Mobile Phones for Complaint Handling LM Team field Teams (01 per subdivision)	190	1,000	19,000	172,000	178,000	184,000	190,000	743,000
7	Custommized Training for each LM (No of of LM)	3730	6,000	22,380,000	22,380,000	22,380,000	22,380,000	22,380,000	111,900,000
Total Opex Cost				34,999,000	125,764,000	129,442,000	133,120,000	136,798,000	560,123,000

Annexure-19

(Costs of T&D Projects)

Year	Scope of Work						Equipment Cost (MRs.)					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Best Case												
New Grid	6	4	-	1	2	13	1,264	822	-	241	304	2,631
Conversion	7	-	-	-	1	8	1,117	-	-	-	147	1,264
Line Bays	62	12	12	10	8	104	620	120	120	100	80	1,040
T/Line (Total)	31	6	6	5	4	52	7,640	1,140	1,438	1,333	737	12,288
T/Line D/C (Rail)	4	1		2	-	42	860	100	-	730	-	1,690
T/Line S/C (Rail)	6	2	3	3	-	16	2,494	500	686	603	-	4,283
T/Line D/C (Lynx)	8	1	-	-	-	47	1,290	28	-	-	-	1,318
T/Line S/C (Lynx)	13	2	3		5	16	2,996	512	752	-	877	5,137
Augmentation	9	13	9	7	4	42	515	781	584	465	292	2,638
Extension	4	4	3	5	-	16	317	338	316	425	-	1,396
Capacitor (11 kV)	19	12	5	9	2	47	20	15	6	7	3	50
Capacitor (132 kV)	2	4	10	-	-	16	12	31	63	-	-	106
Total	140	55	45	37	21	298	11,505	3,247	2,527	2,571	1,563	21,413
Projects with Available Finances (Tr-III, Tr-IV)												
New Grid	2	-	-	-	-	-	567	-	-	-	-	-
Conversion	5	-	-	-	-	-	1,250	-	-	-	-	-
T/Line (Total)	7	-	-	-	-	-	892	-	-	-	-	-
Augmentation	38	13	-	-	-	-	2,171	682	-	-	-	-
Extension	12	4	-	-	-	-	683	228	-	-	-	-
Capacitor	-	-	-	-	-	-	-	-	-	-	-	-
Total	64	17	0	0	0	81	5,563	910	0	0	0	6,473

Year	Scope of Work						Equipment Cost (MRs.)					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Optimally Achievable Case												
New Grid	1	2	2	2	3	10	227	402	447	460	511	2,048
Conversion	1	2	2	2	1	8	242	356	319	404	147	1,468
Line Bays	8	14	14	20	18	74	80	140	140	200	180	740
T/Line (Total)	4	7	7	10	9	37	596	2,354	1,608	3,006	1,585	9,149
T/Line D/C (Rail)	2	1	-	3	1	7	496	130	-	1,056	120	1,802
T/Line S/C (Rail)	-	1	2	2	1	6	-	700	440	830	150	2,120
T/Line D/C (Lynx)	2	3	3	2	2	12	100	892	440	448	624	2,504
T/Line S/C (Lynx)	-	2	2	3	5	12	-	632	728	672	691	2,723
Augmentation	-	2	5	6	4	17	-	124	321	395	292	1,132
Extension	-	1	2	1	4	8	-	91	180	57	388	716
Capacitor	19	12	5	9	2	47	20	15	6	7	3	156
Capacitor (132 kV)	2	4	10	-	-	16	12	31	63	-	-	-
Total	35	44	47	50	41	217	1,177	3,513	3,084	4,528	3,107	15,408
Projects with Available Finances (Tr-III, Tr-IV)												
New Grid	2	-	-	-	-	-	567	-	-	-	-	-
Conversion	5	-	-	-	-	-	1,250	-	-	-	-	-
T/Line	7	-	-	-	-	-	892	-	-	-	-	-
Augmentation	38	13	-	-	-	-	2,171	682	-	-	-	-
Extension	12	4	-	-	-	-	683	228	-	-	-	-
Capacitor	-	-	-	-	-	-	-	-	-	-	-	-
Total	64	17	0	0	0	81	5,563	910	0	0	0	6,473

MVA/km/MVA

Year	Scope of Work						MVA/km/MVA					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Best Case												
New Grid	6	4	-	1	2	13	294	156	-	26	39	515
Conversion	7	-	-	-	1	8	193	-	-	-	13	206
T/Line D/C (Total)	31	6	6	5	4	52	887	128	163	133	92	1,403
T/Line D/C (Rail)	4	1		2	-	7	97	10		73	-	180
T/Line S/C (Rail)	6	2	3	3	-	14	228	50	69	60	-	407
T/Line D/C (Lynx)	8	1	-	-	-	9	157	4	-	-	-	161
T/Line S/C (Lynx)	13	2	3		4	22	405	64	94	-	92	655
Augmentation	9	13	9	7	4	42	152	212	166	121	68	719
Extension	4	4	3	5	-	16	132	132	105	131	-	500
Capacitor (11 kV)	19	12	5	9	2	47	69	48	18	22	6	163
Capacitor (132 kV)	2	4	10	-	-	16	40	101	202	-	-	343
Total	140	55	45	37	21	298						

Year	Scope of Work						MVA/km/MVA					
	2015-16	2016-17	2017-18	2018-19	2019-20	Total	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Optimally Achievable Case												
New Grid	1	2	2	2	3	10	52	78	92	78	65	365
Conversion	1	2	2	2	1	8	33	44	34	49	13	173
T/Line (Total)	4	7	7	10	9	37	31	274	190	337	197	1,028
T/Line D/C (Rail)	1	1	-	3	1	6	18	13	-	106	12	149
T/Line S/C (Rail)	-	1	2	3	1	7	-	70	44	93	15	222
T/Line D/C (Lynx)	2	3	3	1	3	12	13	112	55	54	88	321
T/Line S/C (Lynx)	-	2	2	3	4	11	-	79	91	84	82	336
Augmentation	-	2	5	6	4	17	-	28	69	104	82	283
Extension	-	1	2	1	4	8	-	40	66	13	118	237
Capacitor (11 kV)	19	12	5	9	2	47	69	48	18	22	6	163
Capacitor (132 kV)	2	4	10	-	-	16	40	101	202	-	-	343
Total	35	44	47	50	41	217						

Best

Item	Fy 2015-16				Fy 2016-17				Fy 2017-18				Fy 2018-19				Fy 2019-20				Total			
	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty
Equipment Cost	11,505	11,146	327	33	3,247	3,117	118	12	2,527	2,498	26	3	2,571	2,532	35	4	1,563	1,479	75	8	21,413	20,772	581	59
Cost of Land		90				60				0				15				30				195		
Erection Cost (8% of Material Cos)		920				260				202				206				125				1,717		
Engineering (1.5% of Equipment Cost)		173				49				38				39				23				321		
Project Cost (Excluding Admn Anc Finance Costs)	12,598	12,239	327	33	3,556	3,426	118	12	2,767	2,738	26	3	2,815	2,777	35	4	1,711	1,628	75	8	23,447	22,806	581	59
Administration Charges (2% of the Project Cost)		252				71				55				56				34				469		
Audit And Inspection (1% of the Project Cost)		126				36				28				28				17				234		
Inland Land Transportation And Handling Charges (1% of the material cost)		115				32				25				26				16				214		
L/C Opening Charges (0.25% of the Project Cost)		31				9				7				7				4				59		
Contingencies (5% of the Project Cost)		630				178				138				141				86				1,172		
I.D.C. : @ 11.21 % per Annum on Local and 23 % per Annum on F.E.C		1,248	75			349	27			280	6			284	8			166	17			2,326	134	
Total	15,076	14,642	402	33	4,258	4,101	145	12	3,306	3,271	32	3	3,365	3,318	43	4	2,051	1,950	92	8	28,056	27,281	715	59

Optimal

Item	Fy 2015-16				Fy 2016-17				Fy 2017-18				Fy 2018-19				Fy 2019-20				Total			
	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty
Equipment Cost	1,177	1,125	47	5	3,513	3,403	99	10	3,084	2,953	119	12	4,528	4,396	120	12	3,107	2,958	135	14	15,408	14,836	520	52
Cost of Land		15				45				30				30				45				165		
Erection Cost (8% of Material Cost)		94				281				247				362				249				1,233		
Engineering (1.5% of Equipment Cost)		18				53				46				68				47				231		
Project Cost (Excluding Admn And Finance Costs)	1,289	1,237	47	5	3,846	3,737	99	10	3,377	3,246	119	12	4,958	4,826	120	12	3,402	3,253	135	14	16,872	16,300	520	52
Administration Charges (2% of the Project Cost)		26				77				68				99				68				337		
Audit And Inspection (1% of the Project Cost)		13				38				34				50				34				169		
Inland Land Transportation And Handling Charges (1% of the material cost)		12				35				31				45				31				154		
L/C Opening Charges (0.25% of the Project Cost)		3				10				8				12				9				42		
Contingencies (5% of the Project Cost)		64				192				169				248				170				844		
I.D.C. @ 11.21 % per Annum on Local and 23 % per Annum on F.E.C		126	11			361	23			331	27			492	28			331	31			1,662	120	
Total Project Cost	1,543	1,481	57	5	4,603	4,471	122	10	4,044	3,886	147	12	5,933	5,773	147	12	4,076	3,896	166	14	20,199	19,507	640	52

New no	Fy 2015-16				Fy 2016-17				Fy 2017-18				Fy 2018-19				Fy 2019-20			
	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty
1 X 13	146.49	127.19	17.55	1.75	151.14	130.58	18.03	1.87	156.09	134.19	19.91	1.99	161.36	138.04	21.20	2.12	166.97	142.14	22.58	2.26
2 X 13	189.60	163.92	23.35	2.33	197.04	169.70	24.86	2.49	204.98	175.85	26.48	2.65	213.43	182.41	28.20	2.82	222.42	189.59	30.03	3.00
1X 26	172.71	153.40	17.55	1.75	179.06	158.50	18.69	1.87	185.82	163.92	19.91	1.99	193.02	169.70	21.20	2.12	200.70	175.86	22.58	2.26
2 X 26	242.02	216.34	23.35	2.33	252.88	225.53	24.86	2.49	264.44	235.32	26.48	2.65	276.76	245.74	28.20	2.82	289.87	256.83	30.03	3.00
1 x 13 & 1 x 26	216.09	190.41	23.35	2.33	225.26	197.91	24.86	2.49	235.02	205.90	26.48	2.65	245.42	214.40	28.20	2.82	256.50	223.47	30.03	3.00
1 x 26 & 1 x 40	248.80	223.12	23.35	2.33	260.10	232.75	24.86	2.49	272.13	243.00	26.48	2.65	284.94	253.92	28.20	2.82	298.59	265.55	30.03	3.00

Conversion	Fy 2015-16				Fy 2016-17				Fy 2017-18				Fy 2018-19				Fy 2019-20			
	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty
1 X 13	56.49	52.19	2.55	1.75	76.14	55.58	18.69	1.87	81.09	59.19	19.91	1.99	86.36	63.04	21.20	2.12	91.97	67.14	22.58	2.26
2 X 13	114.60	88.92	23.35	2.33	122.04	94.70	24.86	2.49	129.98	100.85	26.48	2.65	138.43	107.41	28.20	2.82	147.42	114.39	30.03	3.00
1X 26	97.71	78.40	17.55	1.75	104.06	83.50	18.69	1.87	110.82	88.92	19.91	1.99	118.02	94.70	21.20	2.12	125.70	100.86	22.58	2.26
2 X 26	167.02	141.34	23.35	2.33	177.88	150.53	24.86	2.49	189.44	160.32	26.48	2.65	201.76	170.74	28.20	2.82	214.87	181.83	30.03	3.00
1 x 13 & 1 x 26	141.09	115.41	23.35	2.33	150.26	122.91	24.86	2.49	160.02	130.90	26.48	2.65	170.42	139.40	28.20	2.82	181.50	148.47	30.03	3.00
1 x 26 & 1 x 40	173.80	148.12	23.35	2.33	185.10	157.75	24.86	2.49	197.13	168.00	26.48	2.65	209.94	178.92	28.20	2.82	223.59	190.55	30.03	3.00

Augmentation	Fy 2015-16				Fy 2016-17				Fy 2017-18				Fy 2018-19				Fy 2019-20			
	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty
13 To 26	50.99	50.99			54.30	54.30			57.83	57.83			61.59	61.59			65.32	65.32		
26 To 40	58.03	58.03			61.81	61.81			65.82	65.82			70.10	70.10			72.95	72.95		
13 To 40	58.03	58.03			61.81	61.81			65.82	65.82			70.10	70.10			72.95	72.95		

Extension	Fy 2015-16				Fy 2016-17				Fy 2017-18				Fy 2018-19				Fy 2019-20			
	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty	Total	LCC	FCC	Duty
13.00	46.90	40.50	5.81	0.58	49.94	43.13	6.19	0.62	53.19	45.93	6.59	0.66	56.64	48.92	7.02	0.70	60.32	52.09	7.48	0.75
26.00	73.01	66.61	5.81	0.58	77.75	70.94	6.19	0.62	82.81	75.55	6.59	0.66	88.19	80.46	7.02	0.70	93.91	85.68	7.48	0.75
40.00	85.70	79.31	5.81	0.58	91.27	84.46	6.19	0.62	97.20	89.95	6.59	0.66	103.52	95.79	7.02	0.70	105.87	97.64	7.48	0.75

Detail of recently purchased material (Unit Price)

Sr.No	Description of Material	Unit	Currency	Cost as per Purchase Order		Purchase Year	Firm Name and Country	Component Description (Local / Foreign)	Converted Cost (Rs.)	
				Local	FEC				Local	FEC
1	132/11 KV, 10/13 MVA PTF	No.	PKR	24000000	0	2014	Budgetary Estimated Cost		24,000,000	0
2	132/11 KV, 20/26 MVA PTF	No.	PKR	40400000	0	2012	M/S PEL Lahore	Local	40,400,000	0
3	132/11 KV, 31.5/40 MVA PTF	No.	PKR	49000000	0	2013	M/S PEL Lahore	Local	49,000,000	0
4	132 KV Circuit Breaker	No.	PKR	0	1,529,955	2011	M/s Sieyuan Electric China.	Foreign	0	1529955
5	132 KV Line C.Ts with SS Structure	No.	PKR	0	482989	2014	M/s W.S & Co., Lahore	Foreign	0	482,989
6	132 KV Transformer C.Ts	No.	PKR	0	782989	2014	M/s W.S & Co., Lahore	Foreign	0	782,989
7	132 KV Bus Isolators	Set	PKR	0	490,140	2011	M/s Sieyuan Electric China.	Foreign	0	490,140
8	132 KV Line Isolators	Set	PKR	0	528,045	2011	M/s Suncrest International Lahore. (Supplier)	Foreign	0	528,045
9	132-KV Lighting Arrestors									
	i) 132 KV	No.	PKR	0	188,000	2014	M/s EMCO Lahore	Foreign	0	188,000
	ii) 11KV	No.	PKR	0	7100	2014	M/s EMCO Lahore	Foreign	0	7,100
10	132 KV Potential Transformer	No.	Euro	0	2480+PKR1000	2010	M/s Tech Tronix	Foreign	0	311,000
11	Steel Gantries									
	132 KV Beam 12m	No.	PKR	78,000	0	2011	M/s Associated Technologies, Lahore	Local	78,000	0
	Column Low Level	No.	PKR	218,000	0	2011	M/s Associated Technologies, Lahore	Local	218,000	0
	132-KV Earth Mast	No.	PKR	99800	0	2011	M/s Associated Technologies, Lahore	Local	99,800	0

12	11 KV Structure	No.	PKR	15700	0	2011	M/s Associated Technologies, Lahore	Local	15,700	0
13	Control Panel									
	Type CP-30	No.	PKR	490000	0	2013	M/s NSI Lahore (Pakistan)	Local	490,000	0
	Type CP-50	No.	PKR	405000	0	2013	M/s NSI Lahore (Pakistan)	Local	405,000	0
14	Relay Panel									
	Type RP-3	No.	PKR	991500	0	2013	M/s Epesol Lahore (Pakistan)	Local	991,500	0
	Type RP-4	No.	PKR	939300	0	2013	M/s Epesol Lahore (Pakistan)	Local	939,300	0
15	Grid Station Hardware									
	TMHH Connector	No.	PKR	4690	0	2010	M/s Al-Amin Enterprises Lahore (Pakistan)	Foreign	0	4,690
	TMLH Connector	No.	PKR	4490	0	2010	M/s Al-Amin Enterprises Lahore (Pakistan)	Foreign	0	4,490
	90BH30 Connector	No.	PKR							
	TM 63 F Connector	No.	PKR	12900	0	2010	M/s Al-Amin Enterprises Lahore (Pakistan)	Foreign	0	12,900
16	Tension String for 600 mm ² Aluminum Conductor	Set	PKR	0	13900	2011	M/s Ikram Corporation	Foreign	0	13,900
17	Al. pipe 63 mm dia 4M long	No.	Euro	90	0	2010	M/s Powertech Trade and Services Lahore.	Local	11,250	0
18	Earth Wire Tension Assembly with G Clamps									
19	Al. Conductor 600mm ²	meter	PKR	500	0	2010	M/s Newage Cables Lahore.	Local	500	0
20	Earth Wire 7/0.116 (9mm ²)	meter	PKR	80	0	2013	M/s Newage Cables Lahore.	Local	80	0
21	11 KV Post Insulator with clamp	No.	PKR	14700	0	2014	M/s Emco Industries, Lahore	Local	14,700	0
22	Battery 110 V	Set	PKR	660000	0	2013	M/s Exide Karachi	Local	660,000	0

23	Battery Charger	No.	PKR	145000	0	2013	M/s Electroways	Local	145,000	0
24	Station AC/DC Panel.	No.	PKR	660000	0	2013	M/s NSI Lahore	Local	660,000	0
25	11 KV Panel (25 KA)									
	Incoming Panel 25 KA 2500 A	No.	PKR	1683700	0	2013	M/s Tariq Electric	Local	1,683,700	0
	Cutting Panel 25 KA 630 A	No.	PKR	988000	0	2013	M/s Tariq Electric	Local	988,000	0
	Bus Coupler 25 KA 2500 A	No.	PKR	1405000	0	2009	M/s NSI Lahore	Local	1,405,000	0
26	Capacitor Panel	No.	PKR	1125000	0	2013	M/s Tariq Electric	Local	1,125,000	0
27	Aux. Transformer 200 KVA	No.	PKR	750000	0	2011	M/S PEL Lahore	Local	750,000	0
28	Earthling Material									
	Earth Rod 16mm Dia 3M Long	No.	PKR	1600	0	2010	M/s Powertech Lahore.	Local	1,600	0
	Earthling Platform	No.	PKR	9800	0	2011	M/s Associated Technologies, Lahore	Local	9,800	0
	Grounding Conductor 95mm ²	meter	PKR	855	0	2013	M/s Newage Lahore.	Local	855	0
	Cartridge Type ' A '	No.	PKR	425	0	2013	M/s Waheed Naeem & Company Lahore.	Local	425	0
	Mould for above	No.	PKR	5850	0	2013	M/s Waheed Naeem & Company Lahore.	Local	5,850	0
	Cartridge Type ' B '	No.	Euro	2.5	0	2010	M/s Powertech Lahore.	Local	313	0
	Mould for above	No.	PKR	5850	0	2013	M/s Waheed Naeem & Company Lahore.	Local	5,850	0
	Cartridge Type ' C '	No.	Euro	1.8	0	2010	M/s Powertech Lahore.	Local	225	0
	Mould for above	No.	Euro	43	0	2010	M/s Powertech Lahore.	Local	5,375	0
29	Power Cables									

	1000 MCM (S/Core)	meter	PKR	1309	0	2013	M/s Newage Cables Lahore.	Local	1,309	0
	4 AWG (3/Core)	meter	PKR	1737	0	2010	M/s Pioneer Cables Lahore.	Local	1,737	0
30	Indoor Termination Kits.									
	1000 MCM (S/Core)	Set	PKR	10390	0	2013	M/s SGWI Lahore.	Local	10,390	0
	4 AWG (3/Core)	Set	PKR	10599	0	2013	M/s SGWI Lahore.	Local	10,599	0
31	Outdoor Termination Kits.									
	1000 MCM (S/Core)	Set	PKR	9300	0	2011	M/s SGWI Lahore.	Local	9,300	0
	4 AWG (3/Core)	Set	PKR	11,960	0	2010	M/s SGWI Lahore.	Local	11,960	0
32	Disc Insulators 80 KN	No.	PKR	950	0	2010	M/s EMCO Lahore.	Local	950	0
33	LT Cable 19/0.83	meter				2014	M/s EMCO Lahore.	Local	0	
34	Control Cables									
	4 x 6.0 mm ²	meter	PKR	370	0	2013	M/s Universal Cables Lahore.	Local	370	0
	16 x 2.5 mm ²	meter	PKR	540	0	2013	M/s Universal Cables Lahore.	Local	540	0
	8 x 2.5 mm ²	meter	PKR	331	0	2013	M/s Universal Cables Lahore.	Local	331	0
	4 x 2.5 mm ²	meter	PKR	225	0	2013	M/s Universal Cables Lahore.	Local	225	0
35	Armed Equipment (Rubber Poles, Wooden planks, Hydraulic Jacks)	-	PKR	1000000	-	2014	-	Local	1,000,000	0

Annexure-20

(Internal financial rate of return (IFRR))

DIIP-FIRR for T&D Based on Achievable

DIP-FIRR for T&D Based on Achievable														
		Cash In Flow							Cash Out Flow				Net Cash Flow	
Project Benefit	Loan Payment	FY	Addition al Energy Available for Sale (Million kWh)	Purchase Cost Rs.	Total Purchase Cost (Rs. In Million)	Sale Price Rs.	Energy Sold incorpor ating % losses	Sales Revenu e (Rs. In Million)	Profit (Rs. In Million)	Capital	Loan Repayme nt (Loan)	O &M		Total
1		2016	350	12	4200	16	293	4693	493	3191		64	3254	-2762
2	1	2017	1132	12	13584	16	953	15250	1666	9892		262	10153	-8487
3	2	2018	2205	12	26460	16	1861	29776	3316	7345		409	7753	-4437
4	3	2019	3208	12	38496	16	2711	43372	4876	8627	3,363	581	12570	-7694
5	4	2020	4353	12	52236	16	3704	59270	7034	7025	3,363	722	11110	-4075
6	5	2021	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
7	6	2022	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
8	7	2023	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
9	8	2024	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
10	9	2025	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
11	10	2026	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
12	11	2027	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
13	12	2028	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
14	13	2029	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
15	14	2030	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
16	15	2031	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
17	16	2032	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
18	17	2033	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
19	18	2034	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
20	19	2035	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
21	20	2036	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
22		2037	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
23		2038	4353	12	52236	16	3704	59270	7034		3,363	722	4084	2950
24		2039	4353	12	52236	16	3704	59270	7034			722	722	6313
25		2040	4353	12	52236	16	3704	59270	7034			722	722	6313
26		2041	4353	12	52236	16	3704	59270	7034			722	722	6313
27		2042	4353	12	52236	16	3704	59270	7034			722	722	6313
28		2043	4353	12	52236	16	3704	59270	7034			722	722	6313
29		2044	4353	12	52236	16	3704	59270	7034			722	722	6313
30		2045	4353	12	52236	16	3704	59270	7034			722	722	6313
31		2046	4353	12	52236	16	3704	59270	7034			722	722	6313
32		2047	4353	12	52236	16	3704	59270	7034			722	722	6313
			Salvage Value								-7216		0	7216
Total			128779	384	1545348	512	109542	1752664	207316	25673	70615	21519	128214	86318

Table-2

Results at 11.929 % Weighted Cost of Capital

Present Worth of Costs (PWC) at 12%	=		(Rs. Millic	48117.60
Present Worth of Benefits (PWB) at 12%	=		(Rs. Millic	42922.26
Net Present Value (NPV)	=	PWB-P _i	=	(Rs. Millic -5195.34
Benefit / Cost Ratio at 12 %	=	PWB/P _i	=	0.89
IFRR	=			10.45%

Annexure-21

(Amortization Schedule)

[illegible]

Annexure-22

(Sensitivity Analysis)

MULTAN ELECTRIC POWER COMPANY LIMITED

ASSUMPTIONS

2016 2017 2018 2019 2020

PPP

Energy charges	0	0	0	0	0
Capacity Charges	0%	0%	0%	0%	0%
Transmission/UOSC	0%	0%	0%	0%	0%
O&M Pay & Allowances+New Inductions	11%	11%	11%	11%	11%
Provision for Retirement Benefits	11%	11%	11%	11%	11%
Energy Purchased/Received	2%	5%	5%	5%	5%
T&D Losses	16%	15.50%	15%	15%	15%
Investment (Rs. Mill)	14781	19851	13168	14004	12193
Working Capital (Rs. Mill)	7212	7822	8420	9072	9728

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Operating Cost

		Period 2015 Determined	(B-Year) 2015 Actual	T-Year 2016 Projected	Period 2017	Period 2018	Period 2019	Period 2020
A Power Purchase Cost								
Energy Charge	[Mln Rs]	104,405	91,158	93,332	98503	105444	113563	121411
Capacity Charge	[Mln Rs]	33,683	36,358	37,114	38805	40896	43218	45691
Transmission Charge	[Mln Rs]	3,032	3,302	3,370	3524	3714	3925	4149
Adjustment *	[Mln Rs]	-	-	-				
Total Power Purchase Cost	[Mln Rs]	141,120	130,818	133,817	140,832	150,053	160,706	171,251

* Provide the detail of adjustment

		Period 2015	(B-Year) 2015	T-Year 2016	Period 2017	Period 2018	Period 2019	Period 2020
B Operation & Maintenance *								
Employees Cost **								
Salaries, Wages & Benefits	[Mln Rs]	5,649	6,266	7,448	9,093	10,251	11,304	12,368
Retirement Benefits	[Mln Rs]	1,000	3,833	4,216	4,638	5,102	5,612	6,173
Wapda Pensioners-Payments		-	1,300	1,430	1,573	1,730	1,903	2,094
Total Employees Cost	[Mln Rs]	6,649	11,399	13,094	15,304	17,083	18,819	20,635
Admin Expenses	[Mln Rs]	-	-	-	-	-	-	-
Repair & Maintenance	[Mln Rs]	835	1,531	1,912	2,477	2,671	2,881	3,111
ERP-		-	26	-	-	-	-	-
Travelling	[Mln Rs]	600	618	795	835	877	921	967
Transportation	[Mln Rs]	307	319	366	421	483	556	639
Management Fee	[Mln Rs]	-	28	40	45	50	55	60
Misc./Other Expenses	[Mln Rs]	835	994	1,101	1,187	1,282	1,386	1,501
Total O&M	[Mln Rs]	9,226	14,915	17,309	20,268	22,446	24,617	26,912

C Depreciation & Amortization								
Depreciation	[Mln Rs]	2464	3410	3853	4441	4959	5461	5922
Amortization of Leased Assets	[Mln Rs]							
Total	[Mln Rs]	2,464	3,410	3,853	4,441	4,959	5,461	5,922

Profit & Loss Statement

		Period 2015	Base Year	Year 2016	2017	2018	2019	2020
		Determined		Projected	Projected	Projected	Projected	Projected
Power Balances								
Units Received	[MkWh]	13,887	14,076	14,368	15,164	16232	17482	18690
Units Lost	[MkWh]	2,083	2,365	2,331	2,390	2,533	2,728	2781
Units Lost	[%age]	15.00%	16.80%	16.22%	15.76%	15.60%	15.60%	14.88%
Units Sold	[MkWh]	11,804	11,711	12,036	12774	13699	14754	15909
Revenue								
Sales Revenue	[Min Rs]	134,014	117,401	168,680	172152	185709	200103	214377
Subsidy	[Min Rs]		45,419	-				
Fuel Price Adjustment	[Min Rs]	-	-	-				
Total Sales Revenue	[Min Rs]	134,014	162,820	168,680	172,152	185,709	200,103	214,377
Rental & Service Income	[Min Rs]	282	258	311	326	343	360	378
Amortization of Def Credits	[Min Rs]	1,938	1,877	2,047	2219	2374	2516	2654
Other Income	[Min Rs]	1,576	1,530	357	350	350	350	350
Total Revenue	[Min Rs]	137,810	166,485	171,395	175,047	188,775	203,329	217,758
Operating Cost								
Power Purchase Cost	[Min Rs]	141,120	130,818	133,817	140832	150053	160706	171251
Adjustment of Cr. Advice by CPPA on a/c of PPP of previous years	[Min Rs]							
O&M Expenses	[Min Rs]	9,226	14,521	17,309	20268	22446	24617	26912
Depreciation	[Min Rs]	3,106	3,231	3,853	4441	4959	5461	5922
Amortization	[Min Rs]		-	-				
Provision for Bad Debt	[Min Rs]		-	-				
Total Operating Cost	[Min Rs]	153,452	148,570	154,979	165,541	177,459	190,784	204,086
EBIT	[Min Rs]	(15,642)	17,915	16,416	9,507	11,317	12,545	13,672
Financial Charges	[Min Rs]		669	1,098	2548	3190	3913	4123
EBT	[Min Rs]	(15,642)	17,246	15,318	6,958	8,126	8,632	9,549
Tax	[Min Rs]		-	5,361	2435	2844	3021	3342
EAT	[Min Rs]	(15,642)	17,246	9,957	4,523	5,282	5,611	6,207
WPPF	[Min Rs]		-	498	226	264	281	310
Profit for the period	[Min Rs]	(15,642)	17,246	9,459	4,297	5,018	5,330	5,896
			(22,379)	(5,133)	4,326	8,623	13,641	18,971
			(5,133)	4,326	8,623	13,641	18,971	24,868

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Balance Sheet [in million Rupees]

Description	Projected Qtr/ FY as on June 30, 2015	Projected Qtr/ FY as on June 30, 2016	Projected Qtr/ FY as on June 30, 2017	Projected Qtr/ FY as on June 30, 2018	Projected Qtr/ FY as on June 30, 2019	Projected Qtr/ FY as on June 30, 2020
Intangible Fixed Assets						
Net Fixed Assets in Operations	66,224	75,424	87,776	97,616	106,516	113,763
Total Net Fixed Assets in Operations	66,224	75,424	87,776	97,616	106,516	113,763
Capital Work in Progress	6,769	8,496	11,555	9,924	9,567	8,591
Long Term Loans to Employees	75	94	114	136	156	173
Deferred Cost & Long Term Deposits	0.05	0.06	0.06	0.06	0.06	0.06
Current Assets	6,844	8,590	11,669	10,060	9,723	8,764
Stores & Spares	3,981	4,589	5,321	5,883	6,426	6,898
Trade Debts	27,231	27,231	34,138	37,853	41,855	46,142
Advances, Prepayments, Other Receivables	3,257	3,555	3,795	4,215	4,555	4,565
Tariff Subsidy (Receivable from GoP)	25,326	25,326	25,326	25,561	25,526	25,651
Receivable from Associated Companies	4,066	4,565	4,575	4,785	5,115	5,525
Cash & Bank Balances	3,627	14,277	7,118	6,209	6,693	8,227
Total Current Assets	67,488	79,543	80,273	84,506	90,169	97,008
Total Assets	140,556	163,557	179,718	192,182	206,408	219,535
Subscribed Equity	43,332	43,332	43,332	43,332	43,332	43,332
Unappropriated Profit	(5,133)	4,326	8,623	13,641	18,971	24,868
Total Equity	38,199	47,658	51,955	56,973	62,303	68,200
Long Term Liability						
Security Deposits	5,962	6,562	7,212	7,832	8,482	9,077
Employee Retirement Benefits	26,608	29,365	32,397	35,733	39,402	43,438
TFCs & SUKUK						
Deferred Credits	39,729	42,332	45,034	47,063	48,626	49,894
Total Long Term Loan	8,862	9,065	16,193	18,835	22,107	23,207
Total Long Term Liability	81,161	87,324	100,836	109,462	118,617	125,615
Current Liability						
Current Maturity on Long Term Loans	1,530	1,540	1,639	1,696	1,768	2,058
Subsidy Received in Advance from GoP						
Provision for Taxation & WPPF						
Receipt Against Deposit work	11,245	10,922	11,274	10,624	10,076	9,691
Payable to NTDC/CPPA	12,106	10,768	9,360	7,859	7,859	7,859
Creditors, Accrued and Other Liabilities	6,537	5,345	4,655	5,568	5,785	6,112
Total Current Liability	31,418	28,575	26,927	25,747	25,487	25,720
Total Liabilities and Commitments	112,579	115,899	127,763	135,209	144,104	151,335
Total Liabilities and Equity	150,778	163,557	179,719	192,182	206,407	219,535