SUKKUR ELECTRIC POWER COMPANY

Distribution License No. 21/DL/2011

MULTI YEAR TARIFF PETITION FOR DISTRIBUTION OF POWER

FOR THE FY 2020-21 TO 2024-25

AE661140

Rupees 50 ۵۰ روپیہ

CEO SEPCO Sukkur

63 DATE 17/6/21

Zulfiqar Ali Soomro
Stamp Vendor
Lic No. 14 Sukkur Gymkhana
Minara Road Sukkur

AFFIDAVIT

I, Muhammad Saleem, Chief Executive officer, Sukkur Electric Power Company Limited, (Distribution Licence # 21/DL/2011) being duly authorized representative / attorney of Sukkur Electric Power Company Limited, herby solemnly affirm and declare that the contents of the accompanying petition / application for distribution businesssubmitted / filed vide letter No.CEO/FD/CPC/196-198 dated 17th June, 2021, related to FY 2020-21 to FY 2024-25, including all supporting documents are true and correct to the best of my knowledge and belief and that nothing has been concealed. I also affirm that all further documentation and information to be provided by me in connection with the accompanying petition shall be true to the best of my knowledge and belief.

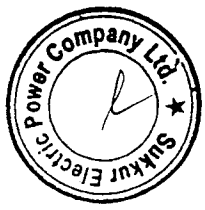
DEPONENT

(MUHAMMAD SALEEM)
CHIEF EXECUTIVE OFFICER

17/06/2021
ZULFAQAR ALI SOOMRO
B.Sc LL.B
ADVOCATE
Notary Public Sukkur

SUKKUR ELECTRIC POWER COMPANY
SUMMARY OF EVIDENCE FOR DISTRIBUTION BUSINESS
FOR THE FY 2020-21 to FY 2024-25

Sr. #	Parameter	Unit	As per NEPRA's Last Determination for FY 2019-20	Provisional	Projection				
				FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
1	Sales Volume & Growth in Sale	Gwh	3,502	2,710	2,793	2,942	3,059	3,721	4,102
2	T&D Losses	%age	18.11%	36.27%	35.31%	34.36%	33.39%	32.40%	31.39%
3	Power Purchase Price (Un-Adjusted)	Rs./kWh	14.41	13.57	13.65	15.65	17.36	18.12	19.34
4	Rate on Return Base	Rs./ in M	1,742	2,701	3,035	3,564	3,941	4,267	4,521
5	O & M	Rs. In M	6,436	8,712	9,672	9,209	11,237	12,084	13,001
6	Depreciation	Rs. In M	1,333	1,362	1,573	1,769	1,976	2,189	2,407
7	Other Income	Rs. In M	(988)	(1,121)	(1,059)	(1,140)	(1,230)	(1,330)	(1,441)
8	Distribution Margin	Rs.Kwh	8523	11654	13222	13402	15925	17210	18488
9	Average Sales Tariff	Rs.Kwh	2.43	4.30	4.73	4.56	5.21	4.62	4.51



SUKKUR ELECTRIC POWER COMPANY LIMITED

Office of the Company Secretary BoD SEPCO HQ

Admin Block Thermal Power Station Sukkur

Phone: 071-9310808 / PBX: 071-9310795-6 / Fax: 071-9310797 / Email: sepcobod@gmail.com

No. BoD/SEPCO/CS/B-241/ 2300-2315 *Dated:* 16, *June 2021*

BOARD RESOLUTION

Reference: *57th BoD SEPCO meeting held on 10.06.2021 & minutes of meeting circulated vide this office letter No. BoD/SEPCO/CS/B-241/2249-2266, dated 16.06.2021*

The decision of the Board in respect of following Agenda is hereby conveyed as under:

AGENDA–57 (3)	MULTI YEAR TARIFF PETITION (SUPPLY FOR POWER & DISTRIBUTION OF POWER) FOR FY 2020-21 TO 2024-25

Decision: As per recommendation of 25th Audit & Finance Committee meeting held on 02.06.2021, the Board resolved and approved as under: -

"Multi Year Tariff Petition for the FY 2020-21 to 2024-25 and review motion if required, and also authorized Chief Executive Officer SEPCO or his representative to present the Petition on behalf of SEPCO before NEPRA for filing petition."

Action by:
Finance Director

(Sattar Bux Soomro)
Company Secretary

Copy to the: -

- Chairman, BoD SEPCO.
- All Member, BoD SEPCO.
- Chief Engineer SEPCO _____ (all).
- HR & Admn Director SEPCO.
- Finance Director SEPCO.
- Manager (Internal Audit) SEPCO.
- Master File.

TARIFF PETITION

1. PETITION SUMMARY

1.1 Details of the Petitioner:

1.1.1 Name and Address:

Sukkur Electric Power Company Limited (hereinafter referred to as SEPCO)
Thermal Power Station, Old Sukkur, Sukkur.

1.1.2 Representatives of SEPCO:

Mr. Muhammad Saleem	Chief Executive Officer.
Mr. Muhammad Khan Sohu	Chief Technical Officer.
Mr. Khoob Chand Rajput	Chief Commercial Officer.
Mr. Imdad Ali Mirani	Finance Director.

1.1.3 Overview:

- SEPCO is filing the Consumer end Multi Year Tariff Petition Distribution Business for the FY 2020-21 to FY 2024-25 in accordance with the Amended NEPRA Act 2018.

- SUKKUR ELECTRIC POWER COMPANY LIMITED (SEPCO) is a licensed public limited company providing utility service to distribute and supply electricity to the area of Sukkur Electric Power Company Limited, as set out in SEPCO's license, granted by NEPRA under the NEPRA Act.

The Distribution System of the SEPCO consists of three operation circles namely:

⇒ Sukkur
⇒ Larkana
⇒ Dadu

2.1 Tariff Methodology:

2.1.1 SEPCO's Margin:

The formula calculates SEPCO's distribution margin based on projected unit sales, operating expenses, depreciation, investment and return on investment (cost of capital). Generation and transmission costs are treated as pass-through. The formula determines revenues for the period of the tariff control period. Revisions may be made to revenues within that period if actual inflation is different from forecast. The profits or losses that arise from changes in efficiency or demand would, however, be retained by SEPCO for the duration of the revenue control period.

At the end of the period, the formula would be reapplied to determine the distribution margin for each quarter period in the subsequent period of control. Operating expenditures will be subject to an efficiency requirement so that SEPCO will be required to ensure that its increase in costs is below the rate of inflation by an efficiency factor (X) to be determined by NEPRA.

Under the proposed tariff-setting methodology, the average retail tariff would consist of (i) Power Purchase Price (PPP) adjusted on T&D Losses and (ii) Average Distribution Margin, which would be set on the formula-based methodology of NEPRA (iii) Prior Year Adjustment.

Sukkur Electric Power Company Ltd.

2.2 Distribution Margin Formula:

The average Distribution Margin (DM) for the2020-21 to FY 2024-25 is based on the following formula, keeping in view of the actual results for the FY 2019-20, where ever required.

$$Avg.\ D.Margin = \frac{O\&M + Provision\ for\ Bad\ Debts + Depreciation + RORB - (Other\ income)}{Total\ Estimated\ Unit\ Sales}$$

Where:

O&M is the expected operating and maintenance cost per kWh, which includes the estimated cost of technical service and repair, necessary materials for operation, salary, mandatory social insurance payments, administration, management and other operating costs related to SEPCO's distribution and supply business. The O&M component for the FY 2020-21 to FY 2024-25 is estimated on the basis of inflation adjustments to SEPCO's operating expenses from the latest available data for FY 2019-20.

2.2.1 Depreciation:

The depreciation of assets is provided in accordance with the accounting policy of the Company.

2.2.2 Average Rate of Return (ROR):

The return on investment on the (cost of capital) will be calculated as follows:

$$ROR = Profit\ Rate\ Base \times Rate\ of\ Return$$

Where:

Profit Rate Base is defined for the FY 2020-21 to FY 2024-25 as the sum of (i) Gross Fixed Assets in Operation beginning of the year (ii) The capital expenditures for the year (New Investments), in accordance with the proposed investment programme (iii.) Less Cumulative Depreciation (iv) Plus Closing Capital Work in Progress (v) Less: Differed Credit.

Annual Rate of Return is a pre-tax return on the Profit Rate Base. Because the investment is typically financed with a combination of debt equity, the appropriate rate of return would be a market-based weighed average of the cost of capital

2.2.3 ***Total Estimated Unit Sales*** schedule of the total unit sales (in kWh) of SEPCO across all customer categories is forecast for the FY 2020-21 to FY 2024-25. This forecast is used to determine the average distribution margin for supply business per unit for the FY 2020-21 to FY 2024-25 needed to cover the revenue requirement expected for the year as under:-

Sukkur Electric Power Co...

2.3 Consumer-end Tariff-Setting:
During the projected years, Company's tariff is revised so that total margin is recovered from customers.

2.4 Revision of Consumer End Tariffs:

Based on the methodology discussed above, possible quarterly adjustments to consumer end tariffs within a re-base or revenue control period are strictly limited to the following items:

2.5 Scheduled Change in Tariff:
The retail tariff may be revised monthly, quarterly, semi-annually as the case may be, to ensure required revenue due to changes in the basic assumptions formulating tariff design.

2.6 Inflation Adjustments:
The O&M component of the distribution margin is adjusted for expected inflation of control period.

2.7 Extraordinary Adjustments:
Any justified losses and/or additional expenses incurred by SEPCO due to changes in legislation month tariff adjustment determined but not notified, legal acts, technical regulation, or other special events that are beyond its control would be reimbursed by adjusting the Tariff, subject to NEPRA's approval:

3. CALCULATING SEPCO'S REVENUE REQUIREMENT:

3.1 Trends in Customers Numbers and Consumptions:
It is observed that domestic and life line consumers dominated the consumers number in SEPCO as per Annex-I. The subsidized categories generally outpaced others, which has been a major pressure on the tariffs.

The increase in domestic consumption relative to industrial consumption i.e. sales mix is poor indicative for SEPCO's revenues and profitability. Meanwhile, industrial customers (the most profitable for SEPCO, as they are more economical to serve) are reducing their consumption (by installing captive generation) resulting in lower revenues for the Company.

3.2 Calculating SEPCO's Revenue Requirement:
Based on the tariff methodology described in the previous section, the average tariff for fiscal year F.Y 2020-21 to FY 2024-25, has been calculated using the following parameters:

3.3.1 Total Unit Sales:
Unit Sales for FY 2019-20, is actual & FY 2020-21 to FY 2024-25 is projected keeping in view the availability of electricity in the system and reduction in T&D Losses by (1) % from the last year FY 2019-20 projected losses as per following tables The quarterly sales volume is actual & projected considering the seasonal effect keeping the overall target.
The detail of category wise projected sales volume is as per Table-I.

3.3.2 Inflation:
The CPI is expected to increase annually by the historical average inflation rate of 9%.

3.3.3 O&M COST:
Based on inflation adjustments to SEPCO'S operating expenses from the latest available provisional FY 2019-20 and 10% increase in Salaries & Allowances in the FY 2020-21 to 20024 to 25.

Sukkur Electric Power Company Ltd.

The O&M per unit has been projected at around as per Table-2 in the following major heads.

Pay and Allowances:

The pay and allowances includes salaries of regular and contract employees, wages of daily wages, which includes all benefits such as house rent and acquisitions allowances, medical allowances and facilities, free electricity and pension contribution. Considering the impact of increase in salaries annual increment e.t.c. by the Govt: as per the finance bill.

3.3.4 Disparity Reduction Allowance

a- Government of Pakistan approved **Disparity Reduction Allowance** @ 25% of the basic pay of basic pay scale 2017 to all Federal Government Employees BPS-01 to BPS-19 w.e.f 1st March, 2021.

b- Government of Pakistan has grant of Disparity Reduction Allowance @ 25% of the Basic Pay of Basic Pay Scale 2017 to government employees in BPS 20–22, with effect from 01.07.2021 vide Finance Division (Regulations Wing) Islamabad Office Memorandum F.No.14(1)R-3/ 2021-324, dated 08.07.2021.

3.3.5 Grant of Ad-Hoc Allowance 2021 @ 10% of Basic Pay to SEPCO Employees

Government of Pakistan has allowed Ad-Hoc Relief Allowance-2021 @ 10% of the basic pay to all the Federal Government Employees w.e.from 1st July 2021 vide Finance Division (Regulation Wing), Islamabad office Memorandum No F.1(1)Imp/2021-216 dated 08.07.2021. in the light of clarification Finance Division's No. 4(3)R-4/2011-Revision dated July 26, 2021 circulated by Section Officer (Admn) Ministry of Energy (Power Division), Government of Pakistan, Islamabad vide his letter No. 2(8)/2021-Admn, dated 30.08.2021.

3.3.6 Grant of Increase in Pension to Pensioners of the Federal Government

Government of Pakistan, Islamabad has sanctioned an increase of @ 10% of net pension to the pensioners of the Federal Government w.e.from 1st July 2021 vide Finance Division (Regulation Wing), Islamabad office MemorandumF.No.4(1)-/Reg.6/2021- 486 dated 08.07.2021.

3.3.7 Revision of Rate of Orderly Allowance

Government of Pakistan has revised the rate of orderly allowance from Rs.14,000/- to Rs.17,500/- per month to BPS-20 to BPS-22 officers with effect from 01.07.2021 for the civil employees of the Federal Government vide Finance Division (Regulations Wing), Islamabad, vide his Office Memorandum F.No.1(13) Imp/ 2016-217, dated 08.07.2021.

3.3.8 Revision of Rate of Integrated Allowance

Government of Pakistan, Islamabad has allowed revision of rate of integrated allowance from Rs.450/- to Rs.900/- per month for Qasids, Naib Qasids, and Daftaries to all the Federal Government Employees with effect from 01.07.2021 vide Finance Division (Regulations Wing) Office Memorandum F.No.6(1)R-5/2005, dated 08.07.2021.

- **Repair and Maintenance:**

The repair and maintenance expenditures pertain to the Computers and Equipments.

- **Travelling Allowance:**

The travelling expenses for daily movement from allied formation to all bank branched and collect the scroll from banks and submit to MIS Directorate.

Sukkur Electric Power Company Ltd.

- **Transportation Charges:**

The transportation charges include repair and maintenance of vehicles, POL and annual renewal of registration fees.

- **Other Miscellaneous Expenditures:**

Other miscellaneous expenditures, includes repair of furniture and office equipment, stationery and Photostat charges, postage and telecommunications.

3.3.9 Transfer of Surplus Employees from GENCO

In pursuance of the decision of Economic Coordination Committee (ECC) of the cabinet made vide case No. ECC-123/11/2021 dated 07-04-2021, PEPCO, vide Office Order No.3145-56/MDP/DAP/E-II/17/SEPCO/2020 dated 20-05-2021 has adjusted the 515 Nos. GENCO's employees declared Surplus in SEPCO detail as under:-

Sr. No.	Cader	BPS	No of Emp
1	AM / B&AO	17	1
2	Accounts Assistant	16	4
3	Transport Supervisor	16	1
4	SSO-I	16	15
5	Steno	16	3
6	Accounts Assistant	15	5
7	LS-I	15	61
8	LS-II	14	28
9	SSO-II	14	31
10	UDC	11	4
11	Crane Operator	11	1
12	LDC	9	53

Sr. No.	Cader	BPS	No of Emp
13	UDC	9	16
14	Fitter	9	6
15	Meter Reader	9	6
16	Security Sargent	8	8
17	ALM	7	115
18	Bill Distributor	7	19
19	Telephone Operator	7	3
20	Security Guard	6	118
21	Driver	6	1
22	Plumber	5	1
23	Naib Qasid	1	15
	Total		**515**

Sukkur Electric Power Company Ltd.

Table-1

CATEGORY WISE SALES VOLUME PROJECTED

GWH

Description	Unit Sale (Projected)				
	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Residential					
Up to 50 Units	50.27	52.95	55.07	66.98	73.84
For peak load requirement up to 5 kW					
01-100 Units	447.12	470.99	489.78	595.77	656.75
101-200 Units	354.92	373.88	388.79	472.93	521.33
201-300 Units	338.01	356.04	370.25	450.38	496.48
301-700Units	255.46	269.09	279.83	340.39	375.23
Above 700 Units	135.90	143.16	148.88	181.10	199.62
E-1 (1)	1.25	1.47	1.40	1.71	1.88
For peak load requirement exceeding 5 kW					
Time of Use (TOU) – Peak	5.57	5.86	6.10	7.41	8.17
Time of Use (TOU) - Off-Peak	69.73	73.46	76.40	92.92	102.44
Commercial - A2	66.41	69.96	72.75	88.50	97.55
For peak load requirement up to 5 kW					
Regular	16.23	17.10	17.77	21.62	23.84
Time of Use (TOU) - Peak (A-2)	18.83	19.84	20.63	25.10	27.67
Time of Use (TOU) - Off-Peak	104.59	110.18	114.57	139.36	153.64
Industrial					
B1	21.07	22.20	23.09	28.09	30.96
B1 - TOU (Peak)	8.27	8.71	9.06	11.02	12.14
B21- TOU (Off-peak)	96.50	101.66	105.71	128.59	141.75
B2	26.77	28.20	29.33	35.68	39.33
B2 - TOU (Peak)	29.86	31.46	32.71	39.79	43.86
B2 - TOU (Off-peak)	208.61	219.76	228.51	277.97	306.42
B3 - TOU (Peak)	4.01	4.21	4.39	5.33	5.88
B3 - TOU (Off-peak)	21.76	22.92	23.83	28.99	31.95
B4 - TOU (Peak)	2.94	3.10	3.23	3.93	4.32
B4 - TOU (Off-peak)	17.65	18.60	19.33	23.52	25.93
TMP E-2 (1)	1.48	1.55	1.62	1.97	2.17
C1(a) Supply at 400 Volts - up to 5 kW	4.33	4.55	4.74	5.76	6.34
C1(b) Supply at 400 Volts -exceeding 5 kW	34.41	36.24	37.68	45.84	50.53
C1(c) Time of Use (TOU) – Peak	5.69	5.99	6.23	7.58	8.35
C1(c) Time of Use (TOU) - Off-Peak	32.78	34.53	35.91	43.69	48.15
C2 Supply at 11 kV	12.32	12.97	13.49	16.42	18.10
Time of Use (TOU) – Peak	12.66	13.33	13.87	16.87	18.59
Time of Use (TOU) - Off-Peak	65.46	68.95	71.70	87.22	96.14
Agricultural Tube-wells - Tariff D					
D1 Scarp	92.56	97.51	101.40	123.35	135.96
Time of Use (TOU) - Peak D-1	12.42	13.08	13.61	16.55	18.25
Time of Use (TOU) - Off-Peak D1	102.99	108.49	112.82	137.24	151.28
D2 Agricultural Tube-wells	20.23	21.31	22.16	26.95	29.71
Time of Use (TOU) - Peak D-2	2.32	2.45	2.55	3.10	3.41
Time of Use (TOU) - Off-Peak D2	2.68	2.82	2.94	3.57	3.94
Public Lighting G	25.70	27.07	28.15	34.24	37.75
Colonies H (I)	1.34	1.41	1.47	1.79	1.96
A-3 (66) General Supply	61.63	64.82	67.49	82.12	90.57
Grand Total	2,792.77	2,941.89	3,059.23	3,721.32	4,102.19

3.3.6 Average Rate of Return (ROR):

Sukkur Electric Power Company Ltd.

Average ROR is kept at 15.02% as cost of capital as allowed by NEPRA for the FY 2019-20.

$$Ke = RF + (RM - RF) \times \beta$$
$$= 13.7687\% + (15\% \times 1.1)$$
$$= 15.12\%$$

The cost of debts ;kd = 15.02%

$$WACC = [Ke \times (E/V)] + [kd \times (D/V)]$$

Where E/V and D/V are equity and debt ratio respectively taken as 30% & 70%.

3.3.9 Distribution Margin for Distribution of Power:

The sum of the O&M, Depreciation, and provision for bad debt and ROR less Amortization and Other Income result in SEPCO's distribution revenue is divided by the total estimated unit's sales yields the average distribution margin for the each year is worked out as under:

Sr. No.	Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
1	Return on Net Fixed Assets in Operation (RRB * Profit Rate Base) @15.02%.	3,035	3,564	3,941	4,267	4,521
2	O&M (Million Rs.)	9,672	10,215	11,237	12,084	13,001
3	Depreciation (Million Rs.)	1,573	1,769	1,976	2,189	2,407
4	Other Income (Million Rs.)	(1,059)	(1,140)	(1,230)	(1,330)	(1,441)
6	Distribution Margin Cost (Million Rs.)	13,222	14,407	15,925	17,210	18,488
7	Sales Volume (Gwh)	2,793	2,942	3,059	3,721	4,102
8	Average Distribution Margin (6/7) Rs./Kwh	**4.73**	**4.56**	**5.21**	**4.62**	**4.51**

3.4 Tariff FY 2020-21 to FY 2024-25:

The Average Tariff based on the methodology discussed above comes for the each year from FY 2020-21 to FY 2024-25, is as under, detail working is attached as per Table-2.

3.5 Estimated Sales Revenue for the FY 2020-21 to FY 2024-25:

Estimated Sales Revenue on the basis of proposed Tariff for the FY 2020-2 to FY 2024-25 is as under.

Table [Each Year]

Description	Unit	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Energy Charges	Rs. In M					
Capacity Charges	Rs. In M					
Transmission Charges	Rs. In M					
Market Operation fee	Rs. In M					
Power Purchase Cost	**Rs. In M**					
Distribution Margin Net	**Rs. In M**	**9,672**	**10,215**	**11,237**	**12,084**	**13,001**
Total	**Rs. In M**	**9,672**	**10,215**	**11,237**	**12,084**	**13,001**

3.6 Comparison of Current Tariff and Proposed Tariff FY 2020-21.:

The Category wise comparison of determined Tariff and Proposed Tariff FY 2020-21is as Annex-III.

Sukkur Electric Power Company

4. SUMMERY OF EVIDENCE:

The Financial Projection of the Company on the basis of proposed Tariff is as under:

(Quantitative DATA) [Table Each Year 2020-21-24-25]

Description	Unit	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Units Purchase	Gwh	4,317	4,482	4,593	5,505	5,979
Units Sold	Gwh	2,793	2,942	3,059	3,721	4,102
Losses	%age	35.3%	34.4%	33.4%	32.4%	31.4%
Average Sale Rate	Rs./Kwh	4.73	4.56	5.21	4.62	4.51

In support of the Petition following financial as well as commercial calculations are submitted for consideration of the Authority.

Sukkur Electric Power Company Ltd.

Table-2

SEPCO'S REVENUE REQUIREMENT

Sr. No.	Description	Unit	NEPRA Determination	Provisional	Projection				
			FY 2019-20	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
I	Units Purchased	MKwh	4,276	4,253	4,317	4,482	4,593	5,505	5,979
Ii	Unit Sales	MKwh	3,502	2,710	2,793	2,942	3,059	3,721	4,102
Iii	Losses	%age	18.11%	36.27%	35.31%	34.36%	33.39%	32.40%	31.39%
iv.	PPP (Un-adjusted)	Rs./Kwh	14.41	13.57	13.65	15.65	17.36	18.12	19.34
V	PPP (adjusted)	Rs./Kwh	17.59	21.30	21.10	23.84	26.06	26.80	28.18
	Regulatory Assets Base (RAB)								
	Gross Fixed Assets in Operation								
1	Opening Fixed Asset in operation	Mln.Rs.	35,600	39,562	40,263	45,613	51,311	57,337	63,529
2	Transferred during the year	Mln.Rs.	3,862	701	5,350	5,698	6,027	6,192	6,340
3	Closing Fixed Assets in operation (1+2)	Mln.Rs.	39,462	40,263	45,613	51,311	57,337	63,529	69,869
4	Less : Cumulative Depreciation	Mln.Rs.	17,163	17,196	18,769	20,537	22,511	24,697	27,101
5	Net Fixed Assets in Operation (3-4)	Mln.Rs.	22,299	23,067	26,844	30,774	34,827	38,832	42,768
6	Closing Capital Work in Progress	Mln.Rs.	4,011	5,694	8,025	8,546	9,040	9,288	9,509
7	Total Assets (5+6)	Mln.Rs.	26,310	28,760	34,869	39,320	43,867	48,120	52,278
8	Deferred Credit	Mln.Rs.	13,087	10,776	12,435	14,302	16,404	18,769	21,430
9	Regulatory Rate Base (7-8)	Mln.Rs.	13,223	17,984	22,434	25,018	27,463	29,351	30,848
10	**Average ROR**	Mln.Rs.	11,602	17,984	20,209	23,726	26,241	28,407	30,100
	Distribution Revenue:								
11	Return on Net Fixed Assets in Operation (RRB * Profit Rate Base)	Mln.Rs.	1,742	2,701	3,035	3,564	3,941	4,267	4,521
12	O&M (Million Rs.)	Mln.Rs.	6,436	8,712	9,672	10,215	11,237	12,084	13,001
13	Depreciation	Mln.Rs.	1,333	1,362	1,573	1,769	1,976	2,189	2,407
14	Provision for bad debt	Mln Rs.							
15	Other Income	Mln.Rs.	(988)	(1,121)	(1,059)	(1,140)	(1,230)	(1,330)	(1,441)
16	Distribution Margin Cost	Mln.Rs.	8,523	13,222	14,407	15,925	17,210	18,488	13,222
17	PPP (Adjusted)	Rs./Kwh							
18	Distribution Margin (16/ii)	Rs./Kwh	2.43	4.30	4.73	4.56	5.21	4.62	4.51
19	Average Sales Tariff	Rs./Kwh	2.43	4.30	4.73	4.56	5.21	4.62	4.51

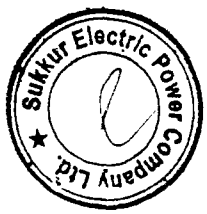
Sukkur Electric Power Company Ltd.

5. TARIFF DESIGN / ELIMINATION OF CROSS-SUBSIDIES:

As indicated in the preceding paragraphs, industrial customers that are paying in excess of their cost of service are effectively subsidizing domestic customers, thus encouraging such customers to bypass distribution network through the installation of captive generation. Many domestic customers can not afford what would amount to a doubling of tariffs. We therefore propose the consumer category wise tariff considering the following:

(a) SEPCO is design the category wise tariff in such a way that life line consumers be kept at minimum for reducing to burden of higher tariff on poor consumers as per policy of Govt.

(b) The cross subsidy will be reduced over a period of proportionately for improving the efficiency of the Company.



6. PRAY:

- **Consumer End Tariff:**

  It is prayed that the average tariff rate from the FY 2020-21 to FY 2024-25, category wise w.e.f 1st July, 2020 may be allowed as under:

Description	Unit	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Average Sale Rate	Rs./Kwh	4.73	4.56	5.21	4.62	4.51

Sukkur Electric Power Company Ltd.

INVESTMENT PROGRAM

The investment programme of the Company in the STG, ELR and DOP.

Table -3 (A) PSDP

(Rs. In Million)

	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
	Projected	Projected	Projected	Projected	Projected
Investment Plan					
DOP	975	1,099	1,232	1,421	975
ELR	1,475	1,562	1,654	1,748	1,475
STG	4,862	2,620	3,098	1,076	4,862
ERP	298	200			
Total	**7,512**	**5,280**	**5,984**	**4,245**	**7,512**
Financing Arrangement					
Local					
Foreign					
CAPEX / Own Resources	2,949	6,834	4,742	5,380	3,548
Grant					
Consumer Contribution	416	478	539	604	697
Total	**7,512**	**5,280**	**5,984**	**4,245**	**7,512**

PSDP / CAPEX:

SECONDARY TRANSMISSION LINE AND GRID STATION (STG):

The STG development plan prepared by SEPCO for system expansion and up-gradation of 132/66 KV system. PC-I of this project has been approved by ECNEC. This plan is based on historical load data and load forecast. New lines, re-conducting of existing lines, grids extension and augmentation has been justified with load flow studies.

OBJECTIVES OF STG PROJECT:

The objectives of this project are to give relief to the existing overloaded system and to meet future expansion in SEPCO area.

S.NO	Description	Nos.
Grid Stations		
1	New 132 KV	**4**
2	Conversion from 66 to 132 KV	**4**
Transmission Lines		**KM**
3	132 KV Single Circuit on Double Transmission line, km	**303**

Sukkur Electric Power Company

Year wise Scope of Works

Estimates of the Project for Plan 2020-21

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
2020-21 Grid Stations			
1	132kv Grid Station Khairpur	Augmentation 26 To 40 MVA	73
2	132kv Grid Station Gambat	Augmentation 26 To 40 MVA	73
3	132kv Grid Station Larkana City	Augmentation 26 To 40 MVA	73
4	132kv Grid Station Larkana New	Addition of 40 MVA P.T/F	73
6	132kv Grid Station Dadu Old	Addition Of 40 MVA P.T/F	73
7	132kv Grid Station Lakhi	New Grid	184
8	132kv Arain Road	Replacement of Defective 40 MVA P.T/F With 26 MVA	73
9	132kv Shikarpur	Replacement of Defective 40 MVA P.T/F With 40 MVA	73
10	132kv Grid Station Rasool Abad	Augmentation 26 To 40 MVA	73
11	132kv Grid Station Kandiaro	Augmentation 26 To 40 MVA	73
12	132kv Grid Station Shah Ladhani	Augmentation 13 To 26 MVA	50
		YEAR TOTAL	**891**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost Rs. Million
2020-21				
1	220 kV Shikarpur (Lodra-Lakhi) &	NEW LINE 21 KM	21	210
2	Liberty-Deharki-TPS Guddu/Line	02-no. Line bays at 132 kv Deharki	0	30
		YEAR TOTAL	**21**	**240**

Sukkur Electric Power Company Ltd.

Cost Estimates of the Project for Plan 2021-22

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132 KV Bhirya Road (New Grid)	1x26 MVA Transformer	104
2	132 KV Ranipur (New Grid)	1x26 MVA Transformer	169
3	132 KV Tangwani (New Grid)	1x26 MVA Transformer	169
4	66 kV Kamber (Conversion 66 kv to 132 kv)	2x26 MVA Transformer	119
5	66 kV Nara-1 (Conversion 66 kv to 132 kv)	1x26 MVA Transformer	133
6	66 kV Warah (Conversion 66 kv to 132 kv)	1x26 MVA Transformer	122
7	132 kV Naudero	(Augmentation 13-26 MVA)	23
8	132 kV Jacobabad-2	(Augmentation 13-26 MVA)	23
9	132 kV Kumb	(Augmentation 13-26 MVA)	23
10	132 kV Tharu Shah	(Augmentation 13-26 MVA)	23
		YEAR TOTAL (M.Rs)	**908**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid station Bhirya Road	(D/C T/L From Kandiaro---N.S.Feroze Section)	14	129
2	132 KV Transmission Line Feed For 132 KV Grid Station Ranipur	(D/C T/L From Gambat ---Rasool Abad Section)	5	60
3	132 KV Transmission Line Feed For 132 KV Grid station Tangwani	(D/C T/L From Thull --- Kandhkot Section)	5	60
4	132 KV Transmission Line Feed For 132 KV Grid station Kamber	(S/C T/L From 132 KV Larkana Site)	30	297
5	132 KV Transmission Line Feed For 132 KV Grid station Nara-1	(S/C T/L From 220 KV Rohri)	32	462
6	132 KV Transmission Line Feed For 132 KV Grid station Warah	(S/C T/L From 132 KV Naseer Abad)	25	250

Sukkur Electric Power Company Ltd.

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost Rs. Million
7	500 KV Dadu New – Dadu Old	New Line	3.9	23
8	132 KV ARAIN ROAD - SUKKUR SITE	New Circuit (On- ACSR Rail Conductor)	15	201
9	LIBERT-DEHRKI-GUDDU T/LINE	NEW CIRCUIT	65	1215
10	220 KV New Shp - Arain Road Section-I (132KV New SHP – Lakhi (Completed 21-KM) Section-II, (132KV Lakhi – Arain Road	New Circuit	22	182
11	132 KV Kashmore – Kandhkot Line	New Circuit	55	990
12	Ratodero In & Out from 132 kV Shp – Larkana Line	In/Out Arrangement	6.7	35
13	132KV G/S N'Feroze	Installation of 36 MVAR Capacitor Bank	01 Set	50
		YEAR TOTAL	**278.6**	**3954**

Sukkur Electric Power Company Ltd.

Cost Estimates of the Project for Plan 2022-23

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132 KV Khan Wahan (New Grid)	1x26 MVA Transformer	169
2	132 kv Piryalo (New Grid)	1x26 MVA Transformer	169
3	66KV Pad Eidan (Conversion to 132 KV)	1x26 MVA Transformer	195
4	66KV Dokri (Conversion to 132 KV)	1x26 MVA Transformer	122
		YEAR TOTAL (M.Rs)	**655**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid station Khan Wahan	(D/C T/L From 132 KV Gambat-Mehrabpur)	12	120
2	132 KV Transmission Line Feed For 132 KV Grid station Piryalo	(S/C T/L From 132 KV Pir- Jo Goth)	8	62
3	132 KV Transmission Line Feed For 132 KV Grid station Pad Eidan	(S/C T/L From 132 KV Bhirya)	25	136
4	132 KV Transmission Line Feed For 132 KV Grid station Dokri	(S/C T/L From 132 KV Larkana Site)	30	233
5	132 kv T/ (Kandhkot – Thull- Jacobabad)	New Line	72	1296
6	220 KV Rohri	2ND Circuit (New Rohri – Nara-1)	32	118
		YEAR TOTAL	**179**	**1965**

Sukkur Electric Power Company Ltd.

Cost Estimates of the Project for Plan 2023-24
A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132kv Grid Station Dadu-2, New Grid	1x26 MVA Transformer	250
2	66 KV Thari Mirwah (Conversion to 132 Kv)	1x26 MVA Transformer	200
4	132KV G/S Kashmore	(Addition of 26MVA)	81
5	132KV G/s Kandhkot	(Addition of 40MVA)	96
6	132kvG/S Thull	(Addition of 26MVA)	81
7	132kv G/S Bhan Saeedabad	(Addition of 26MVA)	81
8	132KV G/S Naseer Abad	(Aug 13-26MVA)	65
		YEAR TOTAL (M.Rs)	**854**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid station Dadu 2	(S/C T/L From 500 KV Dadu)	15	180
2	132 KV Transmission Line Feed For 132 KV Grid station Thari Mirwah	(S/C T/L From 132 KV Rasool Abad)	15	300
3	132 kV Liberty – Ghotki – Pano Akil – New Rohri	New Line	98	1764
		YEAR TOTAL	**128**	**2244**

Sukkur Electric Power Company Ltd.

Cost Estimates of the Project for Plan 2024-25

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132 KV Radhan (New Grid)	1x26 MVA Transformer	169
3	66 KV Nara-2 (Conversion to 132 kv)	1x26 MVA Transformer	122
4	66 KV Garhi Khairo (Conversion to 132 kv)	1x26 MVA Transformer	116
5	132KV G/S Kandiaro	Installation of 24 MVAR Capacitor Bank	50
		YEAR TOTAL	**457**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid Station Radhan	(S/C T/L From 132 KV Mehar)	15	150
2	132 KV Transmission Line Feed For 132 KV Grid Station Nara -2	(S/C T/L From 132 KV Choondko)	15	180
3	132 KV Transmission Line Feed For 132 KV Grid Station Garhi Khairo	(S/C T/L From 132 KV Shahdadkot)	35	309
4	2nd ckt stringing 132 kV Dadu New – Dadu 2		03	30
		YEAR TOTAL	68	669

Sukkur Electric Power Company Ltd.

ENERGY LOSS REDUCTION (ELR) PROJECT:

Objectives of Distribution Rehabilitation Project:

The objectives of the Distribution Rehabilitation Project are as under:

- Energy loss Reduction
- Improvement in Quality of Supply
- Improvement in Reliability
- Improvement in Safety
- Release of Generation, Transmission and Distribution Capacity.
- Improve Customer Service and Reduce Complaints
- Reduce Cost of Operation and Maintenance
- Improve Life of Equipment

SCOPE OF ELR WORKS UNDER FIVE YEARS

S.NO	Description	Unit	2020-21	2021-22	2022-23	2023-24	2024-25	NOS.
1	HT Proposals	Nos.	15	16	17	18	19	85
2	LT Proposals	Nos.	262	275	289	304	320	1450
1	11 KV New line for New Feeders	KM	150	160	170	180	190	850
2	11 KV lines (Extension Due to LTP)	KM	87	92	96	101	107	483
3	11 KV Reconductoring (Osprey, Dog, Rabbit, Gopher)	KM	90	96	102	108	114	510
4	11 KV 450 KVAR fixed capacitors	Nos.	15	16	17	18	19	85
5	Replacement of overloaded transformers							
	50 KVA	Nos.	60	64	68	72	78	342
	100 KVA	Nos.	75	80	85	90	95	425
	200 KVA	Nos.	60	64	68	72	75	339
	100 KVA (Additional)	Nos.	45	48	51	54	56	254
	200 KVA (Additional)	Nos.	30	32	34	36	38	170
5	Replacement of overloaded transformers	Nos.	270	288	306	324	342	1530
6	Replacement of D-Fitting	Nos.	135	144	153	162	171	765
7	New Transformers substations (Rehabilitation)							
	50KVA	Nos.	17	18	19	20	21	95
	100 KVA	Nos.	34	36	38	40	43	191
	200 KVA	Nos.	17	18	19	20	22	96
7	New Transformers substations (Rehabilitation)		68	72	76	80	86	382

8	New 3-Phase LT line (WASP)	KM	8	9	9	10	11	47
9	New 3-Phase LT Line (ANT)	KM	25	26	28	30	31	140
10	LT line Reconductoring (3Phase WASP)	KM	16	17	18	19	20	90
11	LT line Reconductoring (3-Phase ANT)	KM	10	11	12	13	14	60
12	11 KV Sectionalizers (manual)	Nos.	30	32	34	36	38	170
13	11 KV Panels with Installation	Nos.	15	16	17	18	19	85
14	Energy Meters							
	1-Phase	Nos.	2400	2500	2700	2900	3000	13500
	3-Phase	Nos.	600	630	670	700	750	3350
14	Energy Meters (1-Phase & 3-Phase)	NOS.	3000	3130	3370	3600	3750	16850
15	PVC Cables							
	2 Core 7/0.052	KM	105	112	119	126	135	597
	4 Core 19/0.052	KM	11	12	13	14	16	66
	4 Core 19/0.83	KM	3	3	3	3	3	15
15	PVC Cables (7/0.52, 19/0.52, 19/0.83)	KM	119	127	135	143	154	678
16	11 KV 500 MCM XLPE Cable (85+20%) =102	Nos.	18	19	20	22	23	102
		KM	4.5	4.6	4.8	5.4	5.7	25

Sukkur Electric P.

DISTRIBUTION OF POWER (DOP) PROJECT:

Objectives of DOP Project:

The objectives of this Distribution of Power Expansion Project are to improve the:

- Reliability of the system
- Stability of power supply
- Overloaded system
- Quality and safety of the system

Scope of Work:

- 50 No. of proposals of 11 KV feeders for bifurcation/ trifurcation.
- 40 No. of 11 KV feeders for replacement of bare it conductor with ABC.
- Implementation of transformer monitoring, metering and control system.
- Rehabilitation of 400 no. of overloaded distribution transformers.

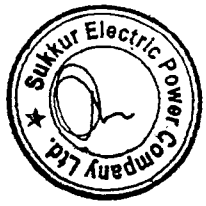
Year wise phasing of physical activities

Sr. No.	Year	Physical Activities
1	2021-22	I. Procurement of material by Manger (Material Management) II. Preparation of bidding documents, Floating of tenders and award of contract
		III. Appointment of Contractor
		IV. Survey & Preparation of job orders for: a. 16 No. 11 KV feeders for bifurcation/ trifurcation b. 12 No. of 11 KV Feeders for replacement of Bare LT conductor with ABC Cable c. Implementation of transformer monitoring, metering and control system on 643 No. of Distribution transformers. d. 100 No. of LV Works to overcome over loading of distribution transformers
		V. Execution of job orders.
2	2022-23	I. Survey & Preparation of job orders for: a. 17 No. 11 KV feeders for bifurcation/ trifurcation b. 14 No. of 11 KV Feeders for replacement of Bare LT conductor with ABC Cable c. Implementation of transformer monitoring, metering and control system on 643 No. of Distribution transformers. d. 150 No. of LV Works to overcome over loading of distribution transformers
		II. Execution of job orders.
3	2023-24	I. Survey & Preparation of job orders for: a. 17 No. 11 KV feeders for bifurcation/ trifurcation b. 14 No. of 11 KV Feeders for replacement of Bare LT conductor with ABC Cable c. Implementation of transformer monitoring, metering and control system on 643 No. of Distribution transformers. d. 150 No. of LV Works to overcome over loading of distribution transformers
		II. Execution of job orders.
		III. Final Compilation report of project

Sukkur Electric Power Company Ltd.

STANDARD PETITION FORMATS FOR DISTRIBUTION OF POWER

INDEX



FORM - 1

SUKKUR ELECTRIC POWER COMPANY

Company Statistics (Distribution Business)

Description	FY 2019-20 Provisional	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25 Provisional
Number of Consumers	788816	818816	858816	908816	958816	1008816
Area	56300	56300	56300	56300	56300	56300
Circles	7	7	7	8	8	8
Divisions	29	29	30	30	30	31
Sub Divisions	96	96	97	97	97	99
Length of Feeders	24,789	25,285	25,791	26,307	26,833	27,369
Average Length of Feeders	46	45	44	43	43	42
Maximum Length of Feeder	364	218	218	218	218	218
Minimum Length of Feeder	0.95	0.95	0.95	0.95	0.95	0.95
New connections	26,684	30,000	40,000	50,000	50,000	50,000
Length of High Voltage Transmis	2,241	2,262	2,285	2,308	2,331	2,354
Length of High Voltage Transmis	687	687	687	687	687	687
Length of STG lines (66 and 11 k	25,522	26,018	26,524	27,040	27,566	28,102
Length of Low Voltage Distributio	13,363	13,457	13,551	13,646	13,741	13,837
Number of HV transformers	132	133	133	133	133	133
Number of **burned down** HV tra	0	0	0	0	0	0
Number of STG transformers	132	133	133	133	133	133
Number of **burned down** STG tr	0	0	0	0	0	0
Number of LV transformers	38,200	38,658	39,238	40,023	40,824	41,640
Number of **burned down** LV tran	243	226	210	195	182	169

Strength (No.)

	Number of Employees	FY 2019-20 Actual	FY 2020-21	FY 2021-22	FY 2022-23 Projected	FY 2023-24	FY 2024-25
A	**Qualified Professionals**	**314**	**305**	**311**	**315**	**315**	**315**
	Engineers	251	244	249	252	252	252
	Others	63	61	62	63	63	63
B	**Staff**	**6,112**	**6,051**	**5,990**	**6,010**	**6,010**	**6,010**
	Technical	3,606	3,570	3,534	3,546	3,546	3,546
	Clerical	856	847	839	841	841	841
	Non Technical	1,650	1,634	1,617	1,623	1,623	1,623

Cost (Rs. in M)

	Number of Employees	FY 2019-20 Actual	FY 2020-21	FY 2021-22	FY 2022-23 Projected	FY 2023-24	FY 2024-25
A	**Qualified Professionals**	**4,791**	**5,320**	**5,065**	**6,180**	**6,646**	**7,151**
	Engineers	3,833	4,256	4,052	4,944	5,317	5,721
	Others	958	1,064	1,013	1,236	1,329	1,430
B	**Staff**	**3,920**					
	Technical	2,313	2,568	2,445	2,983	3,208	3,452
	Clerical	549	609	580	708	761	819
	Non Technical	1,058	1,175	1,119	1,365	1,468	1,580

Sukkur Electric Power Company Ltd.

FORM - 2

SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement

		FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
		Provisional	Provisional	Projected	Projected	Projected	Projected
Power Balances							
Units Received	[MkWh]	4,253	4,332	4,482	4,593	5,505	5,979
Units Lost	[MkWh]	1,542	1,530	1,540	1,533	1,783	1,876
Units Lost	[%age]	36.27%	35.31%	34.36%	33.38%	32.40%	31.39%
Units Sold	[MkWh]	2,710	2,802	2,942	3,060	3,721	4,102
Revenue							
Sales Revenue	[Mln Rs]	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]	-					
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]	-	-	-	-	-	-
Amortization of Def Credits	[Mln Rs]	-	-	-	-	-	-
Other Income	[Mln Rs]	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-
Operating Cost							
Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-
O&M Expenses	[Mln Rs]	8,712	9,672	9,209	11,237	12,084	13,001
Depreciation	[Mln Rs]	1,573	1,573	1,769	1,976	2,189	2,407
Amortization	[Mln Rs]	-	-	-			-
Provision for Bad Debt	[Mln Rs]	-	1,687	-	-	-	-
Other Contingency Expenses	[Mln Rs]		-				-
Total Operating Cost	[Mln Rs]	10,284	12,932	10,978	13,213	14,273	15,408
EBIT	[Mln Rs]	(10,284)	(12,932)	(10,978)	(13,213)	(14,273)	(15,408)
Financial Charges	[Mln Rs]	-	-	-	-	-	-
EBT	[Mln Rs]	(10,284)	(12,932)	(10,978)	(13,213)	(14,273)	(15,408)
Tax	[Mln Rs]	-	-	-	-	-	-
EAT	[Mln Rs]	(10,284)	(12,932)	(10,978)	(13,213)	(14,273)	(15,408)
WPPF	[Mln Rs]	-					
Profit/loss for the period	[Mln Rs]	(10,284)	(12,932)	(10,978)	(13,213)	(14,273)	(15,408)

Sukkur Electric Power Company Ltd.

FORM - 3

SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement FY2019-20 *(Provisional)*

		Jul-19 Projected	Aug-19 Projected	Sep-19 Projected	Q-1 Projected	Oct-19 Projected	Nov-19 Projected	Dec-19 Projected	Q-2 Projected	Jan-20 Projected	Feb-20 Projected	Mar-20 Projected	Q-3 Projected	Apr-20 Projected	May-20 Projected	Jun-20 Projected	Q-4 Projected	Total Projected
Power Balances																		
Units Received	[MkWh]	509.02	510.98	483.90	1,504.00	341.22	220.10	212.64	774.16	206.74	179.93	212.78	599.41	357.66	523.40	493.88	1,374.94	4,252.50
Units Lost	[MkWh]	237.17	205.52	193.59	636.28	109.94	38.38	52.47	200.80	50.02	38.57	74.64	163.27	148.04	204.35	189.68	542.07	1,542.42
Units Lost	[%age]	46.59%	40.22%	40.00%	39.55%	32.22%	17.44%	24.68%	849.00%	24.22%	21.44%	35.09%	27.24%	41.39%	39.04%	38.41%	39.42%	36.27%
Units Sold	[MkWh]	271.86	305.46	290.41	867.72	231.27	181.72	160.37	573.36	156.68	141.31	138.14	436.13	209.62	319.05	304.20	832.87	2,710.08
Revenue																		
Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]				-				-				-				-	-
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]				-				-				-				-	-
Amortization of Def Credits	[Mln Rs]				-				-				-				-	-
Other Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Cost																		
Power Purchase Cost	[Mln Rs]	-	-	-	-				-				-				-	-
O&M Expenses	[Mln Rs]	726	726	726	2,178	726	726	726	2,178	726	726	726	2,178	726	726	726	2,178	8,712
Depreciation	[Mln Rs]	131	131	131	393	131	131	131	393	131	131	131	393	131	131	131	393	1,573
Amortization	[Mln Rs]				-				-				-				-	-
Provision for Bad Debt	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Contingency Expenses	[Mln Rs]				-				-				-				-	-
Total Operating Cost	[Mln Rs]	857	857	857	2,571	857	857	857	2,571	857	857	857	2,571	857	857	857	2,571	10,284
EBIT	[Mln Rs]	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(10,284)
Financial Charges	[Mln Rs]				-				-				-				-	-
EBT	[Mln Rs]	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(10,284)
Tax	[Mln Rs]				-				-				-				-	-
EAT	[Mln Rs]	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(10,284)
WPPF	[Mln Rs]				-				-				-				-	-
Profit for the period	[Mln Rs]	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(10,284)
Prior year adjustment*	[Mln Rs]				-				-				-				-	-
Net Profit / Loss after prior year	[Mln Rs]	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(857)	(857)	(857)	(2,571)	(10,284)

* Prior Year adjustment includes in Tariff rate

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SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement FY 2020-21 *(Provisional / Projected)*

		Jul-20 Projected	Aug-20 Projected	Sep-20 Projected	Q-1 Projected	Oct-20 Projected	Nov-20 Projected	Dec-20 Projected	Q-2 Projected	Jan-21 Projected	Jan-21 Projected	Mar-21 Projected	Q-3 Projected	Apr-21 Projected	May-21 Projected	Jun-21 Projected	Q-4 Projected	Total Projected
Power Balances																		
Units Received	[MkWh]	527.40	514.32	468.49	1,510.21	331.34	220.06	214.23	765.63	211.58	187.13	250.84	649.55	375.51	516.30	515.00	1,406.80	4,332.19
Units Lost	[MkWh]	236.71	193.44	182.10	612.26	98.06	43.71	52.16	193.92	50.22	34.41	94.41	179.03	153.87	202.02	188.79	544.69	1,529.91
Units Lost	[%age]	44.88%	37.61%	38.87%	39.55%	29.59%	19.86%	24.35%	39.55%	23.73%	18.39%	37.64%	27.56%	40.98%	39.13%	36.66%	38.72%	35.31%
Units Sold	[MkWh]	290.69	320.87	286.39	897.95	233.28	176.35	162.07	571.71	161.37	152.72	156.43	470.52	221.63	314.27	326.21	862.11	2,802.28
Revenue																		
Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]				-				-				-				-	-
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortization of Def Credits	[Mln Rs]				-				-				-				-	-
Other Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Cost																		
Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Expenses	[Mln Rs]	806	806	806	2,418	806	806	806	2,418	806	806	806	2,418	806	806	806	2,418	9,672
Depreciation	[Mln Rs]	131	131	131	393	131	131	131	393	131	131	131	393	131	131	131	393	1,573
Amortization	[Mln Rs]				-				-				-				-	-
Provision for Bad Debt	[Mln Rs]	175.00	193.17	172.41	541	140.44	106.17	97.57	344	97.14	91.94	94.17	283	133.42	189.20	196.38	519	1,687
Other Contingency Expenses	[Mln Rs]				-				-				-				-	-
Total Operating Cost	[Mln Rs]	1,112	1,130	1,109	3,352	1,078	1,043	1,035	3,155	1,034	1,029	1,031	3,094	1,071	1,126	1,133	3,330	12,932
EBIT	[Mln Rs]	(1,112)	(1,130)	(1,109)	(3,352)	(1,078)	(1,043)	(1,035)	(3,155)	(1,034)	(1,029)	(1,031)	(3,094)	(1,071)	(1,126)	(1,133)	(3,330)	(12,932)
Financial Charges	[Mln Rs]				-				-				-				-	-
EBT	[Mln Rs]	(1,112)	(1,130)	(1,109)	(3,352)	(1,078)	(1,043)	(1,035)	(3,155)	(1,034)	(1,029)	(1,031)	(3,094)	(1,071)	(1,126)	(1,133)	(3,330)	(12,932)
Tax	[Mln Rs]				-				-				-				-	-
EAT	[Mln Rs]	(1,112)	(1,130)	(1,109)	(3,352)	(1,078)	(1,043)	(1,035)	(3,155)	(1,034)	(1,029)	(1,031)	(3,094)	(1,071)	(1,126)	(1,133)	(3,330)	(12,932)
WPPF	[Mln Rs]				-				-				-				-	-
Profit for the period	[Mln Rs]	(1,112)	(1,130)	(1,109)	(3,352)	(1,078)	(1,043)	(1,035)	(3,155)	(1,034)	(1,029)	(1,031)	(3,094)	(1,071)	(1,126)	(1,133)	(3,330)	(12,932)
Prior year adjustment*	[Mln Rs]				-				-				-				-	-
Net Profit / Loss after prior year	[Mln Rs]	(1,112)	(1,130)	(1,109)	(3,352)	(1,078)	(1,043)	(1,035)	(3,155)	(1,034)	(1,029)	(1,031)	(3,094)	(1,071)	(1,126)	(1,133)	(3,330)	(12,932)

* Prior Year adjustment includes in Tariff rate

Sukkur Electric Power Company Ltd.

SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement FY 2021-22 *(Projected)*

		Jul-21	Aug-21	Sep-21	Q-1	Oct-21	Nov-21	Dec-21	Q-2	Jan-22	Jan-22	Mar-22	Q-3	Apr-22	May-22	Jun-22	Q-4	Total
		Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Power Balances																		
Units Received	[MWH]	487.41	494.37	454.30	1,436.08	373.60	236.74	235.22	845.56	219.68	190.60	271.20	680.78	447.60	263.67	508.24	1,519.51	4,481.93
Units Lost	[MWH]	212.68	181.54	171.30	565.52	108.06	46.12	56.08	210.26	50.96	38.28	91.71	180.93	176.09	210.53	195.79	583.21	1,539.94
Units Lost	[%age]	43.64%	36.72%	37.71%	39.55%	28.92%	19.48%	23.84%	8429.00%	23.21%	20.15%	33.82%	26.58%	39.52%	37.35%	38.52%	38.38%	34.36%
Units Sold	[MWH]	274.72	312.83	283.00	870.56	265.54	190.63	179.14	635.30	168.63	151.71	179.48	499.82	270.72	353.14	312.45	936.30	2,941.99
Revenue																		
Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]				-				-				-				-	-
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortization of Def Credits	[Mln Rs]				-				-				-				-	-
Other Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Cost																		
Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Expenses	[Mln Rs]	860	979	886	2,725	831	597	561	1,989	528	475	562	1,565	847	1,105	978	2,931	9,209
Depreciation	[Mln Rs]	147	147	147	442	147	147	147	442	147	147	147	442	147	147	147	442	1,769
Amortization	[Mln Rs]				-				-				-				-	-
Provision for Bad Debt	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Contingency Expenses	[Mln Rs]				-				-				-				-	-
Total Operating Cost	[Mln Rs]	1,007	1,127	1,033	3,167	979	744	708	2,431	675	622	709	2,007	995	1,253	1,125	3,373	10,978
EBIT	[Mln Rs]	(1,007)	(1,127)	(1,033)	(3,167)	(979)	(744)	(708)	(2,431)	(675)	(622)	(709)	(2,007)	(995)	(1,253)	(1,125)	(3,373)	(10,978)
Financial Charges	[Mln Rs]				-				-				-				-	-
EBT	[Mln Rs]	(1,007)	(1,127)	(1,033)	(3,167)	(979)	(744)	(708)	(2,431)	(675)	(622)	(709)	(2,007)	(995)	(1,253)	(1,125)	(3,373)	(10,978)
Tax	[Mln Rs]				-				-				-				-	-
EAT	[Mln Rs]	(1,007)	(1,127)	(1,033)	(3,167)	(979)	(744)	(708)	(2,431)	(675)	(622)	(709)	(2,007)	(995)	(1,253)	(1,125)	(3,373)	(10,978)
WPPF	[Mln Rs]				-				-				-				-	-
Profit for the period	[Mln Rs]	(1,007)	(1,127)	(1,033)	(3,167)	(979)	(744)	(708)	(2,431)	(675)	(622)	(709)	(2,007)	(995)	(1,253)	(1,125)	(3,373)	(10,978)
Prior year adjustment*	[Mln Rs]				-				-				-				-	-
Net Profit / Loss after prior year	[Mln Rs]	(1,007)	(1,127)	(1,033)	(3,167)	(979)	(744)	(708)	(2,431)	(675)	(622)	(709)	(2,007)	(995)	(1,253)	(1,125)	(3,373)	(10,978)

* Prior Year adjustment includes in Tariff rate

SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement FY 2022-23 *(Projected)*

		Jul-22	Aug-22	Sep-22	Q-1	Oct-22	Nov-22	Dec-22	Q-2	Jan-23	Jan-23	Mar-23	Q-3	Apr-23	May-23	Jun-23	Q-4	Total
		Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Power Balances																		
Units Received	[MWH]	501.55	508.14	465.66	1,475.35	381.79	241.06	240.00	862.85	225.15	194.81	278.07	698.03	458.27	577.23	520.92	1,556.42	4,592.66
Units Lost	[MWH]	212.71	182.00	170.06	564.77	107.41	46.04	56.00	209.45	50.60	37.77	92.29	180.66	174.50	208.70	194.91	578.12	1,532.99
Units Lost	[%age]	42.41%	35.82%	36.52%	38.55%	28.13%	19.10%	23.33%	8429.00%	22.46%	19.39%	33.19%	25.88%	38.08%	36.16%	37.42%	37.14%	33.38%
Units Sold	[MWH]	288.84	326.14	295.60	910.58	274.38	195.03	184.00	653.41	174.54	157.04	185.79	517.37	283.77	368.53	326.01	978.31	3,059.68
Revenue																		
Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]				-				-				-				-	-
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortization of Def Credits	[Mln Rs]				-				-				-				-	-
Other Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Cost																		
Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Expenses	[Mln Rs]	936	936	936	2,809	936	936	936	2,809	936	936	936	2,809	936	936	936	2,809	11,237
Depreciation	[Mln Rs]	165	165	165	494	165	165	165	494	165	165	165	494	165	165	165	494	1,976
Amortization	[Mln Rs]				-				-				-				-	-
Provision for Bad Debt	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Contingency Expenses	[Mln Rs]				-				-				-				-	-
Total Operating Cost	[Mln Rs]	1,101	1,101	1,101	3,303	1,101	1,101	1,101	3,303	1,101	1,101	1,101	3,303	1,101	1,101	1,101	3,303	13,213
EBIT	[Mln Rs]	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(13,213)
Financial Charges	[Mln Rs]				-				-				-				-	-
EBT	[Mln Rs]	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(13,213)
Tax	[Mln Rs]				-				-				-				-	-
EAT	[Mln Rs]	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(13,213)
WPPF	[Mln Rs]				-				-				-				-	-
Profit for the period	[Mln Rs]	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(13,213)
Prior year adjustment*	[Mln Rs]				-				-				-				-	-
Net Profit / Loss after prior year	[Mln Rs]	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(1,101)	(1,101)	(1,101)	(3,303)	(13,213)

* Prior Year adjustment includes in Tariff rate

Sukkur Electric Power Company Ltd.

SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement FY 2023-24 *(Projected)*

Description		Jul-23 Projected	Aug-23 Projected	Sep-23 Projected	Q-1 Projected	Oct-23 Projected	Nov-23 Projected	Dec-23 Projected	Q-2 Projected	Jan-24 Projected	Feb-24 Projected	Mar-24 Projected	Q-3 Projected	Apr-24 Projected	May-24 Projected	May-24 Projected	Q-4 Projected	Total Projected
Power Balances																		
Units Received	[MWh]	651.62	674.15	589.44	1,914.21	448.50	292.64	285.09	1,026.24	269.43	232.69	313.96	816.08	442.78	609.72	675.31	1,747.80	5,504.63
Units Lost	[MWh]	268.52	235.28	207.78	711.57	122.08	54.76	65.07	241.91	58.52	43.39	102.20	204.15	162.07	229.02	243.59	625.68	1,783.32
Units Lost	[%age]	41.21%	34.90%	35.31%	39.55%	27.22%	18.71%	22.82%	8429.00%	21.74%	18.62%	32.56%	25.01%	36.60%	31.91%	36.07%	35.80%	32.40%
Units Sold	[MWh]	383.11	438.87	380.66	1,202.64	326.42	237.89	220.03	784.33	210.85	189.69	211.76	612.23	280.70	409.70	431.72	1,122.11	3,721.32
Revenue																		
Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]				-				-				-				-	-
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortization of Def Credits	[Mln Rs]				-				-				-				-	-
Other Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Cost																		
Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Expenses	[Mln Rs]	1,007	1,007	1,007	3,021	1,007	1,007	1,007	3,021	1,007	1,007	1,007	3,021	1,007	1,007	1,007	3,021	12,084
Depreciation	[Mln Rs]	182	182	182	547	182	182	182	547	182	182	182	547	182	182	182	547	2,189
Amortization	[Mln Rs]				-				-				-				-	-
Provision for Bad Debt	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Contingency Expenses	[Mln Rs]				-				-				-				-	-
Total Operating Cost	[Mln Rs]	1,189	1,189	1,189	3,568	1,189	1,189	1,189	3,568	1,189	1,189	1,189	3,568	1,189	1,189	1,189	3,568	14,273
EBIT	[Mln Rs]	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(14,273)
Financial Charges	[Mln Rs]				-				-				-				-	-
EBT	[Mln Rs]	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(14,273)
Tax	[Mln Rs]				-				-				-				-	-
EAT	[Mln Rs]	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(14,273)
WPPF	[Mln Rs]				-				-				-				-	-
Profit for the period	[Mln Rs]	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(14,273)
Prior year adjustment*	[Mln Rs]				-				-				-				-	-
Net Profit / Loss after prior year	[Mln Rs]	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(1,189)	(1,189)	(1,189)	(3,568)	(14,273)

* Prior Year adjustment includes in Tariff rate

SUKKUR ELECTRIC POWER COMPANY

Profit & Loss Statement FY 2024-25 *(Projected)*

Description		Jul-24 Projected	Aug-24 Projected	Sep-24 Projected	Q-1 Projected	Oct-24 Projected	Nov-24 Projected	Dec-24 Projected	Q-2 Projected	Jan-25 Projected	Feb-25 Projected	Mar-25 Projected	Q-3 Projected	Apr-25 Projected	May-25 Projected	Jun-25 Projected	Q-4 Projected	Total Projected
Power Balances																		
Units Received	[MWh]	708.10	732.76	639.83	2,080.70	488.49	319.03	310.75	1,118.28	293.84	245.25	339.19	878.28	482.10	664.94	734.27	1,901.31	5,978.56
Units Lost	[MWh]	283.41	249.92	218.04	750.37	127.91	58.46	69.32	255.70	61.68	43.77	108.23	213.68	169.19	230.83	256.61	656.63	1,876.38
Units Lost	[%age]	40.02%	33.97%	34.08%	36.55%	26.19%	18.32%	22.31%	8429.00%	20.99%	17.85%	31.91%	24.33%	35.09%	33.70%	34.95%	34.54%	31.39%
Units Sold	[MWh]	424.70	483.84	421.79	1,330.33	360.58	260.57	241.43	862.59	232.16	201.48	230.96	664.59	312.91	454.11	477.66	1,244.69	4,102.19
Revenue																		
Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidy	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuel Price Adjustment	[Mln Rs]				-				-				-				-	-
Total Sales Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rental & Service Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortization of Def Credits	[Mln Rs]				-				-				-				-	-
Other Income	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Cost																		
Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Expenses	[Mln Rs]	1,083	1,083	1,083	3,250	1,083	1,083	1,083	3,250	1,083	1,083	1,083	3,250	1,083	1,083	1,083	3,250	13,001
Depreciation	[Mln Rs]	201	201	201	602	201	201	201	602	201	201	201	602	201	201	201	602	2,407
Amortization	[Mln Rs]				-				-				-				-	-
Provision for Bad Debt	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Contingency Expenses	[Mln Rs]				-				-				-				-	-
Total Operating Cost	[Mln Rs]	1,284	1,284	1,284	3,852	1,284	1,284	1,284	3,852	1,284	1,284	1,284	3,852	1,284	1,284	1,284	3,852	15,408
EBIT	[Mln Rs]	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(15,408)
Financial Charges	[Mln Rs]				-				-				-				-	-
EBT	[Mln Rs]	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(15,408)
Tax	[Mln Rs]				-				-				-				-	-
EAT	[Mln Rs]	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(15,408)
WPPF	[Mln Rs]				-				-				-				-	-
Profit for the period	[Mln Rs]	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(15,408)
Prior year adjustment*	[Mln Rs]				-				-				-				-	-
Net Profit / Loss after prior year	[Mln Rs]	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(1,284)	(1,284)	(1,284)	(3,852)	(15,408)

* Prior Year adjustment includes in Tariff rate

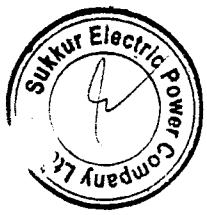
Sukkur Electric Power Company Ltd.

FORM - 4

SUKKUR ELECTRIC POWER COMPANY

Balance Sheet [in million Rupees]

Description	Un-Audited FY 2019-20 as on 30th June-20	Projected FY 2020-21 as on 30th June-21	Projected FY 2021-22 as on 30th June-22	Projected FY 2022-23 as on 30th June-23	Projected FY 2023-24 as on 30th June-24	Projected FY 2024-25 as on 30th June-25
Intangible Fixed Assets	23,066	24,817	28,747	32,799	36,805	40,741
Net Fixed Assets in Operations						
Total Net Fixed Assets in Operations	***23,066***	***24,817***	***28,747***	***32,799***	***36,805***	***40,741***
Capital Work in Progress	*5,563*	*8,025*	*8,546*	*9,040*	*9,288*	9,509
Long Term Loans to Employees	*2*	*2*	*2*	*2*	*2*	*2*
Deferred Cost & Long Term Deposits	-	-	-	-	-	-
Current Assets						
Stores & Spares	1,962	1,595	1,795	2,006	2,223	2,444
Net Trade Debts	86,034	85,633	96,346	94,764	92,925	90,708
Advances, Prepayments, Other Receivables	22,625	28,151	28,414	28,451	28,497	28,557
Due from associated undertakings	60,246	60,487	63,511	66,687	70,021	73,522
Advance income Tax	1,239	-	-	-	-	-
Cash & Bank Balances	1,684	1,777	1,972	2,178	2,418	2,587
Total Current Assets	***173,791***	***177,643***	***192,038***	***194,086***	***196,084***	***197,818***
Total Assets	**202,422**	**210,486**	**229,333**	**235,927**	**242,178**	**248,069**
500,000 Ordinary Shares of Rupees 10 each	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Subscribed Equity						
Unappropriated Profit/(Loss)	(159,614)	(163,784)	(161,472)	(157,305)	(154,774)	(150,113)
Total Equity	***(5,159,614)***	***(5,163,784)***	***(5,161,472)***	***(5,157,305)***	***(5,154,774)***	***(5,150,113)***
Deposit of Share	37,161	37,481	37,805	38,131	38,460	38,793
	(5,122,452)	**(5,126,303)**	**(5,123,668)**	**(5,119,174)**	**(5,116,314)**	**(5,111,320)**
Long Term Liability						
Consumer's Security Deposits	1,165	1,237	1,315	1,397	1,486	1,581
Employee Retirement Benefits	40,832	44,211	48,301	51,911	55,731	62,070
TFCs & SUKUK						
Deferred Credits	10,777	12,435	14,302	16,404	18,769	21,430
Receipts against deposit works and connections	4,685	5,693	4,830	3,657	2,634	1,218
Long Term Loans: less current maturity	14,898	14,834	14,834	14,834	14,834	14,834
Total Long Term Liability	***72,357***	***78,410***	***83,583***	***88,203***	***93,453***	***101,133***
Current Liability						
Trade & Other Payble						
Current Maturity	-	64	64	64	64	64
Due to associated undertakings	249,258	253,274	263,985	261,278	259,229	252,219
Provision for Taxation						
Accrued Interest Payable						
Payable to NTDC						
Creditors, Accrued and Other Liabilities	3,391	5,040	5,368	5,556	5,746	5,973
Total Current Liability	***252,649***	***258,378***	***269,418***	***266,898***	***265,039***	***258,257***
Total Liabilities and Commitments	325,006	336,789	353,001	355,101	358,492	359,389
Total Liabilities and Equity	202,554	210,486	229,333	235,927	242,178	248,070



FORM - 5

SUKKUR ELECTRIC POWER COMPANY

Cash Flow Statement [in million Rupees]

Description		Un-Audited FY 2019-20 as on 30th June-20	Projected FY 2020-21 as on 30th June-21	Projected FY 2021-22 as on 30th June-22	Projected FY 2022-23 as on 30th June-23	Projected FY 2023-24 as on 30th June-24
Average Monthly Demand Index (MDI)	[MW]				1	1
Units Purchased	[GWh]	4,253	4,332	4,482	4,593	5,505
Transmission Losses (132 kV)	[GWh]	145	147	152	156	187
Distribution Losses	[GWh]	1,340	1,365	1,412	1,447	1,734
Units Sold to Customers	[GWh]	2,710	2,802	2,942	3,060	3,721
Average Tariff Required	[Rs/unit]	4.30	4.73	4.56	5.21	4.62
Average Tariff Existing	[Rs/unit]	4.30	4.73	4.56	5.21	4.62
Tariff Difference	*[Rs/unit]*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Revenue from Sales	[Rs. in M]					
Collection from Required	[%]	100.0%	100.0%	100.0%	100.0%	100.0%
Inflows from Operations						
Collection from Sales	[Rs. in M]	0	0	0	0	0
Total Inflows from Operations		***0***	***0***	***0***	***0***	***0***
Outflow from Operations						
Payment for electricity (to CPPA)	[Rs. in M]					
Distribution Service Cost (=DMC)	[Rs. in M]	8,712	9,672	9,209	11,237	12,084
Total Outflow from Operations		***8,712***	***9,672***	***9,209***	***11,237***	***12,084***
Surplus/Deficit from Operations		(8,712)	(9,672)	(9,209)	(11,237)	(12,084)
Inflows from Other Sources						
Capital Contributions	[Rs. in M]	328	2,109	2,386	2,697	3,046
Consumer Security Deposits	[Rs. in M]	88	72	77	83	88
Other Incomes	[Rs. in M]	555	555	621	635	649
GOP Subsidy (Actual and Estimated)	[Rs. in M]					
Long Term Loan / Redeemable Capital	[Rs. in M]					
Total Inflows from Other Sources	[Rs. in M]	***971***	***2,737***	***3,084***	***3,414***	***3,783***
Outflow Others						
Financial Charges	[Rs. in M]					
Repayment of Long Term Loans	[Rs. in M]					
Investment Program	[Rs. in M]	1,581	4,061	7,990	5,819	6,588
Working Capital/other Changes	[Rs. in M]					
Total Outflow Others	[Rs. in M]	***1,581***	***4,061***	***7,990***	***5,819***	***6,588***
Surplus/Deficit Others	[Rs. in M]	(610)	(1,324)	(4,906)	(2,405)	(2,805)
Total Inflows (Operations + Others)	[Rs. in M]	971	2,737	3,084	3,414	3,783
Total Outflows (Operations + Others)	[Rs. in M]	10,293	13,733	17,199	17,056	18,672
Opening Balance	[Rs. in M]	1,684	1,684	1,778	1,973	2,178
Surplus/Deficit for Fiscal Year	[Rs. in M]	(9,322)	(10,996)	(14,115)	(13,642)	(14,889)
Deficit from Financing/Loans		(9,321)	(11,090)	(14,310)	(13,847)	(15,129)
Closing Balance	[Rs. in M]	1,684	1,778	1,973	2,178	2,418

Sukkur Electric Power Company Ltd.

FORM - 6

SUKKUR ELECTRIC POWER COMPANY

Power Purchase *(Actual for the Last Corresponding period)*

		Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Total
Demand & Energy														
Units Received	[MkWh]	509.02	510.98	483.99	341.22	220.10	212.84	206.74	179.89	212.78	357.66	523.40	493.88	4,252.50
MDI	[MW]	1.02	0.86	1.00	0.93	0.72	0.87	0.85	0.60	0.75	0.84	1.11	1.00	0.88
Energy Purchase Price	[Rs/ kWh]	4.58	4.30	3.88	5.81	5.61	5.85	6.82	3.93	5.54	3.96	3.76	4.33	-
Capacity Purchase Price	[Rs/ kW/]	-	-	-	-	-	-	-	-	-	-	-	-	-
Transmission Charge	[Rs/ kW/]	-	-	-	-	-	-	-	-	-	-	-	-	-
Market Operation Fee	[Rs/ kW/]	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Power Purchase Cost														
Energy Charge	[Mln Rs]													-
Capacity Charge	[Mln Rs]													-
Transmission Charge	[Mln Rs]													-
Market Operation Fee	[Mln Rs]													-
Adjustment **	[Mln Rs]													-
Total Operating Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-

FORM - 6 (A)

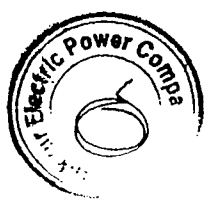
SUKKUR ELECTRIC POWER COMPANY

Power Purchase *(Provisional)*

FY 2020-21		Jul-20 Provisional	Aug-20 Provisional	Sep-20 Provisional	Oct-20 Provisional	Nov-20 Provisional	Dec-20 Provisional	Jan-21 Provisional	Feb-21 Provisional	Mar-21 Provisional	Apr-21 Provisional	May-21 Provisional	Jun-21 Provisional	Total Provisional
Demand & Energy														
Units Received	[MkWh]	527.40	514.32	468.49	331.34	220.06	214.23	211.58	187.13	250.84	375.51	516.30	515.00	4,332.19
MDI	[MW]	1.16	1.12	1.10	1.16	1.12	1.10	0.88	0.71	0.61	1.07	0.66	1.26	1.00
Energy Purchase Price	[Rs/ kWh]	-	-	-	-	-	-	-	-	7.33	6.33	5.33	5.75	-
Capacity Purchase Price	[Rs/ kW]	-	-	-	-	-	-	-	-	11.52	10.12	6.27	6.95	-
Transmission Charge	[Rs/ kW/]	-	-	-	-	-	-	-	-	0.59	0.55	0.52	0.37	-
Market Operation Fee	[Rs/ kW/]	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Power Purchase Cost														
Energy Charge	[Mln Rs]													-
Capacity Charge	[Mln Rs]													-
Transmission Charge	[Mln Rs]													-
Market Operation Fee	[Mln Rs]													-
Total Operating Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-

* 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 (A)

SUKKUR ELECTRIC POWER COMPANY

Power Purchase *(Projected*)*

FY 2021-22		Jul-21 Projected	Aug-21 Projected	Sep-21 Projected	Oct-21 Projected	Nov-21 Projected	Dec-21 Projected	Jan-22 Projected	Feb-22 Projected	Mar-22 Projected	Apr-22 Projected	May-22 Projected	Jun-22 Projected	Total Projected
Demand & Energy														
Units Received	[MkWh]	487.41	494.37	454.30	373.60	236.74	235.22	219.59	190.00	271.20	447.60	563.67	508.24	4,482
MDI	[MW]	1.21	1.18	1.15	1.21	1.18	1.15	0.92	0.75	0.64	1.12	0.69	1.32	1.05
Energy Purchase Price	[Rs/ kWh]	-	-	-	-	-	-	-	-	7.34	6.34	5.34	5.76	-
Capacity Purchase Price	[Rs/ kW]	-	-	-	-	-	-	-	-	11.53	10.13	6.28	6.96	-
Transmission Charge	[Rs/ kW/]	-	-	-	-	-	-	-	-	-	-	-	-	-
Market Operation Fee	[Rs/ kW/]	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Power Purchase Cost														
Energy Charge	[Mln Rs]													-
Capacity Charge	[Mln Rs]													-
Transmission Charge	[Mln Rs]													-
Market Operation Fee	[Mln Rs]													-
Total Operating Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-

FORM - 6 (A) [Rs/ kWh]

SUKKUR ELECTRIC POWER COMPANY

Power Purchase *(Projected*)*

FY 2022-23		Jul-22 Projected	Aug-22 Projected	Sep-22 Projected	Oct-22 Projected	Nov-22 Projected	Dec-22 Projected	Jan-23 Projected	Feb-23 Projected	Mar-23 Projected	Apr-23 Projected	May-23 Projected	Jun-23 Projected	Total Projected
Demand & Energy														
Units Received	[MkWh]	501.55	508.14	465.66	381.79	241.06	240.00	225.15	194.81	278.07	458.27	577.23	520.92	4,593
MDI	[MW]	1.21	1.18	1.15	1.21	1.18	1.15	0.92	0.75	0.64	1.12	0.69	1.32	1.05
Energy Purchase Price	[Rs/ kWh]	-	-	-	-	-	-	-	-	7.35	6.35	5.35	5.77	-
Capacity Purchase Price	[Rs/ kW]	-	-	-	-	-	-	-	-	11.55	10.15	6.29	6.97	-
Transmission Charge	[Rs/ kW/]	-	-	-	-	-	-	-	-	-	-	-	-	-
Market Operation Fee	[Rs/ kW/]	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Power Purchase Cost														
Energy Charge	[Mln Rs]													-
Capacity Charge	[Mln Rs]													-
Transmission Charge	[Mln Rs]													-
Market Operation Fee	[Mln Rs]													-
Total Operating Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-
	[Rs/ kWh]													

Sukkur Electric Power Company Ltd.

FORM - 6 (A) [Rs/ kW/]

SUKKUR ELECTRIC POWER COMPANY

Power Purchase *(Projected*)*

FY 2023-24		Jul-23 Projected	Aug-23 Projected	Sep-23 Projected	Oct-23 Projected	Nov-23 Projected	Dec-23 Projected	Jan-24 Projected	Feb-24 Projected	Mar-24 Projected	Apr-24 Projected	May-24 Projected	Jun-24 Projected	Total Projected
Demand & Energy														
Units Received	[MkWh]	651.62	674.15	588.44	448.50	292.64	285.09	269.43	232.99	313.96	442.78	629.72	675.31	5,505
MDI	[MW]	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
Energy Purchase Price	[Rs/ kWh]	-	-	-	-	-	-	-	-	7.37	6.36	5.36	5.78	-
Capacity Purchase Price	[Rs/ kW]	-	-	-	-	-	-	-	-	11.58	10.17	6.31	6.98	-
Transmission Charge	[Rs/ kW/]	-	-	-	-	-	-	-	-	-	-	-	-	-
Market Operation Fee	[Rs/ kW/]	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Power Purchase Cost														
Energy Charge	[Mln Rs]													-
Capacity Charge	[Mln Rs]													-
Transmission Charge	[Mln Rs]													-
Market Operation Fee	[Mln Rs]													-
Total Operating Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-
	[Rs/ kW/]													

FORM - 6 (A) [Rs/ kW/] -

SUKKUR ELECTRIC POWER COMPANY

Power Purchase *(Projected*)*

FY 2024-25		Jul-24 Projected	Aug-24 Projected	Sep-24 Projected	Oct-24 Projected	Nov-24 Projected	Dec-24 Projected	Jan-25 Projected	Feb-25 Projected	Mar-25 Projected	Apr-25 Projected	May-25 Projected	Jun-25 Projected	Total Projected
Demand & Energy														
Units Received	[MkWh]	708.10	732.76	639.83	488.49	319.03	310.75	293.84	245.25	339.19	482.10	684.94	734.27	5,979
MDI	[MW]	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
Energy Purchase Price	[Rs/ kWh]	-	-	-	-	-	-	-	-	7.38	6.37	5.37	5.79	-
Capacity Purchase Price	[Rs/ kW]	-	-	-	-	-	-	-	-	11.60	10.19	6.32	7.00	-
Transmission Charge	[Rs/ kW/]	-	-	-	-	-	-	-	-	-	-	-	-	-
Market Operation Fee	[Rs/ kW/]	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Power Purchase Cost														
Energy Charge	[Mln Rs]													-
Capacity Charge	[Mln Rs]													-
Transmission Charge	[Mln Rs]													-
Market Operation Fee	[Mln Rs]													-
Total Operating Cost	[Mln Rs]	-	-	-	-	-	-	-	-	-	-	-	-	-
	[Rs/ kW/]													

Sukkur Electric Power Company Ltd.

FORM - 7

SUKKUR ELECTRIC POWER COMPANY

Line Losses FY 2019-20

		Jul-19 Actual	Aug-19 Actual	Sep-19 Actual	Oct-19 Actual	Nov-19 Actual	Dec-19 Actual	Jan-20 Actual	Feb-20 Actual	Mar-20 Actual	Apr-20 Actual	May-20 Actual	Jun-20 Actual	Total Actual
Power Balances														
Units Received	[MkWh]	609.02	510.98	483.39	341.22	220.10	212.84	206.74	179.89	212.78	357.66	523.40	493.98	4252.50
Units Sold	[MkWh]	271.86	305.46	290.41	231.27	181.72	160.37	156.68	141.31	138.14	209.52	319.05	304.20	2710.08
Units Lost	[MkWh]	237.17	205.52	193.59	109.94	38.38	52.47	50.07	38.57	74.64	148.04	204.35	189.58	1542.42
Units Lost	[%age]	46.59	40.22	40.00	32.22	17.44	24.65	24.22	21.44	35.08	41.39	39.04	38.41	36.27
Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.89	17.41	20.56	24.77	19.33
Administrative Losses	[%age]	22.51	17.81	17.66	12.52	2.83	13.06	13.37	10.54	21.20	23.99	18.48	13.64	16.94
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	2.28	2.36	2.29	2.28	1.89	2.51	1.04	1.14	0.79	0.83	1.89	1.29	1.79
11 kV Losses	[%age]	18.13	16.60	16.73	14.20	9.36	6.40	7.10	6.71	9.75	13.19	15.02	19.96	13.89
LT Losses	[%age]	3.67	3.45	3.35	3.42	2.76	2.69	2.70	3.05	3.35	3.39	3.65	3.52	3.65
Total Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.89	17.41	20.56	24.77	19.33

FORM - 7 (A)

SUKKUR ELECTRIC POWER COMPANY

Line Losses * FY 2020-21

		Jul-20 Provisional	Aug-20 Provisional	Sep-20 Provisional	Oct-20 Provisional	Nov-20 Provisional	Dec-20 Provisional	Jan-21 Provisional	Feb-21 Provisional	Mar-21 Provisional	Apr-21 Provisional	May-21 Provisional	Jun-21 Provisional	Total Provisional
Power Balances														
Units Received	[MkWh]	527.40	514.32	488.49	331.34	220.06	214.23	211.58	187.13	250.94	375.51	516.30	515.00	4352.19
Units Sold	[MkWh]	290.69	320.87	286.39	233.28	175.35	162.07	161.37	152.72	156.43	221.63	314.27	326.21	2802.28
Units Lost	[MkWh]	236.71	193.44	182.10	98.06	43.71	52.16	50.22	34.41	94.41	153.87	202.02	188.79	1529.91
Units Lost	[%age]	44.88	37.61	38.87	29.59	19.86	24.35	23.73	18.39	37.64	40.98	39.13	36.66	35.31
Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33
Administrative Losses	[%age]	20.80	15.21	16.53	9.90	5.25	12.74	12.89	7.48	23.76	23.57	18.57	11.89	15.98
														35.31
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	-0.30	1.28	2.18	1.85	2.51	2.53	0.58	1.04	0.68	0.73	1.79	1.19	1.59
11 kV Losses	[%age]	20.72	17.68	16.80	14.43	9.35	6.38	7.46	6.81	9.85	13.29	15.12	20.06	13.99
LT Losses	[%age]	3.67	3.45	3.35	3.42	2.76	2.69	2.70	3.05	3.35	3.39	3.65	3.52	3.65
Total Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33

* Where actual figures are available , these should be replaced by the actual figures.

FORM - 7 (A)

SUKKUR ELECTRIC POWER COMPANY

Line Losses * FY 2021-22

		Jul-21 Provisional	Aug-21 Provisional	Sep-21 Provisional	Oct-21 Provisional	Nov-21 Provisional	Dec-21 Provisional	Jan-22 Provisional	Feb-22 Provisional	Mar-22 Provisional	Apr-22 Provisional	May-22 Provisional	Jun-22 Provisional	Total Provisional
Power Balances														
Units Received	[MkWh]	487.41	494.37	454.30	373.60	236.74	236.22	219.59	190.20	271.20	447.60	563.67	503.24	4481.33
Units Sold	[MkWh]	274.72	312.83	283.00	265.54	190.63	179.14	168.83	151.71	179.48	270.72	353.14	312.45	2941.99
Units Lost	[MkWh]	212.68	181.54	171.30	108.06	46.12	56.08	50.96	38.48	91.71	176.89	210.53	190.79	1539.34
Units Lost	[%age]	43.64	36.72	37.71	28.92	19.48	23.84	23.21	20.15	33.82	39.52	37.35	38.52	34.36
Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33
Administrative Losses	[%age]	19.55	14.31	15.37	9.23	4.87	12.24	12.35	9.25	19.94	22.11	16.79	13.75	15.03
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	1.75	1.19	2.08	1.75	2.41	2.43	0.58	0.94	0.58	0.63	1.69	1.09	1.53
11 kV Losses	[%age]	18.65	17.78	16.90	14.53	9.45	6.48	7.56	6.91	9.85	13.26	15.23	20.15	14.09
LT Losses	[%age]	3.67	3.45	3.35	3.42	2.76	2.69	2.70	3.05	3.35	3.39	3.65	3.52	3.65
Total Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33

* Where actual figures are available , these should be replaced by the actual figures.

FORM - 7 (A)

Transmission Charge

Line Losses * FY 2022-23

		Jul-22 Provisional	Aug-22 Provisional	Sep-22 Provisional	Oct-22 Provisional	Nov-22 Provisional	Dec-22 Provisional	Jan-23 Provisional	Feb-23 Provisional	Mar-23 Provisional	Apr-23 Provisional	May-23 Provisional	Jun-23 Provisional	Total Provisional
Power Balances														
Units Received	[MkWh]	501.55	508.14	465.58	381.79	241.06	240.00	225.15	194.91	278.07	458.27	577.23	520.92	4592.66
Units Sold	[MkWh]	288.84	329.14	295.50	274.38	195.33	184.00	174.54	157.34	185.79	283.77	368.53	326.01	3063.56
Units Lost	[MkWh]	212.71	182.00	170.08	107.41	46.04	56.00	50.60	37.77	92.29	174.50	208.70	194.91	1532.99
Units Lost	[%age]	42.41	35.82	36.52	28.13	19.10	23.33	22.48	19.39	33.19	38.08	36.16	37.42	33.38
Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33
Administrative Losses	[%age]	18.33	13.41	14.18	8.43	4.48	11.73	11.63	8.49	19.31	20.37	15.59	12.65	14.05
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	1.56	1.08	1.98	1.65	2.31	2.33	0.48	0.84	0.48	3.53	1.59	0.99	1.49
11 kV Losses	[%age]	18.75	17.88	17.00	14.63	9.56	6.58	7.56	7.01	10.05	13.49	15.32	20.25	14.19
LT Losses	[%age]	3.67	3.45	3.35	3.42	2.76	2.69	2.70	3.05	3.35	3.39	3.65	3.52	3.65
Total Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33

* Where actual figures are available , these should be replaced by the actual figures.

FORM - 7 (A)

Transmission Charge

Line Losses * FY 2023-24

		Jul-23 Provisional	Aug-23 Provisional	Sep-23 Provisional	Oct-23 Provisional	Nov-23 Provisional	Dec-23 Provisional	Jan-24 Provisional	Feb-24 Provisional	Mar-24 Provisional	Apr-24 Provisional	May-24 Provisional	Jun-24 Provisional	Total Provisional
Power Balances														
Units Received	[MkWh]	651.52	674.15	588.44	448.50	292.64	285.09	269.43	232.93	313.95	442.78	529.72	575.31	5504.63
Units Sold	[MkWh]	383.11	438.87	380.66	326.42	237.89	220.03	210.86	189.50	211.75	280.70	409.70	431.72	3721.22
Units Lost	[MkWh]	268.52	235.28	207.78	122.08	54.76	65.07	58.57	43.38	102.20	162.07	220.02	243.59	1783.32
Units Lost	[%age]	41.21	34.90	35.31	27.22	18.71	22.82	21.74	18.62	32.55	36.60	34.94	36.07	32.40
Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33
Administrative Losses	[%age]	17.12	12.48	12.97	7.52	4.10	11.22	10.89	7.72	18.67	19.20	14.38	11.30	13.07
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	1.56	0.98	1.28	1.56	2.21	2.33	0.38	0.74	0.38	0.43	1.49	0.89	1.39
11 kV Losses	[%age]	18.85	17.98	17.10	14.73	9.65	6.68	7.76	7.11	10.15	13.59	15.42	20.36	14.29
LT Losses	[%age]	3.67	3.45	3.35	3.42	2.78	2.59	2.70	3.05	3.36	3.39	3.66	3.52	3.65
Total Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33

* Where actual figures are available , these should be replaced by the actual figures.

FORM - 7 (A)

FORM - 7 (A)

Line Losses * FY 2024-25

		Jul-24 Provisional	Aug-24 Provisional	Sep-24 Provisional	Oct-24 Provisional	Nov-24 Provisional	Dec-24 Provisional	Jan-25 Provisional	Feb-25 Provisional	Mar-25 Provisional	Apr-25 Provisional	May-25 Provisional	Jun-25 Provisional	Total Provisional
Power Balances														
Units Received	[MkWh]	709.10	732.75	639.93	488.49	319.03	310.75	293.34	245.25	339.19	482.10	684.94	734.27	5973.56
Units Sold	[MkWh]	424.70	483.84	421.79	360.58	260.57	241.43	232.18	201.48	230.96	312.91	454.11	477.66	4102.19
Units Lost	[MkWh]	283.41	248.92	218.04	127.91	58.46	69.32	61.68	43.77	108.23	169.19	230.83	249.68	1876.38
Units Lost	[%age]	40.02	33.97	34.08	26.19	18.32	22.31	20.99	17.85	31.91	35.09	33.70	34.00	31.39
Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33
Administrative Losses	[%age]	15.94	11.56	11.74	6.49	3.71	10.71	10.15	6.94	18.03	17.69	13.14	9.23	12.06
Technical Losses at Different Levels														
Transmission Losses 132 kV	[%age]	1.46	0.88	1.78	1.45	2.11	2.12	0.28	0.64	0.28	0.33	1.39	0.79	1.29
11 kV Losses	[%age]	18.95	18.08	17.20	14.83	9.75	6.78	7.86	7.21	10.25	13.69	15.52	20.46	14.39
LT Losses	[%age]	3.67	3.45	3.35	3.42	2.78	2.69	2.70	3.05	3.39	3.39	3.65	3.52	3.65
Total Technical Losses	[%age]	24.08	22.41	22.34	19.70	14.61	11.60	10.85	10.90	13.88	17.41	20.56	24.77	19.33

* Where actual figures are available , these should be replaced by the actual figures.

Sukkur Electric Power Company Ltd.

FORM - 8
SUKKUR ELECTRIC POWER COMPANY
Operational and Technical Information

SEPCO	2025	0.32
	2024	0.29
	2023	0.26
	2022	0.22
	2021	0.23
NTDC/DISCO Delivery Points metering accuracy		100.00%
DISCO metering accuracy		
For all customers (residential, commercial, industrial, etc.)		90.00%
Estimated High Voltage Transmission lines losses (132 kV)		2.80%

Sukkur Electric Power Company Ltd.

SUKKUR ELECTRIC POWER COMPANY

Asset register as the year ended at dated 30th June, 2021-22

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30,	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	Land	0						0	0
1	Freehold	69,064,861	0	69,064,861				0	69,064,861
2	Leasehold	35,510,453	0	35,510,453				0	35,510,453
	Total	104,575,314	-	104,575,314	0	0	0	0	104,575,314
B.	Buildings								
1	Residential Buildings	942,546,462	120,487,122	1,063,033,584		21,260,672		21,260,672	1,041,772,912
2	Build & Civil Works on F/H Land	46,101,807		46,101,807		922,036		922,036	45,179,771
3	Non-Residential Buildings	23,736,503	0	23,736,503		474,730		474,730	23,261,773
4	GSO Residential Buildings	1,070,011,678	59,579,761	1,129,591,439		22,591,829		22,591,829	1,106,999,610
5	Non-GSO Residential Buildings	0	52,727,900	52,727,900		1,054,558		1,054,558	51,673,342
	Total	2,082,396,450	232,794,783	2,315,191,233		46,303,825	0	46,303,825	2,268,887,408
C.	Sub Transmission								
1	132 KV Sub Transmission Lines	2,751,338,228	379,569,159	3,130,907,387		109,581,759		109,581,759	3,021,325,628
2	66 KV Sub Transmission Lines	446,654,894		446,654,894		15,632,921		15,632,921	431,021,973
3	33 KV Sub Transmission Lines	52,439,565		52,439,565		1,835,385		1,835,385	50,604,180
	Total	3,250,432,687	379,569,159	3,630,001,846		127,050,065	0	127,050,065	3,502,951,781
D.	Grid Station								
1	132 KV Grid Station	5,784,338,687	157,583,894	5,941,922,581		207,967,290		207,967,290	5,733,955,291
2	66 KV Grid Station	240,906,624		240,906,524		8,431,732		8,431,732	232,474,892
3	33 KV Grid Station			0		0		0	0
	Total	6,025,245,311	157,583,894	6,182,829,205		216,399,022	0	216,399,022	5,966,430,183
E.	11 KV Distribution Equipments								
1	11 KV Poles	500,444,340	35,422,018	535,866,358		18,755,323		18,755,323	517,111,035
2	11KV Line	7,590,125,834	873,107,786	8,463,233,620		296,213,177		296,213,177	8,167,020,443
3	Street Light	4,041,281	120,000	4,161,281		145,645		145,645	4,015,636
4	Under Ground Conductor					0		0	0
5	Distribution Transformer	14,835,853,077	507,384,363	15,343,237,440		537,013,310		537,013,310	14,806,224,130
	Total	22,930,464,532	1,416,034,167	24,346,498,699		852,127,454	0	852,127,454	23,494,371,245
F.	LV Distribution Equipments								
1	LV Poles			0		0		0	0
2	440 LV Distribution Line	2,141,842,655	265,621,734	2,407,464,389		120,373,219		120,373,219	2,287,091,170
3	220 LV Distribution Line	414,405,055	6,200,468	420,605,523		21,030,276		21,030,276	399,575,247
4	KWh Meters & Service Cable	2,075,811,606	140,895,479	2,216,707,085		113,730,499		113,730,499	2,102,976,586
5	Conductor SAP	822,303,735	45,498,112	867,801,847		30,375,963		30,375,963	837,425,884
6	Capicitor	215,649		215,649		8		8	215,641
7	Misc. Equipment			0		0		0	0
	Total	5,454,578,700	458,215,793	5,912,794,493		285,509,965	0	285,509,965	5,627,284,528
G.	Vehicles	-			0			0	0
1	132/66/33 KV GSO Vehicles	181,107,127	3,435,000	184,542,127		18,454,213		18,454,213	166,087,914
2	Vehicles					0		0	0
	Total	181,107,127	3,435,000	184,542,127		18,454,213	0	18,454,213	166,087,914
H.	Detail of General Plant Assets								
1	FURNITURE & FIXTURE	20,691,938	13,104,759	33,796,597		1,689,835	0	1,689,835	32,106,862
2	STORE EQUIPMENT	0	1,209,883	1,209,883		60,494		60,494	1,149,389
3	WORKSHOP EQUIPMENT	198,655		198,355		9,933		9,933	188,722
4	LABORATORY. EQUIPMENT	12,663,755		12,663,755		633,188		633,188	12,030,567
5	CONSTRUCTION EQUIPMENT	34,382,433		34,382,433		1,719,122		1,719,122	32,663,311
6	COMUNICATION EQUIPMENT	246,754		246,754		12,338		12,338	234,416
7	FIRE SAFTEY EQUIPMENT	13,790		13,790		690		690	13,101
8	ARMS & AMUNITIONS	14,057		14,057		703		703	13,354
9	LIBRARY BOOKS	5,221		5,221		261		261	4,960
10	MISC. EQUIPMENT	91,455,017	38,302,649	129,757,666		6,487,883		6,487,883	123,269,783
	Total	159,671,620	52,617,291	212,288,911		10,614,446	0	10,614,446	201,674,465
J.	O&M Equipments	74,726,437	89,059,082	163,785,519		16,378,552		16,378,552	147,406,967
	Grand Total	40,263,198,178	2,789,309,189	43,052,507,347	-	1,572,837,541	-	1,572,837,541	41,479,669,806

Sukkur Electric Power Company Ltd.

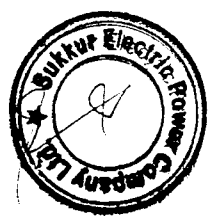
Asset register as the year ended at dated 30th June, 2021

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30,	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	**Land**							0	0
1	Freehold	69,064,861	0	69,064,861				0	69,064,861
2	Leasehold	35,510,453	0	35,510,453				0	35,510,453
	Total	104,575,314	-	104,575,314	0	0	0	0	104,575,314
B.	**Buildings**								
1	Residential Buildings	1,083,033,584	2,409,742	1,085,443,326		21,308,867		21,308,867	1,044,134,460
2	Buid & Civil Works on F/H Land	46,101,807	0	46,101,807		922,036		922,036	45,179,771
3	Non-Residential Buildings	23,736,503	0	23,736,503		474,730		474,730	23,261,773
4	GSO Residential Buildings	1,129,591,439	1,191,595	1,130,783,034		22,615,661		22,615,661	1,108,167,374
5	Non-GSO Residential Buildings	52,727,900	1,054,558	53,782,458		1,075,649		1,075,649	52,706,809
	Total	2,315,191,233	4,655,896	2,319,847,129		46,396,943	-	46,396,943	2,273,450,186
C.	**Sub Transmission**								
1	132 KV Sub Transmission Lines	3,130,907,387	7,591,383	3,138,498,770		109,847,457		109,847,457	3,028,651,313
2	66 KV Sub Transmission Lines	446,854,894	0	446,854,894		15,832,921		15,832,921	431,021,973
3	33 KV Sub Transmission Lines	52,439,565	0	52,439,565		1,835,385		1,835,385	50,604,180
	Total	3,630,001,846	7,591,383	3,637,593,229		127,315,763	0	127,315,763	3,510,277,466
D.	**Grid Station**								
1	132 KV Grid Station	5,941,922,581	3,151,678	5,945,074,259		208,077,599		208,077,599	5,736,996,660
2	66 KV Grid Station	240,906,624	0	240,906,624		8,431,732		8,431,732	232,474,892
3	33 KV Grid Station	0	0	0		0		0	0
	Total	6,182,829,205	3,151,678	6,185,980,883		216,509,331	0	216,509,331	5,969,471,552
E.	**11 KV Distribution Equipments**								
1	11 KV Poles	535,866,358	708,440	536,574,798		18,780,118		18,780,118	517,794,680
2	11KV Line	8,463,233,620	17,462,156	8,480,695,776		296,824,352		296,824,352	8,183,871,424
3	Street Light	4,161,281	2,400	4,163,681		145,729		145,729	4,017,952
4	Under Ground Conductor	0	0			0		0	0
5	Distribution Transformer	15,343,237,440	10,147,687	15,353,385,127		537,368,479		537,368,479	14,816,016,648
	Total	24,346,498,699	28,320,683	24,374,819,382		853,118,678	0	853,118,678	23,521,700,704
F.	**LV Distribution Equipments**								
1	LV Poles	0	0	0		0		0	0
2	440 LV Distribution Line	2,407,464,389	5,312,435	2,412,776,824		120,638,841		120,638,841	2,292,137,982
3	220 LV Distribution Line	420,605,523	124,009	420,729,532		21,036,477		21,036,477	399,693,056
4	KWh Meters & Service Cable	2,216,707,085	2,817,910	2,219,524,995		113,871,395		113,871,395	2,105,653,600
5	Conductor SAP	867,801,847	909,962	868,711,809		30,407,811		30,407,811	838,303,998
6	Capicitor	215,649	0	215,649		8		8	215,641
7	Misc. Equipment	0	0	0		0		0	0
	Total	5,912,794,493	9,164,316	5,921,958,809		285,954,532	0	285,954,532	5,636,004,277
G.	**Vehicles**	-			0			0	0
1	132/66/33 KV GSO Vehicles	184,542,127	68,700	184,610,827		18,461,083		18,461,083	166,149,744
2	Vehicles	0	0			0		0	0
	Total	184,542,127	68,700	184,610,827		18,461,083	0	18,461,083	166,149,744
H.	**Detail of General Plant Assets**								
1	Computer Equipment	33,796,697	262,095	34,058,792		1,702,940	0	1,702,940	32,355,853
2	Furniture	1,209,883	24,198	1,234,081		61,704		61,704	1,172,377
3	Workshop Equipment	198,655	0	198,655		9,933		9,933	188,722
4	Laboratory Equipment	12,663,755	0	12,663,755		633,188		633,188	12,030,567
5	Construction Equipment	34,382,433	0	34,382,433		1,719,122		1,719,122	32,663,311
6	Comunication Equipments	246,754	0	246,754		12,338		12,338	234,416
7	Fire & Safty Equipments	13,790	0	13,790		690		690	13,101
8	Arms & Amunation	14,057	0	14,057		703		703	13,354
9	Laboratory Equipment	5,221	0	5,221		261		261	4,960
10	Misc. Equipment	129,757,666	766,053	130,523,719		4,383,665		4,383,665	126,140,054
	Total	212,288,911	1,052,346	213,341,257		8,524,542	0	8,524,542	204,816,715
J.	O&M Equipments	163,785,519	1,781,182	165,566,701		16,556,670		16,556,670	149,010,031
	Grand Total	43,052,507,347	55,786,183	43,108,293,530	-	1,572,837,541	-	1,572,837,541	41,535,455,989

Sukkur Electric Power Company Ltd.

Asset register as the year ended at dated 30th June, 2022

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30,	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	**Land**							0	0
1	Freehold	69,064,861	0	69,064,861				0	69,064,861
2	Leasehold	35,510,453	0	35,510,453				0	35,510,453
	Total	104,575,314	-	104,575,314	0	0	0	0	104,575,314
B.	**Buildings**								
1	Residential Buildings	1,065,443,326	48,195	1,065,491,521		31,964,746		31,964,746	1,033,526,776
2	Build & Civil Works on F/H Land	46,101,807	0	46,101,807		1,383,054		1,383,054	44,718,753
3	Non-Residential Buildings	23,736,503	0	23,736,503		712,095		712,095	23,024,408
4	GSO Residential Buildings	1,130,783,034	23,832	1,130,806,866		33,924,206		33,924,206	1,096,882,660
5	Non-GSO Residential Buildings	53,782,458	21,091	53,803,549		1,614,106		1,614,106	52,189,443
	Total	2,319,847,129	93,118	2,319,940,247		69,598,207	-	69,598,207	2,250,342,039
C.	**Sub Transmission**								
1	132 KV Sub Transmission Lines	3,138,498,770	151,828	3,138,650,598		141,239,277		141,239,277	2,997,411,321
2	66 KV Sub Transmission Lines	446,654,894	0	446,654,894		20,099,470		20,099,470	426,555,424
3	33 KV Sub Transmission Lines	52,439,565	0	52,439,565		2,359,780		2,359,780	50,079,785
	Total	3,637,593,229	151,828	3,637,745,057		163,698,528	0	163,698,528	3,474,046,529
D.	**Grid Station**								
1	132 KV Grid Station	5,945,074,259	63,034	5,945,137,292		267,531,178		267,531,178	5,677,606,114
2	66 KV Grid Station	240,906,624	0	240,906,624		10,840,798		10,840,798	230,065,826
3	33 KV Grid Station	0	0	0		0		0	0
	Total	6,185,980,883	63,034	6,186,043,916		278,371,976	0	278,371,976	5,907,671,940
E.	**11 KV Distribution Equipments**								
1	11 KV Poles	536,574,798	14,169	536,588,967		18,780,614		18,780,614	517,808,353
2	11KV Line	8,480,695,776	349,243	8,481,045,019		296,836,576		296,836,576	8,184,208,443
3	Street Light	4,163,681	48	4,163,729		145,731		145,731	4,017,998
4	Under Ground Conductor	0	0			0		0	0
5	Distribution Transformer	15,353,385,127	202,954	15,353,588,081		537,375,583		537,375,583	14,816,212,498
	Total	24,374,819,382	566,414	24,375,385,796		853,138,503	0	853,138,503	23,522,247,293
F.	**LV Distribution Equipments**								
1	LV Poles	0	0	0		0		0	0
2	440 LV Distribution Line	2,412,776,824	106,249	2,412,883,072		144,772,984		144,772,984	2,268,110,088
3	220 LV Distribution Line	420,729,532	2,480	420,732,013		25,243,921		25,243,921	395,488,092
4	KWh Meters & Service Cable	2,219,524,995	56,358	2,219,581,353		133,174,881		133,174,881	2,086,406,472
5	Conductor SAP	868,711,809	18,199	868,730,008		52,123,801		52,123,801	816,606,208
6	Capicitor	215,649	0	215,649		0		0	215,649
7	Misc. Equipment	0	0	0		0		0	0
	Total	5,921,958,809	183,286	5,922,142,095		355,315,587	0	355,315,587	5,566,826,508
G.	**Vehicles**	-			0			0	0
1	132/66/33 KV GSO Vehicles	184,610,827	1,374	184,612,201		18,461,220		18,461,220	166,150,981
2	Vehicles	0	0			0		0	0
	Total	184,610,827	1,374	184,612,201		18,461,220	0	18,461,220	166,150,981
H.	**Detail of General Plant Assets**								
1	Computer Equipment	34,058,792	5,242	34,064,034		2,043,842	0	2,043,842	32,020,192
2	Furniture	1,234,081	484	1,234,565		74,074		74,074	1,160,491
3	Workshop Equipment	198,655	0	198,655		11,919		11,919	186,736
4	Laboratory Equipment	12,663,755	0	12,663,755		759,825		759,825	11,903,930
5	Construction Equipment	34,382,433	0	34,382,433		2,062,946		2,062,946	32,319,487
6	Comunication Equipments	246,754	0	246,754		14,805		14,805	231,949
7	Fire & Safty Equipments	13,790	0	13,790		827		827	12,963
8	Arms & Amunation	14,057	0	14,057		843		843	13,214
9	Laboratory Equipment	5,221	0	5,221		313		313	4,908
10	Misc. Equipment	130,523,719	15,321	130,539,040		8,890,960		8,890,960	121,648,080
	Total	213,341,257	21,047	213,362,304		13,860,356	0	13,860,356	199,501,948
J.	O&M Equipments	165,566,701	35,824	165,602,324		16,560,232		16,560,232	149,042,092
	Grand Total	43,108,293,530	1,115,724	43,109,409,254	-	1,769,004,610	-	1,769,004,610	41,340,404,644



Asset register as the year ended at dated 30th June, 2023

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30,	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	Land							0	0
1	Freehold	69,064,361	0	69,064,361				0	69,064,361
2	Leasehold	35,510,453	0	35,510,453				0	35,510,453
	Total	104,575,314	-	104,575,314	0	0	0	0	104,575,314
B.	Buildings								
1	Residential Buildings	1,065,491,521	964	1,065,492,485		31,964,775		31,964,775	1,033,527,711
2	Buid & Civil Works on F/H Land	46,101,807	0	46,101,807		1,383,054		44,718,753	
3	Non-Residential Buildings	23,736,503	0	23,736,503		712,095		712,095	23,024,408
4	GSO Residential Buildings	1,130,806,866	477	1,130,807,343		33,924,220		33,924,220	1,096,883,122
5	Non-GSO Residential Buildings	53,803,549	422	53,803,971		1,614,119		1,614,119	52,189,852
	Total	2,319,940,247	1,862	2,319,942,109		69,598,263	-	69,598,263	2,250,343,846
C.	Sub Transmission								
1	132 KV Sub Transmission Lines	3,138,650,598	3,037	3,138,653,634		141,239,414		141,239,414	2,997,414,221
2	66 KV Sub Transmission Lines	446,654,894	0	446,654,894		20,099,470		20,099,470	426,555,424
3	33 KV Sub Transmission Lines	52,439,565	0	52,439,565		2,359,780		2,359,780	50,079,785
	Total	3,637,745,057	3,037	3,637,748,093		163,698,664	0	163,698,664	3,474,049,429
D.	Grid Station								
1	132 KV Grid Station	5,945,137,292	1,261	5,945,138,553		267,531,235		267,531,235	5,677,607,318
2	66 KV Grid Station	240,906,624	0	240,906,624		10,840,798		10,840,798	230,065,826
3	33 KV Grid Station	0	0	0		0		0	0
	Total	6,186,043,916	1,261	6,186,045,177		278,372,033	0	278,372,033	5,907,673,144
E.	11 KV Distribution Equipments								
1	11 KV Poles	536,588,967	283	536,589,251		18,780,624		18,780,624	517,808,627
2	11KV Line	8,481,045,019	6,985	8,481,052,004		296,836,820		296,836,820	8,184,215,184
3	Street Light	4,163,729	1	4,163,730		145,731		145,731	4,017,999
4	Under Ground Conductor	0	0			0		0	0
5	Distribution Transformer	15,353,588,081	4,059	15,353,592,140		537,375,725		537,375,725	14,816,216,415
	Total	24,375,385,796	11,328	24,375,397,124		853,138,899	0	853,138,899	23,522,258,225
F.	LV Distribution Equipments								
1	LV Poles	0	0	0		0		0	0
2	440 LV Distribution Line	2,412,883,072	2,125	2,412,885,197		144,773,112		144,773,112	2,268,112,086
3	220 LV Distribution Line	420,732,013	50	420,732,062		25,243,924		25,243,924	395,488,138
4	KWh Meters & Service Cable	2,219,581,353	1,127	2,219,582,480		133,174,949		133,174,949	2,088,407,531
5	Conductor SAP	868,730,008	364	868,730,372		52,123,822		52,123,822	816,606,550
6	Capicitor	215,649	0	215,649		0		0	215,649
7	Misc. Equipment	0	0	0		0		0	0
	Total	5,922,142,095	3,566	5,922,145,761		355,315,807	0	355,315,807	5,566,829,954
G.	Vehicles	-			0			0	0
1	132/66/33 KV GSO Vehicles	184,612,201	27	184,612,228		18,461,223		18,461,223	166,151,006
2	Vehicles	0	0			0		0	0
	Total	184,612,201	27	184,612,228		18,461,223	0	18,461,223	166,151,006
H.	Detail of General Plant Assets								
1	Computer Equipment	34,064,034	105	34,064,139		2,043,848	0	2,043,848	32,020,291
2	Furniture	1,234,565	10	1,234,574		74,074		74,074	1,160,500
3	Workshop Equipment	198,655	0	198,655		11,919		11,919	186,736
4	Laboratory Equipment	12,663,755	0	12,663,755		759,825		759,825	11,903,930
5	Construction Equipment	34,382,433	0	34,382,433		2,062,946		2,062,946	32,319,487
6	Comunication Equipments	246,754	0	246,754		14,805		14,805	231,949
7	Fire & Safty Equipments	13,790	0	13,790		827		827	12,963
8	Arms & Amunation	14,057	0	14,057		843		843	13,214
9	Laboratory Equipment	5,221	0	5,221		313		313	4,908
10	Misc. Equipment	130,539,040	306	130,539,346		7,832,361		7,832,361	122,706,986
	Total	213,362,304	421	213,362,725		12,801,763	0	12,801,763	200,560,961
J.	O&M Equipments	165,602,324	712	165,603,037		16,560,304		16,560,304	149,042,733
	Grand Total	43,109,409,254	22,314	43,109,431,569	-	1,975,907,919	-	1,787,946,957	41,341,484,612

Asset register as the year ended at dated 30th June, 2024

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30,	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	Land							0	0
1	Freehold	69,064,861	0	69,064,861				0	69,064,861
2	Leasehold	35,510,453	0	35,510,453				0	35,510,453
	Total	104,575,314	-	104,575,314	0	0	0	0	104,575,314
B.	Buildings								
1	Residential Buildings	1,065,492,485	19	1,065,492,504		31,964,775		31,964,775	1,033,527,729
2	Build & Civil Works on F/H Land	46,101,807	0	46,101,807		1,383,054		1,383,054	44,718,753
3	Non-Residential Buildings	23,736,503	0	23,736,503		712,095		712,095	23,024,408
4	GSO Residential Buildings	1,130,807,343	10	1,130,807,352		33,924,221		33,924,221	1,096,883,132
5	Non-GSO Residential Buildings	53,803,971	8	53,803,979		1,614,119		1,614,119	52,189,860
	Total	2,319,942,109	37	2,319,942,146		69,598,264	-	69,598,264	2,250,343,882
C.	Sub Transmission								
1	132 KV Sub Transmission Lines	3,138,653,634	61	3,138,653,695		141,239,416		141,239,416	2,997,414,279
2	66 KV Sub Transmission Lines	446,654,894	0	446,654,894		20,099,470		20,099,470	426,555,424
3	33 KV Sub Transmission Lines	52,439,565	0	52,439,565		2,359,780		2,359,780	50,079,785
	Total	3,637,748,093	61	3,637,748,154		163,698,667	0	163,698,667	3,474,049,487
D.	Grid Station								
1	132 KV Grid Station	5,945,138,553	25	5,945,138,578		267,531,236		267,531,236	5,677,607,342
2	66 KV Grid Station	240,906,624	0	240,906,624		10,840,798		10,840,798	230,065,826
3	33 KV Grid Station	0	0	0		0		0	0
	Total	6,186,045,177	25	6,186,045,202		278,372,034	0	278,372,034	5,907,673,168
E.	11 KV Distribution Equipments								
1	11 KV Poles	536,589,251	6	536,589,256		18,780,624		18,780,624	517,808,632
2	11KV Line	8,481,052,004	140	8,481,052,143		296,836,825		296,836,825	8,184,215,318
3	Street Light	4,163,730	0	4,163,730		145,731		145,731	4,017,999
4	Under Ground Conductor	0	0			0		0	0
5	Distribution Transformer	15,353,592,140	81	15,353,592,221		537,375,728		537,375,728	14,816,216,494
	Total	24,375,397,124	227	24,375,397,351		853,138,907	0	853,138,907	23,522,258,444
F.	LV Distribution Equipments								
1	LV Poles	0	0	0		0		0	0
2	440 LV Distribution Line	2,412,885,197	42	2,412,885,240		144,773,114		144,773,114	2,268,112,125
3	220 LV Distribution Line	420,732,062	1	420,732,063		25,243,924		25,243,924	395,488,139
4	KWh Meters & Service Cable	2,219,582,480	23	2,219,582,502		133,174,950		133,174,950	2,086,407,552
5	Conductor SAP	868,730,372	7	868,730,380		52,123,823		52,123,823	816,606,557
6	Capicitor	215,649	0	215,649		0		0	215,649
7	Misc. Equipment	0	0	0		0		0	0
	Total	5,922,145,761	73	5,922,145,834		355,315,811	0	355,315,811	5,566,830,023
G.	Vehicles	-			0			0	0
1	132/66/33 KV GSO Vehicles	184,612,228	1	184,612,229		18,461,223		18,461,223	166,151,006
2	Vehicles	0	0			0		0	0
	Total	184,612,228	1	184,612,229		18,461,223	0	18,461,223	166,151,006
H.	Detail of General Plant Assets								
1	Computer Equipment	34,064,139	2	34,064,141		2,043,848	0	2,043,848	32,020,293
2	Furniture	1,234,574	0	1,234,574		74,074		74,074	1,160,500
3	Workshop Equipment	198,655	0	198,655		11,919		11,919	186,736
4	Labcratory Equipment	12,663,755	0	12,663,755		759,825		759,825	11,903,930
5	Construction Equipment	34,382,433	0	34,382,433		2,062,946		2,062,946	32,319,487
6	Comunication Equipments	246,754	0	246,754		14,805		14,805	231,949
7	Fire & Safty Equipments	13,790	0	13,790		827		827	12,963
8	Arms & Amunation	14,057	0	14,057		843		843	13,214
9	Laboratory Equipment	5,221	0	5,221		313		313	4,908
10	Misc. Equipment	130,539,346	6	130,539,353		7,832,361		7,832,361	122,706,991
	Total	213,362,725	8	213,362,733		12,801,764	0	12,801,764	200,560,969
J.	O&M Equipments	165,503,037	14	165,503,051		16,560,305		16,560,305	149,042,746
	Grand Total	43,109,431,569	446	43,109,432,015	-	2,189,097,110	-	1,767,946,976	41,341,485,039

Asset register as the year ended at dated 30th June, 2025

No.	Description	Cost			Accumulated Depreciation				Book Value as on June 30,
		As at July 01,	Addition/ deletions	As at June 30,	As at July 01,	Charge during the year	Adjustments	As at June 30,	
A.	**Land**							0	0
1	Freehold	69,064,861	0	69,064,861				0	69,064,861
2	Leasehold	35,510,453	0	35,510,453				0	35,510,453
	Total	104,575,314	-	104,575,314	0	0	0	0	104,575,314
B.	**Buildings**								
1	Residential Buildings	1,065,492,504	0	1,065,492,505		31,964,775		31,964,775	1,033,527,730
2	Build & Civil Works on F/H Land	46,101,807	0	46,101,807		1,383,054		1,383,054	44,718,753
3	Non-Residential Buildings	23,736,503	0	23,736,503		712,095		712,095	23,024,408
4	GSO Residential Buildings	1,130,807,352	0	1,130,807,352		33,924,221		33,924,221	1,096,883,132
5	Non-GSO Residential Buildings	53,803,979	0	53,803,980		1,814,119		1,814,119	52,189,860
	Total	2,319,942,146	1	2,319,942,147		69,598,264	-	69,598,264	2,250,343,883
C.	**Sub Transmission**								
1	132 KV Sub Transmission Lines	3,138,653,695	1	3,138,653,696		141,239,416		141,239,416	2,997,414,280
2	66 KV Sub Transmission Lines	446,654,894	0	446,654,894		20,099,470		20,099,470	426,555,424
3	33 KV Sub Transmission Lines	52,439,565	0	52,439,565		2,359,780		2,359,780	50,079,785
	Total	3,637,748,154	1	3,637,748,155		163,698,667	0	163,698,667	3,474,049,488
D.	**Grid Station**								
1	132 KV Grid Station	5,945,138,578	1	5,945,138,579		267,531,236		267,531,236	5,677,607,343
2	66 KV Grid Station	240,906,624	0	240,906,624		10,840,798		10,840,798	230,065,826
3	33 KV Grid Station	0	0	0		0		0	0
	Total	6,186,045,202	1	6,186,045,203		278,372,034	0	278,372,034	5,907,673,169
E.	**11 KV Distribution Equipments**								
1	11 KV Poles	536,589,256	0	536,589,256		18,780,624		18,780,624	517,808,632
2	11KV Line	8,481,052,143	3	8,481,052,146		296,836,825		296,836,825	8,184,215,321
3	Street Light	4,163,730	0	4,163,730		145,731		145,731	4,017,999
4	Under Ground Conductor	0	0			0		0	0
5	Distribution Transformer	15,353,592,221	2	15,353,592,223		537,375,728		537,375,728	14,816,216,495
	Total	24,375,397,351	5	24,375,397,355		853,138,907	0	853,138,907	23,522,258,448
F.	**LV Distribution Equipments**								
1	LV Poles	0	0	0		0		0	0
2	440 LV Distribution Line	2,412,885,240	1	2,412,885,241		144,773,114		144,773,114	2,268,112,126
3	220 LV Distribution Line	420,732,063	0	420,732,063		25,243,924		25,243,924	395,488,139
4	KWh Meters & Service Cable	2,219,582,502	0	2,219,582,503		133,174,950		133,174,950	2,086,407,553
5	Conductor SAP	868,730,380	0	868,730,380		52,123,823		52,123,823	816,606,557
6	Capicitor	215,649	0	215,649		0		0	215,649
7	Misc. Equipment	0	0	0		0		0	0
	Total	5,922,145,834	1	5,922,145,836		355,315,811	0	355,315,811	5,566,830,024
G.	**Vehicles**	-			0			0	0
1	132/66/33 KV GSO Vehicles	184,612,229	0	184,612,229		18,461,223		18,461,223	166,151,006
2	Vehicles	0	0			0		0	0
	Total	184,612,229	0	184,612,229		18,461,223	0	18,461,223	166,151,006
H.	**Detail of General Plant Assets**								
1	Computer Equipment	34,064,141	0	34,064,141		2,043,848	0	2,043,848	32,020,293
2	Furniture	1,234,574	0	1,234,574		74,074		74,074	1,160,500
3	Workshop Equipment	198,655	0	198,655		11,919		11,919	186,736
4	Laboratory Equipment	12,663,755	0	12,663,755		759,825		759,825	11,903,930
5	Construction Equipment	34,382,433	0	34,382,433		2,062,946		2,062,946	32,319,487
6	Comunication Equipments	246,754	0	246,754		14,805		14,805	231,949
7	Fire & Safty Equipments	13,790	0	13,790		827		827	12,963
8	Arms & Amunation	14,057	0	14,057		843		843	13,214
9	Laboratory Equipment	5,221	0	5,221		313		313	4,908
10	Misc. Equipment	130,539,353	0	130,539,353		7,832,361		7,832,361	122,706,992
	Total	213,362,733	0	213,362,733		12,801,764	0	12,801,764	200,560,969
J.	O&M Equipments	165,603,051	0	165,603,051		16,560,305		16,560,305	149,042,746
	Grand Total	43,109,432,015	9	43,109,432,024	-	2,408,736,433	-	1,767,946,976	41,341,485,048

FORM - 14

SUKKUR ELECTRIC POWER COMPANY

Aging of Accounts Receivables as ON June, 30th		Actual for ending 30th June, 2021	for ending 30th June, 2022	for ending 30th June, 2023	Provisional for ending 30th June, 2024	Projected for ending 30th June, 2025
Outstanding for current year	Rs In Million	5,681	5,965	6,263	6,388	5,417
Outstanding for more than 1 year	Rs In Million	6,546	6,873	7,217	7,361	6,763
Outstanding for more than 2 years	Rs In Million	5,269	5,533	5,809	5,925	5,836
Outstanding for more than 3 years	Rs In Million	6,745	7,082	7,436	7,585	7,603
Outstanding for more than 4 years	Rs In Million	7,322	7,689	8,073	8,234	8,492
Outstanding for more than 5 years	Rs In Million	98,570	103,498	108,673	110,847	108,955
Total Receivables as on June 30, ...	Rs In Million	130,133	136,639	143,471	146,341	143,067

Sukkur Electric Power Company Ltd.

FROM - 15

SUKKUR ELECTRIC POWR COMPANY LTD.

Projected Energy Sales by Tariffs

GWh

Description	Unit Sale (Projected)				
	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Residential					
Up to 50 Units	50.27	52.95	55.07	66.98	73.84
For peak load requirement up to 5 kW					
01-100 Units	447.12	470.99	489.78	595.77	656.75
101-200 Units	354.92	373.88	388.79	472.93	521.33
201-300 Units	338.01	356.04	370.25	450.38	496.48
301-700Units	255.46	269.09	279.83	340.39	375.23
Above 700 Units	135.90	143.16	148.88	181.10	199.62
E-1 (1)	1.25	1.47	1.40	1.71	1.88
For peak load requirement exceeding 5 kW					
Time of Use (TOU) – Peak	5.57	5.86	6.10	7.41	8.17
Time of Use (TOU) - Off-Peak	69.73	73.46	76.40	92.92	102.44
Commercial - A2	66.41	69.96	72.75	88.50	97.55
For peak load requirement up to 5 kW					
Regular	16.23	17.10	17.77	21.62	23.84
Time of Use (TOU) - Peak (A-2)	18.83	19.84	20.63	25.10	27.67
Time of Use (TOU) - Off-Peak	104.59	110.18	114.57	139.36	153.64
Industrial	-	-	-	-	-
B1	21.07	22.20	23.09	28.09	30.96
B1 - TOU (Peak)	8.27	8.71	9.06	11.02	12.14
B21- TOU (Off-peak)	96.50	101.66	105.71	128.59	141.75
B2	26.77	28.20	29.33	35.68	39.33
B2 - TOU (Peak)	29.86	31.46	32.71	39.79	43.86
B2 - TOU (Off-peak)	208.61	219.76	228.51	277.97	306.42
B3 - TOU (Peak)	4.01	4.21	4.39	5.33	5.88
B3 - TOU (Off-peak)	21.76	22.92	23.83	28.99	31.95
B4 - TOU (Peak)	2.94	3.10	3.23	3.93	4.32
B4 - TOU (Off-peak)	17.65	18.60	19.33	23.52	25.93
TMP E-2 (1)	1.48	1.55	1.62	1.97	2.17
Bulk					
C1(a) Supply at 400 Volts - up to 5 kW	4.33	4.55	4.74	5.76	6.34
C1(b) Supply at 400 Volts -exceeding 5 kW	34.41	36.24	37.68	45.84	50.53
C1(c) Time of Use (TOU) – Peak	5.69	5.99	6.23	7.58	8.35
C1(c) Time of Use (TOU) - Off-Peak	32.78	34.53	35.91	43.69	48.15
C2 Supply at 11 kV	12.32	12.97	13.49	16.42	18.10
Time of Use (TOU) – Peak	12.66	13.33	13.87	16.87	18.59
Time of Use (TOU) - Off-Peak	65.46	68.95	71.70	87.22	96.14
Agricultural Tube-wells - Tariff D					
D1 Scarp	92.56	97.51	101.40	123.35	135.96
Time of Use (TOU) - Peak D-1	12.42	13.08	13.61	16.55	18.23
Time of Use (TOU) - Off-Peak D1	102.99	108.49	112.82	137.24	151.28
D2 Agricultural Tube-wells	20.23	21.31	22.16	26.95	29.71
Time of Use (TOU) - Peak D-2	2.32	2.45	2.55	3.10	3.41
Time of Use (TOU) - Off-Peak D2	2.68	2.82	2.94	3.57	3.94
Public Lighting G	25.70	27.07	28.15	34.24	37.75
Colonies H (1)	1.34	1.41	1.47	1.79	1.96
A-3 (66) General Supply	61.63	64.82	67.49	82.12	90.57
Grand Total	2,792.77	2,941.89	3,059.23	3,721.32	4,102.19

Sukkur Electric Power Company Ltd.

FORM - 16

SUKKUR ELECTRIC POWR COMPANY LTD.

Operating Cost

		2019-20	2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
		Determined	Provisional	Projected	Projected	Projected	Projected	Projected
A	**Power Purchase Cost**							
	Energy Charge	[Mln Rs]						
	Capacity Charge	[Mln Rs]						
	Transmission Charge	[Mln Rs]						
	Market Operation Fee	[Mln Rs]						
	Adjustment *	[Mln Rs]						
	Total Power Purchase Cost	[Mln Rs]	-	-	-	-	-	-	-
	* Provide the detail of adjustment		-	-	-	-	-	-	-
									-
B	**Commercial Cost**								
	Employees Cost **								
	Salaries, Wages & Benefits	[Mln Rs]	3,665	3,826	4,247	4,610	4,969	5,341	5,744
	Retirement Benefits	[Mln Rs]	1,629	3,484	3,868	4,008	4,469	4,808	5,175
	Total Employees Cost	[Mln Rs]	5,294	7,310	8,116	8,618	9,439	10,149	10,919
	Repair & Maintenance	[Mln Rs]	507	737	818	758	946	1,017	1,095
	Travelling	[Mln Rs]	304	230	255	347	295	317	341
	Transportation	[Mln Rs]	154	165	183	183	211	227	245
	Miscellaneous Expenses	[Mln Rs]	177	270	300	308	347	373	402
	Total O&M	[Mln Rs]	6,436	8,712	9,672	9,209	11,237	12,084	13,001
C	**Depreciation & Amortization**								
	Depreciation	[Mln Rs]	1,333	1,362	1,573	1,769	1,976	2,189	2,407
	Amortization of Leased Assets	[Mln Rs]							
	Total	[Mln Rs]	1,333	1,362	1,573	1,769	1,976	2,189	2,407
D	**Provision for Bad Debts**								
	Provision for bad debts	[Mln Rs]	-		-				
	Bad debts written off	[Mln Rs]	-						
E.	**Finance Cost**	[Mln Rs]		-	-	-	-	-	-
F.	**Tax for the Year**	[Mln Rs]				-			-
G.	**Extra Ordinary /Contingency Expenses**								
		[Mln Rs]	-		-	-			-

Sukkur Electric Power Company Ltd.

FORM - 17

SUKKUR ELECTRIC POWR COMPANY LTD.

Distribution Margin Comparison: Unit

		Years						
		2019-20		2020-21	2021-22	2022-23	2023-24	2024-25
		Determined	Provisional	Projected	Projected	Projected	Projected	Projected
O&M Expenses	Rs. in M	6,436	8,712	9,672	9,209	11,237	12,084	13,001
Increase in %	%age			50.3%	5.7%	16.2%	31.2%	15.7%
Provision for bad debts	Rs. in M		-	-	-	-	-	-
Depreciation*	Rs. in M	1,333	1,362	1,573	1,769	1,976	2,189	2,407
RORB*	Rs. in M	1,708	2,701	3,035	3,564	3,941	4,267	4,521
Income Tax	Rs. in M							
Other Income	Rs. in M	(988)	(1,121)	(1,059)	(1,140)	(1,230)	(1,330)	(1,441)
Distribution Margin	Rs. in M	8,489	11,654	13,222	13,402	15,925	17,210	18,488
Energy Sold	Gwh	3,502	2,710	2,793	2,942	3,059	3,721	4,102
DM per unit	Rs./kwh	2.42	4.30	4.73	4.56	5.21	4.62	4.51
DM per unit increase	%age							

* As per determination for FY 2019-20

Sukkur Electric Power Company Ltd.

FORM - 18

SUKKUR ELECTRIC POWR COMPANY LTD.

Financial Charges

		FY 2019-20		FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
		Determined	Actaul	Projected	Projected	Projected		Projected
A	**Long Term Loans**		-			-		-
	Financial Charges							
	Foreign Loans							
	Bonds		-			-		-
	TFCs							
	Others		-			-		-
	Total		-	-	-	-	-	-
B	**Short Term Loan**							
	Running Finance							
	Short Term Loan					-		-
	Others							
	Total		-			-		-
C	**Total Financial Charges (A+B)**		-	-	-	-	-	-

Sukkur Electric Power Company Ltd.

FORM - 19

SUKKUR ELECTRIC POWR COMPANY LTD.

RORB Calculation

S. No	Description	Unit	FY 2019-20		FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
			Determined	Provisional					Provisional
			SEPCO						
A	Gross Fixed Assets in Operation - Opening Bal	[Mln Rs]	35,600	39,562	40,263	45,613	51,311	57,337	63,529
B	Addition in Fixed Assets	[Mln Rs]	3,862	701	5,350	5,698	6,027	6,192	6,340
C	Gross Fixed Assets in Operation - Closing Bal	[Mln Rs]	39,462	40,263	45,613	51,311	57,337	63,529	69,869
D	*Less*: Accumulated Depreciation	[Mln Rs]	17,163	17,196	18,769	20,537	22,511	24,697	27,101
E	Net Fixed Assets in Operation	[Mln Rs]	22,299	23,067	26,844	30,774	34,827	38,832	42,768
F	*Add*: Capital Work In Progress - Closing Bal	[Mln Rs]	4,011	5,694	8,025	8,546	9,040	9,288	9,509
G	Investment in Fixed Assets	[Mln Rs]	26,310	28,760	34,869	39,320	43,867	48,120	52,278
H	*Less*: Deferred Credits	[Mln Rs]	13,087	10,776	12,435	14,302	16,404	18,769	21,430
I	Regulatory Assets Base	[Mln Rs]	13,223	17,984	22,434	25,018	27,463	29,351	30,848
J	Average Regulatory Assets Base	[Mln Rs]	11,602	17,984	20,209	23,726	26,241	28,407	30,100
	Rate of Return	[%age]	15.02%	15.02%	15.02%	15.02%	15.02%	15.02%	15.02%
	Return on Rate Base	[Mln Rs]	1,742	2,701	3,035	3,564	3,941	4,267	4,521

Sukkur Electric Power Company Ltd.

FORM - 20

SUKKUR ELECTRIC POWR COMPANY LTD.

Revenue Requirement

			FY 2019-20		FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
			Determined	Actual / Provisional	Projected	Projected	Projected	Projected	Projected
A	Power Purchase Price	[Mln Rs]							
B	DM								
	O&M	[Mln Rs]	6,436	8,712	9,672	9,209	11,237	12,084	13,001
	Depreciation	[Mln Rs]	1,333	1,362	1,573	1,769	1,976	2,189	2,407
	Provision for bad bebts	[Mln Rs]							
	RORB	[Mln Rs]	1,708	2,701	3,035	3,564	3,941	4,267	4,521
	Other Income	[Mln Rs]	(988)	(1,121)	(1,059)	(1,140)	(1,230)	(1,330)	(1,441)
	Impact of Disallowed Losses	[Mln Rs]							
	Total DM	[Mln Rs]	8,489	11,654	13,222	13,402	15,925	17,210	18,488
	Prior Year Adjustment	[Mln Rs]					-		
C	(A+B)	[Mln Rs]	8,489	11,654	13,222	13,402	15,925	17,210	18,488
D	Finance Cost			-	-	-	-	-	-
E	Less/ (Excess) Recovery	[Mln Rs]					-		-
F	Total Revenue Requirement (C+D)	[Mln Rs]	8,489	11,654	13,222	13,402	15,925	17,210	18,488

FORM - 20 (A)			3,502	2,710	2,793	2,942	3,059	3,721	4,102

Revenue Requirement *(per unit sold)*

			FY 2019-20		FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
			Determined	Actaul	Projected	Projected	Projected	Projected	Projected
A	Power Purchase Price [Adjusted]	[Rs/ kWh]							
B	DM								
	O&M	[Rs/ kWh]	1.84	3.21	3.46	3.13	3.67	3.25	3.17
	Depreciation	[Rs/ kWh]	0.38	0.50	0.56	0.60	0.65	0.59	0.59
	Provision for bad bebts			-	-	-	-	-	-
	RORB	[Rs/ kWh]	0.49	1.00	1.09	1.21	1.29	1.15	1.10
	Other Income	[Rs/ kWh]	(0.28)	(0.41)	(0.39)	(0.39)	(0.40)	(0.36)	(0.35)
	Impact of Disallowed Losses	[Rs/ kWh]					-		-
	Total DM	[Rs/ kWh]	2.42	4.30	4.73	4.56	5.21	4.62	4.51
	Finance Cost			-	-	-	-	-	-
C	Revenue Requirement (A+B)	[Rs/ kWh]	2.42	4.30	4.73	4.56	5.21	4.62	4.51
D	Less/ (Excess) Recovery	[Rs/ kWh]					-		-
E	Total Revenue Requirement (C+D)	[Rs/ kWh]	2.42	4.30	4.73	4.56	5.21	4.62	4.51
F	Prior Year adjustment	[Rs/ kWh]	-						
	Wire Margin	[Rs/ kWh]	2.42				-		
G	Net Average Tariff Rate	[Rs/ kWh]	4.84	4.30	4.73	4.56	5.21	4.62	4.51
	Write-Off								
I	Average Tariff	[Rs/ kWh]	4.84	4.30	4.73	4.56	5.21	4.62	4.51

Sukkur Electric Power Company Ltd.

FORM - 21 (A)

SUKKUR ELECTRIC POWR COMPANY LTD.

Investment

		FY 2019-20		FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
		Determined	Provisional	Projected	Projected	Projected	Projected	Projected
A	**Investment Plan**							
	DOP [Mln Rs]		45	848	975	1,099	1,232	1,421
	ELR [Mln Rs]		79	1,386	1,475	1,562	1,654	1,748
	STG [Mln Rs]		1,457	1,131	4,862	2,620	3,098	1,076
	Other [Mln Rs]							
	ERP [Mln Rs]			280	200			
	Total [Mln Rs]	**0**	**1,581**	**3,645**	**7,512**	**5,280**	**5,984**	**4,245**
B	**Financing Arrangement**							
	Local [Mln Rs]							
	Foreign [Mln Rs]		0					
	CAPEX / Own Resources [Mln Rs]		1,570	3,645	7,512	5,280	5,984	4,245
	Grant [Mln Rs]		0					
	Consumer Contribution [Mln Rs]		12	416	478	539	604	697
	Others (Ministry of Energy)* [Mln Rs]							
	Total [Mln Rs]		**1,581**	**4,061**	**7,990**	**5,819**	**6,588**	**4,942**

Supported by the following details:

1. Complete Cost Benefit Analysis
2. Expected efficency/ improvement in the system

FORM - 21 (B)

Feeder X	Feeder X	Feeder X	Overall Losses	Overall Losses

Feeder wise Losses

Existing Level of Losses	
Losses previous year / qrt	
Investment carried out last year / qrt	
Objective committed last year / qrt	
Actual Results achieved after investments	

Investment Requested for the year / quarter	
Objective (reduction in losses / maintenance of existing level of losses)	
Projected losses for the control period	

FORM - 22

SUKKUR ELECTRIC POWR COMPANY LTD.

Interest on Development Loans (Circular Debt -TFC)

Rs. Million

Sr. No.	Loans	Interest Rate %	FY 2017-18				
			1st Qrt	2nd Qrt	3rd Qrt	4rth Qrt	Total
			-	-	-	-	-

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

Sukkur Electric Power Company Ltd.

FORM - 23

SUKKUR ELECTRIC POWR COMPANY LTD.

BONDS

Particulars	Interest Rate	FY 2015-16			
		Opening Balance	Redemption	Closing Balance	Interest Charges

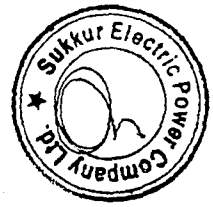
FORM - 25

SUKKUR ELECTRIC POWR COMPANY LTD.

Provision for Tax

Rs. Million

Sr. No.	Provision for Tax allowed	Actual tax paid during the FY 2015-16				
		1st Qrt	2nd Qrt	3rd Qrt	4rth Qrt	Total
1	TAX					
		0	-	-	-	-



SUKKUR ELECTRIC POWER COMPANY

INTEGRATED GENERATION TRANSMISSION AND DISTRIBUTION PLAN (IGTDP)

2020-21 TO 2024-2025

SUKKUR ELECTRIC POWER COMPANY (SEPCO), SINDH.

October, 2021.

List of Contents

Sukkur Electric Power Co... Ltd.

1. EXECUTIVE SUMMARY

Sukkur Electric Power Company (SEPCO) filed a Multi year Tariff Petition with National Electric Power Regulatory Authority (NEPRA) Tariff for the the FY-2020-21 to FY-2024-25, vide No,. CEO/FD/CPC/196-198 dated 17/06/2021. NEPRA considering the request of SEPCO has asked for preparation of 5 year IGTDP. Therefore, SEPCO has prepared the required plan keeping in view the system requirement of the future in order to ascertain reliability of the system and to provide uninterrupted & stable supply to its consumers.

The integrated Generation and Distribution Plans are prepared by GENCOs and NTDC respectively. The Distribution Plan of SEPCO which is integrated with 132 kV network studies envisages expansion and rehabilitation of SEPCO Network during the years 2020-21 to 2024-25. The overall summary of which is given below:

S.No.	Description	Unit	2020-21	2021-22	2022-23	2023-24	2024-25	Total
1	New Grid Station	No.	1	3	2	1	-	7
2	Conversion of 66 to 132 kV	No.	-	3	2	1	3	9
3	Extension of Power T/F	No.	4	-	-	4	-	8
4	Augmentation of Power T/F	No.	6	4	-	1	-	11
5	Extension of Line Bay	No.	2	-	-	-	-	2
6	New 132 kV T/L	km	21	278.6	179	128	68	674.5
8	Installation 132 kV Capacitors	No.	-	1	-	-	1	2
9	New 11 kV Lines	km	634.5	729	796	864	959.5	3983
10	Reconducotring of 11 kV Line	km	90	96	102	108	114	510
11	New LT Line	km	249	294.2	325	356.8	402	1627
12	Reconducotring of LT Line	km	26	28	30	32	34	150
13	11 kV Capacitors	No.	15	16	17	18	19	85
14	11 kV Outgoing Panels	No.	15	16	17	18	19	85
15	New Distibution T/Fs	No.	598	708	783	858	970	3918
16	Distribution Transformer replcement	No.	270	288	306	324	342	1530
17	Sectionalizer	No.	30	32	34	36	38	170
18	Energy Meters	No.	15676	18341	20271	22191	24876	101355
19	Vehicles	No.	-	10	11	11	11	43
20	Offices	No.	-	-	-	6	4	10
21	Residential Quarters	No.			25	26	26	77

Cost of the Projects

S.No	Description	2020-21	2021-22	2022-23	2023-24	2024-25	Total 2020-25
1	Transmission Expansion	1131.0	4862.0	2620.0	3098.0	1076.0	12787.0
2	Distribution Expansion	1386.1	1475.5	1561.6	1653.6	1747.8	7824.5
3	Distribution Rehabilitation	847.9	974.5	1098.9	1232.4	1421.3	5575.1
4	Total Cost	3365.0	7312.0	5280.5	5984.0	4245.0	26186.5

The improvement in SAIFI and SAIDI will be achieved at 5% after implementation 5 year IDP. The tentative technical results expected to be achieved after implementation of the projects:

S.No	Description	Unit	2020-21	2021-22	2022-23	2023-24	2024-25
1	Losses	Mkwh	93.6	185.2	262.1	345.9	437.8
2	Voltage	%V.D	3.12%	3.33%	3.83%	1.84%	2.36%
3	Power Factor	%age	0.9	0.9	0.9	0.9	0.95
4	Reliabilty	Tripping/100 km	1.9	1.8	1.7	1.7	1.6
5	SAIFI		455.0	430.0	410.0	390.0	370.0
6	SAIDI		3890.0	3695.0	3310.0	3335.0	3168.0

The Financial benefits of the projects are as under: (Refer Table A-3 to A-6, **Annexure -A**)

Discount Rate	*Discounted Benefits*	*Discounted Costs*	*Net Present Value*	*Benefit / Cost ratio*
Project Financial Analysis				
08%	97583.04	79223.18	18359.86	*1.23*
10%	80973.44	68514.26	12459.17	*1.18*
Financial Internal Rate of Return (FIRR)=18.96%				
Project Economic Analysis				
Total Benefits	*Total Cost*	*Net Saving*		
264819.78	*129541.60*	*135278.18*		
Financial Internal Rate of Return (EIRR)=32.11%				
Sensitivity Analysis with 10% Decrease in Project Benefits				
08%	87824.74	79223.18	8601.56	*0.98*
10%	72876.09	68514.26	4361.83	*0.97*
Financial Internal Rate of Return (FIRR)=13.09%				
Sensitivity Analysis with 10% Inc. in Cost:				
08%	81476.49	97583.04	16106.55	*1.19*
10%	70691.43	80973.44	10282.01	*1.14*
Financial Internal Rate of Return (FIRR)=16.6%				
Sensitivity Analysis with 10% Inc. in Cost: & Decrease in Benefits				
08%	87824.74	81476.49	6348.25	*1.09*
10%	72876.09	70691.43	2184.67	*1.04*
Financial Internal Rate of Return (FIRR)=11.4%				

Income & Expenditure / Profit & Loss Account For 30 Years:

The income and expenditure statement for 30 years after completion of the project works, is placed at **Table-A-6, Annexure -A**

Profit and loss statement has been prepared on the basis of following assumptions:

a. Components of the cost have been amortized at the interest rate of **10.6%** per annum over 20 years and Levelized for 30 years.

b. Annual operation and maintenance cost has been taken at the rate of 5% of the total capital cost of the project.

c. Cash inflow has been computed on the basis of energy saved.

Overall Project Analysis:

It is obvious from the above said results that the project is feasible on said assumptions and facts. Even in ***Sensitivity Analysis with 10% Inc. in Cost: & 10% Decrease in Benefits*** the cost benefit ratio **1.09** @ 08% discount rate and on 10% discount rate is **1.04.**

Quantifiable Output of the Project:

Year-wise Average increase in revenue due to saving in losses will be Rs.2066.91.

It is obvious from the results that the project is feasible with BC ratio of 1.23 (Financial) and 1.54 (Economical) on assumptions and facts. Even in sensitivity analysis the cost benefit ratio with 10 % increased capital cost is 1.19 and with 10% decrease in benefits is 0.97. Whereas the both assumptions, i.e 10 % increased capital cost and 10 % decrease in benefits is 1.04.

2. Statement of Purpose

Sukkur Electric Power Company was established in August, 2010 for distribution of Electricity in Sindh province except areas under KESC and SEPCO. Some of SEPCO neighboring areas are being supplied by SEPCO. SEPCO supplies Electricity to the 10 districts which have a population of 1,97,00,000. By the end of FY, 2020-21, SEPCO had 805717 connections, out of which 643103 were Domestic, 125388 Commercial, 9370 Agricultural, 13382 Industrial & Bulk, and 14474 others.

The aim of this project is:

a) To increase the capacity of the system (Transmission Lines & Grid stations) to cope / handle the higher loads.
b) To reduce the losses in the network
c) To improve the Reliability and Quality (voltage, frequency and power factor) of Electric Power.
d) To avoid forced load shedding,
e) To avoid forced loading,
f) To reduce un-necessary O&M cost (especially on old &deteriorated circuits).

g) To maintain and upgrade existing system, in-accordance with Generation from NTDCL's Transmission System plan,

h) To Plan, Design & Implement the system expansion to enhance the capacity for the higher load demand(s).

3. Objective of Distribution Plan :

SEPCO's existing STG system (Secondary Transmission and Grid) is mostly under stress and its increasing load demand make it further under the stress. Consequently, the quality of supply is poor due to high voltage drops, poor power factor and increasing supply interruptions. The technical losses are high as compared to other utilities, Due to inadequate transmission line circuits, old conductor, high length and low voltage i.e. 66 kV transmission lines, overloaded power transformer, and substantial lack of funding for system rehabilitation.

The main objectives / aim is to improve the reliability, stability and continuity of the power supply by construction of new grid stations and transmission lines at the various locations of SEPCO. The sector aims at strengthening the capacity of the Transmission network to meet the increasing load demand of remote areas of Sindh more efficiently and with better reliable & stable electric supply to the consumers of SEPCO i.e. Domestic, Commercial, Industrial and Agricultural.

Some Grid Stations are located in the congested City areas and it is not possible to emanate any new feeder from those Grid Stations. 132 kV Grid Station Dadu is one of them for which 132 kV Grid Station Bypass Dadu has been proposed.

Conversion of 66 kV systems to 132 kV level is mainly to provide stable, reliable and quality power to the consumers and to reduce the transmission losses.

Construction of transmission line feeds for new grid stations and construction of second circuits of transmission lines to share loads and dispersal of power through short route.

4. DESCRIPTION, JUSTIFICATION AND TECHNICAL PARAMETERS OF PROJECTS:

4.1 Introduction:

Sukkur Electric Power Company was established in August, 2010 for distribution of Electricity in Sindh province except areas under KESC and SEPCO. Some of SEPCO neighboring areas are being supplied by SEPCO. SEPCO supplies Electricity to the 10 districts which have a population of 1,97,00,000. By the end of FY, 2020-21, SEPCO had 805717 connections, out of which 643103 were Domestic, 125388 Commercial, 9370 Agricultural, 13382 Industrial & Bulk, and 14474 others.

SEPCO purchased 4291.0 Million Units during FY 2020-21 and sold 2776.0 Million Units with a loss of 1515.0 Million Units (35.3 %) in its network.

The infrastructure (in terms of Electrical Installations) is mentioned at Table as shown below

SEPCO INFRASTRUCTURE (ELECTRICAL)

Description	Units	Qty.
Grid Stations		
• 132KV Grid Stations	Nos.	59
• 66KV Grid Stations	Nos.	9
• Power Transformer Installed (different Capacity)	Nos.	132
Total Installed Capacity	**MVA**	2915.5
Transmission Lines 132KV & 66KV		
•Total Length of Transmission Line	K.Ms	2928.47
Distribution System		
• 11KV Feeders	Nos.	542
• 11KV (H.T) Line	K.Ms	24722
• LT Line	K.Ms	13350
• Distribution Transformers	Nos.	38630
• Total Installed Capacity of Distribution Transformers	MVA	2178
Service Connections		
• Domestic	Nos.	643103
• Commercial	Nos.	125388
• Industrial	Nos.	13382
• Tube-well	Nos.	9370
• Others	Nos.	14474
Total Consumers	**Nos.**	805717

The characteristics of integrated SEPCO system (during 2019-20) are given below:-

A	**Seasonal variations of the maximum demand**	
1	**Sumer Season**	Recorded = 1124 MW
		Computed = 1013 MW
2	**Winter Season**	Recorded = 681 MW
		Computed = 565 MW
B	**Power Factor**	85%
C	**Annual load factor**	Recorded = 52.01%
		Computed = 69.8%
D	**Diversity Factor**(Used for different type of loads in the Power Market Survey)	
	In villages: In towns: In cities: B/W Districts/Cities/Towns &Villages: In Divisions:	= 1.05 = 1.11 = 1.18 = 1.05 = 1.18
F	**Transmission & Distribution losses**	1.8 % & 34.4%, respectively
G	**Gross System Losses**	36.3%

Feeding Sources of SEPCO:

The following are feeding sources, from where SEPCO is receiving the Electric Power:

Sr. No.	Name of Feeding Source
1.	500 KV Grid Station Dadu
2.	500 KV Grid Station Guddu
3.	220 KV Grid Station Lodra (New Shikarpur)
4.	220 KV Grid Station New Rohri
6.	132 KV Liberty Power House
7.	M/S Al-Noor Sugar Mills (Pvt.) Ltd. ShahpurJahania, Moro

5. DEMAND AND SUPPLY ANALYSIS

5.1 EXISTING CAPACITY OF SERVICES

The breakup of existing installed capacity of the integrated system is given below:

Sr.	Description	Capacity (MW)
1	Hydro	9,387
2	Thermal (GENCOs)	5,682
3	Nuclear	1,345
4	IPPs	16,225
5	Wind	1,235
6	Solar	400
Total		**34,274**

5.2 PROJECTED DEMAND

On the basis of this Power Market Survey, jointly prepared by DISCOs under supervision of Planning (Power) NTDC, SEPCO Demand Forecast is given as under:

Year	Demand (MW)	% G.R
2020-21	1490	--
2021-22	1536	3.0
2022-23	1581	2.8
2023-24	1626	2.8
2024-25	1672	2.8
2025-26	1717	2.6
2026-27	1761	2.5
2027-28	1804	2.4
2028-29	1858	3.0
2029-30	1914	3.0

5.3 Existing and Future Supply Allocation / Availability:

The supply allocation is being controlled by NTDC through NPCC Islamabad, keeping in view the availability of power generation and ratio of load demands of all DISCOs.

In order to meet with the existing and future load demands, besides construction of Secondary Transmission Lines & Grid Station (STG) for dispersal of electric power to load centers and subsequently to the end consumers, the additional capacity in Power generation is also required to overcome the short fall.

5.4 Expected Demand VS Supply Allocation Position:

Expected power demand of SEPCO has been worked out during preparation of PMS load forecast for the coming years. By considering the Generation Expansion Plan, as well as existing and proposed SPPs / NCPPs in SEPCO areas, the availability of power supply in future is expected as under:

Year	Demand		Supply		Deficit/Gap		Generation (SEPCO Share @ 5.5%)		Net Deficit / Surplus	
	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak
2020-21	1191	1078	1006	672	185	406	1123	1015	217	343
202122	1280	1153	1075	719	205	435	1310	1086	235	367
2022-23	1370	1234	1150	770	220	465	1401	1162	251	392
2023-24	1479	1327	1236	828	237	500	1506	1249	270	421
2024-25	1590	1426	1329	890	254	537	1619	1343	290	453

The above table shows that there will be deficit in net supply and demand of SEPCO during first three years viz 2020-21 to 2024-25 which will be mitigated with the help of proper load management, whereas there will be sufficient generation available in surplus to the expected SEPCO demand during next two years and load management will not be required.

5.5 Justification of the Project:

Existing network of SEPCO is in stress & its loading position is increasing day by day due to increase in power demand. The perpetuity of hidden load growth by the consumers is compelling the company to go for repeated progression in rehabilitating / up-gradation of the existing Distribution System.

At present the electrical appliances and modern gadgets being purchased by the consumers through easy installments, financed by commercial banks, consequently the system is being loaded.

Due to overloading of existing system the, technical losses become significantly higher than the normal limits. This also contributes to the unstable, unreliable and interrupted supply of electricity to the end users. A reliable and strong electricity network acts as leeway in accelerating the pace of overall development and

rehabilitation activity in any region, also "SEPCO System Constraints" and its remedial measures, are incorporated in this IGTDP.

The load flow studies for normal operating condition, carried out, without proposed plan through power system simulator for Engineers (PSS/E) software for the years 2020-21 to 2024-25, showing following general impacts on the SEPCO network:

a) Active & Reactive Power flows on transmission lines & power transformers.
b) Voltage drop across transmission lines.
c) Low power factor (below 95%) observed at 11 KV bus-bars of various grid stations
d) Low voltage on 132 KV, 66 KV & 11 KV bus-bars
e) Over loading of Power Transformers (above 80 %) which led towards forced load management.
f) Transmission losses.

Decrease in technical losses, improvement in voltage profile and additional MVA capacity are the significant benefits of the proposed new grid stations, conversion of 66 kV Grid Stations into 132 kV Grid Stations and up gradation of transmission lines.

A). LOAD FLOW STUDIES

Technical Load Flow Studies of the Secondary Transmission and Grid Stations (**STG**) Network for the existing and future Five years (2020-21 to 2024-25) has been carried out through latest PSS/E software to determine the justification of proposed projects of SEPCO and to assess its impact on SEPCO system network. In addition, benefits of the proposed plan have also been determined through system studies.

a) Methodology of System Study and Analysis:

The methodology of system studies/analysis is given as under:

i) The complete system model of the National Grid has been simulated through latest PSS/E Software, in which not only system network of SEPCO but that of NTDC, GENCOs and neighboring DISCOs has been simulated for analysis.
ii) Load flow for each year has been carried out and their results have been presented in the report.
iii) 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 projects.
- Determine justification of proposed projects.
- Determine benefits of the proposed works in terms of reduction in transmission losses, improvement in voltage profile, and reduction in loading of Transmission Lines or Power Transformers, spare capacity margin in the Transmission System.

b) **Assumptions for Load Flow Studies:**

i. The load flow studies are based on the following assumptions:

ii. The diversified values of the peak projected loads on substations, existing and new, have been modeled as per latest PMS load forecast. The diversified loads have been calculated by working out a coincidence factor of 0.80 which is a ratio between SEPCO Peak and the algebraic sum of individual peaks of the substations of SEPCO.

iii. The latest Generation Expansion Plan of NTDC Lahore, as well as existing and proposed SPPs / NCPPs in SEPCO areas, are considered in the studies.

iv. Latest Transmission Expansion plans of NTDC are also considered in the studies.

v. SEPCO's planned / on-going transmission expansion/re-enforcement projects have also been considered 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 132 KV and 11 KV shunt capacitors have also been considered to compensate the reactive power where net power factor at the substations have been found too low.

c) **Study Criteria:**

The load flow studies for SEPCO network have been carried out by keeping in view the following criteria:

- Voltage Limits: ±5% (0.95 to 1.05) under normal operating conditions.
- Loading of Transmission Lines and Power Transformers have been kept within 100% and 80% of their capacities under normal operating conditions.

B). RESULTS OF LOAD FLOW STUDIES:

Year wise results and benefits achieved through system studies are shown as under.

(a) PEAK LOAD JUNE 2021

Load flow studies have been carried out for the peak load conditions of SEPCO in June 2021. The load flow diagrams for normal operating condition are attached as **Exhibit # without 2021-1.1 to 1.6**. As per study results, low voltage observed on 16 No 132 kV Buses, 03 No 66 KV buses and 06 No 11 KV buses, due to which forced load management is being carried out. Overloading of Dadu Old – KN Shah line has been observed. Also overloading on Power T/Fs at 132 kV Shah Ladhani, Khairpur, Gambat, Rasulabad, Dadu Old, Larkana City, Larkana Site and Naudero has been observed.

For the rectification of the constraints mentioned above, reinforcements have been identified in the SEPCO area by carefully observing system requirements. The load flow diagrams with identified reinforcements are attached as **Exhibit # with 2021-1.1 to 1.6**. It is evident from the study exhibits that the voltage profile of the area still need to improve. The significant benefits of the reinforcements, as per load flow study results, are given as under;

(i) Improvement in Voltage Profile

Sr. No.	Name of Substation	Voltage				% Improvement in Voltage
		Without Identified projects		With Identified projects		
		kV	p.u	kV	p.u	
1	KOTDIJI	124.96	0.9466	125.6	0.951	0.46%
2	PIRJOGOTH	124.84	0.9458	125.4	0.95	0.44%
3	RASULABAD	124.91	0.9463	126.7	0.959	1.32%
4	CHONDKO	124.87	0.946	125.5	0.95	0.42%
5	KANDIARO	124.44	0.9427	127	0.962	2.01%
6	MAHRABPR	124.4	0.9424	126.9	0.961	1.94%
7	RATODERO	122.42	0.9275	127.1	0.962	3.59%
8	MIROKHAN	122.36	0.927	126.8	0.96	3.44%
9	LARKAN-2	120.26	0.911	125.8	0.953	4.41%
10	LARKNA-1	119.68	0.9067	125.5	0.95	4.56%
1	LARKN-3	119.36	0.9042	125.5	0.95	4.82%
12	NAUDERO	121.7	0.9219	126.3	0.957	3.67%
13	MEHAR	122.08	0.9249	130.5	0.988	6.39%
14	FAREEDABAD	121.93	0.9237	130.3	0.987	6.41%
15	NASIRABD	120.6	0.9136	128.2	0.97	5.81%
16	KPN SHAH	123.89	0.9386	131	0.992	5.38%
17	RHMNINAGAR	123.52	0.9357	130.6	0.989	5.39%
18	NARA-1	62.482	0.9467	62.8	0.951	0.45%
19	THARI MIRWAH	62.302	0.944	62.7	0.949	0.53%
20	DOKRI	61.195	0.9272	61.8	0.935	0.83%
21	WARAH	62.174	0.942	63.1	0.956	1.46%
22	SHADADKT	122.56	0.9285	126.9	0.961	3.38%
23	Larkana Site T-1	10.435	0.9486	10.9	0.986	3.79%
24	Larkana Site T-2	10.435	0.9486	10.9	0.987	3.89%

(ii) Improvement in Loading of 132 kV Transmission Lines

Sr. No.	Name of Transmission Line	%age Loading		
		Without Identified Project	With Identified Project	Increase in Capacity Margin
1	Dadu Old – KN Shah	112.9	67.5	45.4

(iii) Improvement in Loading of Power Transformers

Sr. No.	Name of Substation	P/TF Code	% Loading before Identified Project	% Loading Load after Identified Project	% Loading Reduction
1	132kV Khairpur	T-1	90.9	77.20	13.7
		T-2	90.7	77.20	13.5
3	132kV Gambat	T-1	91.7	64.20	27.5
		T-2	91.7	63.20	28.5
		T-2	91.7	64.20	27.5
4	132kV Rasulabad	T-1	95.9	57.10	38.8
5	132kV Kandiaro	T-1	96.2	54.10	42.1
		T-2	96.2	56.90	39.3
6	132kV Larkana City	T-1	106.8	65.00	41.8
		T-2	101.3	65.10	36.2
7	132kV Larkana Site	T-1	82.2	61.60	20.6
		T-2	82.2	61.60	20.6
8	132kV Naudero	T-1	105.5	76.20	29.3
		T-2	105.7	71.80	33.9
9	132kV Dadu Old	T-1	97.9	78.60	19.3
		T-2	96.6	78.80	17.8

(iv) Reduction in Transmission Line Losses

SEPCO energy losses in 2021 without reinforcements: 61.97 MW
SEPCO energy losses in 2021 with reinforcements: 53.74 MW

- Reduction in Power Losses = 8.23 **MW**
- Reduction /Saving in Energy Losses /year =**39.41 M. KWh**

Note: The energy losses have been computed by using the following formulae:

Reduction in Energy Losses/year = 8.23 MW x 8760 x Loss Factor

- Loss Factor = 0.3 x Load Factor + 0.7 x (Load Factor) ^{2}
- Loss Factor = 0.3 x 0.695 + 0.7x (0.695) ^{2} = 0.65 where Load Factor = 69.5%*

* Actual load factor for SEPCO as per PMS Forecast 2017-18.

(b) PEAK LOAD JUNE 2022

Load flow studies have been carried out for the peak load conditions of SEPCO in June 2022. The load flow diagrams for normal operating condition are attached as

Exhibit # without 2022-1.1 to 1.6. As per study results, low voltage observed on 14 No 132 KV buses and 05 No 66 KV buses due to which forced load management is being carried out. 132 kV line from 220 kV Shikarpur – Shikarpur New found near to 100% loading. Also overloading on Power T/Fs at 132 kV Kunb, Tharu Shah and Jacobabad-II has been observed.

For the rectification of the constraints mentioned above, reinforcements have been identified in the SEPCO area by carefully observing system requirements. The load flow diagrams with identified reinforcements are attached as **Exhibit # with 2022-1.1 to 1.6**. It is evident from the study exhibits that the voltage profile of the area will improve after the identified reinforcements and overloading of Power T/Fs will be eliminated. The significant benefits of the reinforcements, as per load flow study results, are given as under;

(i) Improvement in Voltage Profile

Sr. No.	Name of Substation	Voltage				% Improvement in Voltage
		Without Identified projects		With Identified projects		
		kV	p.u	kV	p.u	
1	KHAIRPUR-1	124.78	0.9453	127.6	0.9664	2.18%
2	KHAIRPR-2	124.78	0.9453	127.6	0.9664	2.18%
3	KOT	124.26	0.9413	127.1	0.9628	2.23%
4	PIRJOGOTH	124.12	0.9403	126.9	0.9616	2.22%
5	RASULABAD	125.39	0.9499	128.5	0.9737	2.44%
6	CHONDKO	124.14	0.9405	127	0.9621	2.25%
7	MAHRABPR	125.19	0.9484	128.6	0.974	2.63%
8	RATODERO	125.34	0.9495	128.7	0.9754	2.66%
9	MIROKHAN	124.72	0.9448	128	0.9693	2.53%
10	LARKAN-2	124.00	0.9394	127.8	0.9679	2.94%
1	LARKNA-1	123.65	0.9367	127.4	0.9652	2.95%
12	LARKN-3	123.69	0.9370	127.4	0.9649	2.89%
13	NAUDERO	124.53	0.9434	128	0.9696	2.70%
14	SHADADKT	124.56	0.9436	127.6	0.9666	2.38%
15	NARA	61.54	0.9324	67.6	1.024	8.95%
16	NARA	61.29	0.9287	67.5	1.0234	9.25%
17	THARI	61.60	0.9333	62.9	0.9524	2.01%
18	DOKRI	60.62	0.9185	63.4	0.9614	4.46%

(ii) Improvement in Loading of Power Transformers

Sr. No.	Name of Substation	P/TF Code	% Loading before Identified Project	% Loading Load after Identified Project	% Loading Reduction
1	132 kV Kunb	T-1	86.70	41.3	45.40
2	132kV Tharu Shah	T-1	88.00	42	46.00
3	132kV Jacobabad-II	T-1	102.50	49.2	53.30

(iii) **Reduction in Transmission Line Losses**

SEPCO energy losses in 2022 without reinforcements: 56.63 MW
SEPCO energy losses in 2022 with reinforcements: 50.31 MW

- Reduction in Power Losses = 6.32 MW
- Reduction /Saving in Energy Losses /year =30.26 M.KWh

(c) PEAK LOAD JUNE 2023

Load flow studies have been carried out for the peak load conditions of SEPCO in June 2023. The load flow diagrams for normal operating condition are attached as **Exhibit # without 2023-1.1 to 1.6**. As per study results, low voltage observed on 03 No 66 KV buses due to which forced load management is being carried out. 66 kV Grid Station Padidan and Dokri have been converted into 132 kV Grid Station.

For the rectification of the NPCC constraints and some requirements of the system, reinforcements have been proposed in the SEPCO area. The load flow diagrams with such reinforcements are attached as **Exhibit # with 2023-1.1 to 1.6**. It is evident from the study exhibits that significant benefits of the reinforcements have been achieved, as per load flow study results, which are given as under:

(i) **Improvement in Voltage Profile**

Sr. No.	Name of Substation	Voltage				% Improvement in Voltage
		Without Identified projects		With Identified projects		
		kV	p.u	kV	p.u	
1	Kamber	124.51	0.9432	126.1	0.955	1.24%
3	THARI MIRWAH	62.393	0.9453	66.8	1.01	6.41%
4	DOKRI	62.605	0.9486	Converted to 132 kV		

(ii) **Reduction in Transmission Line Losses**

SEPCO energy losses in 2023 without reinforcements: **55.07** MW
SEPCO energy losses in 2023 with reinforcements: **53.14** MW

- Reduction in Power Losses = **1.93 MW**

Reduction /Saving in Energy Losses /year = **9.24 M.KWh**

(d) PEAK LOAD JUNE 2024

Load flow studies have been carried out for the peak load conditions of SEPCO in June 2024. The load flow diagrams for normal operating condition are attached as **Exhibit # without 2024-1.1 to 1.6**. As per study results, low voltage observed on 03 No 132 KV buses, due to which forced load management is being carried out. Also Overloading observed on Power Transformer at 132 kV Grid Station Kashmore, Kandhkot, Nasirabad, Thull and Bhan Saeedabad.

The load flow diagrams with such reinforcements are attached as **Exhibit # with 2024-1.1 to 1.6**. It is evident from the study exhibits that significant benefits of the reinforcements have been achieved, as per load flow study results, which are given as under:

(i) Improvement in Voltage Profile

Sr. No.	Name of Substation	Voltage				% Improvement in Voltage
		Without Identified projects		With Identified projects		
		kV	p.u	kV	p.u	
1	QAMBER	124.12	0.9403	126.5	0.958	1.85%
2	LARKN-3	125.33	0.9495	127.7	0.967	1.81%
3	DOKRI	124.25	0.9413	126.6	0.959	1.85%

(ii) Improvement in Loading of Power Transformers

Sr. No.	Name of Substation	P/TF Code	% Loading before Identified Project	% Loading Load after Identified Project	% Loading Reduction
1	132 kV Kashmore	T-1	90.00	62.1	27.90
		T-2	88.20	60.2	28.00
2	132kV Kandhkot	T-1	106.70	50.6	56.10
		T-2	104.10	50.6	53.50
3	132kV Nasirabad	T-1	81.40	52.0	29.40
		T-2	81.40	52.0	29.40
4	132kV Thul	T-1	81.20	62.0	19.20
		T-2	87.00	62.0	25.00
5	132kV Bhan Saeedabad	T-1	97.60	49.5	48.1

(iii) Reduction in Transmission Line Losses

SEPCO energy losses in 2024 without reinforcements: **57.21** MW
SEPCO energy losses in 2024 with reinforcements: **55.19** MW

- Reduction in Power Losses = **2.02 MW**

  Reduction /Saving in Energy Losses /year = **9.67 M.KWh**

(e) PEAK LOAD JUNE 2025

Load flow studies have been carried out for the peak load conditions of SEPCO in June 2025. The load flow diagrams for normal operating condition are attached as **Exhibit # without 2025-1.1 to 1.6**. As per study results, low voltage observed on 02 No 132 KV buses, due to which forced load management is being carried out. Also 132 kV Transmission Line Dadu New – Dadu 2 is loaded 100 %.

The load flow diagrams with such reinforcements are attached as **Exhibit # with 2025-1.1 to 1.6**. It is evident from the study exhibits that significant benefits of the reinforcements have been achieved, as per load flow study results, which are given as under:

(i) Improvement in Voltage Profile

Sr. No.	Name of Substation	Voltage				% Improvement in Voltage
		Without Identified projects		With Identified projects		
		kV	p.u	kV	p.u	
1	PIRJOGOTH	124.97	0.9467	127.9	0.969	2.30%
2	PIRYALO	124.86	0.9459	127.8	0.968	2.28%
3	CHONDKO	125.38	0.9499	126.7	0.959	0.95%
4	THARI MIRWAH	124.93	0.9464	129.7	0.982	3.63%
5	QAMBER	124.16	0.9406	125.7	0.952	1.20%
6	PADIDAN	125.32	0.9494	130.3	0.987	3.81%

(ii) Improvement in Loading of 132 kV Transmission Lines

Sr. No.	Name of Transmission Line	%age Loading		
		Without Identified Project	With Identified Project	Increase in Capacity Margin
1	132 kV Dadu New – Dadu 2	100.8	54.5	46.3

(iii) Reduction in Transmission Line Losses

SEPCO energy losses in 2025 without reinforcements: 60.35 MW
SEPCO energy losses in 2025 with reinforcements: 58.48 MW

- Reduction in Power Losses = 1.87 **MW**

  Reduction /Saving in Energy Losses /year = 8.95 **M.KWh**

d) Overall project benefits / savings

The justification of proposed projects has been provided in the form of saving of energy losses given as under:

No	Year	Saving In Losses, As Per Load Flow Studies (MW)		Potential Saving In Energy (MKWH)*		Energy Rate / KWH (Rs.) **	Potential Increase In Revenue (Rs. In Million)	Cost (Rs. Million) Cumulative
		Current	Cumulative	Current	Cumulative			
1	2020-21	8.23	8.23	39.41	39.41	24.0	945.80	1131
2	2021-22	6.32	14.55	30.26	69.67	24.0	2617.90	5993
3	2022-23	1.93	16.48	9.24	78.91	24.0	4511.79	8613
4	2023-24	2.02	18.5	9.67	88.58	24.0	6637.83	11711
5	2024-25	1.87	20.37	8.95	97.54	24.0	8978.77	12787

* Annual Saving = MW Saving x 8760 x Losses Factor

{∴Losses Factor = 30% Load Factor + 70% (Load Factor)^2}, Load Factor = 69.5 %

** Ave: Energy Sale Rate based on NEPRA's Tariff Determination for FY 2020-21.

5.5.1 Description of projects identified

Following projects have been included in the load flow study, in addition to construction of new transmission lines, feed for new grids and converted sub stations to strengthen the existing network and meeting the load requirement. The detailed scope is appended at Table below:

S.NO	Description	Nos.
Grid Stations		
1	New 132 KV	**7**
2	Conversion from 66 to 132 KV	**8**
3	Augmentation of Power T/F	**09**
4	Addition of Power T/F	**06**
5	Replacement of Defective Power T/F	**02**
6	Capacity Enhancement (MVA)	**528**
Transmission Lines		**KM**
1	132 KV Single Circuit on Double Transmission line, New Lines	**394**
2	132 KV Transmission line (D/C & S/C) Feed for New Grids	**281**
	Total Transmission Lines (KM)	**675**

5.5.1.1 Technical aspects of the project:

All new and Conversion type 132/11.5 kV substations are to be a conventional AIS (Air Insulated Substation) and step-down. Each Sub Station will have 132kV switchyard which will be designed as a single bus bar scheme with one or two 132kV line and transformer bays with 1X 13 or 26 or 2*20/26 MVA power transformers complete with on-load tap changer and standard equipment with space for future expansion. The new or conversion type grids will be constructed / upgraded will include 1 , 2 or 03 , 132Kv SF6 Circuit Breakers, associated Bus and Line Isolators with manually operated Earth Switch, minimum 3 core metering/protection CTs, and PTs for protection and metering purposes and surge arresters. The 11kV system shall be implemented in a single bus bar system with four or six 11.5 kV draw out switchgears with all protective schemes.

The work will be supervised by the highly qualified and experienced Engineers and sub Engineers. The Contractor shall conduct the tests at Site in accordance with Standard Technical Requirements, and any additional requirements .The following equipment's and works are needed for construction of substation and Transmission lines:

a. 132 kV switchgear
b. Step-down transformers with AVR (Automatic Voltage Regulator)
c. Pad Mounted transformers
d. Bus bar materials
e. Low-voltage AC switchgear for supply and distribution of station service auxiliary power
f. Batteries, rectifiers,
g. AC / DC Panel with switchgear needed for AC and DC Auxiliary supplies
h. Protection and control cables
i. XLPE Power cables
j. Cable support systems (ladders, trays, conduits, profiles, ducts, trenches, etc.).
k. Wall and floor penetrations for cables and pipes
l. Complete Substation earthing system complete with Earth electrodes (embedded in the ground), earthing and bonding network, as required by relevant standards and safety regulations.
m. Control and protection systems individually for 132 kV,11.5 kV, transformers and low voltage AC and DC Systems
n. Illumination, indoor and outdoor
   1) Other Systems
      a. Ventilation
      b. Domestic water system
      c. Toilets and sanitary system
      d. Fire-fighting equipment

Transmission Lines

- ZM Type Towers including Leg Extensions
- ACSR lynx and Rail Conductor
- Transmission Lines Hard Ware

- Fog Type Disc Insulators
- Overhead Steel Wire
- Foundations of ZM Type Towers at different angle of reposes.

5.5.1.2 Design and material to be used for supporting structure.

The design of the steel towers is based upon the mechanical loading which is acting on the tower. These are transverse, vertical and longitudinal loads to which the tower is subjected. The towers have been designed in such a way that they do not collapse under simultaneous acting of these loads, providing a factor of safety. The transverse loads are mostly created by the winds acting on the above mentioned standardized conductors and towers and these have been calculated according to International practices. The vertical loads has been calculated from the weight of the conductors, hardware and fitting while the longitudinal loads are those which are created by the broken wire conditions or the unbalanced loads in the longitudinal direction.

5.5.1.3 Average span length, conductor size and type of spacing.

The normal span length of transmission line will be 280 to 290 meters. The conductor sizes have been standardized as "ACSR" Lynx. Rail conductor has also been used for new 132 KV lines to be erected in big Cities where heavy loads are expected to flow through these lines.

5.5.1.4 Basis of design and voltage drop allowance system stability.

The design of the proposed Grid Station and Transmission lines is based on the load anticipated to flow through them as well as the distances involved. The voltage of line is determined by the regulation and reliability of power supply as well as economics considerations.

- **Operating Voltage.** 132 KV +/- 10 %,
- **Frequency.** 50.0 HZ +/-1%
- **Power Factor** **85% - 95%**

5.5.1.5 Civil works, equipment, machinery and other physical facilities required for the project.

Basic infrastructure facilities including civil works such as, foundations for installation of equipment, control house buildings, associated residential &non-residential buildings and cable trenches etc. will be required, for which necessary provision has been made in the cost estimates.
Civil works are outlined as follows

a) Site survey and ground investigations
b) Access road and Colony
c) Ground preparation, fill-up and leveling for switchyard and buildings
d) Drainage system
e) Fence and gates
f) Foundations for outdoor switchgear and gantry structures
g) Foundations for transformers

h) Steel supports and gantry structures for outdoor switchgears and incoming overhead lines
i) Cable channels, ducts and trenches in the switchyard
j) Cable trenches outside the switchyard
k) Building(s) for housing switchgear, control systems, low-voltage systems and other services
l) Room for watchman

5.5.1.6 Governance issues of the sector relevant to the project and strategy to resolve them.

There will be no major governance issue of the sector in execution of the project.

5.6 Conclusion:

The benefits associated with this IGTDP for construction of new Grid Stations, conversion of 66 kV Grid Station to 132 kV Grid Stations and construction of Transmission Lines in SEPCO Network mainly include the following:

a. Improvement in Voltage Profile at and around Shikarpur, Ratodero, Miro Khan Shahdadkot, Radhan, Nara-I, Nara-2, Rasool Abad, Thari Mirwah, Kamber, Warah, Garhi Khairo and Larkana, Kamber, Naushero Feroze, Kandiaro, Padidan.
b. Reduction in Transmission line Losses.
c. Reduction in loading of 132KV Transmission Lines.
d. Reduction in loading of 132/11KV Power Transformers.
e. Improvement in reliability of SEPCO system and especially at and around Ghotki, Pano Akil, Larkana, Guddu, Kashmore, Kandhkot, Jacobabad, Humayoon, Shikarpur, Thull and Dadu.

6. Capital Cost Estimate

6.1 Table - Cost Estimates of the Projects

Cost Estimates of the Project for Plan 2020-21

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
2020-21 (Completed Works) Grid Stations			
1	132kv Grid Station Khairpur	Augmentation 26 To 40 MVA	73
2	132kv Grid Station Gambat	Augmentation 26 To 40 MVA	73
3	132kv Grid Station Larkana City	Augmentation 26 To 40 MVA	73
4	132kv Grid Station Larkana New	Addition of 40 MVA P.T/F	73
6	132kv Grid Station Dadu Old	Addition Of 40 MVA P.T/F	73
7	132kv Grid Station Lakhi	New Grid	184
8	132kv Arain Road	Replacement of Defective 40 MVA P.T/F With 26 MVA	73
9	132kv Shikarpur	Replacement of Defective 40 MVA P.T/F With 40 MVA	73
10	132kv Grid Station Rasool Abad	Augmentation 26 To 40 MVA	73
11	132kv Grid Station Kandiaro	Augmentation 26 To 40 MVA	73
12	132kv Grid Station Shah Ladhani	Augmentation 13 To 26 MVA	50
		YEAR TOTAL	**891**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
2020-21 (Completed)				
1	220 kV Shikarpur (Lodra-Lakhi) &	NEW LINE 21 KM	21	210
2	Liberty-Deharki-TPS Guddu/Line	02-no. Line bays at 132 kv Deharki	0	30
		YEAR TOTAL	**21**	**240**

Cost Estimates of the Project for Plan 2021-22

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132 KV Bhirya Road (New Grid)	1x26 MVA Transformer	104
2	132 KV Ranipur (New Grid)	1x26 MVA Transformer	169
3	132 KV Tangwani (New Grid)	1x26 MVA Transformer	169
4	66 kV Kamber (Conversion 66 kv to 132 kv)	2x26 MVA Transformer	119
5	66 kV Nara-1 (Conversion 66 kv to 132 kv)	1x26 MVA Transformer	133
6	66 kV Warah (Conversion 66 kv to 132 kv)	1x26 MVA Transformer	122
7	132 kV Naudero	(Augmentation 13-26 MVA)	23
8	132 kV Jacobabad-2	(Augmentation 13-26 MVA)	23
9	132 kV Kumb	(Augmentation 13-26 MVA)	23
10	132 kV Tharu Shah	(Augmentation 13-26 MVA)	23
		YEAR TOTAL (M.Rs)	**908**

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B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid station Bhirya Road	(D/C T/L From Kandiaro--- N.S.Feroze Section)	14	129
2	132 KV Transmission Line Feed For 132 KV Grid Station Ranipur	(D/C T/L From Gambat --- Rasool Abad Section)	5	60
3	132 KV Transmission Line Feed For 132 KV Grid station Tangwani	(D/C T/L From Thull --- Kandhkot Section)	5	60
4	132 KV Transmission Line Feed For 132 KV Grid station Kamber	(S/C T/L From 132 KV Larkana Site)	30	297
5	132 KV Transmission Line Feed For 132 KV Grid station Nara-1	(S/C T/L From 220 KV Rohri)	32	462
6	132 KV Transmission Line Feed For 132 KV Grid station Warah	(S/C T/L From 132 KV Naseer Abad)	25	250
7	500 KV Dadu New – Dadu Old	New Line	3.9	23
8	132 KV ARAIN ROAD - SUKKUR SITE	New Circuit (On- ACSR Rail Conductor)	15	201
9	LIBERT-DEHRKI-GUDDU T/LINE	NEW CIRCUIT	65	1215
10	220 KV New Shp - Arain Road Section-I (132KV New SHP – Lakhi (Completed 21-KM) Section-II, (132KV Lakhi – Arain Road	New Circuit	22	182
11	132 KV Kashmore – Kandhkot Line	New Circuit	55	990
12	Ratodero In & Out from 132 kV Shp – Larkana Line	In/Out Arrangement	6.7	35
13	132KV G/S N'Feroze	Installation of 36 MVAR Capacitor Bank	01 Set	50
		YEAR TOTAL	**278.6**	**3954**

Cost Estimates of the Project for Plan 2022-23
A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132 KV Khan Wahan (New Grid)	1x26 MVA Transformer	169
2	132 kv Piryalo (New Grid)	1x26 MVA Transformer	169
3	66KV Pad Eidan (Conversion to 132 KV)	1x26 MVA Transformer	195
4	66KV Dokri (Conversion to 132 KV)	1x26 MVA Transformer	122
		YEAR TOTAL (M.Rs)	**655**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid station Khan Wahan	(D/C T/L From 132 KV Gambat-Mehrabpur)	12	120
2	132 KV Transmission Line Feed For 132 KV Grid station Piryalo	(S/C T/L From 132 KV Pir- Jo Goth)	8	62
3	132 KV Transmission Line Feed For 132 KV Grid station Pad Eidan	(S/C T/L From 132 KV Bhirya)	25	136
4	132 KV Transmission Line Feed For 132 KV Grid station Dokri	(S/C T/L From 132 KV Larkana Site)	30	233
5	132 kv T/ (Kandhkot – Thull- Jacobabad)	New Line	72	1296
6	220 KV Rohri	2ND Circuit (New Rohri – Nara-1)	32	118
		YEAR TOTAL	**179**	**1965**

Cost Estimates of the Project for Plan 2023-24

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132kv Grid Station Dadu-2, New Grid	1x26 MVA Transformer	250
2	66 KV Thari Mirwah (Conversion to 132 Kv)	1x26 MVA Transformer	200
4	132KV G/S Kashmore	(Addition of 26MVA)	81
5	132KV G/s Kandhkot	(Addition of 40MVA)	96
6	132kvG/S Thull	(Addition of 26MVA)	81
7	132kv G/S Bhan Saeedabad	(Addition of 26MVA)	81
8	132KV G/S Naseer Abad	(Aug 13-26MVA)	65
		YEAR TOTAL (M.Rs)	**854**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid station Dadu 2	(S/C T/L From 500 KV Dadu)	15	180
2	132 KV Transmission Line Feed For 132 KV Grid station Thari Mirwah	(S/C T/L From 132 KV Rasool Abad)	15	300
3	132 kV Liberty – Ghotki – Pano Akil – New Rohri	New Line	98	1764
		YEAR TOTAL	**128**	**2244**

Cost Estimates of the Project for Plan 2024-25

A. Grid Stations:

Sr. No.	Name of Grid Station	SCOPE	Estimated Cost , in Million Rs.
1	132 KV Radhan (New Grid)	1x26 MVA Transformer	169
3	66 KV Nara-2 (Conversion to 132 kv)	1x26 MVA Transformer	122
4	66 KV Garhi Khairo (Conversion to 132 kv)	1x26 MVA Transformer	116
5	132KV G/S Kandiaro	Installation of 24 MVAR Capacitor Bank	50
		YEAR TOTAL	**457**

B. Transmission Lines:

Sr. No.	Name of Transmission Line	SCOPE	Length (KM)	Estimated Cost in Rs. Million
1	132 KV Transmission Line Feed For 132 KV Grid Station Radhan	(S/C T/L From 132 KV Mehar)	15	150
2	132 KV Transmission Line Feed For 132 KV Grid Station Nara -2	(S/C T/L From 132 KV Choondko)	15	180
3	132 KV Transmission Line Feed For 132 KV Grid Station Garhi Khairo	(S/C T/L From 132 KV Shahdadkot)	35	309
4	2nd ckt stringing 132 kV Dadu New – Dadu 2		03	30
		YEAR TOTAL	68	669

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7. Date of Estimation of Project Cost, September - 2021

7.1 Basis of Cost Estimates

The cost of equipment to be procured has been prepared on the basis of recent contract awarded for similar equipment and the rates quoted for civil works in the recent contracts awarded for the similar projects by SEPCO.

7.2 Physical Activities

7.2.1: Table –Plan for Physical Activities

Sr. No.	Year	Physical Activities
1.	Year 2020-21 to 2024-25	• Preparation of preliminary design. • Preparation of bidding documents. • Bidding, evaluation and award of contract. • Execution of civil works for grid station &transmission line. • Procurement of material. • Construction of residential colony, boundary wall, control room building and construction of approach road, etc. • Erection of towers, stringing of conductors. • Installation of electrical equipment at grid station. • Testing / commissioning.

8. Distribution Expansion Plan (DOP)

8.1 Project Description:

This project envisages expansion of Distribution network during the years 2020-2021 to 2024-2025 which consists of the following works:

a) Providing 84505 new electricity connections to the prospective customers.
b) Addition of 2650 km 11 KV line.
c) Addition of 1440 km LT line.
d) Installation of 3536 Distribution Transformers of different capacities.

8.2 Customer Forecasting:

The Table F-4, Annex: C shows the category-wise yearly installation of connections by SEPCO during last three years (2020-21 to 2024-25).

The category-wise ratio of customers installed has been calculated as under:

Domestic	Commercial	Industrial	Agricultural	Others	Total
79.6	15.7	1.7	1.2	1.8	100 %

On the basis of percentage share of existing connections, with average growth rate of 2.41%, the total number of customers to be added has been calculated as under:

Domestic	Commercial	Industrial	Agricultural	Others	Total
68027	13521	1437	1437	85	84505

(For details refer Table F-7, Annex: F)

As such, total number of 84505 consumers which will come up during the period 2020-21-2024-25 both in Urban and Rural areas.

For the purpose of calculating number of customers to be added Circle-wise, the percentage sharing has been calculated as under from the total number of customers installed upto June, 2020:

Circle	Sukkur	Larkana	Dadu	Total
%Age Share	43%	32%	27%	100%

From the above ratios, connections to be added circle-wise & year-wise over a period 2020-21 to 2024-25 are given as under:

Sukkur Circle

Category	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Domestic	4184	5020	5578	6136	6973	27891
Commercial	832	998	1109	1220	1386	5544
Industrial	88	106	118	130	147	589
Agricultural	88	106	118	130	147	589
Other	5	6	7	8	9	35
Total	5197	6236	6929	7622	8662	34647

Larkana Circle

Category	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Domestic	3260	3912	4347	4781	5433	21733
Commercial	653	783	870	957	1088	4351
Industrial	67	80	89	98	112	446
Agricultural	71	86	95	105	119	476
Other	5	6	7	8	9	35
Total	4056	4867	5408	5949	6760	27042

Dadu Circle

Category	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Domestic	2755	3306	3673	4041	4592	18367
Commercial	548	657	730	803	913	3651
Industrial	58	70	78	85	97	388
Agricultural	58	70	78	85	97	388
Other	3	4	5	5	6	23
Total	3422	4107	4563	5020	5704	22816

SEPCO

Category	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Domestic	10204	12245	13605	14966	17007	68027
Commercial	2028	2434	2704	2975	3380	13521
Industrial	215	259	287	316	359	1437
Agricultural	215	259	287	316	359	1437
Other	13	15	17	19	21	85
Total	12676	15211	16901	18591	21126	84505

8.3 Material Requirement:

The material requirement is worked out on basis of standard and design presently in practice in SEPCO. Keeping in view, the economical factor, overhead distribution system will be utilized for Distribution of Power Expansion instead of underground system. The distribution voltage will be 11 KV and 0.4 KV.

Steal structure along with P.C.C Poles will be utilized for extension of HT/LT lines to areas under electrification ACSR and all aluminum conductor will be used for the purpose of current carrying from the source up to the utilization point. Distribution transformers of sizes 25 KVA, 50 KVA, 100 KVA, 200 KVA, 400 KVA and 630 KVA will be installed according to loading position. Spacing of structures and P.C.C Poles have been worked out so as to ensure adequate clearance and normal life is not interfered. This spacing has been fixed 20 PC Pole/Steal structure per kilo meter for urban area and 14 P.C.C/ structure for rural areas.

Basic Data and Assumptions:

A) New 11 KV (H.T) Lines:

The requirement of HT line has been based on the length of HT line per customer as on 30.06.2020. HT line and number of customers installed have been taken from each circle under SEPCO, which is given as under:

Circle	Length of Line in KM (as on 30.06.2020)	No. of Customers (as on 30.06.2020)	Line Per Customer (in Meters)
Sukkur	**10982.23**	**337301**	**32.56**
Larkana	**6978.64**	**249363**	**27.99**
Dadu	**6761.16**	**202152**	**33.45**
TOTAL	**24722.03**	**788816**	**31.34**

Keeping in view the existing SEPCO network, the average H.T line per consumer is found as 31.34 meter as such, for additional 84505 consumers **2650 KM** new H.T line will be required.

Circle	Length Of H.T Line per Customer (in Meter)	No. of Customers To Be Added	Total Length Of Line Required (in Km)
Sukkur	**32.56**	**34647**	**1128.08**
Larkana	**27.99**	**27040**	**756.78**
Dadu	**33.45**	**17533**	**763.11**
TOTAL	**31.34**	**84505**	**2648.44**
		Say	**2650 Km**

Conductor sizes to be utilized for 11 KV lines in urban areas are taken in the ratio of ACSR Osprey 30%, ACSR Dog 40% & ACSR Rabbit 30% and for rural areas, ACSR Dog 40% & ACSR Rabbit 60%.

Sr. #	Size of Conductor	Urban Areas (45%)		Rural Areas (55%)		Total (Km)
		Ratio	Quantity (Km)	Ratio	Quantity (Km)	
1.	ACSR Osprey	30%	**358**	-	-	**358**
2.	ACSR Dog	40%	**477**	**40%**	**583**	**1060**
3.	ACSR Rabbit	30%	**358**	**60%**	**874**	**1232**
Total		100%	**1193**	**100%**	**1457**	**2650**

(For details refer Table F-3, Annex: "F")

40% of this line will be recoverable from industrial, irrigation and bulk supply customers whereas the remaining 60% will be constructed free of cost in the form of extension of existing 11 KV line for electrification of incoming customers.

B) New L.T Lines:

The requirement of LT line has been based on the length of LT line per customer as on 30.06.2020. Length of LT line and number of customers installed has been taken from each circle under SEPCO, which is given as under:

Circle	Length Of L.T Line in KM (as on 30.06.2020)	No. of Customers (as on 30.06.2020)	Length Of Line Per Customer (in meter)
Sukkur	**5133.18**	**337301**	**15.22**
Larkana	**4409.38**	**249363**	**17.68**
Dadu	**3807.68**	**202152**	**18.84**
TOTAL	**13350.24**	**788816**	**16.92**

Keeping in view the existing SEPCO network, the average L.T line per consumer is found as 16.92 meters as such, for additional 84505 consumers **1440 KM** new L.T line will be required.

Circle	Length Of L.T Line per Customer (in Meter)	No. of Customers To Be Added	Total Length Of Line Required (in Km)
Sukkur	**15.22**	**34647**	**527.27**
Larkana	**17.68**	**27042**	**478.17**
Dadu	**18.84**	**22816**	**429.76**
TOTAL	**16.92**	**84505**	**1435.20**
		Say	**1440 Km**

Conductor sizes to be utilized for L.T lines in 3-Phase are taken in the ratio of AAC Wasp 40% & AAC Ant 60% and that for 1-Phase AAC Ant 100%.

Sr. #	Size of Conductor	3-Phase (80%)		1-Phase (20%)		Total (Km)
		Ratio	Quantity (Km)	Ratio	Quantity (Km)	
1.	AAC Wasp	40%	460.8	-	-	**460.8**
2.	AAC Ant	60%	691.2	**100%**	**288**	**979.2**
Total		100%	**1152**	1152	**288**	**1440**

(For details refer Table F-3, Annex: "F")

60% of this line will be recoverable from Domestic, Commercial and other customers including Housing Societies / Colonies to be electrified on cost deposit basis. Whereas, the remaining 40% will be constructed free of cost in the form of extension of existing LT line for electrification of incoming customers.

C) Transformers:

The total MVA required for distribution transformers to be installed, on the basis of MVA installed per customer as on 30.06.2020, is calculated as 233 MVA.

Circle	Existing No. of Customers	MVA Installed	KVA / Customer	Customers To Be Added	MVA Required
Sukkur	337301	991.785	2.94	34647	101.87
Larkana	249363	690.955	2.77	27042	74.95
Dadu	202152	495.315	2.45	22816	55.90
SEPCO	788816	2178.06	2.76	84505	232.71
				Say	**233 MVA**

The capacity-wise ratio of different sizes of transformers has been taken on the basis of existing ratio of installed transformers as on 30.06.2020:

T/F Capacity	25 KVA	50 KVA	100 KVA	200 KVA	400 KVA	630KVA
Ratio	**16%**	**24%**	**28%**	**18%**	**8%**	**6%**

Keeping in view the above ratio of installed transformers and MVA requirement, number of transformers (capacity-wise) is selected as under:

Circle	MVA Requirement	Capacity-wise No. of Transformers Required						
		25 KVA	50 KVA	100 KVA	200 KVA	400 KVA	630 KVA	Total
Sukkur	102	652	489	285	92	20	10	1548
Larkana	75	480	360	210	67	15	7	1139
Dadu	56	358	268	157	50	11	5	849
SEPCO	233	1489	1117	652	209	47	22	3536

(For details refer Table F-10, Annex: "F")

Out of this total 233 MVA, 140 MVA will be needed for electrification of Industrial, Irrigation & Bulk Supply customers which will be recovered from them before electricity is provided to their premises.

D) Service Connections:

It is assumed that, all industrial and tube well connections will be 3-Phase, whereas for domestic and commercial consumers, the 1-Phase & 3-Phase connections will be in ratio of 80:20 and for other connections it will be 50:50.

All 630 KVA & 400 KVA transformers will be utilized for MDI connections whereas, 20% of 200 KVA and 10% of 100 KVA transformers will also be provided with MDI meters.

On the basis of above assumptions, the category wise requirement of meters has been selected as under:

Sr. #	Type	Quantity			
		Sukkur	Larkana	Dadu	SEPCO
1.	Single Phase	26765	20885	17626	65276
2.	Three Phase	6704	5234	4415	16353
3.	TOU	1178	922	776	2876
TOTAL		34647	27042	22816	84505

(For details refer Table F-11, Annex: "F")

Total (100%) cost of service connections will be recovered from the consumers before providing electricity to their premises.

8.4 Tools & Plants:

The tools & plants in power distribution need to be augmented to achieve:

- Better workmanship in distribution construction
- More secure joints
- Improved operation and maintenance
- Better monitoring evaluation and inspection

8.5 Vehicles:

Modernization of the power distribution construction, maintenance and operation function requires a suitable number of vehicles. Following new vehicles will be required for proper execution, operation and maintenance of the project:

Sr. #	Description	Quantities (Nos.)					
		2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
1.	Single Cabin Pick-up	0	6	6	6	6	24
2.	Double Cabin Pick-up	0	1	1	1	1	4
3.	Suzuki Cultus Car	0	1	1	1	1	4
4.	Toyota Car GLI	0	1	1	1	1	4
5.	Bucket Mounted Truck	0	0	1	1	1	3
6.	Trucks	0	1	1	1	1	4
	TOTAL	**0**	**10**	**11**	**11**	**11**	**43**

8.6 Civil Works:

Basic infrastructure facilities including civil works such as, foundations for installation of equipment, control house buildings, associated residential & non-residential buildings at new grids and cable trenches etc. will be required for which necessary provision has been made in the cost estimates.

i) Requirement For Future Expansion:

For proper operation & maintenance of the system, GSO staff for new Grid Stations and new offices of Distribution Operation, as per following details, will also be required:

No. of customers to be added	=	84505
No. of sub divisions to be created (per 12000-Customers)	=	7
No. of divisions to be created (per 48000-Customers)	=	2
No. of circles to be created	=	1

The abstract of year-wise requirement of new offices, for execution of the projects and for operation & maintenance, are given as under:

Sr. #	Description	2020-21	2021-22	2022-23	2023-24	2024-25	Total
1)	New Grid Stations	-	3	2	1	1	7
2)	Operation Sub Divisions	-	0	0	4	3	7
3)	Operation Divisions	-	0	0	2	0	2
4)	Revenue Offices	-	0	0	2*	0	2
5)	Operation Circles	-	-	0	1	0	1
Total Offices		**0**	**3**	**2**	**10**	**4**	**19**

*** Revenue office is included in the estimate of Division Office**

ii) Requirement For Existing Set-Up:

After bifurcation from HESCO, SEPCO was established vide PEPCO HQs notification bearing No. MDP/GM(HR)/Dir(O&M)/P(PEPCO)/1632-39 dated 26.07.2010, and it started functioning w.e.f 13.08.2010. Being a newly established company, various posts were upgraded and created but SEPCO lacks the availability of required infrastructure including office as well as residential buildings. At present, various office buildings are working in rental buildings including SEPCO HQs. Similarly, there is no proper accommodation for various senior officers like Chief Engineers, Directors / Managers, XENs / D.Ms, and SDOs / A.Ms etc. Hence, (12) office buildings (having total estimated cost of Rs. 270.45 Million) and residential buildings, Roads, boundary Walls (having total estimated cost of Rs. 552.77 Million) are required to be constructed for existing set-up as per following details:

A) **Office Buildings:**

1. 07 Nos. SDO (Opr.) Office New
2. 01 No. Triple story building SDO (Opr.) Office Rohri
3. 02 Nos. Operation Division New
4. 01 No. Operation Circle New

B) **Residential Buildings:**

1. 01 Nos. A Type Bungalow
2. 08 Nos. B Type Bungalow
3. 08 Nos. C Type Bungalow
4. 15 No. D Type Quarters
5. 21 Nos. E Type Quarters
6. 24 Nos. F Type Quarters
7. 03 Nos. Metalled Road for Residential Colonies
8. 08 Nos. Boundary Walls for Residential Colonies
9. 09 Nos. Sewerage / Water Supply Lines for Residential Colonies

8.7 Targets:

The Year-Wise physical targets are set as under:

Description	2020-21	2021-22	2022-23	2023-24	2024-25	Total
11 KV Line (KM)	397.5	477.0	530.0	583.0	662.5	2650
LT Line (KM)	216.0	259.2	288.0	316.8	360.0	1440
Transformers (No.)	530	636	707	778	884	3536
Customers(No.)	12676	15211	16901	18591	21126	84505
Offices (Future Expansion)	0	0	0	6	4	9
Residential Bungalows & Quarters	0	0	25	26	26	77
Roads, Boundary Walls and Sewerage / Water supply for residential colonies	0	0	3	3	3	9

(For details refer Final Tables of Annex: "B")

9 PROJECT COST ESTIMATES:

Cost estimates are prepared on average unit prices notified by the Manager (Material Management) SEPCO during September, 2021 with escalation rate of 6.5% per annum. Details are given in Final Tables, Annex: "B".

9.1 Date of Estimation of Project Cost:

Project Cost is estimated during 09. 2021.

9.2 Currency Conversion Rates:

Currency Conversion rate is not applicable as foreign exchange is not involved.

9.3 Capital Cost:

The cost of main components of the project is given as under:

Sr. #	Description	Unit	New Material Required		Material Chargeable To Consumers	
			Quantity	Cost	Quantity	Cost
1.	**New 11 KV lines**	**KM**	**2650.00**	**4425.03**	**1060.00**	**1770.01**
	a) ACSR Osprey	KM	357.75	1166.73	143.10	466.692
	b) ACSR Dog	KM	1060.00	1722.90	424.00	689.161
	c) ACSR Rabbit	KM	1232.25	1535.40	492.90	614.159
2.	**New LT lines**	**KM**	**1440**	**1591.84**	**864**	**955.103**
	a) AAC Wasp	KM	460.8	679.20	276.48	407.52
	b) AAC Ant	KM	979.2	912.64	587.52	547.583
3.	**New Transformers Substations**	**No.**	**3536**	**17282.77**	**2122**	**1036.97**
	a) 25 KVA	No.	1489	4644.50	894	278.67
	b) 50 KVA	No.	1117	4607.00	670	276.42
	c) 100 KVA	No.	652	5029.16	391	301.75

	d) 200 KVA	No.	209	2102.41	126	126.14
	e) 400 KVA	No.	47	572.69	28	34.36
	f) 630 KVA	No.	22	327.00	13	19.62
4.	**Service Connections**	**No.**	**84505**	**1072**	**84505**	**1072**
	a) Single Phase	No.	65280	377.37	65280	377
	b) Three Phase	No.	16352	428.24	16352	428
	c) TOU Meter (MDI)	No.	2873	266.27	2873	266
	Total			**3908.71**		**2173.55**

For details refer Table B-2, Annex: "B".

9.4 Cost of Tools & Plants:

Requirements have been chalked out for new Operation Sub-Divisions as shown in Table B-5, Annex: "B". Total escalated cost of T&P is worked out as **Rs. 10.59 Million.**

9.5 Cost of Vehicles:

The year-wise tentative estimated cost of vehicles, required as per section 6.5 above, is given as under:

Sr. #	Description	Cost (Rs. In Millions)					
		2021-22	2022-23	2023-24	2024-25	2025-26	TOTAL
1.	Single Cabin Pick-up	**0**	22.674	22.674	22.674	22.674	**90.70**
2.	Double Cabin Pick-up	**0**	6	6	6	6	**24.00**
4.	Suzuki Cultus Car	**0**	2.1	2.1	2.1	2.1	**8.40**
5.	Toyota Car GLI	**0**	3.5	3.5	3.5	3.5	**14.00**
7.	Bucket Mounted Truck	**0.00**	0.00	6.05	6.05	6.05	**18.15**
8.	Trucks	**0.00**	8.00	8.00	8.00	8.00	**32.00**
Total		**0.00**	**42.274**	**48.324**	**48.324**	**48.324**	**187.25**
Escalation (@ 6.5% Per Annum)		**0.0**	5.496	9.423	12.564	15.705	**43.19**
Total Escalated Cost		**0.00**	**47.770**	**57.747**	**60.888**	**64.029**	**230.43**

9.6 Cost of Civil Works:

The tentative cost required for construction of office buildings for new offices, mentioned at Section 6.6 (i) above, will be as under:

A) Offices:

Sr. #	Office	Quantity	Tentative Cost (Rs. in Millions)	
			Cost /Office	Total
1.	Grid Stations	07	Included in STG Project	
2.	Revenue Offices	02	Included in cost of Divisions	
3.	Sub Divisions	07	15.00	105.000
4.	Divisions	02	30.00	60.000
5.	Circle	01	45.00	45.000
Total		**19**		**210.00**
Escalation @ 6.5% Per Annum				**60.450**
Total Escalated Cost				**270.45**

Similarly, the tentative cost required for construction of offices and residential buildings for existing SEPCO set-up will be as under:

B) Residences:

Sr. #	Building Unit	Quantity	Tentative Cost (Rs. in Millions)	
			Cost /Unit	Total
1.	A-Type Bungalows	01	30.0	30.00
2.	B-Type Bungalows	08	10.15	81.20
3.	C-Type Bungalows	08	8.0	64.00
4.	D-Type Quarters	15	4.0	60.00
5.	E-Type Quarters	21	3.0	63.00
6.	F-Type Quarters	24	2.5	60.00
7	Metalled Road for Residential Colonies	03	10.0	30.00
8	Boundary Walls for Residential Colonies	08	3.0	24.00
9	Sewerage / Water Supply Lines for Residential Colonies	09	2.90	26.10
Total		**97**		**438.30**
Escalation @ 6.5% Per Annum				**114.46**
Total Escalated Cost				**552.76**

Cost Break-Up of Civil Works Over The Span of Three Years:

Description	2020-21	2021-22	2022-23	2031-24	2024-25	Total
Offices (Future Expansion)	-	-	-	151.20	119.25	270.45
Residential Buildings	-	-	165.1	194.2	193.5	552.765
Total (Rs. In Millions)	-	-	165.1	345.40	312.75	823.22

For details, refer Table-B-3, Annex: B.

9.7 Summary Break-Down of Un-Escalated & Escalated Cost of The Project:

Sr. #	Description	Un-Escalated (MRs)			Escalated (MRs)		
		Local	Foreign	Total	Local	Foreign	Total
A.	**Capital Expenditure (CAPEX):**						
1.	Total Cost of Material	8817.03	NIL	8817.03	8817.03	NIL	8817.03
2.	Less Consumers Contribution	5984.20	NIL	5984.20	5984.20	NIL	5984.20
3.	Net Cost of Material (1 - 2)	**2832.82**	**NIL**	**2832.82**	**2832.82**	**NIL**	**2832.82**
4.	Installation Charges (@ 24.2%)	685.54	NIL	685.54	685.54	NIL	685.54
5	Escalation	-	-	-	737.43	NIL	737.43
Total CAPEX (3 + 4+5)		**3518.37**		**3518.37**	**4255.79**		**4255.79**
B.	**Operating Expenditure (OPEX):**						
1.	Vehicles	187.25	NIL	187.25	230.43	NIL	230.43
2.	T&P	10.59	NIL	10.59	10.59	NIL	10.59
3.	Civil Works	648.30	NIL	648.30	823.22	NIL	823.22
4.	Miscellaneous (1%)	420.35	NIL	420.35	420.35	NIL	420.35
5.	Authority Overhead (1.5%)	52.78	NIL	52.78	52.78	NIL	52.78
Total OPEX (1 to 5)		**1319.27**	**NIL**	**1319.27**	**1378.63**	**NIL**	**1537.37**
Total Cost of Project		**4837.63**	**NIL**	**4837.63**	**3775.43**	**NIL**	**5793.16**

9.8 Establishment Cost:

No establishment cost has been taken in account, as the increase in energy sale is a transfer from energy losses to sales. The cost of establishment remains un-charged.

9.9 Cost of Power:

No cost of power has been charged to the Project as this cost has already been incurred as part of cost of losses.

10. PROJECT BENEFITS AND ANALYSIS:

A) Project Benefits:

i) Financial (Sale of Energy):

The energy consumption/consumer recorded during last (03) three years is as under:

Year	Customers	Units Sold (GWh)
2017-2018	736868	2787.0
2018-2019	745308	2963.0
2019-2020	788816	2710.0

(For details refer Table E-5, Annex: "E")

ii) Social:

Pakistan is an agriculture based country, depends upon the agricultural products and their marketing and export. Major portion to be covered under the project are depended on agricultural outputs; therefore the improved network of electricity with bring prosperity and socio-economic growth in the project area.

People in the project area will be engaged in their agricultural practices and this will result in better law and order situation in the area; as most of the farming is done by using farm-machinery and tube-wells operated on electricity.

In addition to improvement in electricity network, construction of new lines and installation of new sub-stations will create jobs for operations and maintenance of expanded Distribution network.

Social issues caused due to construction activities will be mitigated by devising a detailed environmental management plan. Contractors of the project will be bound to respect all the local norms and laws of the land, to comply with labor laws, abstain from child labor.

An un-interrupted electric supply in the area will bring betterment in education of the people, as presently students are facing so many difficulties during examination preparation and especially when power shortage rises in summer season.

Now-a-days most of the self-employed people such as tailor master, Barbour Laundries etc. use machines operated on electricity, and due to electricity failures they cannot perform efficiently. After completion of this project, small scale professionals can earn their livelihoods well.

iii) Environmental:

No significant environmental impact will take place during construction phase of the proposed project. However, any impact if takes place, it will be mitigated & compensation will be paid to the persons affected by the proposed project.

Key environmental impacts are as follows:

- Damage to crops.
- Damage to Infrastructures.
- Damage to irrigation network.
- Blocked access.
- Safety hazards.
- Public Health.
- Impact on sites of archeological, cultural, historical or religious significances.

B) Unit Cost:

i) Cost estimation is based on average unit prices notified by the Manager (Material Management) SEPCO during September, 2021.

ii) Escalation is assumed @ 6.5% per annum.

C) Employment Generation (Direct & Indirect):

At present, there are (03) three C/R Divisions and (01) one ELR Division, comprising of (03) three Sub-Divisions each, under Project Director (Const:) SEPCO. This man power of Construction Directorate will be utilized for implementation of the plan (execution of the DOP Project). Whereas, for proper operation & maintenance of the system after completion of the project, new offices will be required as per following details:

No. of customers to be added	=	84505
No. of Sub Divisions to be created (per 12000-Customers)	=	7
No. of Divisions to be created (per 48000-Customers)	=	2
No. of Circles to be created	=	1

The abstract of year-wise requirement of manpower for execution, operation and maintenance of the project is given as under:

Sr. #	Name of Office	2020-21	2021-22	2022-23	2023-24	2024-25	Total
1)	7 - Operation Sub Divisions	-	-	-	483		483
2)	2 - Operation Divisions	-	-	-	42		42
3)	2 - Revenue Offices	-	-	-	42		42
4)	Operation Circle	-	-	-	26		26
Total Manpower Required		-	-	-	593	-	**593**

For details, refer Tables B-6 (A to F), Annex: "B".

This staff will be given salaries as per the Salary Package notified by the Federal Government through Finance Division Islamabad. The tentative salaries to be paid are given as under:

Description	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Manpower Required Per Year (Nos.)	-	-	-	593	593	593
Salary			**Rs. In Million**			
Per Month	-	-	-	15.74	15.74	-
Per Annum	-	-	-	188.86	188.86	377.72

The cost of staff required for execution is already incorporated in installation charges of the estimates and that of operational staff is included in O&M charges.

D) Impact of Delays on Project Cost and Viability:

As per State Bank of Pakistan, the inflation rate during FY 2019-20 is around 10%. But, due to effective measures being taken by the present Government, it assumed that it will be tied down to 6.5%. If the Project is delayed, the cost of the project will be increased accordingly. Since the Project is of prime importance, as such it is required to be continued so as to give relief to common people and obtain sustainable financial and economic growth.

11. PROJECT MONITORING:

a) Implementation of the Project:

This project will start from July-2020 and will be completed by the end of June-2025.

The Implementation Schedules in form of bar charts, co-related with the phasing of physical activities, are given at Annex: "C".

12. Result Based Monitoring (RBM) Indicators:

The Distribution rehabilitation project has been designed to meet following targets:

Description	2020-21	2021-22	2022-23	2023-24	2024-25	Total
11 KV Line (KM)	397.50	477.00	530.00	583.00	662.50	2650
LT Line (KM)	216.00	259.20	288.00	316.80	360.00	1440.00
Transformers (No.)	530	636	707	778	884	3536
Customers(No.)	12676	15211	16901	18591	21126	84505
Offices (Future Expansion)	0	0	0	7	5	12
Residential Bungalows & Quarters	0		25	26	26	77
Roads, Boundary Walls and Sewerage / Water supply for residential colonies	0		6	7	7	21

The investment in above projects will definitely result in:

- Stability & Reliability of SEPCO Network.
- Reduction in line losses (Technical & Administrative).
- Reduction in interruptions.
- Better services to the customers.
- Reduction in financial loss to the company due to damage of equipment.

After implementation of these projects, system will become more stable, reliable and shall have capacity to accommodate the load demands as well as targets/criteria set by NEPRA shall also be achieved.

13. ADDITIONAL PROJECTS / DECISIONS REQUIRED:

Not Applicable.

14. DISTRIBUTION REHABILITATION PLAN (ELR)

14.1 11KV AND BELOW DISTRIBUTION NETWORK:

The Distribution Rehabilitation Project will reduce system technical loss, resulting from power loss in the distribution conductor and equipment including loss due to additional current flowing in the system on account of poor power factor of consumer loads. The reduction in these losses will release additional power to the distribution system. Simultaneously the different rehabilitation measures will contribute in improving the distribution system supply voltage, continuity of supply, system stability, reliability and safety, which are the mandatory responsibilities of the power utility.

Feeder rehabilitation is proposed to be carried out by applying various energy loss reduction measures which include replacement of portions of existing over loaded conductors with higher capacity conductors, bifurcation of feeders with provision of additional out-going panels and riser cables at grid stations, installation of capacitors on the HT feeders and LT customer loads, balancing of transformers, proper jointing, application of line-sectionalizes etc.

Selection of the 85 feeders for rehabilitation is based on scientific evaluation of technical losses and is made on the ranking by technical loss index which will yield the best return on capital investment i.e. proposals with highest benefit cost ratio.

14.2 *DISTRIBUTION REHABILITATION MEASURES*:

Distribution Rehabilitation Measures aim at:

- Energy Loss Reduction
- Improvement in Quality of Supply
- improvement in Reliability
- Improvement in Safety
- Release of Generation, Transmission and Distribution Capacity
- Improve Customer Service and Reduce Complaints
- Reduce Cost of Operation and Maintenance
- Improve Length of Life of Equipment

Different rehabilitation measures are briefly discussed in following subsection.

i) New 11 KV Lines:

In many Urban and Rural areas, the existing LT lines are extremely overloaded Replacement of these lines by new 11 KV lines (and transformers) can result in considerable loss reduction.
In many residential areas, particularly in villages, vast networks of LT cables and chain services are to be found. The quality of supply is extremely poor and the technical losses are high. Introduction of new HT and LT lines along with new transformers can result in improvement of quality of supply and reduction in losses. In the case of village electrification both three phase and single phase LT lines will be required.

ii) 11 KV Re-conductoring:

Economic studies of different conductor sizes have indicated that in many cases it is more economical to use conductors of higher cross-sectional area than the case at present. Replacement of existing line conductors by bigger conductors will result in reduction of technical losses in direct proportion to the ratio between the resistance of the new and existing conductor. The cost of

Reconductoring must be compared with the savings due to reduction in losses, increase in revenues and release of system capacity.
Evaluation of Reconductoring must also take into account the improvement of power factor, voltage regulation and increase in demand over the life of the conductor.

iii) Capacitors:

Power factor improvement is a Distribution rehabilitation measure, which can result in a very high rate of return on investments. The losses in a distribution system can be reduced in the proportion of square of power factor before and after the capacitor installation. As an example if the power factor is improved from 0.7 (power factor square=0.49) to 0.95 (power factor square=0.90), the new losses will be about 54% of the original losses and the savings will be about 46%.
Benefits from capacitor applications are substantial if the capacitor is installed close to the load. For instance, installation of capacitors on individual motors will result in capacitor installation, which can be treated as switched capacitors. These installations will result in offsetting the deterioration of motor power factor and efficiency as well as reduction of losses in service cables, LT lines, transformers and HT lines.
Installation of capacitors on the LT terminals of distribution transformers will result in reduction of losses primarily in distribution transformers and HT lines. The quality of voltage and the LT terminals of the transformers will also improve and a marginal reduction in losses in LT lines and service cables will also take place. However, the main impact will be beyond the distribution transformer LT terminals towards the grid station. Installation of capacitors on
HT lines results in primary loss reduction in HT lines. Marginal reductions in losses in distribution transformers, LT lines and service cables will also occur.
Installation of capacitors must be categorized into fixed and switched, (which can be disconnected during off-peak periods) capacitors to avoid voltage increase during period of low demand, especially the night period. Furthermore, capacitor installations in transmission network and grid stations must also be taken into account before finalizing the maximum capacity of distribution capacitors which can be installed without creating conditions of leading power factor in the power generators.

iv) Replacement of Overloaded Distribution Transformers:

Every year, a large number of transformers are damaged due to overloading conditions. At the same time, Overloaded transformers result in deterioration of voltage quality and rise in technical losses. Replacement of overloaded transformers can result in substantial energy loss reduction.
In a large number of areas, in particular villages, relocation of transformers to the load center of the area can contribute to loss reduction in LT lines and cables.

v). Replacement of D-fittings:

To achieve proper protection of distribution transformers, a vast number of drop-out fuse units and fuse links need to be replaced. Replacement of faulty drop-out fuses can result in reduction of distribution transformer failures.

vi) **New Transformer Stations:**

Losses in overloaded and overextended LT circuits can also be reduced by bifurcation of existing LT circuits through installation of new transformer substations.

vii) New LT Lines:

Conversion of existing overloaded extended and deteriorated LT cables into single phase and three phase LT lines can also result in substantial reduction of losses and improvement of quality of supply. New LT lines may be required even in the case of bifurcation of existing LT circuits through installation of new transformers.

viii) LT Line Reconductoring:

In certain cases, replacement of existing overloaded LT conductor by bigger conductor size may also be economically justifiable. Evaluation of LT line Reconductoring must be compared with the other possible measures such as installation of larger number of transformers, (including transfer of load) and upgrading LT lines to 11 KV lines.

ix) Energy Meters:

At present, a large number of single as well as three phase meters are defective in the SEPCO system. Replacement of meters will make it possible for SEPCO to reduce non-technical losses and increase revenues. At the same time more accurate energy consumption data will become available for analysis and forecasting purpose.

x) PVC Cables:

Overloaded, aged and deteriorated service cables are a major source of technical losses. Replacement of existing overloaded service cables needs to be done to control service cable losses. Cable is also required to connect existing cable system with newly installed LT network.

xi) 11 KV Sectionalizes:

In order to achieve isolation of faulty portion of feeders under fault conditions, scetionalization equipment is needed. Minimum of 2 Sectionalizes per feeder are recommended.

xii) 11 KV XLPE Cables (500MCM/240 mm^2):

11 KV XLPE cable is required for connecting the proposed new 85 express feeders as well as for adding/replacing the undersize/deteriorated cable including the cable for separating the bundled feeders. The quantity is worked out on the basis that an average length of 3*64=192 meters of 500 MCM / 64 meters of 240 mm^2 cable is required for each feeder from the panel in the grid station to the first user pole of the feeder.

xiii) 11 KV New Panels:

Total of 85 No. 11 KV panels will require to be added at an average of one for each express feeder to be built for bifurcation of existing feeders.

xiv) Tools & Plants:

The tools & plants in power distribution need to be augmented to achieve:

- Better workmanship in distribution construction
- More secure joints
- Improved operation and maintenance
- Better monitoring evaluation and inspection

14.3 RECORDING METERS/INSTRUMENTS AND PERSONAL COMPUTERS*:*

To collect more accurate information regarding energy consumption, demand, load variations, power factor and coincidence of demand by customer categories and at different system levels, regular load research, monitoring and evaluation is required. Measurement of load is required both on the LT side of distribution transformers and 11 KV lines. Measurement of quality of earth resistively is needed to develop and improve the quality of earthing.

To achieve these objectives, both instantaneous measuring and recording instruments are needed. Among these may be mentioned the following categories of instruments.

- Clip-on Volt-Ohm-Ammeter
- Clip on Power Analyzers
- Energy Analyzers
- AC recording Watt/VAR Meters

14.4 Assumptions for Material Requirements:

Basis and scope of material requirements under the Distribution Rehabilitation project is detailed in the following sections:

i) Basic Data:

Total number of feeders selected for rehabilitation	85 Nos
Total numbers of grid stations involved	68 Nos
Average length per feeder (11 KV line)	64 km
Average number of transformers per feeder	65 Nos
Average numbers of customers per transformer	30 Nos
Average number of customers per feeder	1950 Nos

ii) Rehabilitation BOQs:

The BOQ's for different ELR measures have been developed.

iii) New 11 KV Switchgear (Control panels):

Total quantity of 85 No. 11 KV panels will require to be added at an average of one for each express feeder to be built for bifurcation of existing feeders.

iv) ACSR Conductors for new express line construction:

It is estimated that 85 feeders will require construction of express lines for their bifurcation. On the average 10.0 km of 3-phase HT line will be constructed per feeder. The overall share of different ACSR conductors in the total of 850 Km of lines is calculated as below: -

Osprey	30%	850 x 0.30	255 KM Line
Dog	40%	850 x 0.40	340 KM Line
Rabbit	30%	850 x 0.30	255 KM Line
Total			850 KM Line

v) **11 KV Line Re-conductoring:**

Average length of 11 KV line per feeder	64 km
Works out to be 25% of the 11 KV line length	16km
Estimated re-conductoring based on sample studies,	06km
Average new HT line for bifurcation/tri-furcation of feeders	10 km
Total rehabilitation HT line	510km

Estimated % share of different conductors in re-conductoring:

Osprey	30%	153 km
Dog	40%	204 km
Rabbit	30%	153 km

Number of feeders for rehabilitation	85 No
Therefore, total re-conductoring length (85 x 06)	510 Km

vi) **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 85 feeders, the number of capacitor banks of 450 KVAR each (a total capacitance of 38 MVAR) will therefore, be 85.

vii) **Replacement of Over-loaded Transformers**

The sample studies indicate that out of the 90 transformers installed on a feeder, at an average, 20% transformers are overloaded. These overloaded transformers relate to various capacity rating. At an average, the overloaded transformers are shared as 20% in the 25 KVA, 25% in the 50 KVA, 30% in 100 KVA and 25% in 200 KVA categories. The number of transformers required for replacement against ones is worked out as follows:

Transformers per feeder		90 Nos.
Transformers over loaded per feeder (20%)		18 Nos.
Total number of feeders for rehabilitation		85 Nos.
Total number of over loaded transformers		1530 Nos.
	Say	1530 Nos.

Share of Different Rating of Transformers:

50 KVA	22%	1530 x 0.22		342 Nos.
100 KVA	28%	1530 x 0.30		425 Nos.
200 KVA	22%	1530 x 0.25		339 Nos.
100 KVA (additional new)		382 x 0.17 = 254	Say	254 Nos.
200 KVA (additional new)		382 x 0.11 = 170		170 Nos.
			Total:	1529 Nos.
			Say Total:	**1530 Nos.**

Total **212 MVA** old deteriorated transformer will be replaced in SEPCO Network.

viii) **Replacement of D-fuse fittings (Drop-out Cut-Outs):**

Replacement of D-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: -

Transformers per feeder			90 Nos.
Total transformers	(85 x 90)		7650 Nos.
D-fuse fittings required (7650 x 0.10 =765)		Say	765 Nos.

ix) **New Transformers 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 1530 transformers as given under sub-article (iii) above.

Total overloaded transformers	1530 Nos.
New additional transformer sub-stations required (1530 x 0.25)	382 Nos.

Sharing of Different Rating of Transformers:

50 KVA	25%	382 x 0.25	96 Nos.
100 KVA	50%	382 x 0.50	191 Nos.
200 KVA	25%	382 x 0.25	96 Nos.
			Total 382 Nos.

Total **43 MVA** will be added in SEPCO Network.

x) **New LT Lines:**

Each new transformers 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 382 transformers, is calculated as follows:

Total LT line required (2 x 244 x 382)/ 1000, = 186.4km say 187 Km.

For 200 KVA (96) transformers, LT line length	47 Km.
Share of Wasp conductor	47 Km.
Share of Ant conductor	140 Km.
For 100 & 50 KVA (287) transformers LT line length	140 Km.

Total length of Wasp:	**47 Km**	**say**	**47 Km.**
Total length of Ant:	**140 Km**	**say**	**140 Km.**

xi) **LT Line Re-Conductoring:**

On the basis of previous PC-I of SEPCO 2014-2021, the average LT line Reconductoringper proposal was estimated as:

3-phase Wasp conductor line	90 Km.
3-phase Ant conductor line	60 Km.

The same average has been applied to evaluate the LT conductor quantities. The calculation proceeds as follows:

Transformers per feeder	90 Nos.
Transformers selected for rehabilitation	20%
Transformers selected per feeder	17 Nos.
Total feeders for rehabilitation	85 Nos.
Hence total number of LT proposals for re-conductoring	1450 Nos.
LT line re-conductoring	
3-phase, Wasp (1450 x 0.60) = 870 nos (10% re-con)	87 Nos
3-phase, Ant (1450 x 0.40) 580 nos (10% re-con)	58 Nos.

xii) **New 11 KV Line**

Total number of LT proposals	1450 Nos.
LT proposals requiring 11 KV line extension	33.33%
Total No. of LT proposals requiring 11 1KV line extension	483 Nos.
Average length of 11 KV line extension per LT proposals	0.244 Km
Total length of new 11 KV line (483 x 0.2 = 96.60) Say	105 Km.

Based on sample studies, the ratio of ACSR Dog and Rabbit Conductors is 35% and 65% respectively.

			KM Line
Dog	0.35	105 x 0.35	37 Km.
Rabbit	0.65	105 x 0.65	68 Km.
		Total	**105 Km.**

xiii) Energy Meters:

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

Total feeders for rehabilitation				85 Nos.
Average number of customers per feeder				1950 Nos.
Total customers of meters				165750 Nos.
Meters to be replaced		10% of total		16575 Nos.
Share of replacement				
	1-phase	80% = 13260	Say	13500 Nos.
	3-phase	20% = 3315	Say	3350 Nos.

xiv) 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 are about 165750 Nos. (On selected feeders only)

Estimated customers requiring replacement ofservice cable (@ 10%)	165750 Nos.
Average length per service cable	40 M
Total length required should be (16575 x 40 = 66300) Say	663 Km.

Share of Total Length of Cable into Different Sizes:

Customer category	Cable Size	% Share	KM
1-Phase customers	2/c, 7/0.052	90	597 Km.
3-Phaso customers	4/c, 19/0.052	10	66 Km.
		Total	**663 Km.**

(b) For sub-mains, cable sizes 4-core 19/0.052 and 4-core 19/0.083 are required

Total number of LT proposals		1450 Nos.
Proposals requiring LT sub-mains extension (new and replacement/upgrading)	10% 145 Nos.	
Average length per proposal		100 M
Total length	145 x 0.1	14.5 Km.
	Say	**15 Km.**

Share of Total Length of Cable into Different sizes

		KM Line
4-Core 19/0.52 (40%)	15 x 0.40 = 6.0	Say 6.0
4-core 19/0.083(60%)	15 x 0.60 = 10.50	Say 9.0
	Total	**15.0km**

xv) P.G. Connectors:

The Requirement of P.G Connectors has been incorporated in unit cost.

xvi) Earthing:

The Requirement of Earthling set has been incorporated in unit cost.

xvii) Tools & Plants:

The Requirement of Tools & Plants has been incorporated in unit cost for which Rs. 10.0 Million have been added in cost estimate however over and above will be met from O&M Budget.

xviii) 11 KV New Panels:

Total of 85 No. 11 KV panels will require to be added at an average of one for each express feeder to be built for bifurcation of existing feeders.

xix) 11 KV Sectionalizers:

In order to achieve isolation of faulty portions of feeders under fault conditions, sectionalizing equipment is needed. A minimum of 2 Sectionalizers per feeder are recommended. The quantity is worked out as follows:

11 KV Sectionalizers required per feeder	2 Nos.
Total number of 11 KV Sectionalizers (2 x 85)	170 Nos.

xx) 11 KV XLPE Cables (500 MCM/240 mm^2):

11 KV XLPE cable is required for connecting the proposed new 85 express feeders as well as for adding/replacing the undersize/deteriorated cable including the cable for separating the bundled feeders. The quantity is worked out on the basis that an average length of 3*70=210 meters of 500 MCM / 70 meters of 240 mm^2 cable is required for each feeder from the panel in the grid station to the first user pole of the feeder.

Out of the existing 85 feeders selected for rehabilitation, it is estimated that about 20% of feeders require replacement of existing under-size/deteriorated 11 KV cables by 500 MCM, XLPE cable.

Feeders selected for rehabilitation	85 Nos.
No. of feeders requiring replacement of cable (20%)	17 Nos.
No. of express feeders requiring 500 MCM cable	85 Nos.
Average length of cable per feeder	240 Mtr
Therefore total length of cable required (0.240 (17+85))	24.48 Km.
Say	25.0 Km.

15. TARGETS:

On the basis of above assumptions, targets in terms of proposals and quantities are set as under:

i) **Year wise breakup of the targets in terms of proposals:**

Description	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
HT Feeders	15	16	17	18	19	85
LT Feeders	262	275	289	304	320	1450

15.1 TARGETS IN TERMS OF QUANTITIES:

S #	Description	Unit	Quantities
1	11 KV lines for HT new line	KM	850
2	11 KV lines for LT new line	KM	483
3	11 KV Reconductoring (Osprey, Dog, Rabbit)	KM	510
4	11 KV 450 KVAR fixed capacitors	Nos.	85
5	Replacement of overloaded transformers	Nos.	1530
i	* 50 KVA	Nos.	342
ii	* 100 KVA	Nos.	425
iii	* 200 KVA	Nos.	339
iv	* 100 KVA (Additional)	Nos.	254
v	* 200 KVA (Additional)	Nos.	170
6	Replacement of D-Fitting	Nos.	765
7	New Transformers substations (Rehabilitation)	Nos.	382
*	* 50KVA	Nos.	95
*	* 100 KVA	Nos.	191
*	* 200 KVA	Nos.	96
8	New 3-Phase LT line (WASP)	KM	47
9	New 3-Phase LT Line (ANT)	KM	140
10	LT line Reconductoring (3Phase WASP)	KM	90
11	LT line Reconductoring (3-Phase ANT)	KM	60
12	11 KV Sectionalizers (manual)	Nos.	170
13	11 KV Panels	Nos.	85
14	Energy Meters	Nos.	16850
i	* 1-Phase	Nos.	13500
ii	* 3-Phase	Nos.	3350
15	PVC Cables	KM	678
i	* 2 Core 7/0.052	KM	597
ii	* 4 Core 19/0.052	KM	66
iii	* 4 Core 19/0.83	KM	15
iv	11 KV 500 MCM XLPE Cable	KM	25

15.2. SCOPE OF ELR WORK:

MAIN SCOPE OF ELR WORKS UNDER FIVE YEARS IGTDP PLAN OF SEPCO								
S.NO	Description	Unit	2020-21	2021-22	2022-23	2023-24	2024-25	NOS.
1	HT Proposals	**Nos.**	**15**	**16**	**17**	**18**	**19**	85
2	LT Proposals	**Nos.**	**262**	**275**	**289**	**304**	**320**	1450
1	11 KV New line for New Feeders	KM	150	160	170	180	190	850
2	11 KV lines (Extension Due to LTP)	KM	87	92	96	101	107	483
3	11 KV Re-conductoring (Osprey, Dog, Rabbit, Gopher)	KM	90	96	102	108	114	510
4	11 KV 450 KVAR fixed capacitors	Nos.	15	16	17	18	19	85
5	Replacement of overloaded transformers	Nos.	270	288	306	324	342	1530
6	Replacement of D-Fitting	Nos.	135	144	153	162	171	765
7	New Transformers substations (Rehabilitation)		63	72	76	80	86	382
8	New 3-Phase LT line (WASP)	KM	8	9	9	10	11	47
9	New 3-Phase LT Line (ANT)	KM	25	26	28	30	31	140
10	LT line Reconductoring (3Phase WASP)	KM	16	17	18	19	20	90
11	LT line Reconductoring (3-Phase ANT)	KM	10	11	12	13	14	60
12	11 KV Sectionalizer (manual)	Nos.	30	32	34	36	38	170
13	11 KV Panels with Installation	Nos.	15	16	17	18	19	85
14	Energy Meters 1-Phase & 3-Phase	NOS.	3000	3130	3370	3600	3750	16850
15	PVC Cables 7/0.52, 7/0.83 & 19/0.83	KM	119	127	135	143	154	678
16	11 KV 500 MCM XLPE Cable (85+20%) =102	KM	4.5	4.6	4.8	5.4	5.7	25

16. COST OF ELR WORKS:

Overall cost of the ELR Project for the Five Year, Integrated Generation Transmission & Distribution Plan (IGTDP) of SEPCO has been worked out as under, on the basis of material and unit Cost as mentioned in unit cost chapter.

COST OF ELR WORKS UNDER FIVE YEARS IGTDP PLAN OF SEPCO								
S.NO	Description	unit	2020-21	2021-22	2022-23	2023-24	2024-25	202021-25
1	11 KV New line for New Feeders	KM	357	381	405	429	453	2025
2	12 KV lines (Extension Due to LTP)	KM	185	195	204	214	227	1025
3	11 KV Reconductoring (Osprey, Dog, Rabbit, Gopher)	KM	114	122	130	137	145	648
4	11 KV 450 KVAR fixed capacitors	Nos.	3	4	4	4	4	19
5	Replacement of overloaded transformers	Nos.	210	224	238	252	265	1188
6	Replacement of D-Fitting	Nos.	3	4	4	4	4	19
7	New Transformers substations (Rehabilitation)		54	57	60	64	69	304
8	New 3-Phase LT line (WASP)	KM	16	18	18	20	22	96
9	New 3-Phase LT Line (ANT)	KM	38	39	42	45	47	211
10	LT line Reconductoring (3Phase WASP)	KM	24	25	27	28	30	134
11	LT line Reconductoring (3-Phase ANT)	KM	10	10	11	12	13	57
12	11 KV Sectionalizers (manual)	Nos.	3	3	3	3	3	15
13	11 KV Panels with Installation	Nos.	23	25	26	28	29	131
14	Energy Meters 1-Phase & 3-Phase	NOS.	6	7	7	8	8	36
15	PVC Cables 7/0.52, 7/0.83 & 19/0.83	KM	14	14	15	16	18	78
16	11 KV 500 MCM XLPE Cable (85+20%) =102	Nos.	5	6	6	7	7	30
A	Sub Total Cost		1065	1134	1200	1271	1344	6015
B	Installation Charges		85	91	96	102	108	481
C	Contract Work		185	197	209	221	233	1044
D=A+B+C	Total Cost		1335	1421	1505	1594	1685	7540
E=1.5% ON D	1.5% Vetting Charges on Total Cost		20	21	23	24	25	113
F=13% ON C	13% SRB Tax on Contract Work		24	26	27	29	30	136
G	T&P		2	2	2	2	2	10
H=D+E+F+G	Gross Total Cost		1381	1470	1557	1648	1742	7799
I	Consultancy cost @ 1.2% (Average)		17	18	19	20	21	94
J	Audit & Inspection Charges @3%		41	44	47	49	52	234
K	less Retirement Cost		138	147	156	165	174	779
L=(H:K)	Net Capital Cost		1301	1385	1466	1553	1641	7347
L=(H:K)	Escalated Cost @ 6.5%		1386	1475	1562	1654	1748	7824

17. OVERALL BENEFITS OF ELR PROJECT (HT & LT PROPOSALS):

A. BENEFITS OF HT PROPOSAL:

HT benefits calculated on the basis of technical analysis carried out through computer software in respect of 06 numbers 11kV HT feeders Rehabilitation / Bifurcation and their benefits achieved, Average benefits have been considered for calculation of future savings, tabulated under:

HT PROPOSALS BENIFITS								
S.NO	NAME OF PROPOSAL	STATUS BEFORE PROPOSAL			STATUS AFTER PROPOSAL			SAVING (KWH)
		% V.D	% AEL	QUANTUM LOSSES (KWH)	% V.D	% AEL	QUANTUM LOSSES (KWH)	
1	Bif: of 11KV City-I Moro Feeder New Proposed 11KV City-5 Moro Feeder	10.7	6	1604443	4.9	3	330480	923782
					4.2	2	350181	
							680661	
2	Bif: of 11KV City Pir Jo Goth Feeder New Proposed 11KV Sooriah Badshah Feeder.	3.6	2	571538	2.4	1	142228	242396
					2.6	1	186914	
							329142	
3	Bifurcation Of 11KV Old MuradWahan Feeder	31.3	19.2	5788837	7.70	4.00	606477	4673579
					5.80	3.00	508781	
							1115258	
4	Reh: of 11KV Kamal Khan	18.2	12.1	1048038	4.10	3.00	286294	761744
5	Bifurcation Of 11KV City-I Kashmore Feeder , Proposed KV ShahiWah	10.0	5.1	1399109	4.90	3.10	417283	672857
					4.40	2.00	308969	
							726252	
6	Bifurcation Of 11KV City Warah Feeder	17	7.0	1704099	2.30	3.00	326883	994005
					4.90	2.00	383211	
							710094	

Nos. of HT Proposals	Losses Before (KWH)	Losses After (KWH)	Saving (KWH)
6	12,116,064	3847701	8,268,363
Saving per HT Proposal			1,378,061
Average benefits from Single HT Proposal			1,350,000

B. BENEFITS OF LT PROPOSAL:

LT benefits calculated on the basis of technical analysis carried out through computer software in respect of 14 numbers LT Proposals under System Augmentation Program (SAP) their benefits achieved; Average benefits have been considered for calculation of future savings, tabulated under:

LT Proposal Technical Benefits

S. #	NAME OF PROPOSAL	SUB-DIVISION	Losses Before LTP		Losses After LTP		B.C RATIO	Saving (KWH)
			% AEL	T/F Loading	% AEL	T/F Loading		
1	AT MUHALLA ALLAHABAD Q.A UNIVERSITY	JINAHBAGH	47743	134	19605	71	1.52	28138
2	AT MUHALLA BABOO SHAH MUHAMMAD COLONY KHAIRPUR.	LUQMAN	82460	74	28804	72	3.78	53656
3	AT MUHALLA EID GAH ROAD NASEERABAD TOWN.	NASEERABAD	35724	103	27391	103	2.53	8333
4	AT MUHALLA RESHAM GALI N/O NASEERABAD TOWN.	NASEERABAD	33802	103	22005	103	1.85	11797
5	AT POLICE STATION N/O T&T MUHAMMADI CLINIC NASEERABAD	NASEERABAD	65136	103	44519	103	2.85	20617
6	AT MUHALLA GHULAM YASEEN KALWER	GHOTKI-I	270164	53	203425	75	11.54	66739
7	AT MUHALLA NEAR REHMANIA MASJID KHAIRPUR.	LUQMAN	81164	93	41938	88	2.19	39226
8	AT MUHALLA HAYAT SHAIKH NASEERABAD TOWN.	NASEERABAD	34999	103	21147	103	1.41	13852
9	AT MUHALLA CINEMA CHOWK BADEH ROAD NASEERABAD	NASEERABAD	31433	101	24455	101	3.63	6978
10	AT MUHABAT MUHALLA N/O GOVT: BOYS SCHOOL NASEERABAD	NASEERABAD	35940	130	22613	130	1.08	13327
11	AT MANGI MUHALLA N/O DR. UBEDULLAH NASEERABAD	NASEERABAD	70067	103	47391	103	3.71	22676
12	AT AHMED HOTEL N/O SHAIKH MUHALLA NASEERABAD	NASEERABAD	49049	103	35156	103	1.4	13893
13	AT MUH: NEAR DR WASEEM STATION ROAD	SUKKUR-I	27736	65	10622	84	2.08	17114
14	AT SHAIKH MUHALLA NEAR MADARSA DRIB MEHAR SHAH	GHAMBAT	52905	109	40230	101	2.42	12702

Nos. of LT Proposals	Losses Before (KWH)	Losses After (KWH)	Saving (KWH)
14	918,322	589,301	329,048
Saving per LT Proposal			23503
Average benefits from Single LT Proposal (Kwh)			23000

C. OVERALL BENEFITS OF HT & LT PROPOSALS:

Overall Benefits from HT & LT Proposals												
Benefits	2020-21		2021-22		2022-23		2023-24		2024-25		2020-25	
	No.	Benefit (KWH)	No.	Benefit (KWH)	No.	Benefit (KWH)	No.	Benefit (KWH)	No.	Benefit (KWH)	No.	Benefit (KWH)
Benefits HTP	15	20.25	16	21.6	17	22.95	18	24.3	19	25.65	85	114.75
Benefits LTP	262	6.026	275	6.325	289	6.647	304	6.992	320	7.36	1450	33.35
Current Saving in M.KWH	26.28		27.925		29.597		31.292		33.01		148.1	
Cumulative Saving in M.KWH	26.28		54.20		83.80		115.09		148.10		148.10	
Cumulative Saving in M.KWH	26.28		54.20		83.80		115.09		148.10		**148.10**	

18. FINANCIAL PLAN (SOURCES OF FUNDING):

In view of the non-availability of any Donor Funding, the total capital requirements are expected to be met by SEPCO through self-financing. That expenditure has been assumed to be met out from PSDP allocation. At present, neither local nor foreign funding sources are committed to SEPCO.

Sr. #	Source	Amount (Rs. in Million)
A)	**Equity:**	
	i) Sponsors Own Fund.	**26186.54**
	ii) Federal Govt.	-
	iii) Provincial Govt.	-
	iv) DFI's / Banks.	-
	v) General Public.	**5984.20**
	vi) Foreign Equity.	-
	vii) NGO's / Beneficiaries.	-
	viii) Others.	-
B)	**Debt:**	-
	i) Local	-
	ii) FEC	-
	iii) Interest Rate	-
	a) Local	-
	b) FEC	-
	iv) Grace period	-
	v) Repayment period	-
	vi) Loan repayment schedule	-
C)	**Grants**	-
D)	**Weighted Cost of Capital**	-

19. CERTIFICATE:

Certified that the proposal has been prepared on the basis of guidelines provided for Integrated Generation, Transmission and Distribution Plan.

Prepared by:

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Checked by:

Engr. Khalid Hussain Shaikh)
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(Engr. Muhammad Khan Sohu)
Chief Technical Officer, SEPCO
(Cell # 0300-3709133)

Sukkur Electric Power Company Ltd.

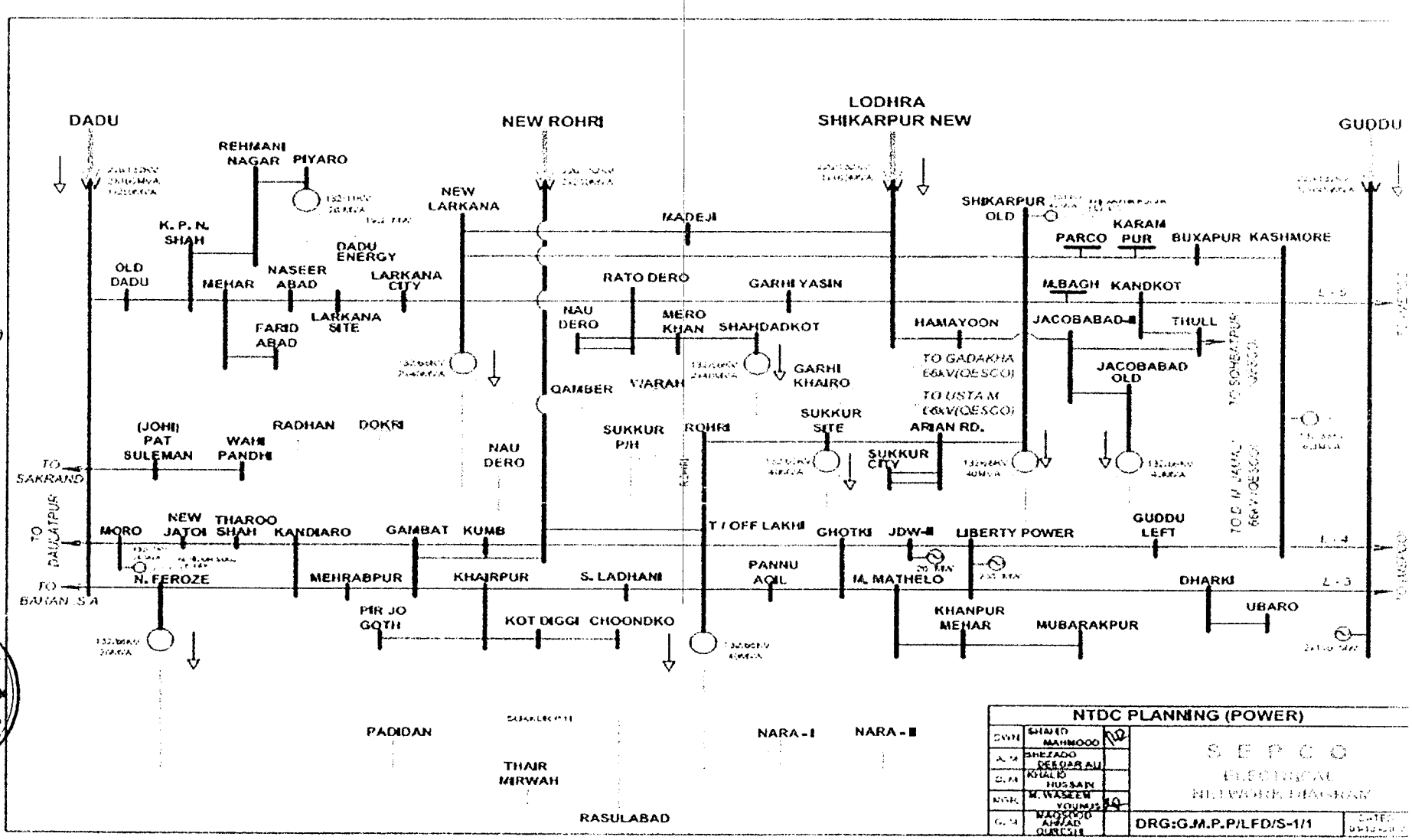
ANNEXURE – "A"

SEPCO NETWORK

Annex: "A-1"	Single Line Electrical Diagram of SEPCO Network
Annex: "A-2"	Geographical Map of SEPCO Network
Annex: "A-3"	Financial Internal Rate of Return
Annex: "A-4"	Economical Internal Rate of Return
Annex: "A-5"	Financial Internal Rate of Return if Benefits Decreased by 10%
Annex: "A-6"	Financial Internal Rate of Return if Benefits Decreased & Cost increased by 10%

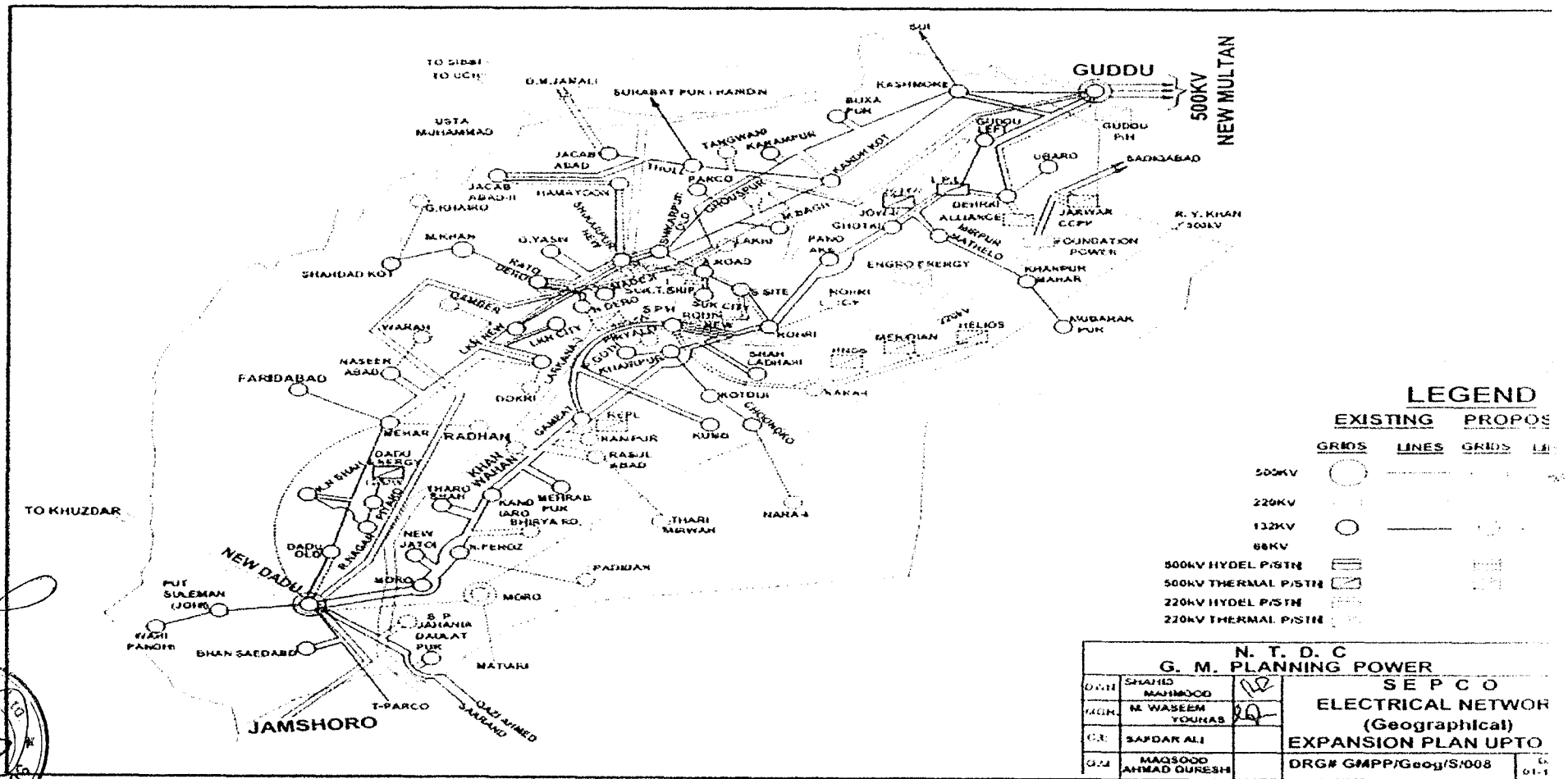
Annex: "

Single Line Electrical Diagram of SEPCO Network



Annex: "

Geographical Map of SEPCO Network



SUKKUR ELECTRIC POWER COMPANY

FINANCIAL INTERNAL RATE OF RETURN (IGTDP)

Annexure A-3

SERIAL	YEARS		Cost					TOTAL BENEFITS	NET BENEFITS FROM SAVING OF POWER (M.Rs)	PRESENT WORTH COST AT DIFFERENT RATES			PRESENT WORTH BENEFITS AT DIFFERENT RATES			PRESENT WORTH NET BENEFITS AT DIFFERENT RATES		
			CAPITAL COST	C.COST CONTRIBUTION BY CONSUMERS	NET CAPITAL COST	O&M COST	TOTAL COST			8%	10%	12%	8%	10%	12%	8%	10%	12%
0	2020	2021	3365.00	415.84	2949.16	1239.44	4188.60	2019.50	-2169.10	4189	4189	4189	2020	2020	2020	-2169	-2169	-2169
1	2021	2022	7312.02	477.94	6834.08	2430.71	9264.79	3996.55	-5268.24	8579	8423	8272	3701	3633	3568	-4878	-4789	-4704
2	2022	2023	5280.48	538.94	4741.54	3417.21	8158.75	5655.95	-2502.80	6995	6743	6504	4849	4674	4509	-2146	-2068	-1995
3	2023	2024	5984.01	604.40	5379.60	4541.03	9920.64	7465.70	-2454.94	7875	7454	7061	5927	5609	5314	-1949	-1844	-1747
4	2024	2025	4245.03	697.02	3548.01	5707.53	9255.54	9449.31	193.78	6803	6322	5882	6946	6454	6005	142	132	123
5	2025	2026				5707.53	5707.53	9449.31	3741.78	3884	3544	3239	6431	5867	5362	2547	2323	2123
6	2026	2027				5707.53	5707.53	9449.31	3741.78	3597	3222	2892	5955	5334	4787	2358	2112	1896
7	2027	2028				5707.53	5707.53	9449.31	3741.78	3330	2929	2582	5514	4849	4274	2183	1920	1693
8	2028	2029				5707.53	5707.53	9449.31	3741.78	3084	2663	2305	5105	4408	3816	2022	1746	1511
9	2029	2030				5707.53	5707.53	9449.31	3741.78	2855	2421	2058	4727	4007	3408	1872	1587	1349
10	2030	2031				5707.53	5707.53	9449.31	3741.78	2644	2200	1838	4377	3643	3042	1733	1443	1205
11	2031	2032				5707.53	5707.53	9449.31	3741.78	2448	2000	1641	4053	3312	2716	1605	1311	1076
12	2032	2033				5707.53	5707.53	9449.31	3741.78	2267	1819	1465	3752	3011	2425	1486	1192	960
13	2033	2034				5707.53	5707.53	9449.31	3741.78	2099	1653	1308	3474	2737	2166	1376	1084	858
14	2034	2035				5707.53	5707.53	9449.31	3741.78	1943	1503	1168	3217	2488	1934	1274	985	766
15	2035	2036				5707.53	5707.53	9449.31	3741.78	1799	1366	1043	2979	2262	1726	1180	896	684
16	2036	2037				5707.53	5707.53	9449.31	3741.78	1666	1242	931	2758	2056	1541	1092	814	610
17	2037	2038				5707.53	5707.53	9449.31	3741.78	1543	1129	831	2554	1869	1376	1011	740	545
18	2038	2039				5707.53	5707.53	9449.31	3741.78	1428	1027	742	2365	1700	1229	936	673	487
19	2039	2040				5707.53	5707.53	9449.31	3741.78	1323	933	663	2190	1545	1097	867	612	434
20	2040	2041				5707.53	5707.53	9449.31	3741.78	1225	848	592	2027	1405	980	803	556	388
21	2041	2042				5707.53	5707.53	9449.31	3741.78	1134	771	528	1877	1277	875	743	506	346
22	2042	2043				5707.53	5707.53	9449.31	3741.78	1050	701	472	1738	1161	781	688	460	309
23	2043	2044				5707.53	5707.53	9449.31	3741.78	972	637	421	1609	1055	697	637	418	276
24	2044	2045				5707.53	5707.53	9449.31	3741.78	900	579	376	1490	959	623	590	380	247
25	2045	2046				5707.53	5707.53	9449.31	3741.78	833	527	336	1380	872	556	546	345	220
26	2046	2047				5707.53	5707.53	9449.31	3741.78	772	479	300	1278	793	496	506	314	197
27	2047	2048				5707.53	5707.53	9449.31	3741.78	715	435	268	1183	721	443	468	285	175
28	2048	2049				5707.53	5707.53	9449.31	3741.78	662	396	239	1095	655	396	434	259	157
29	2049	2050				5707.53	5707.53	9449.31	3741.78	613	360	213	1014	596	353	402	236	140
			26186.54	2734.15	23452.39	160024.1	183476.5	264819.8	81343.30	79223.18	68514.26	60357.13	97583.04	80973.44	68515.56	18359.86	12459.17	10327.53
															Net Present Value	18359.86	12459.17	10327.53
															Benefit Cost Ratio	1.23	1.18	1.14
															IFRR	18.96%		

SUKKUR ELECTRIC POWER COMPANY
ECONOMIC INTERNAL RATE OF RETURN (IGTDP)

Annexure A-4

SERIAL	YEARS		COST					TOTAL BENEFITS	NET BENEFITS FROM SAVING OF POWER (M.Rs)
			CAPITAL COST	C.COST CONTRIBUTION BY CONSUMERS	NET CAPITAL COST	O&M COST	TOTAL COST		
0	2020	2021	3365.00	415.84	2949.16	882.83	3831.99	2019.50	-1812.48
1	2021	2022	7312.02	477.94	6834.08	1725.37	8559.44	3996.55	-4562.89
2	2022	2023	5280.48	538.94	4741.54	2311.25	7052.79	5655.95	-1396.84
3	2023	2024	5984.01	604.40	5379.60	3078.99	8458.59	7465.70	-992.89
4	2024	2025	4245.03	697.02	3548.01	3772.72	7320.73	9449.31	2128.58
5	2025	2026				3772.72	3772.72	9449.31	5676.59
6	2026	2027				3772.72	3772.72	9449.31	5676.59
7	2027	2028				3772.72	3772.72	9449.31	5676.59
8	2028	2029				3772.72	3772.72	9449.31	5676.59
9	2029	2030				3772.72	3772.72	9449.31	5676.59
10	2030	2031				3772.72	3772.72	9449.31	5676.59
11	2031	2032				3772.72	3772.72	9449.31	5676.59
12	2032	2033				3772.72	3772.72	9449.31	5676.59
13	2033	2034				3772.72	3772.72	9449.31	5676.59
14	2034	2035				3772.72	3772.72	9449.31	5676.59
15	2035	2036				3772.72	3772.72	9449.31	5676.59
16	2036	2037				3772.72	3772.72	9449.31	5676.59
17	2037	2038				3772.72	3772.72	9449.31	5676.59
18	2038	2039				3772.72	3772.72	9449.31	5676.59
19	2039	2040				3772.72	3772.72	9449.31	5676.59
20	2040	2041				3772.72	3772.72	9449.31	5676.59
21	2041	2042				3772.72	3772.72	9449.31	5676.59
22	2042	2043				3772.72	3772.72	9449.31	5676.59
23	2043	2044				3772.72	3772.72	9449.31	5676.59
24	2044	2045				3772.72	3772.72	9449.31	5676.59
25	2045	2046				3772.72	3772.72	9449.31	5676.59
26	2046	2047				3772.72	3772.72	9449.31	5676.59
27	2047	2048				3772.72	3772.72	9449.31	5676.59
28	2048	2049				3772.72	3772.72	9449.31	5676.59
29	2049	2050				3772.72	3772.72	9449.31	5676.59
			26186.54	**2734.15**	**23452.39**	**106089.21**	**129541.60**	**264819.78**	**135278.18**

EIRR **32.11%**

SUKKUR ELECTRIC POWER COMPANY

FINANCIAL INTERNAL RATE OF RETURN IF Benefits Decreased by 10%

Annexure A-5

S.No	YEARS		CAPITAL COST	C.COST CONTRIBUTION BY CONSUMERS	NET CAPITAL COST	O&M COST	TOTAL COST	TOTAL BENEFITS	NET BENEFITS FROM SAVING OF POWER (M.Rs)	PRESENT WORTH COST AT DIFFERENT RATES			PRESENT WORTH BENEFITS AT DIFFERENT RATES			PRESENT WORTH NET BENEFITS AT DIFFERENT RATES		
										8%	10%	12%	8%	10%	12%	8%	10%	12%
0	2020	2021	3365.0	415.8	2949.2	1239.4	4188.6	1817.6	-2371.0	4188.6	4188.6	4188.6	1817.6	1817.6	1817.6	-2371.0	-2371.0	-2371.0
1	2021	2022	7312.0	477.9	6834.1	2430.7	9264.8	3596.9	-5667.9	8578.5	8422.5	8272.1	3330.5	3269.9	3211.5	-5248.0	-5152.6	-5060.6
2	2022	2023	5280.5	538.9	4741.5	3417.2	8158.7	5090.4	-3068.4	6994.8	6742.8	6504.1	4364.2	4206.9	4058.0	-2630.7	-2535.9	-2446.1
3	2023	2024	5984.0	604.4	5379.6	4541.0	9920.6	6719.1	-3201.5	7875.3	7453.5	7061.3	5333.9	5048.2	4782.5	-2541.5	-2405.3	-2278.8
4	2024	2025	4245.0	697.0	3548.0	5707.5	9255.5	8504.4	-751.2	6803.1	6321.7	5882.1	6251.0	5808.6	5404.7	-552.1	-513.0	-477.4
5	2025	2026				5707.5	5707.5	8504.4	2796.9	3884.4	3543.9	3238.6	5787.9	5280.6	4825.6	1903.5	1736.6	1587.0
6	2026	2027				5707.5	5707.5	8504.4	2796.9	3596.7	3221.8	2891.6	5359.2	4800.5	4308.6	1762.5	1578.8	1417.0
7	2027	2028				5707.5	5707.5	8504.4	2796.9	3330.3	2928.9	2581.8	4962.2	4364.1	3846.9	1631.9	1435.2	1265.2
8	2028	2029				5707.5	5707.5	8504.4	2796.9	3083.6	2662.6	2305.2	4594.7	3967.4	3434.8	1511.1	1304.8	1129.6
9	2029	2030				5707.5	5707.5	8504.4	2796.9	2855.2	2420.5	2058.2	4254.3	3606.7	3066.8	1399.1	1186.1	1008.6
10	2030	2031				5707.5	5707.5	8504.4	2796.9	2643.7	2200.5	1837.7	3939.2	3278.8	2738.2	1295.5	1078.3	900.5
11	2031	2032				5707.5	5707.5	8504.4	2796.9	2447.9	2000.5	1640.8	3647.4	2980.7	2444.8	1199.5	980.3	804.0
12	2032	2033				5707.5	5707.5	8504.4	2796.9	2266.5	1818.6	1465.0	3377.2	2709.8	2182.9	1110.7	891.2	717.9
13	2033	2034				5707.5	5707.5	8504.4	2796.9	2098.6	1653.3	1308.0	3127.0	2463.4	1949.0	1028.4	810.1	641.0
14	2034	2035				5707.5	5707.5	8504.4	2796.9	1943.2	1503.0	1167.9	2895.4	2239.5	1740.2	952.2	736.5	572.3
15	2035	2036				5707.5	5707.5	8504.4	2796.9	1799.3	1366.3	1042.7	2680.9	2035.9	1553.7	881.7	669.5	511.0
16	2036	2037				5707.5	5707.5	8504.4	2796.9	1666.0	1242.1	931.0	2482.3	1850.8	1387.2	816.4	608.7	456.2
17	2037	2038				5707.5	5707.5	8504.4	2796.9	1542.6	1129.2	831.3	2298.5	1682.5	1238.6	755.9	553.3	407.3
18	2038	2039				5707.5	5707.5	8504.4	2796.9	1428.3	1026.5	742.2	2128.2	1529.6	1105.9	699.9	503.0	363.7
19	2039	2040				5707.5	5707.5	8504.4	2796.9	1322.5	933.2	662.7	1970.6	1390.5	987.4	648.1	457.3	324.7
20	2040	2041				5707.5	5707.5	8504.4	2796.9	1224.5	848.4	591.7	1824.6	1264.1	881.6	600.1	415.7	289.9
21	2041	2042				5707.5	5707.5	8504.4	2796.9	1133.8	771.3	528.3	1689.4	1149.2	787.2	555.6	377.9	258.9
22	2042	2043				5707.5	5707.5	8504.4	2796.9	1049.8	701.1	471.7	1564.3	1044.7	702.8	514.5	343.6	231.1
23	2043	2044				5707.5	5707.5	8504.4	2796.9	972.1	637.4	421.1	1448.4	949.8	627.5	476.3	312.3	206.4
24	2044	2045				5707.5	5707.5	8504.4	2796.9	900.1	579.5	376.0	1341.1	863.4	560.3	441.1	284.0	184.3
25	2045	2046				5707.5	5707.5	8504.4	2796.9	833.4	526.8	335.7	1241.8	784.9	500.3	408.4	258.1	164.5
26	2046	2047				5707.5	5707.5	8504.4	2796.9	771.7	478.9	299.8	1149.8	713.6	446.7	378.1	234.7	146.9
27	2047	2048				5707.5	5707.5	8504.4	2796.9	714.5	435.4	267.6	1064.6	648.7	398.8	350.1	213.3	131.2
28	2048	2049				5707.5	5707.5	8504.4	2796.9	661.6	395.8	239.0	985.8	589.7	356.1	324.2	193.9	117.1
29	2049	2050				5707.5	5707.5	8504.4	2796.9	612.6	359.8	213.4	912.8	536.1	317.9	300.2	176.3	104.6
			26186.5	**2734.1**	**23452.4**	**160024.1**	**183476.5**	**238337.8**	**54861.3**	**79223.2**	**68514.3**	**60357.1**	**87824.7**	**72876.1**	**61664.0**	**8601.6**	**4361.8**	**1306.9**

Net Present Value	8601.6	4361.8	1306.9
Benefit Cost Ratio	0.98:1	0.97:1	0.96:1
IFRR	**13.09%**		

SUKKUR ELECTRIC POWER COMPANY

FINANCIAL INTERNAL RATE OF RETURN IF Benefits Decreased & Cost increased by 10%

Annexure A-6

S#	YEARS		COST					TOTAL BENEFITS	NET BENEFITS FROM SAVING OF POWER (M.Rs)	PRESENT WORTH COST AT DIFFERENT RATES			PRESENT WORTH BENEFITS AT DIFFERENT RATES			PRESENT WORTH NET BENEFITS AT DIFFERENT RATES		
			CAPITAL COST	C.COST CONTRIBUTION BY CONSUMERS	NET CAPITAL COST	O&M COST	TOTAL COST			8%	10%	12%	8%	10%	12%	8%	10%	12%
0	2020	2021	3701.5	415.8	3285.7	1239.4	4525.1	1835.9	-2689.2	4525.1	4525.1	4525.1	1835.9	1835.9	1835.9	-2689.2	-2689.2	-2689.2
1	2021	2022	8043.2	477.9	7565.3	2430.7	9996.0	3633.2	-6362.8	9255.5	9087.3	8925.0	3364.1	3302.9	3244.0	-5891.4	-5784.3	-5681.0
2	2022	2023	5808.5	538.9	5269.6	3417.2	8686.8	5141.8	-3545.0	7447.5	7179.2	6925.1	4408.2	4249.4	4099.0	-3039.3	-2929.8	-2826.1
3	2023	2024	6582.4	604.4	5978.0	4541.0	10519.0	6787.0	-3732.0	8350.4	7903.1	7487.2	5387.7	5099.2	4830.9	-2962.6	-2803.9	-2656.4
4	2024	2025	4669.5	697.0	3972.5	5707.5	9680.0	8590.3	-1089.8	7115.1	6611.6	6151.8	6314.1	5867.3	5459.3	-801.0	-744.3	-692.6
5	2025	2026				5707.5	5707.5	8590.3	2882.8	3884.4	3543.9	3238.6	5846.4	5333.9	4874.4	1962.0	1790.0	1635.8
6	2026	2027				5707.5	5707.5	8590.3	2882.8	3596.7	3221.8	2891.6	5413.3	4849.0	4352.1	1816.6	1627.2	1460.5
7	2027	2028				5707.5	5707.5	8590.3	2882.8	3330.3	2928.9	2581.8	5012.3	4408.2	3885.8	1682.1	1479.3	1304.0
8	2028	2029				5707.5	5707.5	8590.3	2882.8	3083.6	2662.6	2305.2	4641.1	4007.4	3469.5	1557.5	1344.8	1164.3
9	2029	2030				5707.5	5707.5	8590.3	2882.8	2855.2	2420.5	2058.2	4297.3	3643.1	3097.7	1442.1	1222.6	1039.6
10	2030	2031				5707.5	5707.5	8590.3	2882.8	2643.7	2200.5	1837.7	3979.0	3311.9	2765.8	1335.3	1111.4	928.2
11	2031	2032				5707.5	5707.5	8590.3	2882.8	2447.9	2000.5	1640.8	3684.2	3010.8	2469.5	1236.4	1010.4	828.7
12	2032	2033				5707.5	5707.5	8590.3	2882.8	2266.5	1818.6	1465.0	3411.3	2737.1	2204.9	1144.8	918.5	739.9
13	2033	2034				5707.5	5707.5	8590.3	2882.8	2098.6	1653.3	1308.0	3158.6	2488.3	1968.7	1060.0	835.0	660.7
14	2034	2035				5707.5	5707.5	8590.3	2882.8	1943.2	1503.0	1167.9	2924.7	2262.1	1757.7	981.5	759.1	589.9
15	2035	2036				5707.5	5707.5	8590.3	2882.8	1799.3	1366.3	1042.7	2708.0	2056.4	1569.4	908.8	690.1	526.7
16	2036	2037				5707.5	5707.5	8590.3	2882.8	1666.0	1242.1	931.0	2507.4	1869.5	1401.3	841.4	627.4	470.2
17	2037	2038				5707.5	5707.5	8590.3	2882.8	1542.6	1129.2	831.3	2321.7	1699.5	1251.1	779.1	570.3	419.9
18	2038	2039				5707.5	5707.5	8590.3	2882.8	1428.3	1026.5	742.2	2149.7	1545.0	1117.1	721.4	518.5	374.9
19	2039	2040				5707.5	5707.5	8590.3	2882.8	1322.5	933.2	662.7	1990.5	1404.6	997.4	668.0	471.4	334.7
20	2040	2041				5707.5	5707.5	8590.3	2882.8	1224.5	848.4	591.7	1843.0	1276.9	890.5	618.5	428.5	298.8
21	2041	2042				5707.5	5707.5	8590.3	2882.8	1133.8	771.3	528.3	1706.5	1160.8	795.1	572.7	389.5	266.8
22	2042	2043				5707.5	5707.5	8590.3	2882.8	1049.8	701.1	471.7	1580.1	1055.3	709.9	530.3	354.1	238.2
23	2043	2044				5707.5	5707.5	8590.3	2882.8	972.1	637.4	421.1	1463.1	959.3	633.9	491.0	321.9	212.7
24	2044	2045				5707.5	5707.5	8590.3	2882.8	900.1	579.5	376.0	1354.7	872.1	565.9	454.6	292.7	189.9
25	2045	2046				5707.5	5707.5	8590.3	2882.8	833.4	526.8	335.7	1254.3	792.8	505.3	420.9	266.1	169.6
26	2046	2047				5707.5	5707.5	8590.3	2882.8	771.7	478.9	299.8	1161.4	720.8	451.2	389.8	241.9	151.4
27	2047	2048				5707.5	5707.5	8590.3	2882.8	714.5	435.4	267.6	1075.4	655.2	402.8	360.9	219.9	135.2
28	2048	2049				5707.5	5707.5	8590.3	2882.8	661.6	395.8	239.0	995.7	595.7	359.7	334.2	199.9	120.7
29	2049	2050				5707.5	5707.5	8590.3	2882.8	612.6	359.8	213.4	922.0	541.5	321.1	309.4	181.7	107.8
			28805.2	**2734.1**	**26071.0**	160024.1	**186095.1**	**240745.3**	**54650.1**	**81476.5**	**70691.4**	**62463.2**	**88711.9**	**73612.2**	**62286.9**	**7235.4**	**2920.8**	**-176.3**
													Net Present Value			7235.37	2920.79	-176.28
													Benefit Cost Ratio			1.09	1.04	1.00
													IFRR			**11.87%**		

ANNEX-B

ESTIMATE OF PROJECT COST

LIST OF TABLES

Table-B-1
BILL OF QUANTITIES

No.	Description	Unit	QUANTITIES					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
A	**New H.T Line**							
1)	**Urban Areas (45%)**							
a.	Osprey (30%)	KM	53.7	64.4	71.6	78.7	89.4	358
b.	Dog (40%)	KM	71.6	85.9	95.4	104.9	119.3	477
c.	Rabbit (30%)	KM	53.7	64.4	71.6	78.7	89.4	358
	Sub-Total		**178.9**	**214.7**	**238.5**	**262.4**	**298.1**	**1192.5**
2)	**Rural Areas (55%)**							
a.	Dog (40%)	KM	87.45	104.94	116.6	128.26	145.75	583
b.	Rabbit (60%)	KM	131.175	157.41	174.9	192.39	218.625	874.5
	Sub-Total		**218.62**	**262.35**	**291.5**	**320.65**	**364.37**	**1457.5**
	Total of H.T Line (1+2)		**397.50**	**477.00**	**530.00**	**583.00**	**662.50**	**2650.00**
B	**New L.T Line,**							
1)	**3-Phase (80%)**							
a.	AAC Wasp (40%)	KM	69.12	82.944	92.16	101.376	115.2	460.8
b.	AAC Ant (60%)	KM	103.68	124.416	138.24	152.064	172.8	691.2
	Sub-Total		172.8	207.36	230.4	253.44	288	1152
2)	**1-Phase (20%)**							
	AAC Ant (100%)	KM	43.20	51.84	57.60	63.36	72.00	288.00
	Total of L.T Line (1+2))		**216.00**	**259.20**	**288.00**	**316.80**	**360.00**	**1440.00**

Table-B-1
BILL OF QUANTITIES

No.	Description	Unit	QUANTITIES					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
C	**Sub-Stations**							
a.	25 KVA	NO.	223	268	298	328	372	1489
b.	50 KVA	NO.	168	201	223	246	279	1117
c.	100 KVA	NO.	98	117	130	143	163	652
d.	200 KVA	NO.	31	38	42	46	52	209
e.	400 KVA	NO.	7	8	9	10	12	47
f.	630 KVA	NO.	3	4	4	5	6	22
	Sub-Total		**530**	**636**	**707**	**778**	**884**	**3536**
D	**Service Connections**							
a.	Single Phase	NO.	9792	11750	13056	14362	16320	65280
b.	Three Phase	NO.	2453	2943	3270	3597	4088	16352
c.	TOU Meter (MDI)	NO.	431	517	575	632	718	2873
	Sub-Total		**12676**	**15211**	**16901**	**18591**	**21126**	**84505**

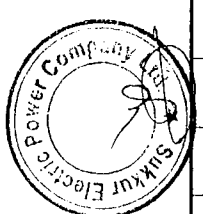


Table-B-1
BILL OF QUANTITIES

No.	Description	Unit	QUANTITIES					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
E	**MATERIAL CHARGEABLE TO CONSUMERS:**							
1)	**New H.T Line**							
a)	**Urban Areas (45%)**							
i)	Osprey (30%)	KM	21.47	25.76	28.62	31.48	35.78	143.10
ii)	Dog (40%)	KM	28.62	34.34	38.16	41.98	47.70	190.80
iii)	Rabbit (30%)	KM	21.47	25.76	28.62	31.48	35.78	143.10
	Sub-Total		**71.55**	**85.86**	**95.40**	**104.94**	**119.25**	**477.00**
b)	**Rural Areas (55%)**							
i)	Dog (40%)	KM	34.98	41.98	46.64	51.30	58.30	233.2
ii)	Rabbit (60%)	KM	52.47	62.96	69.96	76.96	87.45	349.8
	Sub-Total		**87.45**	**104.94**	**116.60**	**128.26**	**145.75**	583.00
	Total of H.T Line		**159.00**	**190.80**	**212.00**	**233.20**	**265.00**	**1060.00**
2)	**New L.T Line,**							
a)	**3-Phase (80%)**							
i)	AAC Wasp (40%)	KM	41.47	49.77	55.30	60.83	69.12	276.48
ii)	AAC Ant (60%)	KM	62.21	74.65	82.94	91.24	103.68	414.72
	Sub-Total		**103.68**	**124.416**	**138.24**	**152.064**	**172.8**	**691.20**
b)	**1-Phase (20%)**							
	AAC Ant (100%)	KM	25.92	31.10	34.56	38.02	43.20	172.80
	Total of L.T Line		**129.60**	**155.52**	**172.80**	**190.08**	**216.00**	**864.00**

Table-B-2
BILL OF QUANTITIES

No.	Description	Unit	QUANTITIES					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
3	**Sub-Stations**							
a.	25 KVA	NO.	134	161	179	197	223	894
b.	50 KVA	NO.	101	121	134	147	168	670
c.	100 KVA	NO.	59	70	78	86	98	391
d.	200 KVA	NO.	19	23	25	28	31	126
e.	400 KVA	NO.	4	5	6	6	7	28
f.	630 KVA	NO.	2	2	3	3	3	13
	Sub-Total		**318**	**382**	**424**	**467**	**530**	**2122**
4	**Service Connections**							
a.	Single Phase	NO.	9792	11750	13056	14362	16320	65280
b.	Three Phase	NO.	2453	2943	3270	3597	4088	16352
c.	L.T TOU Meter	NO.	431	517	575	632	718	2873
	Sub-Total		**12676**	**15211**	**16901**	**18591**	**21126**	**84505**

Sukkur Electric Power Company Ltd.

Table-B-2
CAPITAL COST ESTIMATES

No.	Description	Unit	COST (RS. IN THOUSANDS)					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
A	**New H.T Line**							
1	**Urban Areas (45%)**							
a.	Osprey (30%)	KM	175009.50	210011.40	233346.00	256680.60	291682.50	1166730.01
b.	Dog (40%)	KM	116295.97	139555.17	155061.30	170567.43	193826.62	775306.49
c.	Rabbit (30%)	KM	66864.03	80236.84	89152.04	98067.24	111440.05	445760.20
	Sub-Total		**358169.50**	**429803.41**	**477559.34**	**525315.27**	**596949.17**	**2387796.70**
2	**Rural Areas (55%)**							
a.	Dog (40%)	KM	142139.52	170567.43	189519.36	208471.30	236899.20	947596.82
b.	Rabbit (60%)	KM	163445.41	196134.49	217927.21	239719.93	272409.01	1089636.05
	Sub-Total		**305584.93**	**366701.92**	**407446.57**	**448191.23**	**509308.22**	**2037232.87**
	Total of H.T Line (1+2)		**663754.43**	**796505.32**	**885005.91**	**973506.50**	**1106257.39**	**4425029.57**
B	**New L.T Line,**							
1	**3-Phase (80%)**							
a.	AAC Wasp (40%)	KM	101880.06	122256.07	135840.08	149424.09	169800.10	679200.39
b.	AAC Ant (60%)	KM	103967.55	124761.06	138623.40	152485.75	173279.26	693117.02
	Sub-Total		205847.61	247017.13	274463.48	301909.83	343079.35	1372317.41
2	**1-Phase (20%)**							
	AAC Ant (100%)	KM	32928.17	39513.81	43904.23	48294.65	54880.29	219521.14
	Total of L.T Line (1+2))		**238775.78**	**286530.94**	**318367.71**	**350204.48**	**397959.64**	**1591838.55**
	Sub-Total of H.T/L.T Line (A+B)		**902530.22**	**1083036.26**	**1203373.62**	**1323710.99**	**1504217.03**	**6016868.12**

Table-B-2
CAPITAL COST ESTIMATES

No.	Description	Unit	COST (RS. IN THOUSANDS)					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
C	**Sub-Stations**							
a.	25 KVA	NO.	69667.55	83601.06	92890.06	102179.07	116112.58	464450.32
b.	50 KVA	NO.	69105.03	82926.04	92140.05	101354.05	115175.06	460700.23
c.	100 KVA	NO.	75437.37	90524.84	100583.16	110641.48	125728.95	502915.80
d.	200 KVA	NO.	31536.16	37843.39	42048.21	46253.03	52560.26	210241.06
e.	400 KVA	NO.	8590.39	10308.47	11453.86	12599.24	14317.32	57269.29
f.	630 KVA	NO.	4905.06	5886.07	6540.08	7194.09	8175.10	32700.40
	Sub-Total		**259241.57**	**311089.88**	**345655.42**	**380220.96**	**432069.28**	**1728277.10**
D	**Service Connections**							
a.	Single Phase	NO.	56605.70	67926.84	75474.26	83021.69	94342.83	377371.31
b.	Three Phase	NO.	64236.44	77083.73	85648.58	94213.44	107060.73	428242.92
c.	TOU Meter (MDI)	NO.	39940.02	47928.03	53253.36	58578.70	66566.70	266266.82
	Sub-Total		**160782.16**	**192938.59**	**214376.21**	**235813.83**	**267970.26**	**1071881.05**
E	Total of Sub-Stations & Connections (C+D)		420023.72	504028.47	560031.63	616034.79	700039.54	2800158.15
F	Total of H.T/L.T Line (A+B, Page -1)		902530.22	1083036.26	1203373.62	1323710.99	1504217.03	6016868.12
G	**Total Cost of Material (E + F)**		**1322553.94**	**1587064.73**	**1763405.25**	**1939745.78**	**2204256.57**	**8817026.27**
H	Cost To Be Recovered From Consumers (Page-4)		880989.62	1080680.61	1200756.23	1320831.85	1500945.29	**5984203.59**
I	**Net Cost of Material (G - H)**		**441564.32**	**506384.12**	**562649.03**	**618913.93**	**703311.28**	**2832822.68**
J	Installation Charges (@ 24.2% of I)		106858.56	122544.96	136161.06	149777.17	170201.33	685543.09
K	**Total Cost of Construction (I + J) Un-Escalated**		**548422.88**	**628929.08**	**698810.09**	**768691.10**	**873512.61**	**3518365.77**
L	Escalation Cost (@ 6.5% of K)		35647.49	81760.78	136267.97	199859.69	283891.60	737427.52
M	**Escalated Cost of Construction (K + L)**		**584070.37**	**710689.86**	**835078.06**	**968550.79**	**1157404.21**	**4255793.29**

NOTE: Installation Charges include 1.2% Consultancy Charges & 23% Construction Charges Breakup of 23% Construction Charges
a. Labour & Overhead 8%
b. Transportation & Store Handling 12%
c. Audit & Accounts 3%

Table-B-2
CAPITAL COST ESTIMATES

No.	Description	Unit	COST (RS. IN THOUSANDS)					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
H	COST RECOVERABLE FROM CONSUMERS:							
1)	New H.T Line							
a)	Urban Areas (45%)							
i)	Osprey (30%)	KM	70003.80	84004.56	93338.40	102672.24	116673.00	466692.00
ii)	Dog (40%)	KM	46518.39	55822.07	62024.52	68226.97	77530.65	310122.60
iii)	Rabbit (30%)	KM	26745.61	32094.73	35660.82	39226.90	44576.02	178304.08
	Sub-Total		**143267.80**	**171921.36**	**191023.74**	**210126.11**	**238779.67**	**955118.68**
b)	Rural Areas (55%)							
i)	Dog (40%)	KM	56855.81	68226.97	75807.75	83388.52	94759.68	379038.73
ii)	Rabbit (60%)	KM	65378.16	78453.80	87170.88	95887.97	108963.60	435854.42
	Sub-Total		**122233.97**	**146680.77**	**162978.63**	**179276.49**	**203723.29**	**814893.15**
	Total of H.T Line (a+b)		**265501.77**	**318602.13**	**354002.37**	**389402.60**	**442502.96**	**1770011.83**
2)	New L.T Line,							
a)	3-Phase (80%)							
i)	AAC Wasp (40%)	KM	61128.03	73353.64	81504.05	89654.45	101880.06	407520.23
ii)	AAC Ant (60%)	KM	62380.53	74856.64	83174.04	91491.45	103967.55	415870.21
	Sub-Total		**123508.57**	**148210.28**	**164678.09**	**181145.90**	**205847.61**	**823390.45**
b)	1-Phase (20%)							
i)	AAC Ant (100%)	KM	19756.90	23708.28	26342.54	28976.79	32928.17	131712.69
	Total of L.T Line (a+b))		**143265.47**	**171918.56**	**191020.63**	**210122.69**	**238775.78**	**955103.13**
	Sub-Total of H.T/L.T Line (1+2)		**408767.24**	**490520.69**	**545022.99**	**599525.29**	**681278.74**	**2725114.96**

Table-B-2
CAPITAL COST ESTIMATES

No.	Description	Unit	COST (RS. IN THOUSANDS)					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
3	**Sub-Stations**							
a.	25 KVA	NO.	41800.53	50160.63	55734.04	61307.44	69667.55	278670.19
b.	50 KVA	NO.	41463.02	49755.63	55284.03	60812.43	69105.03	276420.14
c.	100 KVA	NO.	45262.42	54314.91	60349.90	66384.89	75437.37	301749.48
d.	200 KVA	NO.	18921.70	22706.03	25228.93	27751.82	31536.16	126144.63
e.	400 KVA	NO.	5154.24	6185.08	6872.31	7559.55	8590.39	34361.57
f.	630 KVA	NO.	2943.04	3531.64	3924.05	4316.45	4905.06	19620.24
	Sub-Total		**155544.94**	**186653.93**	**207393.25**	**228132.58**	**259241.57**	**1036966.26**
4	**Service Connections**							
a.	Single Phase	NO.	56605.70	67926.84	75474.26	83021.69	94342.83	377371.31
b.	Three Phase	NO.	64236.44	77083.73	85648.58	94213.44	107060.73	428242.92
c.	L.T TOU Meter	NO.	39940.02	47928.03	53253.36	58578.70	66566.70	266266.82
	Sub-Total		**160782.16**	**192938.59**	**214376.21**	**235813.83**	**267970.26**	**1071881.05**
Sub-Total of H.T/L.T Line (1+2)			408767.24	490520.69	545022.99	599525.29	681278.74	2725114.96
Sub-Total of Sub-Stations & Service Connections (3+4)			316327.10	379592.52	421769.46	463946.41	527211.83	2108847.31
Sub-Total of H.T/L.T Line			725094.34	870113.21	966792.45	1063471.7	1208490.57	4833962.27
Installation Charges (@ 21.2%)			155895.28	210567.40	233963.77	257360.15	292454.72	1150241.32
Total Cost To Be Recovered From Consumers			**880989.62**	**1080680.6**	**1200756.2**	**1320831.9**	**1500945.29**	**5984203.59**

Table B-3
COST ESTIMATES (CIVIL WORKS)

i) New Office Buildings Proposed Under Distribution Expansion Project (Future Expansion):

Sr. #	Proposed Office	Quantity (No.)	Tentative Cost (Rs. In Million)	Stipulated Period of Completion	Proposed Expenditure (Rs. In Million)				
					2020-21	2021-22	2022-23	2023-24	2024-25
1	Circle office (S.E Operation)	01	45.00	2-Years		-	-	20.000	25.000
2	Division offices (XEN Operation)	02	60.00	2-Year	-	-	-	40.000	20.000
3	Sub-Divisional offices (SDOs Operation)	07	105.00	- - do - -	-	-	-	60.000	45.000
	Sub-Total (i)		**210.00**	**2-Years**	-	-	-	**120.0**	**90.0**
4	**Escalation @ 6.5% Per Annum**		**60.450**					**31.20**	**29.25**
	Total Escalated Cost		**270.45**	**5-Years**				**151.20**	**119.25**

Table B-3
COST ESTIMATES (CIVIL WORKS)

ii) New Residential Buildings (Required For Existing Set-Up):

Sr. #	Proposed Office	Quantity (No.)	Tentative Cost (Rs. In Million)	Stipulated Period of Completion	Proposed Expenditure (Rs. In Million)				
					2020-21	2021-22	2022-23	2023-24	2024-25
2	D-Type Quarters @ New Created offices	15	60.0	3-Years	-	-	20.000	20.000	20.000
3	E-Type Quarters @ New Created offices	21	63.0	3-Years	-	-	21.000	21.000	21.000
4	F-Type Quarters @ New Created offices	24	60.0	3-Years	-	-	20.000	20.000	20.000
5	A-Type Bungalow @ Sukkur Arain Grid	1	30.0	3-Years	-	-	10.000	20.000	-
6	B-Type Bungalow @ New Created offices and at Sukkur	8	81.2	3-Years	-	-	21.200	25.000	35.000
7	C-Type Bungalow @ New Created offices and at Sukkur	8	64.0	3-Years	-	-	20.000	22.000	22.000
8	Metalled Road for Residential Colonies	3	30.000	3-Years	-	-	10.000	10.000	10.000
9	Boundary Walls for Residential Colonies	8	24.000	3-Years	-	-	8.000	8.000	8.000
10	Sewerage / Water Supply Lines for Residential Colonies	9	26.100	3-Years	-	-	8.000	8.100	10.000
	Sub-Total (ii)	-	**438.30**	**3-Years**	**0.00**	**0.00**	**138.2**	**154.1**	**146.00**
	Escalation @ 6.5% Per Annum		**114.46**				**26.94**	**40.06**	**47.45**
	Total Escalated Cost		**552.76**				**165.14**	**194.16**	**193.45**
	Grand Total (I & ii)	-	**823.21**	**5-Years**	**0.00**	**0.00**	**165.14**	**345.36**	**312.7**

Table B-4
SUMMARY COST OF VEHICLES REQUIRED

Sr. #	Description	Unit	QUANTITIES						TOTAL COST RS. (Millions)					
			2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL	2020-21	2021-22	2022-23	2023-24	2024-25	TOTAL
1.	Single Cabin Pick-up	NO.	0	6	6	6	6	24	-	22.674	22.674	22.674	22.674	90.70
2.	D/Cabin Pick-up	NO.	0	1	1	1	1	4	-	6	6	6	6	24.00
4.	Suzuki Culuts Car	NO.	0	1	1	1	1	4	-	2.1	2.1	2.1	2.1	8.40
5.	Toyota Car XLI	NO.	0	1	1	1	1	4	-	3.5	3.5	3.5	3.5	14.00
7.	Bucket Mounted Truck	NO.	0	0	1	1	1	3	-	0.00	6.05	6.05	6.05	18.15
8.	Trucks	NO.	0	1	1	1	1	4	-	8.00	8.00	8.00	8.00	32.00
	TOTAL	NO.	0	**10**	**11**	**11**	**11**	**43**	-	**42.274**	**48.324**	**48.324**	**48.324**	187.25
13	**Escalation @ 6.5% Per Annum**								-	5.496	9.423	12.564	15.705	43.19
	Total Escalated Cost								**-**	**47.770**	**57.747**	**60.888**	**64.029**	**230.43**

Sukkur Electric Power Company Ltd.

Table B-5

SUMMARY COST OF T&P

S#	NAME OF T& P	QTY	RATE (RS)	COST (RS)
	A) LINE MAN T & P			
1	EARTHING SET	48	11057	530735
2	EARTH TESTER	48	3150	151182
3	MAGGER (1000 VOLTS)	24	20674	496177
4	MEASURING TAPE	24	1569	37665
5	FIBER GLASS EXTENSION LADDER	36	62759	2259327
6	CUFFING HOIST (1500 KG)	24	11932	286363
7	CUFFING HOIST (750 KG)	24	8923	214141
8	GALVANIZED STEEL BUCKET	12	2585	31015
9	FIRE EXTINGUISHER	12	2954	35443
10	CLIP ON VOLT AMPT METER	12	39871	478449
11	CLIP ON KW METER	12	39871	478449
12	STOP WATCH	24	1912	45883
12	BLACK SMITH ANVIL (76 KG)	24	2768	66444
13	CHAIN PULLLEY BLOCK (3 TON)	24	1846	44315
14	CHAIN PLLEY BLOCK (5 TON)	12	16716	200594
15	NYLON ROPE (19MM DIA)	24	12508	300186
16	PICK AXES	24	88	2120
17	KASSIES	24	221	5314
18	FIRST AID BOX	24	1661	39872
19	D.E.O J SPANNER 9/6" X 5/8")	24	1200	28808
20	D.E.O J SPANNER 5/8" X 3/4")	24	1200	28808
21	PULLING GRIP (6-10')	24	3363	80702
22	PULLING GRIP (12-15')	24	4418	106025
23	HAMMERS	24	148	3543
24	ADJUSTABLE SCREW WRENCH	48	480	23058
25	LINE MAN TOOL BAG	48	702	33686
26	LINE MAN KNIFE	48	63	3020
27	TORCH 3 CELLS	96	173	16611
	SUB-TOTAL		**0**	**6027934**
	B) PERSONAL PROTECTIVE T & P			
1	SAFETY HAT INSULATED	108	505	54540
2	LINE MAN SAFETY BELT	72	4200	302400
3	PROTECTIVE RUBBER GLOVES (PAIR)	72	1185	85298
4	PROTECTIVE LATHER GLOBES (PAIR)	72	234	16870
5	LINE MAN SAFETY BOOTS (8,9,10 SIZE)	108	2340	252720
6	LIVE WIRE TESTER (4000 VOLTS)	12	12000	144000
7	INSULATED SCREW DRIVER	72	87	6257
8	RAIN COAT	120	879	105468
9	D-OPERATING ROD	36	4027	144976
10	INSULATED PLYER	72	252	18137
SUB-TOTAL				**1130665**
Total Un-Escalated				**7698471**
Escalation @ 6.5% Per Annum				**3436127**
Total Escalated Cost				**10594727**

Table B-6

MANPOWER REQUIRED

A) For Operation Circle:

Sr. #	Post	Quantity Required					
		2020-21	2021-22	2022-23	2023-24	2024-25	Total
1	Manager (Operation)	-	-	-	1	-	1
2	Steno Grade – I	-	-	-	1	-	1
3	Dy. Manager (Tech)	-	-	-	1	-	1
4	Dy. Commercial Manager	-	-	-	1	-	1
5	Assistant Manager (Admn)	-	-	-	1	-	1
6	Recovery Mukhtiarkar	-	-	-	1	-	1
7	Technical Assistant	-	-	-	1	-	1
8	Commercial Assistant	-	-	-	1	-	1
9	Steno Grade – II	-	-	-	1	-	1
10	Head Draughtsman	-	-	-	1	-	1
11	Tracer	-	-	-	2	-	2
12	Clerk	-	-	-	4	-	4
16	Driver	-	-	-	3	-	3
17	Naib Qasid (Peon)	-	-	-	3	-	3
18	Security Guard	-	-	-	3	-	3
19	Sweeper	-	-	-	1	-	1
	TOTAL	**-**	**-**	**-**	**26**	**-**	**26**

B) For 2-Operation Divisions:

Sr. #	Post	Quantity Required						
		For 1 Office	2020-21	2021-22	2022-23	2023-24	2024-25	Total
1	Executive Engineer	1	-	-	-	2	-	2
2	Accounts Officer	1	-	-	-	2	-	2
.3	Accounts Asstt:	2	-	-	-	4	-	4
4	Line Supdt:-1	1	-	-	-	2	-	2
5	Stenographer (G-II)	1	-	-	-	2	-	2
6	Draughtsman	1	-	-	-	2	-	2
7	Tracer	2	-	-	-	4	-	4
8	Clerk	4	-	-	-	8	-	8
9	Driver	2	-	-	-	4	-	4
10	Cleaner	1				2	-	2
11	Naib Qasid (Peon)	2	-	-	-	4	-	4
12	Guard	2	-	-	-	4	-	4
13	Sweeper	1	-	-	-	2	-	2
	TOTAL	**21**	**-**	**-**	**-**	**42**	**-**	**42**

Table B-6
MANPOWER REQUIRED

C) For 7-Operation Sub-Divisions:

Sr. #	Post	Quantity Required						
		For 1 Office	2020-21	2021-22	2022-23	2023-24	2024-25	Total
1	Sub Div: Officer	1	0	0	0	7	0	7
2	Line Supdt:-1	2	0	0	0	14	0	14
3	Line Supdt:-2	3	0	0	0	21	0	21
4	Meter Supervisor	1	0	0	0	7	0	7
5	Meter Reader	5	0	0	0	35	0	35
6	Bill Distributer	5	0	0	0	35	0	35
7	Line Man-1	9	0	0	0	63	0	63
8	Line Man-II	9	0	0	0	63	0	63
9	Asstt: Line Man	18	0	0	0	126	0	126
10	Tel: Compl: Clerk	3	0	0	0	21	0	21
11	Clerk	3	0	0	0	21	0	21
12	Driver	3	0	0	0	21	0	21
13	Naib Qasid (Peon)	2	0	0	0	14	0	14
14	Cleaner	2	0	0	0	14	0	14
15	Guard	2	0	0	0	14	0	14
16	Sweeper	1	0	0	0	7	0	7
	TOTAL	**69**	**0**	**0**	**0**	**483**	**0**	**483**

D) For 2-Revenue Offices:

Sr. #	Post	Quantity Required						
		For 1 Office	2020-21	2021-22	2022-23	2023-24	2024-25	Total
1	Asstt: Manager (RO)	1	-	-	-	2	-	**2**
2	Comm: Asstt:	6	-	-	-	12	-	**12**
3	Data Control Supervisor	1	-	-	-	2	-	**2**
4	Computer Operator	1	-	-	-	2	-	**2**
5	Clerk	9	-	-	-	18	-	**18**
6	Naib Qasid (Peon)	1	-	-	-	2	-	**2**
7	Guard	1	-	-	-	2	-	**2**
8	Sweeper	1	-	-	-	2	-	**2**
	TOTAL	**21**	**-**	**-**	**-**	**42**	**-**	**42**

Table B-7

PHYSICAL AND OTHER FACILITATES REQUIRED FOR PROJECT

No.	Item	To Be Provided From The Project
1.	a) Access Road	Not Required
	b) Railway Siding	Not Required
	c) Fuel and Power	Would be available at site
	d) Water & Other Utilities	Would be available at site
	e) Education Facilities by Type	Not Required
	f) Public Health requirement	Not Required
	g) Housing by Type	Included in the project
	Category-I	
	Category-II	
	Category-III	
	Category-IV	
	Category-V	
2.	Office Accommodation	Included in the project
	Chief Executive's Office	
	Superintending Engineers	
	Executive Engineers	
	Revenue Office(s)	
	Sun-Divisional Officer	
3.	Community Centers	
	Mosques	

ANNEX-C

IMPLEMENTATION SCHEDULES

LIST OF ANNEXURES

Annex: C-1 IMPLEMENTATION SCHEDULE (2020-21 TO 2024-25)

Annex: "C-1"

Implementation Schedule (2020-21 to 2024-25)

Action/Month	2020-21												2021-22											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Design, Drawing and preparation of Bidding Documents																								
Invitation of Bids, Evaluation and Award of Contract																								
Civil Works																								
Supply of Equipment																								
Installation and Erection																								
Testing & Commissioning																								

1= Preparation of Tender Document, 2= Approval of tender document, 3= Floating & opening of tender document,
4= Award of Contract, 5= Delivery Period

First set of procurement schedule (Starting from July 2014) = 40% of the total cost of the tender
Second set of procurement schedule (Starting from December 2015) = 30% of the total cost of the tender
Third set of procurement schedule (Starting from June 2016) = 30% of the total cost of the tender

Annex: "C-1"

Implementation Schedule (2020-21 to 2024-25)

Action/Month	2022-23												2023-24											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Design, Drawing and preparation of Bidding Documents																								
Invitation of Bids, Evaluation and Award of Contract																								
Civil Works																								
Supply of Equipment																								
Installation and Erection																								
Testing & Commissioning																								

Annex: "C-1"

Implementation Schedule (2020-21 to 2024-25)

v

Action/Month	2024-25											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
	1	2	3	4	5	6	7	8	9	10	11	12
Design, Drawing and preparation of Bidding Documents												
Invitation of Bids, Evaluation and Award of Contract												
Civil Works												
Supply of Equipment												
Installation and Erection												
Testing & Commissioning												

ANNEXURE – "D"

UNIT PRICES

LIST OF TABLES:

Table D-1

MATERIAL REQUIREMENT OF ONE KM OF NEW 11 KV LINE WITH ACSR OSPREY (USING 5-1L, 1-2L, 1-4L, 1-10L, 1-20L, 1-22L ASSEMBLIES)

SR #	DESCRIPTION	UNIT	QTY/KM		QTY/KM		TOTAL	RATE RS	AMOUNT RS.
			PC	STR	80% PC	20% STR			
1	H.T pc pole	NO.	14		11	0	11	23243	255670
2	H.T Structure	NO.	0	14	0	3	3	173275	519825
3	ACSR OSPREY	KM.	0		0	0	3.15	673980	2123037
4	Foundations For H.T Structure	NO.	0	14	0	3	3	25500	76500
5	Steel Cross Arm	NO.	17	17	14	3	17	4643	78924
6	Cross Arm braces	NO.	34	34	27	7	34	0	0
7	Insulator Pins	NO.	43	43	34	9	43	535	23020
8	11 KV Pin Insulator	NO.	43	43	34	9	43	494	21222
9	Disc Insulator	NO.	18	18	14	4	18	2029	36524
10	Dead End Clamps	NO.	15	15	12	3	15	223	3352
11	Eye Nut	NO.	21	21	17	4	21	143	3011
12	Double Arming Bolt 5/8x12"	NO.	2	2	2	0	2	176	351
13	Double Arming Bolt 5/8x14"	NO.	1	0	1	0	1	200	160
14	Double Arming Bolt 5/8x20"	NO.	11	11	9	2	11	235	2590
15	Round Washer 1" Dia 7/16" hole	NO.	34	34	27	7	34	14	488
16	SQ Washers 2.25"x 2.25" 11/16"	NO.	41	41	33	8	41	18	735
17	P.G Connector T-150	NO.	12	12	10	2	12	693	8317
18	P.G Connector T-155	NO.	34	34	27	7	34	185	6298
19	P.G Connector T-110	NO.	0	14	0	3	3	448	1344
20	M.S Bolt 3/8" x 6"	NO.	9	0	7	0	7	117	820
21	M.S Bolt 5/8" x 2"	NO.	2	0	2	0	2	41	81
22	M.S Bolt 5/8" x 9"	NO.	11	11	9	2	11	92	1012
23	M.S Bolt 5/8" x 10"	NO.	1	1	1	0	1	104	104
24	M.S Bolt 5/8" x 12"	NO.	1	1	1	0	1	120	120
25	Stay Rod (Complete Assembly)	NO.	12	12	10	2	12	1905	22858
26	Stay Wire 10 mm Dia	KG	72	72	58	14	72	247	17810
27	Mid Span Sleeve	NO.	5	5	4	1	5	359	1793
28	Repair Sleeve	NO.	1	1	1	0	1	179	179
29	Danger Plat	NO.	0	14	0	3	3	538	1613
30	Earthling Set	NO.	0	14	0	3	3	1782	5345
	TOTAL	Rs.							3213103
31	Misc: Material (1.5%)	L/S							48197
	TOTAL COST (Rs.)								**3261300**

Table D-2

MATERIAL REQUIREMENT OF ONE KM OF NEW 11 KV LINE WITH ACSR DOG (USING 5-1L, 1-2L, 1-4L, 1-10L, 1-20L, 1-22L ASSEMBLIES)

SR #	DESCRIPTION	UNIT	QTY/KM		QTY/KM		TOTAL	RATE Rs	AMOUNT RS.
			PC	STR	80% PC	20% STR			
1	H.T pc pole	NO.	10		8	0	8	23243	185942
2	H.T Structure	NO.	0	10	0	2	2	173275	346550
3	ACSR DOG	KM.	0		0	0	3.15	261278	823027
4	Foundations For H.T Structure	NO.	0	10	0	2	2	25500	51000
5	Steel Cross Arm	NO.	14	14	11	3	14	4643	64996
6	Cross Arm braces	NO.	28	28	22	6	28	0	0
7	Insulator Pins	NO.	34	34	27	7	34	535	18202
8	11 KV Pin Insulator	NO.	34	34	27	7	34	494	16780
9	Disc Insulator	NO.	18	18	14	4	18	2029	36524
10	Dead End Clamps	NO.	15	15	12	3	15	223	3352
11	Eye Nut	NO.	20	20	16	4	20	143	2868
12	Double Arming Bolt 5/8x12"	NO.	2	2	2	0	2	176	351
13	Double Arming Bolt 5/8x14"	NO.	2	1	2	0	2	200	399
14	Double Arming Bolt 5/8x20"	NO.	11	11	9	2	11	235	2590
15	Round Washer 1" Dia 7/16" hole	NO.	28	28	22	6	28	14	402
16	SQ Washers 2.25"x 2.25" 11/16"	NO.	38	38	30	8	38	18	681
17	P.G Connector T-150	NO.	8	8	6	2	8	693	5545
18	P.G Connector T-155	NO.	8	8	6	2	8	185	1482
19	P.G Connector T-110	NO.	8	8	6	2	8	448	3585
20	M.S Bolt 3/8" x 6"	NO.	24	28	19	6	25	117	2928
21	M.S Bolt 5/8" x 2"	NO.	4	12	3	2	6	41	244
22	M.S Bolt 5/8" x 9"	NO.	6	0	5	0	5	92	460
23	M.S Bolt 5/8" x 10"	NO.	2	0	2	0	2	104	208
24	M.S Bolt 5/8" x 12"	NO.	8	8	6	2	8	120	956
25	Stay Rod (Complete Assembly)	NO.	8	8	6	2	8	1905	15239
26	Stay Wire 10 mm Dia	KG	48	48	38	10	48	247	11874
27	Mid Span Sleeve	NO.	1	1	1	0	1	359	359
28	Repair Sleeve	NO.	1	1	1	0	1	179	179
29	Danger Plat	NO.	0	10	0	2	2	538	1076
30	Earthling Set	NO.	0	10	0	2	2	1782	3563
	TOTAL	Rs.							1601360
31	Misc: Material (1.5%)	L/S							24020
	TOTAL COST (Rs.)								**1625380**

Table D-3

MATERIAL REQUIREMENT OF ONE KM OF NEW 11 KV LINE WITH ACSR RABBIT (USING 5-1L, 1-2L, 1-4L, 1-10L, 1-20L, 1-22L ASSEMBLIES)

SR #	DESCRIPTION	UNIT	QTY/KM		QTY/KM		TOTAL	RATE RS	AMOUNT RS.
			PC	STR	80% PC	20% STR			
1	H.T pc pole	NO.	10		8	0	8	23243	185942
2	H.T Structure	NO.	0	10	0	2	2	173275	346550
3	ACSR RABBIT	KM.	0		0	0	3.15	142623	449263
4	Foundations For H.T Structure	NO.	0	10	0	2	2	25500	51000
5	Steel Cross Arm with braces	NO.	14	14	11	3	14	4643	64996
6	Cross Arm braces	NO.	28	28	22	6	28	0	0
7	Insulator Pins	NO.	34	34	27	7	34	535	18202
8	11 KV Pin Insulator	NO.	34	34	27	7	34	494	16780
9	Disc Insulator	NO.	18	18	14	4	18	2029	36524
10	Dead End Clamps	NO.	15	15	12	3	15	223	3352
11	Eye Nut	NO.	20	20	16	4	20	143	2868
12	Double Arming Bolt 5/8x12"	NO.	2	2	2	0	2	176	351
13	Double Arming Bolt 5/8x14"	NO.	2	1	2	0	2	200	399
14	Double Arming Bolt 5/8x20"	NO.	11	11	9	2	11	235	2590
15	Round Washer 1" Dia 7/16" hole	NO.	28	28	22	6	28	14	402
16	SQ Washers 2.25"x 2.25" 11/16"	NO.	38	38	30	8	38	18	681
17	P.G Connector T-150	NO.	8	8	6	2	8	693	5545
18	P.G Connector T-155	NO.	8	8	6	2	8	185	1482
19	P.G Connector T-110	NO.	8	8	6	2	8	448	3585
20	M.S Bolt 3/8" x 6"	NO.	24	28	19	6	25	117	2928
21	M.S Bolt 5/8" x 2"	NO.	4	12	3	2	6	41	244
22	M.S Bolt 5/8" x 9"	NO.	6	0	5	0	5	92	460
23	M.S Bolt 5/8" x 10"	NO.	2	0	2	0	2	104	208
24	M.S Bolt 5/8" x 12"	NO.	8	8	6	2	8	120	956
25	Stay Rod (Complete Assembly)	NO.	8	8	6	2	8	1905	15239
26	Stay Wire 10 mm Dia	KG	48	48	38	10	48	247	11874
27	Mid Span Sleeve	NO.	1	1	1	0	1	359	359
28	Repair Sleeve	NO.	1	1	1	0	1	179	179
29	Danger Plat	NO.	0	10	0	2	2	538	1076
30	Earthling Set	NO.	0	10	0	2	2	1782	3563
	TOTAL	Rs.							1227596
31	Misc: Material (1.5%)	L/S							18414
	TOTAL COST (Rs.)								1246010

Table D-4

MATERIAL REQUIREMENT ONE KM OF NEW 3-PHASE, 4-WIRE, LT LINE WITH AAC ANT (USING 13 TANGENT, 3 LIGHT, 2 HEAVY ANGLES & 2 DEAD END ASSEMBLIES)

S#	DESCRIPTION	UNIT	QTY/KM		QTY/KM		TOTAL	RATE RS.	AMOUNT (Rs.)
			PC	STR	PC 80%	STR 20%			
1	L.T PC POLE	NO.	20	0	16	0	16	17328	277240
2	L.T Structure	NO.	0	20	0	4	4	41825	167300
3	AAC ANT	KM	0	0	0	0	4.2	98528	413817
4	Foundations for L.T Structure	NO.	0	20	0	4	4	8500	34000
5	D-Shakle Assembly	NO.	80	80	64	16	80	191	15296
6	LT spool insulator	NO.	80	80	64	16	80	227	18164
7	Loop Dead Clamp	NO.	16	16	13	3	16	96	1530
8	Stay Rod Assembly	NO.	8	8	6	2	8	1905	15239
9	P.G Connector T-110	NO.	8	8	6	2	8	448	3585
10	P.G Connector T-150	NO.	8	8	6	2	8	693	5545
11	P.G Connector T-155	NO.	8	8	6	2	8	185	1482
12	P.G Connector T-220	NO.	8	8	6	2	8	884	7074
13	M.S Bolt 5/8" x 2"	NO.	0	80	0	16	16	41	650
14	M.S Bolt 5/8" x 9"	NO.	40	0	32	0	32	92	2944
15	M.S Bolt 5/8" x 10"	NO.	40	0	32	0	32	104	3327
16	Stay Wire 10 mm Dia	NO.	48	48	38	10	48	247	11874
17	Soft Annealed Tie Wire	NO.	5	5	4	1	5	247	1237
18	Mid Span Sleeve	NO.	2	2	2	0	2	239	478
19	Repair Sleeve	NO.	1	1	0	0	1	47	47
20	Earthing Set	NO.	0	20	0	4	4	1782	7127
	TOTAL	(Rs.)							987954
21	Misc: Material (1.5% of M.Cost)	L/S							14819
	TOTAL								**1002773**

Table D-5

MATERIAL REQUIREMENT ONE KM OF NEW 3-PHASE, 4-WIRE, LT LINE WITH AAC WASP (USING 13 TANGENT, 3 LIGHT, 2 HEAVY ANGLES & 2 DEAD END ASSEMBLIES)

S#	DESCRIPTION	UNIT	QTY/KM		QTY/KM		TOTAL	RATE RS.	AMOUNT (Rs.)
			PC	STR	PC 80%	STR 20%			
1	L.T PC POLE	NO.	20	0	16	0	16	17328	277240
2	L.T Structure	NO.	0	20	0	4	4	41825	167300
3	AAC WASP	KM	0	0	0	0	4.2	209057	878039
4	Foundations for L.T Structure	NO.	0	20	0	4	4	8500	34000
5	D-Shakle Assembly	NO.	80	80	64	16	80	191	15296
6	LT spool insulator	NO.	80	80	64	16	80	227	18164
7	Loop Dead Clamp	NO.	16	16	13	3	16	96	1530
8	Stay Rod Assembly	NO.	8	8	6	2	8	1905	15239
9	P.G Connector T-110	NO.	8	8	6	2	8	448	3585
10	P.G Connector T-150	NO.	8	8	6	2	8	693	5545
11	P.G Connector T-155	NO.	8	8	6	2	8	185	1482
12	P.G Connector S-157	NO.	8	8	6	2	8	884	7074
13	M.S Bolt 5/8" x 2"	NO.	0	80	0	16	16	41	650
14	M.S Bolt 5/8" x 9"	NO.	40	0	32	0	32	92	2944
15	M.S Bolt 5/8" x 10"	NO.	40	0	32	0	32	104	3327
16	Stay Wire 10 mm Dia	NO.	48	48	38	10	48	247	11874
17	Soft Annealed Tie Wire	NO.	5	5	4	1	5	247	1237
18	Mid Span Sleeve	NO.	2	2	2	0	2	239	478
19	Repair Sleeve	NO.	1	1	0	0	1	47	47
20	Earthing Set	NO.	0	20	0	4	4	1782	7127
	TOTAL	(Rs.)							1452177
21	Misc: Material (1.5% of M.Cost)	L/S							21783
	TOTAL								**1473959**

Table D-6

MATERIAL REQUIREMENT ONE KM OF NEW 1-PHASE, 2-WIRE, LT LINE WITH AAC ANT (USING 13 TANGENT, 3 LIGHT, 2 HEAVY ANGLES & 2 DEAD END ASSEMBLIES)

S#	DESCRIPTION	UNIT	QTY/KM		QTY/KM		TOTAL	RATE RS.	AMOUNT (Rs.)
			PC	STR	PC 80%	STR 20%			
1	L.T PC POLE	NO.	20	0	16	0	16	17328	277240
2	L.T Structure	NO.	0	20	0	4	4	41825	167300
3	AAC ANT	KM	0	0	0	0	2.1	98528	206908
4	Foundations for L.T Structure	NO.	0	20	0	4	4	8500	34000
5	D-Shakle Assembly	NO.	40	40	32	8	40	191	7648
6	LT spool insulator	NO.	40	40	32	8	40	227	9082
7	Loop Dead Clamp	NO.	8	8	6	2	8	96	765
8	Stay Rod Assembly	NO.	8	8	6	2	8	1905	15239
9	P.G Connector T-110	NO.	4	4	3	1	4	448	1793
10	P.G Connector T-150	NO.	4	4	3	1	4	693	2772
11	P.G Connector T-155	NO.	4	4	3	1	4	185	741
12	P.G Connector S-157	NO.	4	4	3	1	4	884	3537
13	M.S Bolt 5/8" x 2"	NO.	0	40	0	8	8	41	325
14	M.S Bolt 5/8" x 9"	NO.	20	0	16	0	16	92	1472
15	M.S Bolt 5/8" x 10"	NO.	20	0	16	0	16	104	1663
16	Stay Wire 10 mm Dia	NO.	48	48	38	10	48	247	11874
17	Soft Annealed Tie Wire	NO.	5	5	4	1	5	247	1237
18	Mid Span Sleeve	NO.	2	1	1	0	1	239	239
19	Repair Sleeve	NO.	1	0	0	0	0	47	0
20	Earthing Set	NO.	0	20	0	4	4	1782	7127
	TOTAL	(Rs.)							750962
21	Misc: Material (1.5% of M.Cost)	L/S							11264
	TOTAL								**762226**

Table D-7

COST OF MATERIAL FOR PROVIDING SINGLE POLE MOUNTED 11 KV SUB STATIONS (FOR 25 & 50 KVA CAPACITY TRANSFORMERS)

S#	DESCRIPTION	UNIT	QTY	RATE RS	AMOUNT RS.
1	Pin Insulator	NO.	4	494	1974
2	Insulator Pin	NO.	4	416	1663
3	Steel Cross Arm With Braces	NO.	2	4643	9285
4	Dropout Cutout	NO.	3	8963	26888
5	ACSR Rabbit	MTR	21	143	2995
6	AAC Ant	MTR	21	99	2069
7	Steel Galvanizes Wire 10 mm Dia	KG	20	247	4947
8	Platform (Complete Assembly)	NO.	1	14084	14084
9	Square Washer	SET	4	18	72
10	Round Washers	NO.	4	14	57
11	P.G Connector t-150	NO.	3	693	2079
12	P.G Connector t-110	NO.	3	448	1344
13	Nut & Bolt 2x5/8"	NO.	4	41	163
14	Nut & Bolt 12x5/8"'	NO.	4	120	478
15	Earthing Set	NO.	2	1782	3563
16	Ground Conductor Clamps	NO.	2	102	203
	TOTAL				71866
17	Misc: Material (1.5%)	L/S		1.50%	1078
	TOTAL COST OF MATERIAL				**72944**

Total Cost of Sub Stations

	DESCRIPTION	Material	25 KVA T/F	50 KVA T/F	
	Cost	72944	238907	339500	
1	Cost of 25 KVA T/F Sub Station	57679+145360 =			311851
2	Cost of 50 KVA T/F Sub Station	57679x188720 =			412444

Table D-8

COST OF MATERIAL FOR PROVIDING DOUBLE POLE MOUNTED 11 KV SUB STATIONS (FOR 100 & 200 KVA CAPACITY TRANSFORMERS)

S#	DESCRIPTION	UNIT	QTY	RATE RS	AMOUNT RS.
1	L.T Sturture	NO.	1	41825	41825
2	Pin Insulator	NO.	4	494	1974
3	Insulator Pin	NO.	4	416	1663
4	D-Shakle Assembly	NO.	12	191	2294
5	L.T Spool Insulator	NO.	12	227	2725
6	Steel Cross Arm With Braces	NO.	3	4643	13928
7	Dropout Cutout	NO.	3	8963	26888
8	ACSR Rabbit	MTR	21	143	2995
9	AAC Ant	MTR	21	99	2069
10	Steel Galvanizes Wire 10 mm Dia	KG	20	247	4947
11	Platform (Complete Assembly)	NO.	1	23644	23644
12	Square Washer	SET	6	18	108
13	Round Washers	NO.	6	14	86
14	P.G Connector t-150	NO.	3	693	2079
15	P.G Connector t-110	NO.	3	448	1344
16	Nut & Bolt 2x5/8"	NO.	6	41	244
17	Nut & Bolt 12x5/8"'	NO.	6	120	717
18	Earthing Set	NO.	3	1782	5345
19	Ground Conductor Clamps	NO.	3	102	305
20	Foundations for L.T Structure	NO.	1	8500	8500
	TOTAL				143681
17	Misc: Material (1.5%)	L/S		1.50%	2155
	TOTAL COST OF MATERIAL				**145836**

Total Cost of Sub Stations

	DESCRIPTION	Material	100 KVA T/F	200 KVA T/F	
	Cost	145836	626000	858000	
1	Cost of 100 KVA T/F Sub Station	84306x335419 =			771836
2	Cost of 200 KVA T/F Sub Station	84306x536555 =			1003836

Table D-9

COST OF MATERIAL FOR PROVIDING PAD MOUNTED 11 KV SUB STATIONS (FOR 400 & 630 KVA CAPACITY TRANSFORMERS)

S#	DESCRIPTION	UNIT	QTY	RATE RS	AMOUNT RS.
1	Pin Insulator	NO.	4	494	1974.14
2	Insulator Pin	NO.	4	416	1663.44
3	Steel Cross Arm With Braces	NO.	1	4643	4642.58
4	Dropout Cutout	NO.	3	8963	26887.50
5	ACSR Dog	MTR	21	261	5487.02
6	Cable 3-Core 4AWG	MTR	40	3223	128916.60
7	Steel Galvanizes Wire 10 mm Dia	KG	20	247	4947.30
8	Square Washer	SET	2	18	35.85
9	Round Washers	NO.	2	14	28.68
10	P.G Connector t-150	NO.	3	693	2079.30
11	P.G Connector t-110	NO.	3	448	1344.38
12	Nut & Bolt 2x5/8"	NO.	6	41	243.78
13	Nut & Bolt 12x5/8"'	NO.	1	120	119.50
14	Earthing Set	NO.	2	1782	3563.49
15	Ground Conductor Clamps	NO.	2	102	203.15
	TOTAL				182136.70
16	Misc: Material (1.5%)	L/S		1.50%	2732.05
	TOTAL COST OF MATERIAL				**184868.75**

Total Cost of Sub Stations

	DESCRIPTION	Material	400 KVA T/F	630 KVA T/F	
	Cost	184869	1045625	1290600	
1	Cost of 400 KVA T/F Sub Station	250763 x 1249522 =			1230493.75
2	Cost of 630 KVA T/F Sub Station	250763 x 1080000 =			1475468.75

Table D-10
COST OF MATERIAL FOR PROVIDING CONNECTIONS

COST OF SINGLE PHASE METERING EQUIPMENT

S#	DESCRIPTION	UNIT	QTY	RATE RS	AMOUNT RS.
1	PVC 2 CORE 7/.052	MTR	40	98	3915
2	SINGLE PHASE METER	NO.	1	1781	1781
3	misc: material (1.5%)	L/S		1.50%	85
	TOTAL COST OF MATERIAL				**5781**

COST OF 3-PHASE METERING EQUIPMENT

S#	DESCRIPTION	UNIT	QTY	RATE RS	AMOUNT RS.
1	PVC 4 CORE 19/.083	MTR	40	536	21436
2	Three Phase Meter	NO.	1	4367	4367
3	misc: material (1.5%)	L/S		1.50%	387
	TOTAL COST OF MATERIAL				**26189**

COST OF 3-PHASE (TOU) METERING EQUIPMENT

S#	DESCRIPTION	UNIT	QTY	RATE RS	AMOUNT RS.
1	PVC 4 CORE 37/.083	MTR	30	1730	51893
2	TOU Meter	NO.	1	5593	5593
	A-Type ATB	NO.	1	33819	33819
3	misc: material (1.5%)	L/S		1.50%	1370
	TOTAL COST OF MATERIAL				**92674**

Table D-11
SUMMARY COST OF MANPOWER

Amount in Rs.

Designation	Quantity	Salary / Month	Total Salary / Month
Manager / S.E	1	180,000.00	180,000.00
Dy. Manager / Executive Engineer	2	130,000.00	260,000.00
Asstt; Manager / Sub Divisional Officer	8	103,617.00	828,936.00
Revenue Officer	2	103,617.00	207,234.00
Recovery Mukhtiarkar	1	58,467.00	58,467.00
Accountants Officer	0	58,467.00	-
Account Assistant	0	45,978.00	-
Commercial Assistant	13	35,978.00	467,714.00
Line Superintendent-1	15	6,011.00	90,165.00
Line Superintendent-2	21	43,468.00	912,828.00
Meter Supervisor	7	44,498.00	311,486.00
Data Control Supervisor	2	44,498.00	88,996.00
Stenographer	2	50,630.00	101,260.00
Clerk	64	35,256.00	2,256,384.00
Draughtsman	1	45,240.00	45,240.00
Tracer	2	25,985.00	51,970.00
Computer Operator	2	34,498.00	68,996.00
Line Man-1	63	45,281.00	2,852,703.00
Line Man-II	63	33,562.00	2,114,406.00
Asstt: Line Man	126	24,998.00	3,149,748.00
Meter Reader	35	33,562.00	1,174,670.00
Bill Distributer	35	24,998.00	874,930.00
Driver	24	28,998.00	695,952.00
Peon (Naib Qasid)	19	25,789.00	489,991.00
Cleaner	14	17,750.00	248,500.00
Guard	19	23,390.00	444,410.00
Mali	0	16,662.00	-
Sweeper	10	15,680.00	156,800.00
Grand Total/month	**551**		18,131,786.00

ANNEXURE – "E"

POWER SYSTEM STATISTICS

LIST OF TABLES:

TABLE E-1

SEPCO PMS Recorded Forecast (Excluding Load Shedding)

Year	Domestic		Agricultural		Industrial		Bulk		M.E.S. Industrial		Public Lighting		Total	
	Energy	G.R (%)	Energy	G.R (%)	Energy	G.R (%)	Energy	G.R (%)	Energy	G.R (%)	Energy	G.R (%)		
2017-18	2006		219		27		131		332		248		2963	
2018-19	2126	6.0	228	4.0	28	2.0	134	1.9	349	5.0	251	1.5	3115	5.1
2019-20	2233	5.0	237	4.2	28	1.9	136	1.9	362	3.6	255	1.5	3251	4.4
2020-21	2342	4.9	248	4.5	29	1.9	139	2.0	375	3.7	260	2.0	3393	4.4
2021-22	2461	5.1	259	4.4	29	1.9	142	2.0	389	3.7	266	2.0	3545	4.5
2022-23	2580	4.8	270	4.3	30	1.9	144	2.0	403	3.6	271	2.0	3698	4.3
2023-24	2698	4.6	282	4.5	31	1.8	147	1.9	417	3.5	276	1.9	3851	4.1
2024-25	2820	4.5	294	4.4	31	1.8	150	1.9	432	3.5	281	1.9	4008	4.1
2025-26	2941	4.3	308	4.8	32	1.8	153	1.8	446	3.4	286	1.9	4167	4.0
2026-27	3061	4.1	323	4.6	32	1.7	155	1.8	462	3.4	292	1.8	4324	3.8
2027-28	3179	3.9	337	4.5	33	1.7	158	1.8	477	3.3	297	1.8	4481	3.6
Ave. Growth (2018-2028)	4.7%		4.4%		1.8%		1.9%		3.7%		1.8%		4.2%	

TABLE E-2
SEPCO PMS Recorded Forecast (Including Load Shedding)

Year	Energy Sale		Distribution Loss		Energy Purchase	Peak Demand			Energy Generation	Load Factor	Plant Capacity
	(GWh)	G.R (%)	(GWh)	(%)	GWh	MW	(GWh)	(%)	(GWh)	(%)	MW
2017-18	2963		1582	34.81	4545	1046	134	2.86	4679	49.6	1077
2018-19	3115	5.1	1654	34.69	4769	1097	138	2.82	4908	49.6	1129
2019-20	3251	4.4	1717	34.56	4969	1144	142	2.77	5110	49.6	1177
2020-21	3393	4.4	1782	34.44	5176	1192	145	2.72	5321	49.6	1225
2021-22	3545	4.5	1852	34.31	5397	1243	148	2.68	5546	49.6	1277
2022-23	3698	4.3	1921	34.19	5618	1294	152	2.63	5770	49.6	1329
2023-24	3851	4.1	1989	34.06	5840	1345	155	2.58	5994	49.6	1380
2024-25	4008	4.1	2058	33.93	6066	1397	158	2.53	6224	49.6	1433
2025-26	4167	4.0	2128	33.80	6294	1449	160	2.49	6455	49.6	1486
2026-27	4324	3.8	2195	33.67	6520	1501	163	2.44	6683	49.6	1538
2027-28	4481	3.6	2262	33.54	6743	1552	165	2.39	6908	49.6	1590
Ave. Growth 2017-18 to 2027-28	4.22%				4.02%	4.02%			3.97%		3.97%

Table E-3

LENGTH OF H.T/ L.T LINE IN K.M

Circle	Total Length Of Line (in Km)		Total No. of Customers	Length Of Line per Customer (in Meter)	
	H.T	L.T		HT	L.T
Sukkur	10982.23	5133.18	337301	32.56	15.22
Larkana	6978.64	4409.38	249363	27.99	17.68
Dadu	6761.16	3807.68	202152	33.45	18.84
TOTAL	24722.03	13350.2	788816	31.34	16.92

TABLE E-4

Category- Wise Number of Connections Installed During Last Five Years 2015-16 to 2019-20

Connections Installed During Previous Years (Since Creation of SEPCO)						
Year	Domestic	Commercial	Industrial	Agricultural	Other	Total
2015-2016	8935	1519	311	19	1	10785
2016-2017	3115	731	201	-358	2	3691
2017-2018	5860	1678	68	-2924	13207	17889
2018-2019	4670	2274	256	49	126	7375
2019-2020	24323	2032	203	76	50	26684
Total	46903	8234	1039	-3138	13386	66424

TABLE E-5

CATEGORY- WISE ENERGY CONSUMPTION OF CUSTOMERS DURING LAST (04) YEARS

Sr. No.	Category	2016-2017		2017-2018		2018-2019		2019-2020	
		Customers	Units Sold (GWh)	Customers	Units Sold (GWh)	Customers	Units Sold (GWh)	Customers	Units Sold (GWh)
1.	Domestic	593355	1650.5	589884	1759.5	603885	1596.7	628208	1765.8
2.	Commercial	117824	235.6	119384	218.8	121776	209.5	123808	209.3
3.	Industrial	12606	439.1	12674	465.9	12930	419.9	13133	365.1
4.	Tube Well	12145	245.3	9221	245.2	9270	109.9	9346	81.1
5.	Others	938	217.2	14145	273.5	14271	374.9	14321	289.6
	Total	736868	2787.7	745308	2962.8	762132	2710.9	788816	2710.9

TABLE E-7

Category- Wise Number of Connections To Be Installed During 2020-21 to 2024-25

Year	Domestic	Commercial	Industrial	Agricultural	Other	Total
2020-21	10204	2028	215	215	13	12676
2021-22	12245	2434	259	259	15	15211
2022-23	13605	2704	287	287	17	16901
2023-24	14966	2975	316	316	19	18591
2024-25	17007	3380	359	359	21	21126
TOTAL	68027	13521	1437	1437	85	84505

Table E-8

NUMBER OF TRANSFORMERS INSTALLED DURING 2019-2020

CAPACITY OF TRANSFOMER (KVA)									TOTAL	
10	15	25	50	100	200	400	630	Others		
NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	MVA
0	0	265	45	54	60	9	2	0	435	36.02

Table E-9

TRANSFOMER DAMAGED DURING 2019-20

CAPACITY OF TRANSFOMER (KVA)									TOTAL	
10	15	25	50	100	200	400	630	Others		
NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	MVA
1	2	37	95	201	177	-	-	-	613	61.26

TABLE E-10

MVA REQUIREMENT

Circle	Existing No. of Customers	MVA Installed	KVA / Customer	New Customers To Be Added	MVA Required
SUKKUR	337301	991.785	2.94	34746	101.87
LARKANA	249363	690.955	2.77	27042	74.93
DADU	202152	495.315	2.45	22816	55.90
SEPCO TOTAL	**788816**	**2178.06**	2.76	**84505**	**232.71**
				SAY	**233 MVA**

YEAR WISE MVA REQUIRED

Year	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Ave: MVA / Customer	2.76	2.76	2.76	2.76	2.76	2.76
Customers To Be Added	12676	15211	16901	18591	21126	84505
MVA Required	**34.91**	**41.89**	**46.54**	**51.20**	**58.18**	**232.7**
					SAY	233 MVA

TABLE E-11

CATEGORY-WISE METERS TO BE PROVIDED TO ALL CONSUMERS

Sr.No	Description	Year	QUANTITIES					
			Domestic	Comm	Indust	Agri	Others	TOTAL
			1-Ph:3Ph (80:20%)		TOU	TOU	1-Ph:3Ph (50:50%)	100%
No. of Consumers		2020-21	10204	2028	215	215	13	12676
1	1-Phase		8163	1622			6	9792
2	3-Phase		2041	406			6	2453
3	TOU				215	215		431
	Sub-Total		**10204**	**2028**	**215**	**215**	**13**	**12676**
No. of Consumers		2021-22	12245	2434	259	259	15	15211
1	1-Phase		9796	1947			8	11750
2	3-Phase		2449	487			8	2943
3	TOU				259	259		517
	Sub-Total		**12245**	**2434**	**259**	**259**	**15**	**15211**
No. of Consumers		2022-23	13605	2704	287	287	17	16901
1	1-Phase		10884	2163			8	13056
2	3-Phase		2721	541			8	3270
3	TOU				287	287		575
	Sub-Total		**13605**	**2704**	**287**	**287**	**17**	**16901**
No. of Consumers		2023-24	14966	2975	316	316	19	18591
1	1-Phase		11973	2380			9	14362
2	3-Phase		2993	595			9	3597
3	TOU				316	316		632
	Sub-Total		**14966**	**2975**	**316**	**316**	**19**	**18591**
No. of Consumers		2024-25	17007	3380	359	359	21	21126
1	1-Phase		13605	2704			11	16320
2	3-Phase		3401	676			11	4088
3	TOU				359	359		718
	Sub-Total		**17007**	**3380**	**359**	**359**	**21**	**21126**
No. of Consumers		2020-21 TO 2024-25	68027	13521	1437	1437	85	84505
1	1-Phase		54421	10817			42	65280
2	3-Phase		13605	2704			42	16352
3	TOU				1437	1437		2873
	TOTAL		**68027**	**13521**	**1437**	**1437**	**85**	**84505**

Table E-12

NUMBER OF TRIPPINGS PER 100 K.M

DURING 2019-20 AS COMPARED WITH 2018-2019

Length of 11 KV Feeder		No. of Trippings Below 20 Minutes				% age Increase / Decrease	No. of Trippings Above 20 Minutes				% age Increase / Decrease
Previous	Present	Total		Per 100 KM			Total		Per 100 KM		
		Previous 2018-19	Present 2019-20	Previous 2018-19	Present 2019-20		Previous 2014-15	Present 2019-20	Previous 2018-19	Present 2019-20	
25399	28499	65604	57741	258	203	21.31% Dec:	33234	36590	141	150	6.38% Inc:

Table E-13

FATAL / NON-FATAL ACCIDENTS

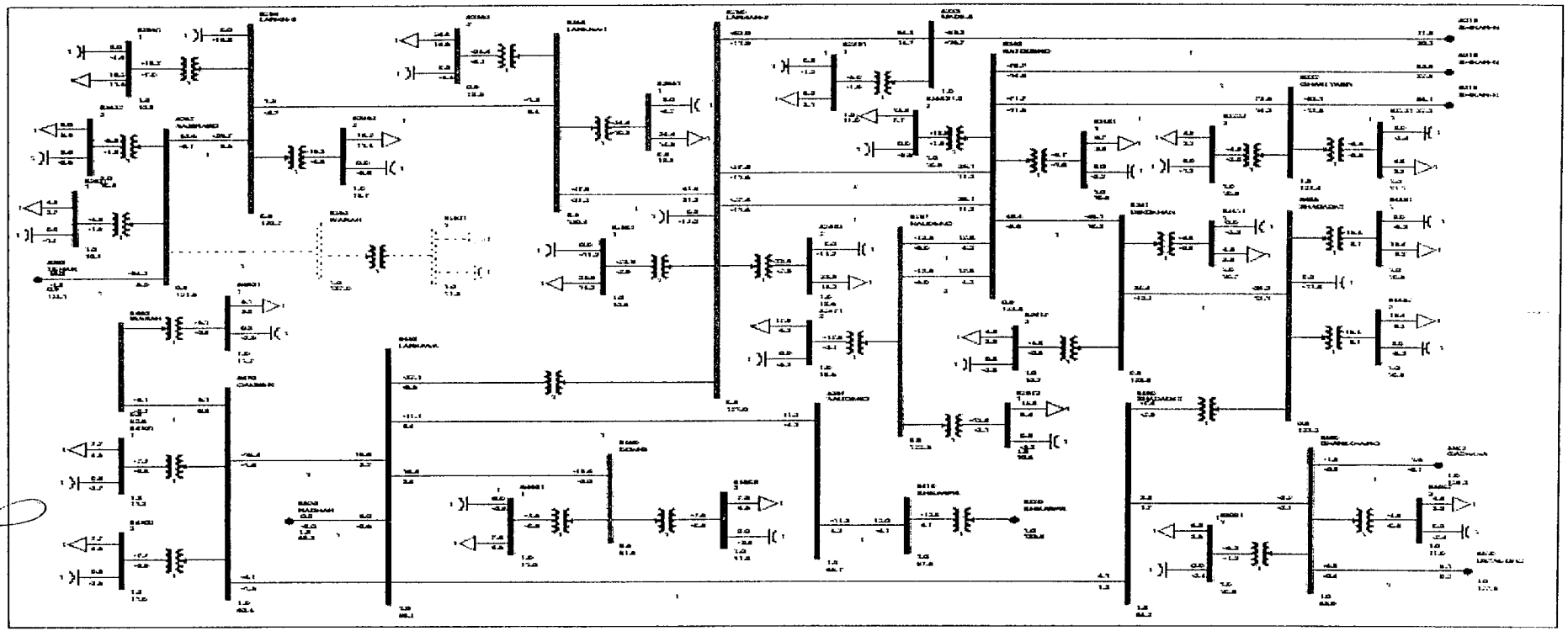
DURING 2019-20 AS COMPARED WITH 2018-2019

YEAR	EMPLOEES		PUBLIC MEN		ANIMALS		TOTAL		GRAND TOTAL
	FATAL	NON-FATAL	FATAL	NON-FATAL	FATAL	NON-FATAL	FATAL	NON-FATAL	
2018-19	6	6	7	1	-	-	12	8	20
2019-20	4	7	9	1	-	-	11	10	21

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITHOUT PROPOSED PLAN

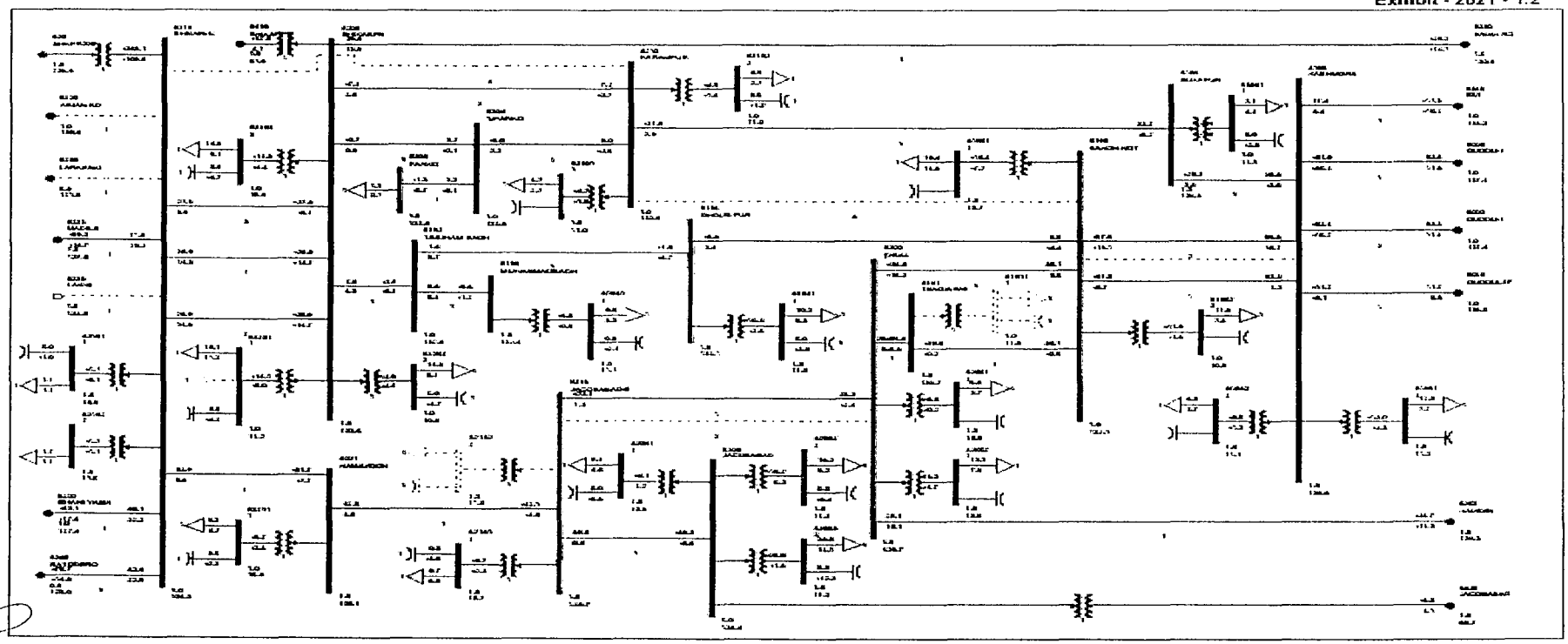
Exhibit - 2021 - 1.1



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITHOUT PROPOSED PLAN

Exhibit - 2021 - 1.2

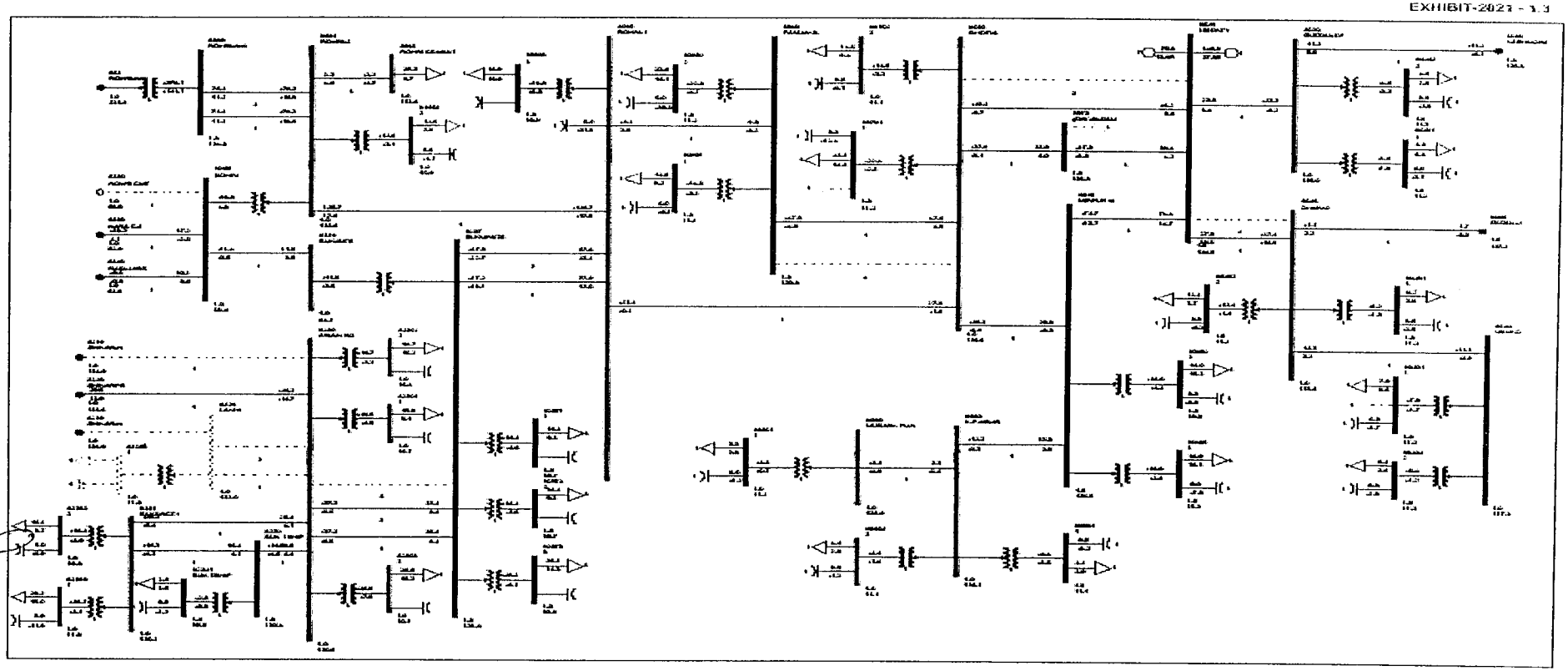


Sukkur Electric Power Company Ltd.

1

LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2021 : WITHOUT PROPOSED PLAN

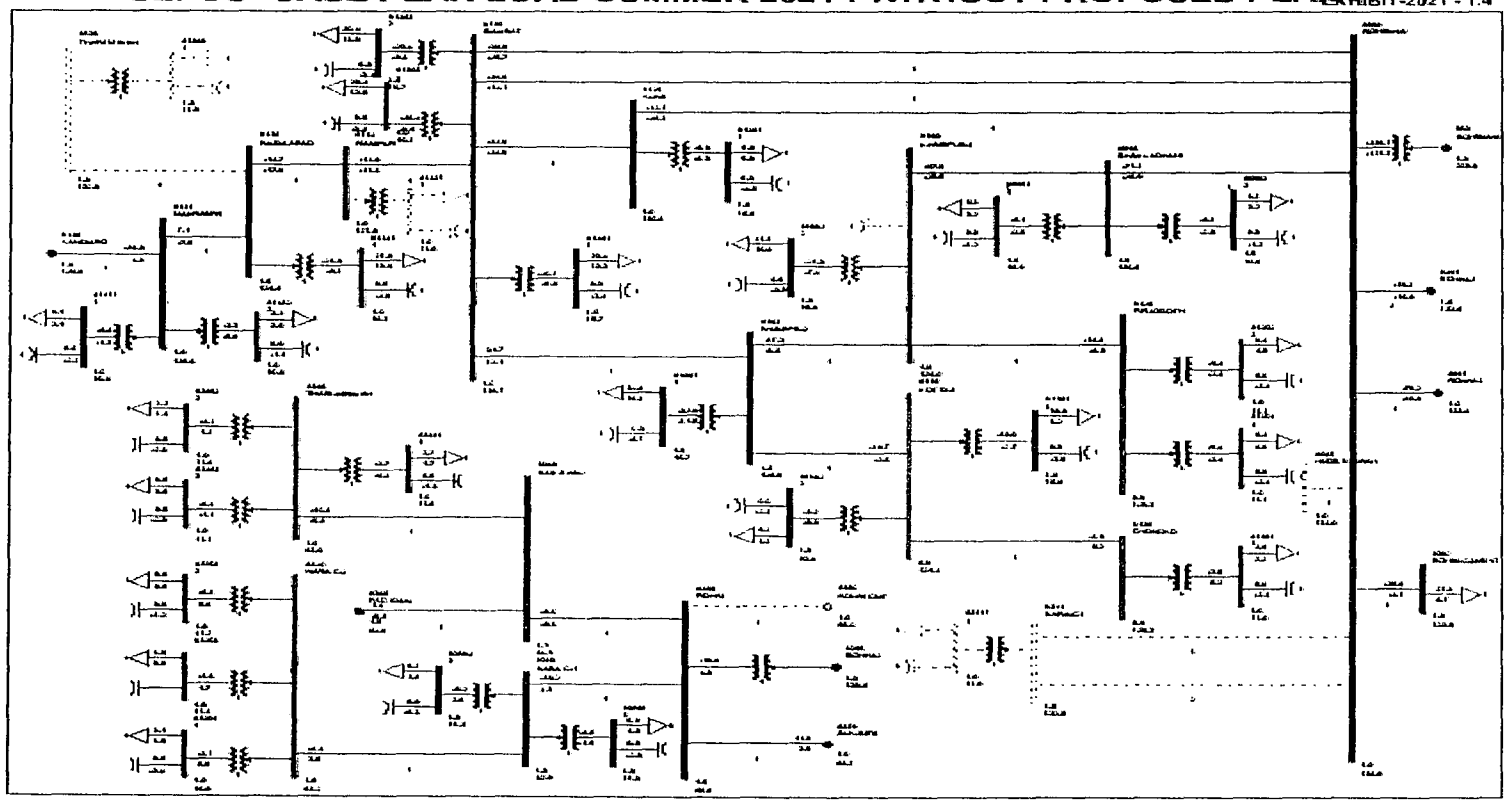
EXHIBIT-2021 - 1.3



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITHOUT PROPOSED PLAN

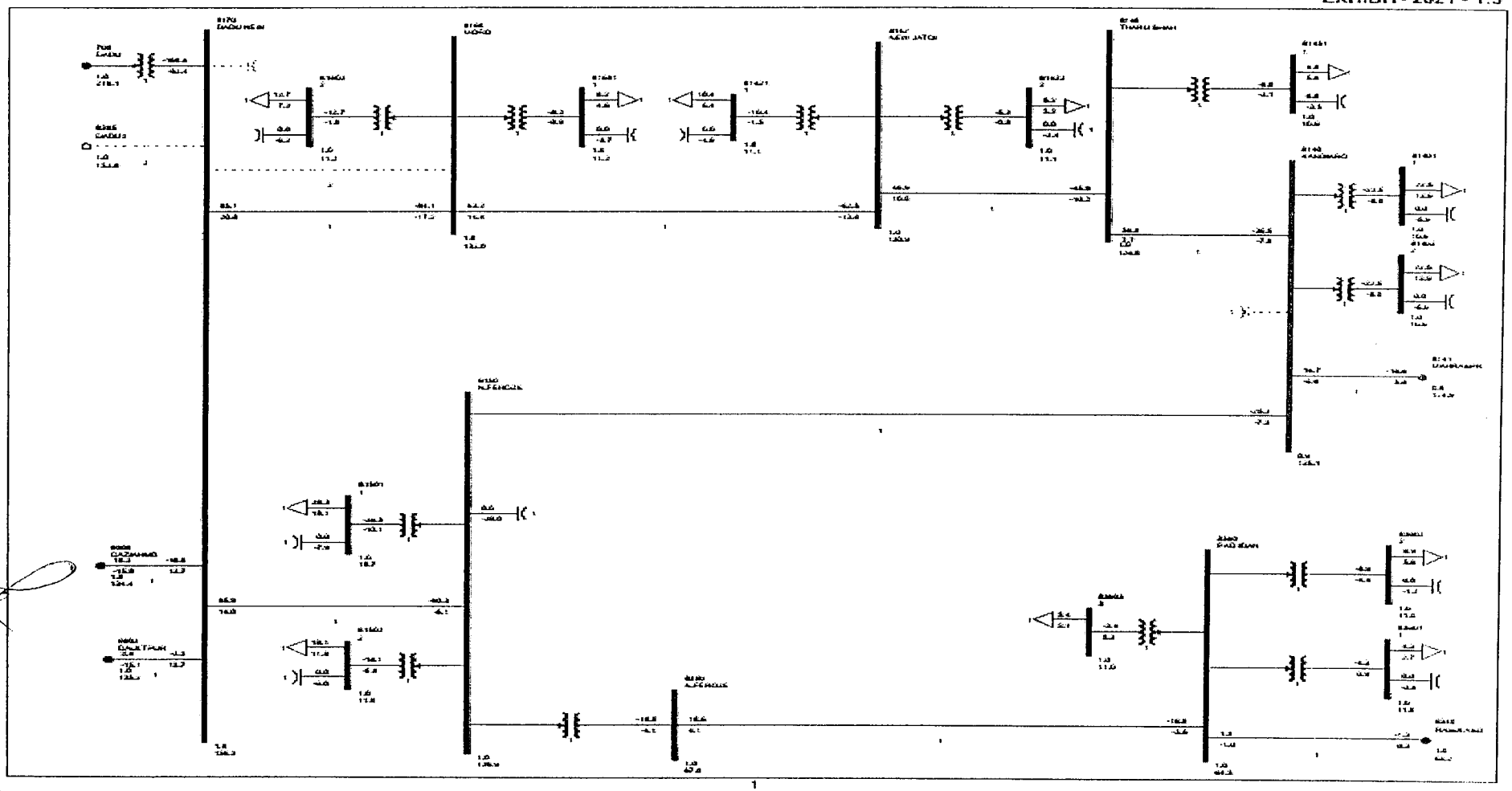
EXHIBIT-2021 - 1.4



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITHOUT PROPOSED PLAN

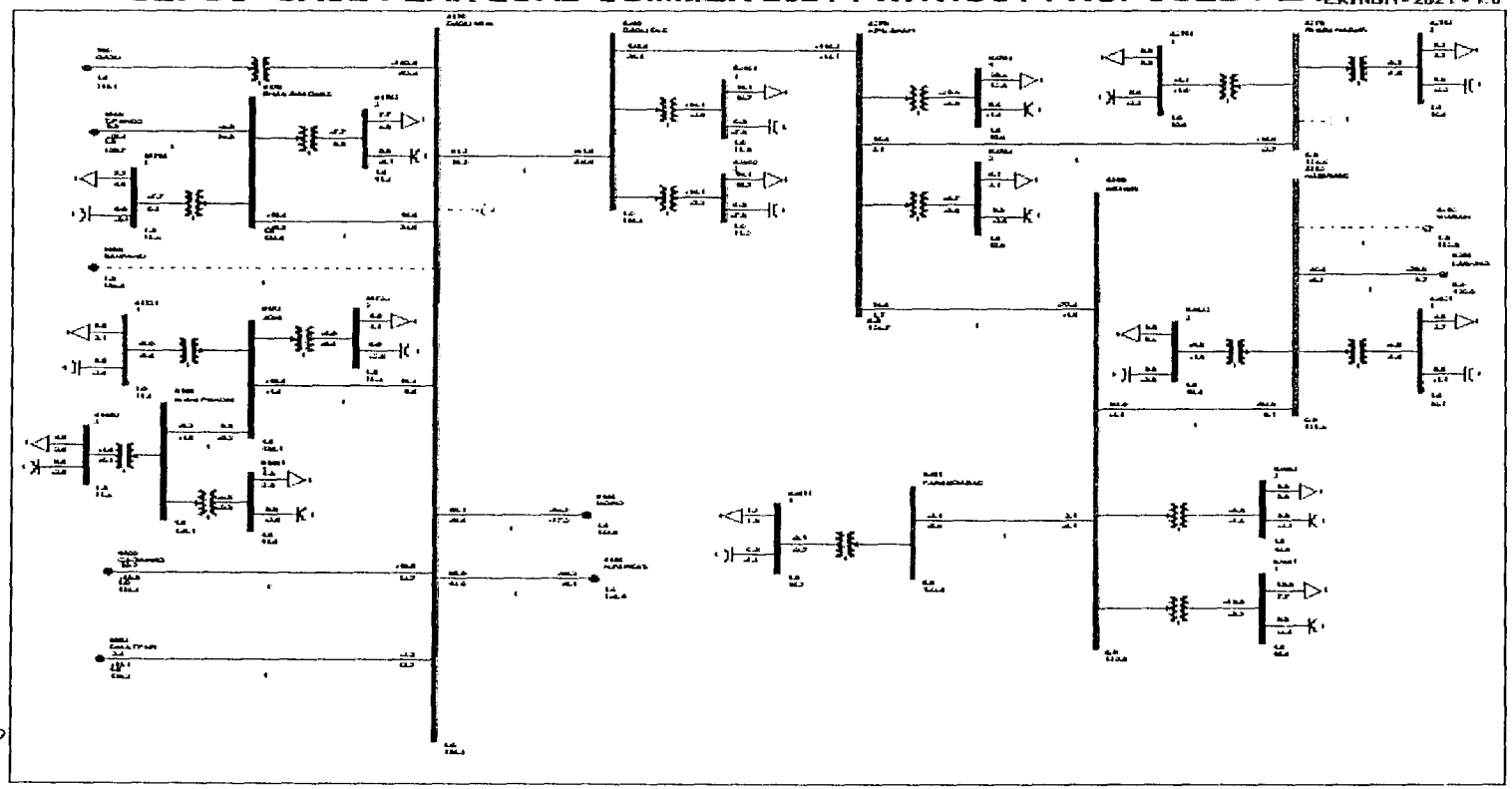
EXHIBIT- 2021 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITHOUT PROPOSED PLAN

EXHIBIT- 2021 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 14:07
SEPCO PEAK LOAD SUMMER 2020-21 WITHOUT PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)

* NONE *

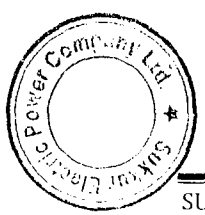
BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
8110	KOT DIJI	132.00	9	0.9466	124.96						
8120	PIRJOGOTH	132.00	9	0.9458	124.84						
8134	RASULABAD	132.00	9	0.9463	124.91						
8135	CHONDKO	132.00	9	0.9460	124.87						
8140	KANDIARO	132.00	9	0.9427	124.44						
8141	MAHRABPR	132.00	9	0.9424	124.40						
8240	RATODERO	132.00	9	0.9275	122.42						
8241	MIROKHAN	132.00	9	0.9270	122.36						
8250	LARKAN-2	132.00	9	0.9110	120.26						
8255	LARKNA-1	132.00	9	0.9067	119.68						
8256	LARKN-3	132.00	9	0.9042	119.36						
8257	NAUDERO	132.00	9	0.9219	121.70						
8260	MEHAR	132.00	9	0.9249	122.08						
8261	FAREEDABAD	132.00	9	0.9237	121.93						
8262	NASIRABD	132.00	9	0.9136	120.60						
8270	KPN SHAH	132.00	9	0.9386	123.89						
8275	RHMNI NAGAR	132.00	9	0.9357	123.52						
8310	NARA C-1	66.000	9	0.9467	62.482						
8345	THARI MIRWAH	66.000	9	0.9440	62.302						
8460	DOKRI	66.000	9	0.9272	61.195						
8480	WARAH	66.000	9	0.9420	62.174						
8485	SHADADKT	132.00	9	0.9285	122.56						
82561	1	11.000	9	0.9486	10.435						
82562	2	11.000	9	0.9486	10.435						

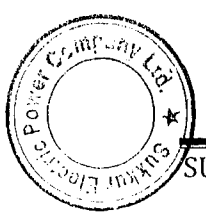
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 14:03
SEPCO PEAK LOAD SUMMER 2020-21 WITHOUT PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME --X	BASKV	AREA	BUS#-SCT	X-- NAME --X	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCEN
553	ROHRI-NW	220.00*	15	8089	ROHRI-NW	132.00	9	1	415.4	500.0	83.1	--	--	--	--
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	418.0	480.0	87.1	--	--	--	--
8100	KHAIRPUR-1	132.00*	9	81002	2	11.000	9	1	23.6	26.0	90.9	--	--	--	--
8102	KHAIRPR-2	132.00*	9	81001	1	11.000	9	1	36.3	40.0	90.7	--	--	--	--
8130	GAMBAT	132.00*	9	81301	1	11.000	9	1	23.8	26.0	91.7	--	--	--	--
8130	GAMBAT	132.00*	9	81302	2	11.000	9	1	23.8	26.0	91.7	--	--	--	--
8130	GAMBAT	132.00*	9	81303	3	11.000	9	1	23.8	26.0	91.7	--	--	--	--
8134	RASULABAD	132.00*	9	81341	1	11.000	9	1	24.9	26.0	95.9	--	--	--	--
8140	KANDIARO	132.00*	9	81401	1	11.000	9	1	25.0	26.0	96.2	--	--	--	--
8140	KANDIARO	132.00*	9	81402	2	11.000	9	1	25.0	26.0	96.2	--	--	--	--
8150	N.FEROZE	132.00*	9	8170	DADU NEW	132.00	9	1	93.7	112.0	83.6	--	--	--	--
8170	DADU NEW	132.00	9	8280	DADU OLD	132.00*	9	1	92.4	112.0	82.5	--	--	--	--
8170	DADU NEW	132.00	9	8280	DADU OLD	132.00*	9	2	92.4	112.0	82.5	--	--	--	--
8255	LARKNA-1	132.00*	9	82551	1	11.000	9	1	27.8	26.0	106.8	--	--	--	--
8255	LARKNA-1	132.00*	9	82552	2	11.000	9	1	26.3	26.0	101.3	--	--	--	--
8256	LARKN-3	132.00*	9	82561	1	11.000	9	1	21.4	26.0	82.2	--	--	--	--
8256	LARKN-3	132.00*	9	82562	2	11.000	9	1	21.4	26.0	82.2	--	--	--	--
8257	NAUDERO	132.00*	9	82571	2	11.000	9	1	13.7	13.0	105.5	--	--	--	--
8257	NAUDERO	132.00*	9	82572	1	11.000	9	1	13.7	13.0	105.7	--	--	--	--
8270	KPN SHAH	132.00*	9	8280	DADU OLD	132.00	9	1	123.2	112.0	110.0	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.7	26.0	83.4	--	--	--	--
8280	DADU OLD	132.00*	9	82801	1	11.000	9	1	39.1	40.0	97.9	--	--	--	--
8280	DADU OLD	132.00*	9	82802	2	11.000	9	1	25.1	26.0	96.6	--	--	--	--
8360	PAD IDAN	66.000*	9	83602	2	11.000	9	1	10.4	13.0	80.1	--	--	--	--
8500	GHARI KHAIR	66.000*	9	85001	1	11.000	9	1	6.2	7.5	82.3	--	--	--	--

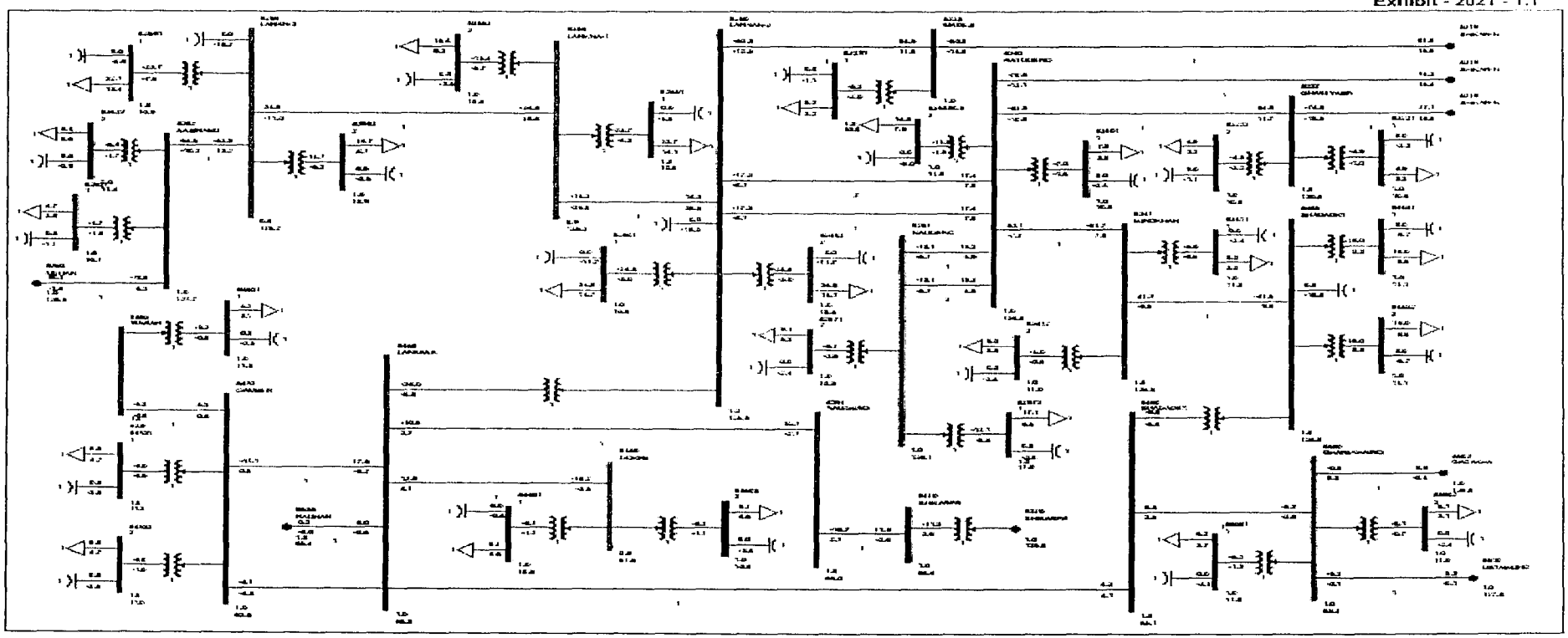


```
    PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E      TUE, SEP 28 2021  12:32
SEPCO PEAK LOAD SUMMER 2020-21 WITHOUT PROPOSED PLAN

******************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ******************

AREAS:
    9 SEPCO

********************************************************************************

    212 BUSES          10 PLANTS              2 MACHINES        0 INDUCTION GENS        0 INDUCTION MOTORS
    127 LOADS         128 FIXED SHUNTS        0 SWITCHED SHUNTS
    253 BRANCHES      136 TRANSFORMERS        0 DC LINES        0 FACTS DEVICES         0 GNE DEVICES

                          X------- ACTUAL -------X X------ NOMINAL -------X
                                    MW      MVAR          MW      MVAR
FROM GENERATION                   210.0      44.1       210.0      44.1
FROM INDUCTION GENERATORS           0.0       0.0         0.0       0.0
TO CONSTANT POWER LOAD           1438.9     854.5      1438.9     854.5
TO CONSTANT CURRENT                 0.0       0.0         0.0       0.0
TO CONSTANT ADMITTANCE              0.0       0.0         0.0       0.0
TO INDUCTION MOTORS                 0.0       0.0         0.0       0.0
TO BUS SHUNT                        0.0    -630.2         0.0    -653.9
TO FACTS DEVICE SHUNT               0.0       0.0         0.0       0.0
TO GNE BUS DEVICES                  0.0       0.0         0.0       0.0
TO LINE SHUNT                       0.0       0.0         0.0       0.0
FROM LINE CHARGING                  0.0     122.2         0.0     124.7

 VOLTAGE          X------ LOSSES ------X    X-- LINE SHUNTS --X    CHARGING
 LEVEL  BRANCHES       MW        MVAR          MW        MVAR        MVAR
 132.0      105     56.02      363.67         0.0         0.0       114.3
  66.0       24      5.95       12.56         0.0         0.0         8.0
  11.0      124      0.00      126.64         0.0         0.0         0.0
 TOTAL      253     61.97      402.87         0.0         0.0       122.2
```



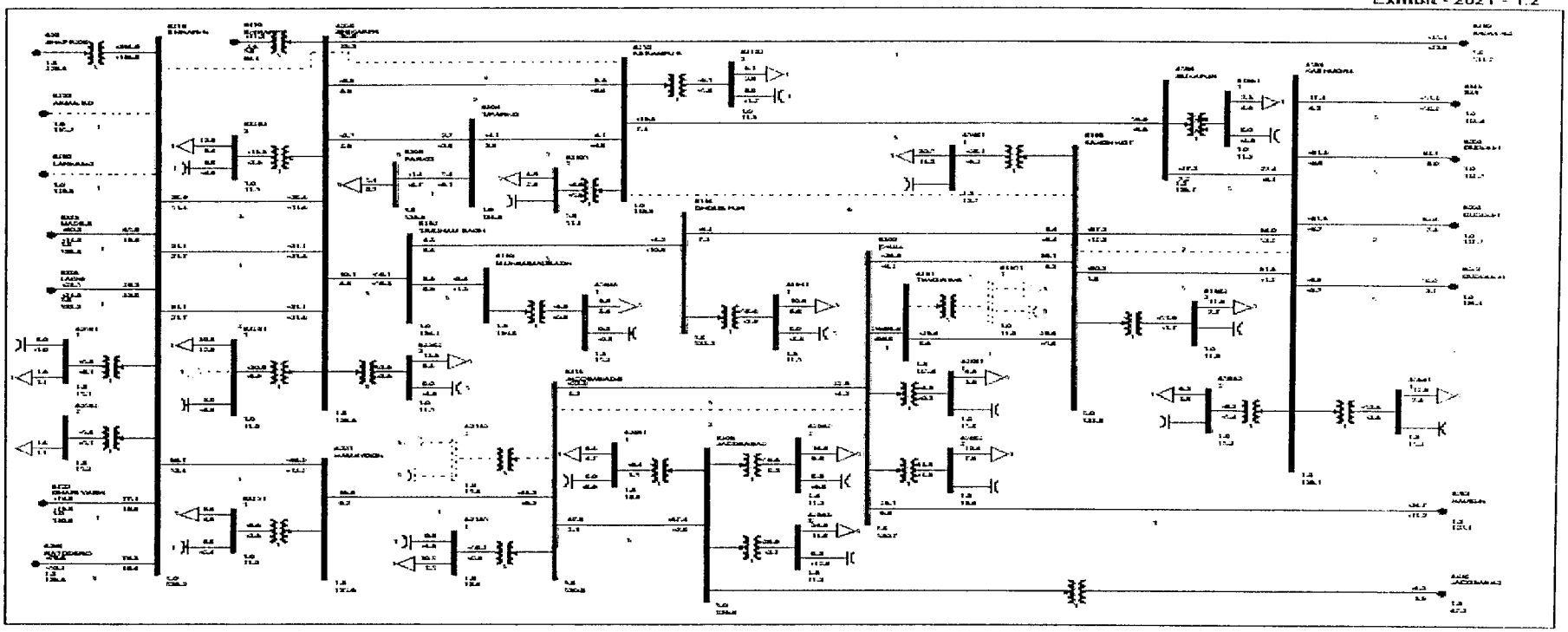
LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2021 : WITH PROPOSED PLAN

Exhibit - 2021 - 1.1



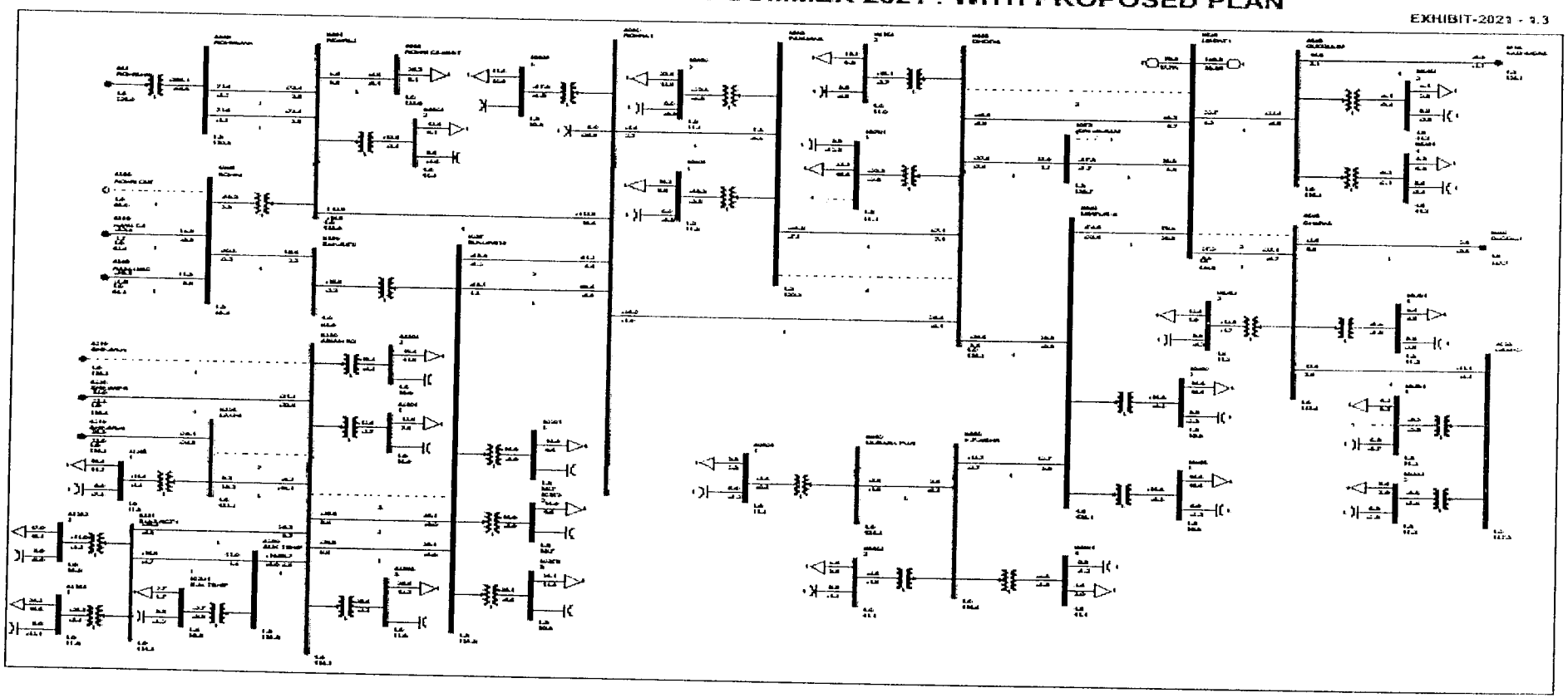
LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2021 : WITH PROPOSED PLAN

Exhibit - 2021 - 1.2



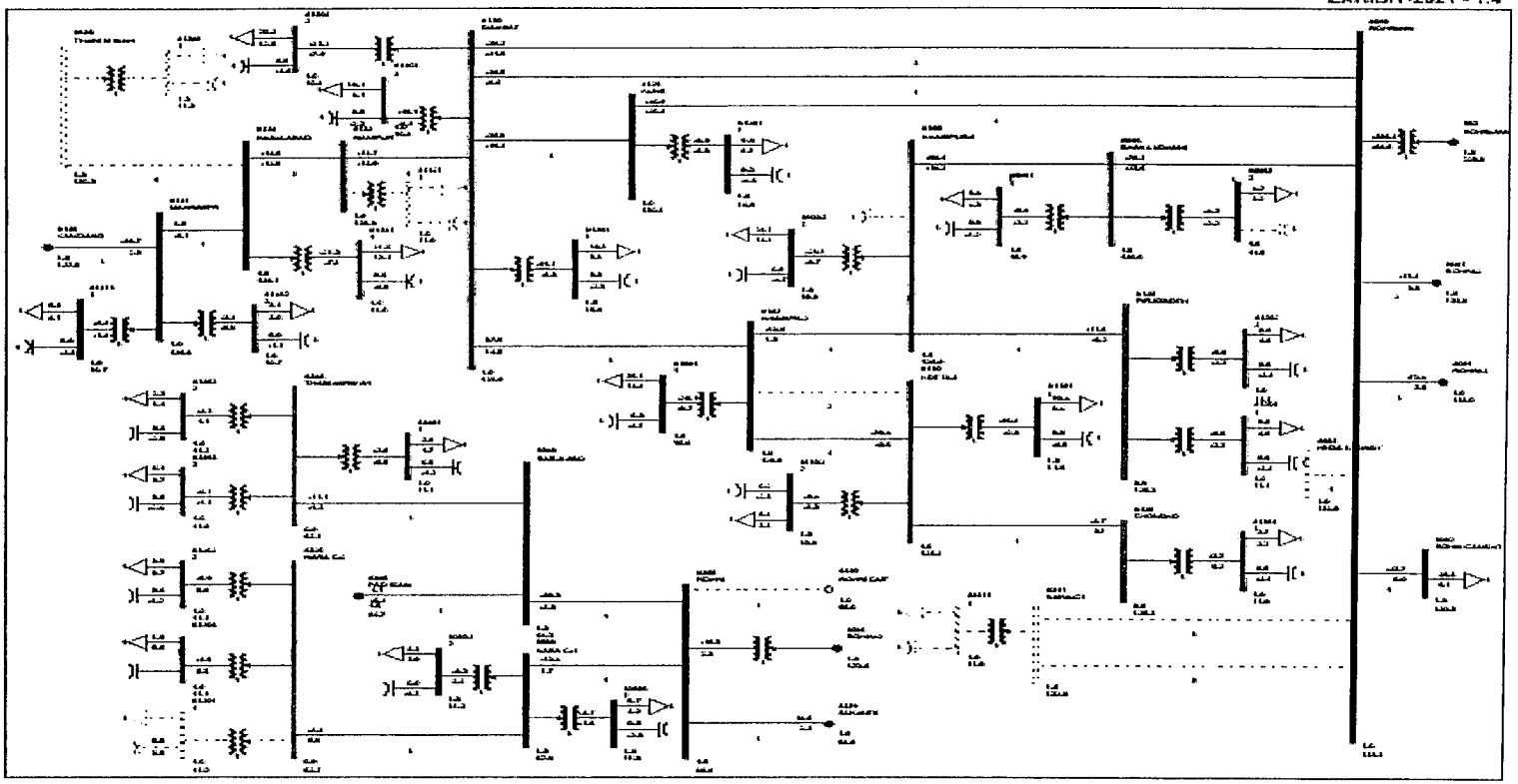
LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2021 : WITH PROPOSED PLAN

EXHIBIT-2021 - 1.3



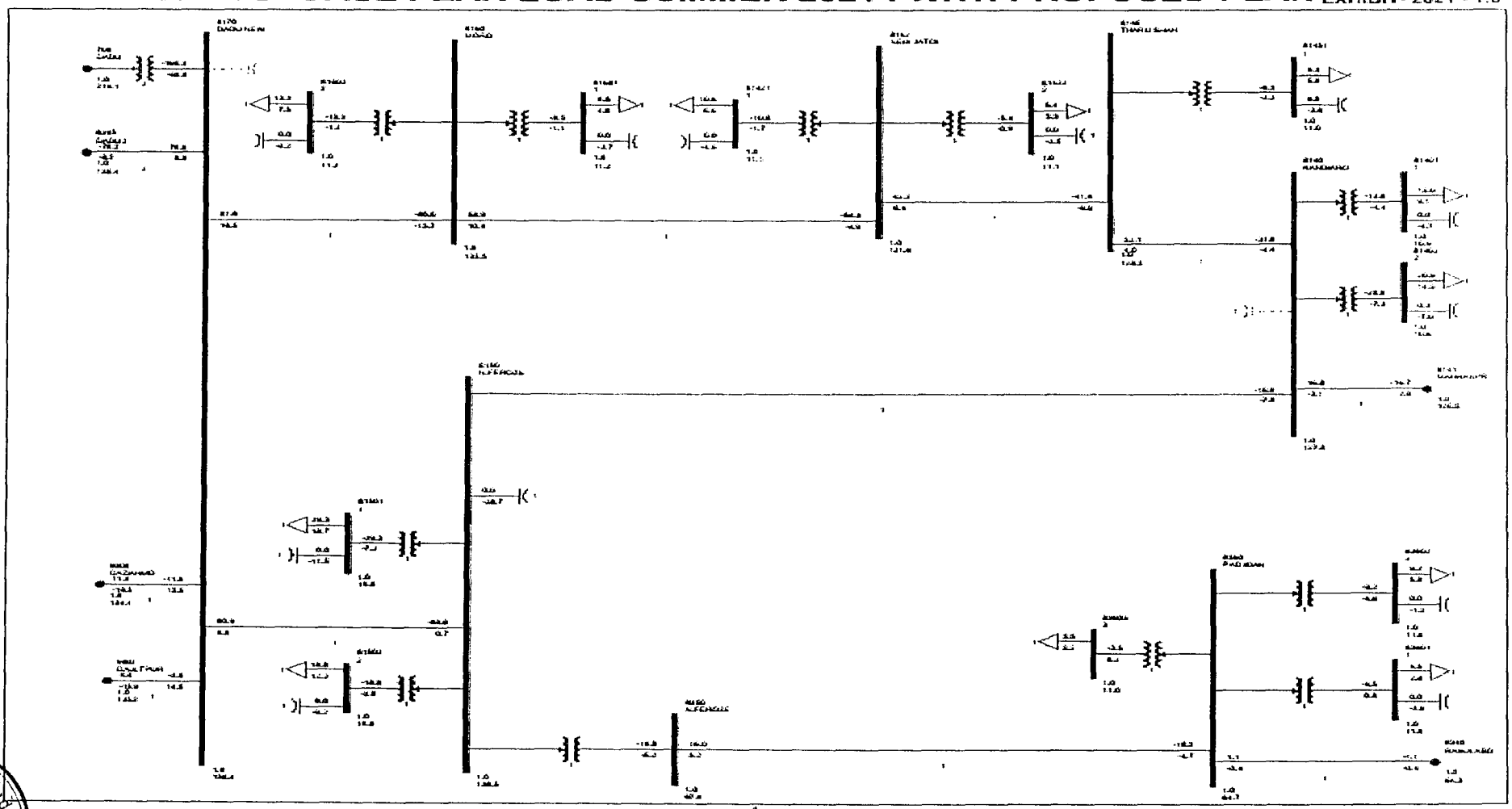
LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITH PROPOSED PLAN EXHIBIT-2021 - 1.4



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2021 : WITH PROPOSED PLAN EXHIBIT- 2021 - 1.5



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 12:34
SEPCO PEAK LOAD SUMMER 2020-21 WITH PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME	--X BASKV	AREA	BUS#-SCT	X-- NAME	--X BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	441.8	480.0	92.0	--	--	--	--
8215	JACOBABAD-II	132.00*	9	82151	1	11.000	9	1	10.8	13.0	83.0	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.3	26.0	81.8	--	--	--	--
8360	PAD IDAN	66.000*	9	83602	2	11.000	9	1	10.8	13.0	83.1	--	--	--	--
8500	GHARI KHAIRO	66.000*	9	85001	1	11.000	9	1	6.4	7.5	85.5	--	--	--	--

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 12:33
SEPCO PEAK LOAD SUMMER 2020-21 WITH PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 0.9500:

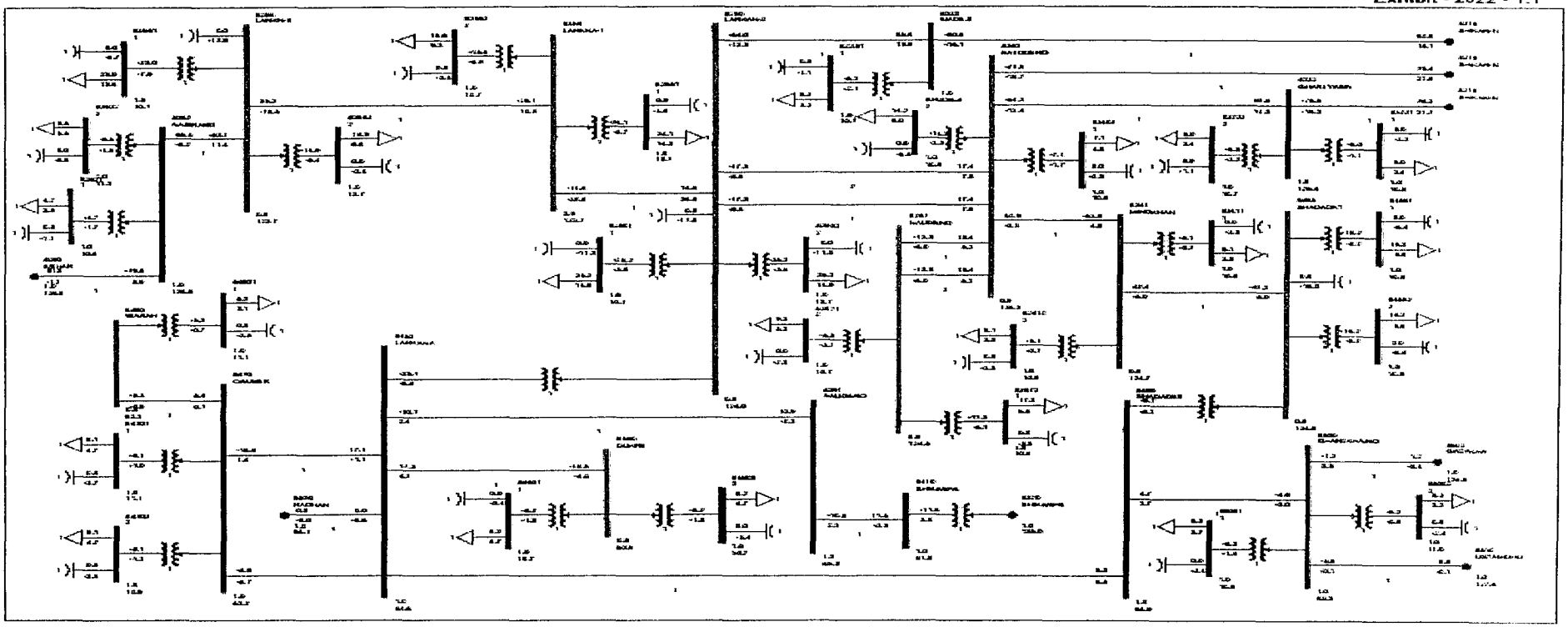
BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
8120	PIRJOGOTH	132.00	9	0.9491	125.28	8135	CHONDKO	132.00	9	0.9494	125.32
8255	LARKNA-1	132.00	9	0.9482	125.16	8256	LARKN-3	132.00	9	0.9483	125.18
8320	NARA C-2	66.000	9	0.9498	62.687	8345	THARI MIRWAH	66.000	9	0.9498	62.689
8460	DOKRI	66.000	9	0.9329	61.574						

```
    PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E        TUE, SEP 28 2021   12:35
SEPCO PEAK LOAD SUMMER 2020-21 WITH PROPOSED PLAN

******************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ******************

AREAS:
   9 SEPCO

********************************************************************************

    214 BUSES          10 PLANTS              2 MACHINES          0 INDUCTION GENS          0 INDUCTION MOTORS
    127 LOADS         127 FIXED SHUNTS        0 SWITCHED SHUNTS
    257 BRANCHES      136 TRANSFORMERS        0 DC LINES          0 FACTS DEVICES           0 GNE DEVICES

                          X------- ACTUAL -------X X------ NOMINAL -------X
                                MW          MVAR          MW          MVAR
FROM GENERATION                210.0         53.2        210.0         53.2
FROM INDUCTION GENERATORS        0.0          0.0          0.0          0.0
TO CONSTANT POWER LOAD        1455.0        862.4       1455.0        862.4
TO CONSTANT CURRENT              0.0          0.0          0.0          0.0
TO CONSTANT ADMITTANCE           0.0          0.0          0.0          0.0
TO INDUCTION MOTORS              0.0          0.0          0.0          0.0
TO BUS SHUNT                     0.0       -644.5          0.0       -650.3
TO FACTS DEVICE SHUNT            0.0          0.0          0.0          0.0
TO GNE BUS DEVICES               0.0          0.0          0.0          0.0
TO LINE SHUNT                    0.0          0.0          0.0          0.0
FROM LINE CHARGING               0.0        130.6          0.0        130.6

 VOLTAGE          X------ LOSSES ------X   X-- LINE SHUNTS --X   CHARGING
 LEVEL  BRANCHES        MW          MVAR        MW          MVAR        MVAR
 132.0      109       48.38        243.30       0.0          0.0       122.5
  66.0       24        5.36         11.83       0.0          0.0         8.2
  11.0      124        0.00        114.97       0.0          0.0         0.0
TOTAL       257       53.74        370.10       0.0          0.0       130.6
```

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITHOUT PROPOSED PLAN

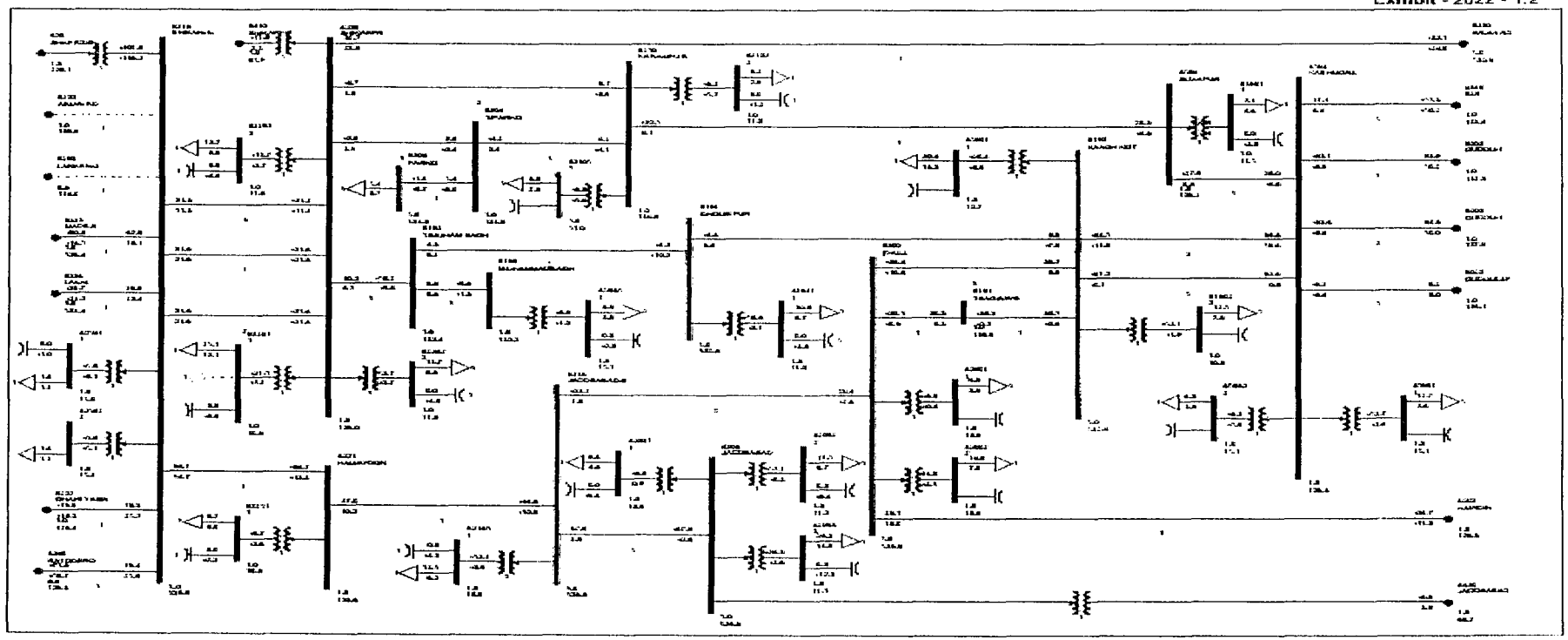
Exhibit - 2022 - 1.1



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITHOUT PROPOSED PLAN

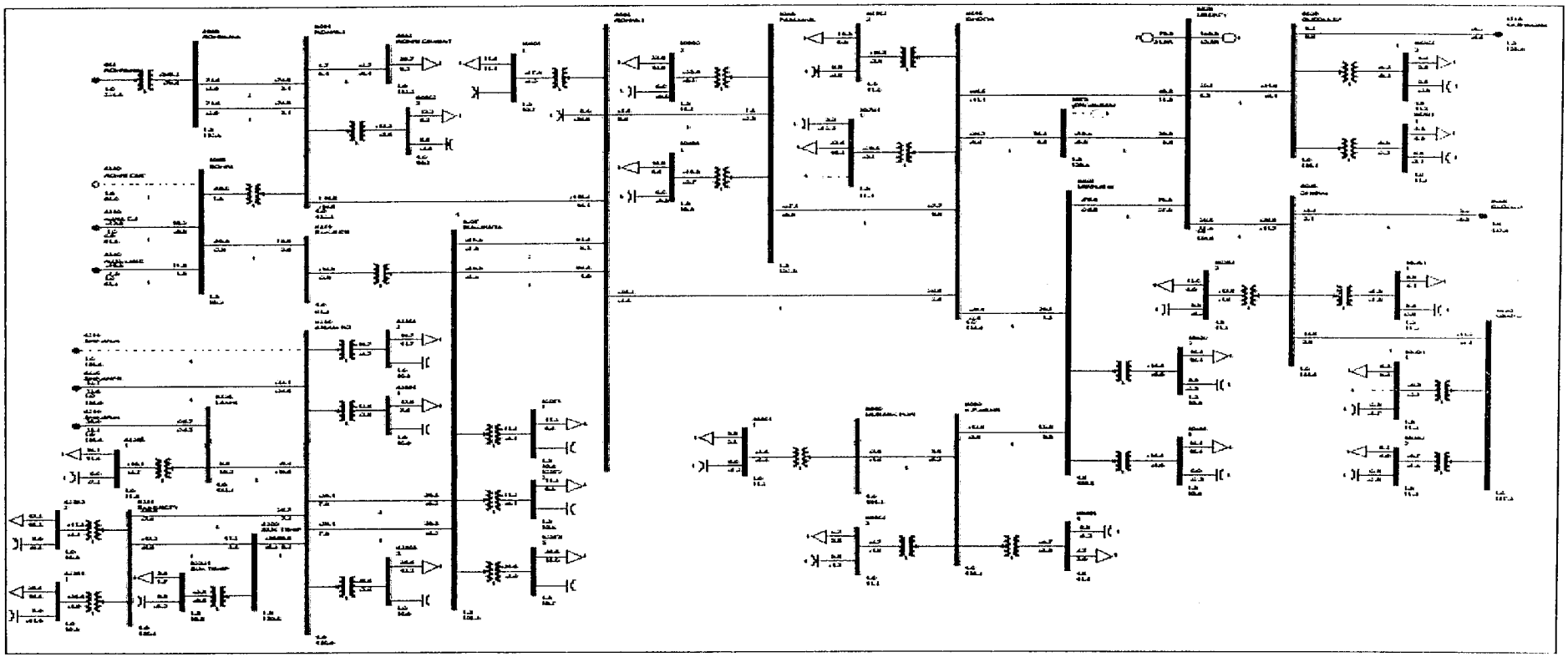
Exhibit - 2022 - 1.2



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITHOUT PROPOSED PLAN

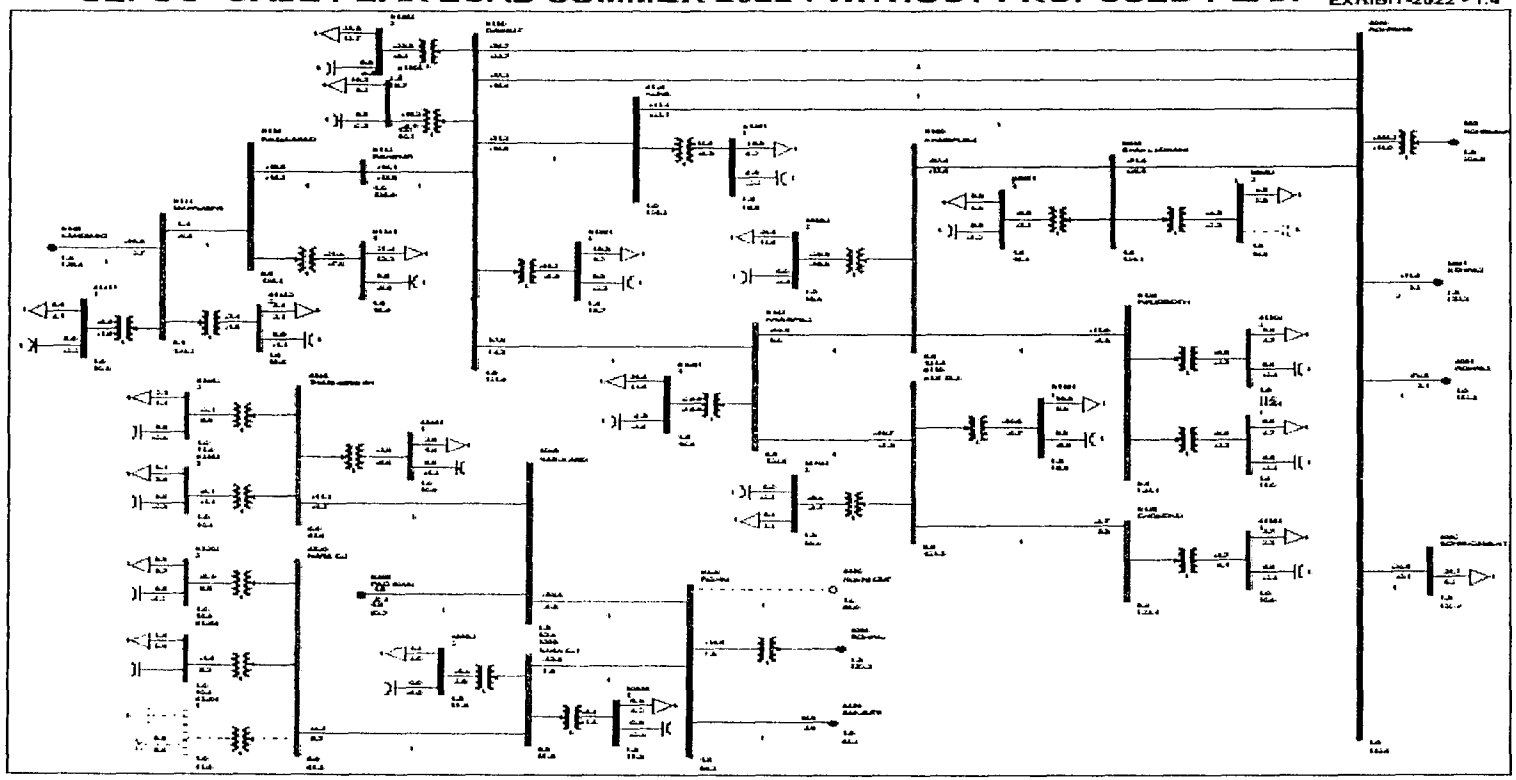
EXHIBIT-2022 - 6.3



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITHOUT PROPOSED PLAN

EXHIBIT-2022 - 1.4

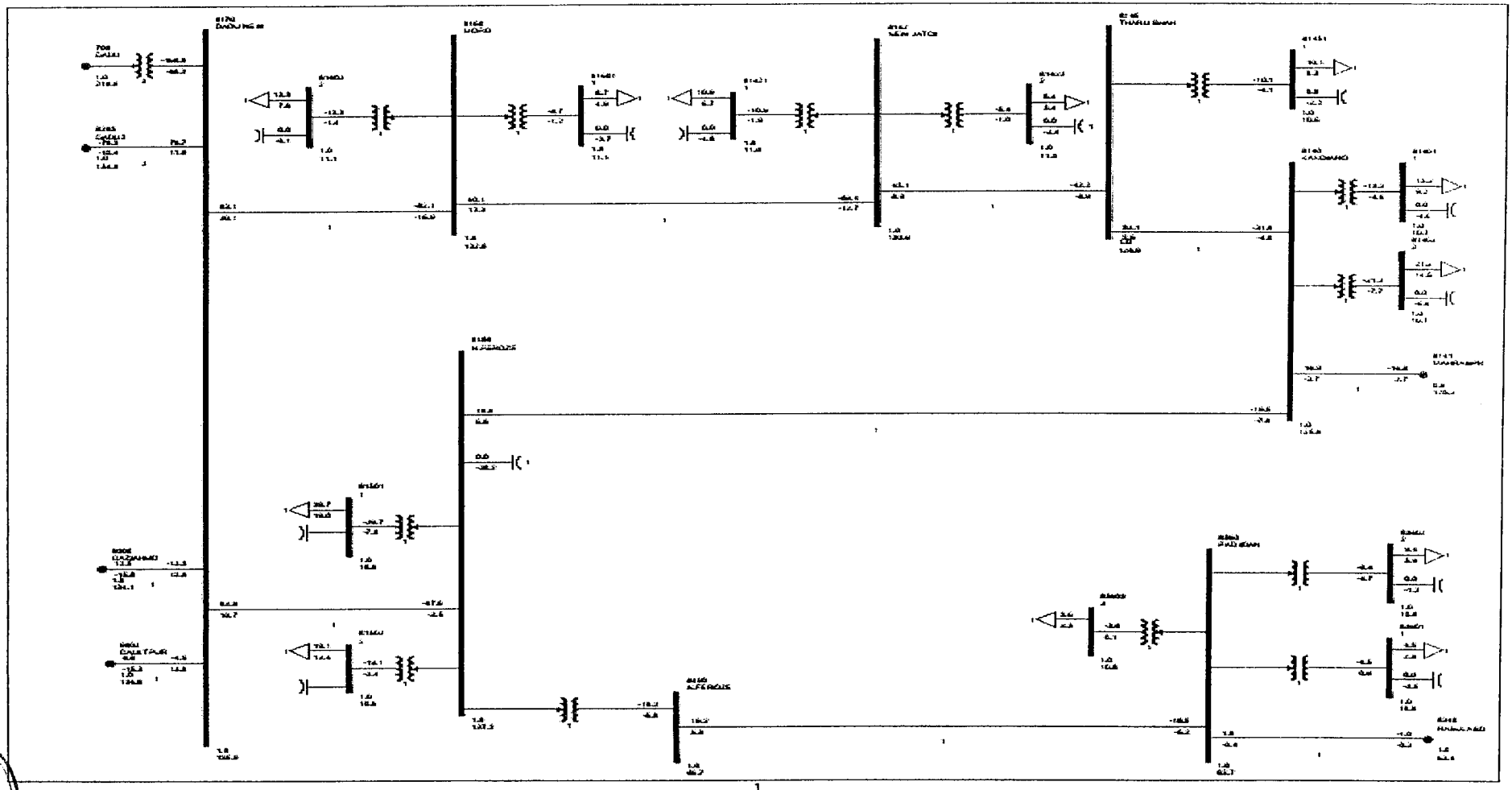


1

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITHOUT PROPOSED PLAN

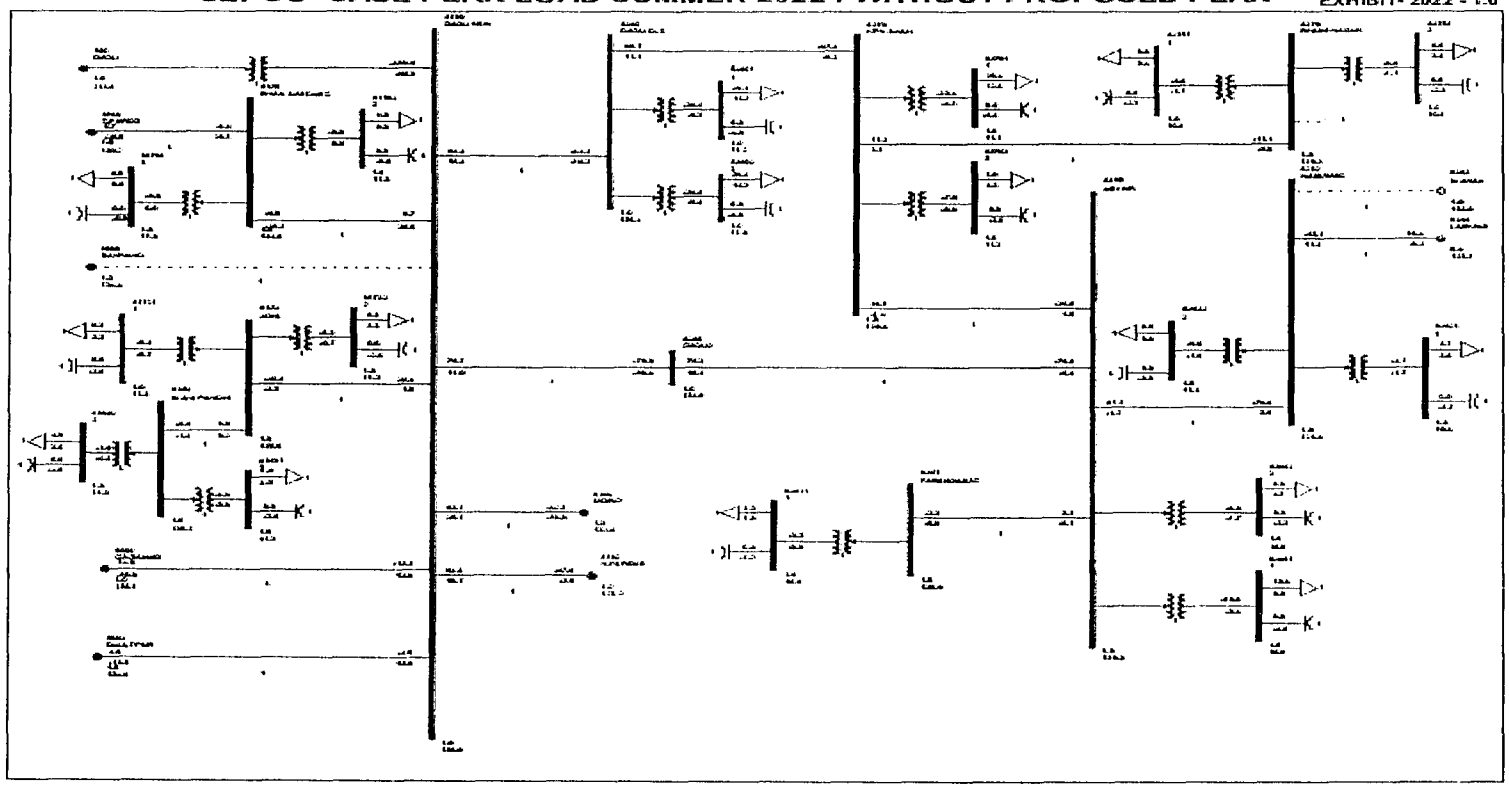
EXHIBIT- 2022 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITHOUT PROPOSED PLAN

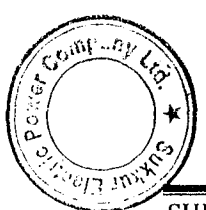
EXHIBIT- 2022 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 16:20
SEPCO PEAK LOAD SUMMER 2021-22 WITHOUT PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME --X	BASKV	AREA	BUS#-SCT	X-- NAME --X	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	453.9	480.0	94.6	--	--	--	--
8125	KUNB	132.00*	9	81251	1	11.000	9	1	11.3	13.0	86.7	--	--	--	--
8145	THARU SHAH	132.00*	9	81451	1	11.000	9	1	11.4	13.0	88.0	--	--	--	--
8150	N.FEROZE	132.00*	9	8170	DADU NEW	132.00	9	1	90.9	112.0	81.2	--	--	--	--
8215	JACOBABAD-II	132.00*	9	82151	1	11.000	9	1	13.3	13.0	102.5	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.3	26.0	82.0	--	--	--	--
8280	DADU OLD	132.00*	9	82802	2	11.000	9	1	32.1	40.0	80.2	--	--	--	--
8360	PAD IDAN	66.000*	9	83602	2	11.000	9	1	11.0	13.0	84.9	--	--	--	--
8500	GHARI KHAIRO	66.000*	9	85001	1	11.000	9	1	6.5	7.5	87.0	--	--	--	--



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 16:19
SEPCO PEAK LOAD SUMMER 2021-22 WITHOUT PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV
				* NONE *							

BUSES WITH VOLTAGE LESS THAN 0.9500:

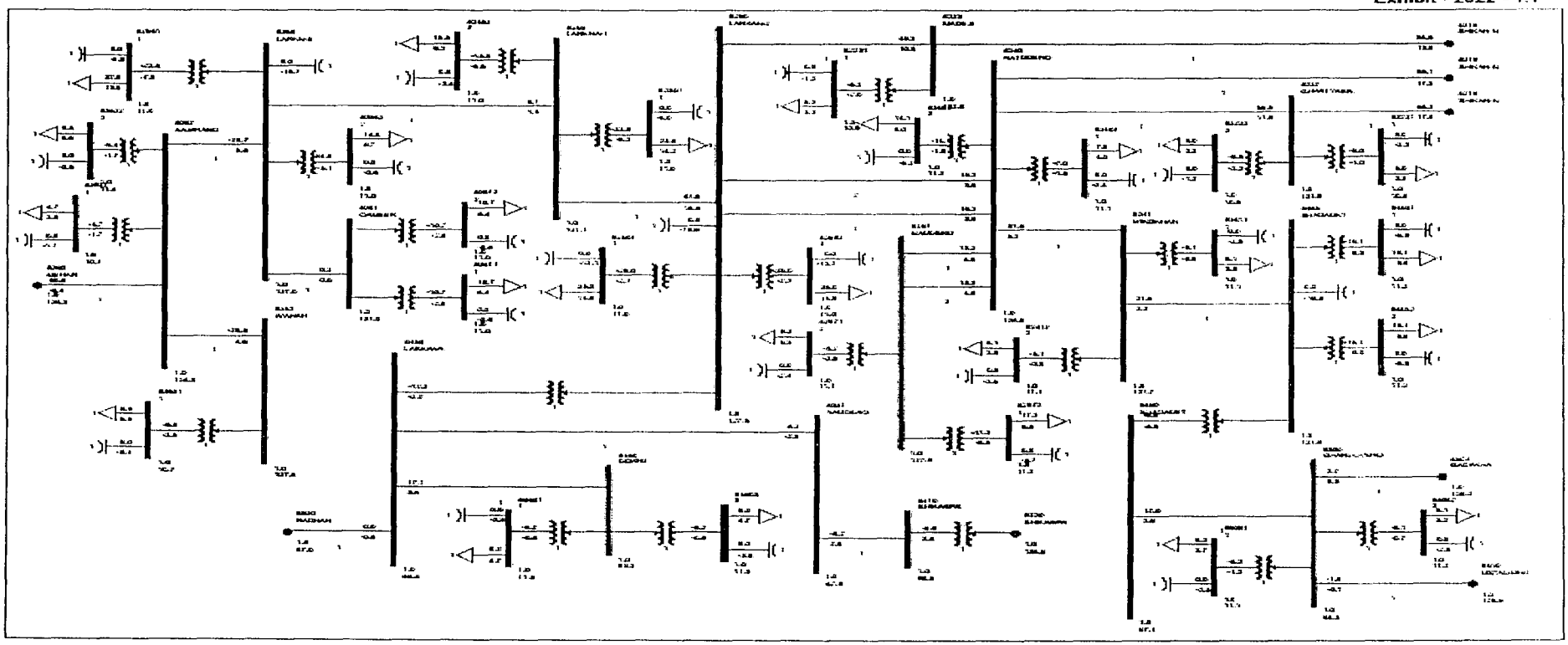
BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV
8100	KHAIRPUR-1	132.00	9	0.9453	124.78						
8102	KHAIRPR-2	132.00	9	0.9453	124.78						
8110	KOT DIJI	132.00	9	0.9413	124.26						
8120	PIRJOGOTH	132.00	9	0.9403	124.12						
8134	RASULABAD	132.00	9	0.9499	125.39						
8135	CHONDKO	132.00	9	0.9405	124.14						
8141	MAHRABPR	132.00	9	0.9484	125.19						
8240	RATODERO	132.00	9	0.9495	125.34						
8241	MIROKHAN	132.00	9	0.9448	124.72						
8250	LARKAN-2	132.00	9	0.9394	124.00						
8255	LARKNA-1	132.00	9	0.9367	123.65						
8256	LARKN-3	132.00	9	0.9370	123.69						
8257	NAUDERO	132.00	9	0.9434	124.53						
8310	NARA C-1	66.000	9	0.9324	61.538						
8320	NARA C-2	66.000	9	0.9287	61.293						
8345	THARI MIRWAH	66.000	9	0.9333	61.599						
8460	DOKRI	66.000	9	0.9185	60.621						
8480	WARAH	66.000	9	0.9441	62.312						
8485	SHADADKT	132.00	9	0.9436	124.56						

```
    PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E      TUE, SEP 28 2021  16:21
SEPCO PEAK LOAD SUMMER 2021-22 WITHOUT PROPOSED PLAN

******************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ******************

AREAS:
   9 SEPCO

********************************************************************************

   214 BUSES          10 PLANTS              2 MACHINES        0 INDUCTION GENS        0 INDUCTION MOTORS
   127 LOADS         127 FIXED SHUNTS        0 SWITCHED SHUNTS
   257 BRANCHES      136 TRANSFORMERS        0 DC LINES        0 FACTS DEVICES         0 GNE DEVICES

                          X------- ACTUAL -------X X------ NOMINAL -------X
                                MW          MVAR          MW          MVAR
FROM GENERATION                210.0         65.3         210.0         65.3
FROM INDUCTION GENERATORS        0.0          0.0           0.0          0.0
TO CONSTANT POWER LOAD        1478.6        874.3        1478.6        874.3
TO CONSTANT CURRENT              0.0          0.0           0.0          0.0
TO CONSTANT ADMITTANCE           0.0          0.0           0.0          0.0
TO INDUCTION MOTORS              0.0          0.0           0.0          0.0
TO BUS SHUNT                     0.0       -626.3           0.0       -644.3
TO FACTS DEVICE SHUNT            0.0          0.0           0.0          0.0
TO GNE BUS DEVICES               0.0          0.0           0.0          0.0
TO LINE SHUNT                    0.0          0.0           0.0          0.0
FROM LINE CHARGING               0.0        129.0           0.0        130.0

 VOLTAGE          X------ LOSSES ------X   X-- LINE SHUNTS --X    CHARGING
 LEVEL  BRANCHES        MW          MVAR        MW          MVAR        MVAR
 132.0      109       50.96        256.89       0.0           0.0       121.1
  66.0       24        5.67         12.50       0.0           0.0         7.9
  11.0      124        0.00        123.04       0.0           0.0         0.0
 TOTAL      257       56.63        392.42       0.0           0.0       129.0
```

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITH PROPOSED PLAN

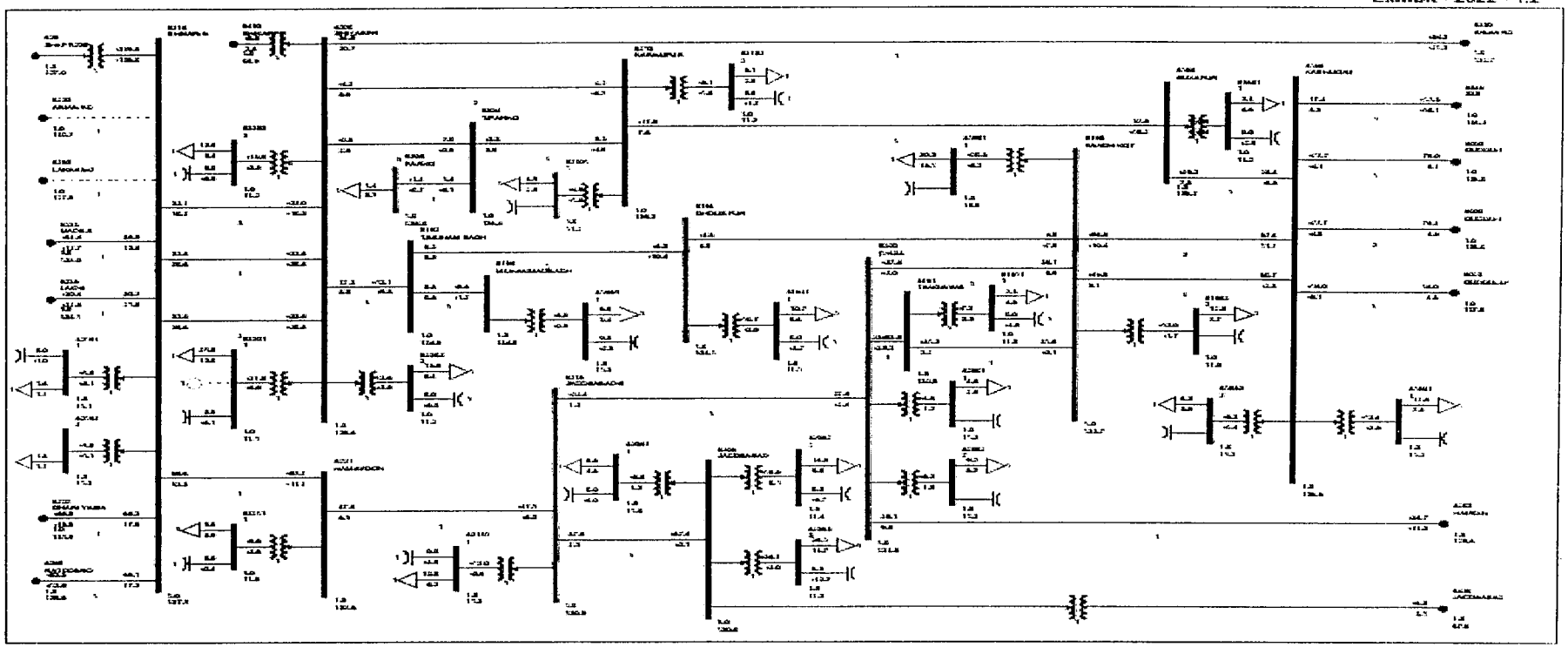
Exhibit - 2022 - 1.1



LOAD FLOW STUDY

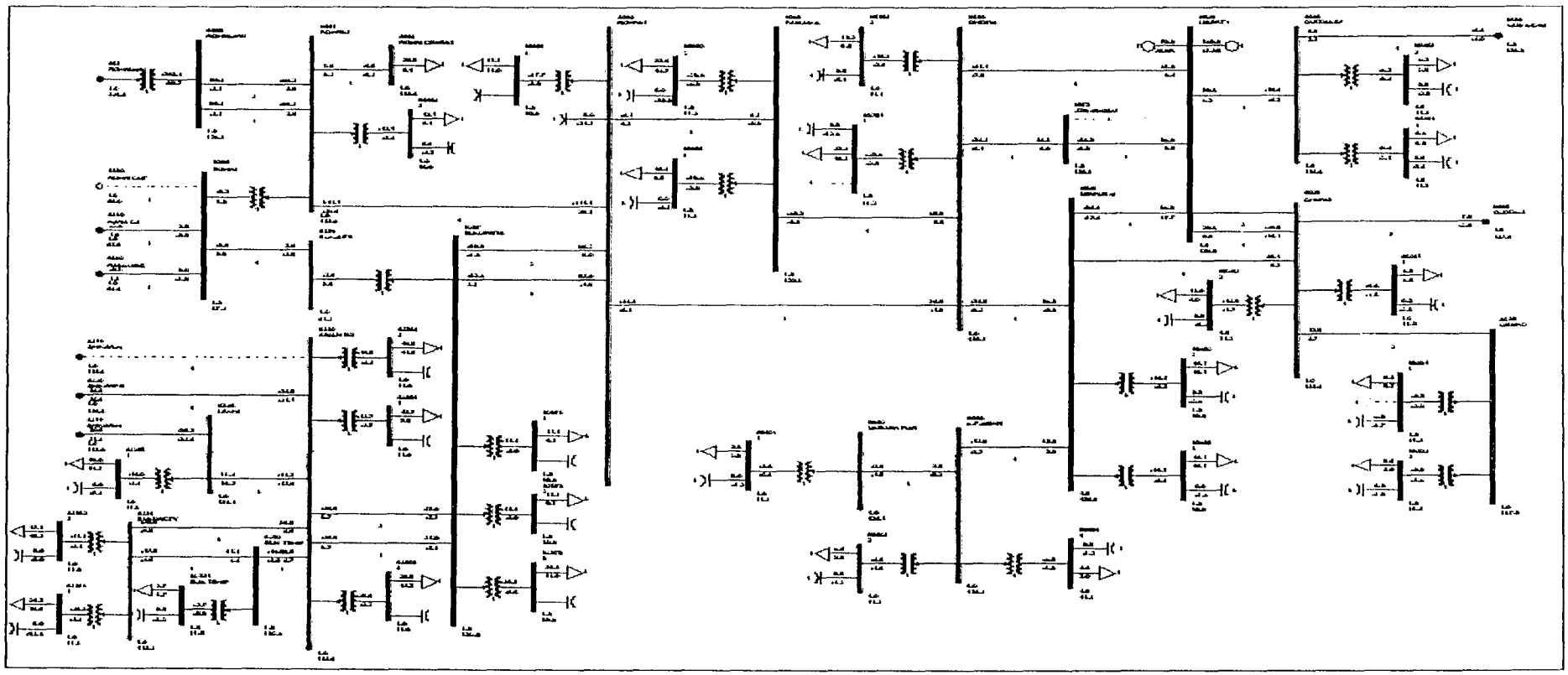
SEPCO -CASE PEAK LOAD SUMMER 2022 : WITH PROPOSED PLAN

Exhibit - 2022 - 1.2



LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2021 : WITH PROPOSED PLAN

EXHIBIT-2022 - 1.3

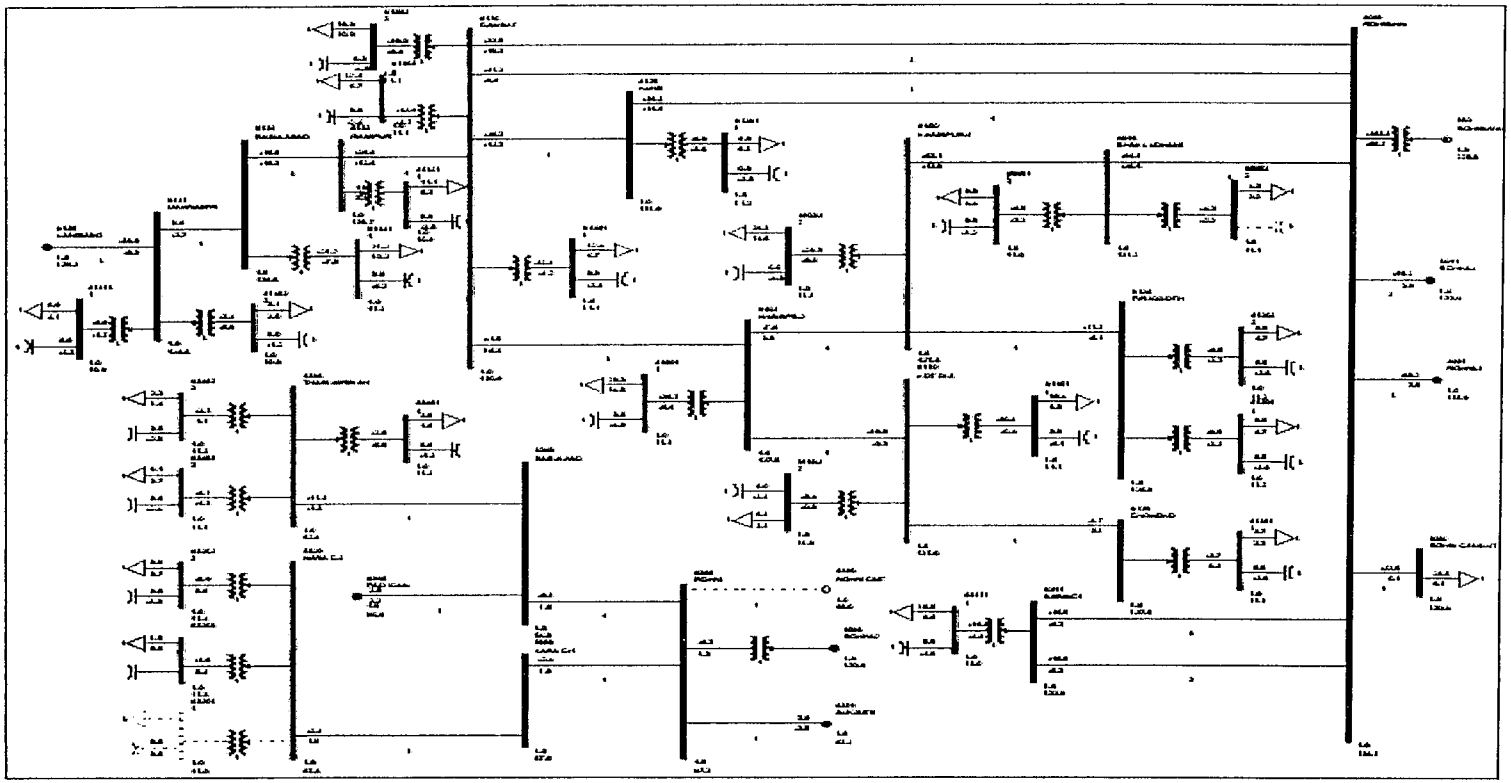


1

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITH PROPOSED PLAN

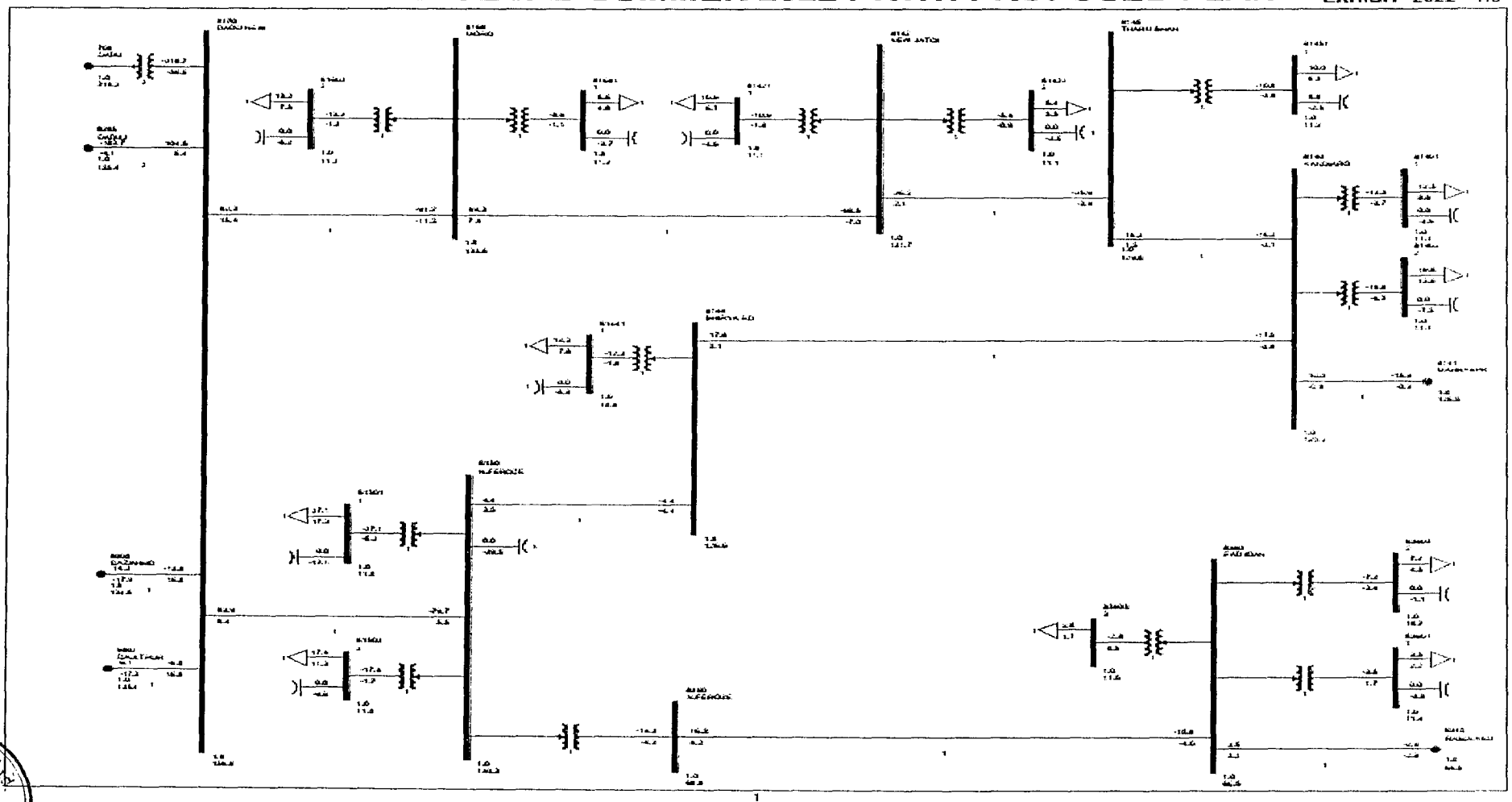
EXHIBIT-2022 - 1.4



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2022 : WITH PROPOSED PLAN

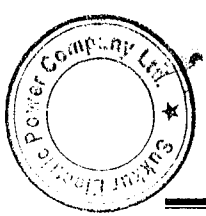
EXHIBIT- 2022 - 1.5



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, SEP 28 2021 17:18
SEPCO PEAK LOAD SUMMER 2021-22 WITH PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME --X	BASKV	AREA	BUS#-SCT	X-- NAME --X	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	421.7	480.0	87.8	--	--	--	--
8170	DADU NEW	132.00	9	8285	DADU2	132.00*	9	2	101.0	112.0	90.2	--	--	--	--
8260	MEHAR	132.00*	9	8285	DADU2	132.00	9	1	101.0	112.0	90.2	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.3	26.0	81.9	--	--	--	--
8500	GHARI KHAIRO	66.000*	9	85001	1	11.000	9	1	6.4	7.5	85.8	--	--	--	--



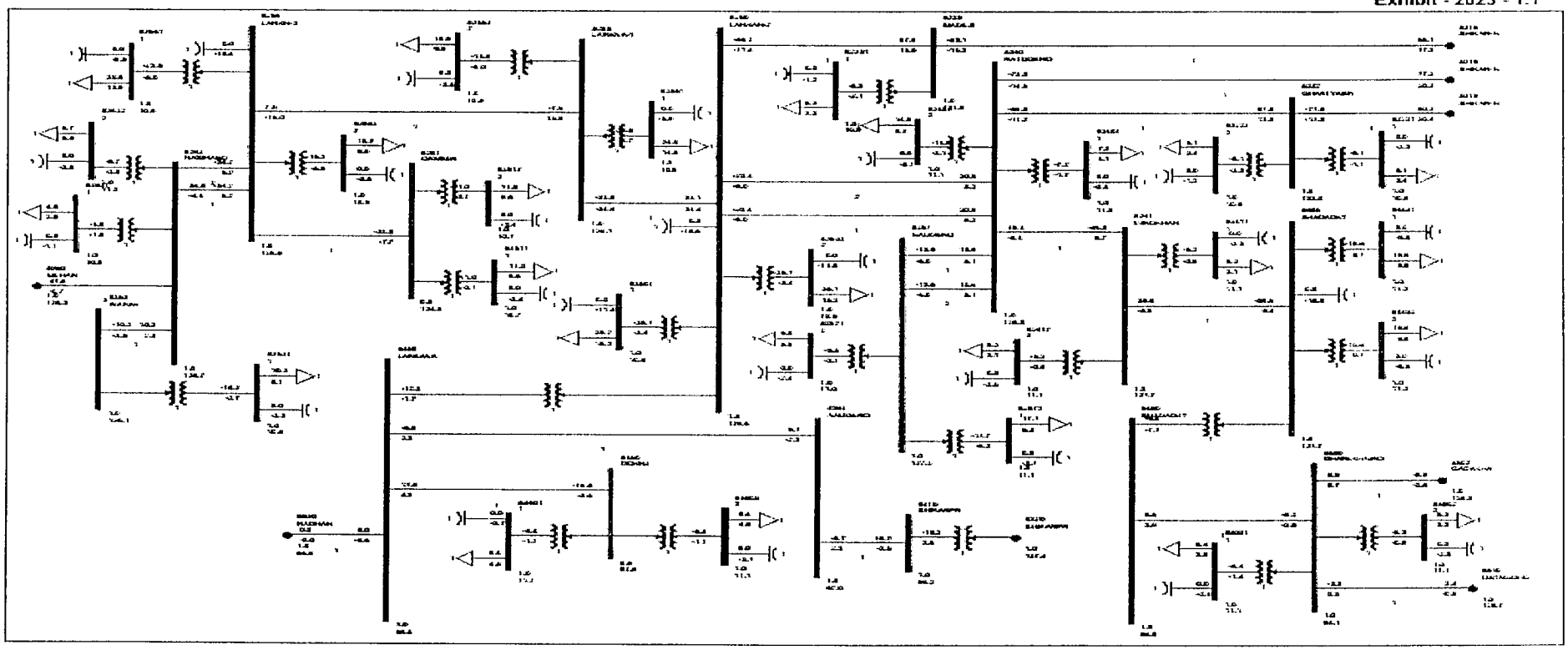
```
     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E        TUE, SEP 28 2021  17:19
SEPCO PEAK LOAD SUMMER 2021-22 WITH PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:
   BUS#-SCT X-- NAME --X BASKV AREA  V(PU)  V(KV)       BUS#-SCT X-- NAME --X BASKV AREA  V(PU)  V(KV)
                                          * NONE *

BUSES WITH VOLTAGE LESS THAN 0.9500:
   BUS#-SCT X-- NAME --X BASKV AREA  V(PU)  V(KV)       BUS#-SCT X-- NAME --X BASKV AREA  V(PU)  V(KV)
                                          * NONE *
```

```
    PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E      WED, SEP 29 2021  14:56
SEPCO PEAK LOAD SUMMER 2021-22 WITH PROPOSED PLAN

******************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ******************

AREAS:
   9 SEPCO

********************************************************************************

   220 BUSES          11 PLANTS              2 MACHINES        0 INDUCTION GENS       0 INDUCTION MOTORS
   129 LOADS         129 FIXED SHUNTS        0 SWITCHED SHUNTS
   280 BRANCHES      138 TRANSFORMERS        0 DC LINES        0 FACTS DEVICES        0 GNE DEVICES

                          X------ ACTUAL ------X X----- NOMINAL ------X
                                  MW        MVAR          MW        MVAR
FROM GENERATION                 210.0        62.2        210.0        62.2
FROM INDUCTION GENERATORS         0.0         0.0          0.0         0.0
TO CONSTANT POWER LOAD         1485.6       877.9       1485.6       877.9
TO CONSTANT CURRENT               0.0         0.0          0.0         0.0
TO CONSTANT ADMITTANCE            0.0         0.0          0.0         0.0
TO INDUCTION MOTORS               0.0         0.0          0.0         0.0
TO BUS SHUNT                      0.0      -662.9          0.0      -656.3
TO FACTS DEVICE SHUNT             0.0         0.0          0.0         0.0
TO GNE BUS DEVICES                0.0         0.0          0.0         0.0
TO LINE SHUNT                     0.0         0.0          0.0         0.0
FROM LINE CHARGING                0.0       169.8          0.0       167.8

 VOLTAGE        X----- LOSSES -----X   X-- LINE SHUNTS --X   CHARGING
 LEVEL BRANCHES       MW        MVAR        MW        MVAR       MVAR
 132.0     131     47.22      240.03       0.0         0.0      161.6
  66.0      23      3.09        6.53       0.0         0.0        8.2
  11.0     126      0.00      111.66       0.0         0.0        0.0
 TOTAL     280     50.31      358.22       0.0         0.0      169.8
```

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2023 : WITHOUT PROPOSED PLAN

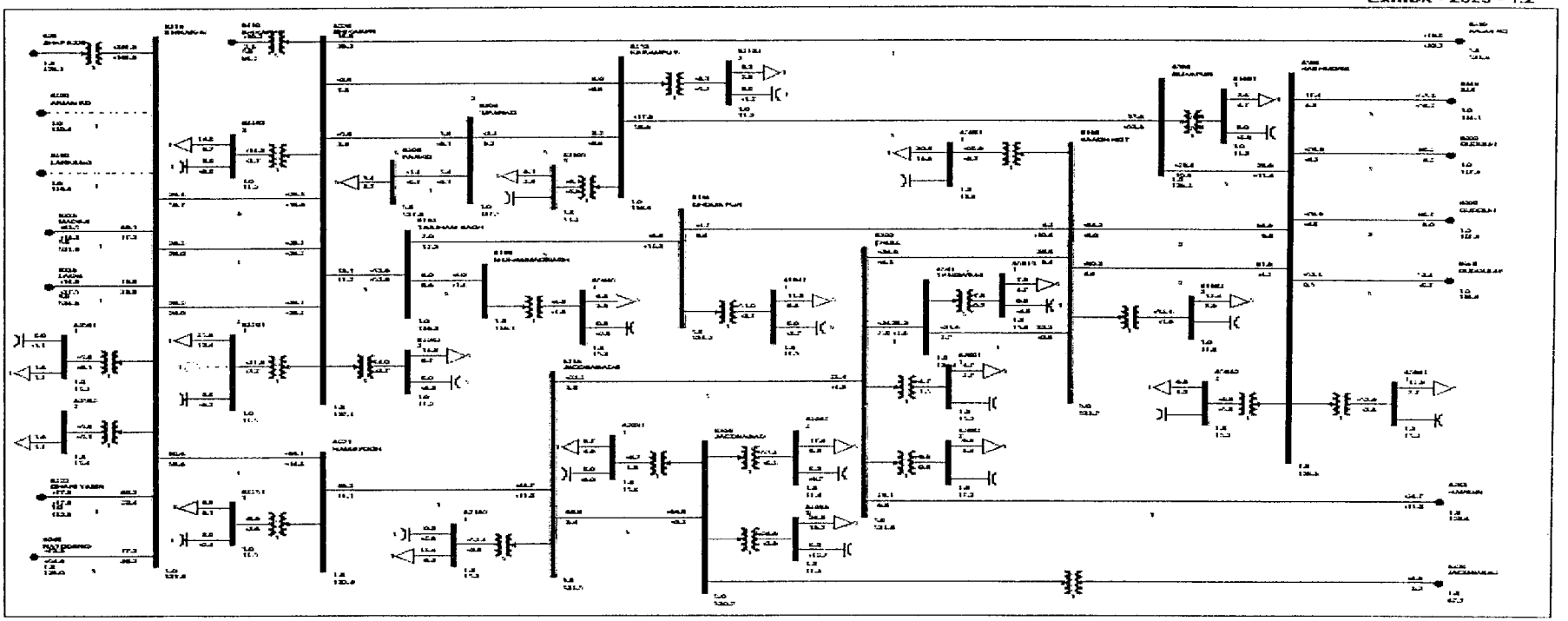
Exhibit - 2023 - 1.1



LOAD FLOW STUDY

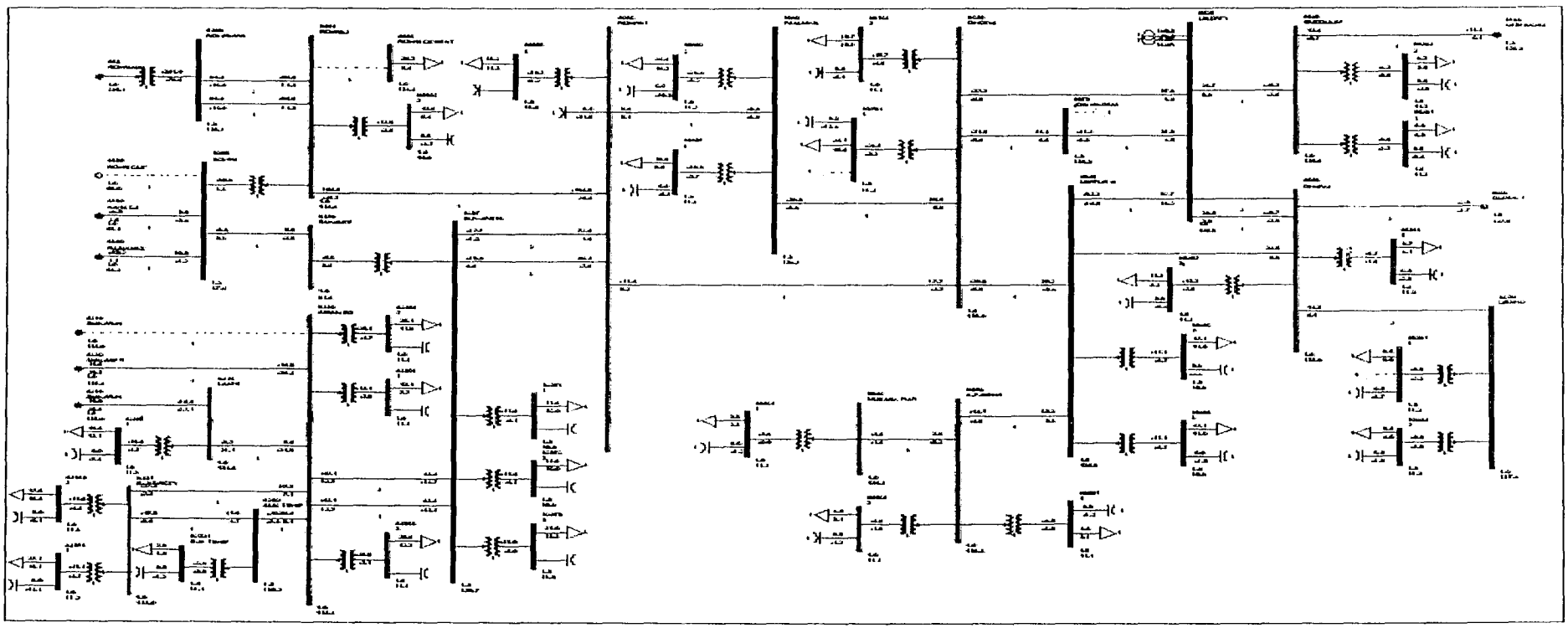
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITHOUT PROPOSED PLAN

Exhibit - 2023 - 1.2



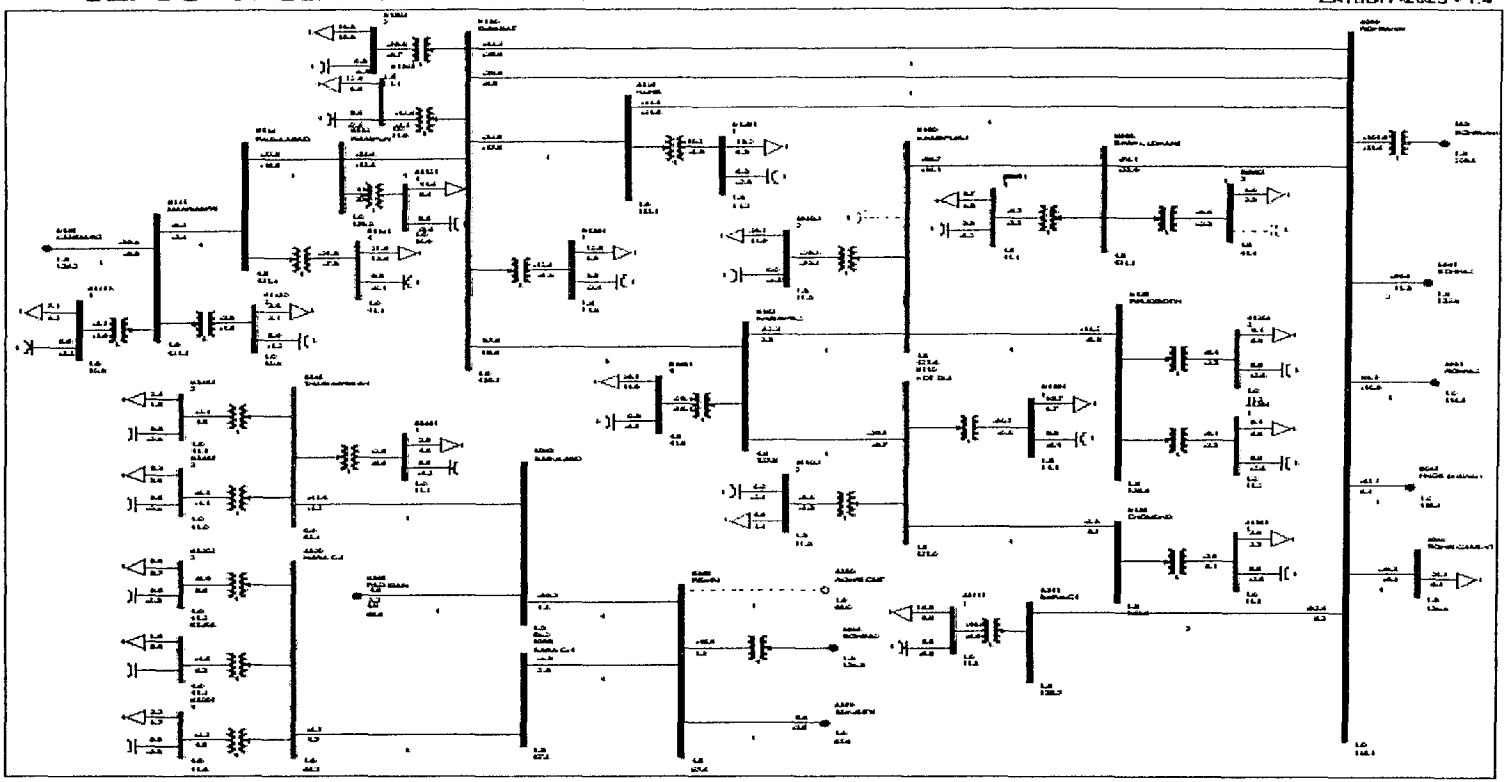
LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITHOUT PROPOSED PLAN

EXHIBIT-2023 - 1.3



LOAD FLOW STUDY

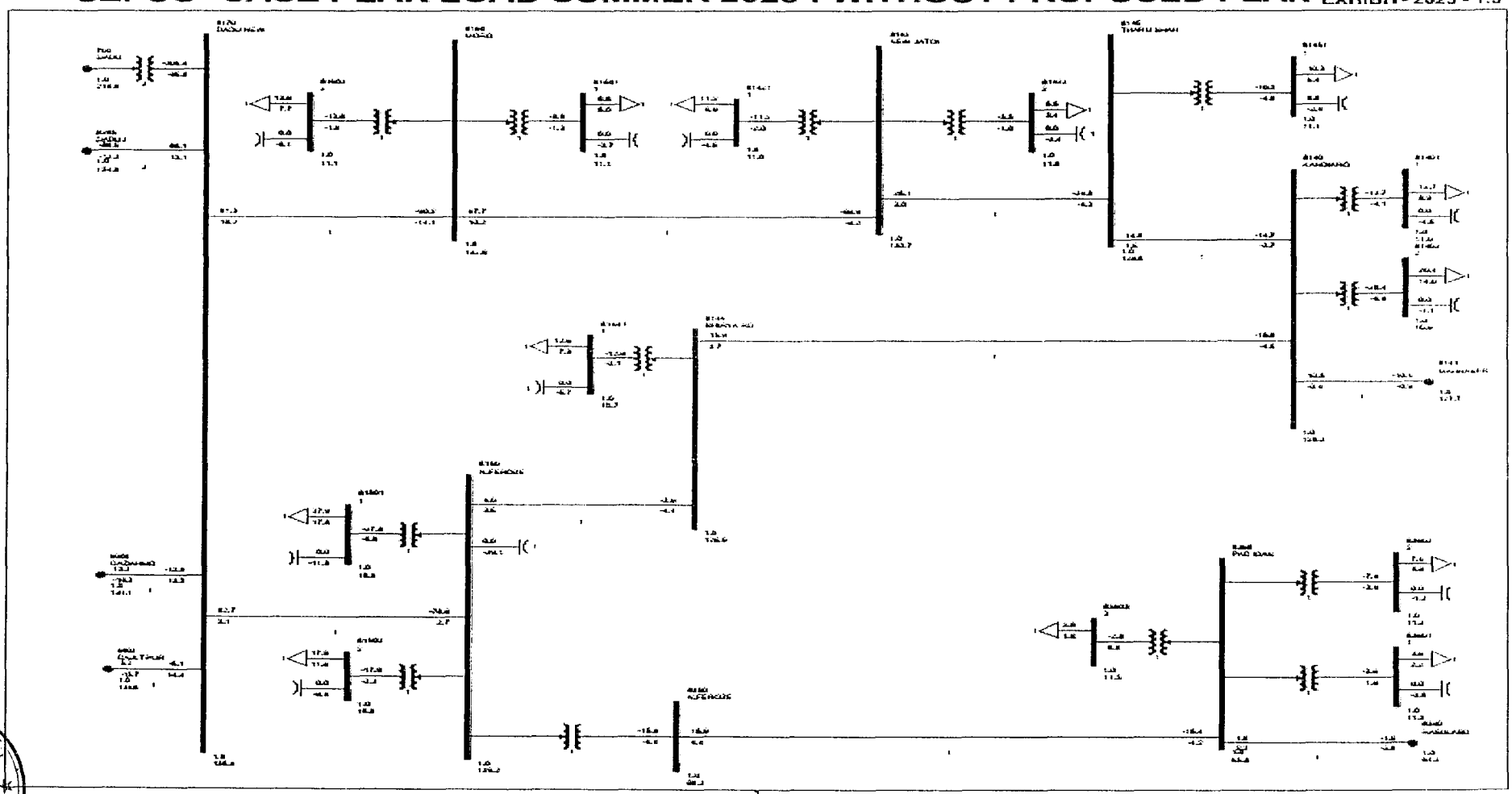
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITHOUT PROPOSED PLAN EXHIBIT-2023 - 1.4



1

LOAD FLOW STUDY

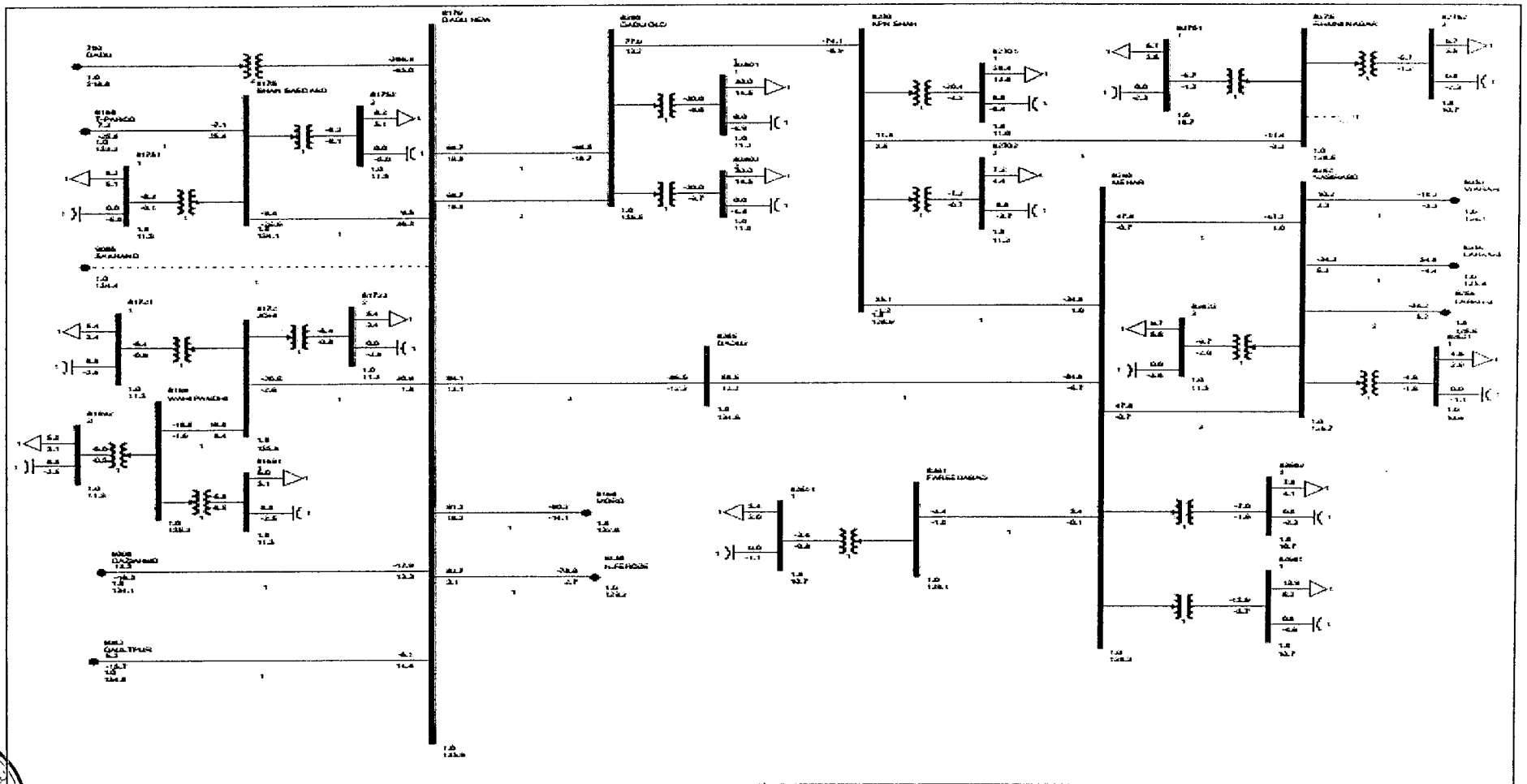
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITHOUT PROPOSED PLAN EXHIBIT- 2023 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2023 : WITHOUT PROPOSED PLAN

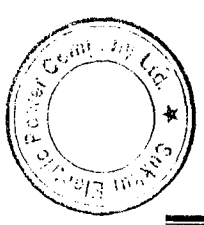
EXHIBIT- 2023 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E FRI, OCT 01 2021 10:43
SEPCO PEAK LOAD SUMMER 2022-23 WITHOUT PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME --X	BASKV	AREA	BUS#-SCT	X-- NAME --X	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	450.0	480.0	93.7	--	--	--	--
8040	MIRPUR M	132.00*	9	80402	2	11.000	9	1	21.2	26.0	81.4	--	--	--	--
8100	KHAIRPUR-1	132.00*	9	81002	2	11.000	9	1	32.0	40.0	80.1	--	--	--	--
8102	KHAIRPR-2	132.00*	9	81001	1	11.000	9	1	32.0	40.0	80.1	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.4	26.0	82.1	--	--	--	--
8280	DADU OLD	132.00*	9	82801	1	11.000	9	1	32.7	40.0	81.8	--	--	--	--
8280	DADU OLD	132.00*	9	82802	2	11.000	9	1	32.8	40.0	82.1	--	--	--	--
80811	HELIOS MV _1	33.000	9	808111		0.4000*	9	1	12.6	14.0	90.3	--	--	--	--
80812	HELIOS MV _2	33.000	9	808121		0.4000*	9	1	10.1	11.2	90.3	--	--	--	--
80813		33.000	9	808131		0.4000*	9	1	10.1	11.2	90.3	--	--	--	--
80814	HELIOS MV _4	33.000	9	808141		0.4000*	9	1	10.1	11.2	90.3	--	--	--	--
80821		33.000	9	808211		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80822		33.000	9	808221		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--
80823		33.000	9	808231		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--
80824		33.000	9	808241		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--
80831		33.000	9	808311		0.4000*	9	1	12.6	14.0	90.2	--	--	--	--
80832		33.000	9	808321		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80833		33.000	9	808331		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80834		33.000	9	808341		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--



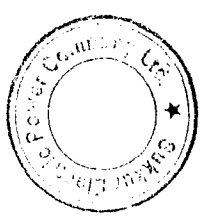
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E FRI, OCT 01 2021 10:44
SEPCO PEAK LOAD SUMMER 2022-23 WITHOUT PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)
* NONE *											

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)
8251	QAMBER	132.00	9	0.9432	124.51						
8345	THARI MIRWAH	66.000	9	0.9453	62.393						
8460	DOKRI	66.000	9	0.9486	62.605						

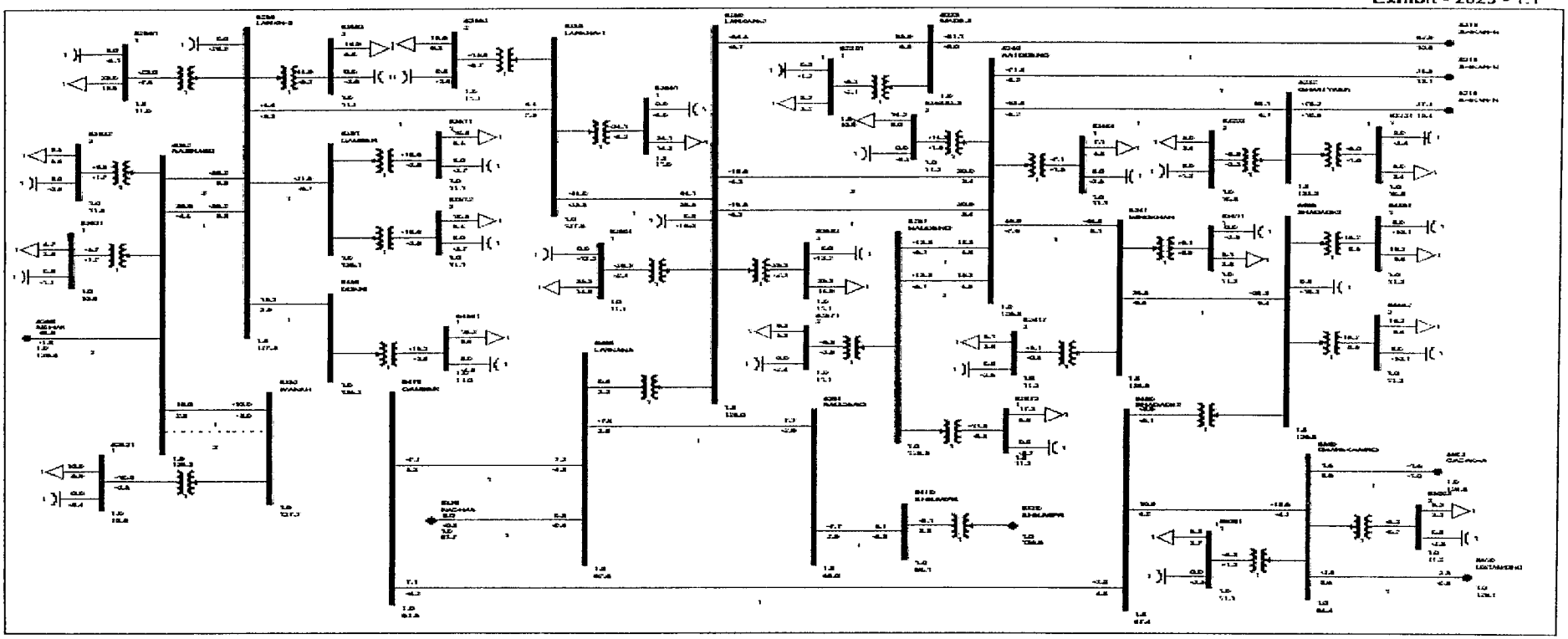


```
     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E        FRI, OCT 01 2021  10:44
SEPCO PEAK LOAD SUMMER 2022-23 WITHOUT PROPOSED PLAN

******************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ******************

AREAS:
    9 SEPCO

********************************************************************************

    250 BUSES          23 PLANTS            14 MACHINES        0 INDUCTION GENS        0 INDUCTION MOTORS
    133 LOADS         130 FIXED SHUNTS       3 SWITCHED SHUNTS
    304 BRANCHES      157 TRANSFORMERS       0 DC LINES         0 FACTS DEVICES         0 GNE DEVICES

                          X------- ACTUAL -------X X------ NOMINAL -------X
                                MW          MVAR          MW          MVAR
FROM GENERATION                338.5         50.7         338.5         50.7
FROM INDUCTION GENERATORS        0.0          0.0           0.0          0.0
TO CONSTANT POWER LOAD        1529.0        904.4        1529.0        904.4
TO CONSTANT CURRENT              0.0          0.0           0.0          0.0
TO CONSTANT ADMITTANCE           0.0          0.0           0.0          0.0
TO INDUCTION MOTORS              0.0          0.0           0.0          0.0
TO BUS SHUNT                     0.0       -660.9           0.0       -658.7
TO FACTS DEVICE SHUNT            0.0          0.0           0.0          0.0
TO GNE BUS DEVICES               0.0          0.0           0.0          0.0
TO LINE SHUNT                    0.0          0.0           0.0          0.0
FROM LINE CHARGING               0.0        146.1           0.0        144.2

 VOLTAGE        X------ LOSSES ------X    X-- LINE SHUNTS --X    CHARGING
 LEVEL BRANCHES       MW          MVAR          MW          MVAR         MVAR
 132.0     124     50.60        243.64         0.0           0.0        137.9
  66.0      23      3.63          7.46         0.0           0.0          8.1
  33.0      18      0.84          6.57         0.0           0.0          0.1
  11.0     127      0.00        119.46         0.0           0.0          0.0
   0.4      12      0.00          6.59         0.0           0.0          0.0
 TOTAL     304     55.07        383.72         0.0           0.0        146.1
```

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2023 : WITH PROPOSED PLAN

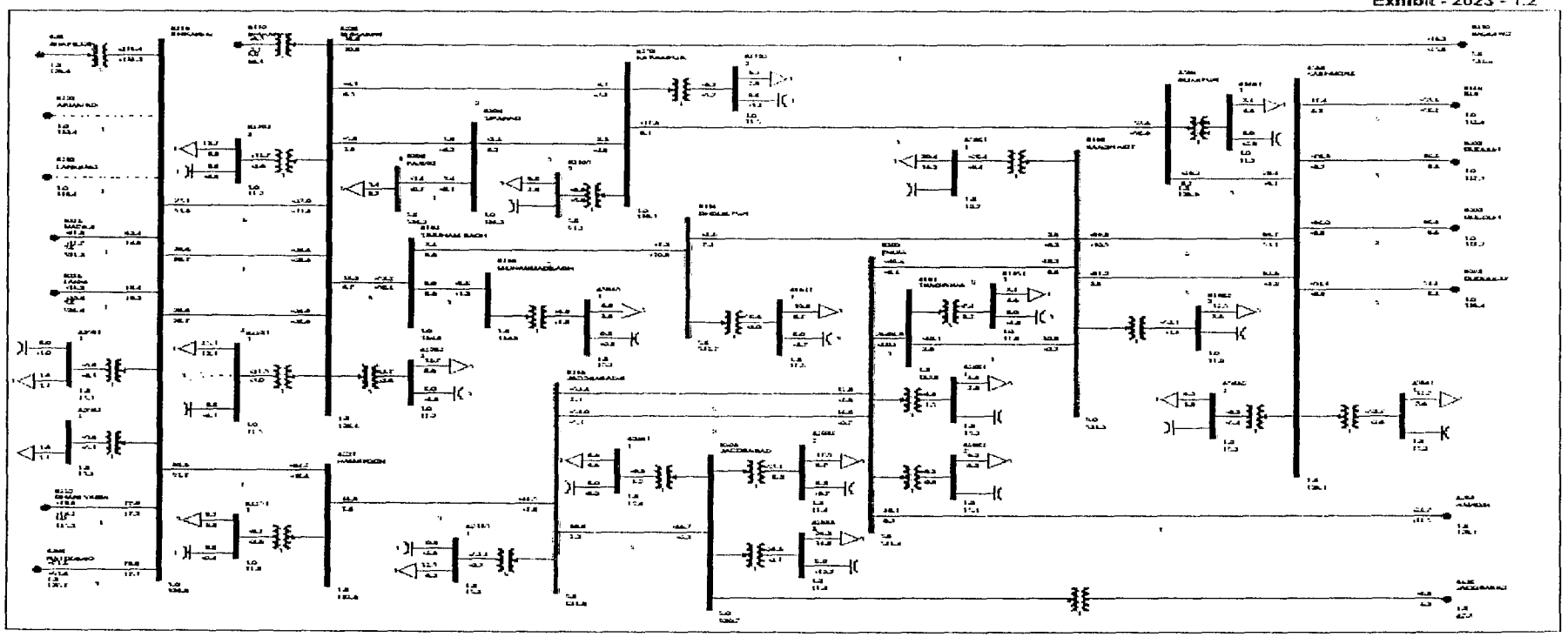
Exhibit - 2023 - 1.1



1

LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITH PROPOSED PLAN

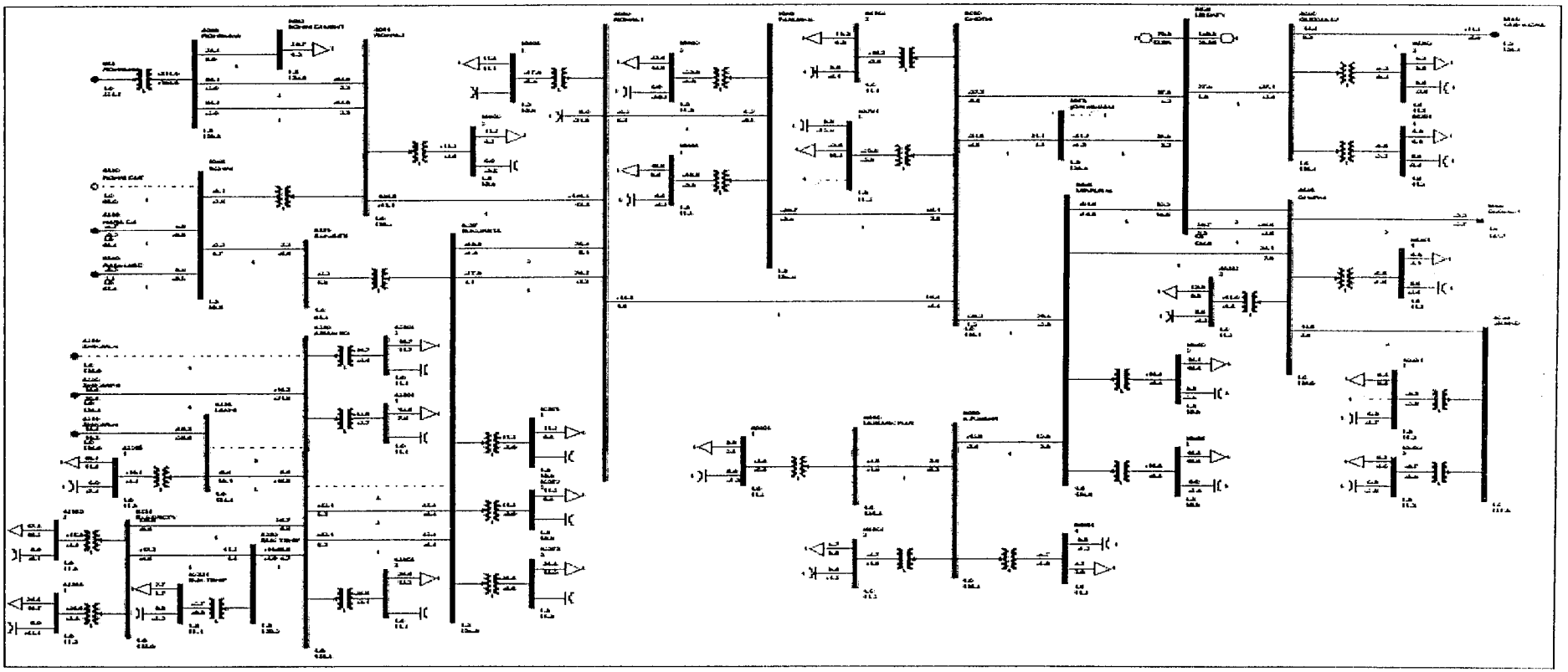
Exhibit - 2023 - 1.2



LOAD FLOW STUDY

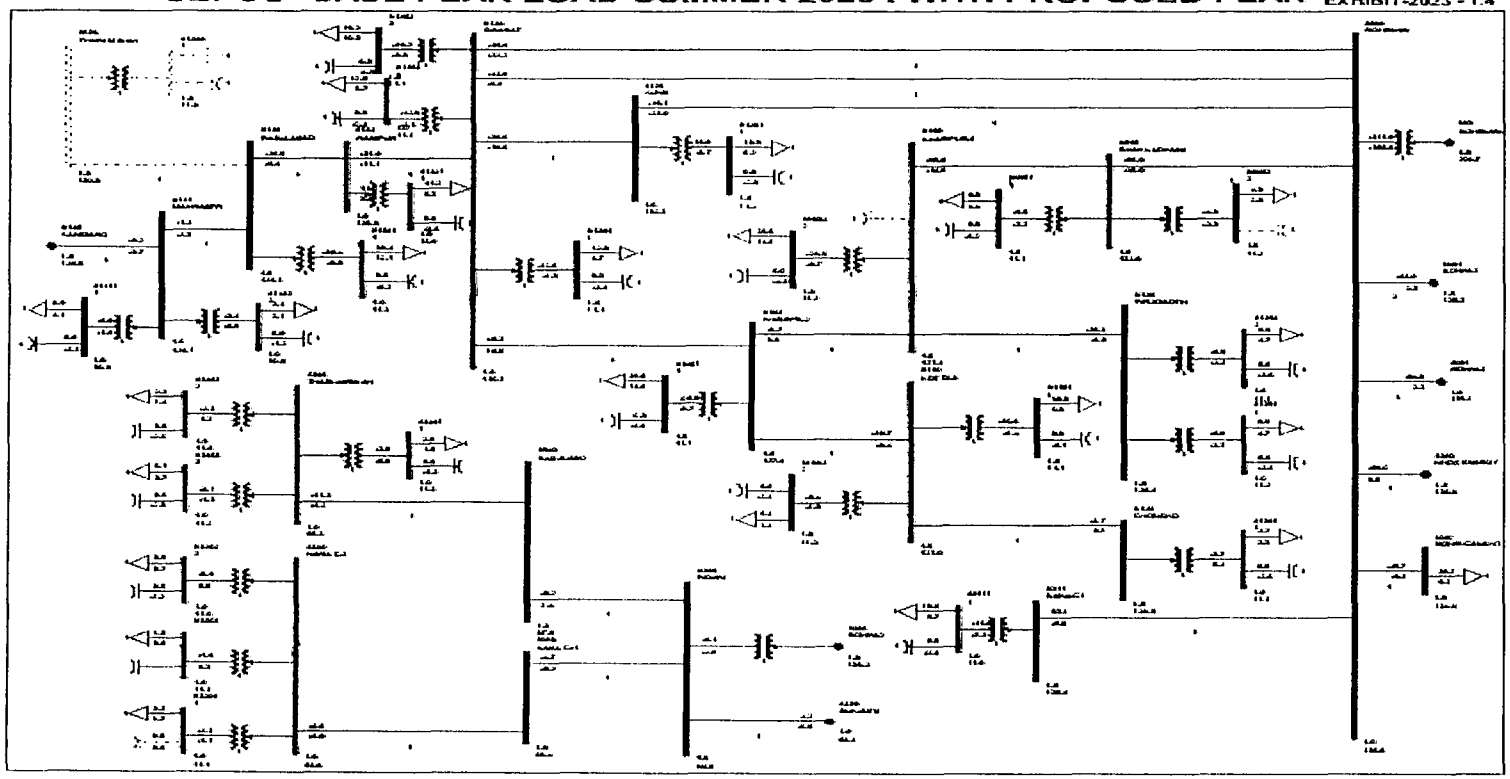
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITH PROPOSED PLAN

EXHIBIT-2023 - 1.3



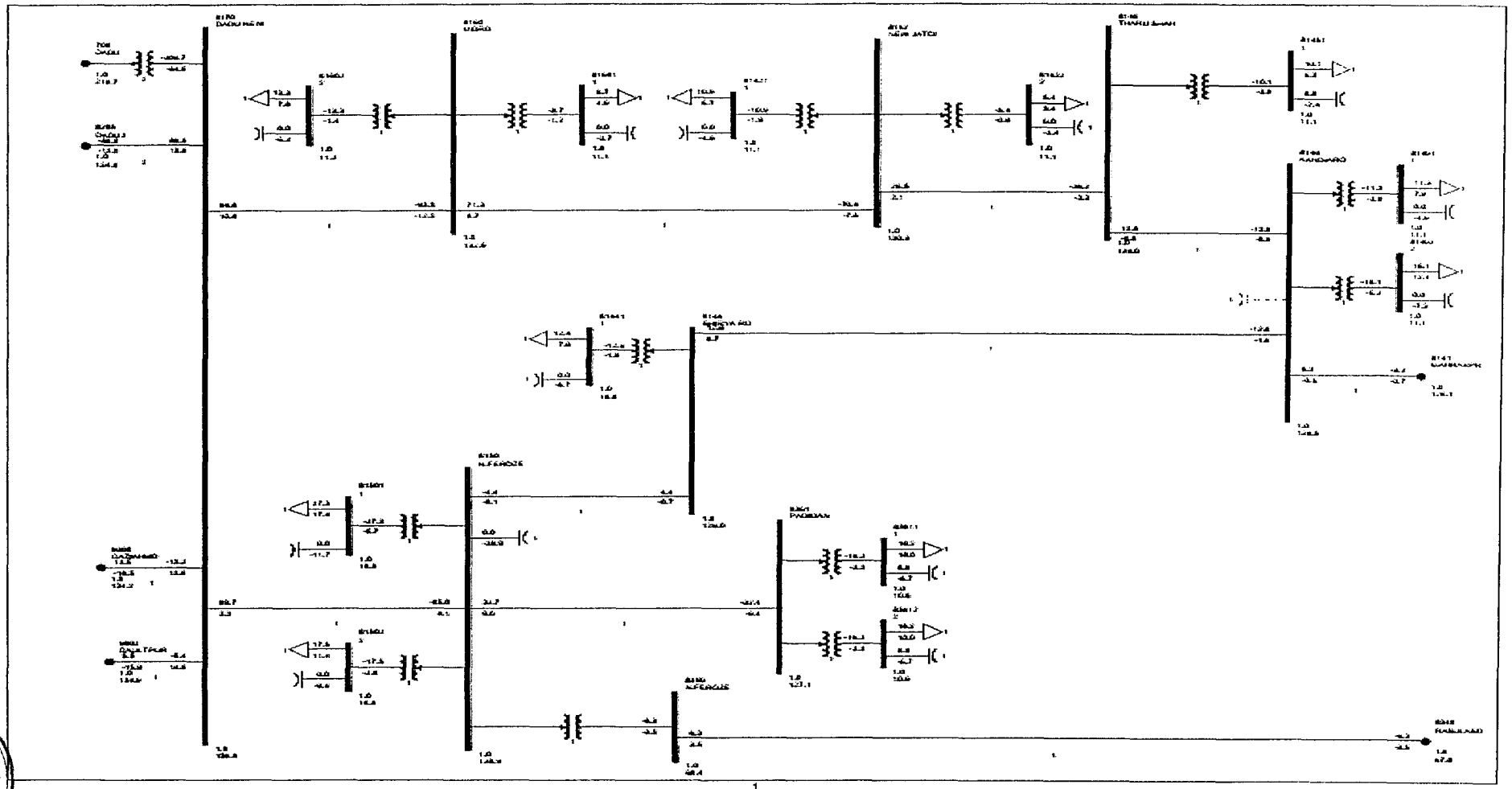
LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2023 : WITH PROPOSED PLAN EXHIBIT-2023 - 1.4



LOAD FLOW STUDY

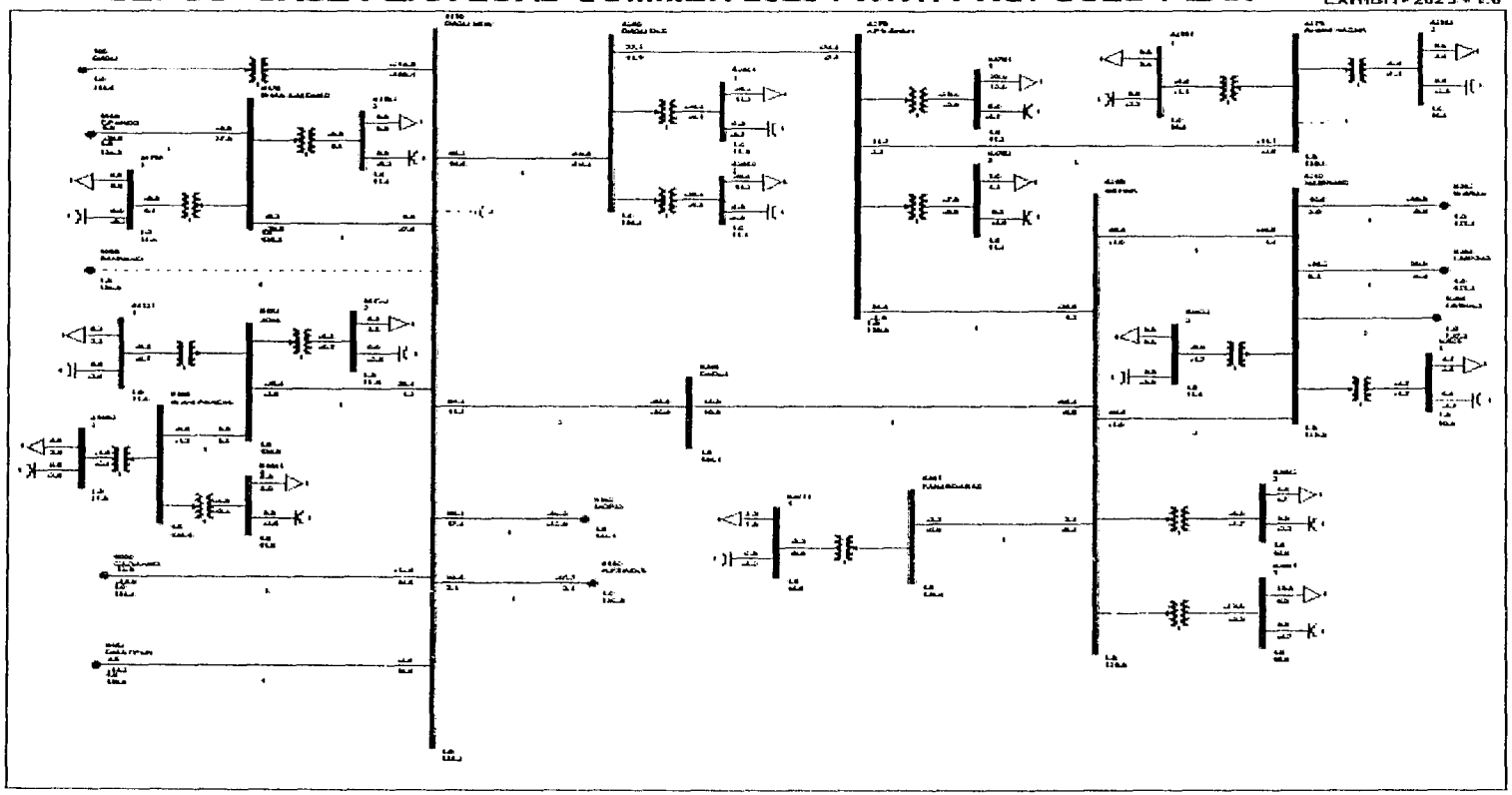
SEPCO -CASE PEAK LOAD SUMMER 2023 : WITH PROPOSED PLAN EXHIBIT- 2023 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2023 : WITH PROPOSED PLAN

EXHIBIT- 2023 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E FRI, OCT 01 2021 10:35
SEPCO PEAK LOAD SUMMER 2022-23 WITH PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME	--X BASKV	AREA	BUS#-SCT	X-- NAME	--X BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	416.0	480.0	86.7	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.4	26.0	82.1	--	--	--	--
8280	DADU OLD	132.00*	9	82802	2	11.000	9	1	32.1	40.0	80.1	--	--	--	--
80811	HELIOS MV _1	33.000	9	808111		0.4000*	9	1	12.6	14.0	90.2	--	--	--	--
80812	HELIOS MV _2	33.000	9	808121		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--
80813		33.000	9	808131		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--
80814	HELIOS MV _4	33.000	9	808141		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--
80821		33.000	9	808211		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80822		33.000*	9	808221		0.4000	9	1	10.1	11.2	90.1	--	--	--	--
80823		33.000*	9	808231		0.4000	9	1	10.1	11.2	90.1	--	--	--	--
80824		33.000*	9	808241		0.4000	9	1	10.1	11.2	90.1	--	--	--	--
80831		33.000	9	808311		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80832		33.000	9	808321		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80833		33.000	9	808331		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80834		33.000	9	808341		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E FRI, OCT 01 2021 11:14
SEPCO PEAK LOAD SUMMER 2022-23 WITH PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

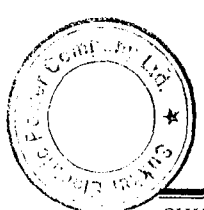
BUS#-SCT	X-- NAME --	X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --	X BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#-SCT	X-- NAME --	X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --	X BASKV	AREA	V(PU)	V(KV)

* NONE *



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E FRI, OCT 01 2021 11:26
SEPCO PEAK LOAD SUMMER 2022-23 WITH PROPOSED PLAN

********** SUMMARY FOR THE SUBSYSTEM SPECIFIED BY **********

AREAS:
9 SEPCO

252 BUSES	23 PLANTS	14 MACHINES	0 INDUCTION GENS	0 INDUCTION MOTORS
133 LOADS	129 FIXED SHUNTS	3 SWITCHED SHUNTS		
309 BRANCHES	157 TRANSFORMERS	0 DC LINES	0 FACTS DEVICES	0 GNE DEVICES

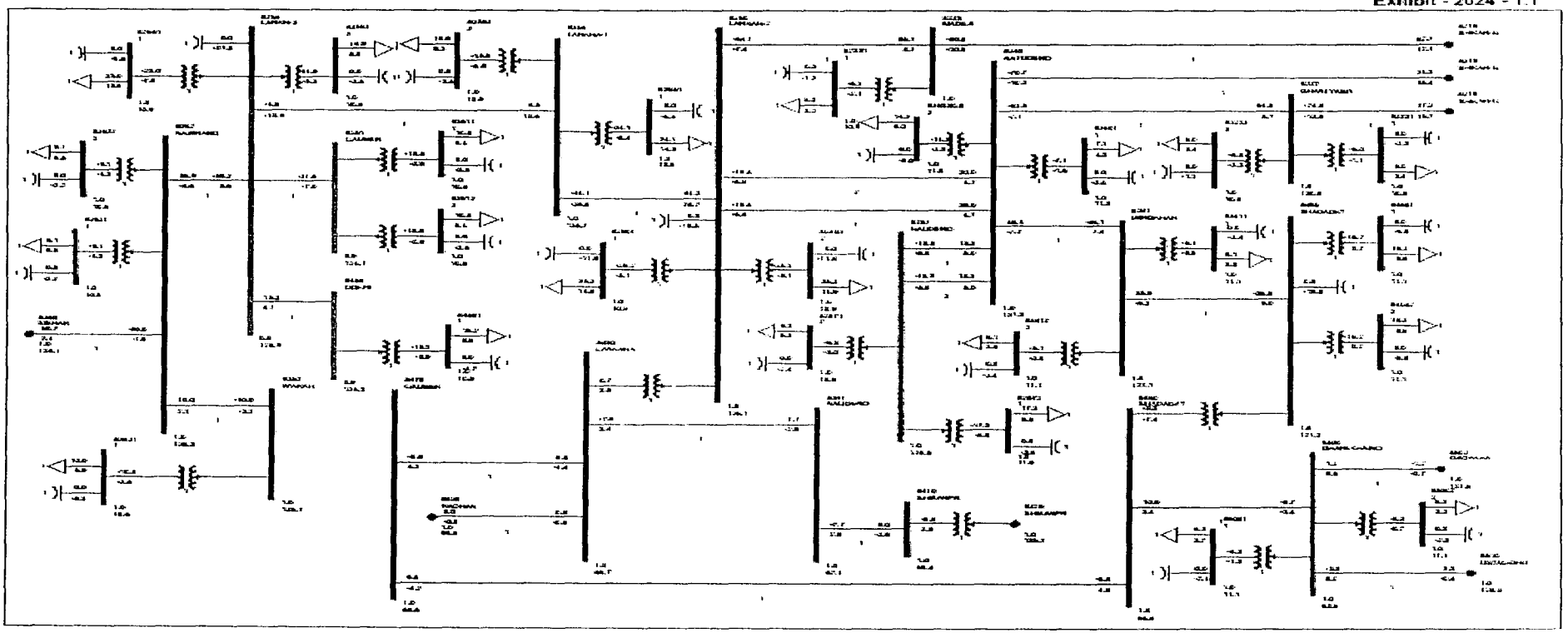
	X------ ACTUAL ------X		X----- NOMINAL ------X	
	MW	MVAR	MW	MVAR
FROM GENERATION	338.5	39.0	338.5	39.0
FROM INDUCTION GENERATORS	0.0	0.0	0.0	0.0
TO CONSTANT POWER LOAD	1528.2	903.8	1528.2	903.8
TO CONSTANT CURRENT	0.0	0.0	0.0	0.0
TO CONSTANT ADMITTANCE	0.0	0.0	0.0	0.0
TO INDUCTION MOTORS	0.0	0.0	0.0	0.0
TO BUS SHUNT	0.0	-679.5	0.0	-670.1
TO FACTS DEVICE SHUNT	0.0	0.0	0.0	0.0
TO GNE BUS DEVICES	0.0	0.0	0.0	0.0
TO LINE SHUNT	0.0	0.0	0.0	0.0
FROM LINE CHARGING	0.0	154.4	0.0	151.5

VOLTAGE		X----- LOSSES -----X		X-- LINE SHUNTS --X		CHARGING
LEVEL	BRANCHES	MW	MVAR	MW	MVAR	MVAR
132.0	131	50.56	240.61	0.0	0.0	147.4
66.0	21	1.74	3.74	0.0	0.0	6.9
33.0	18	0.83	6.56	0.0	0.0	0.1
11.0	127	0.00	114.64	0.0	0.0	0.0
0.4	12	0.00	6.58	0.0	0.0	0.0
TOTAL	309	53.14	372.12	0.0	0.0	154.4

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN

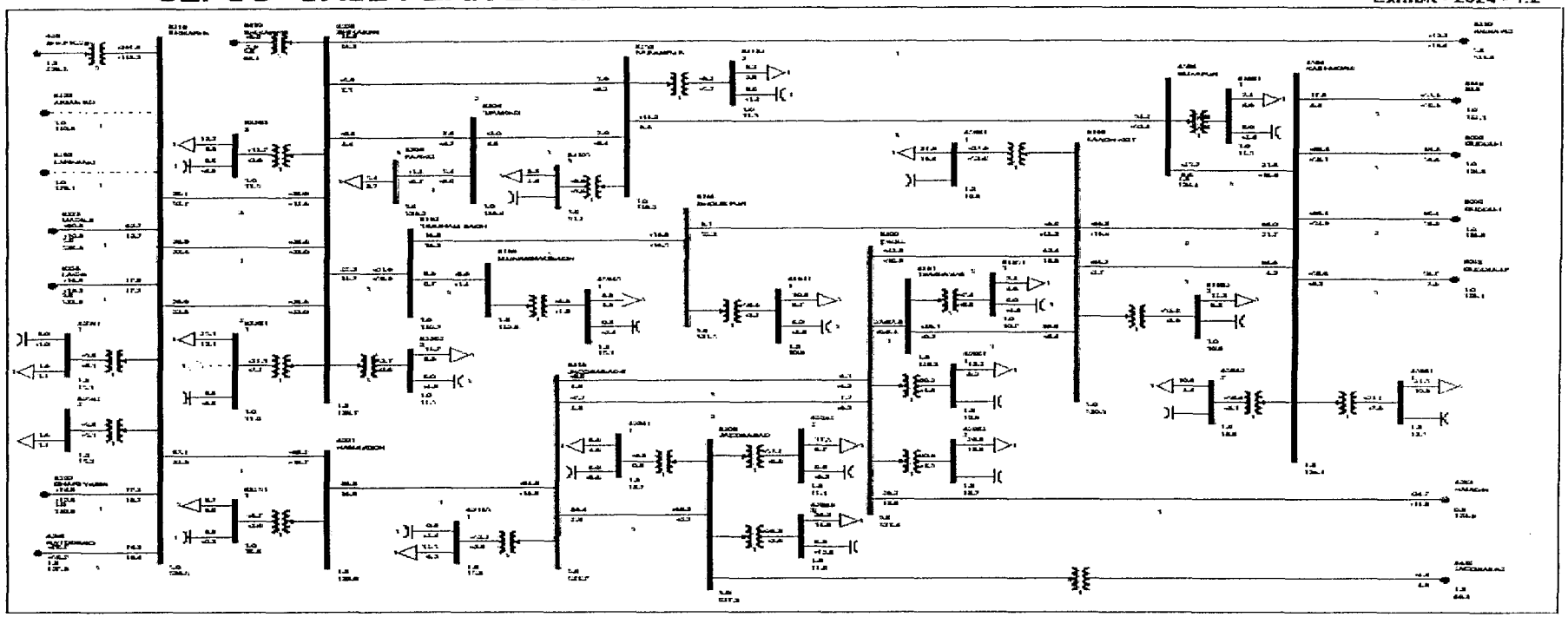
Exhibit - 2024 - 1.1



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITHOUT PROPOSED PLAN

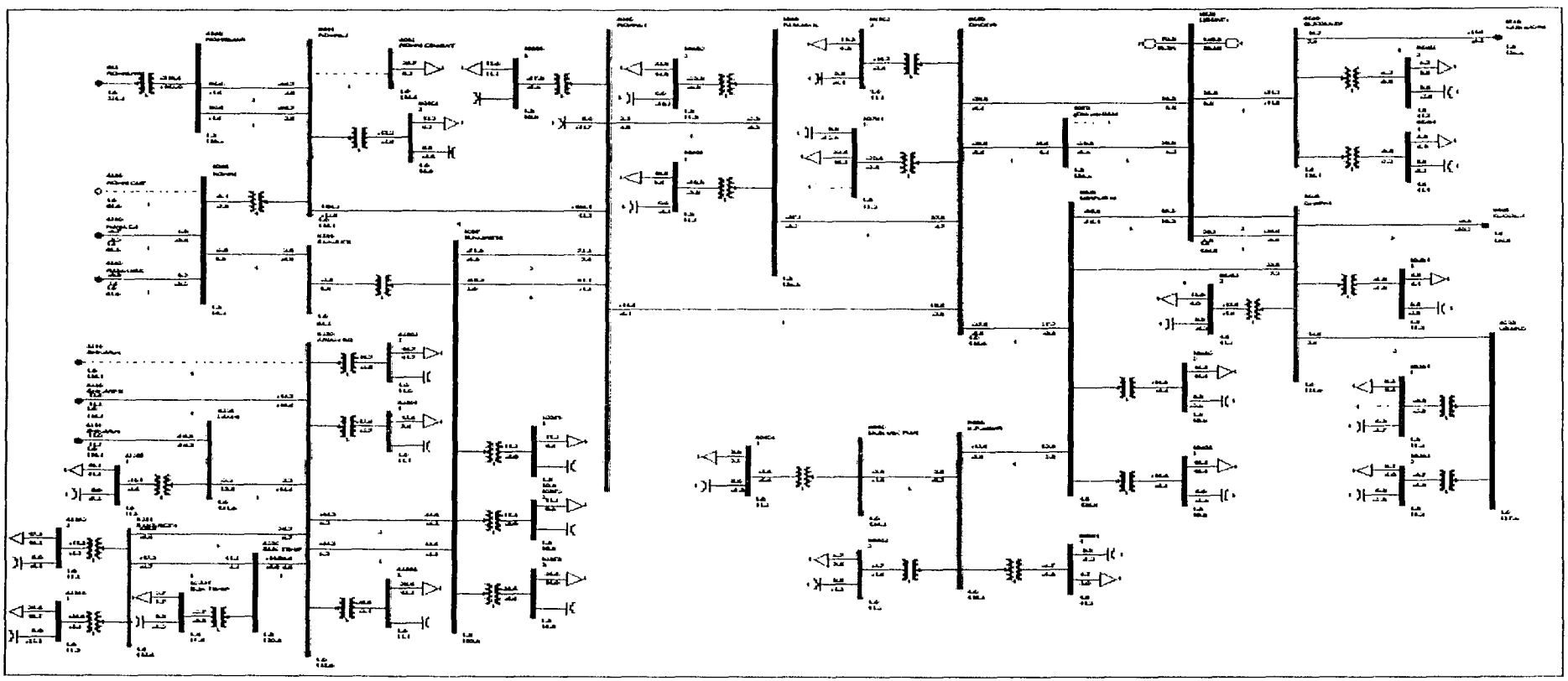
Exhibit - 2024 - 1.2



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITHOUT PROPOSED PLAN

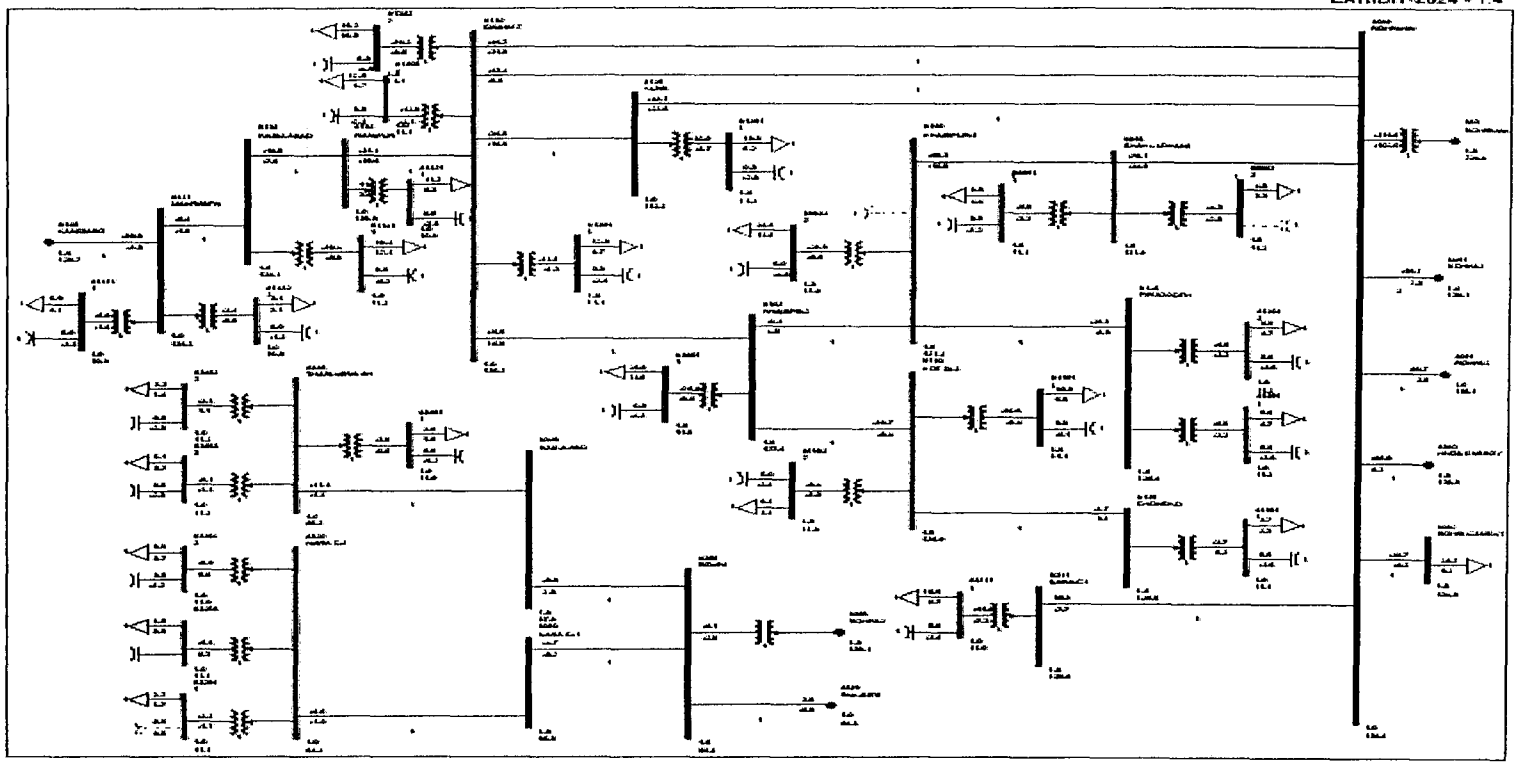
EXHIBIT-2024 - 1.3



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITHOUT PROPOSED PLAN

EXHIBIT-2024 - 1.4

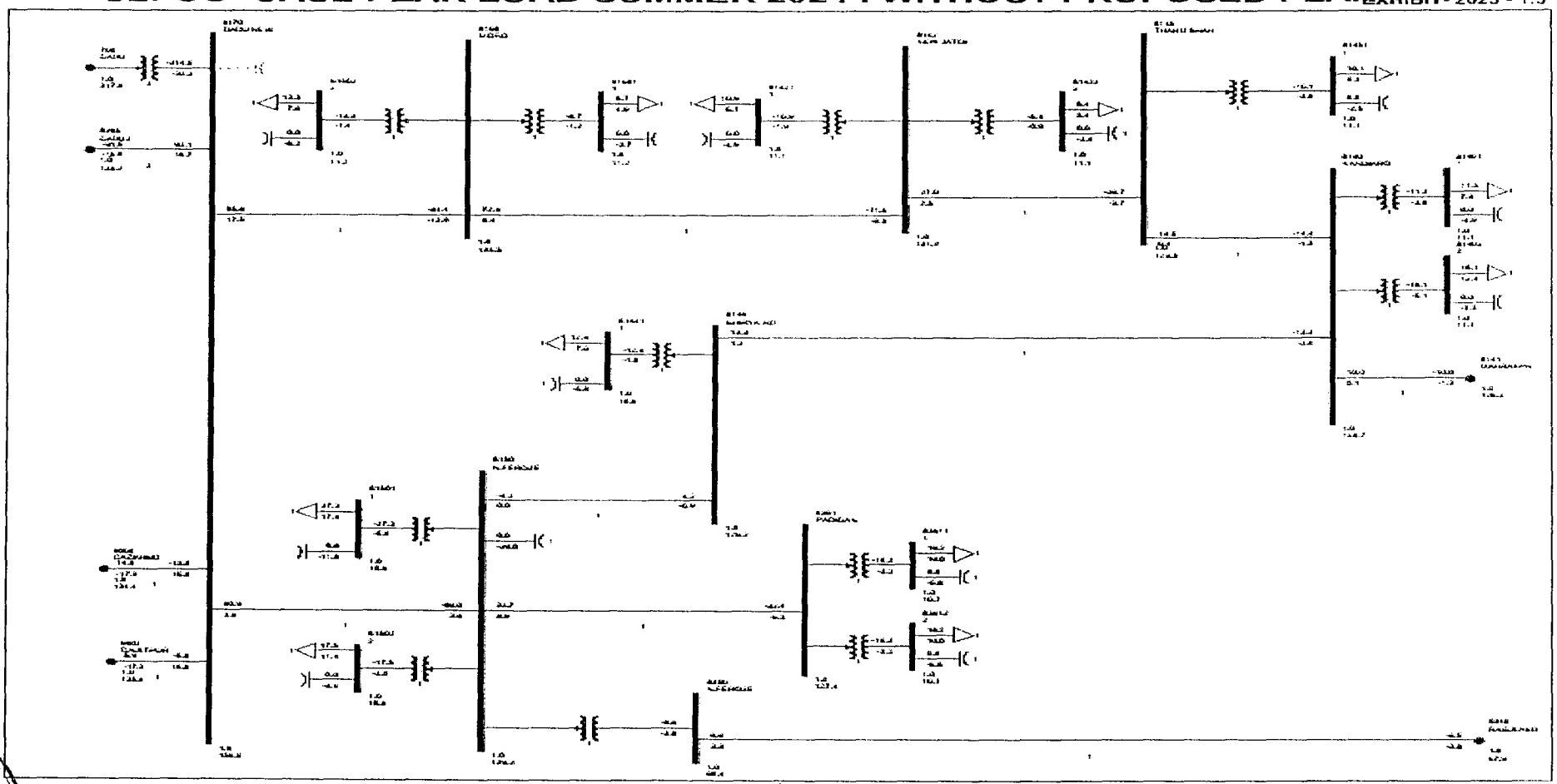


1

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITHOUT PROPOSED PLAN

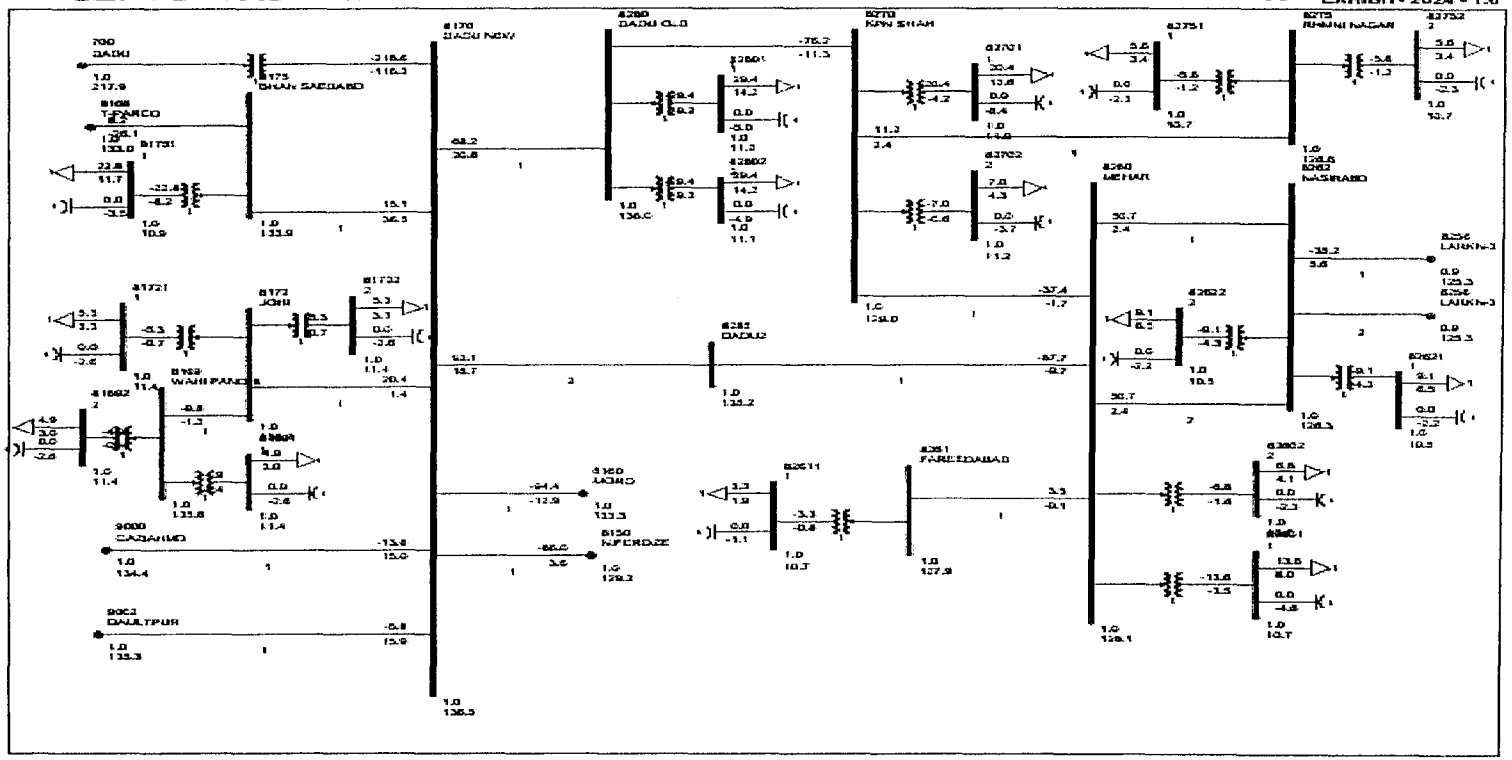
EXHIBIT- 2023 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITHOUT PROPOSED PLAN

EXHIBIT- 2024 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E SAT, OCT 02 2021 17:23
SEPCO PEAK LOAD SUMMER 2023-24 WITHOUT PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

FROM BUS				TO BUS						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	NAME	BASKV	AREA	BUS#-SCT	NAME	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCEN
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	437.9	480.0	91.2	--	--	--	--
8170	DADU NEW	132.00	9	8285	DADU2	132.00*	9	2	90.6	112.0	80.9	--	--	--	--
8175	BHAN SAEDABD	132.00*	9	81751	1	11.000	9	1	25.4	26.0	97.6	--	--	--	--
8185	KASHMORE	132.00*	9	81851	1	11.000	9	1	23.4	26.0	90.0	--	--	--	--
8185	KASHMORE	132.00*	9	81852	2	11.000	9	1	11.5	13.0	88.2	--	--	--	--
8190	KANDH KOT	132.00*	9	81901	1	11.000	9	1	42.7	40.0	106.7	--	--	--	--
8190	KANDH KOT	132.00*	9	81902	2	11.000	9	1	13.5	13.0	104.1	--	--	--	--
8200	THULL	132.00*	9	82001	1	11.000	9	1	10.6	13.0	81.2	--	--	--	--
8200	THULL	132.00*	9	82002	2	11.000	9	1	22.6	26.0	87.0	--	--	--	--
8260	MEHAR	132.00*	9	8285	DADU2	132.00	9	1	90.9	112.0	81.2	--	--	--	--
8262	NASIRABD	132.00*	9	82621	1	11.000	9	1	10.6	13.0	81.4	--	--	--	--
8262	NASIRABD	132.00*	9	82622	2	11.000	9	1	10.6	13.0	81.4	--	--	--	--
8270	KPN SHAH	132.00*	9	82701	1	11.000	9	1	21.4	26.0	82.1	--	--	--	--
8280	DADU OLD	132.00*	9	82802	2	11.000	9	1	32.0	40.0	80.1	--	--	--	--
80811	HELIOS MV _1	33.000	9	808111		0.4000*	9	1	12.6	14.0	90.3	--	--	--	--
80812	HELIOS MV _2	33.000	9	808121		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--
80813		33.000	9	808131		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--
80814	HELIOS MV _4	33.000	9	808141		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--
80821		33.000	9	808211		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80822		33.000*	9	808221		0.4000	9	1	10.1	11.2	90.0	--	--	--	--
80823		33.000*	9	808231		0.4000	9	1	10.1	11.2	90.0	--	--	--	--
80824		33.000*	9	808241		0.4000	9	1	10.1	11.2	90.0	--	--	--	--
80831		33.000	9	808311		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80832		33.000	9	808321		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80833		33.000	9	808331		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80834		33.000	9	808341		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--

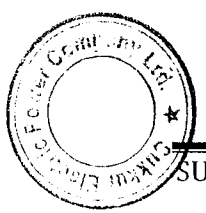
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E SAT, OCT 02 2021 17:22
SEPCO PEAK LOAD SUMMER 2023-24 WITHOUT PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
* NONE *											

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
8251	QAMBER	132.00	9	0.9403	124.12						
8256	LARKN-3	132.00	9	0.9495	125.33						
8459	DOKRI	132.00	9	0.9413	124.25						



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E SAT, OCT 02 2021 17:23
SEPCO PEAK LOAD SUMMER 2023-24 WITHOUT PROPOSED PLAN

********** SUMMARY FOR THE SUBSYSTEM SPECIFIED BY **********

AREAS:
9 SEPCO

****

251	BUSES	23	PLANTS	14	MACHINES	0	INDUCTION GENS	0	INDUCTION MOTORS
132	LOADS	128	FIXED SHUNTS	3	SWITCHED SHUNTS				
308	BRANCHES	156	TRANSFORMERS	0	DC LINES	0	FACTS DEVICES	0	GNE DEVICES

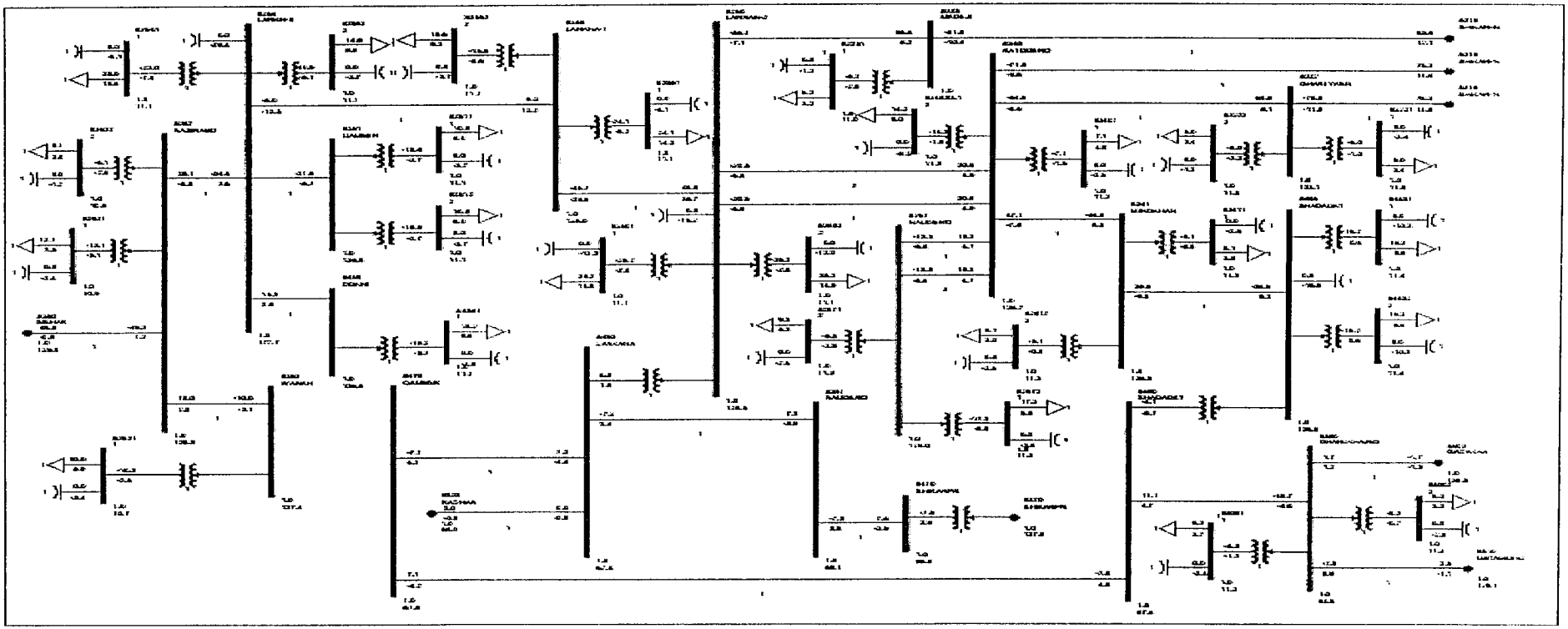
	X------ ACTUAL ------X		X------ NOMINAL ------X	
	MW	MVAR	MW	MVAR
FROM GENERATION	338.5	64.5	338.5	64.5
FROM INDUCTION GENERATORS	0.0	0.0	0.0	0.0
TO CONSTANT POWER LOAD	1586.1	925.3	1586.1	925.3
TO CONSTANT CURRENT	0.0	0.0	0.0	0.0
TO CONSTANT ADMITTANCE	0.0	0.0	0.0	0.0
TO INDUCTION MOTORS	0.0	0.0	0.0	0.0
TO BUS SHUNT	0.0	-649.7	0.0	-655.7
TO FACTS DEVICE SHUNT	0.0	0.0	0.0	0.0
TO GNE BUS DEVICES	0.0	0.0	0.0	0.0
TO LINE SHUNT	0.0	0.0	0.0	0.0
FROM LINE CHARGING	0.0	151.5	0.0	151.5

VOLTAGE LEVEL	BRANCHES	X----- LOSSES -----X MW	MVAR	X-- LINE SHUNTS --X MW	MVAR	CHARGING MVAR
132.0	131	54.71	265.04	0.0	0.0	144.6
66.0	21	1.66	3.53	0.0	0.0	6.8
33.0	18	0.84	6.57	0.0	0.0	0.1
11.0	126	0.00	131.00	0.0	0.0	0.0
0.4	12	0.00	6.59	0.0	0.0	0.0
TOTAL	308	57.21	412.73	0.0	0.0	151.5

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN

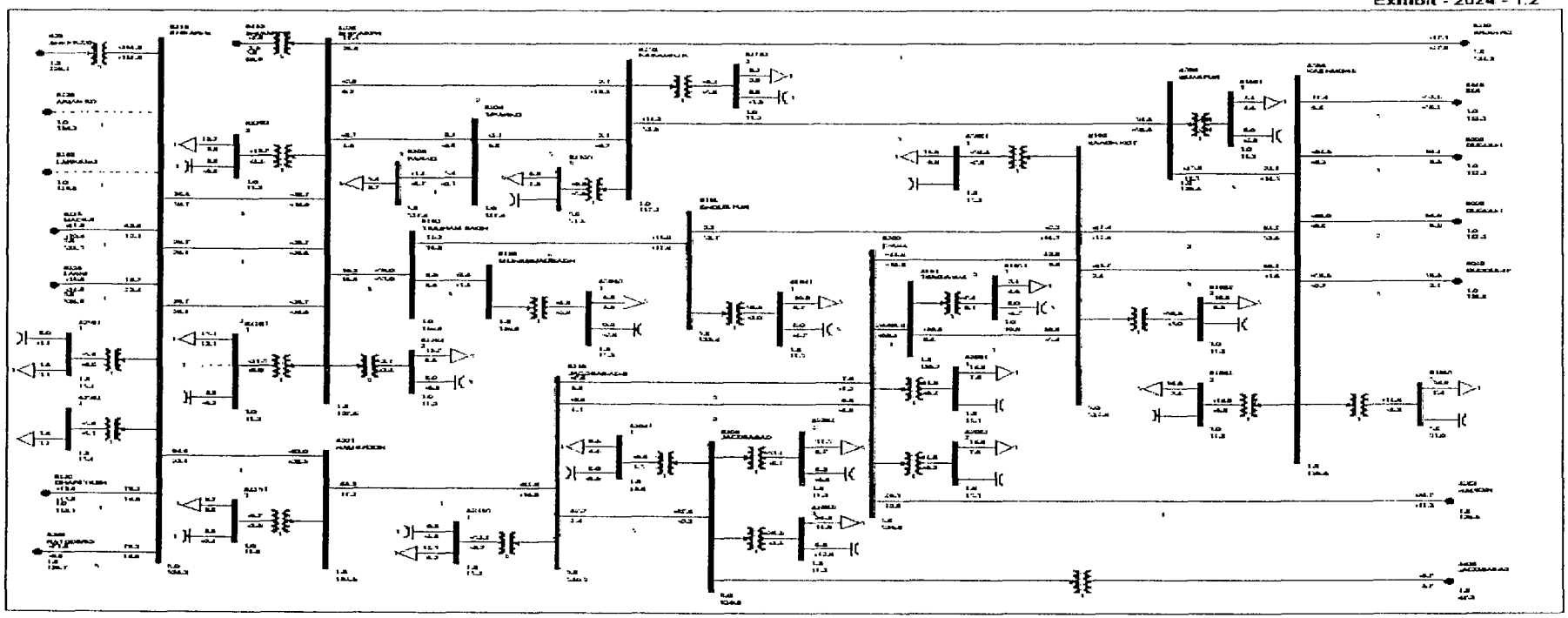
Exhibit - 2024 - 1.1



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN

Exhibit - 2024 - 1.2

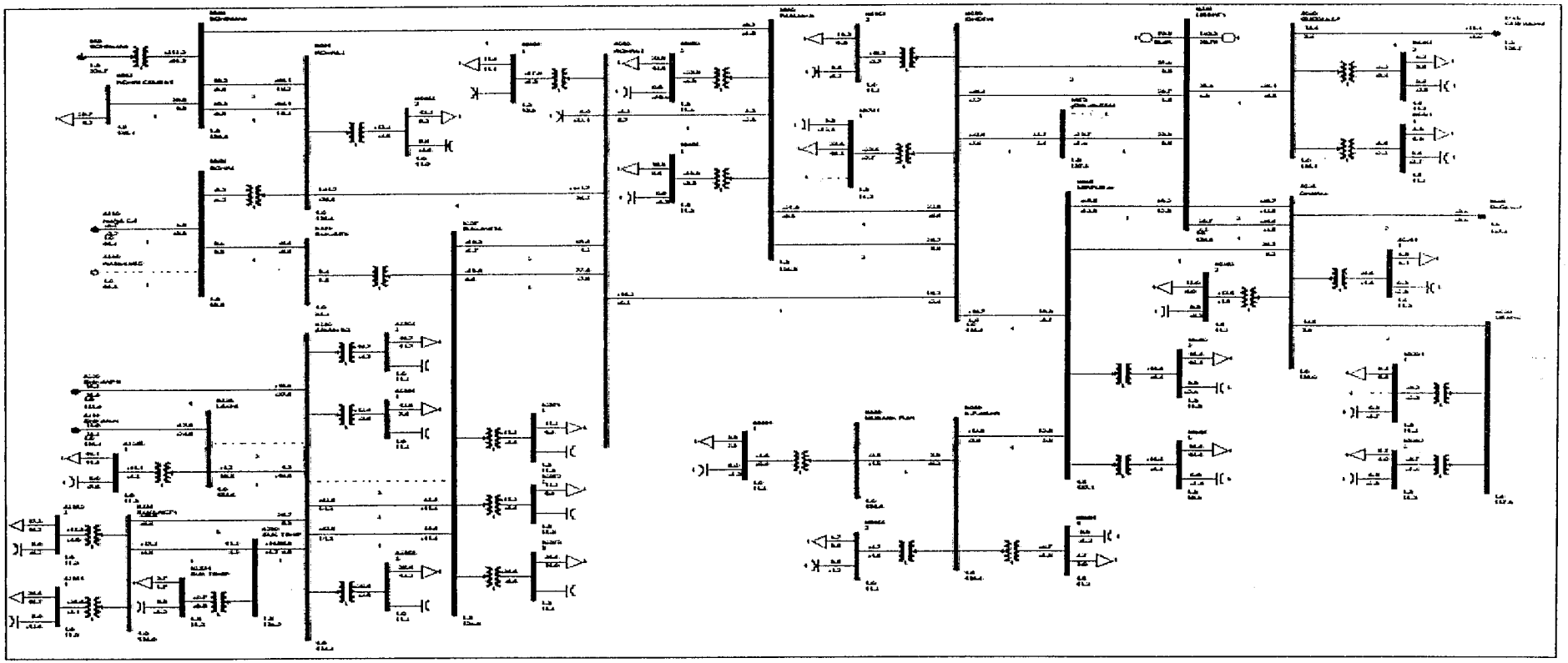


1

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN

EXHIBIT-2024 - 1.3

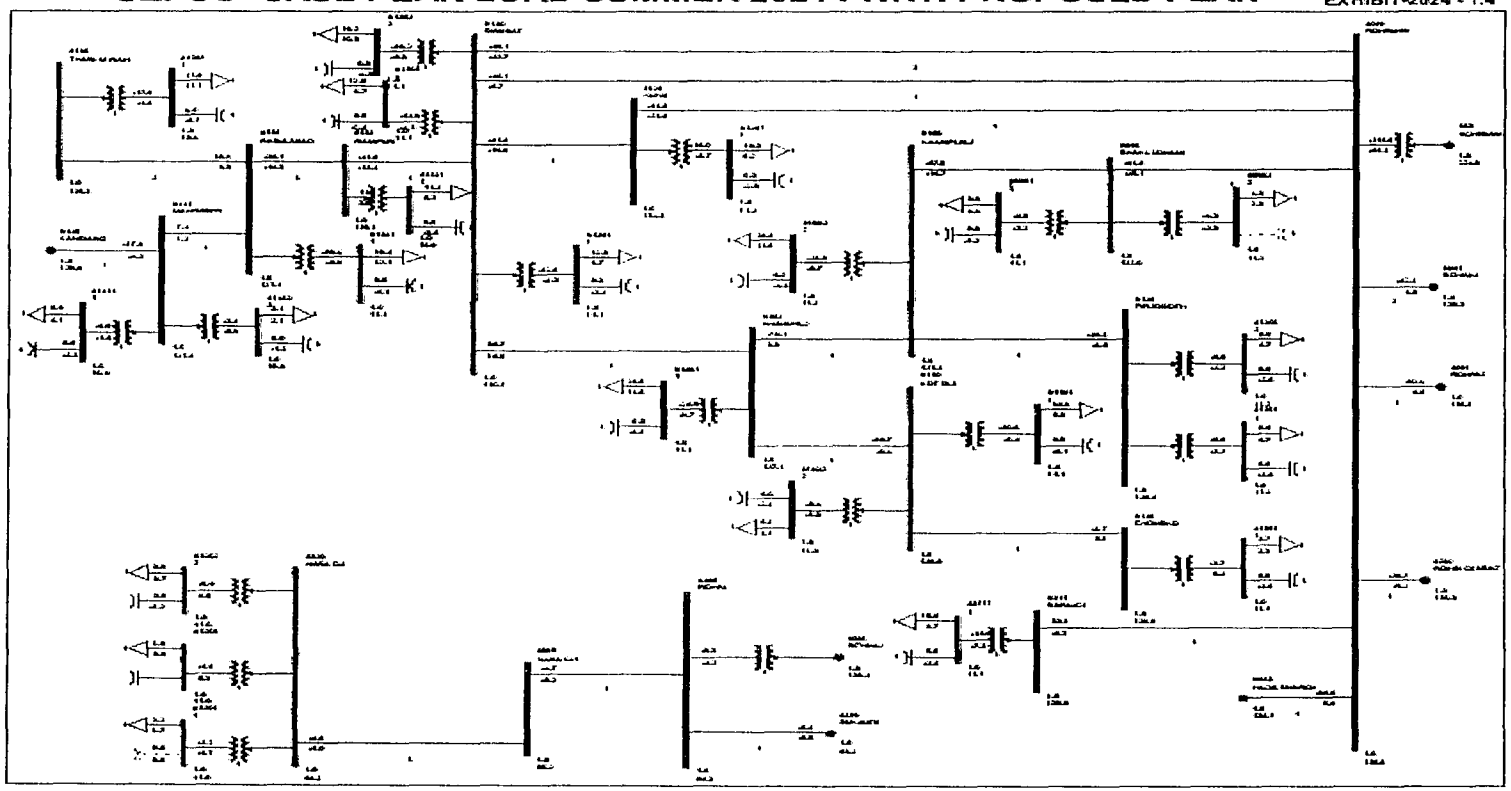


1

LOAD FLOW STUDY

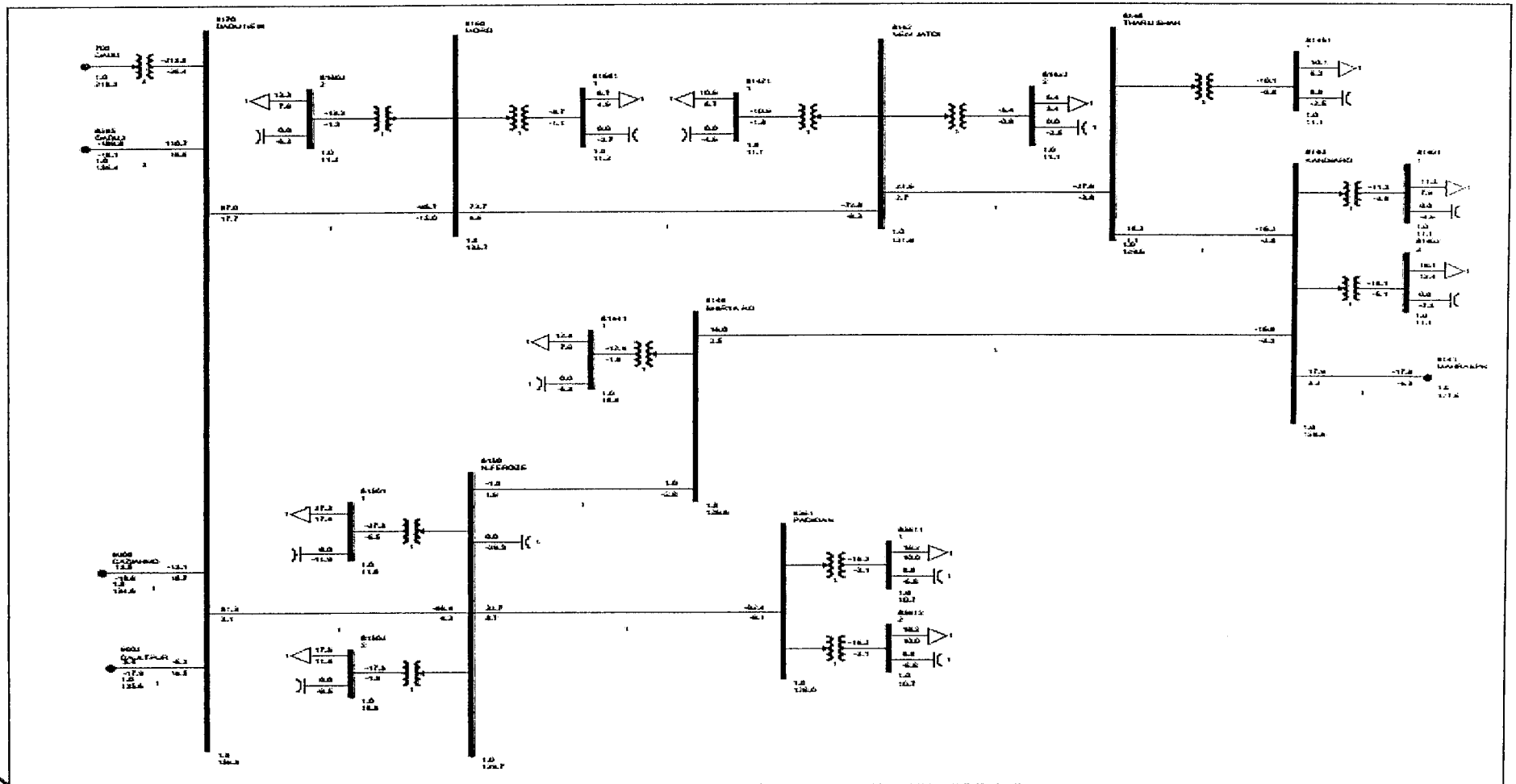
SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN

EXHIBIT-2024 - 1.4



LOAD FLOW STUDY

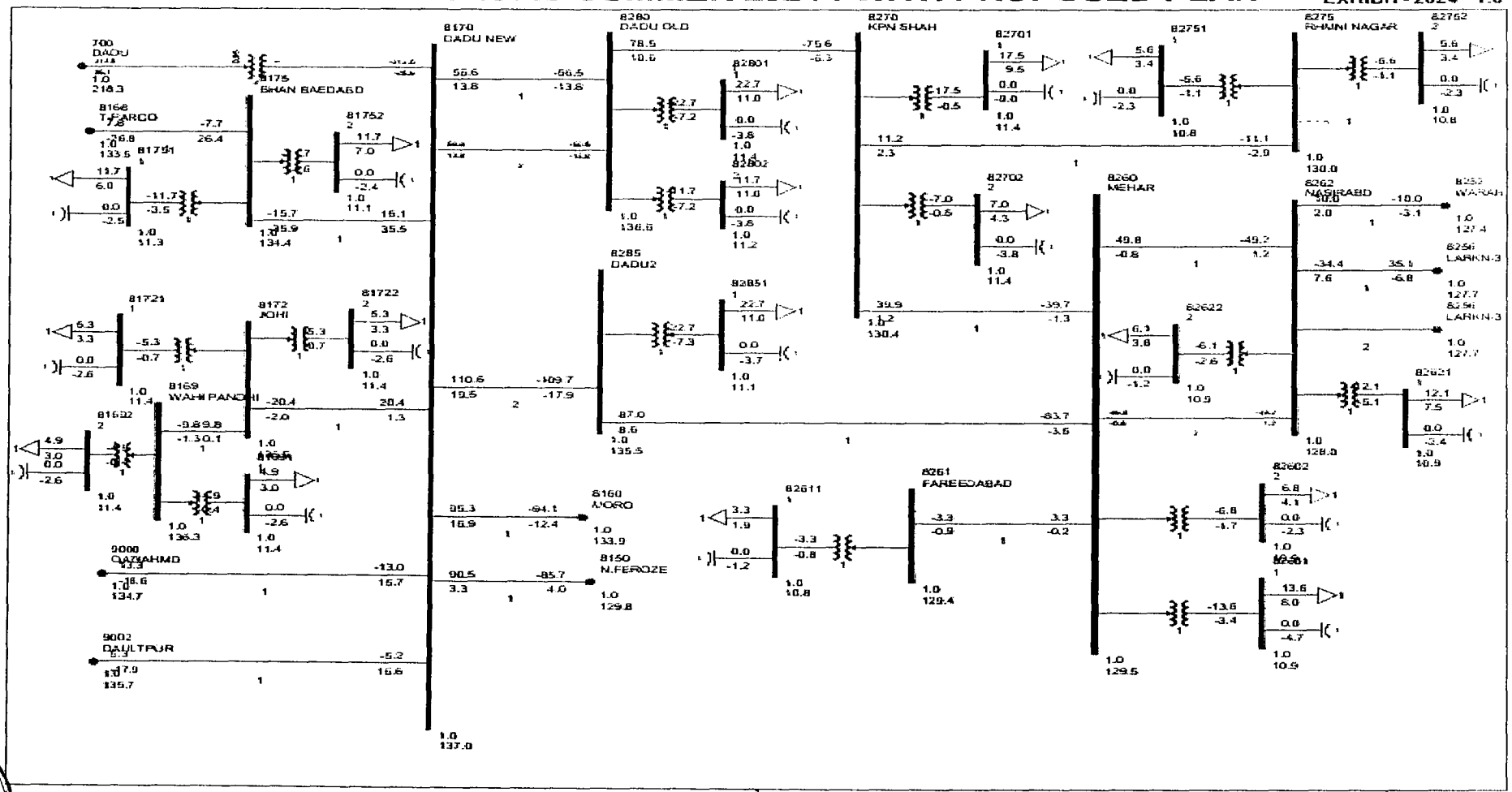
SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN EXHIBIT- 2024 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2024 : WITH PROPOSED PLAN

EXHIBIT- 2024 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E SAT, OCT 02 2021 18:53
SEPCO PEAK LOAD SUMMER 2023-24 WITH PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3	
BUS#-SCT	X-- NAME --X	BASKV	AREA	BUS#-SCT	X-- NAME --X	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	446.7	480.0	93.1	--	--	--	--
8170	DADU NEW	132.00	9	8285	DADU2	132.00*	9	2	108.3	112.0	96.7	--	--	--	--
80811	HELIOS MV _1	33.000	9	808111		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80812	HELIOS MV _2	33.000	9	808121		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80813		33.000	9	808131		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80814	HELIOS MV _4	33.000	9	808141		0.4000*	9	1	10.1	11.2	90.1	--	--	--	--
80821		33.000*	9	808211		0.4000	9	1	12.6	14.0	90.0	--	--	--	--
80822		33.000*	9	808221		0.4000	9	1	10.1	11.2	90.1	--	--	--	--
80823		33.000*	9	808231		0.4000	9	1	10.1	11.2	90.1	--	--	--	--
80824		33.000*	9	808241		0.4000	9	1	10.1	11.2	90.1	--	--	--	--
80831		33.000	9	808311		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--
80832		33.000	9	808321		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--
80833		33.000	9	808331		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--
80834		33.000	9	808341		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E SAT, OCT 02 2021 18:54
SEPCO PEAK LOAD SUMMER 2023-24 WITH PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

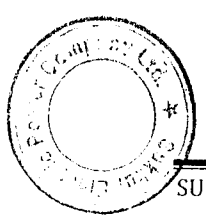
BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)

* NONE *



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E SAT, OCT 02 2021 23:56
SEPCO PEAK LOAD SUMMER 2023-24 WITH PROPOSED PLAN

********** SUMMARY FOR THE SUBSYSTEM SPECIFIED BY **********

AREAS:
9 SEPCO

249	BUSES	23	PLANTS	14	MACHINES	0	INDUCTION GENS	0	INDUCTION MOTORS
132	LOADS	128	FIXED SHUNTS	3	SWITCHED SHUNTS				
308	BRANCHES	155	TRANSFORMERS	0	DC LINES	0	FACTS DEVICES	0	GNE DEVICES

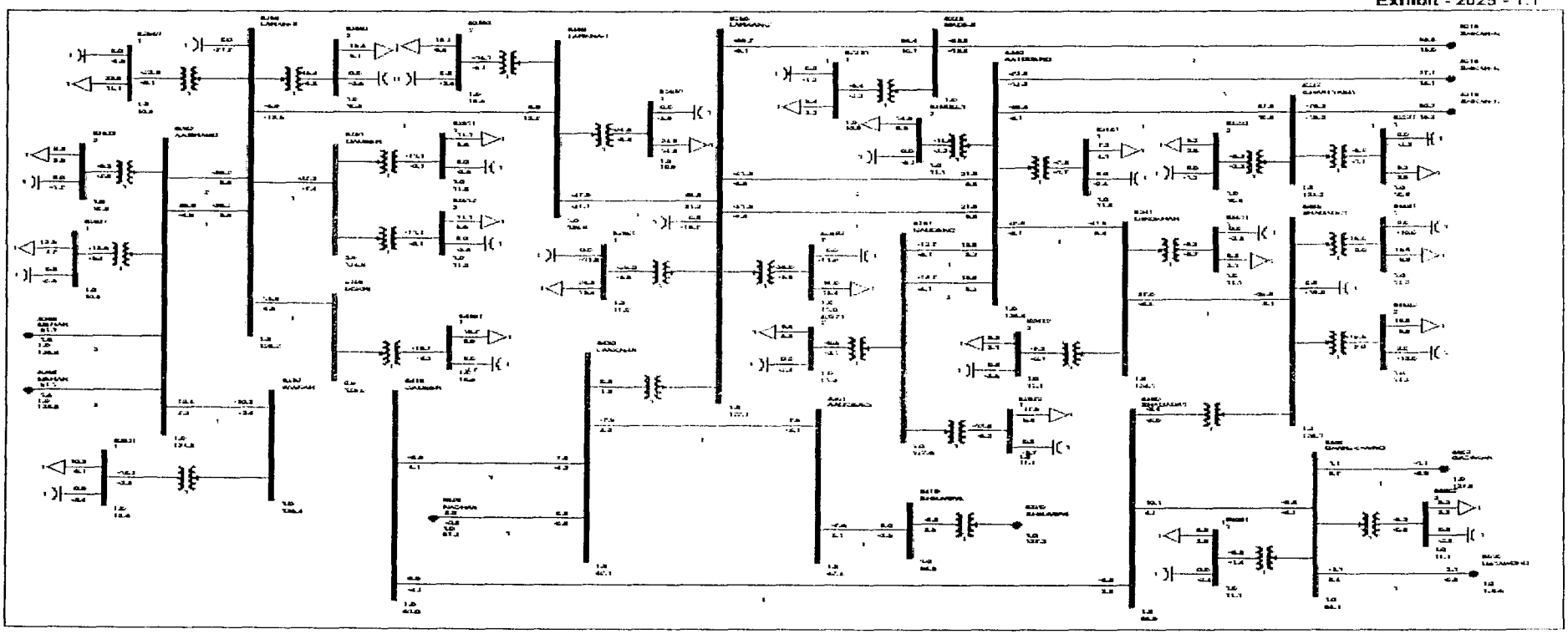
	X------ ACTUAL ------X		X----- NOMINAL ------X	
	MW	MVAR	MW	MVAR
FROM GENERATION	338.5	49.1	338.5	49.1
FROM INDUCTION GENERATORS	0.0	0.0	0.0	0.0
TO CONSTANT POWER LOAD	1572.1	921.8	1572.1	921.8
TO CONSTANT CURRENT	0.0	0.0	0.0	0.0
TO CONSTANT ADMITTANCE	0.0	0.0	0.0	0.0
TO INDUCTION MOTORS	0.0	0.0	0.0	0.0
TO BUS SHUNT	0.0	-661.4	0.0	-650.9
TO FACTS DEVICE SHUNT	0.0	0.0	0.0	0.0
TO GNE BUS DEVICES	0.0	0.0	0.0	0.0
TO LINE SHUNT	0.0	0.0	0.0	0.0
FROM LINE CHARGING	0.0	159.5	0.0	156.4

VOLTAGE		X----- LOSSES -----X		X-- LINE SHUNTS --X		CHARGING
LEVEL	BRANCHES	MW	MVAR	MW	MVAR	MVAR
132.0	136	53.08	259.66	0.0	0.0	153.9
66.0	17	1.28	2.76	0.0	0.0	5.5
33.0	18	0.83	6.55	0.0	0.0	0.1
11.0	125	0.00	114.79	0.0	0.0	0.0
0.4	12	0.00	6.58	0.0	0.0	0.0
TOTAL	308	55.19	390.34	0.0	0.0	159.5

LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH"OUT PROPOSED PLAN

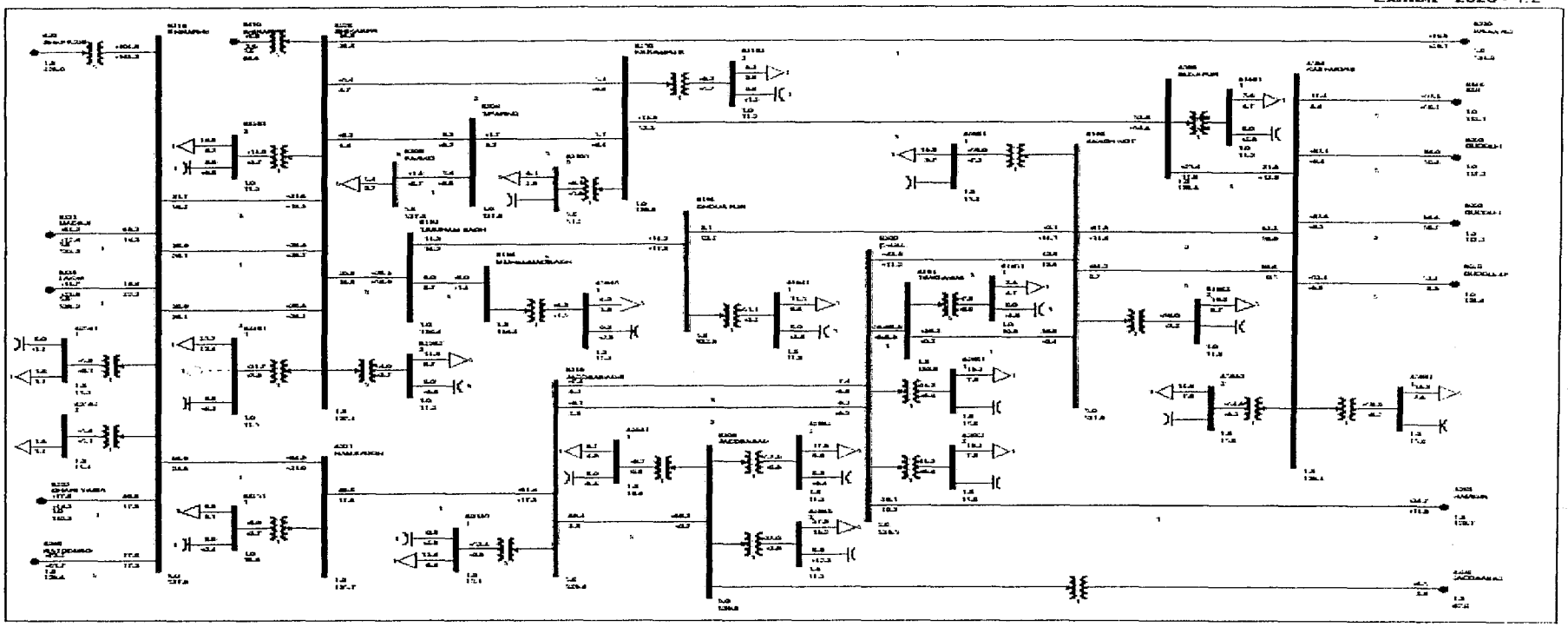
Exhibit - 2025 - 1.1



LOAD FLOW STUDY

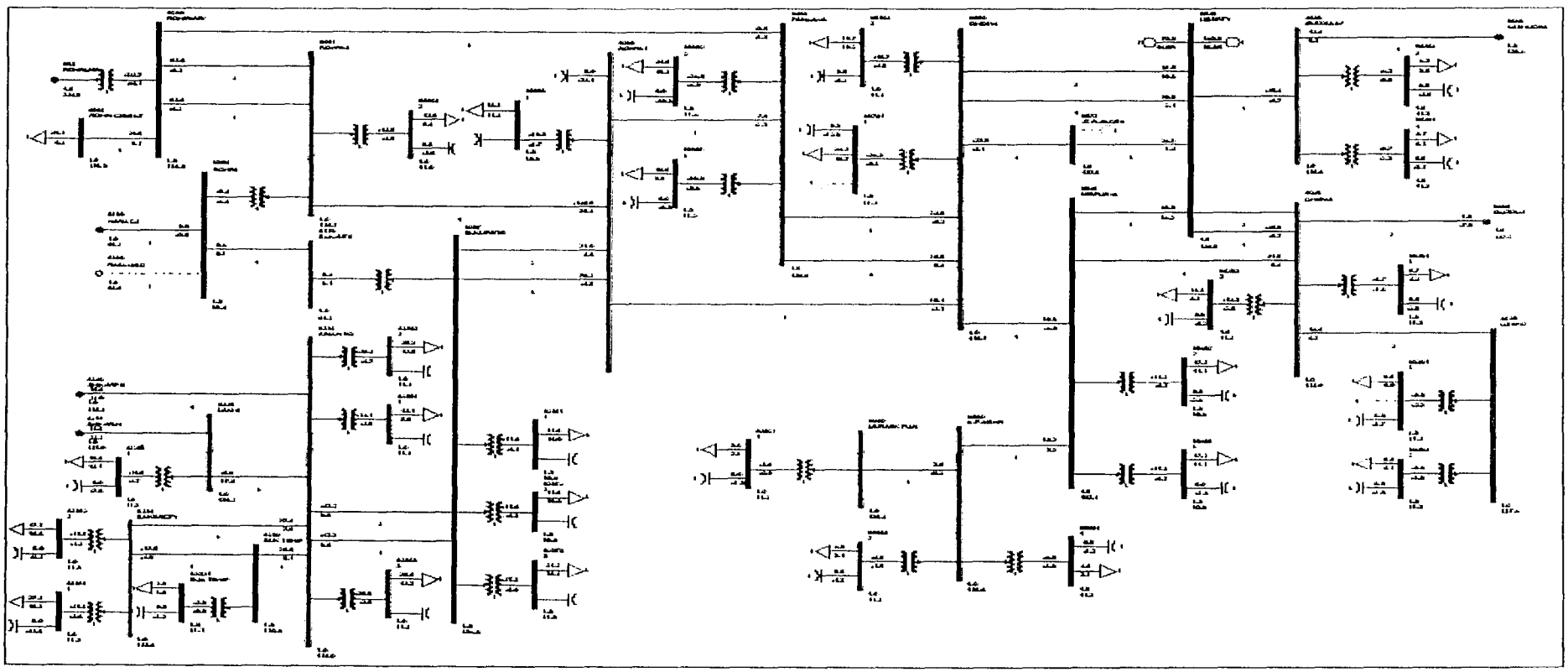
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITHOUT PROPOSED PLAN

Exhibit - 2025 - 1.2



LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITHOUT PROPOSED PLAN

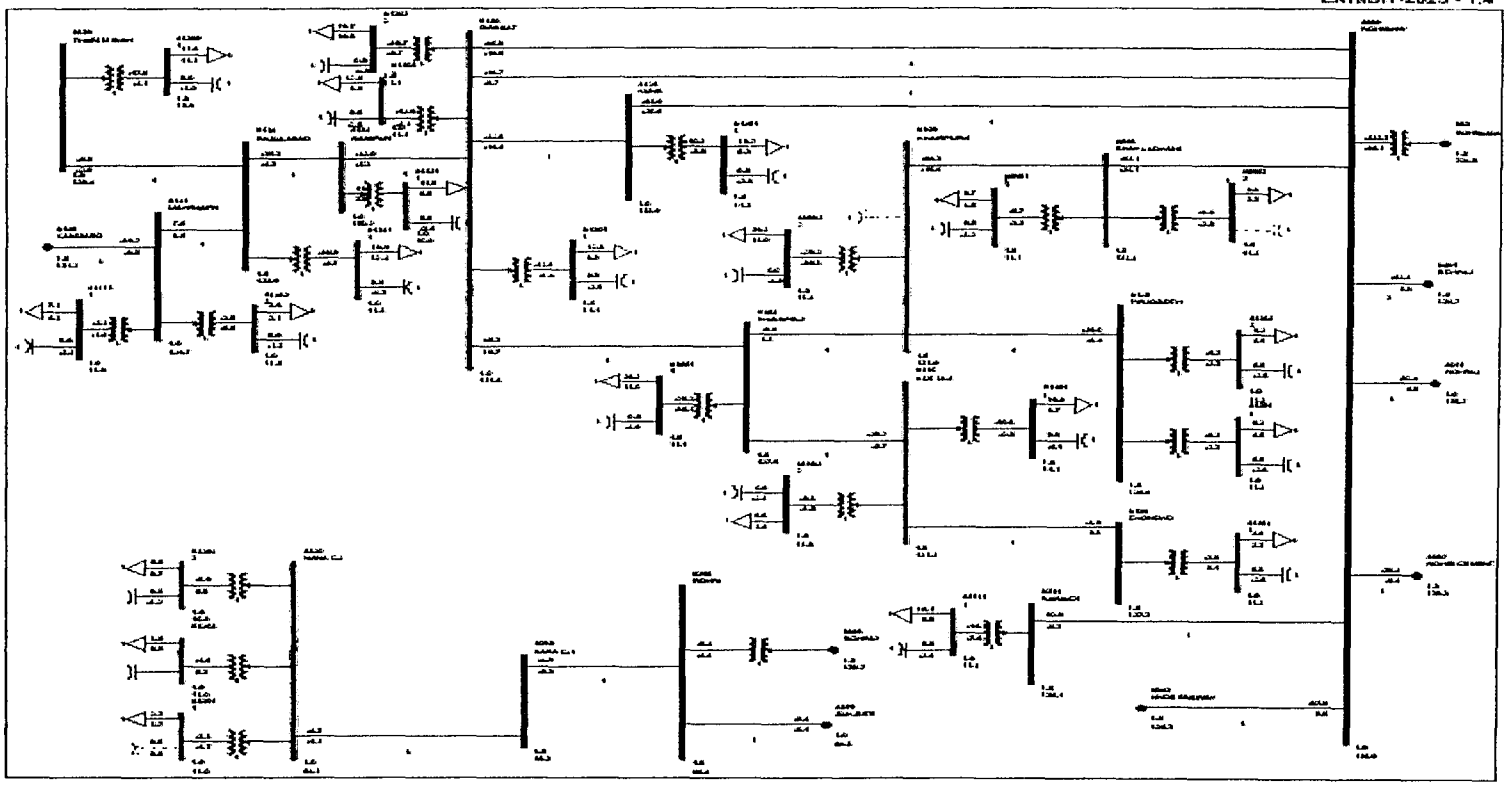
EXHIBIT-2025 - 1.3



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2025 : WITHOUT PROPOSED PLAN

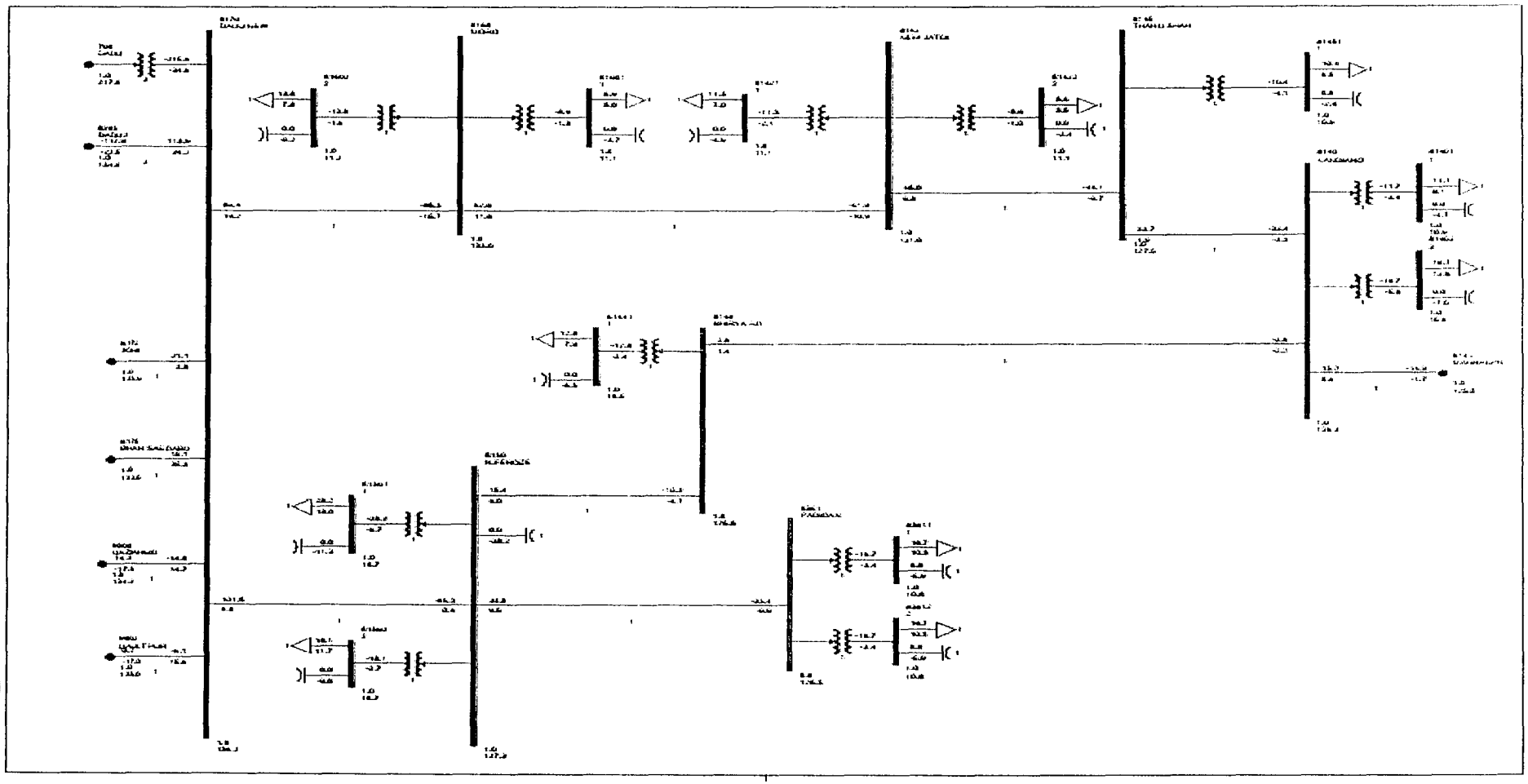
EXHIBIT-2025 - 1.4



1

LOAD FLOW STUDY

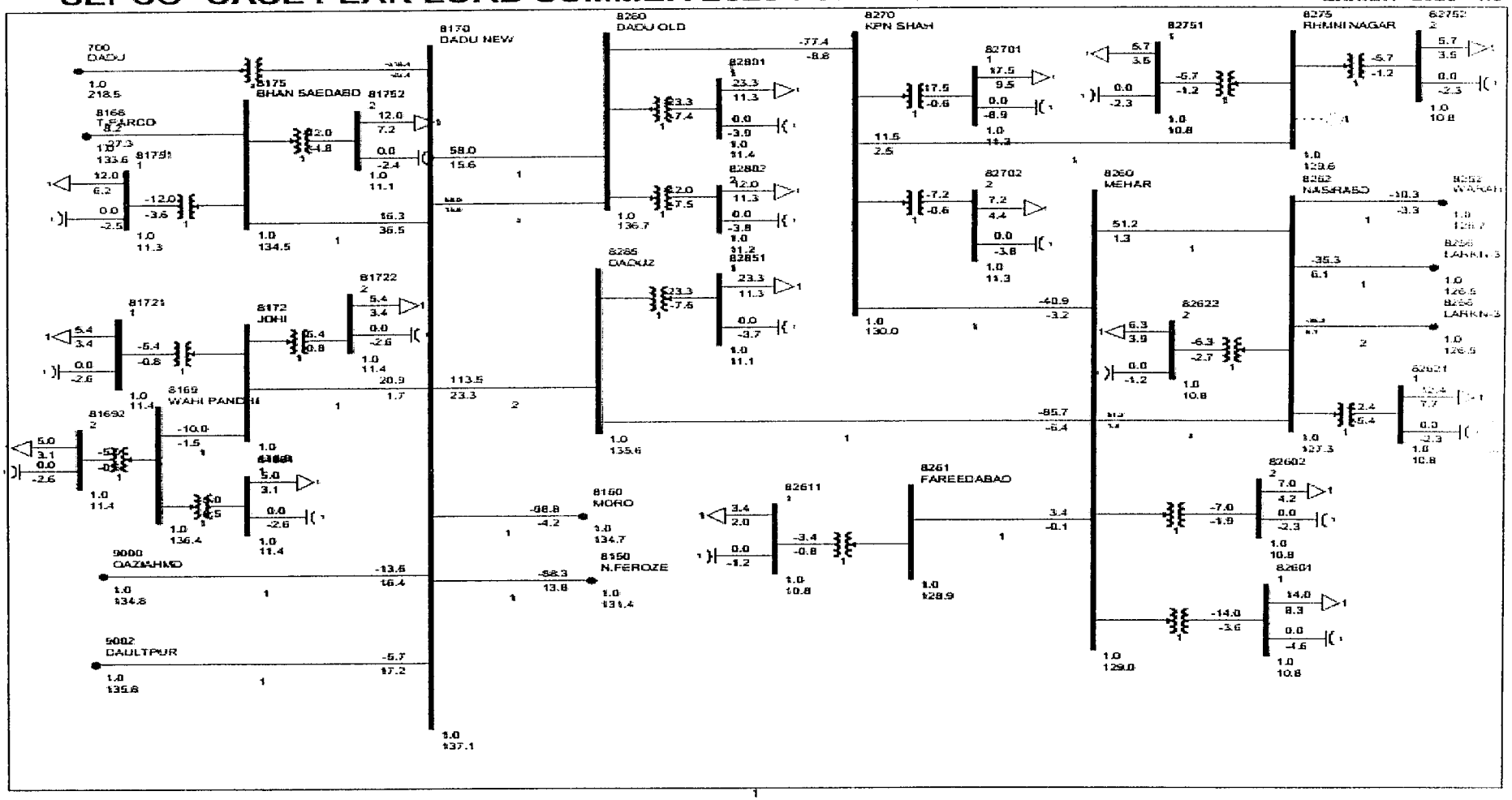
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITHOUT PROPOSED PLAN EXHIBIT- 2025 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2025 : WITHOUT PROPOSED PLAN

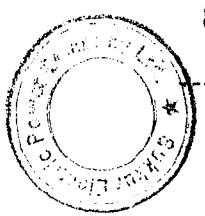
EXHIBIT- 2025 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, OCT 04 2021 12:31
SEPCO PEAK LOAD SUMMER 2024-25 WITHOUT PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3		RATING SET 5	
BUS#-SCT	X-- NAME --	X BASKV	AREA	BUS#-SCT	X-- NAME --	X BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT	RATE5	PERCEN
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	463.7	480.0	96.6	--	--	--	--	--	--
8040	MIRPUR M	132.00*	9	80402	2	11.000	9	1	21.5	26.0	82.5	--	--	--	--	--	--
8089	ROHRI-NW	132.00	9	8095	SHAH LUDHANI	132.00*	9	1	91.2	112.0	81.4	--	--	--	--	--	--
8100	KHAIRPUR-1	132.00*	9	81002	2	11.000	9	1	32.5	40.0	81.3	--	--	--	--	--	--
8102	KHAIRPR-2	132.00*	9	81001	1	11.000	9	1	32.5	40.0	81.3	--	--	--	--	--	--
8150	N.FEROZE	132.00*	9	8170	DADU NEW	132.00	9	1	99.0	112.0	88.4	--	--	--	--	--	--
8170	DADU NEW	132.00	9	8285	DADU2	132.00*	9	2	112.9	112.0	100.8	--	--	--	--	--	--
8257	NAUDERO	132.00*	9	82571	2	11.000	9	1	10.4	13.0	80.2	--	--	--	--	--	--
80811	HELIOS MV _1	33.000	9	808111		0.4000*	9	1	12.7	14.0	90.4	--	--	--	--	--	--
80812	HELIOS MV _2	33.000	9	808121		0.4000*	9	1	10.1	11.2	90.3	--	--	--	--	--	--
80813		33.000	9	808131		0.4000*	9	1	10.1	11.2	90.3	--	--	--	--	--	--
80814	HELIOS MV _4	33.000	9	808141		0.4000*	9	1	10.1	11.2	90.3	--	--	--	--	--	--
80821		33.000	9	808211		0.4000*	9	1	12.6	14.0	90.1	--	--	--	--	--	--
80822		33.000	9	808221		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--	--	--
80823		33.000	9	808231		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--	--	--
80824		33.000	9	808241		0.4000*	9	1	10.1	11.2	90.0	--	--	--	--	--	--
80831		33.000	9	808311		0.4000*	9	1	12.6	14.0	90.2	--	--	--	--	--	--
80832		33.000	9	808321		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--	--	--
80833		33.000	9	808331		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--	--	--
80834		33.000	9	808341		0.4000*	9	1	10.1	11.2	90.2	--	--	--	--	--	--



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, OCT 04 2021 12:33
SEPCO PEAK LOAD SUMMER 2024-25 WITHOUT PROPOSED PLAN

BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)
* NONE *											

BUSES WITH VOLTAGE LESS THAN 0.9500:

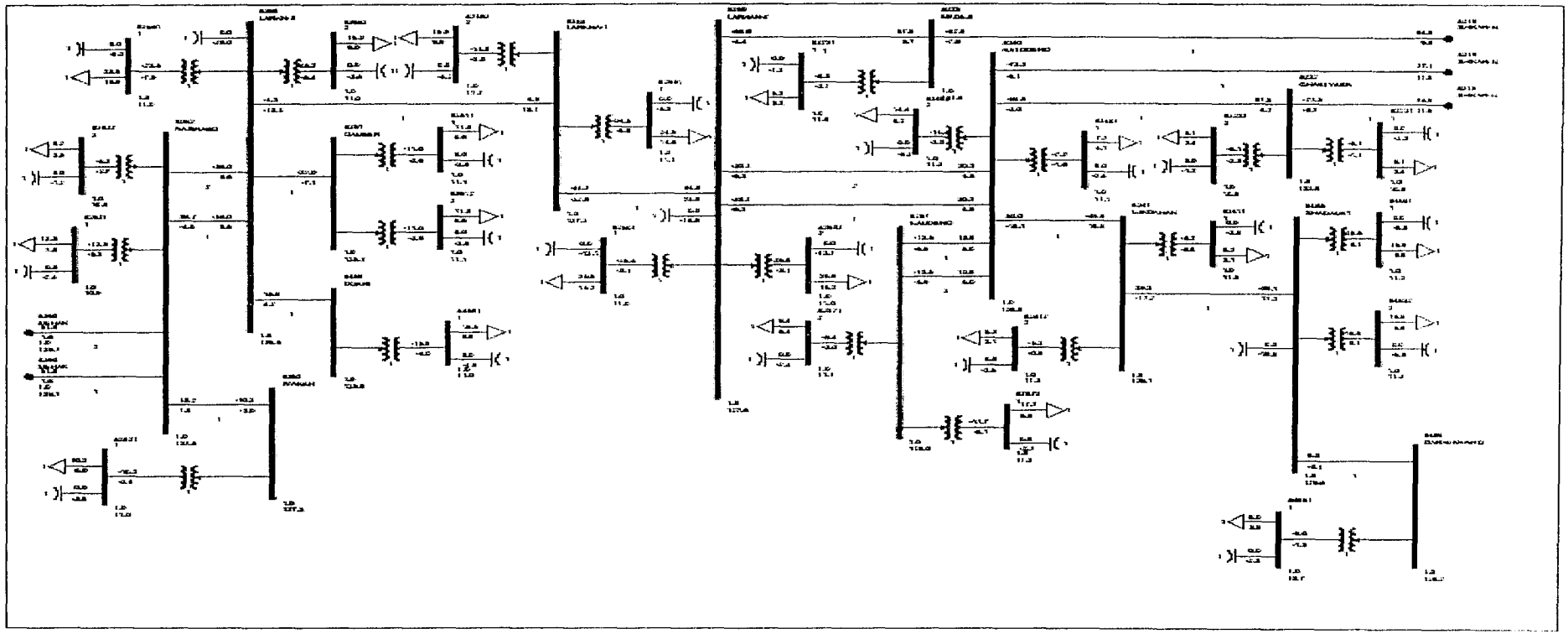
BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)
8120	PIRJOGOTH	132.00	9	0.9467	124.97						
8121	PIRYALO	132.00	9	0.9459	124.86						
8135	CHONDKO	132.00	9	0.9499	125.38						
8136	THARI M WAH	132.00	9	0.9464	124.93						
8251	QAMBER	132.00	9	0.9406	124.16						
8361	PADIDAN	132.00	9	0.9494	125.32						
8459	DOKRI	132.00	9	0.9417	124.30						

```
     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E          MON, OCT 04 2021   12:36
SEPCO PEAK LOAD SUMMER 2024-25 WITHOUT PROPOSED PLAN

********************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ********************

AREAS:
   9 SEPCO

*****************************************************************************************

    249 BUSES            23 PLANTS              14 MACHINES          0 INDUCTION GENS      0
    132 LOADS           128 FIXED SHUNTS         3 SWITCHED SHUNTS
    306 BRANCHES        155 TRANSFORMERS         0 DC LINES           0 FACTS DEVICES       0

                          X------- ACTUAL -------X X------ NOMINAL -------X
                                MW        MVAR          MW          MVAR
FROM GENERATION                338.5        74.7         338.5         74.7
FROM INDUCTION GENERATORS        0.0         0.0           0.0          0.0
TO CONSTANT POWER LOAD        1611.8       944.9        1611.8        944.9
TO CONSTANT CURRENT              0.0         0.0           0.0          0.0
TO CONSTANT ADMITTANCE           0.0         0.0           0.0          0.0
TO INDUCTION MOTORS              0.0         0.0           0.0          0.0
TO BUS SHUNT                     0.0      -639.5           0.0       -647.3
TO FACTS DEVICE SHUNT            0.0         0.0           0.0          0.0
TO GNE BUS DEVICES               0.0         0.0           0.0          0.0
TO LINE SHUNT                    0.0         0.0           0.0          0.0
FROM LINE CHARGING               0.0       153.6           0.0        153.3

 VOLTAGE          X------ LOSSES ------X   X-- LINE SHUNTS --X    CHARGING
 LEVEL  BRANCHES       MW        MVAR          MW          MVAR       MVAR
 132.0      134     58.28      283.02          0.0           0.0      148.2
  66.0       27      1.23        2.61          0.0           0.0        5.3
  33.0       18      0.84        6.58          0.0           0.0        0.1
  11.0      125      0.00      125.54          0.0           0.0        0.0
   0.4       12      0.00        6.60          0.0           0.0        0.0
 TOTAL      306     60.35      424.33          0.0           0.0      153.6
```

LOAD FLOW STUDY

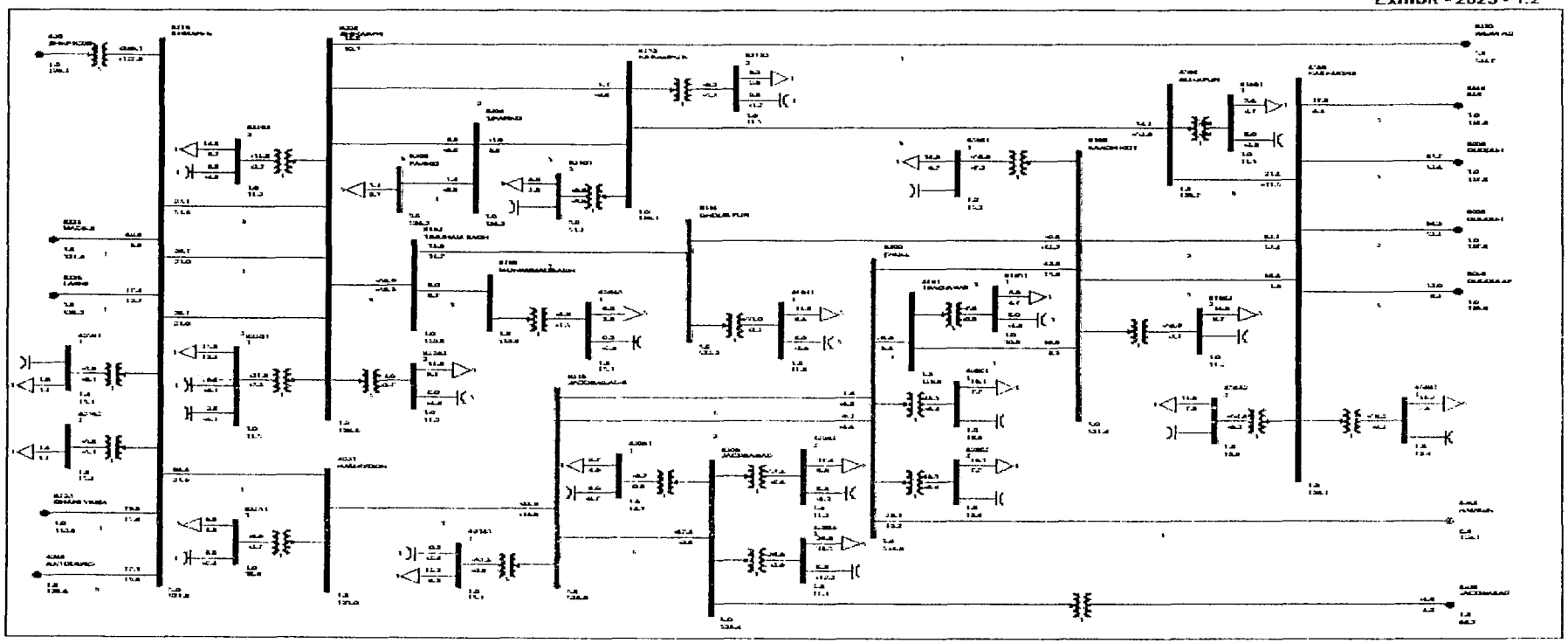
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH PROPOSED PLAN

Exhibit - 2025 - 1.1



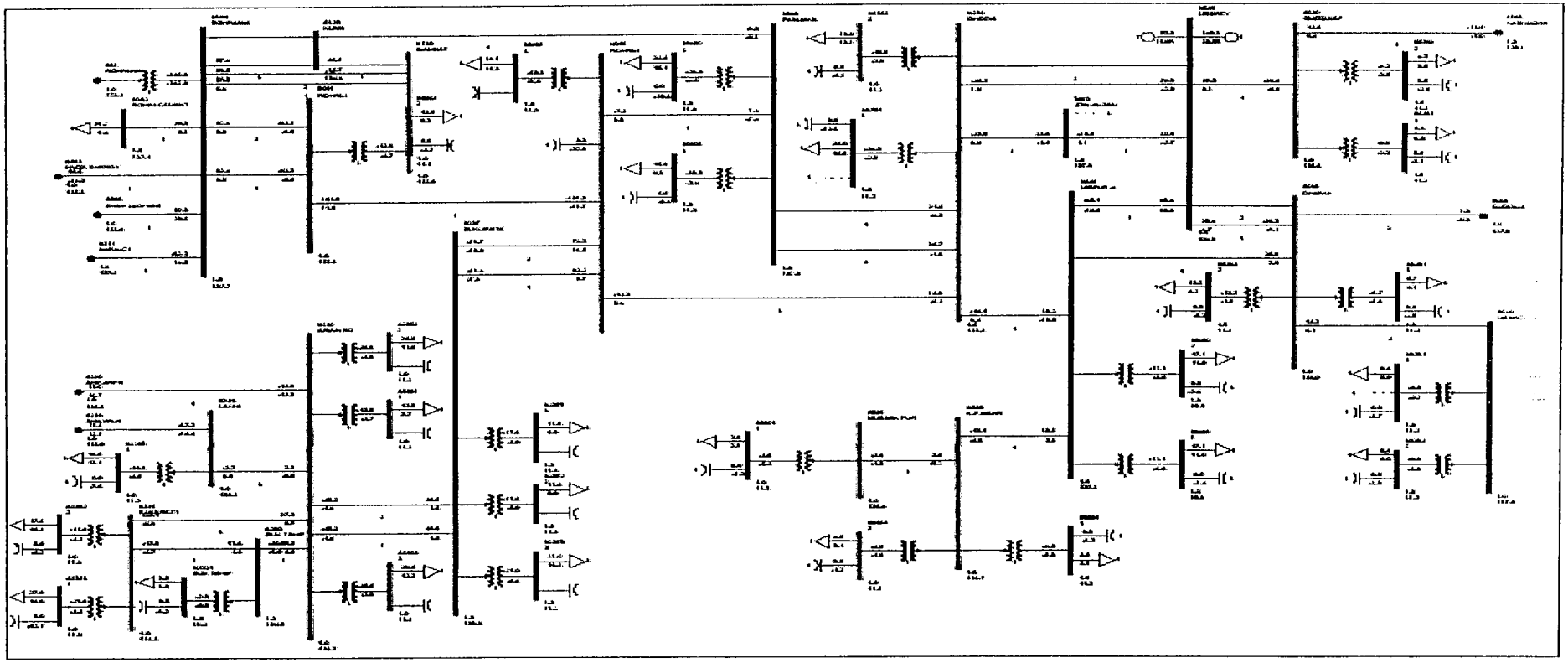
LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH PROPOSED PLAN

Exhibit - 2025 - 1.2



LOAD FLOW STUDY
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH PROPOSED PLAN

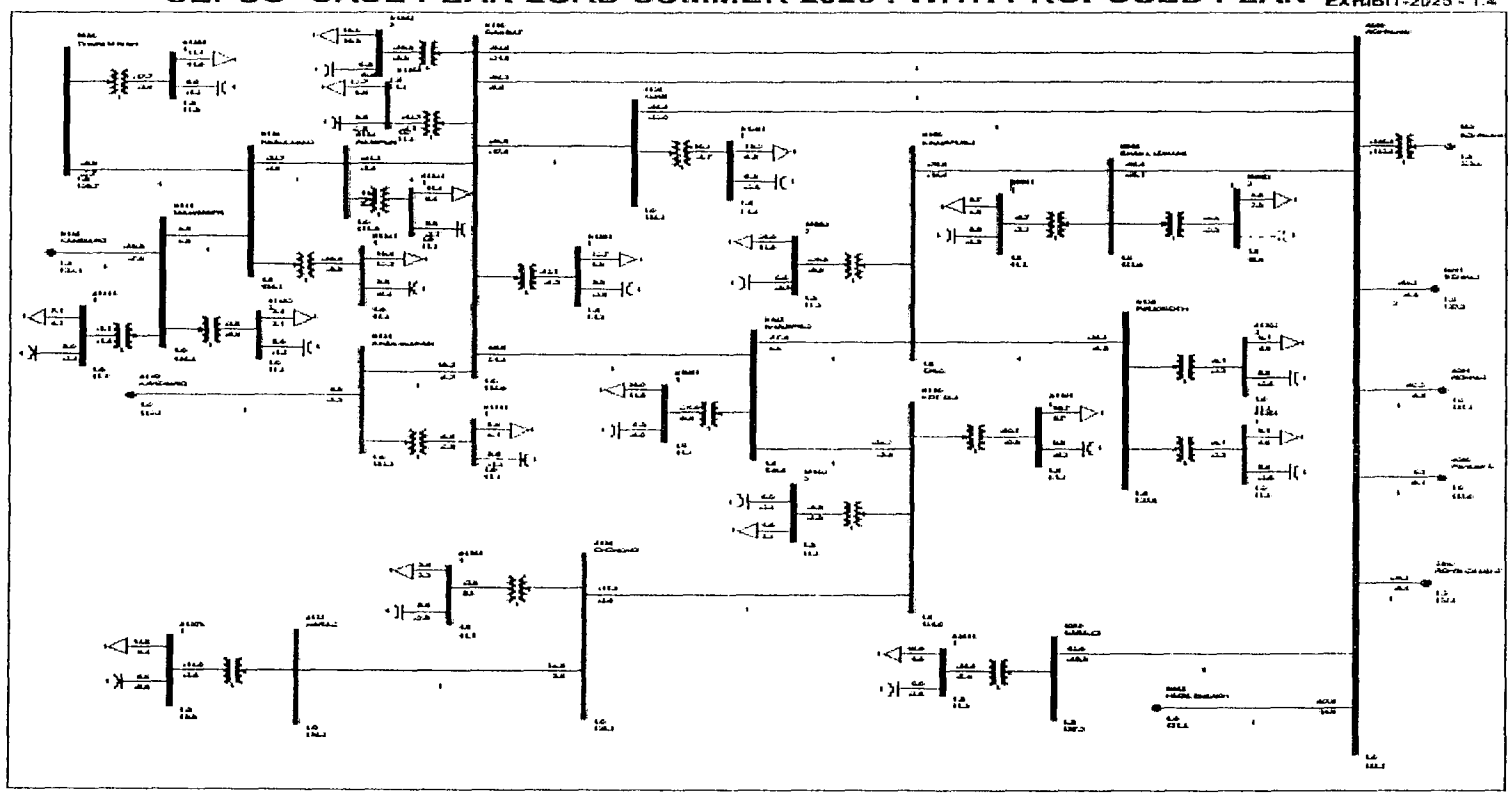
EXHIBIT-2025 - 3.3



1

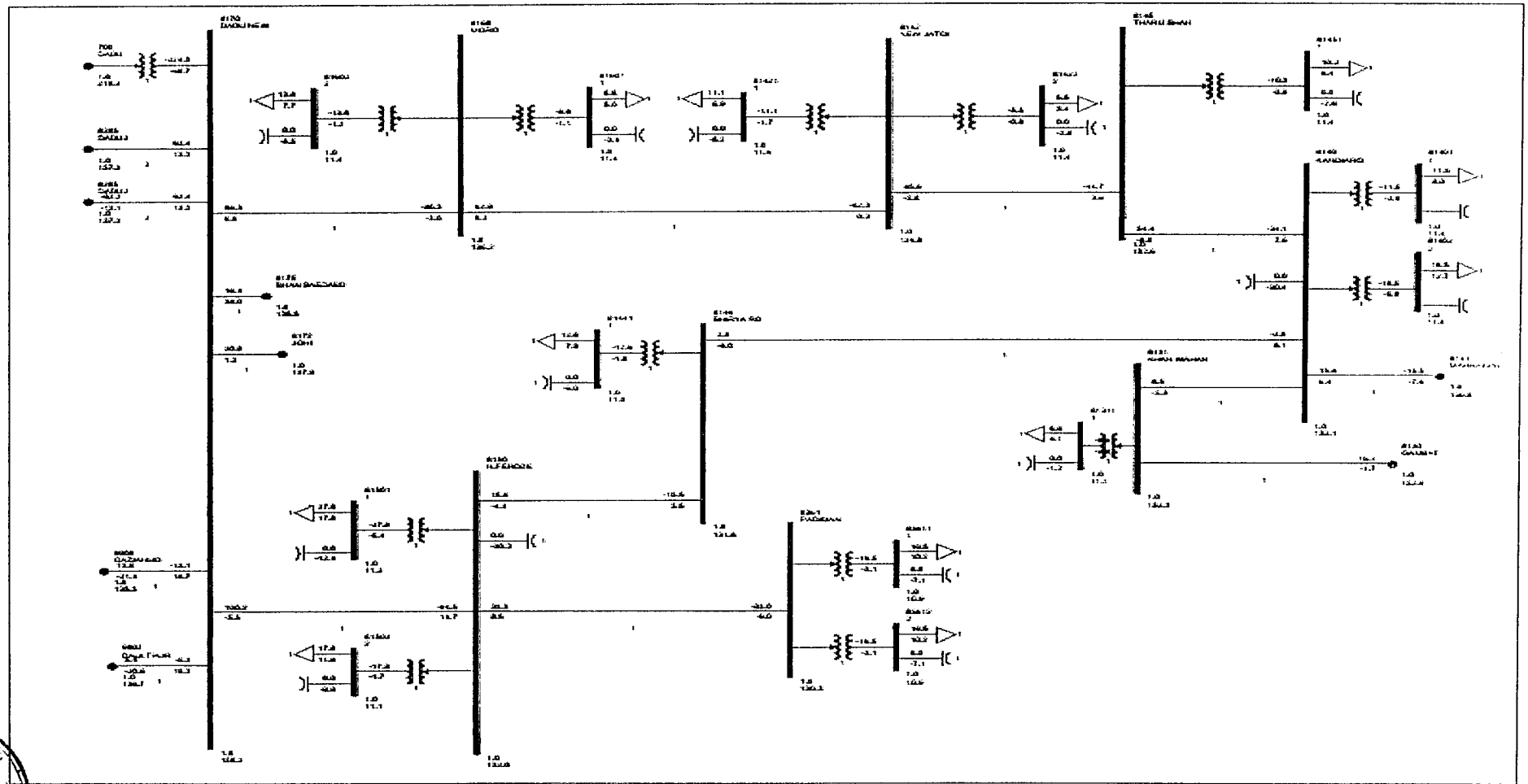
LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH PROPOSED PLAN EXHIBIT-2025 - 1.4



LOAD FLOW STUDY

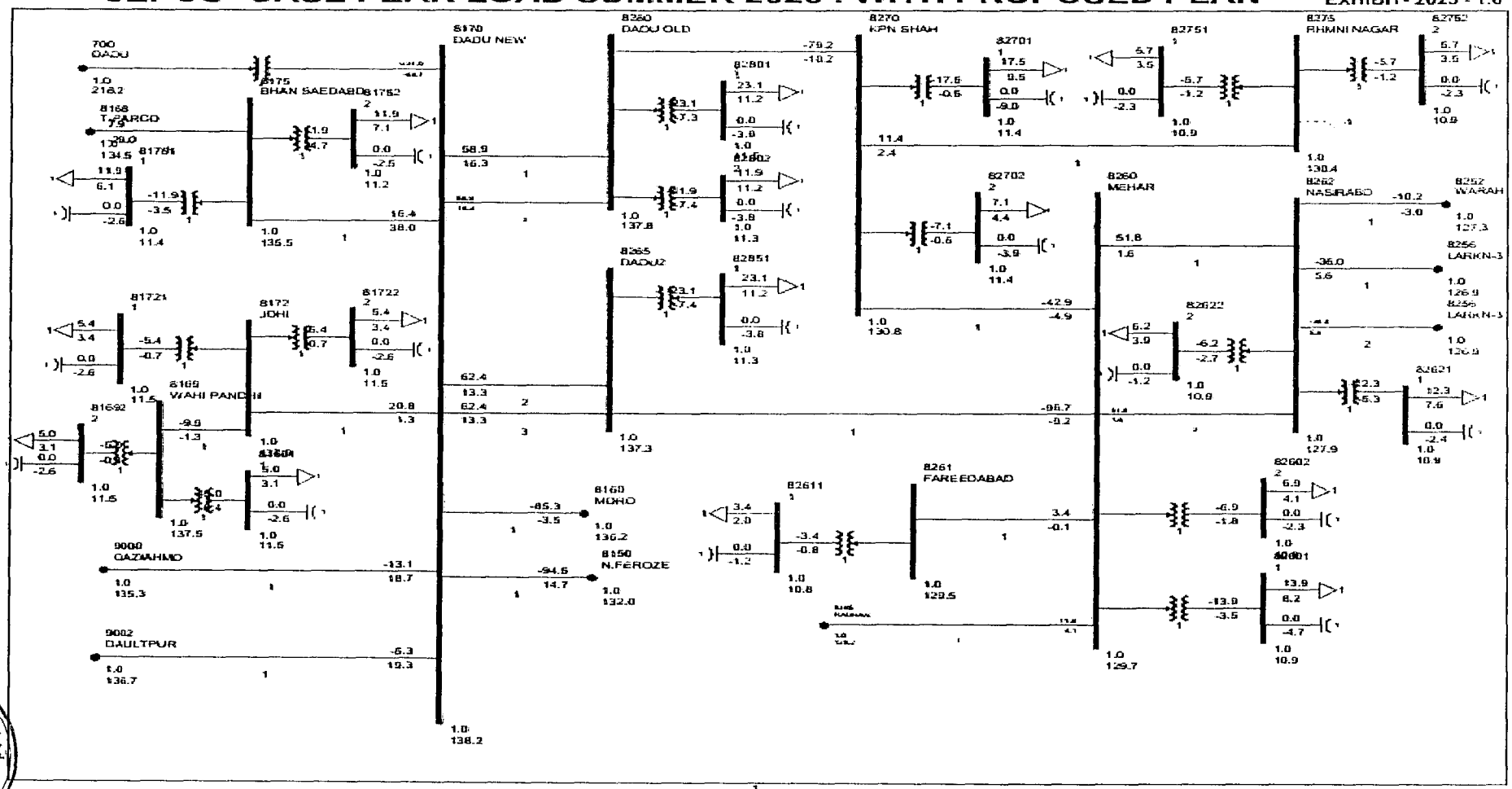
SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH PROPOSED PLAN EXHIBIT- 2025 - 1.5



LOAD FLOW STUDY

SEPCO -CASE PEAK LOAD SUMMER 2025 : WITH PROPOSED PLAN

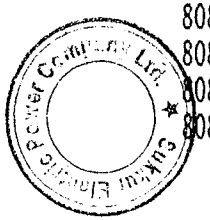
EXHIBIT- 2025 - 1.6



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, OCT 04 2021 12:26
SEPCO PEAK LOAD SUMMER 2024-25 WITH PROPOSED PLAN

OUTPUT FOR AREA 9 [SEPCO]
SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
LOADINGS ABOVE 80.0 % OF RATING (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

X---------- FROM BUS ----------X				X---------- TO BUS ----------X						RATING SET 1		RATING SET 2		RATING SET 3		RATING SET 5	
BUS#-SCT	X-- NAME --X	BASKV	AREA	BUS#-SCT	X-- NAME --X	BASKV	AREA	CKT	LOADING	RATE1	PERCENT	RATE2	PERCENT	RATE3	PERCENT	RATE5	PERCEN
620	SHKPR220	220.00*	15	8219	SHIKAR-N	132.00	9	1	425.6	480.0	88.7	--	--	--	--	--	--
8040	MIRPUR M	132.00*	9	80402	2	11.000	9	1	21.1	26.0	81.1	--	--	--	--	--	--
8089	ROHRI-NW	132.00	9	8095	SHAH LUDHANI	132.00*	9	1	93.1	112.0	83.1	--	--	--	--	--	--
8150	N.FEROZE	132.00	9	8170	DADU NEW	132.00*	9	1	95.9	112.0	85.6	--	--	--	--	--	--
8260	MEHAR	132.00*	9	8285	DADU2	132.00	9	1	98.9	112.0	88.3	--	--	--	--	--	--
80811	HELIOS MV _1	33.000*	9	808111		0.4000	9	1	12.6	14.0	90.2	--	--	--	--	--	--
80812	HELIOS MV _2	33.000*	9	808121		0.4000	9	1	10.1	11.2	90.3	--	--	--	--	--	--
80813		33.000*	9	808131		0.4000	9	1	10.1	11.2	90.3	--	--	--	--	--	--
80814	HELIOS MV _4	33.000*	9	808141		0.4000	9	1	10.1	11.2	90.3	--	--	--	--	--	--
80821		33.000*	9	808211		0.4000	9	1	12.7	14.0	90.5	--	--	--	--	--	--
80822		33.000*	9	808221		0.4000	9	1	10.2	11.2	90.8	--	--	--	--	--	--
80823		33.000*	9	808231		0.4000	9	1	10.2	11.2	90.8	--	--	--	--	--	--
80824		33.000*	9	808241		0.4000	9	1	10.2	11.2	90.8	--	--	--	--	--	--
80831		33.000*	9	808311		0.4000	9	1	12.7	14.0	90.4	--	--	--	--	--	--
80832		33.000*	9	808321		0.4000	9	1	10.1	11.2	90.5	--	--	--	--	--	--
80833		33.000*	9	808331		0.4000	9	1	10.1	11.2	90.5	--	--	--	--	--	--
80834		33.000*	9	808341		0.4000	9	1	10.1	11.2	90.5	--	--	--	--	--	--



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E THU, SEP 23 2021 13:38
SEPCO PEAK LOAD SUMMER 2025 WITH PROPOSED PLAN
BUSES WITH VOLTAGE GREATER THAN 1.0500:

BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)

* NONE *

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)	BUS#-SCT	X-- NAME --X	BASKV	AREA	V(PU)	V(KV)

* NONE *

```
    PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E      MON, OCT 04 2021  12:23
SEPCO PEAK LOAD SUMMER 2024-25 WITH PROPOSED PLAN

******************  SUMMARY FOR THE SUBSYSTEM SPECIFIED BY  ******************

AREAS:
   9 SEPCO

********************************************************************************

    239 BUSES          23 PLANTS              14 MACHINES        0 INDUCTION GENS        0 INDUCTION MOTORS
    130 LOADS         128 FIXED SHUNTS         3 SWITCHED SHUNTS
    292 BRANCHES      148 TRANSFORMERS         0 DC LINES         0 FACTS DEVICES         0 GNE DEVICES

                          X------ ACTUAL ------X X----- NOMINAL ------X
                                    MW              MVAR              MW              MVAR
FROM GENERATION                   338.5              29.6             338.5              29.6
FROM INDUCTION GENERATORS           0.0               0.0               0.0               0.0
TO CONSTANT POWER LOAD           1616.3             947.7            1616.3             947.7
TO CONSTANT CURRENT                 0.0               0.0               0.0               0.0
TO CONSTANT ADMITTANCE              0.0               0.0               0.0               0.0
TO INDUCTION MOTORS                 0.0               0.0               0.0               0.0
TO BUS SHUNT                        0.0            -704.0               0.0            -690.8
TO FACTS DEVICE SHUNT               0.0               0.0               0.0               0.0
TO GNE BUS DEVICES                  0.0               0.0               0.0               0.0
TO LINE SHUNT                       0.0               0.0               0.0               0.0
FROM LINE CHARGING                  0.0             154.9               0.0             151.4

 VOLTAGE        X----- LOSSES -----X    X-- LINE SHUNTS --X    CHARGING
 LEVEL BRANCHES       MW              MVAR              MW              MVAR              MVAR
 132.0     138       57.64            276.37             0.0               0.0             154.8
  66.0       1        0.00              0.13             0.0               0.0               0.0
  33.0      18        0.83              6.57             0.0               0.0               0.1
  11.0     123        0.00            119.73             0.0               0.0               0.0
   0.4      12        0.00              6.59             0.0               0.0               0.0
 TOTAL     292       58.48            409.38             0.0               0.0             154.9
```

ACRONYMS	DESCRIPTION
ACSR	Aluminum Conductor Steel Reinforced
ALM	Assistant Line Man
AM	Assistant Manager
CDM	Clean Development Mechanism
DISCO	Distribution Company
DOP	Distribution of Power
ELR	Energy Loss Reduction
IFRR	Internal Financial Rate of Return
GSO	Grid System Operation
GWh	Giga Watt Hour
IGTDP	Integrated Generation, Transmission & Distribution Plan
KVA	Kilo Volt Ampere
KVAR	Kilo Volt Ampere Reactance
LM	Line Man
LS	Line Superintendent
MKWh	Million Kilo Watt Hour
MoWP	Ministry of Water & Power
MW	Mega Watt
MVAR	Mega Volt Ampere Reactive
NEPRA	National Electric Power Regulatory Authority
NTDC	National Transmission & Dispatch Company
PDC	Power Distribution Center
PEPCO	Pakistan Electric Power Company
PMS	Power Market Survey
PMU	Project Management Unit
P.U	Per Unit
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SDO	Sub Divisional Officer
SE	Superintending Engineer
SEPCO	Sukkur Electric Power Company
STG	Secondary Transmission Lines & Grids
T&P	Tools & Plants
WAPDA	Water and Power Development Authority
XEN	Executive Engineer