National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

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No. NEPRA/TRF-365/NTDC-2016/5040-5042
April 11, 2017

Subject: **Determination of the Authority in the matter of Petition filed by National Transmission & Despatch Company Ltd. (NTDC) for Determination of Transfer/Wheeling Charges for the FY 2015-16 and FY 2016-17** - Case No. NEPRA/TRF-365/NTDC-2016

Dear Sir,

Please find enclosed herewith the subject Determination of the Authority (84 pages) in Case No. NEPRA/TRF-365/NTDC-2016.

2. The determination is being intimated to the Federal Government for the purpose of notification in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997) and Rule 16(11) of the National Electric Power Regulatory Authority Tariff (Standards and Procedure) Rules, 1998.

3. The Order Part and the Terms and Conditions of the determination need to be notified in the Official Gazette.

Enclosure: As above

11/04/17

(Syed Safeer Hussain)

Secretary
Ministry of Water & Power
'A' Block, Pak Secretariat
Islamabad

CC:

1. Secreta ry, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secreta ry, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.

National Electric Power Regulatory Authority
(NEPRA)

PETITION NO. NEPRA/TRF-365/NTDC-2016

DETERMINAITON OF TRANSFER/WHEELING CHARGES

FOR THE YEAR 2015-16 and FY 2016-17

UNDER

NEPRA TARIFF STANDARDS & PROCEDURE RULES - 1998
FOR
NATIONAL TRANSMISSION & DESPATCH COMPANY (NTDC)

Islamabad

April 11, 2017

DETERMINATION OF THE AUTHORITY IN THE MATTER OF PETITION FILED BY NATIONAL TRANSMISSION & DESPATCH COMPANY (NTDC) FOR DETERMINATION OF TRANSFER / WHEELING CHARGES FOR THE FY 2015-16 AND FY 2016-17.
CASE NO. NEPRA/TRF/365/NTDC-2016

PETITIONER

National Transmission & Dispatch Company Limited (NTDC)
540 WAPDA House, Lahore.

INTERVENER

M/s Anwar Kamal Law Associates (AKLA)

COMMENTATOR

1. All Pakistan Textile Mills Association (APTMA) and
2. Energy & Power Department, Government of KPK.

REPRESENTATION

- Managing Director, NTDC
- General Manager GSO, NTDC
- General Manager Planning (P), NTDC
- General Manager (SO), NPCC
- Finance Director, NTDC

ABBREVIATIONS

CPPA-G	Central Power Purchasing Agency (Guarantee) Limited
FY	Financial Year
GOP	Government of Pakistan
MoWP	Ministry of Water and Power
NTDC	National Transmission & Despatch Company Limited
GWh	Giga Watt Hours
KV	Kilo Volt
Kw	Kilo Watt
kWh	Kilo Watt Hour
MW	Mega Watt
NEPRA	National Electric Power Regulatory Authority
O&M	Operation and Maintenance
PEPCO	Pakistan Electric Power Company
SRO	Statutory Regulatory Order
T&T	Transmission and Transformation Losses

The Authority, in exercise of the powers conferred on it under Section 7(3) (a) read with Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, Tariff (Standards and Procedure) Rules, 1998 and all other powers enabling it in this behalf, and after taking into consideration all the submissions made by the parties, issues raised, evidence/record produced during hearings, and all other relevant material, hereby issues this determination.

AUTHORITY

Syed Masood-ul-Hassan Naqvi
Member

Maj (R) Haroon Rashid
Member

Saif Ullah Chattha
Member
10.4.2017

Himayat Ullah Khan
Vice Chairman
7.4.17

Brig (R) Tariq Saddozai
Chairman

11/04/17

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

1. Background

1.1 National Transmission & Dispatch Company (NTDC), hereinafter referred as (the Petitioner) is a Transmission Licensee of NEPRA vide License No. TL/01/2002 on 31st December, 2002to engage in the transmission business for a term of thirty (30) years, pursuant to Section 17 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, within Pakistan except the area served by K-Electric Limited.

1.2 Under Article 8 of the License, NTDCL was required to move towards a Competitive Trading Bilateral Contract Market (CTBCM) and for this purpose, it had to facilitate the establishment of and functioning of a Single Buyer Plus (SBP) trading arrangement. Under the regime set out in the License, the Petitioner was entrusted to act as System Operator (SO), Transmission Network Operator (TNO), Central Power Purchasing Agency (CPPA), Contract Registrar and Power Exchange Administrator (CRPEA).

1.3 NTDCL in accordance with the Article 8 of its License, established the Central Power Procurement Agency (CPPA) to discharge the functions of billing, settlement and payment to Generation Companies (GENCO, IPPs, and WAPDA Hydel) under the said article. Although, CPPA was contemplated to be a standalone entity but for practical reasons at the time of grant of the Transmission License to NTDCL this could not be achieved, therefore, it was included in the Transmission License of NTDCL.

1.4 The Government of Pakistan, in pursuance of achieving a competitive market, decided to create an independent company to perform the Market Operator functions and accordingly, Central Power Purchasing Agency (Guarantee) Limited (CPPA-G) was incorporated in 2009 in order to become the successor of CPPA of NTDC and assume the existing market operations being performed by NTDCL.

1.5 Accordingly, the Authority through its determination dated May 29, 2015 in the matter of Licensee Proposed Modification filed by NTDC, pursuant to Regulation 10(11)(a) of the NEPRA Licensing (Application & Modification Procedure) Regulations, 1999, separated the functions, business of settlement and development of competitive market from NTDC and assigned the same to CPPA-G to establish, govern, promote an efficient and transparent billing, settlement and payment system.

2 NTDC's Current Petition

2.1 The Petitioner, being the Transmission Licensee of NEPRA, filed the petition for the determination of its transfer/wheeling charges pertaining to the FY 2015-16 and FY 2016-17 in terms of Rule 3(1) of Tariff Standards & Procedure Rules-1998 ("Rules") vide letter no. NTDCL/MD/NTDC-9911-16 dated 13th June 2016.

2.2 The Petitioner submitted the following grounds for the filing of the tariff petition pertaining to the FY 2015-16 and FY 2016-17;

- The prevailing rate of UoSC is insufficient to meet with the anticipated rise in the revenue requirement in the FY 2015-16 & FY 2016-17, due to incremental impact in

NEPRA AUTHORITY
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

the operational & financial costs, construction of new grids and expansion of transmission network.

- A minimal of 15.50% return on capital base for the FY 2015-16 & 2016-17 due to more capital investment, in ongoing as well as new projects.
- Increase in Operational & Maintenance Costs including Pay & Allowances.
- The induction of 2,336 employees against vacant posts and system expansion.
- Being an infrastructure based company, borrowings are required from foreign/ local institutions for expansion/development in Transmission Network, for which financial charges are required to be paid to lenders.
- Regulatory Revenue Gap has arisen due to allowing inadequate revenue requirement based on estimates versus actual results for FY 2014-15, delayed determination, and notification of Tariff.

2.3 Based on the foregoing, NTDCL has requested the following reliefs;

- To determine the proposed tariff of Rs.180.75 /kW/Month for FY 2015-16 and Rs. 220.05 kW/Month FY 2016-17.
- To allow uncovered cost for the FY 2014-15, along with reconsideration of claim for the recovery of all legitimate costs incurred prudently during the FY 2013-14 to run the business.
- To approve the Investment plan of Rs.42,363 million & Rs.74,700 million for the FY 2015-16 & 2016-17 respectively.
- To allow return on capital base @ 15.50 %.

2.4 Thus, NTDCL has requested the following Revenue Requirement for the FY 2015-16 and FY 2016-17;

Rs. Mln

	Revenue Requirement	2015-16	2016-17
1	GE&A	5,934	6,969
2	Repair & Maintenance	822	1,008
3	Insurance	153	159
4	Depreciation	5,099	5,994
5	Financial Charges	3,443	4,037
7	Return on Equity	23,171	28,709
9	Prior Year Adjustment	4,259	
	Total	42,882	46,876
10	Less: other income	1,465	1,525
11	Total Revenue Requirment	41,417	45,351
	MDI	19,095	17,175
	Tariff For the Year kW/Month	180.75	220.05

*MDI for FY 2015-16 has been projected on Non-Coincidental basis, whereas for FY 2016-17 calculated on Co-Incidental basis.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

3 Proceedings

3.1 In terms of rule 4 of NEPRA Tariff (Standards & Procedure) Rules, 1998 (hereinafter referred as the Rules", the petition was admitted by the Authority on July 20, 2016 and in terms of sub-rules (5) & (6) of rule 4 and rule 5 of the Rules, notice of admission/ hearing containing salient features of the petition was published in the national newspapers on August 10, 2016, inviting filing of reply, intervention requests and comments by any interested or affected person. The hearing of the petition was scheduled for August 30, 2016 at NEPRA Tower Islamabad. Separate notices of Admission and Hearing were also sent to the interested parties under Rule 4(5)(6) of the Tariff Rules 1998. Notice of admission / hearing along-with the petition was also uploaded on NEPRA website for comments / input of the stakeholders.

4 FILING OF OBJECTIONS/ COMMENTS:

4.1 Despite issuing separate notices to the key stakeholders and publication of notices in the national newspapers, neither any reply nor any intervention request was filed within the prescribed time, however, M/s Anwar Kamal Law Associates (AKLA) filed its intervention request after the stipulated time. The Authority, in the interest of justice and to provide opportunity to the stakeholders, condoned the delay and accepted the intervention request of AKLA. Written comments were also filed by All Pakistan Textile Mills Association (APTMA) and the Energy & Power Department, Government of KPK.

5 Mr. Anwar Kamal - Intervener

5.1 The Intervener has inter-alia raised the following observations;

- NEPRA has relied on the certificates of NTDC regarding economic merit order operations of the plants, however, NEPRA should undertake an exercise to check the data and based on its limited audit, should certify that statement on NTDC is correct.
- Supply of imprudent and illegal 650 MW electricity to K-Electric is not only causing financial loss to the electricity consumers but also causing irreparable losses to the economy of the Country as the cost of electricity generated by KE's power plants is much lower than the cost of electricity generated by the Power Plants in the CPPA Generation Basket.
- The period to which the tariff petition pertains i.e. FY 2015-16 and two months of FY 2016-17 have already passed, how the Authority will deal with the issues arising from the anti-dated and retroactive determination and how it will compensate the consumers who may have already paid heavier burden?
- Has NTDC provided the actual figures for the FY 2015-16, and if so, why the issues mention "proposed" for both for FY 2015-16 and FY 2016-17?

6 Rejoinder by the Petitioner

6.1 No rejoinder has been received from the Petitioner against the comments and interventions.

7 Energy & Power Department, KPK

7.1 The Energy & Power Department of KPK, raised the following issues;

- NTDCL has no plans for installation of any transmission line or system up-gradation in the province of KPK. In the next 4 years, KPK plans to bring 215 MW Power into the system but NTDCL has no plans for its evacuation.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

- Citing the example of Renolia Hydro Power Project, the Energy & Power Department stated that despite being ready since August 2015, the Project is without any evacuation infrastructure causing millions of rupees loss to the Government of KPK (GoKPK). The Authority should direct NTDCL to pay for the loss and to include KPK in NTDCL's future developmental plans and to provide full power quota of 13.5% to KPK.
- NTDCL didn't carry out power evacuation studies for 3900 MW capacity Hydropower plants and KPK Gas Turbine Combined Cycle Power Plant. NTDCL may be directed to complete the Power evacuation studies by 2018 and the instant petition & previous decisions of NTDCL should be set aside till the studies are completed.
- NTDCL should carry out detailed Interconnection studies for KPK and put on hold the complete 600 KV HVDC Project till such studies are completed.
- The burden of Rs.0.71/kWh for the Matiari to Lahore Transmission Line may not be passed on to KPK consumers and an International Feasibility Study be carried out before taking any decision.
- The Petition lacks justification in terms of the claimed UoSC, the additional recruitment of 2,336 employees and the Repair & maintenance cost, therefore the proposed increase of charges for the FY 2015-16 may not be approved.

8 <u>Rejoinder by the Petitioner</u>

8.1 No rejoinder has been received from the Petitioner against the comments and innervations.

9 <u>APTMA</u>

9.1 APTMA has submitted the following points;

- NTDC has not provided its audited financial statements for the FY 2014-15 even after twelve months. The data for the FY 2015-16 is also estimated despite the fact that the financial year has closed. Regulatory accounts as per the NEPRA's Uniform System of Accounts have also not been provided.
- Detailed power evacuation plan providing justification of infrastructure expansion & rehabilitation has not been provided in the instant petition.
- No comments have been provided on NEPRA's directions given in the determination for the FY 2014-15.
- Neither any historical performance data nor targets for the FY 2016-17 have been provided to justify the revenue requirements.
- No basis & methodology has been mentioned for the estimate of 17,175 MW coincidental demand in the FY 2016-17, which is understated considering the total capacity availability of 21,612 MW and considering the additional 147MW new generation coming up in 2016-17.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

- The aggregate T&T Loss be fixed as 2.4% and 2.3% for 2015-16 and 2016-17 respectively since the targets determined by NEPRA have always been higher than the actual T&T loss of NTDC for the same period. DISCO's transmission network loss, comprising of 132/66 kV transmission voltages, is 2.3% in 2015-16 whereas NTDC transmission loss was 2.6%, which should have been less than the DISCOs transmission loss owing to high voltage transmission lines of NTDCL such as 500/220 kV.
- The proposed investment program of Rs. 42.33 Billion in 2015-16 and 74.7 Billion in 2016-17 is unrealistic and impossible to be implemented considering the facts that 15 out of the total 24 months have already lapsed, donors / lenders have not yet been identified and PC-I are under process. Moreover, cost benefit details of the projects are missing and no targets with regards to existing transmission capability and new transmission capability after implementation of the investment program have been provided.
- The amount of WIP should not be included in the rate base while calculating the Return owing to its high percentage of around 43%.
- The proposed revenue requirement, based on 41% increase in General Administrative and admin cost, 39% increase in permanent manpower, 10% increase in pension expenses and recovery of financial charges in addition to WACC, is overstated and unjustified.

10 Rejoinder by the Petitioner

10.1 No rejoinder has been received from the Petitioner against the comments and innervations.

11 Issues of the Hearing

11.1 On basis of the pleadings, following issues were framed to be considered during the hearing and for presenting oral and documentary evidence;

i. Whether the Authority's directions given in the tariff determination for FY 2014-15 have been complied with by NTDCL?

ii. Whether the calculation of Wheeling charge for the FY 2015-16 based on Non-Coincidental basis is justified?

iii. Whether the Cost related to CPPA-G has been excluded from the proposed revenue requirement for the FY 2015-16 and FY 2016-17?

iv. What is the breakup of asset related to CPPA-G if any? Whether the same have been excluded from the Petitioner's books of accounts?

v. Whether the Petitioner's requested General Establishment & Administration (GE&A) cost Rs. 5,934 million & Rs. 6,968 million for the FY 2015-16 and FY 2016-17, is justified?

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

vi. Whether the request of petitioner for induction of 2,336 employees for the FY 2015-16 and FY 2016-17 is justified?

vii. Whether the Petitioner has maintained a separate post-retirement benefit fund?

viii. Whether the allowed level of losses target i.e. 3% needs to be reviewed?

ix. Whether the allowed losses needs to be calculated as % of the total energy generated for the month including the energy for those power plants which are directly connected to XWDISCOs network or otherwise?

x. Whether the proposed Repair & Maintenance expenditures for Rs. 822million & Rs. 1,008 million for the FY 2015-16 and FY 2016-17 is justified?

xi. Whether the petitioner's projected insurance of Rs. 153 million & Rs. 159 million for the FY 2015-16 and FY 2016-17 is justified?

xii. Whether the petitioner's projected depreciation of Rs. 5,099 million & Rs. 5,994 million for the FY 2015-16 and FY 2016-17 is justified?

xiii. Whether the projected increase in financial charges of Rs. 3,443 million & Rs. 4,037 million for the FY 2015-16 and FY 2016-17 is justified?

xiv. Whether the Petitioner's projected Return on Equity Rs. 23,171 million & Rs. 28,709 million for the FY 2015-16 and FY 2016-17 is justified?

xv. Whether the requested WACC of 15.50% (70:30) based on ROE of 16.83% and Cost of Debt of 14.93% is justified?

xvi. Whether the request of the Petitioner to allow WACC on one hand and Financial charges on actual basis on other hand is justified?

xvii. Whether the Petitioner's requested Prior Year Adjustments (PYA) is justified?

xviii. Whether the Petitioner's projected Other Income of Rs.1,465 million & Rs.1,525 million for the FY 2015-16 and FY 2016-17 is reasonable?

xix. Whether the proposed Average Monthly MDI MW/Month 19,095 for the FY 2015-16 on non-Coincidental Basis and Average Monthly MDI MW/Month 17,175 for the FY 2016-17 on Coincidental Basis by the petitioner is justified?

xx. Whether the Petitioner's proposed Investment program of Rs. 42,364 million & Rs. 74,700 million for the FY 2015-16 and FY 2016-17 are justified, keeping in view the prospective benefits?

xxi. Whether the detailed studies have been carried out to identify new projects? Whether an (n-1) criterion has been assured?

xxii. What steps have been taken for preventing the transmission system breakdowns resulting in blackouts and tripping during the foggy weather?

xxiii. What are the major bottlenecks in the transportation of power throughout the year, overloading position of transformers, transmission lines and substations and what steps have been taken or planned for addressing these issues? Include technical and financial details.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

xxiv. What are the details of major incidents of brownouts and blackouts during the year, the reasons for such incidents and the steps for avoiding such incidents in the future?

xxv. What is the progress on metering systems at all the common delivery points?

xxvi. What steps have been taken by NTDC for strengthening of its transmission system in case of implementation of additional AC lines with proposed induction of HVDC?

xxvii. What steps have been taken by NTDC for power evacuation from upcoming Renewable Energy Projects? What is the maximum size of Renewable Projects at one location?

xxviii. Whether the NTDC/NPCC staff is prepared for the operation of HVDC and HVAC integrated system?

xxix. Whether the Planning Department of NTDC is capable of analyzing and carrying out studies of HVDC and HVAC transmission projects? Whether NTDC is capable of performing Transient Network Analysis?

xxx. What is the status of transmission lines for evacuation of power of large hydro power projects? Details are required for all upcoming projects.

xxxi. What is status of dispersal of projects for import of power, like 500 kV HVDC Transmission line for 1000 MW power from Tanavir, Iran?

xxxii. What are the details of the agreement for supplying power to K-Electric?

xxxiii. Whether the details of investment program of the ongoing and new projects and cost incurred on these projects claimed by the petitioner is justified? Provide the IGTDP plan.

xxxiv. What are the Petitioner's concern regarding decision of the Authority in the matter of Ex-WAPDA pensioner as decided by the Authority in the tariff determination of XWDISCOs for the FY 2014-15?

xxxv. Any other issue that may come up during the hearing.

xxxvi. Based on the pleadings of the Commentators and Interveners, the Authority has framed the following two additional issues;

a) Investments not included in the Investment Plan by the Petitioner

b) Evacuation of Power from Chitral corridor

c) Whether the concerns raised by the interveners and commentators are justified?

12 Hearing

12.1 Hearing in the matter was initially scheduled on August 30, 2016 for which notice was published in the newspaper on August 10, 2016, however, the same was postponed and was re-scheduled for September 01, 2016. Advertisement for the same was published in

NEPRA AUTHORITY

the newspaper on August 17, 2016 and separate notices in this regard were also issued to all the stakeholders on August 18, 2016.

12.2 Subsequently NTDCL vide letter dated August 31, 2016 requested the Authority to postpone the hearing scheduled on September 01, 2016 and to reschedule the same after 10 days.

12.3 The Authority acceded to the request of NTDCL and accordingly the hearing was re-scheduled for October 04, 2016 at NEPRA Tower Islamabad. Advertisement for Re-Scheduling of hearing was published in newspaper on September 08, 2016 and revised notices of the hearing were issued to all the stakeholders on September 15, 2016.

12.4 The hearing was attended by the Petitioner, Representative of Government of Khyber Pakhtunkhwa, , Representative of APTMA, CPPA-G, media and general public.

12.5 On the basis of the pleadings, record/evidence produced during the course of hearing and after hearing, the issue-wise findings of the Authority are given hereunder:

13 <u>Whether the Authority's directions given in the tariff determination for FY 2014-15 have been complied with by NTDCL?</u>

13.1 The Authority issued several directions to NTDCL in its tariff determination for the FY 2014-15. The compliance of which are discussed under relevant issues, however, few of the directions are discussed as below;

13.2 To develop the mechanism in consultation with the K-Electric for supply of electricity in co-ordination with Ministry of Water & Power and submit the report for Authority's consideration and to provide copy of agreement with K-Electric when it is finalized

13.2.1 NTDCL submitted during hearing of its instant petition that its Power Sale Agreement (PSA) with K- electric for supply of 650 MW Electricity has expired on Jan 26, 2015 and to resolve the issue MoWP has constituted a committee for finalization of PSA with K-Electric. The Petitioner also submitted that a hearing in the matter was also held in NEPRA headquarter on Jun 09, 2016.

13.2.2 Here it is pertinent to mention that during the pendency of the PPA between NTDCL and K-Electric Limited, a decision was passed by the Council of Common Interests (CCI) dated 08-11-2012 with respect to the modalities for withdrawal of 350 MW of electric power from NTDCL by KE instead of 650 MW. However, the decision of CCI was impugned by way of the various suits /petitions by the K-Electric in the Honorable High Court of Sindh at Karachi. The Honorable Court has passed status quo orders, not to reduce supply of 650 MW to K-Electric from the National Grid. The matter is therefore sub-judice. However, the Authority, in view of the continuation of sale/ purchase of power between K-Electric and NTDCL, even after the lapse of the PPA, has issued explanations to both NTDCL and K-Electric dated December 09, 2015 under rule 4(1) & 4(2) of NEPRA (Fines) Rules, 2002, proceedings of which are in process.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

13.3 **To take necessary measures for improving recovery situation and take up this issue with the GOP in order to resolve the matter.**

13.3.1 The Authority during the tariff determination process for the FY 2014-15 noted with great concern that NTDCL's receivables from XWDISCOs and K-Electric soared to Rs.357,219 million in FY 2013-14 as compared to Rs.234,882 million in FY 2012-13. The Authority taking a serious notice of the issue, directed NTDCL to take necessary measures for improving the recovery situation and take up this issue with the GOP in order to resolve the matter.

13.3.2 NTDCL, on the aforementioned direction submitted that since CPPA-G is now operating as an independent company, therefore the measures for improving recovery directly relates to CPPA-G. NTDCL further stated that regarding recovery from K-Electric, NTDCL mentioned that CPPA-G has initiated a letter asking K-Electric to deposit Rs.5 Billion.

13.3.3 The Authority is cognizant of the fact that as on today CPPA-G is no longer part of NTDCL. However, when the instant direction was passed the situation was different. The Authority after considering the bifurcated accounts of both the entities, would further adjudicate on this matter.

13.4 **To provide the detailed power evacuation plan for the upcoming renewable power projects within one month of issuance of this determination.**

13.5 **To evacuate renewable energy on priority basis from the power projects which are achieving COD in coming months in line with the Power Policy of the GOP.**

13.5.1 The Authority, on the status of Energy Purchase Agreements (EPAs) for the renewable projects, presented by the Petitioner during the hearing of its tariff petition pertaining to the FY 2014-15, observed that the EPAs have been executed with 10 Wind and 4 Bagasse and around 13 EPAs were under negotiations. The Authority also noted that most of the solar power plants are in their finalization stages and will be ready to supply electricity in the National Grid. In view thereof, the Authority directed NTDCL to provide the detailed power evacuation plan for the upcoming renewable power projects within one month of the issuance of this determination.

13.5.2 The Petitioner during hearing of its instant petition has submitted that Interconnection facilities have been completed in terms of the following Wind Power projects;

a. M/s Yunus Energy
b. M/s Metro Power
c. M/s Tenaga Generasi
d. M/s Tapal
e. M/s Gul Ahmed Energy
f. Master Wind Energy
g. Hydro China (Dawood) Power

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

13.5.3 The Authority has observed that NTDCL provided only a limited information in terms of the projects against which interconnection facilities have been completed, whereas it did not give a complete information with respect to the detailed power evacuation plan for all the upcoming renewable power projects. In view thereof, NTDCL is again directed to provide its detailed evacuation plan in terms of all upcoming power projects by June 30, 2017.

13.6 **To submit the status of NOC issued to renewable projects within one month of issuance of this determination.**

13.6.1 NTDCL presented that it has issued NOC to 10 projects having a total capacity of 500 MW i.e. 50 MW each located at Jhimpir, after carrying out its due diligence. The Authority considers that the Petitioner has provided the required information.

13.7 **To file the next tariff petition of FY 2015-16 on the basis of calculation of MDI on coincidental basis.**

13.7.1 The Petitioner has submitted the tariff petition for the FY 2015-16 based on calculation of MDI on non-coincidental basis, whereas for the FY 2016-17, the MDI has been worked out on coincidental basis.

13.7.2 During hearing of its instant petition, the Petitioner stated that although Tariff Petition for the FY 2016-17 has been filed on coincidental basis, however, its consultant (Al-Khawarizmi) has concluded that the calculation of MDI on coincidental basis would not be accurate due to the technical limitations, communication errors and other factors beyond its control. The Petitioner also mentioned that it has provided necessary clarification in this regard in May 2016.

13.7.3 The Authority observed that the Petitioner was directed in the tariff determination dated 9th May 2011 to install the digital meters at Common Delivery Points (CDPs). During hearing of the tariff petition for the FY 2014-15, upon the query from the Authority, the Petitioner responded that the digital meters have been installed at CDPs. The Authority considered that in accordance with the previous determination, MDI should be charged on the maximum demand recorded on the Common Delivery Points (CDPs) of the DISCOs during the billing period at a particular time on coincidental basis. However, in order to arrive at a just and informed decision, the Authority considered it appropriate to arrange the consultative session of the CPPA/NTDC and Distribution Companies in this regard. Accordingly, the consultative session was held on 19th March 2015 pursuant to the Authority's direction in this regard.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

13.7.4 The Authority considering the submission of the Petitioner and the Distribution Companies, directed the Petitioner in the tariff determination for the FY 2014-15, to file the next tariff petition i.e. FY 2015-16 on the basis of calculation of MDI on co-incidental basis.

13.7.5 The matter has been further discussed under the relevant issue.

13.8 **To submit report regarding 500 kV HVDC Transmission Line for dispersal of 1,000 MW power from Tavanir Iran within one month of issuance of this determination.**

13.8.1 In view of the fact that the Petitioner was responsible for transporting power from CASA and other imports including 1000 MW from IRAN against which the Petitioner did not share any information, the Petitioner was directed to submit a report regarding 500 kV HVDC Transmission Line for dispersal of 1000 MW power from Tanavir Iran within one month of issuance of the determination for the FY 2014-15.

13.8.2 The Petitioner submitted that the feasibility Study report for 1000 MW import of power from Iran to Pakistan through 500 kV HVDC transmission line was submitted by M/s Moshanir (Iran) and M/s NESPAK (Pakistan) in year 2010. However, the progress in this regard remained slow due to sanctions on Iran. Now the final report has been sent to TAVANIR, Iran and a Joint Working Group (JWG) has been formed in September-2016 for the development of TORs.

13.8.3 The matter has been further deliberated under the relevant issue.

13.9 **To carry out detailed inquiry of the tripping and submit the detailed reports along with the plan to cater for such incidents in future.**

13.9.1 NTDC submitted the detailed report regarding break down dated 25th July,2014 which disrupted export to K-Electric as 500 NKI and 500 Jamshoro grid stations tripped

13.9.2 The Petitioner submitted that the tripping and breakdown events were thoroughly analyzed and report has been submitted to NEPRA recently. The Petitioner further submitted that the System reinforcements and under-frequency load shedding schemes have been implemented and Security arrangements have been enhanced to avoid sabotage/theft of transmission line material.

13.9.3 The Authority observed that although the Petitioner has submitted the inquiry report, however, responsibility has not been fixed for the series of events that led to:

i. Tripping of 550 kV NKI G/S

ii. 500 kV Jamshoro G/S

iii. 500 kV Dadu G/S

iv. Damage to Transformer T-1 at Jamshoro G/S

v. Tripping of 500 kV Jamshoro-HUB and NKI-Jamshoro transmission line.

13.9.4 The Authority further observed that most of the planned activities are still in implementation stage despite lapse of almost 2 years. The Authority therefore directs the petitioner to ensure completion of its planned activities within the prescribed timeframe and progress in this regard be shared with the Authority on quarterly basis.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

14 Whether the calculation of Wheeling charge for the FY 2015-16 based on Non-Coincidental basis is justified?

15 Whether the proposed Average Monthly MDI MW/Month 19,095 for the FY 2015-16 on non-Coincidental Basis and Average Monthly MDI MW/Month 17,175 for the FY 2016-17 on Coincidental Basis proposed by the Petitioner is justified?

15.1 The Petitioner in the petition has requested average monthly Maximum Demand Indicator (MDI) of 19,095 MW and 17,175 MW for the FY 2015-16 & FY 2016-17 respectively. The MDI for the FY 2015-16 has been projected on Non-Coincidental basis, whereas for the FY 2016-17 it has been calculated on Co-Incidental basis.

15.2 The Petitioner further stated that it has been charging Use of System Charges to DISCOs including K-Electric on the basis of MDI which is calculated on maximum demand recorded at Common Delivery Points (CDPs) during the billing period at a particular time on Non-Coincidental basis. The maximum demand (kW) of DISCOs is measured through Digital Energy Meters installed at their electrical boundaries called CDPs by designated metering committee(s) having one member of the respective DISCOs.

15.3 The Petitioner mentioned that the Authority's determined mechanism for charging of MDI is under:

XWDISCOs — The sum of the maximum demand of the XWDISCOs in kW recorded during a billing period at all the delivery metering points at which power is received by the XWDISCOs.

15.4 The Petitioner justifying requested MDI on non-coincidental basis for the FY 2015-16 stated that in order to comply with NEPRA's instructions it is striving hard to install hardware, software and procedures for calculation of MDI on Co-incidental basis which will take some more time. Moreover, the metering data on the installed meters on CDP points cannot be retrieved after seventy (70) days.

15.5 The Petitioner regarding calculation of MDI for the FY 2016-17, stated that all out efforts will be made for calculation of MDI on Co-Incidental basis for CDP points of NTDC to DISCOs. However, at certain CDPs from DISCO to DISCO, NEPRA is requested to entrust the responsibility of billing to the principal DISCO. The Petitioner further stated that it has also submitted its reservations in the matter to the Authority vide letter # MD/NTDCL/GMT/955-56/2 dated 11.5.2016, wherein it has requested to be allowed to charge MDI on Non- Co-incidental basis which is not only supported by the existing system/procedures but also will avoid future legal complications.

15.6 The Petitioner has provided the following estimated MDI vs provisional /actual since FY 2013-14;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

MDI (MW)

Description	2013-14	2014-15	2015-16	2016-17
	-- Non Co-incidental Basis----			Co-incidental
	Actual	Pro.	--- Estimated ---	
Average Monthly MDI	16,831	18,150	19,095*	17,175

15.7 The Petitioner during the hearing mentioned that actual Average Non Coincidental MDI for the FY 2015-16 is 19,190.43 MW instead of 19,095 MW as per the following detail;

Based on CPPA Data	
Name of DISCO	Average MDI (MW)
FESCO	2,641.11
GEPCO	1,929.01
HESCO	1,174.08
SEPCO	878.38
IESCO	1,656.39
LESCO	3,742.99
MEPCO	2,912.27
PESCO	2,096.83
TESCO	316.48
QESCO	1,166.36
KESC	702.92
TOTAL	**19,190.43**

15.8 Further, the Petitioner also revised its MDI for the FY 2016-17 calculated on coincidental basis from 17,175 MW to 17,287.77 MW. However, the Petitioner did not revise the proposed UoSC in terms of Rs./kW/ Month. Here it is pertinent to mention that the Petitioner also provided Average Non Coincidental MDI for the FY 2016-17 i.e. 20,181.72 MW as tabulated below;

Name of DISCO	Average MDI (MW)	Growth Rate
FESCO	2,812.78	6.50%
GEPCO	2,042.82	5.90%
HESCO	1,221.04	4.00%
SEPCO	929.32	5.80%
IESCO	1,752.46	5.80%
LESCO	3,945.11	5.40%
MEPCO	3,072.45	5.50%
PESCO	2,195.38	4.70%
TESCO	327.56	3.50%
QESCO	1,207.18	3.50%
KESC	702.92	0.00%
TOTAL	20,181.72	

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

15.9 The Petitioner, during the hearing submitted that its Consultant (Al-Khawarizmi) has concluded that the calculation of MDI on coincidental basis would not be accurate due to the technical limitations, communication errors and other factors beyond NTDCL's control. While justifying charging of UoSC on non-coincidental average MDI, the Petitioner submitted that;

- NTDC charges as per actual load drawn by DISCOs
- DISCOs themselves charge their consumers on Non Coincidental basis
- Any change in method of charging will invite legal complications.
- The matter was deliberated by NEPRA and desired to hold a meeting with all stakeholders to thoroughly deliberate on all pros and cons.

15.10 Here it is also mentioned that the Petitioner afterwards submitted month wise DISCO wise details of actual non-coincidental MDIs for the FY 2015-16, whereby the actual average MDI for the FY 2015-16 has been reported as 19,243 MW.

15.11 The Authority observed that although the Petitioner has mentioned MDI for the FY 2016-17 on coincidental basis, however the same seems to be a notional number against which no detailed working has been provided either with the petition or afterwards. Further the numbers have also been revised during the hearing without providing any rationale.

15.12 The Authority has noted with great concern that despite its clear directions, the Petitioner has failed to implement the system for calculation of MDI on coincidental basis and is still in the process of installing the hardware, software and procedures in this regard. The Authority also observed that the Petitioner itself vide letter dated 31st March 2015 submitted that under the Secured Metering System (SMS) project it has installed latest Digital Meters at all CDPs throughout the country declaring these meters as Primary meters and is also in the process of online acquisition of metering data from these meters. The Petitioner in its afore-referred letter mentioned that Maximum demand data on co-incidental basis is available online and is being compiled on test run basis. As per the aforementioned letter the finalization of the same may take some time and the same will be shared with all DISCOs on finalization.

15.13 The Authority considers that even after lapse of more than a year's time, the Petitioner has not been able to implement the system, which is a clear violation of the Authority's direction and may lead to initiation of proceedings against the Petitioner under the relevant Rules.

15.14 However, the Authority considers that the tariff petition of NTDCL is a time bound case, therefore, considering the time constraints and the fact that no basis has been provided for the number quoted by the Petitioner, as also pointed out by the Intervener, the Authority has decided that the current petition be determined on the basis of existing mechanism of MDI i.e. on non- coincidental basis calculation. Accordingly, the Authority has decided to work out the UoSC for the FY 2015-16 and FY 2016-17 based on actual non-coincidental average MDI of 19,243 MW reported for the FY 2015-16.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

15.15 The Petitioner is again directed to file the next tariff petition i.e. for the FY 2017-18 on the basis of calculation of MDI on co-incidental basis and also directed to share the latest progress on the implementation of system for recording of MDI on coincidental basis with the Authority immediately after the issuance of this determination and on quarterly basis afterwards.

16 **Whether the Cost related to CPPA-G has been excluded from the proposed revenue requirement for the FY 2015-16 and FY 2016-17?**

17 **What is the breakup of asset related to CPPA-G if any? Whether the same have been excluded from the Petitioner's books of accounts?**

17.1 The Petitioner on the issue submitted during the hearing that costs pertaining to CPPA-G have been excluded from the proposed revenue requirement for the FY 2015-16 and FY 2016-17.

17.2 Regarding exclusion of assets related with CPPA-G, the Petitioner submitted that its Audit for the FY 2014-15 is under process and the assets related to CPPA-G will be excluded from books of accounts and details thereof will be shared with the Authority.

17.3 The Authority while determining the Revenue Requirement of the Petitioner for the FY 2015-16 and FY 2016-17, as described in detail hereunder, has ensured that costs pertaining to CPPA-G are excluded from the assessed revenue requirement of the Petitioner.

18 **Whether the Petitioner's projected depreciation of Rs.5,099 million & Rs.5,994 million for the FY 2015-16 and FY 2016-17 is justified?**

18.1 The Petitioner has requested Rs.5,099 million for the FY 2015-16 and Rs.5,994 million for the FY 2016-17 under the head of depreciation. The Petitioner also stated that the amount has been calculated keeping in view of the value of existing assets and the anticipated additions in existing assets during the FY 2015-16 & 2016-17. The Petitioner has provided the following table regarding estimated value of assets and depreciation for the FY 2015-16 & 2016-17 vis a vis actual/ provisional figures for the FY 2013-14 and 2014-15;

Rs. Mln

Description	2013-14	2014-15	2015-16	2016-17
	Actual	Prov.	Estimated:	
Value of Assets	143,942	150,668	178,126	225,248
Depreciation	4,290	4,872	5,099	5,995

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

18.2 The Petitioner has provided the following rates for working out the depreciation costs;

a. Land @ Zero %
b. Buildings and Civil Works @ 2%
c. Transmission & Despatch equipment @ 3.5%
d. Furniture and fittings, other office equipment & Vehicles @ 10%.

18.3 The Petitioner while justifying its request stated that Depreciation is a significant component of its revenue requirement which may change as a result of addition or deletion in the fixed assets and would require adjustments accordingly.

18.4 As per the prevalent practice, the Petitioner is allowed Depreciation cost as per its actual expense appearing in its last year's financial statements, without taking into account the impact of new capitalization to be made during the period for which tariff is being determined. The Authority keeping in view the ambitious plan of the petitioner pertaining to investment has principally decided to allow depreciation on the assets to be capitalized for the year for which tariff is being determined. Here it is pertinent to mention that, the Authority has observed that till finalization of the instant tariff determination, the Petitioner's financial statements even for the FY 2014-15 have not been finalized, and only provisional accounts for the FY 2014-15 to the extent of Income Statement and Balance Sheet have been provided to the Authority. Similarly financial statements for the FY 2015-16 have also not been made available to the Authority.

18.5 The Authority noted that for the FY 2015-16, the Petitioner claimed capitalization of around Rs.25.32 billion, however, the said amount could not be verified due to non-availability of the Financial Statements of the Petitioner for the FY 2015-16. Similarly, for the FY 2016-17, the Petitioner has projected a capitalization of around Rs.45.766 billion, however, no supporting evidence has been provided in this regard.

18.6 In the absence of the Audited financial statements for the FY 2014-15 and FY 2015-16 and any supporting evidence thereof; the Authority is constrained to make its own assessment in terms of amount to be capitalized to work out the subsequent depreciation charges for the FY 2015-16 and FY 2016-17. The Authority keeping in view the Petitioner's previous capitalization trend, investment being allowed for the FY 2015-16 and FY 2016-17 (discussed under the head of investment) and also the timely completion of corresponding transmission assets, considers the Petitioner's request as reasonable. Consequently the depreciation cost of Rs.5,099 million and Rs.5,994 million for the FY 2015-16 and FY 2016-17 as requested by the Petitioner is hereby allowed.

18.7 Considering the fact that depreciation expense for the FY 2015-16 & FY 2016-17 has been allowed based on projected level of capitalization and in case the actual capitalization turns out to be different from the estimated level, the same needs be trued up. In view thereof, the Authority has decided to true up the depreciation cost being allowed to the Petitioner for the FY 2015-16 and FY 2016-17, as "Prior Year Adjustment" in its next tariff petition, once the Petitioner provides the Audited financial statements for the FY 2015-16 and FY 2016-17.

19 Whether the Petitioner's projected Other Income of Rs.1,465 million & Rs.1,525 million for the FY 2015-16 and FY 2016-17 is reasonable?

19.1 The Petitioner has requested an amount of Rs.1,465 million & Rs.1,525 million as other income for the FY 2015-16 & 2016-17 respectively.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

19.2 The Petitioner has stated that other income includes income from services rendered to DISCOs, IPPs in the form of planning, telecommunication, design, mark up on bank deposits, amortization of deferred credit, etc. The Petitioner also stated that due to declining trend in KIBOR rates in the preceding years, there has been a decline in profit rates on bank deposits.

19.3 The Petitioner has provided following comparison of the requested amount for the FY 2015-16 & 2016-17 against the actual / provisional figures of the FY 2013-14 and 2014-15;

Rs. Mln

Description	2013-14	2014-15	2015-16	2016-17
	Actual	Prov.	Estimated	
Other Income	920	1,698	1,465	1,525

19.4 Following break-up of the requested amount has been provided by the Petitioner during hearing of the instant petition;

(Rs. Mln)

Description	2014-15	2015-16	2016-17
	Pro.	---Estimated---	
Interest Income	761.84	807.55	856.00
Amortization of deferred credit @ 3.5%	190.47	190.47	190.47
Services to Power Companies	387.70	399.33	411.31
Other Income	349.08	58.08	58.08
Sub Total	1,698.34	1,464.69	1,525.12

19.5 Here it is pertinent to mention that as per the provisional accounts for the FY 2014-15, provided by the Petitioner, its other income is Rs.2,353 million. The Authority allowed the Petitioner an amount of Rs.1,320 million under the head of other income for the FY 2014-15, therefore, the impact of differential amount of Rs.1,033 million (2,353 less 1,320 = 1,033) is being adjusted in the tariff for the FY 2015-16 as PYA.

19.6 For the FY 2015-16 and FY 2016-17 the Authority has decided to allow the amount of other income as per the amount of other income reported in the provisional accounts for the FY 2014-15 i.e. Rs.2,353 million each for the FY 2015-16 and FY 2016-17, subject to its adjustment as per actual once the Petitioner provides its Audited financial Accounts for the FY 2015-16 and FY 2016-17.

20 <u>Whether the projected increase in financial charges of Rs. 3,443 million & Rs. 4,037 million for the FY 2015-16 and FY 2016-17 is justified?</u>

20.1 The Petitioner has requested financial charges of Rs.3,443 million and Rs.4,037 million for the FY 2015-16 and FY 2016-17 respectively. While justifying the requested amount, the Petitioner has stated that it is an infrastructure based company, thus, striving vigorously for enhancing its transmission network system to cater for the growing needs of Distribution Companies. By virtue of license, it is responsible to build, design and operate the Extra High Voltage (EHV) Transmission line to evacuate Power from all upcoming power generation centers. Therefore, its role is really critical in arranging the availability of transmission network to align with the availability of power plant. The

Petitioner further submitted that to coup with the demand of Distribution Companies it has undertaken numerous projects and manages its investment program in this regard through a mix of financing i.e. return on equity (RoE) and loans. Loans are taken through GoP (re-lent loans) as well as from local financial institutions comprising of 15-20 years tenure for construction of 500/220kV Transmission Lines/Grid Stations to meet ever expanding transmission system across the country.

20.2 The Petitioner mentioned the following major sources of re-lent loans:

- Asian Development Bank ADB
- Japan International Cooperative Agency (JICA)
- World Bank
- KFW (Frankfurt Germany)
- Export Import Bank of Korea

20.3 The projected Capital Investment program for FY 2015-16 is Rs.42,363 Million & for the FY 2016-17 it is Rs.74,700 Million, as stated by the Petitioner and has been planned to be financed from different sources as under:

- Loans From Asian Development Bank for Tranche-III & Tranche-IV
- JICA
- UBL for Neelum Jehlum Hydel Project
- World Bank
- Counterpart funding.

20.4 The Petitioner further submitted that mark-up during the construction period is charged to Projects (as CWIP) in line with IAS 23 and after completion of the projects, markup on those loans is charged to operations till the full retirement/repayment of loans. Financial Charges have been worked out by taking into account completion of assets during FY 2015-16 and 2016-17. The Petitioner has provided the following status of completion of assets for the FY 2015-16 and FY 2016-17;

Project completed During FY 2015-16

Sr No.	Name of Project	Rs. Mln
1	Dadu-Khuzdar Transmission System Project	2,726.26
2	500 Kv Shikarpur Sub station & Allied Transmission Line	1,242.78
3	Augmentation of 220 kV Grid Station Nishatabad	450.43
4	Augmentation of 220 kV Grid Station NKLP Lhr.	836.53
5	Augmentation of 220 kV Grid Station Bahawalpur	315.25
6	(i) 132 kV T/Line for Interconnection for Wind Power plants.	280.63
7	(ii) 220 kV Grid Station Jhampir (iii) 132 kV Transmission Line Jhampir T.M Khan. (iv) 220 kV Transmission Line Jhampir T.M Khan. (v) Transmission Line Gharo Jhampir.	3,545.02
8	220 Kv Grid station at Kassowal with 132 kV Expansion system	2,400.00
9	Vehari Chistian Grid station & Transmission Line.	3,300.00
10	Augmentation of 500/220 kV & 220/132 kV Transformer In NTDC system	1,700.00
11	Ext./Aug of Existing 500/220 kV Grid station by installation of Additional Transformer.	421.00
12	Interconnection of Chashma Nuclear (C-3 & C-4)	4,600.00
13	Ghazi Boratha Extention	1,500.00
14	SVC New Kotlakhpat.	2,000.00
	Sub Total	**25,317.90**

NEPRA AUTHORITY NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

Project to be completed During FY 2016-17

Sr No.	Name of Project	Rs. Mln
1	500 kV Transmission Line 3rd Circuit Jamshoro-Moro Dadu to Rahim Yar Khan (Package 1&2)	13,846.47
2	220 kV D/C Twin Bundle Uch-SIBBI Transmission Line	3,001.45
3	220/132 kV Grid Station Dera Murad Jamali	136.46
4	132 kV T/Line for Interconnection for Wind Power plants.	960.35
4	(ii) 220 kV Grid Station Jhampir (iii) 132 kV Transmission Line Jhampir T.M Khan. (iv) 220 kV Transmission Line Jhampir T.M Khan. (v) Transmission Line Gharo Jhampir.	5,862.38
6	220 kV Grid Station Gujrat	1,900.00
7	New Lahore Trasmission Line	5,900.00
8	New Lahore Grid Station	3,319.00
9	Quaid-e-Azam Solor Park at Lal Suhanra.	3,154.00
10	Transmission for Disperal of power from Neleem-Jehlum Hydro Power Project	7,686.00
	Sub Total	**45,766.11**

20.5 The financial charges for last three years along with projection are depicted as under:

Rs. Mln

Description	2012-13	2013-14	2014-15	2015-16	2016-17
	Actual		Pro.	Esti:	Esti:
Total Financial Charges	4,305	5,276	5,904	7,735	11,394
Charge to CWIP	3,557	3,911	4,072	4,292	7,357
Charge to Operation	**748.67**	**1,364.62**	**1,828.18**	**3,443.35**	**4,037.10**

20.6 The Petitioner in line with the IAS 23, capitalizes its Interest during construction (IDC) cost, against which the Authority allows the RoE, depreciation and interest charges are allowed as per actual. Thus the Petitioner's cost in this regard is covered once the asset is capitalized.

20.7 For the financial charges, being charged to Income Statement, currently the Petitioner was allowed actual expense as per its last year's financial statements. This was being done owing to significant variation in the amount of investments & capitalization projected by the Petitioner vis a vis its actual results. However, considering the ambitious investment plan of the petitioner the Authority has decided to account for the interest cost on the amount of projected capitalization to be made during the FY 2015-16 and FY 2016-17.

20.8 Here it is pertinent to mention that till finalization of the instant tariff petition, the Petitioner's financial statements even for the FY 2014-15 have not been finalized, and only provisional accounts for the FY 2014-15 have been provided to the Authority, wherein financial charges have been reported as around Rs.1,832 million. Therefore, to have a fair assessment of the Petitioner's claimed finance costs for the FY 2015-16 and FY 2016-17, the Authority carried out an analysis of the Petitioner's actual financial charges for the last three years and its projected capitalization.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

20.9 The analysis of Petitioner's actual financial charges, revealed that the same increased by 82% in FY 2013-14 vis a vis FY 2012-13 and by 34% in FY 2014-15 (a per the amount mentioned by the Petitioner during hearing of its Petition) vis a vis FY 2013-14, thus an overall increase of 144% has been noted till FY 2014-15 in comparison to FY 2012-13. This increase in financial charges seems to be a consequence of higher capitalization of around Rs.31 billion during the two year period i.e. FY 2013-14 and FY 2014-15, resulting in charging of financial cost to the income statement, once these assets have been completed.

20.10 The Petitioner, as mentioned above, claimed capitalization of around Rs.25 billion for the FY 2015-16 and around Rs.46 billion for the FY 2016-17. However, owing to non-provision of any supporting evidence in this regard and considering the same on the higher side, the Authority itself assessed Petitioner's capitalization for the FY 2015-16 and FY 2016-17.

20.11 The Authority keeping in view the actual financial charges of the Petitioner for the FY 2014-15 and the assessed amount of capitalization for the FY 2015-16 and FY 2016-17, has determined financial charges to the tune of Rs.2,952 million and Rs.3,208 million for the FY 2015-16 and FY 2016-17 respectively, subject to its adjustment as per actual based on the audited financial statements of the Petitioner pertaining to the respective assessment years as "Prior Year Adjustment". The financial charges are trued as per actual in the matter of the Petitioner since it is allowed a return on equity approach.

20.12 The Authority also being cognizant of the fact that the Petitioner in the past has failed to file tariff petitions on timely basis i.e. for every Financial Year, directs the Petitioner to file its next tariff petition in time either under SYT or MYT regime..

21 **<u>Whether the Petitioner's proposed Investment program of Rs.42,364 million & Rs.74,700 million for the FY 2015-16 and FY 2016-17 are justified, keeping in view the prospective benefits?</u>**

22 **<u>Whether the details of investment program of the ongoing and new projects and cost incurred on these projects claimed by the petitioner is justified? Provide the IGTDP plan.</u>**

22.1 The Petitioner has requested an investment of Rs.42,364 million and Rs.74,700 million for the FY 2015-16 & FY 2016-17 respectively against the actual CPAEX of Rs.23,321 million for the FY 2013-14 and around Rs.23,306 million (provisional figure) for the FY 2014-15.

22.2 The Petitioner has submitted that being the national grid company, it is solely responsible for overall planning and coordination of the electricity transmission in Pakistan except the area under K-Electric, so the investment program has been developed with the following objectives:

i. To provide interconnection arrangement to evacuate power from upcoming generation power projects in the country. The transmission investment shows a sharp increase from FY 2015-16 onwards due to large transmission capacity

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

requirements in order to evacuate the power from the generation capacity to be built before December 2018.

ii. To identify any requirements (technical and/or economic) that may require the introduction of any new voltage levels and/or transmission types into the existing transmission network.

iii. To determine the reinforcements required in the transmission network in order to meet the growing demand of the load centers by developing new grid stations and their associated transmission lines at 500kV and 220kV levels interconnecting with the transmission lines emanating from the proposed power plants.

iv. To fulfill the reliability criteria of NTDC Grid Code approved by NEPRA in terms of acceptable voltage, frequency, loading of lines and transformers for normal (N-0) and contingency (N-1) conditions both under disturbed dynamic/transient conditions and steady state conditions.

v. To determine the long-term impacts on fault levels throughout the transmission network and to examine mitigating measures to deal with excessive fault levels.

vi. To check the transient and dynamic stability of 500 kV HVAC or above, and HVDC systems catering for the bulk transmission of power from major power plants to the major load centers to verify the adequacy of network for normal and disturbed conditions.

22.3 The Petitioner further stated that electricity is indispensable for socio-economic development of the country. Pakistan faces chronic power shortages across industrial, commercial and residential sectors, which severely hampers the economic growth of the country. High cost of power generation is un-affordable for the majority of consumers. This has adverse impact on competitiveness and national production, so the country has an urgent requirement to generate additional power at affordable price to feed into the national grid. The Petitioner while justifying the huge investments has further stated that Ministry of Water & Power, Government of Pakistan (GoP) has promulgated ambitious Power policy to support the current and future energy needs of the country. The bold strategy will set the Pakistan on trajectory of rapid economic growth and social development.

22.4 The Petitioner in this regard provided the following data during the hearing;

Sr. No.	Fiscal Year	Power Plant Interconnections
1	Upto 2014-15	75
2	2015-16	4
3	2016-17	26
4	2017-18	20
	Total	**125**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

Description	500 kV			220 kV			Generation MW
	No of Grid Stations	Capacity MVA	Lines km	No of Grid Stations	Capacity MVA	Lines km	
up to 2014-15	13	16,950	5,187	37	23,194	8,605	22,882
2015-16	3	2,874	84	2	2,139	521	412
2016-17	1	1,500	995	4	2,570	427	5,444
2017-18	1	3,300	861	7	5,970	576	5,352
Total	**18**	**24,624**	**7,127**	**50**	**33,873**	**10,129**	**34,090**

Note:

1) Total length of 132 kV Transmission lines for evauation of renewable energy projects is 191km upto year 2016-17.
2) Matiari-Lahore +660kV HVDC Line: Siting and purchase of land for converter and electrode stations. Arranging ROW and land acquisition for HVDC line.

22.5 The Authority during the hearing showed concerns regarding Petitioner's existing system constraints whereby out of 127 power transformers on 220kV grid, 78 number transformers are overloaded. The Authority also observed that number of projects have been initiated but are yet to be completed despite the fact their completion dates have lapsed, resultantly power plant having cheap electricity cannot be evacuated owing to non-availability of transmission line.

22.6 The Petitioner in response submitted that its management in line with the preferential requirements as set by GoP has planned to accelerate the completion of existing ongoing projects and to expand its transmission network for evacuation of power from newly upcoming generation projects to eradicate power shortage in the country for good. The Petitioner further stated that it is also endeavoring the interconnection facilities to evacuate power from across the border Central Asia South Asia (CASA) 1000 MW and evacuate power of 2160 MW from Dasu Hydel Project with the support of World Bank.

22.7 The Petitioner provided detail of its investment program in terms of ongoing and new projects as mentioned hereunder;

A. On-Going Projects

a. Augmentation in Existing System
b. Power Evacuation Projects
c. New Grid Stations and Transmission Lines
d. Others

B. New projects

a. Augmentation in Existing System
b. Power Evacuation Projects
c. New Grid Stations and Transmission Lines
d. Others

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

22.8 The Petitioner during the course of the hearing submitted that the Investment Program has been proposed to meet its responsibility to design, construct, and operate transmission lines for evacuation of power from the upcoming power plants before their commissioning. In line with its statement, the Petitioner submitted the following summary of the investments claimed against the aforementioned categories:

Rs. in millions

Sr. #	Description	No. of Projects	FY 2015-16	FY 2016-17
On-Going Projects				
1	Augmentation in Existing System	4	455.7	2,933.60
2	Power Evacuation Projects	10	17,206	21,652.70
3	New Grid Stations & T/Lines	19	23,674.80	28,451.50
4	Others	2	105	38
	Sub Total	**35**	**41,441.50**	**53,075.80**
New Projects				
1	Augmentation in Existing System	3	8	691
2	Power Evacuation Projects	20	798	15,879
3	New Grid Stations & T/Lines	14	100	4260
4	Others	3	16	794.5
	Sub Total	**40**	**922**	**21,624.50**
	Total	**75**	**42,363.50**	**74,700.30**

22.9 To carry out the proposed investments, the Petitioner provided the following financing plan;

Rs. Mln

Description	FY 2015-16	FY 2016-17
Foreign Relent Loans from GOP		
Asian Development Bank ("ADB") Tranch-I (2290)	80.0	10.0
Asian Development Bank ("ADB") Tranch-II (2396)	323.3	-
Asian Development Bank ("ADB") Tranch-III (2846)	9,504.0	4,204.2
Asian Development Bank ("ADB") Tranch-IV (3203)	700.0	9,521.6
Asian Development Bank ("ADB") MFF-II	-	500.0
Japan International Cooperation Agency (58)	1,400.0	1,600.0
Japan International Cooperation Agency (61)	3,900.0	1,500.0
Japan International Cooperation Agency "ISD Burhan"	-	298.8
Frankfurt (KFW)	20.0	500.0
Cash Development Loans	1,568.0	785.0
World Bank (Dasu Transmission Line)	146.5	2,306.0
World Bank (Casa-1000)	-	3,396.0
World Bank (3 Projects)	-	1,222.3
Other Donors (AFD etc)	-	580.0
Sub Total	**17,641.8**	**26,423.9**
Direct Loan from Commercial Banks		
UBL (Neelum Jhelum Transmission Projects)	8,474.0	8,200.0
Askari Commercial Bank (Thar Matiari)	-	10,753.0
1320 Mw Port Qasim Power Plant	-	3,000.0
Sub Total	**8,474.0**	21,953.0
Total Loans	26,115.80	48,376.9
Funds from Own Sourses	16,247.70	26,323.4
Investment Program	**42,363.50**	**74,700.30**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

22.10 The Petitioner also provided the following project wise break-up of the claimed investments;

A. On-Going Projects

(Rs. Million)

Sr. No	(a) Augmentation in existing system	PSDP 2015-16 (Revised)			PSDP 2016-17 (Estimates)		
		Local	Foreign	Total	Local	Foreign	Total
1	Augmentation of 500/220KV & 220/132 KV Transformer in NTDC System New	100	-	100	250	-	250
2	Ext/Aug. of existing of 500&220 KV G/S of NTDC system by installation of additional T/FS	100	-	100	100	-	100
3	Depleted Material Tranch III (Now Replacement of Depleted Material at existing grid station of NTDC System) ADB Loan No. 2846-PAK	41	204.8	245.7	363.9	1,819.70	2,183.60
4	Extension/Augmentation at 500/220 kV Rawat Substation	10	-	10	200	200	400
	Sub Total (a)	**251**	**204.8**	**455.7**	**913.9**	**2,019.70**	**2,933.60**

(Rs. Million)

Sr.#	(a) Power Evacuation Projects	PSDP 2015-16 (Revised)			PSDP 2016-17		
		Local	Foreign	Total	Local	Foreign	Total
1	220 KV T/L from Chashma to Ludewala for Inter-connection of Chashnupp-II	50	-	50	10	-	10
2	Transmission Interconnection for Dispersal of Power From UCH-II Tranche-III	439.9	885	1,324.90	764.4	1,003.20	1,767.60
3	Transmission for Dispersal power from Neelam-Jehlum HPP	7,402.00	-	7,402.00	8,200.00	-	8,200.00
4	Construction of 500Kv T/L for Dispersal of Power form 747 MW from Guddu	100	400	500	1,515.50	3,873.60	5,389.10
5	Construction of 600 KV HVDC Transmission Line From Matiari to Lahore (Land Acquisition for Converter and Grounding Station - Both Ends) (CPEC)	1,240	-	1,240.00	328	-	328
6	Evacuation of power from wind power projects at Jhimpir and Gharo Wind Clusters	3,891.00	-	3,891.00	1,300.00	-	1,300.00
7	Interconnection of Chashma Nuclear (C-3&C-4)	1,000.00	-	1,000.00	500	-	500
8	Quaid-e-Azam Solar Park at Lal-Suhanra (Phase-II) Evacuation of 600 MW Solar (Proposed to be carried out by NTDC)	1,498.00	-	1,498.00	1,250.00	-	1,250.00
9	Evacuation of Power from 1200 MW LNG Based Power Project at Balloki	100	-	100	2,000.00	-	2,000.00
10	Evacuation of Power from 1200 MW LNG Based Power Project at Bhikki	100	-	100	108	-	108
11	Evacuation of Power from 1200 MW LNG Based Power Project at Jhang (Haveli Bahadur Shah)	100	-	100	800	-	800
	Sub Total (b)	**15,920**	**1,285**	**17,206**	**16,775**	**4,876**	**21,652**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

(Rs. Million)

Sr.#	(a) New Grid Stations & T/Lines	PSDP 2015-16 (Revised)			PSDP 2016-17 (Estimates)		
		Local	Foreign	Total	Local	Foreign	Total
1	Power Transmission Enhancement Project Tranch-I (19 Sub Projects of 500/220 KV Sub Stations and T/ Lines) ADB Loan No. 2289 & 2290-PAK	177.4	80	257.4	100	10	110
2	1 No. 220KV Rohri Sub Station &Assosiated T/L for Dispersal of Power from IPPS Fauji Foundation & ENGRO near Karachi	100	-	100	50	-	50
3	132KV Thatta MirpurSakro in and out FWELI & 2nd WPP with 6 multiply 132KV line bay & Jhimpir Nooriabad Zorlu	100	-	100	20	-	20
4	220 KV G/Station at Kassowal with 132 KV Expansion System (World Bank Loan No. 7565-Pk, Credit No. 4463-PK & 4464-PK)	232.3	-	232.3	110.1	-	110.1
5	New 220 KV G/Station at Khuzdar/220 KVDadu - Khuzdar D/C T/Line JICA Loan No. PK-56	200	-	200	200	-	200
6	220 KV G/S at Ghazi Road, Lahore with 220 KV D/C T/Line 132 KV Expansion System EDCF Loan No.PAK-2 & KFW	100	20	120	235.7	500	735.7
7	220/132KV Dera MuradJamali Sub Station	750	-	750	200	-	200
8	4 Nos New Projects to be financed by JBIC (i) 500 KV RY Khan G/S & T/L (ii)220 KV Chishtian T/L (iii) 220 KV Gujrat G/S & 220 KV T/L (iv) 220 KV Shalamar G/S & 220 KV T/L (4 Projects - JBIC Loan) (JICA Loan No. PK-58)	1,173.10	1,400.00	2,573.10	1,000.00	600	1,600
9	Addition of 500/220KV Sub Station and T/Ls for Strengthening existing NTDC system i) 500KV Lahore New ii) 500KV Shikarpur iii) 220KV D.I. Khan	2,100.00	3,900.00	6,000.00	1,700.00	1,500.00	3,200
10	Import of 100 MW Power from Iran (with 220KV G/S Gawadar and allied T/L form Iran to Gawadar funded by Iran (EDBI-Iran Loan No.880/M/Pak/01)	10	-	10	50	-	50
11	Power Transmission Enhancement Project (Tranche-II) (SET)10 Sub projects (i) 9 Sub Projects of 500KV & 220KV S/S& T/Lines ADB Loan No. 2396-PAK	651.8	323.3	975.1	250	-	250
12	3rd 500KV Jamshoro-Moro- R.Y Khan Single Circuit T/Line Tranche-III	2,692.30	8,414.50	11,106.90	923.3	1,095.60	2,018.90
13	220Kv G/S Mansehra Tranch-III	10	-	10	192	285.7	477.7
14	220Kv Sub Station Lalian	10	-	10	668	748	1,416.00
15	220 Kv Nowshera S/S	10	-	10	863.1	767	1,630.10
16	220KV Chakdara S/S	10	-	10	567	2,067.00	2,634.00
17	220 Kv G/S & Allied T/L D.I Khan	10	-	10	1,130.00	1,866.00	2,996.00
18	Inter-Connection- Thar Coal Based, 1200MW (Power Dispersal from 1200MW Thar Coal Power Plant - 500kV Thar - Matiari T/L &Matiari 500kV S/station)	1,200	-	1,200.00	10,753	-	10,753.00
	Sub Total (c)	**9,537.00**	**14,137.80**	**23,674.90**	**19,012.20**	**9,439.30**	**28,451.50**

(Rs. Million)

Sr.#	(a) Others	PSDP 2015-16 (Revised)			PSDP 2016-17		
		Local	Foreign	Total	Local	Foreign	Total
1	Up Gradation of NPCC Islamabad JICA Loan No. PK-54	100	-	100	18	-	18
2	Provision of Secured Metering System at Delivery Point (Local Bank)	5	-	5	20	-	20
	Sub Total (d)	**105**	**-**	**105**	**38**	**-**	**38**
	Total: A= (a+b+c+d)	**41,441.60**			**53,075.80**		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

B. New Projects:

(Rs. Million)

Sr.#	(i) Augmentation in existing system	PSDP 2015-16 (Revised)			PSDP 2016-17		
		Local	Foreign	Total	Local	Foreign	Total
1	Strengthening of TSG Center for Grid System Operations & Maintenance	2.00	-	2.00	50.00	-	50.00
2	2nd Source of Supply 220KV I/Abad University S/S (Now 220KV Transmission System Network Reinforcement in Islamabad & Burhan)	5.00	-	5.00	242.20	298.80	541.00
3	Extension/Augmentation of Existing Grid Stations	1.00	-	1.00	100.00	-	100.00
	Sub Total (i)	**8.00**	**-**	**8.00**	**392.20**	**298.80**	**691.00**

(Rs. Million)

Sr. No	(ii) Power Evacuation Projects	PSDP 2015-16 (Revised)			PSDP 2016-17 (Estimates)		
		Local	Foreign	Total	Local	Foreign	Total
1	Evacuation of power from 2160MW Dasu HPP Stage-I	60.50	146.50	207.00	2459.00	2306.00	4765.00
2	Interconnection scheme for import of power from CASA-1000	10.00	300.00	310.00	1429.00	3396.00	4825.00
3	Evacuation of Power from Tarbela 5th Extension	2.00	-	2.00	100.00	100.00	200.00
4	Evacuation of Power from K2/K3 Nuclear Power near Karachi (In/Out of 500 kV Port Qasim to Matiari S/C and 500 kV Hub to Matiari S/C at K2/K3)	2.00	-	2.00	100.00	-	100.00
5	Construction of 600 KV HVDC Transmission Line From Matiari (Port Qasim) to Faisalabad (Land Acquisition for Converter and Grounding Station - Both Ends) (CPEC)	10.00	-	10.00	10.00	-	10.00
6	Evacuation of power from 1320MW Power Plant at Bin Qasim	200.00	-	200.00	3000.00	-	3000.00
7	Evacuation of power from 147MW Patrind HPP	20.00	-	20.00	300.00	300.00	600.00
8	Evacuation of Power from 1320MW HUB Power Company Ltd	5.00	-	5.00	1000.00	-	1000.00
9	Evacuation of Power from Karot and Azad Pattan HPPs	-	-	-	10.00	-	10.00
10	Evacuation of Power from 300MW Solar Power Plants near Chistian	1.00	-	1.00	50.00	-	50.00
11	Alliot switching station and its interconnection with SukiKinari HPP (Evacuation of Power from 840MW SukiKinari HPP)	2.00	-	2.00	100.00	-	100.00
12	Evacuation of power from 1320MW Power Plant at Sahiwal	20.00	-	20.00	400.00	-	400.00
13	500kV HVAC T/Line for Interconnection of HVDC Converter Station at Lahore with existing HVAC System	5.00	-	5.00	250.00	-	250.00
14	Evacuation of Power from300MW Coal Fired Power Plant at Salt Range	2.00	-	2.00	200.00	-	200.00
15	220 kV Mastung G/S along with allied T/Ls	2.00	-	2.00	10.00	100.00	110.00
16	Evacuation of Power from350MW Siddiqsons Ltd	2.00	-	2.00	27.00	90.00	117.00
17	Evacuation of Power from 660MW Lucky Electric Power Company Ltd	2.00	-	2.00	27.00	90.00	117.00
18	Dispersal of Power from 150MW Coal Based Power Plant by Grange Power Limited.	2.00	-	2.00	10.00	-	10.00
19	Dispersal of Power from 100MW Gulpur HPP	2.00	-	2.00	5.00	-	5.00
20	600 kV HVDC T/L from Thar to Lahore along with Converter & Grounding Stations at both ends.	2.00	-	2.00	10.00	-	10.00
	Sub Total (ii)	**351.50**	**446.50**	**798.00**	**9497.00**	**6382.00**	**15879.00**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

(Rs. Million)

Sr.#	(iii) New Grid Stations & T/Lines	PSDP 2015-16 (Revised)			PSDP 2016-17 (Estimates)		
		Local	Foreign	Total	Local	Foreign	Total
1	220kV MirpurKhas G/S along with allied T/Ls	64.00	-	64.00	300.00	-	300.00
2	500kV Chakwal G/S along with allied T/Ls	10.00	-	10.00	100.00	-	100.00
3	500KV Islamabad West	10.00	-	10.00	500.00	1000.00	1500.00
4	220 kV Kohat G/S along with allied T/Ls	-	-	-	10.00	-	10.00
5	500 kV Lahore North	2.00	-	2.00	100.00	-	100.00
6	220 kV Dera Ismail Khan - Zhob Transmission Line along with 220 kV Zhob Substation	2.00	-	2.00	500.00	-	500.00
7	Conversion of 220 kV AIS Grid Stations in GIS Grid Stations 220 kV Kala Shah Kaku, 220 kV Bund Road, 220 kV Nishatabad, 220 kV Jaranwala	2.00	-	2.00	100.00	-	100.00
8	500KV Faisalabad New (2x750) (Now 500KV Faisalabad West alongwith allied T/Ls)	10.00	-	10.00	600.00	1000.00	1600.00
9	220 kV Jamrud G/S along with allied T/Ls	-	-	-	10.00	-	10.00
10	220 kV Kamra G/S along with allied T/Ls	-	-	-	10.00	-	10.00
11	220 kV Shadman G/S along with allied T/Ls	-	-	-	10.00	-	10.00
12	220 kV Jauharabad G/S along with allied T/Ls	-	-	-	10.00	-	10.00
13	220 kV H.Faqiran G/S along with allied T/Ls	-	-	-	10.00	-	10.00
14	220kV Zhob G/S along with allied T/Ls	-	-	-	-	-	-
	Sub Total (iii)	**100.00**	-	**100.00**	**2260.00**	**2000.00**	**4260.00**

(Rs. Million)

Sr.#	(iv) Others	PSDP 2015-16 (Revised)			PSDP 2016-17		
		Local	Foreign	Total	Local	Foreign	Total
1	Enterprise Resource planning (ERP) (Now Implementation of Integrated Solution to improve Productivity and Control in NTDC by ERP System)	10.00	-	10.00	12.20	122.30	134.50
2	Rehabilitation of NTDC system in south area for improvement in System Reliability to avoid the Frequent Tripping	5.00	-	5.00	150.00	500.00	650.00
3	Feasibility study for Enhancing the Transmission Capacity of NTDC's 500 kV Transmission System by applying Series Compensation	1.00	-	1.00	10.00	-	10.00
	Sub Total (iv)	**16.00**	-	**16.00**	**172.20**	**622.30**	**794.50**
	Total: B=(i+ii+iii+iv)	**922.00**			**21624.50**		
	Grand Total= (A+B)	**42363.49**			**74700.35**		

22.11 Upon inquiry by the Authority regarding delays in the on-going projects, despite the fact that they are being executed by the contractors and consultants, the Petitioner submitted that major reasons behind the delays are capacity of the workforce, volume of work and the procurement process which takes a lot of time. Number of projects were to be retendered due to change in clauses, internal issues and hurdles from the donor agencies. The Petitioner submitted that in order to remove these constraints tender documents are being standardized and foreign contractors are being encouraged to participate.

22.12 The Authority observed that since FY 2015-16 has already lapsed, therefore, the claimed investment of Rs.42,363.493 million for the FY 2015-16, is practically of no relevance, therefore, in order to have a fair assessment of the Petitioner's investments for the FY 2015-16, the Petitioner was asked to provide detail of its actual investments carried out during the FY 2015-16.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

22.13 The Petitioner provided the required detail, whereby an investment of Rs.28,221.83 million has been made during the FY 2015-16 as mentioned hereunder and some of the projects would continue in FY 2016-17;

Sr. #	Name of the Projects	Expenditure 2015-16 - Rs. In Millions		
		Local	Foreign	Total
On Going Projects				
1	Up Gradation of NPCC Islamabad	35.20	-	35.20
2	New 220 KV G/Station at Khuzdar/220 KV Dadu - Khuzdar D/C T/Line	135.34	-	135.34
3	220 KV G/S at Ghazi Road, Lahore with 220 KV D/C T/Line 132 KV Expansion System	281.12	3.34	284.46
4	220 KV G/Station at Kassowal with 132 KV Expansion System	176.60	-	176.60
5	Provision of Secured Metering System at Delivery Point	0.76	-	0.76
6	Power Transmission Enhancement Project (Tranch-I) 19 Sub projects or 500/220 kV sub Stations & T/L Loan (2289 & 2290)	-	0.95	0.95
7	220 KV T/L from Chashma to Ludewala for Inter-connection of Chashnupp-II	40.36	-	40.36
8	4 Nos. New Projects to be financed by JBIC (i) 500 KV RY Khan G/S & T/L (ii)220 KV Chishtian T/L (iii) 220 KV Gujrat G/S & 220 KV T/L (iv) 220 KV Shalamar G/S & 220 KV T/L (4 Projects - JBIC Loan PK-P-58)	1,083.63	262.15	1,345.78
9	Power Transmission Enhancement Project (Tranch-II) (SET)10 Sub projects (i) 9 Sub Projects of 500KV & 220KV S/S& T/Lines	901.57	206.00	1,107.57
10	220/132KV DeraMuradJamali Sub Station	503.95	-	503.95
11	Transmission for Dispersal power from Neelam-Jhelum Hydro Power Project	4,384.74	-	4,384.74
12	3rd 500KV Jamshoro-Moro- R.Y Khan Single Circuit T/Line.	2,725.38	4,605.56	7,330.94
13	Import of 100 MW Power from Iran (with 220KV G/S Gowadar and allied T/L form Iran to Gowader funded by Iran (EDBI-Iran)	8.54	-	8.54
14	Addition of 500/200KV Sub Station T/L for Strengthening the existing NTDC system	2,797.35	3,832.16	6,629.51
	i) 500KV Lahore New			-
	ii) 500KV Shikarpur			-
	iii) 220KV D.I.Khan (JICA-PK-61)			-
15	Transmission Interconnection for Dispersal of Power From UCH-II	23.75	360.36	384.11
16	220Kv G/S Mansehra	11.60	-	11.60
17	Construction of 500Kv T/L for Dispersal of Power form 747 MW from Guddu	46.36	677.77	724.13
	Sub-Total	**13,156.25**	**9,948.29**	**23,104.54**
New Projects				
18	Inter-Connection- Ther Coal Based 1200MW	167.58	-	167.58
19	500KV F/Abad New (2x750)	3.38	-	3.38
20	Intercomection of Chashma Nuclear (C-3&C-4)	420.67	-	420.67
21	Evacuation of Power from Wind Power Projects at Jhimpir and Gharo Wind Cluster	3,010.79	-	3,010.79
22	Augmentation of 500/220KV & 220/132KV Transformer in NTDCL System New	79.96	-	79.96
23	Quaid-E-Azam Solar Park at Lal-Suhanra Park Phase-II. Evacuation of 600MW Solar Power	726.46	-	726.46
24	Construction of 600KV HVDC Transmission Line from Matiari to Lahore (Land Acquisition for Converter Station and Grounding Station - Both Ends) (CPEC)	514.72	-	514.72
25	Evacuation of Power from 147MW Patrind HPP	1.10	-	1.10
26	Evacuation of Power from 2160MW Dasu HPP Stage-I	18.95	173.68	192.63
	Sub-Total	**4,943.61**	**173.68**	**5,117.29**
	Grand Total	**18,099.86**	**10,121.97**	**28,221.83**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

22.14 Since the Financial Statements for the FY 2015-16 have not been made available to the Authority, therefore, the Authority could not verify the reported figure from the Audited Accounts and had to rely on the information provided by the Petitioner. Consequently, the Authority has decided to allow Rs.28,221.83 million under the head of Investments for FY 2015-16, being the actual investment made by the Petitioner during FY 2015-16.

22.15 The Authority understands that the left over amount of Rs.14,141.72 million, out of the total claimed investment of Rs.42,363.5 million for the FY 2015-16, needs to be allowed to the Petitioner in the FY 2016-17 to ensure timely completion of these projects. The following table shows the project wise investment made by the Petitioner during FY 2015-16 and the balance amount to be carried forward in the FY 2016-17;

Rs. in Millions

Sr. #	Description	Investments for FY 2015-16		
		Claimed	Spent	To be carried over to 2016-17
Augmentation in existing system				
1	Augmentation of 500/220kV & 220/132 kV Transformer in NTDC System New	100.00	79.96	20.04
2	Ext/Aug. of existing of 500 & 220 kV G/S of NTDC system by installation of additional T/Fs	100.00	-	100.00
3	Depleted Material Tranche-III (Now Replacement of Depleted Material at existing grid station of NTDC System) ADB Loan No. 2846-PAK	245.70	-	245.70
4	Extension/Augmentation at 500/220 kV Rawat Substation	10.00	-	10.00
5	Strengthening of TSG Center for Grid System Operations & Maintenance	2.00	-	2.00
6	2nd Source of Supply 220KV I/Abad University S/S (Now 220KV Transmission System Network Reinforcement in Islamabad & Burhan)	5.00	-	5.00
7	Extension/Augmentation of Existing Grid Stations	1.00	-	1.00
	Sub-Total	**463.70**	**79.96**	**383.74**
Power Evacuation Projects				
8	220 KV T/L from Chashma to Ludewala for Inter-connection of Chashnupp-II	50.00	40.36	9.64
9	Transmission Interconnection for Dispersal of Power from Uch-II Tranche-III	1,324.00	384.11	939.89
10	Transmission for Dispersal Power from Neelum-Jhelum Hydropower Project	7,402.00	4,384.74	3,017.26
11	Construction of 500 kV T/L for Dispersal of Power form 747 MW from Guddu	500.00	724.13	(224.13)*
12	Construction of 600 KV HVDC Transmission Line From Matiari to Lahore (Land Acquisition for Converter and Grounding Station - Both Ends) (CPEC)	1,250.00	514.72	735.28
13	Evacuation of power from wind power projects at Jhimpir and Gharo Wind Clusters	3,891.00	3,010.79	880.21
14	Interconnection of Chashma Nuclear (C-3 & C-4)	1,000.00	420.67	579.33
15	Quaid-e-Azam Solar Park at Lal-Suhanra (Phase-II) Evacuation of 600 MW Solar (Proposed to be carried out by NTDC)	1,498.00	726.46	771.54
16	Evacuation of Power from 1200 MW LNG Based Power Project at Baloki	100.00	-	100.00
17	Evacuation of Power from 1200 MW LNG Based Power Project at Bhikki	100.00	-	100.00
18	Evacuation of Power from 1200 MW LNG Based Power Project at Jhang (Haveli Bahadur Shah)	100.00	-	100.00
19	Evacuation of Power from 2160 MW Dasu HPP Stage-I	207.00	192.63	14.37
20	Interconnection Scheme from CASA 1000	310.00	-	310.00
21	Evacuation of Power from Terbella 5th Extension	2.00	-	2.00
22	Evacuation of Power from K2/K3 Nuclear Karachi	2.00	-	2.00
23	Evacuation of Power from 1320 MW Bin Qasim	200.00	-	200.00
24	Evacuation of Power from Patrind 147 MW HPP	20.00	-	20.00
25	Evacuation of Power from 1320 MW Hub Power	5.00	-	5.00
26	Evacuation of Power from 300 MW Solar Plant near Chistian	1.00	-	1.00
27	Alliot Switching Station & its Interconnection with Suki Kinari HPP	2.00	-	2.00
28	Evacuation of Power from 1320 MW at Sahiwal	20.00	-	20.00

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

Sr. #	Description	Investments for FY 2015-16		
		Claimed	Spent	To be carried over to 2016-17
29	500 kV HVAC T/L for Interconnection of HVDC Converter Station at Lahore with existing HVAC System	5.00	-	5.00
30	Evacuation of Power from 300 MW Coal Fired Plant at Salt Range	2.00	-	2.00
31	220 kV Mastung G/S along with allied T/Ls	2.00	-	2.00
32	Evacuation of Power from 350MW Siddiqsons	2.00	-	2.00
33	Evacuation of Power from 660MW Lucky Electric Power Company Ltd	2.00	-	2.00
34	Dispersal of Power from 150MW Coal Based Power Plant by Grange Power Limited.	2.00	-	2.00
35	Dispersal of Power from 100MW Gulpur HPP	2.00	-	2.00
36	600 kV HVDC T/L from Thar to Lahore along with Converter & Grounding Stations at both ends.	2.00	-	2.00
	Sub-Total	**18,005.00**	**10,398.61**	**7,604.39**
New Grid Stations & T/Lines				
37	Power Transmission Enhancement Project Tranche-1 (19 Sub Projects of 500/220 kV Sub Stations and T/ Lines) ADB Loan No. 2289 & 2290-PAK	257.40	0.95	256.45
38	1 No. 220KV Rohri Sub Station & Associated T/L for Dispersal of Power from IPPS Fauji Foundation & ENGRO near Karachi.	100.00	-	100.00
39	132KV Thatta-Mirpur Sakro in and out FWELI & 2nd WPP with 6 multiply 132KV line bay & Jhimpir Noriabad Zorlu	100.00	-	100.00
40	220 KV G/Station at Kassowal with 132 KV Expansion System (World Bank Loan No. 7565-Pk, Credit No. 4463-PK & 4464-PK)	232.30	176.60	55.70
41	New 220 KV G/Station at Khuzdar/220 KV Dadu - Khuzdar D/C T/Line JICA Loan No. PK-56	200.00	135.34	64.66
42	220 KV G/S at Ghazi Road, Lahore with 220 KV D/C T/Line 132 KV Expansion System EDCF Loan No.PAK-2 & KFW	120.00	284.46	(164.46)*
43	220/132 KV Dera Murad Jamali Sub Station	750.00	503.95	246.05
44	4 Nos. New Projects to be financed by JBIC (i) 500 KV RY Khan G/S & T/L (ii)220 KV Chishtian T/L (iii) 220 KV Gujrat G/S & 220 KV T/L (iv) 220 KV Shalamar G/S & 220 KV T/L (4 Projects - JBIC Loan) (JICA Loan No. PK-58)	2,573.10	1,345.78	1,227.32
45	Addition of 500/220 KV Sub Station T/L for Strengthening the existing NTDC system (i) 500KV Lahore New (ii) 500KV Shikarpur,iii) 220KV D.I. Khan (JICA-PK-61)	6,000.00	6,629.50	(629.5)*
46	Import of 100 MW Power from Iran (220KV G/S Gwadar & allied TL from Iran to Gwadar funded by Iran (EDBI-Iran Loan No.880/M/Pak/01)	10.00	8.54	1.46
47	Power Transmission Enhancement Project (Tranche-II) (SET)10 Sub projects (i) 9 Sub Projects of 500KV & 220KV S/S& T/Lines ADB Loan No. 2396-PAK	975.10	1,107.56	(132.46)*
48	3rd 500 KV Jamshoro-Moro- R.Y Khan Single Circuit T/Line Tranche-III	11,106.90	7,330.94	3,775.96
49	220KV G/S Mansehra Tranche-III	10.00	11.60	(1.60)*
50	220KV Sub Station Lalian	10.00	-	10.00
51	220 KV Nowshera S/S	10.00	-	10.00
52	220KV Chakdara S/S	10.00	-	10.00
53	220 KV G/S & Allied T/L D.I Khan	10.00	-	10.00
54	Inter-Connection- Thar Coal Based, 1200MW (Power Dispersal from 1200MW Thar Coal Power Plant - 500kV Thar - Matiari T/L & Matiari 500kV S/station)	1,200.00	167.58	1,032.42
55	500 kV Faisalabad New Grid Station	10.00	3.38	6.62
56	220kV Mirpur Khas G/S along with allied T/Ls	64.00	-	64.00
57	500kV Chakwal G/S along with allied T/Ls	10.00	-	10.00
58	500KV Islamabad West	10.00	-	10.00
59	500 kV Lahore North	2.00	-	2.00
60	220 kV Dera Ismail Khan - Zhob Transmission Line along with 220 kV Zhob Substation	2.00	-	2.00
61	Conversion of 220 kV AIS G/Stations to GIS Grid Stations 220 kV Kala Shah Kaku, 220 kV Bund Road, 220 kV Nishatabad, 220 kV Jaranwala	2.00	-	2.00
	Sub-Total	**23,774.80**	**17,706.18**	**6,068.62**
Others				
62	Up Gradation of NPCC Islamabad (JICA Loan No. PK-54)	100.00	35.20	64.80
63	Provision of Secured Metering System at Delivery Point (Local Bank)	5.00	0.76	4.24
64	Enterprise Resource Planning (ERP)	10.00	-	10.00
65	Rehabilitation of NTDC system in south area for improvement in System Reliability to avoid the Frequent Tripping	5.00	-	5.00
66	Feasibility study for Enhancing the Transmission Capacity of NTDC's 500 kV Transmission System by applying Series Compensation	1.00	-	1.00
	Sub-Total	**121.00**	**35.96**	**85.04**
	Grand Total	**42,363.50**	**28,221.78**	**14,141.72**

Note: '' shows more investment has been made than claimed on a project*

NEPRA AUTHORITY

22.16 Considering the fact that the Petitioner has not been able to fully exhaust the claimed amount on number of projects, the Authority has decided to allow the leftover amount of Rs.14,141.72 million pertaining to FY 2015-16 in the FY 2016-17 *(Rs.42,363.49 million claimed less Rs.28,221.83 million allowed).*

22.17 For the FY 2016-17, the Petitioner has requested an investment of Rs.74,700 million as detailed in the preceding paragraphs. The Authority in order to analyze the Petitioner's claim, carried out an analysis of the investments claimed, allowed and actually carried out by the Petitioner for the last four years as detailed hereunder;

Investments (Rs. in M)			
FY	**Requested**	**Allowed**	**Actual**
2015-16	42,364	-	28,222
2014-15	32,625	18,600	23,306
2013-14	24,157	* 15618	21,312
2012-13	24,157	15,618	9,757
2011-12	17,864	* 13864	14,803

* The Petitioner did not file the Petition, therefore last year investment amount has been considered.

22.18 The above analysis shows that although the Petitioner has been able to make investments in excess of the amounts allowed by the Authority, except for the FY 2012-13, wherein the actual spending was lower, however, the investments made were much lower than the amounts claimed by the Petitioner. The trend also depicts that the Petitioner has been able to make investments in the range of around Rs.21 billion to Rs.28 billion during the last five years, thus rendering the claimed amount of Rs.74,700 million for the FY 2016-17 on the higher side.

22.19 The Authority, however is also cognizant of the GoP initiatives to eliminate load shedding form the Country, whereby, number of generation projects have been started, which requires the Petitioner to make large investments in its transmission system to ensure evacuation of power from these generators. Further, NTDC is gradually increasing the size of investment as during the FY 2015-16 it made investment of Rs.28.2 billion. The Authority understands the importance of investments required to be made by the Petitioner to overcome the system constraints and to further improve its capability to evacuate power from the entire pool of planned projects as requested in the instant petition. The Authority considers that out of the proposed investment, the following projects are critical in view of the rapid development in generation sector. These network additions are required to overcome the system constraints and also for the evacuation of power from upcoming plants, with expected CODs to be achieved by FY 02017-18 as detailed hereunder;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

Sr No.	Projects	PSDP 2016-17 (Estimates)		
		Local	Foreign	Total
1	Inter-Connection- Thar Coal Based , 1200MW (Power Dispersal from 1200MW Thar Coal Power Plant - 500kV Thar - Matiari T/L &Matiari 500kV S/station)	10,753.00	-	10,753.00
2	Evacuation of Power from 1200 MW LNG Based Power Project at Balloki	2,000.00	-	2,000.00
3	Evacuation of Power from 1200 MW LNG Based Power Project at Bhiki	108.00	-	108.00
4	Evacuation of Power from 1200 MW LNG Based Power Project at Jhang (Haveli Bahadur Shah)	800.00	-	800.00
5	Evacuation of Power from K2/K3 Nuclear Power near Karachi (In/Out of 500kV Port Qasim to Matiari S/C and 500kV Hub to Matiari S/C at K2/K3)	100.00	-	100.00
6	Evacuation of power from 1320MW Power Plant at Bin Qasim	3,000.00	-	3,000.00
7	Evacuation of power from 147MW Patrind HPP	300.00	300.00	600.00
8	Evacuation of Power from 1320MW China HUB Power Company Ltd	1,000.00	-	1,000.00
9	Evacuation of power from 1320MW at Sahiwal	400.00	-	400.00
10	Evacuation of Power from 2160 MW Dasu HPP	2,459.00	2,306.00	4,765.00
11	Construction of 600 kV HVDC T/L from Matiari to Faisalabad (CPEC)	10.00	-	10.00
12	500 kV Islamabad West G/Station	500.00	1,000.00	1,500.00
13	220 kV Dera Ismail Khan – Zhob T/L along with 220 kV Zhob G/Station	500.00	-	500.00
14	500 kV Faisalabad New (2x750 MVA) along with T/L	600.00	1,000.00	1,600.00
15	Enterprise Resource Planning (ERP)	12.20	122.30	134.50
16	Rehabilitation of NTDC System in Southern Areas to avoid Frequent Tripping	150.00	500.00	650.00
Total		**22,692.20**	**5,228.30**	**27,920.50**

22.20 **Investments not included in the Investment Plan by the Petitioner**

22.20.1 The Authority during hearing of the instant petition noted with concern that the Petitioner did not make investments in KPK i.e. on 220 kV Nowshera Sub-station, 220 kV Chakdara Sub-station, 220 kV Kohat Sub-station, 220 kV Mansehra Sub-station and 220 kV Sub-station D.I. Khan & the allied Transmission Lines. The Petitioner in response stated that tenders for these projects are being awarded and these projects will be completed within a period of year or so. The Petitioner afterwards provided the following completion timelines in respect of the aforementioned projects;

Sr.	Name of NTDC Grid Station	Constraint		NTDC's Plan		
		Problem	MW	Remedy	Addition MW	Target Date
1	500 kV Shaikh Muhammadi Peshawar	Overloading of Transformers affecting Peshawar city.	100	220 kV Nowshera Grid Station	675	Jun-18
2	220 kV Burhan	Overloading of Transformers affecting Hazara Valley.	50	220 kV Mansehra Grid Station	450	Jun-17
3	220 kV Bannu	Overloading transformers affecting Bannu.	150	220 kV Kohat Grid Station	450	2019-20
4	220 kV Mardan	Overloading of transformers affecting Swat / Malakand.	47	220 kV Nowshera Grid Station	675	Jun-18
5	-	Low Voltage problem at D.I Khan, Tank & Darban.	-	220 kV DI Khan Grid Station	450	Jun-18
6	-	Low Voltage problem at Chakdara,Swat,and Chitral	-	220 kV Chakdara Grid Station	450	Jun-18
Total Constraints in NTDC			347 MW	Total Addition	2475 MW	-

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

22.20.2 The Authority while showing serious concerns regarding minimal investment by the Petitioner on the aforementioned KPK related projects, directs the Petitioner to ensure completion of these projects within the given timelines and accordingly, investment of Rs.7,747.80 million, for the construction of five 220 kV substations along-with allied T/Lines, as requested by the Petitioner for the FY 2016-17, is hereby allowed, as mentioned below, to ensure completion of these projects without any delay.

Rs. in Millions

Sr. #	Name of Project	PSDP Estimates for FY 2016-17		
		Local	Foreign	Total
1	220 kV G/S Mansehra & Allied T/Ls	192	285.7	477.7
2	220 kV G/S Nowshera & Allied T/Ls	863.1	767	1630.1
3	220 kV G/S Chakdara & Allied T/Ls	567	2,067.00	2,634.00
4	220 kV G/S D.I. Khan & Allied T/Ls	1,130.00	1,866.00	2,996.00
5	220 kV G/S Kohat & Allied T/Ls	10	0	10
	Total	**2,762.10**	**4,985.70**	**7,747.80**

22.20.3 The Authority would strictly monitor the progress of the aforementioned project. The Petitioner is directed to apprise the Authority about progress of these projects by June 30, 2017 and if it is found that the Petitioner has failed to show significant progress in terms of meeting the given deadlines, the Authority may proceed against the Petitioner under the relevant law.

22.20.4 Similarly for the Uch-II power plant, the Authority observed that the plant achieved its CoD in April 2014 and is one of the most economical power plants of Pakistan. According to Power Purchase Agreement (PPA), the Petitioner was required to construct and complete 125 km 220 kV double circuit transmission line on twin bundled Rail conductor from Uch-II power project to Sibi, 150 days prior to the COD of the plant, for safe and reliable dispersal of power. However, 220 kV Uch-II to Sibi T/line is still in execution stage despite lapse of almost three (03) years and power from Uch-II is being evacuated on interim arrangement. The Petitioner has informed that initial bidding (carried out in Dec. 2012) was annulled by ADB due to higher prices as only single bidder participated in the process. After, rebidding contract awarded to M/s ICC in August 2014 and contractor mobilized to site in January 2016 after deployment of the Frontier Constabulary (FC) in project area. The accessed completion date of Uch-II to Sibi line as intimated by the Petitioner is October 2017. The Authority has expressed serious concerns on non-completion of Uch-II to Sibi transmission line despite lapse of three (03) years. Further, non-completion of this line has resulted in less despatch /load curtailment by NPCC from the most economical gas based power plants in the areas of Guddu & Uch and has also contributed in a country wide blackout in January 2015.

22.20.5 The Authority also noted that power dispersal scheme for 1320 MW Port Qasim project includes construction and commissioning of 500 kV D/C transmission line from Bin Qasim power plant to 500 kV Matiari switching station (180 km). The Petitioner was required to construct and commission this 180 km transmission line by June 2017. However, at the moment, the Petitioner intends to provide an interim arrangement to 1320 MW Port Qasim power plant by constructing only small portion (i.e. 50km, 500 kV

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

T/Line from power plant to 500 kV HUBCO – Jamshoro T/line) of the above mentioned line. The estimated completion date of this interim arrangement has been mentioned as August 2017 by the Petitioner. Furthermore, the work on Phase-II (i.e. 130 km, 500 kV transmission Line from 500 kV HUBCO-Jamshoro to 500 kV Matiari switching station) has not started yet. The Authority has noted with concern that the interim arrangement will not have N-1 contingency provision and will create system reliability issues as the 500 kV lines in south experiences frequent tripping in winter.

22.20.6 In view of the foregoing, the Petitioner is directed to apprise the Authority about progress of these projects by June 30, 2017 and in case of failure to achieve any significant progress in this regard, the Authority may proceed against the Petitioner under the relevant law.

22.21 **Evacuation of Power form the Chitral Corridor**

22.21.1 Pakhtunkhwa Energy Development Organization (PEDO) during hearing explained that PEDO has identified numerous sites in Chitral and adjacent areas having potential to generate up to 3000 MW of Hydel Power. The power evacuation from Chitral to national grid is possible through a single narrow corridor which consists of hilly areas and difficult terrain. However, it is noted that the same corridor is being used for evacuation of 106 MW Golen Gol hydro power project by WAPDA through a 132 kV transmission line. Such interconnection at 132 kV for Golen Gol HPP would effectively block further construction of EHV transmission lines required for evacuation of 3000 MW power potential of the area.

22.21.2 The Authority is of the view that an 'Integrated Transmission Study' for all hydro power sites in KPK & AJK including 3000 MW Chitral hydel power corridor may be carried out by the Petitioner in the best national interest so that cheap and clean energy may be added to national grid without any delay and a report in this regard be submitted to the Authority not later than June 30, 2017.

22.21.3 In view of the foregoing discussion, a total investment of Rs.49,809.96 million is hereby allowed to the Petitioner for the FY 2016-17 comprising of Rs.14,141.66 million as the left over amount from FY 2015-16, Rs.27,920.50 million as detailed at para 22.19 above and Rs.7,747.80 million for the five number 220Kv substations in KPK(para 22.20.2), as detailed hereunder;

Rs. in Millions

Sr. #	Description	Investment Allowed FY 2016-17
1	Investment carried forward from the investment plans of FY 2015-16	14,141.66
2	Investment allowed for 5 Grids and allied transmission lines in KPK	7,747.80
3	Investment allowed from the proposed plans of NTDC for FY 2016-17	27,920.50
	Total	**49,809.96**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

22.21.4 The Petitioner is also directed to provide the prospective benefits in terms of removal of congestion, ensuring evacuation of power from all the generation companies, improvement in voltage profile, improvement in the system etc. in view of the proposed investments. The Petitioner is also directed to submit quarterly review and progress reports of the projects for the said investments.

22.21.5 In order to facilitate the Petitioner and in view of the evacuation of power requirements, any additional investment (over and above the allowed) made by the petitioner in FY 2016-17 will be considered by the Authority for approval.

23 Whether the concerns raised by the intervener and commentators are justified?

23.1 Having carefully gone through the submissions of interveners and commentators, it may be observed that that of Economic Merit Order, observance of which is the responsibility of the System Operator i.e. NPCC of NTDCL, which categorically certifies its observance while submitting the data for the monthly fuel charges adjustment. NTDCL / NPCC in its correspondence has always stated that it always follows merit order and issues dispatch instructions accordingly in order to get the maximum generation from all the power plants based on their availability keeping in view the fuel constraints, according to the load requirements, which varies from peak level to minimum level changing throughout the day. While doing this, it starts from exhausting the cheapest available power. After exhausting it completely, it moves to the next ranked available cheaper sources and then onwards.

23.2 Here it is pertinent to mention that the same concern was raised by the Intervener during the hearing of monthly fuel price adjustments. The Authority took cognizance of the complaint by the Intervener and started investigating the matter by issuing various Letters / Explanations to NTDCL and GENCO's management, in which they were directed for the submission of detailed reports regarding less utilization & availability of their power plants and to take corrective measures to increase their generating capabilities. However, it is yet to be established that underutilization has taken place or not. In addition to the aforementioned, various advisories were also sent to the Ministry of Water & Power, for effective utilization of the available generating sources. Thus, NEPRA is constantly monitoring the performance of its licensees through available legal and regulatory tools and is vigilant in this regard.

23.3 On the issue of supplying power to K-Electric, ECC, approved basket rates for supply of electricity to K-Electric by NTDCL. Accordingly, K-Electric and NTDCL signed a Power Purchase Agreement ("PPA") dated January 26, 2010 for five years for purchase of power to the tune of 650 MW on basket rates. Later on, a decision was made by the Council of Common Interest (CCI) in its meeting having subject "Equitable Distribution of Electricity" held on November 08, 2012 with respect to the modalities for withdrawal of 350 MW of electric power by NTDCL from K-Electric Limited.

23.4 The aforementioned decision has been impugned by way of the different petitions and suits before the Honorable High Court of Sindh at Karachi wherein status quo orders have been issued as per following detail:-

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

a). C.P. No.D-4485 / 2012 (Order dated 20-12-2012): The parties were directed to maintain 'status quo'.

b). Suit No.1728 / 2012 (Order dated 18-01-2013): It was ordered that keeping in view the interest of public at large, the Federation is restrained from interfering in the Power Purchase Agreement between NTDCL and K-Electric with a direction not to reduce power supply to 350 MW.

c). Suit No.205 / 2012 (Order dated 06-02-2014): It was ordered that the defendants (including NTDCL) are restrained from interfering with the functioning of the power purchase agreement and the supply of electricity by NTDCL to K-Electric Limited thereunder and in particular, NTDCL shall continue to supply such power as K-Electric Limited may require, subject to the condition that K-Electric power Limited continues to abide by its obligations.

23.5 The above proceedings are still pending in the Honorable Court. Notwithstanding above, an explanation has been issued by the Authority to both NTDCL and K-Electric for purchase/ sale of power without an agreement as the previous agreement has expired on January 25, 2015. Legal proceedings in this regard are currently under process with the Authority. Here it is pertinent to mention that the GoP has constituted a high level committee to resolve the issue of supply of 650 MW electricity to K-Electric by NTDCL. Further, the Authority vide its various monthly and quarterly adjustment decisions has continuously been directing K-Electric to prudently utilize its available resources both own generation and power purchases. Fines have also been imposed on K-Electric in 2009 and 2015 for imprudent practice of underutilization of its fleet.

23.6 The intervener has very rightly pointed out the fact that the period to which the tariff petition pertains i.e. FY 2015-16 and some part of FY 2016-17 has already lapsed, however, non-admission of the Petition by the Authority on the grounds of late submission, would not be in the interest of consumers. Further, late submission of the petition by NTDCL also needs to be seen in light of the fact that the tariff determination of NTDCL pertaining to the FY 2014-15 was finalized in January 2016 owing to late submission of the petition by NTDCL and its subsequent review motion.

23.7 Regarding the concern of intervener for compensation to the consumers who may have already paid heavier burden, it is pertinent to mention that any such financial impact is adjusted through the Prior Year Adjustments. Accordingly, the consumers as well as NTDCL interest is protected against any downward or upward variations in the tariff.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

24 <u>Whether the Petitioner's projected Return on Equity Rs. 23,171 million & Rs. 28,709 million for the FY 2015-16 and FY 2016-17 is justified?</u>

25 <u>Whether the requested Weighted Average Cost of Capital (WACC) of 15.50% (70:30) based on ROE of 16.83% and Cost of Debt of 14.93% is justified?</u>

26 <u>Whether the request of the petitioner to allow WACC on one hand and Financial charges on actual basis on other hand is justified?</u>

26.1 The Petitioner submitted that as per the Section 17 (3) (iii) of NEPRA Tariff (Standards and Procedure) Rules 1998, tariff should allow licensees a rate of return which promotes continued reasonable investment in equipment and facilities for improved and efficient service. Further Section 17 (3) (ii) provides a rate of return on the capital investment of each licensees commensurate to that earned by other investments of comparable risk.

26.2 The Petitioner has mentioned that it has applied the same methodology as adopted by the Authority for the calculation of rate of return for XWDISCOs which is consistent with the rate of return allowed to other power sector entities and requested the Authority to allow at least 15.50% WACC on its Capital Asset Base.

26.3 The Petitioner has submitted the following workings in this regard;

26.4 **Cost of equity (ke)**

26.4.1 The cost of equity (ke) is calculated in line with NEPRA guidelines i.e Capital Assets Pricing Model (CAPM).

K_e = R_f + (Beta x Market Risk Premium)
K_e = 7.75 + 1.10 x 8.25 %
K_e = 16.83%

Where :

R_f = Risk free rate @ 7.75% based on Five (05) years Pakistan Investment Bond (PIB)
Market Risk Premium = 8.25 % which is the difference between Market rate of return (R_m) @ 16.45% and Risk free return (R_f) @ 7.75%.
Beta = Correlation to Market return @ 1.10 assessed by NEPRA for public sector power Companies for FY 2015-16.

R_m = Market Return of KSE-100 index 8 years average market return @ 16.5%

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
KSE-100 (Index)	13,772	12,289	7,162	9,722	12,496	13,801	21,006	29,653	34,399
Market Return		**-11%**	**-42%**	**36%**	**29%**	**10%**	**52%**	**41%**	**16%**
Average Market Return		**16.45%**							

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

26.5 **Cost of debt (kd)**

26.5.1 The Petitioner submitted that most of its loans are taken from donors like World Bank, ADB, JICA etc. which are available to NTDCL through relent policy of the GoP at the rate 15% consisting 95% relent loan and 5% from local banks. As per the provisional results for financial year ending 30th June, 2015, the actual cost of debt, based upon NTDCL outstanding loan amount, has been worked out as 14.93 %. Hence, Weighted Average Cost of Capital (WACC) is calculated as under:

$$WACC = K_e \times \left(\frac{E}{E+D}\right) + K_d \times \left(\frac{D}{E+D}\right)$$

WACC = 16.83 % x (0.30) + 14.93% x (.70)

WACC = 5.05% + 10.45%

WACC = 15.50%

Where :

Ke = Return (cost) of equity @ 16.83%
Kd = Cost of Debt @ 14.93%
E* = Proportionate weightage % of equity (0.30)
D = Proportionate weightage % Interest-bearing Debt (0.70)
**As per NEPRA guidelines a minimum of 20% equity is to be assume in case of negative equity, and equity in excess of 30 % will be considered as debt.*

26.5.2 The Petitioner during the hearing submitted that the increase in ROE is due to increase in its equity base (Assets-Liabilities) owing to its investment Program of Rs.42,363 Million for the FY 2015-16 and Rs. 74,700 Million for the FY 2016-17 respectively. The Petitioner in this regard provided the following calculations;

(Rs. Mln)

Description	Provisional 2014-15	Estimated 2015-16	Estimated 2016-17
A. **Fixed Assets**	**158,875**	**200,622**	**269,520**
B. **Current Assets (as per NEPRA's norms)**	7,338	9,899	**11,841**
C. (A + B)	**166,213**	**210,521**	**281,361**
Less:			
D. Long-term Loans	32,781	45,335	79,151
E. Other Long-term Liabilities	9,097	9,097	9,097
F. Current Liabilities (as per NEPRA's norms)	4,892	6,600	7,894
G. (D+E+F)	**46,770**	**61,031**	**96,142**
H. Capital Base (C-G)	**119,444**	**149,490**	**185,219**
I. Rate of Return	13.11%	15.50%	15.50%
Return on Equity (H x I)	15,659	23,171	28,709

NEPRA AUTHORITY
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

(Rs. Mln)

Description	Provisional 2014-15	--- Estimated --- 2015-16	2016-17
A Fixed Assets			
a) Original Cost of Fixed Assets in Operations	150,668	178,125	225,248
Less: Deferred Credit (Deposit Works)	5,039	4,848.74	4,658.74
Accumulated Depreciaiton	56,901	62,000	67,993
Net Fixed Assets in operations	**88,728**	**111,276**	**152,597**
b) Capital Work in Progress	70,148	89,346	116,923
Total - A	**158,875**	**200,622**	**269,520**
B Current Assets			
a) Stores & Spares (3% of the gross fixed Assets)	4,520	5,344	6,757
b) Accounts Receivables (Equal to 30 days Billing)	1,834	3,404	3,728
c) Cash & Bank Balance (1/6th of annual operating expenses other than non-cash items)	984	1,151	1,356
Total - B	**7,338**	**9,899**	**11,841**
C Total A + B	**166,213**	**210,521**	**281,361**
D Less:			
a) Foreign Loan - Direct			
b) Foreign Loan - Relent	31,836	36,324	49,662
d) Borrowing from Commercial Banks	944.89	9,011	29,489
g) Employees Retirement Benefits	9,097	9,097	9,097
h) Creditors, accrued and other current liabilities (Equal to 2/3rd of current assets)	4,892	6,600	7,894
Total - D	**46,770**	**61,031**	**96,142**
E Capital Base (C-D)	**119,444**	**149,490**	**185,219**
F Rate of Return	13.11%	15.50%	15.50%
Return on Capital Base (E * F)	**15,659**	**23,171**	**28,709**

26.5.3 The Petitioner on the issue of requesting WACC and at the same time financial charges as pass through submitted, during the hearing that tariff methodology allows recovery of financial charges pertaining to operations only, whereas the interest during the construction is to be financed through return on equity (internally generated funds). The Petitioner stated that increase in power generation, needs enhanced transmission capacity for which it has an extensive development program in hand and therefore, a higher rate of return is required to build up internally generated funds to support the GoP's program to eradicate power shortage in the country.

26.5.4 The Authority observed that the Petitioner, as per the exiting practice, is allowed RoE only and the financial charges are allowed as per actual. However, in the instant tariff petition, the Petitioner changed its view and instead of ROE, requested WACC and also requested for the financial charges as pass through in addition. The WACC has been worked out based on debt equity structure of 70:30 and using actual cost of debt. The Authority while going through the Petitioner's calculation observed it has worked out the requested return using WACC for the equity based assets only instead of the total RAB i.e. it has totally ignored the fact that WACC includes the impact of interest charges as well. Generally, in a network business, whenever WACC is used as a form of return, then the cost of debt is always an "assessed " figure, whereas in contrast to the ROE approach it is allowed as per actual. While calculating WACC, principles of comparative risk with respect to cost of debt and optimum capital structure are assessed, irrespective of the actual debt profile and actual capital structure of the Petitioner. Thus, the treatment of cost of debt under both approaches is treated as mutually exclusive and cannot be treated together as the Petitioner is not willing to accept the risks associated with the assessment of cost of debt, which is not warranted, thus the plea of the Petitioner of asking WACC based on actual cost of debt is rejected. Further, the request

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

of the Petitioner to allow WACC (that includes the impact of interest cost), only on the equity based assets, on one hand and the actual finance cost separately would result in duplication of cost of debt, hence the same is rejected. The Authority considers that the WACC approach accounts for both the cost of debt and the return on equity and the weighted average of the optimum mix of both is applied on the total RAB. Since the Petitioner's request of WACC bears significant contradictions, hence its request of allowing WACC is rejected and decided to continue with the RoE approach as being allowed to the Petitioner in the past. However, in order ensure a reasonable return on equity, the Authority has decided to make an assessment of the Petitioner's RoE.

26.5.5 The Petitioner in its instant Petition has requested a beta of 1.1, same as assessed by the Authority in the matter of XWDISCOs tariff determinations for the FY 2015-16. The Authority observed that the allowed beta to XWDISCOs also includes the commercial risk associated with the distribution business, whereas the Petitioner is exposed to wires business only therefore, the Authority considers a beta of 0.8621 being reasonable for the Petitioner.

26.5.6 For the risk free rate, the Petitioner has requested a weighted average yield of 7.75% based on Five (05) years Pakistan Investment Bond (PIB), however, no further details with regard to the date to which the requested weighted average yield pertains, has been stated either in the petition or during the hearing. The Authority therefore has decided to use the weighted average yield on Pakistan Investment Bond (PIB) as of July 16, 2015, being start of the tariff period i.e. FY 2015-16, as the risk free rate, which is 8.9652%. Here it is pertinent to mention that the Authority in case of XWDISCOs tariff determination for the FY 2015-16 also allowed the same rate.

26.5.7 The Petitioner requested a market risk premium of 8.25%, calculated as the difference between the Market Return of 16.45% (KSE-100 index 8 years average return) and the Risk free rate of 7.75% (requested by the Petitioner).

26.5.8 The Authority considers that the expected return on any investment is the sum of the risk-free rate and the market premium whereby the 'market premium' is the difference between the market return and the risk free rate. Generally, the return on stock market index is taken as a measure of market rate of return.

26.5.9 The Authority in order to have an appropriate measure of the market rate of return, analyzed KSE-100 Index return over a period of 8 years and also considered Analysts' consensus/ research houses estimates in this regard. The market risk premium used by different leading brokerage houses ranged between 6-7%. The Authority consider that the market premium of 7% is reasonable.

26.5.10 Based on the above parameters, the ROE of the Petitioner works out as 15.00% as detailed below;

$$RoE\ (K_e) = R_f + (\text{Beta} \times \text{Market Risk Premium})$$
$$RoE\ (K_e) = 8.9652\% + (0.8621 \times 7\%)$$
$$RoE\ (K_e) = 15.00\%$$

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

26.5.11 As per the Authority's principle decision of treating any equity in excess of 30% of the RAB as debt and in order to allow return on the equity which is in excess of 30%, the Authority has while calculating RoE of the Petitioner, decided that any equity in excess of 30% of the average RAB (Regulatory Asset Base) shall be tread as debt.

26.5.12 Accordingly it has decided to analyze the Petitioner cost of debt. The Authority has observed that around 95% loans of the Petitioner are GoP relent loans which have been relent at around 15%. The remaining loans are local loans and as per provided information by the Petitioner the weighted average cost of its total outstanding loans is 14.93%. For calculating return on the remaining portion of equity, the Authority cannot allow such a higher cost of 14.93% which is almost the same as the determined RoE of 15%, since the cost of the debt is always lower than the cost of Equity. Accordingly, to assess a reasonable cost of debt, the Authority has analyzed trend of 6 months KIBOR over the last six years;

26.5.13 The Authority has noted from the analysis that over the last six years the average 6-Month KIBOR rate remained at 9.49%. By allowing a 2.5% spread over the average 6 months KIBOR of 9.49%, the cost of debt for allowing return on equity has been assessed as 12%. By applying the assessed ROE of 15.00% on the 30% portion of the RAB and 12% on the remaining portion of the equity (capital base) the RoE percentage works out to be 13.70% and 13.87% for FY 2015-16 and FY 2016-17 respectively. The Authority has calculated an amount of Rs.13,038 million and Rs.14,300 million as ROE of the Petitioner for the FY 2015-16 and FY 2016-17 respectively, detailed calculations of which is as under;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

FY 2015-16 & FY 2016-17		Rs. in Millions	
Description		**FY 16**	**FY 17**
Calculation of Capital Base			
Opening fixed assets in operation		149,436	167,063
Add: Assets Transferred during the year		17,626	23,061
Closing Fixed Assets in Operation		**167,063**	**190,124**
Less: Accumulated Depreciation		62,909	69,706
Net Fixed Assets in operation		**104,154**	**120,417**
Add: Capital Work in Progress (Closing)		86,757	113,506
Fixed Assets Inc. WIP	A	**190,911**	**233,924**
Stores & Spares (3% GFA)		5,012	5,704
Accounts Receivables (30 Days of R.R)		2,437	2,618
*Cash & Bank Balance		1,040	1,157
Current Assets	B	**8,489**	**9,478**
Long Term Loans (Non Current + Current Portion)		**80,849**	**113,107**
Deferred Credits (Consumer Contribution)		5,039	5,039
Deferred Liabilities		9,097	9,097
Current Liabilities (2/3rd of current assets)		5,659	6,319
Non-Current Liabilities + Current Liabilities	C	**100,644**	**133,562**
Capital Asset Base (A+B-C)		**98,755**	**109,840**
Avg. Capital Base	D	**96,233**	**104,298**
Calculation of RAB			
Fixed Assets Net + Work In Progress		190,911	233,924
Deferred Credits + Deferred Liabilities		14,136	14,136
RAB		176,775	219,788
Avg. RAB	E	***165,567***	***198,281***
Equity Portion (E*30%)	F	**49,670**	**59,484**
Return On Equity (F*15%)	G	**7,450**	**8,923**
Remaining Equity Portion (D-F)	H	**46,563**	**44,813**
Return @ 12% (H*12%)	I	**5,588**	**5,378**
Total Return On Equity (G+I)		**13,038**	**14,300**

* (1/12th of sum of cash and bank balance whether deposits at the end of each month of the year subject to the maximum of 1/6th of annual operating expenses other than non-cash items)

NEPRA AUTHORITY
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

26.5.14 The Authority has assessed new investments of the Petitioner for the FY 2015-16 and FY 2016-17 as Rs.28,222 million and Rs.49,809.96 million respectively *(discussed in detail under the issue of investments)*. By incorporating the same in the closing fixed assets balance of the Petitioner as on June 30, 2015 and adjusting for the accumulated depreciation, the total net fixed assets (including CWIP) of the Petitioner for the FY 2015-16 have been worked out as Rs.190,911 million and Rs.233,924 million for FY 2016-17, as detailed above.

26.5.15 Regarding the amount of Cash & Bank Balances, the Authority observed that the Petitioner's average monthly bank balance for the FY 2014-15 and FY 2015-16 remained at around Rs.7,653 million and Rs.8,053 million respectively which exceeds the 1/6th of the assessed annual operating expenses other than non-cash items, for both the FY 2015-16 and FY 2016-17. Accordingly, the Petitioner is allowed Rs.1040 million and Rs.1,157 million as Cash & Bank Balances for the FY 2015-16 and FY 2016-17 respectively for the purpose of calculation of Capital Base being lower of the 1/12th of sum of its cash and bank balances.

26.5.16 Regarding Long term loans including current portion, the Authority is constrained to make its own assessment since the Petitioner has failed to provide its Financial Statements for the FY 2015-16. The Authority has noted that the Petitioner in its financing plan has proposed to finance 62% and 65% of its projected investments for the FY 2015-16 and FY 2016-17 respectively through loans. The Authority by applying the same rates i.e. 62% and 65% on the amount of investments allowed to the Petitioner for the FY 2015-16 and FY 2016-17 has worked out that out of the allowed investments Rs.17,398 million and Rs.32,258 million will be financed through loans. By adding therein the amount of long term loans appearing in the provisional financial statements of the Petitioner for the FY 2014-15, the Authority has assessed long term loans of the Petitioner as Rs.80,849million for the FY 2015-16. Similarly for the FY 2016-17, the Authority has assessed long term loans of Rs.113,107 million. Here it is pertinent to mention that the Petitioner has not provided any break-up of its long term loans in terms of their current maturity portion in its provisional financial statements for the FY 2014-15, therefore, the entire amount has been considered under the head of long term loans. The Authority is of the view that even if such break-up was applicable, the portion of current maturity of long term loans would have been deducted while working out the capital base since the same has been used to finance the long term assets of the Petitioner.

26.5.17 In the absence of Petitioner's Financial Statements for the FY 2015-16, the Authority has relied on the amount of Deferred Credits (consumer contribution) appearing in the provisional accounts of Petitioner for the FY 2014-15 and has used the same for working out the Capital Base for the FY 2015-16 and FY 2016-17.

26.5.18 Regarding deferred liabilities, the Authority noted that the same represents the amount of provision for postretirement benefits allowed to the Petitioner in previous years, therefore, the same needs to be deducted from the capital base being consumer financed and already recovered from the consumers through tariff.

26.5.19 In view of the foregoing discussion, the Petitioner is hereby allowed an amount of Rs.13,038 million and Rs.14,300 million as ROE for the FY 2015-16 and FY 2016-17 respectively.

26.5.20 Considering the fact that ROE for the FY 2015-16 & FY 2016-17 has been allowed based on projected level of investments and in case the actual investment turns out to be different from the estimated level, the same would be trued up as per actual. In view thereof, the Authority has decided to true up the RoE being allowed to the Petitioner for the FY 2015-16 and FY 2016-17, as "Prior Year Adjustment" in its next tariff petition, once the Petitioner provides its Audited financial Accounts for the FY 2015-16 and FY 2016-17.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

27 Whether the Petitioner's requested General Establishment & Administration (GE&A) cost Rs. 5,934 million & Rs. 6,968 million for the FY 2015-16 and FY 2016-17, is justified?

28 Whether the request of petitioner for induction of 2,336 employees for the FY 2015-16 and FY 2016-17 is justified?

29 Whether the Petitioner has maintained a separate post-retirement benefit fund?

30 Whether the proposed Repair & Maintenance expenditures for Rs. 822million & Rs. 1,008 million for the FY 2015-16 and FY 2016-17 is justified?

31 Whether the petitioner's projected insurance of Rs. 153 million & Rs. 159 million for the FY 2015-16 and FY 2016-17 is justified?

31.1 **General Establishment & Administrative Expenses**

31.1.1 The Petitioner submitted that the General Establishment expenses consist of costs associated with pay & allowances and employee benefits, staff costs and retirement benefits, whereas the administrative expenses consist of rent, rate & taxes, power light gas and water, office supplies, communication, travelling expenses, office supplies & other expenses, professional fees and general miscellaneous expenses.

31.1.2 The Petitioner has requested the following GE&A expenses for the FY 2016-17 and FY 2017-18;

(Rs. Mln)

Sr. No.	General Establishment & Admin Expenditure	2014-15 Pro.	2015-16 -----Estimated	2016-17 -----
1	Pay and Allowance & Employee Benefit	3,399.9	3,903.1	4,371.3
2	Induction against Vanant Posts		68.7	245.0
3	Post Retirment Benefits	1,111.5	1,194.8	1,314.3
4	Vehicle Expenses Maintenance	238.7	282.2	298.9
5	Travelling Expenses:	170.7	195.9	247.7
6	Power, Light, Gas and Water	87.4	95.6	104.6
7	Rent, Rates And Taxes:	84.9	93.4	102.8
8	Communication	18.8	20.6	22.6
9	Offices Supplies and Other Expenses	22.2	24.3	26.6
10	Professional Fees:	15.5	32.1	210.1
11	Charges for Common Services (AOH)	-	-	-
12	Miscellaneous Expenses	19.3	23.3	24.6
	Total	5,169.2	5,934.1	6,968.6

31.2 **General Establishment expenses**

31.2.1 While justifying the requested cost under the General Establishment expenses, the Petitioner stated that being a public sector entity, it has to maintain the GoP pay scales and the terms of employment, therefore, has to allow the increases, announced by the GoP in finance bill to its employees.

POWER REGULATORY AUTHORITY NEPRA AUTHORITY NATIONAL ELECTRIC

31.2.2 The Petitioner has mentioned to use the following assumption for assessing the general establishment costs for FY 2015-16 and FY 2016-17;

31.3 **For FY 2015-16**

- GoP adopted new pay scales by merging Adhoc Relief of 2011 & 2012, effective from July 2015.
- Increase in pay of government employees @ 7.5% as proposed by the Government in annual budget for FY 2015-16.
- Impact of annual increment granted in December 2015.
- Increase in medical allowance @ 25 % in pursuance of GoP announcement in Budget.
- Increase in employee benefits and other components of employee's salaries.
- Attachment of HV & SC Lab Islamabad & Faisalabad with Financial impact of Rs. 23.28 million.
- Pensionary benefits increased by 7.5 %.
- Ex-gratia to employees.

31.4 **For FY 2016-17**

- Adhoc relief allowance has been estimated @ 10%.
- Impact of annual increment due in December 2016.
- Increase in employee benefits and other components of employee's salaries as a result of transfer, promotions.
- Pension benefits assumed to grow by10 %.
- Ex gratia to employees.

31.5 **Pay, Allowances & Employee benefits**

31.5.1 Based on the aforementioned assumptions, the Petitioner has requested the following amount in term of Pay & Allowances & Employee benefits for the FY 2015-16 and FY 2016-17;

Mln. Rs.

Description	2013-14	2014-15	2015-16	2016-17
	Actual	Pro.	Estimated	
Basic Pay	1,395	1,306	1,722	1,784
Other Allowances	1,448	1,441	1,306	1,673
Employee Benefits	564	661	875	915
Total	**3,407**	**3,408**	**3,903**	**4,371**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

31.5.2 The Authority from the foregoing submissions of the Petitioner has observed that the Petitioner has only stated its assumptions used for working out the General Establishment expenses i.e. pay, allowances & other benefits and the retirement benefits, however no detailed calculations in this regard have been provided to substantiate the numbers / amounts requested for the FY 2015-16 and FY 2016-17. Therefore, in order to have a fair assessment of the Petitioners claimed costs, the Authority itself carried out an analysis of the requested amounts as mentioned hereunder;

Mln. Rs.

Pay & Allowances	FY 15 (Provided by Petitioner)				Projected / Req		Inc./Dec	
	Total	Development	CPPA-G	NTDC	FY 16	FY 17	FY 16	FY 17
	A	B	C	D=A-B-C				
Basic Pay	1,638	257	94	1,287	1,700	1,760	32%	3%
Adhoc Reliefs	964	156	41	767	406	534	-47%	31%
Adhoc Reliefs 15	-	-	-	-	128	128	7.5%of B.P	-
Adhoc Reliefs 16	-	-	-	-	-	176	-	10%of B.P
Bonus	115	14	3	97	283	293	191%	3%
House Acquisition	280	61	29	189	198	208	5%	5%
House Rent	83	11	1	71	76	79	6%	5%
Medical Allowance (Cash)	77	11	1	66	82	86	25%	5%
Conveyance Allowance	207	34	9	164	174	182	6%	5%
Off-Day Wages	60	1	4	54	58	61	6%	5%
Free Electricity (In Service)	264	42	0	221	221	232	0%	5%
Medical (In Service)	138	48	4	86	85	89	-1%	5%
Education and Training Expenses	68	2	1	65	67	70	3%	5%
Other Allowances & Benefits	456	35	58	362	425	473	17%	11%
Total	**4,349**	**672**	**246**	**3,431**	**3,903**	**4,371**	**14%**	**12%**

31.5.3 The above comparison shows that the Petitioner has projected an increase of around 32% in the basic pay for the FY 2015-16 on account of merging of ad-hoc relief allowances of FY 2011 & 2012 in running basic pay of FY 2015-16, whereas on the other hand an increase of only around 3% has been projected in the basic pay of the FY 2016-17 on account of merging of ad-hoc relief allowance of the FY 2013, 2014 & 2015 in the running basic pay for the FY 2016-17. The Authority also observed that the Petitioner did not provide year wise breakup of the ad-hoc relief allowances and only a total figure in this regard has been mentioned in the Petition.

31.5.4 In view of aforementioned and the available information on the referred GOP increases, the Authority has decided to rework the impact of the requested increases for the FY 2015-16 and FY 2016-17.

31.5.5 For the purpose of assessing the Basic pay for the FY 2015-16, the Authority has taken into account the impact of GOP's announcement of merging the ad-hoc relief allowances of 2011 & 2012 in running basic of FY 2014-15 and also allowed impact of 5% annual increment.

31.5.6 For assessing the Basic pay of the FY 2016-17, the Authority considered GOP's announcement of merging the ad-hoc relief allowances of 2013, 2014 & 2015 in running basic of FY 2015-16 and also allowed impact of 5% annual increment. The Authority has also allowed increase of 7.5% as ad-hoc allowance and 25% in Medical Allowance, as announced by the GoP, for working out the total pay & allowances of the Petitioner for

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

the FY 2015-16. In addition, GoP's announcement of 10% increase as ad-hoc allowance 2016, has also been included while working out the total pay & allowances of the Petitioner for the FY 2016-17.

31.5.7 The Authority from the aforementioned analysis also noted that the Petitioner has requested increase of around 5% to 6% in the head of house acquisition, house rent allowance, conveyance allowance, off day wages, medical and free electricity for the in-service employees, over and above the budgetary increases announced by the GoP for FY 2015-16 and FY 2016-17, therefore, the request of the Petitioner in this regard is hereby declined being not supported by any GOP notification.

31.5.8 The Authority also seriously noted the increase of around 11-17%, requested by the Petitioner under the head of "Other allowance and employees benefits" without any detailed workings and justifications. Further, no bifurcation of these expenses in terms of qualification pay, deputation / additional charges allowance/ special pay on current charge, grant of M.PHIL allowance, revision in the rate of conveyance charges, revision in the rate of Integrated allowance, washing allowance and dress allowance has been submitted by the Petitioner to assess the impact of increases announced by GoP for FY 2016-17. In view thereof, the Authority has decided to allow an increase of 3% in the head of other allowance and benefits only for the FY 2016-17 based on the amount assessed for the FY 2015-16, to incorporate the impact of increases announced by the GoP in the FY 2016-17.

31.5.9 The Petitioner also requested an amount of Rs.283 million and Rs.293 million in the head of bonus / honorarium for the FY 2015-16 and FY 2016-17 respectively, by assuming an abnormal increase of around 191% over the actual cost of Rs.97 million for the FY 2014-15. The Authority considers that if the Petitioner wants to incentivize its employees in this manner, it may pay bonuses / honorarium out of its profits/ returns. Therefore, the request of the Petitioner to allow the cost of bonus / honorarium does not merit consideration.

31.5.10 Regarding the amount of Rs.67 million and Rs.70 requested under the head of education and training for the FY 2015-16 and FY 2016-17 respectively, although the Petitioner has not provided any detailed justification in this regard in terms of nature of the education & trainings and its prospective benefits, however, the Authority being aware of the importance of trainings and capacity building of the employees cannot ignore the need of such initiatives, keeping in view the challenges the power sector is currently facing. In view thereof, the Authority has decided to allow an amount of Rs.20 million each for the FY 2015-16 and FY 2016-17 under the head of education and trainings.

31.5.11 Based on the discussion in the preceding paragraphs, the Authority has assessed the following amounts in the head of General Establishment expenses, excluding the Post-retirement benefits of the Petitioner for the FY 2015-16 and FY 2016-17;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

Rs. in Millions

Description	FY 2015-16	FY 2016-17
Basic Pay	1,613.06	2,001.60
Adhoc Relief - 2010	275.94	275.94
Adhoc Relief - 2013	102.10	-
Adhoc Relief - 2014	108.73	-
Adhoc Relief - 2015	120.98	-
Adhoc Relief - 2016	-	200.16
Bonus	-	-
House Acquisition	189.47	189.47
Medical Allowance	81.99	81.99
Medical Allowance (In Service)	85.69	85.69
Conveyance Allowance	163.93	163.93
Off-Day Wages	54.46	54.46
House Rent Allowance	71.31	71.31
Education and Training Expenses	19.61	19.61
Free Electricity (In Service)	221.24	221.24
Other Allowances & Benefits	362.35	372.35
Total	**3,470.86**	**3,737.74**

31.5.12 The Petitioner at the same time is directed to provide proper evidence and detailed calculations for the requested amounts for its future tariff petitions.

31.6 Retirement Benefits

31.6.1 In terms of retirement benefits, the Petitioner submitted that the same includes pension, leave encashment, free electricity supply & medical facility to the retired employees, in line with the WAPDA's employee pension, post retirement free electricity and post-retirement medical benefit schemes.

31.7 Pension

31.7.1 Pension is payable under the scheme to all eligible employees and it is calculated on last pay drawn on completion of qualifying service. Following benefits are entitled to an employee under Pension Scheme, on ceasing to be an employee due to any of the following reasons:

- ✓ Retirement after completion of 25 years of service
- ✓ Retirement at age 60
- ✓ Death in service
- ✓ Disability during service
- ✓ Lump sum Gratuity, if service is less than 10 years

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

31.8 Post-Retirement Medical Facility

31.8.1 All the regular employees and their family members (retiring on superannuation, voluntary retirement, early retirement, death/disability in service) are eligible for the post-retirement medical benefits without any limitation subject to a minimum service requirement as under:

- ✓ Superannuation Retirement on attaining the age of 60 years
- ✓ Normal Retirement 25 Years
- ✓ Death/Disability in minimum service of 10 Years

31.9 **Leave Encashment**

31.9.1 In case of retirement of an employee on superannuation, a lump-sum payment of 365 days leave in his credit is allowed as leave encashment. An increase of 7.5% & 10% in this head has been estimated in line with salaries in the petition for the year 2015-16 and 2016-17 respectively.

31.10 **Post Retirement Free electricity**

31.10.1 Free electricity is payable under the scheme to all eligible employees of the company at the rates based on units consumed against entitled units according to Grades.

31.10.2 The Petitioner also submitted that the Authority in para 5.5 of its Review Motion dated October 20, 2015 had allowed post-retirement benefits only to the extent of cash because the Petitioner has not yet maintained a post retirement funds.

31.10.3 In view of the foregoing, the Petitioner has projected the post-retirement befits for FY 2015-16 and FY 2016-17, as under;

Mln. Rs.

Description	2013-14	2014-15	2015-16	2016-17
	Act.	Pro.	Estimated	
Pension	796.5	1,051.60	1,130.40	1,245.70
Leave Encashment	18	9.4	11.9	12.8
Free Electricity	23.2	24.8	26	27.5
Medical Facility	25.3	25.7	26.3	27.6
Total	**863**	**1,111.50**	**1,194.60**	**1,313.70**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

31.10.4 The Authority observed that it had been allowing provision for post-retirement benefits as a part of general establishment cost to the Petitioner till the FY 2012-13. Thereafter, in order to protect the interest of the employees regarding post-retirement benefits, considering the overall liquidity position in the power sector and in order to ensure that the Petitioner fulfils its legal liability with respect to the post-retirement benefits, the Authority directed the Petitioner in the tariff determination for the FY 2014-15 to create a separate retirement benefit fund / funds, as allowed under the IAS-19. However, the Petitioner has failed to comply with the direction of the Authority as till date it has not been able to create a separate post-retirement Fund.

31.10.5 Regarding the projections for the FY 2015-16 and FY 2016-17, the Authority noted that the Petitioner projected the same by applying an increase of around 7.5% and 10% on the provisional expenditure incurred during the FY 2014-15. However, the reported expenditure of post-retirement benefits, for the FY 2014-15, could not be verified from the provisional accounts submitted by the Petitioner for the FY 2014-15.

31.10.6 Since the Petitioner has failed to comply with the Authority's direction and in the absence of any reliable figures for the expenditure incurred during the FY 2014-15 to be considered as basis for making assessments for the FY 2015-16 and FY 2016-17, the Authority is constrained to rely on the actual payments made by the Petitioner in the FY 2013-14 as per the Audited accounts. The actual payments appearing in the petitioner's financial statements for the FY 2013-14 is Rs.863 million, which, also includes the benefits paid to the employees of CPPA-G, now a separate entity. However, to make a fair assessment of post-retirement the benefits to be paid in FY 2015-16 and FY 2016-17, the cost of CPPA-G employees needs to be excluded from the base figures, but the Petitioner did not provide any break-up of the actual expenditure in terms of its own employees and the amount related with CPPA-G.

31.10.7 Here it is pertinent to mention that CPPA-G in its petition for the Market Operations Fee for the period June 2015, FY 2015-16 and FY 2016-17 has stated that presently all the positions and working staff of CPPA, WPPO and Treasury departments of NTDC have been shifted to CPPA-G on secondment basis by NTDCL under the BTA for a period of two year. During this period the petitioner will get its organizational structure and staff strength approved from the Authority and establish independent fund(s) for the post-retirement benefits in terms of policy to be approved by the Board of Directors of the petitioner. CPPA-G further stated that the seconded staff may opt for transition to CPPA-G and for such staff the terms and conditions of employment, as were applicable to them in NTDC, will have to be protected and continued in CPPA-G. As such CPPA-G is presently not claiming any amount under the head of post-retirement benefits as the same is being dealt with by NTDC in the actuarial study.

31.10.8 Since CPPA-G has not claimed the amount of post-retirement benefits in respect of its employees, as the same are still being dealt with by NTDCL, therefore, the Authority has decided to include the same in assessment of post-retirement benefits of the Petitioner for the FY 2015-16 and FY 2016-17. However, since the actual expenditure for the FY 2014-15 has not been made available to the Authority, therefore, the Authority has decided to allow the increases announced by GoP in this regard for the FY 2015-16 and FY 2016-17, on the actual expenditure incurred by the Petitioner during the FY 2013-14. Accordingly the Authority has assessed an amount of Rs.928 million for the FY 2015-16 and Rs.1,021 million for the FY 2016-17 under the head of post-retirement benefits.

31.10.9 The Authority directs the Petitioner to complete the process of creation of separate post retirement funds and to transfer the amount of provision already allowed by the Authority in the post-retirement benefits fund. Further for any amount transferred in the fund over and above the allowed provision, the Petitioner may claim the same from the Authority, in its next tariff petition, by submitting evidence of the amount so transferred.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

31.11 **Induction Plan against vacant posts**

31.11.1 The Petitioner has requested for induction of new staff i.e. 2,336 employees on the grounds that being a transmission company its transformation capability has been enhanced through energizing new grid stations and transmission lines in the last couple of years to ensure reliable voltage profile and to overcome forced load shedding and this network expansion needs competent and skilled professionals in technical, finance and administration fields. The Petitioner also submitted that its work force is retiring each year and therefore it is necessary for the company to hire their replacement in order to handle the growing work load and for efficient and effective operations of the business.

31.11.2 The Petitioner stated that in order to meet with the technical and operational targets, its management intends to recruit 2,336 number personnel in different cadres from BPS-1 to BPS 18 during the FY 2015-16 and FY 2016-17, for which recruitment process has been started with approval of the Board of Directors.

31.11.3 Following summary of the sanctioned strength and present working strength has been provided by the Petitioner;

Sr. #	Description	Sanction Strength	Working Strength				Deficiency	%age
			Regular	Contract	Daily Wages	Total		
Officers BPS-17 &ABOVE								
A	Technical	1,037	791	121	-	892	145	16.26%
B	Non Technical	229	163	27	-	190	39	20.53%
Officials BPS 1 To 16								
A	Technical	5,159	3,138	185	42	3,365	1,794	53.31%
B	Non Technical	3,773	2,505	453	8	2,966	807	27.21%
C	Supportive	1,320	840	45	12	897	423	47.16%
	Total	**11,518**	**7,437**	**831**	**62**	**8,310**	**3,208**	**38.60%**

31.11.4 The Petitioner also provided the financial impact of the requested positions as tabulated below;

Mln. Rs.

Sr. #	BPS	FY 2015-16 No's	Financial Impact FY 2015-16	FY 2016-17 No's	Financial Impact FY 2016-17
1	18	18	4,838,400	1	806,400
2	17	88	14,784,000	93	36,568,000
3	16	-	-	25	7,317,333
4	15	55	5,174,400	33	5,226,667
5	14	287	24,108,000	178	36,698,667
6	10	22	1,419,264	-	-
7	9	40	2,499,840	26	2,159,584
8	8	-	-	59	8,386,560
9	7	177	10,407,600	124	17,215,333
10	6	97	5,475,456	472	64,494,976
11	5	-	-	469	65,179,296
12	3			7	102,193
13	1			65	876,525
Total		**784**	**68,706,960**	**1,552**	**245,031,534**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

31.11.5 The Authority has evaluated Petitioner's request with respect to induction of new staff. Although, the Petitioner has not provided any quantified benefits for the planned hiring, however, the Authority is cognizant of the GoP initiatives to eliminate load shedding form the Country, whereby, number of generation projects have been started, which require energizing new grid stations and construction of allied transmission lines to ensure evacuation of power from these generators. This network expansion in turn require competent and skilled professionals to handle the growing work load and for efficient and effective operations of the business. Further, as per the Petitioner its work force is retiring each year which also necessitates need for the replacement hiring.

31.11.6 The Authority, however, is of the view that the request for new staff should not be based merely on sanctioned strength and vacant posts, rather the same shall be substantiated with a comprehensive recruitment plan having a cost benefit analysis justifying the need of the additional recruitments, and also including a comparison of existing state of affairs. Further, during the proceedings of Market Operation fee petition of CPPA-G for the period June 2015, FY 2015-16 and FY 2016-17, the Authority noted that around 149 employees of the Petitioner, hired for performing the functions of CPPA of NTDCL, have not opted to join CPPA-G after the same has been made a separate entity. The Authority carried out a comparison of the posts requested by the Petitioner with the nature of the employees who did not opt to join CPPA-G. The Authority observed that the employees who have not to join CPPA-G could be adjusted against the posts requested by the Petitioner being similar in nature, hence, the Petitioner is directed to first ensure proper utilization of these non-optees, which may otherwise become redundant, as CPPA-G has initiated the recruitment process against the staff that has not opted to join CPPA-G.

31.11.7 In view of the foregoing discussion, the Authority has decided to allow new hiring to the tune of 2,087 employees (Requested 2,236 *less* non-optees from CPPA-G 149=2,087) along-with their cost of Rs.68.707 million and Rs.245.031 million for the FY 2015-16 and FY 2016-17 respectively with a condition that the Petitioner would justify its needs based on cost benefit analysis along with its growth in the system. Further, the Petitioner is directed to provide complete details in respect of new hiring made during the FY 2015-16 and FY 2016-17 along-with their financial impact in its next tariff petition. Considering the fact that amount being allowed against new hiring for the FY 2015-16 & FY 2016-17 is based on estimates, and in case the actual cost turns out to be lower from the allowed level, the same would be trued up as per actual in the next tariff determination.

31.12 **Administrative Expenses**

31.12.1 The Petitioner under the head of administrative cost, projected the following expenses for FY 2015-16 and FY 2016-17;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

Mln. Rs.

Description	2013-14	2014-15	2015-16	2016-17
	Actual	Pro.	- - - Estimated - - -	
Rent Rate & Taxes	77	85	93	103
Power Light etc.	60	87	96	105
Communication	35	19	21	23
Office Supplies & Other Expenses	21	22	24	27
Travelling Expenses	153	171	196	248
Professional Fee	60	16	32	210
Vehicle Maintenance & Running	252	239	282	299
Other G&EA	24	19	23	25
Total	**682**	**658**	**767**	**1,040**

31.12.2 The Petitioner has used the following assumptions for projection of its aforementioned administrative expenses;

- ✓ Rent, Rates and Taxes have been increased by 10% on annual basis as per the contractual increase since most of lower formations offices are hired on rental basis.

- ✓ Power Light, Gas and Water have been increased to the tune of 9.4% in line with five years average CPI.

- ✓ Communication charges (Telephone, Postage and Telegram & Cell Phone Charge have been assumed as per the entitlement of the officers and contract with Ufone for mobile postpaid SIM.

- ✓ Office supplies & other expenses have been increased in line with CPI.

- ✓ Regarding increase in TA/DA allowance the Petitioner submitted that it has the largest and ever expanding Transmission Network of 14,865.23km in power sector, therefore, extensive patrolling & maintenance/security staff is required to avoid threats of sabotage activities and for regular/scheduled maintenance purposes. The Petitioner further submitted that keeping in view, the current law and order situation in the country, security personnel are frequently transferred from one grid station to other and paid T.A/D.A as per policy.

- ✓ Increase in the professional fee has been estimated as a result of revised rates of professional contracts/ legal counsel fee. The Petitioner further stated that it has planned to hire the services of Organizational Development (OD)/HR Consultancy firm, the firm would be mandated for restructuring of NTDCL and to prepare policies & regulations for NTDCL with estimated additional expenditure of Rs. 178 Mln has been assumed for FY 2016-17.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

- ✓ Regarding Vehicle maintenance and running expenses, the Petitioner submitted that its transmission network spreads across the country, approximately 14,865.23km 500kV/220kV transmission lines, these lines spreads in remote areas of Baluchistan and KPK, so extensive patrolling is inevitable by technical staff for the maintenance of the transmission system as well as by the security staff to avoid sabotage activities. The Petitioner also stated that the estimates of vehicle maintenance costs have been incorporated in the wake of expansion in the transmission network and maintenance of rather older vehicles fleet in the proposed tariff petition.

- ✓ On the "Other G&EA expenses" the Petitioner delineated that it includes outside services employed, store handling charges, advertising and publicity , representations and entertainment, NEPRA's annual license fee and other miscellaneous expenses.

31.12.3 While analyzing the requested amount under the administration expenses for FY 2015-16 and FY 2016-17, the Authority observed that the Petitioner has not provided any proper justification and detailed calculations, rather has only stated the assumptions. Therefore to a fair assessment of the requested costs, the Authority itself conducted detailed analysis of the various head of accounts as given below;

31.13 **Vehicle maintenance and running expenses;**

31.13.1 As per the Petitioner's provisional accounts for the FY 2014-15, the expenditure appearing under the head Vehicle Repair & Maintenance is around Rs.242 million, out of which Rs.14 million pertains to the CPPA-G, thus the Petitioner's expenditure is around Rs.228 million. The expenditure includes Rs.65 million for the repairs and Rs.163 million against for fuel cost. The Petitioner against the said expenditure has requested Rs.282 million for the FY 2015-16 and Rs.299 million for the FY 2016-17.

31.13.2 Regarding Vehicle Repair cost, the Authority observed that it has allowed repair & maintenance cost @ 0.5%, (discussed below separately), based on the gross value of all the fixed assets including vehicles (except land), appearing in the provisional financial statements of the Petitioner for the FY 2014-15, thus allowing separate repair & maintenance for vehicles does not merit consideration.

31.13.3 Regarding vehicle fuel cost, the Authority carried out its own analysis and observed that the amount requested by the Petitioner is on the higher side considering the fact that fuel prices during the period of Petition remained very low. Therefore, in order to have a fair assessment of the fuel cost, the Authority has relied on the actual expense incurred by the Petitioner during the FY 2014-15 which was around Rs.163 million. By allowing CPI indexation thereon, the fuel cost for the FY 2015-16 and FY 2016-17 works out as Rs.168.29 million and Rs.173.60 million respectively, which is hereby allowed to the Petitioner.

31.13.4 Similarly for the travelling cost, the Authority has analyzed the Petitioner requested cost of Rs.196 million and Rs.248 million for the FY 2015-16 and FY 2016-17 in light of the actual expenditure of Rs.172 million, including Rs.10 million for CPPA-G, reported by the Petitioner in its provisional statements for the FY 2014-15 and the cost allowed for

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

the FY 2014-15. The Authority observed the cost requested by the Petitioner is on the higher side, therefore in order to rationalize the same, it has decided to allow Rs.164.02 million and Rs.169.25 million for the FY 2015-16 and FY 2016-17 respectively.

31.13.5 Regarding Rent rate & taxes, Power light and Communication, the Petitioner has requested an increase of around 10% for the FY 2015-16 and FY 2016-17 over the expenditure for the FY 2014-15 in the Petition and during the presentation. However, the Authority has observed a significant variation for the expenditure for the FY 2014-15 mentioned in the Petition/ presentation and reported in the provisional accounts for the FY 2014-15. In view thereof, the Authority has decided to rely on the numbers as reported in the provisional accounts being the latest and more reliable figures. The increase requested by the Petitioner over the expenditure as per the provisional accounts for the FY 2014-15 under various heads is as under;

Rs. in Millions

Description	2014-15	2015-16	2016-17	2015-16	2016-17
	Actual	Requested		Inc./ (Dec)	
Rent Rate & Taxes	56	93	103	67%	10%
Power Light etc.	87	96	105	9%	9%
Communication	16	21	23	29%	9%
Sub-Total	**159**	**210**	**230**	**32%**	**10%**
Office Supplies & Other Expenses	40	24	27	-39%	9%
Management	11	6	6	-45%	5%
Other G&EA	18	17	18	-6%	6%
Sub-Total	**70**	**48**	**51**	**-32%**	**8%**
Professional Fee	12	32	210	158%	554%
Total	**241**	**289**	**491**	**20%**	**70%**

31.13.6 By allowing an increase of 10%, both for the FY 2015-16 and FY 2016-17, on the reported expenditure of Rent, rate and taxes of Rs.56 million for the FY 2014-15, the Authority has assessed an amount of Rs.61 million and Rs.68 million for the FY 2015-16 and FY 2016-17 respectively under the Rent Rate and Taxes.

31.13.7 For the Power & Light and Communication heads, the Authority has decided to allow the actual CPI increases of 3.16% and 3.19% for the FY 2015-16 and FY 2016-17 respectively over the reported expenditure of FY 2014-15. Accordingly the assessed amount under the head of Power & Light works out to be Rs.90 million and Rs.93 million for the FY 2015-16 and FY 2016-17 respectively. Similarly for the Communication, the amounts have been assessed as Rs.16.54 million and Rs.17 million for the FY 2015-16 and FY 2016-17 respectively.

31.13.8 The Petitioner for the Professional fee has requested massive increases of 158% and 554% for FY 2015-16 and FY 2016-17 respectively. The Petitioner while justifying these abnormal increases has submitted that it has been estimated as a result of revised rates of professional contracts/ legal counsel fee and in view of the Petitioner's plans to hire the services of Organizational Development (OD)/HR Consultancy firm, which would be

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY NEPRA AUTHORITY mandated for restructuring of NTDCL and to prepare policies & regulations with an estimated additional expenditure of Rs.178 Million during the FY 2016-17.

31.13.9 The Authority noted that since no details with respect to the proposed restructuring plan and the associated costs/ benefits thereof have been provided by the Petitioner either in the Petition or afterwards, therefore the prudency of the claimed costs cannot be established. The Authority therefore decided to allow actual CPI increases of 3.16% and 3.19% for the FY 2015-16 and FY 2016-17 respectively on the reported expenditure of FY 2014-15. Accordingly the amount under the head of Professional fees has been assessed as Rs.12.87 million and Rs.13.28 million for the FY 2015-16 and FY 2016-17 respectively.

31.13.10 For the other heads i.e. Office supplies, Management fees and Miscellaneous G&E expenses, the Authority considers the requested amounts as reasonable and hence allowed.

31.13.11 In view of the discussion in the preceding paragraphs, a summary of the costs allowed under the head of administrative expenses for the FY 2015-16 and FY 206-17, excluding impact of EX-WAPDA Pensioners discussed separately in the preceding paragraphs, is as under;

Description	Requested in the Petition		Allowed	
	FY 2015-16	FY 2016-17	FY 2015-16	FY 2016-17
Pay & Allowances & Other Benefits	3,903.05	4,371.31	3,470.86	3,737.74
Pay & Allowances - Vacant posts	68.71	245.03	68.71	245.03
Employer's Share in Fund Contributions	1,194.85	1,314.33	927.76	1,020.54
General Establishment Costs (A)	**5,166.61**	**5,930.67**	**4,467.32**	**5,003.30**
Rent Rate & Taxes	93.42	102.76	61.37	67.51
Power Light etc.	95.58	104.56	90.14	93.02
Communication	20.61	22.55	16.54	17.07
Office Supplies & Other Expenses	24.31	26.60	24.31	26.60
Travelling Expenses	195.94	247.77	164.02	169.25
Vehicle Maintenance Expense	282.20	298.90	-	-
Vehicle Fuel Cost			168.29	173.60
Professional Fee	32.14	210.14	12.87	13.28
Management Fees	6.10	6.41	6.10	6.41
General Misc. Expenses	17.21	18.20	17.21	18.20
Administrative Costs (B)	**767.51**	**1,037.89**	**560.86**	**584.93**
Total (A+B)	**5,934.12**	**6,968.56**	**5,028.18**	**5,588.24**

Note: Vehicle Maintenance cost has been considered under the Repair & Minatenance cost discussed in the ensuing paragraphs.

31.14 Repair & Maintenance Expenses

31.14.1 The Petitioner under the head of R&M Expenses has requested an amount of Rs.822 million and Rs.1,008 million for the FY 2015-16 and FY 2016-17 respectively. The Petitioner while justifying its request has submitted that its transmission network is the backbone of electric power supply system of the country which comprises a blend of older and new grid stations & transmission equipment. The Petitioner further delineated

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

that continuous growth in the demand load has necessitated to ensure and attain optimal level of transmission network reliability and sustainability which can only be achieved through regular repairs and maintenance, therefore, a realistic activity wise/ grid station wise maintenance plan has been prepared. The Petitioner also mentioned that repair and maintenances costs are based on benchmark set by NEPRA in tariff determination for FY 2014-15 i.e. 0.50 % of two years' gross value of assets. Accordingly, the Petitioner has requested to allow the following expenses in the head of R&M;

Description	2013-14	2014-15	2015-16	2016-17
	Act.	Pro.	Estimated	
Average Gross Assets (Mln. Rs.)	131,076	147,305	164,371	201,614
Repair & Maintenance (Mln. Rs.)	608	603	822	1,008
% age	**0.46%**	**0.41%**	**0.50%**	**0.50%**

31.14.2 Here it is pertinent to mention that the Petitioner's actual expenditure for the FY 2014-15, as per its provisional accounts, is Rs.620 million, against the allowed costs of Rs.730 million. The Authority appreciates the efforts of the Petitioner to manage its R&M cost within the Authority's allowed costs.

31.14.3 Similarly for the FY 2015-16 and FY 2016-17, the Authority has decided to continue its existing mechanism of allowing R&M @0.50% of the gross value of fixed assets, based on the Authority's assessed gross value of Fixed Assets for the FY 2015-16 and FY 2016-17.

31.14.4 Accordingly, an amount of Rs.831 million and Rs.947 million is hereby allowed to the Petitioner under the head of R&M for the FY 2015-16 and FY 2016-17 respectively.

31.15 **Insurance**

31.15.1 The Petitioner on the issue of Insurance cost has stated that its assets are protected /covered under WAPDA Equipment Protection Scheme (WEPS) whereby the insurance cost is calculated @ 0.30% of book value of Grid Stations and is subject to change every year as a result of addition of assets.

31.15.2 The Petitioner has requested the following expenses in the head of insurance;

Description	2013-14	2014-15	2015-16	2016-17
	Act.	Pro.	Estimated	
Book Value of Grid Stations (Mln. Rs.)	39,828	41,716	50,770	53,128
Insurance (Mln. Rs.)	114.74	132.15	152.31	159.38
% age	**0.30%**	**0.30%**	**0.30%**	**0.30%**

31.15.3 Here it is pertinent to mention that book value of Grid Stations as per the provisional accounts of the Petitioner for the FY 2014-15 appears as Rs.40,483 million instead of Rs.41,716 million claimed by the Petitioner in the Petition. Since the Petitioner has not been able to make available the financial statements for the FY 2015-16 to the Authority, therefore, the Authority is constrained to rely on the numbers appearing in the

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

provisional accounts for the FY 2014-15. Accordingly based on the book value of grid stations of Rs.40,483 million as per the provisional accounts for the FY 2014-15, and applying the premium rate @ 0.30% thereon, the Authority has assessed an amount of Rs.121 million each for the FY 2015-16 and FY 2016-17.

31.16 **PYA**

31.16.1 The Petitioner regarding Prior Year Adjustment (PYA) submitted that it remained unable to charge its regulated revenue on account of delayed determination for the FY 2014-15 issued on January 22, 2016, against tariff petition for FY 2014-15 filed on 17th September 2014, therefore Authority is requested to allow uncovered cost for FY 2014-15.

(Rs. Mln)

------------------ FY 2014-15 ------------------						
		NEPRA		Actual/Prov	Regulated Revenue	Revenue Gap
Annual Revenue Requirment		NEPRA Notified for FY 2012-13 Rs. 102.43 kW/Month	NEPRA Notified for FY 2014-15* Rs. 126.75 kW/Month	Actual Billing on Rs. 102.43 kW/Month	To be True up	Uncovered Cost
		1	2	3	4	5 = (4 - 3)
1	GE&A	4,825	5,859	5,169.2	5,169.2	-
2	Repair & Maintenance	595	730	602.8	602.8	-
3	Insurance	112	119	132.2	132.2	-
4	Depreciation	4,083	4,327	4,871.8	4,871.8	-
5	Financial Charges	3,729	1,359	1,832.2	1,832.2	-
6	Return on Capital Base	9,329	12,922	11,399.6	15,659.1	4,259.49
7	Other Income	(1,536)	(1,320)	(1,698.3)	(1,698.3)	-
8	Uncovered Cost for FY 2012-13	-	3,610	-	-	-
	Total:	**21,137**	**27,606**	**22,309**	**26,569**	**4,259**
	Avgerage Monthly MDI	**17,196**	**18,150**	**18,150**	**18,150**	-

Note:-

*** Tariff for FY 2014-15 applied in FY 2015-16 as notified by GoP on 18 December,2015 due to delayed determination by NEPRA**

31.16.2 The Petitioner also submitted that following the true up mechanism of the Authority, while filing tariff petition for FY 2014-15, it claimed Prior Year Adjustment (PYA) FY 2012-13 and FY 2013-14. The Authority admitted the stance of the petitioner and allowed PYA for FY 2012-13 to meet the regulatory gap through true up mechanism. For PYA of FY 2013-14 the Authority did not consider the claim, although consisting of legitimate costs, incurred prudently, to run the business of the Company during that year. The Authority is therefore requested to reconsider it and allow the same.

31.16.3 The Petitioner has requested an amount of Rs.4,259 million as Unrecovered cost being the difference between the actual billing made during the FY 2015-16 @ Rs.102.43/kW/Month and the regulated revenues. However, the Petitioner has not

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

substantiated its claimed regulated revenue of Rs.26,569 million with any calculations or workings.

31.16.4 In continuation to what has been adjudicated in the tariff determination of NTDCL dated April 23, 2015 at para 25.10, the Authority on the request of the Petitioner to allow PYA for the FY 2013-14, understands that the notified tariff during FY 2013-14 was sufficient to cover its revenue requirement of the FY 2013-14.

31.16.5 The Authority has carefully considered the Petitioner's working of PYA. The Authority observed that the Petitioner did not correctly calculate its PYA and has also not accounted for the impact of actual losses vis a vis the Authority's allowed target. In view of aforementioned, the Authority after doing its own due diligence has worked out the following PYA;

Description	Mln. Rs.	Rs./kW/M	MDI	Mln. Rs.
FY 2014-15				
Determined		126.75	18,150	**27,606**
Recovery		102.43	18,150	**22,309**
				5,297
Other Income				
Determined	- 1,320			
Actual	- 2,353			**- 1,033**
PYA				**4,264**
Impact of Losses				**8**
Total PYA for FY 2014-15				**4,271**
FY 2015-16				
Determined		126.66	19,243	**29,247**
Determined for CPPA				**118**
Total Assessed				**29,364**
Recovery				
July 15-Dec 15		102.43	19,330	**11,880**
Jan 16- Jun 16		126.75	19,051	**14,488**
Total				**26,368**
Other Income				
Determined	- 2,353			
Actual	- 2,353			**-**
PYA				**2,996**
Impact of Losses				**327**
Total PYA for FY 2015-16				**3,323**

31.16.6 In view thereof the Authority has decided to include the aforementioned amount of Rs.3,323 million, including amount for Ex-WAPDA Pensioners for the FY 2015-16, discussed in the ensuing paragraphs, in the tariff of the Petitioner for the FY 2016-17 as PYA. Here it is pertinent to mention that an amount of Rs.117.79 million on account of Market Operation Fee of CPPA-G for the FY 2015-16 has also been made part of NTDCL's PYA for the FY 2015-16. The Petitioner is required to pay the said amount of

Rs.117.79 million to CPPA-G as CPPA-G during the FY 2015-16 was meeting its revenue requirement by obtaining cash from NTDCL.

32 **<u>What are the Petitioner's concern regarding decision of the Authority in the matter of Ex-WAPDA pensioner as decided by the Authority in the tariff determination of XWDISCOs for the FY 2014-15?</u>**

32.1 The Authority on the issue of payment of pension to XWAPDA retired employees, after having detailed deliberations with all the stakeholders and reviewing the available record i.e. Supplementary Business Agreement (SBTA), Pension SOPs 2002 and Operation & Development Agreement (ODA) etc., the Authority identified the following key facts;

- That as per the 'Restructuring Reforms and Privatization of WAPDA Executive Order' 24th October, 1998, WAPDA would only be in charge of water wing and the shares in the companies being set up to control WAPDA 's power assets would be in the name of the President of Pakistan. Thus, WAPDA won't be having any interest in the XWDISCOs in the form of investment, once they are privatized.

- That upon unbundling of WAPDA, all the assets were transferred to DISCOS along-with all related liabilities with the exception of postretirement benefit liability. The Accounting standard relevant to this liability, i.e., IAS-19, was not being implemented by WAPDA at the time of unbundling and its financial statements did not reflect any related obligation. Nevertheless, at the time of unbundling, an actuarial valuation was conducted to determine this post retirement liability of employees. The obligation related to existing WAPDA employees was transferred to XWDISCOs, however, the obligation related to retired employees was missed out and not shown in the financial statements of any XWDISCOs or WAPDA (Hydel).

- Based on the principles of natural justice and the fact that had WAPDA adopted IAS-19 at the time of unbundling, the liability of the retired employees would have been transferred to the XWDISCOs as the referred retired employees have served in the formations that are currently part of XWDISCOs. Further, in future WAPDA won't be having any interest in the form of investments, from where it would be generating any additional revenues. In view thereof, it can be fairly concluded that this cost needs to be borne by XWDISCOs. Here it is pertinent to mention that XWDISCOs did not book the said cost in their financial statements.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

32.2 In view thereof, the Authority decided in the tariff determination of XWDISCOs for the FY 2014-15 as under;

"........all cost of the XWAPDA retired employees up to 30th June, 2014, would be borne by WAPDA. However, any cost after 30th June, 2014 would be borne by XWDISCOs....."

32.3 The XWDISCOs were directed to file their next tariff petitions accordingly.

32.4 The GENCOs and NTDCL in their tariff petitions did not raise this issue, therefore, Authority did not make any such observation in the determination of tariff of GENCO and NTDC. However, WAPDA vide its letter dated August 07, 2015, pointed out that the matter pertains to all DISCOs, GENCOs and NTDC as a result of unbundling of WAPDA.

32.5 Accordingly, the Authority vide its letter dated October 08, 2015, in the light of request made by WAPDA vide letter dated 15-09-2015, clarified the matter as under;

"All cost of the XWAPDA retired employees up-to 30th June 2014, would be paid by WAPDA. However, any further payment in this regard after 30-06-2014 would be paid by XWAPDA DISCOs, GENCOs and NTDC. WAPDA and EX-WAPDA DISCOs, GENCOs and NTDC are directed to submit their next tariff petitions accordingly."

32.6 NTDCL against the said decision of the Authority submitted, inter alia, vide letter dated March 03, 2016, that;

- *The records of the Ex-WAPDA employees are in the possession of WAPDA Pension Directorate and any issue in respect of such entitlement has to be based upon such records for proper legal determination and enforcement and effective management.*
- *That since, this is a very sensitive issue attached with the service rights of the retired employees, so convenient arrangement may have to be followed which does not cause any Unnecessary delays in finalization of post-retirement benefits which may emerge on account of change in policies and addition to the benefits to such employees. To streamline such process, the most appropriate authority would be the Central WAPDA Pension Directorate where already such benefits may be examined and decided in view of the availability of records and lien of the ex-employees with WAPDA.*
- *That rather than transferring this obligation to the companies, the post-retirement benefits of the retired employees of WAPDA should be kept with the WAPDA Pension Directorate so as to keep it efficient and functional without any discomfort of referring such employees to independent domains which may not be properly equipped with' the issues and records for efficient and effective enforcements. Even otherwise, the service structure is different in respect of WAPDA employees and the Distribution, GENCOs etc. employees, the enforcement of any decision or the remedies from the court of law are altogether different. The company formation may not be equipped to deal with the issues of ex-WAPDA employees who will exclusively be regulated by WAPDA service rules and laws.*
- *That post-retirement benefits of Ex-WAPDA employees should remain with the WAPDA Pension Directorate as per the present arrangement to avoid any inconvenience and discomfort for the retired employees of WAPDA.*

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

- *That in respect of the financial impact of such determination WAPDA can very comfortably include such costs in its own tariff determination which will be far more convenient for WAPDA rather than others.*
- *That even otherwise since the retired WAPDA employees have no legal relationship with NTDC, as such it will not be appropriate to add an obligation of the payment of their post-retirement benefits with NTDC. There is no relationship of employer-employees between NTDC and ex-WAPDA employees. No option in respect of drawing post-retirement benefits from NTDC has been obtained from them, so on account of absence of relationship, lot of legal as well as administrative complications may arise which must be avoided.*"

32.7 WAPDA, vide its letter dated July 14, 2016 opposed the aforementioned submissions of the NTDCL by stating that;

a. WAPDA initially raised this matter with EXWAPDA entities through PEPCO. Reaching at no conclusion, WAPDA took up the matter with Ministry of Water & Power, who after hearing the matter, directed Member (Finance) WAPDA and ED (Legal) PEPCO to take-up the matter with NEPRA as it relates to determination of power sale tariff of WAPDA and companies. Accordingly WAPDA filed a reference to NEPRA through letter dated 22.01.2014. The NEPRA after holding series of consultative meetings with WAPDA and EXWAPDA companies, communicated its decision to WAPDA vide letter dated 08.10.2015. In pursuance of said decision of NEPRA, the Ministry of Water & Power issued an executive order vide letter dated 08.12.2015 (Annex-I) advising the EXWAPDA entities including NTDC to collect/ receive pension files of related retired employees from WAPDA Pension Directorate and file tariff petition to NEPRA by incorporating the related financial impact on the company. In compliance of said executive order of Ministry of Water & Power, all EXWAPDA Discos and Gencos have collected/ received related pension files from WAPDA Pension Directorate. On the request of WAPDA for deciding mechanism of settlement of arrears, another meeting at Ministry of Water & Power was also held on 30.05.2016 in which representative of NTDC told that NTDC has filed a review application to NEPRA. In the said meeting, Ministry of W&P deciding the matter has directed EXWAPDA Discos, Gencos and NTDC to receive/ collect remaining pension files and send claim for settlement of arrears to WAPDA Pension Directorate after carrying out Actuarial valuation of the related retired employees as at 30.06.2014. The Ministry of Water & Power sent minutes of the said meeting to WAPDA vide letter dated 09.06.2016 which WAPDA circulated to all companies including NTDC vide letter dated 14.06.2016. We feel the NTDC has been given ample chance to be heard appropriately before deciding the matter by the competent forum, therefore NTDC should not agitate its viewpoint at this belated stage.

NEPRA AUTHORITY

b. As explained above, Ministry of W&P has already directed NTDC twice to collect/ receive pension files of related retired employees, but NTDC is still reluctant to receive the same while, all Discos and GENCOS have already received the pension files of retired employees from WAPDA Pension Directorate.

c. In line with well-defined manpower transition program, by protecting their service rights, NTDC has already absorbed thousands of WAPDA employees working in the formations/ projects which were en-block transferred to NTDC from WAPDA under BTA/SBTA. Further a sizable number of NTDC employees have been retired after unbundling of WAPDA and a well-equipped Pension Cell of NTDC is dealing the pension cases of its retired employees therefore, we feel there is no capacity issue of dealing pension cases in NTDC.

d. WAPDA is operating hydroelectric stations under the generation licenses granted by NEPRA which allows recovery of cost of the employees working for hydroelectric function. Hence pension cost of employees retired from the formations transferred to NTDC under BTA/SBTA cannot legally be included in the WAPDA hydroelectric power sale tariff.

e. WAPDA makes appointments of personnel's only according to the manpower requirement of the formations/ projects. The pension of said retired employees relate to NTDC has been sanctioned by the head of related formation/projects working presently under NTDC, therefore employer-employee relationship between NTDC and retired employees in question very much exists. Moreover, the transfer of assets and business from WAPDA to newly created entities including NTDC, in fact was not a commercial sale/purchase deal, rather it was a split of various activities being carried out by WAPDA under the umbrella of Power Wing on unified basis.

32.8 Accordingly, WAPDA requested that the request of NTDCL does not merit further consideration and needs to be rejected.

32.9 In view of the foregoing submissions of NTDCL and WAPDA, the Authority decided to make this an issue to be discussed during hearing of the instant tariff petitions of NTDCL i.e. for the FY 2015-16 and FY 2016-17. However neither the Petitioner nor WAPDA made any submissions on the issue either during the hearing or afterwards. Here it is important to mention that NTDCL in its instant tariff petition, has not requested for any such cost separately.

32.10 In view of the foregoing discussion, the Authority has decided to maintain its earlier decision in the matter which states that;

"All cost of the XWAPDA retired employees up-to 30th June 2014, would be paid by WAPDA. However, any further payment in this regard after 30-06-2014 would be paid

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

by XWAPDA DISCOs, GENCOs and NTDC. WAPDA and EX-WAPDA DISCOs, GENCOs and NTDC are directed to submit their next tariff petitions accordingly."

32.11 Further to ensure that the Petitioner has the required funds to meet its obligations towards the EXWAPDA Pensioners, the Authority has decided to allow a notional amount of Rs.258 million and Rs.284 million for the FY 2015-16 and FY 2016-17 respectively on account of cost of Ex-WAPDA Pensioners. The basis being the amount of Rs.240 million, allowed to GEPCO as PYA on account of EX-WAPDA Pensioners for the FY 2014-15 in its tariff determination pertaining to the FY 2015-16, owing to the fact that GEPCO had almost the same number of ex-WAPDA pensioners i.e.2,571 vis a vis NTDC's 2,574 as per the Actuarial Valuation report of May 14, 2013. By applying thereon the increases announced by GoP in this regard for the FY 2015-16 and FY 2016-17, the Authority has assessed the amounts of Rs.258 million and Rs.284 million for the FY 2015-16 and FY 2016-17 respectively in the matter of Petitioner, to be trued up as per actual once the Petitioner provides its Audited Financial Statements for the FY 2015-16 and FY 2016-17.

33 Whether the allowed level of loss target i.e. 3% needs to be reviewed?

33.1 The Authority capped the level of T&T Losses of NTDC at 3% in the determination pertaining to the FY 2014-15. NTDC requested the Authority to review the benchmarks of T&T in the light of the technical study carried out by the M/s Power Planner International (PPI) for FY 2011-12 & FY 2012-13 submitted to the Authority vide letter dated April 05, 2016. Although, NTDC in its petition did not raise the issue of losses, however, the Authority, in order to have a fair assessment of the losses level, made an issue in this regard for the hearing.

33.2 During hearing, NTDC presented that Power system of Pakistan is Longitudinal and power flows from South to North in winter. Moreover, the Power generation is being added in the south so for the time being the target may be fixed up to 3%.

33.3 NTDC further, based on study carried out by M/s PPI, claimed that due to the benchmark losses set by NEPRA, certain amounts are withheld by NEPRA as indicated in the following table:

Sr. No.	Financial Year	500 kV and 220 kV Losses as per PPI Study	Losses Allowed by NEPRA	Amount with-held by NEPRA
1	2011-12	3.49%	3%	Rs. 2.3 Billion
2	2012-13	3.82%	3%	Rs. 4.7 Billion

33.4 PPI in its study also recommended certain measures to be undertaken by NTDC for the reduction of T&T losses and improvement of metering system. Some of the remedial measures recommended by PPI regarding loss mitigation are reproduced below:

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

- Proper reactive power compensation in distribution networks to avoid using NTDC Network for Reactive Power import to allow 500 kV and 220 kV Lines to be operated at a lower voltage than required for reactive power flows.

- Construction of new lines of 500 kV and 220 kV using low-resistance and high capacity conductors.

33.5 APTMA, a commentator, submitted during the hearing that T&T loss trend of NTDC is consistently declining from 3% in 2010-11 to 2.6% in 2015-16. Further DISCOs' 132/66 kV actual T&T Losses trend is also declining. He also stated that although NTDC's transmission network comprises of high voltage transmission lines such as 500/220 kV and its transmission loss should have been less than the DISCOs transmission loss but it is the other way round and is 0.5% higher than the DISCOs transmission loss.

33.6 The following table shows a comparison between 500/220 kV and 132/66 kV T&T losses as presented by APTMA:

Year	NTDCL Actual T&T Losses at 500/220 kV	DISCOs Actual T&T Losses at 132/66 kV
2010-11	3.00%	2.90%
2011-12	2.80%	2.90%
2012-13	3.01%	2.40%
2013-14	2.43%	2.50%
2014-15	2.70%	2.40%
2015-16	2.60%	2.30%

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

33.7 The Authority, while considering the submissions made by the Petitioner during the hearing of the instant petition and the study carried out by M/s PPI, observed that the most dependable mode of calculating transmission and transformation losses is through installation of high accuracy class metering system in the network i.e. at Common Delivery Points (CDPs). Since NTDC has already installed the metering system of high accuracy class in its entire system, therefore, the actual recorded losses needs to be considered as the basis for setting up the annual target of T&T losses. The Authority also understands that other methods such as simulation studies may only be useful if actual metering data is not available. Considering the actual data of the Petitioner's losses (also presented by APTMA during hearing), the studies carried out by M/s PPI cannot be relied upon to make assessment of the Petitioner's target level of T&T losses. M/s PPI should have taken into account the actual results from the field to verify the veracity of its studies. The Petitioner is also required to evaluate and review the authenticity of such studies before its submission to the Authority.

33.8 In view of the foregoing discussion, actual results of the Petitioner's T&T losses and addition of the new transmission components, the Authority is of the firm view that the capped level of 3% T&T losses, needs to be revised in order to ensure that the consumers are passed on only the prudently incurred costs. Consequently the annual T&T losses of the Petitioner for the FY 2015-16 and FY 2016-17 are being allowed as per actual with a cap at 2.8%.

34 <u>Whether the allowed losses needs to be calculated as % of the total energy generated for the month including the energy for those power plants which are directly connected to XWDISCOs network or otherwise?</u>

34.1 The Petitioner during the hearing submitted that the energy being purchased by the Petitioner should allowed to be added as energy purchased and sold regardless of the voltage level. The Petitioner provided the following Voltage Levels wise power generation:

Voltage Level	Capacity (MW)
500 kV	6,697
220 kV	8,959
132 kV	6,019
Total	**21,675**

34.2 The Petitioner also informed that for about 6,000 MW power at 132 kV level as indicated in the above table, it is solely responsible for entering into the terms and conditions laid down in the power purchase agreements (PPAs) with the power producers for purchase of power on behalf of DISCOs and delivering the same to DISCOs at the CDPs. The Petitioner further submitted that since DISCOs are not directly involved in signing PPAs as a party, therefore, the associated losses of that system have been claimed by NTDC.

34.3 The Authority on the submissions made by the Petitioner is of the view that the energy generated and purchased at 132 kV level must be directly delivered to DISCOs at designated CDP and if any energy is being fed back to 220 kV and 500 kV network of the Petitioner, to be delivered to DISCOs at 132 kV level, then it is network design failure/constraint that needs to be rectified. The Authority has therefore decided not to accept the stance of the Petitioner and accordingly the margin of Transmission losses being allowed to the Petitioner is only for the 500 kV and 220 kV networks. The energy generated at 132 kV level would not be allowed the margin for NTDC losses.

35 <u>Whether the detailed studies have been carried out to identify new projects? Whether an (N-1) criterion has been assured?</u>

35.1 The petitioner on the issue informed the Authority during the hearing that detailed system studies are being carried out to identify new projects for NTDC's network and N-1 Criteria is assured in the studies.

35.2 The Authority considers the response of the petitioner as reasonable, however, the petitioner is directed to ensure implementation of reliability indices for all its future projects.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

36 What measures have been taken for preventing the transmission system breakdowns resulting in black outs and tripping during the foggy weather?

36.1 The petitioner in its petition pertaining to the FY 2014-15 submitted a Crash Maintenance Work for its Transmission Lines, however, the Authority, did not accept the response of the petitioner and directed the petitioner vide its determination for the FY 2014-15, to carry out a detailed inquiry of the tripping and submit a detailed report along with plans to cater for such incidents in future.

36.2 The petitioner in compliance with the direction of the Authority submitted a comprehensive detail of its maintenance Plan for the GSO Regions for FY 2016-17 along with its instant Tariff Petition for the FY 2015-16 and FY 2016-17.

36.3 The petitioner further, during the hearing, submitted that:

a. about 1,214,000 Disc Insulators were washed.

b. around 20,000 fog type disc insulators were replaced during FY 2015-16.

c. Cross trip schemes have been implemented.

d. Coordination and verification of stage of under frequency relays at DISCOs Grid Stations is also in progress.

e. Provision of professional assistance to IPPs/GENCOs for maintaining their switchyard.

36.4 The Petitioner also stated shifting of major automatic load reduction control led by under frequency relays from DISCOs to NTDCL. The Petitioner further presented that 4 steps under frequency scheme for foggy and canal closure period i.e. from 15 December to 15 February have been implemented.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

Frequency	Load shedding
49.3 Hz	500 MW
49.2 Hz	500 MW
49.1 Hz	500 MW
49.0 Hz	500 MW

36.5 The Petitioner also informed that 10 steps under frequency for shedding load of 3,108 MW at frequency ranging from 49.3 Hz to 48.6 Hz have been implemented for post canal closure period i.e. from 16 Feb to 14 Dec to avoid blackouts.

36.6 The Authority appreciates the efforts being made by the Petitioner and believes that the same shall be continued for prevention of failures / blackouts in future. The Authority directs the petitioner to provide a detailed report on the improvements in networks undertaken through the above remedial measures.

37 **What are the major bottlenecks in the transportation of power throughout the year, overloading position of transformers, transmission lines and substations and what steps have been taken or planned for addressing these issues? Include technical and financial details.**

37.1 The Petitioner, during the hearing presented the following bottlenecks of the system along-with the remedial measures;

37.2 **Bottlenecks:**

- Overloading at 500KV Guddu and less power evacuation through 220KV Circuits.
- Under-utilization of 220KV Circuits Guddu-UCH, Guddu-Shikarpur due to less clearance.
- Overloading of five 500/220KV T/Fs and thirty nine 220/132KV T/Fs at different G/Ss.
- Low voltages in Quetta area forces QESCO to shed more load(forced load shedding) to cope the problem which resultantly causes 220 kV circuits of area overloaded and therefore cheaper generation of UCH-I and UCH-II is reduced (not dispersed).
- Evacuation of power from wind power plants due to insufficient transmission capacity in HESCO region. Besides above mentioned constraints NPCC has been experiencing constraints on various network equipment including 500/220kV Transmission lines, Transformers due to overloading of these equipment.

37.3 **Remedial Measures:**

- Energization of 500 KV Shikarpur relieving overloaded 500 KV Guddu and maximum evacuation of cheap power from Guddu, UCH, UCH-II power houses.
- Rectification of less clearance of 220 KV Circuits Guddu-UCH & Guddu-Shikarpur, corrective measures underway.
- Addition of 3,110 MVA transformation capacity during FY 2015-16 to minimize bottlenecks.
- Tender for procurement of 10x250 MVA T/Fs opened on 29-08-2016.

37.4 The Authority in view thereof, directs the Petitioner to provide loading position of its 500 kV and 220 kV components to the Authority on quarterly basis.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

38 <u>To provide the details of major incidents of brownouts and blackouts during the year, the reasons for such incidents and the steps for avoiding such incidents in the future.</u>

38.1 The Petitioner submitted the following details of brownouts and blackouts;

Sr. No.	DATE & TIME	GRID NAME/ POWER PLANT	REASON	RESTORATION TIME
1	04-07-2015 at 09:46Hrs	UCH II (Brown out)	Tripping of 220kV UCH II - SKRP cct & UCHII-UCH cct resulted in outage of UCH II (340MW) power plant	At 10:29Hrs 220kV UCH II-SKRP cct normalized and UCH II synchronized with system
2	23-08-15at08:16Hrs	HUBCO Brown out)	Tripping of 500kV HUBCO-JMSR & HUBCO-NKI circuit caused outage of Hubco (1200MW) power plant	At 12:18Hrs 500kV HUB-NKI cct normalized and HUBCO synchronized with system
3	18-10-2015 at 22:45Hrs	QTI (Brown out)	220kV QTI-Sibbi cct # 1 & 2 went under fault and quetta power house (25MW) tripped whereas HCPC (110MW) went into island mode.	At 03:38Hrs HCPC and QTA Power plant were synchronized with system through 132kV linkswhile the 220kV circuits remained underfault and restored at 23/11/2015 at 20:10Hrs & 20:25Hrs respectively
4	23-11-2015 at 09:15Hrs	NKLP (Brown out)	Due to bursting of 220kV circuit breaker at NKLP grid station 220kV NKLP-WTN cct 220kV NKLP-BDR cct # 1 & 2 220kV NKLP-SNR cct # 1 &2 220kV NKLP-LSKP cct went under fault and NKLP grid went under dark	At 15:50Hrs 220kV NKLP-BDR cct # 1 & 2 normalized and supply was restored to 220kV NKLP grid station
5	08-12-2015 at 22:00 Hrs	NGPS (Brown out)	220kV NGPS-MLTN cct # 1 & 2 tripped and NGPS grid went under dark	At 22:49Hrs 220kV NGPS-MLTN cct # 2 normalized and supply was restored to 220kV NGPS grid station
6	15-01-2016 at 09:21 Hrs	Partial collapse as a result north went under dark from SHMI to MULTAN (Black out)	220kV M/Garh PH-II-MULTAN cct # 3 tripped due to damage of insulator of isolator of cct and as a result MULTAN to SHEIKH MUHAMMADI collpased and splitted NORTH & SOUTH and north went under dark	At 19:55Hrs system normalized and north & south were synchronised
7	19-01-2016 at 03:47Hrs	system splitted into three islands i.e. 1.HUB-K ELECTRIC & DADU 2.GUDDU TO PESHAWAR & 3. UCH-SIBBI-QUETTA	Due to heavy fog 500kV circuits tripped and caused islands	At 10:51Hrs system normalized and north & south were synchronised
8	21-01-2016 at 15:07 Hrs	Major system (Blackout)	whole sytem collapsed as 500/220kV 450MVA T/F T-3 at Guddu caught fire and caused overloading of other transformers and cascaded tripping occurred which led to system blackout	At 22:00Hrs whole system normalized

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

Sr. No.	DATE & TIME	GRID NAME POWER PLANT	REASON	RESTORATION TIME
9	29-01-2016 at 05:38 Hrs	K Electric	Due to high humidity and dense fog in JMSR 500 kV HUB-JMSR & 500 kV NKI - JMSR and 220 kV JMSR - KDA ccts 1 & 2 tripped which resulted in isolation of K Electric from NTDC network	At 06:38Hrs 500kV HUB-NKI cct normalized and K-Electric synchronized with NTDC system
10	01-03-2016 at 23:03Hrs	QTI	Due to bad weather conditions (lightning) 220kV QTI-Sibbi cct # 1 & 2 went under fault along with 220kV UCH-SIBBI cct # 2	220kV circuits remained underfault and restored at 02/03/2016 at 15:55Hrs & 20:25Hrs respectively
11	03-03-2016 at 21:43Hrs	Sibbi & QTI	Due to blast occurred on lighning arrestor of transformer at Sibbi , 220kV QTI-Sibbi cct # 1 & 2 went under fault along with 220kV UCH-SIBBI cct # 2	At 22:20Hrs QTI Supply restored with system through 132kV links and supply to HCPC power plant restored at 22:32Hrs through 132kV link At 22:33 the supply to sibbi restored.
12	11-03-2016 at 07:02Hrs	NKI & K Electric (brown out)	Due to tripping of circuits 500kV NKI-JMSR 500kV HUB-JMSR 220kV KDA-JMSR cct # 1 & 2 500kV NKI-JMSRalong with 500/220kV T-1 & T-2 at NKI tripped and caused isolation of K Electric & NTDC South	At 07:57Hrs 500kV JMSR-KDA cct normalized and Supply to K electric restored.

Sr. No.	DATE & TIME	GRID NAME POWER PLANT	REASON	RESTORATION TIME
13	04-05-2016 at 17:14Hrs	DADU (brown out)	Due to heavy storm in DADU AREA,500kV Guddu - Dadu ccts # 1 & 2 & 500 kV Guddu -Dadu cct # 1 & 2 tripped and as a result 500kV Dadu grid station went under dark	At 17:58Hrs 500kV JMSR-Dadu cct # 1 normalized and Supply to Dadu restored.
14	21-06-2016 at 12:52Hrs	UCH I & UCH II (brown out)	INDISCRIMINATE FAULT resulted in Tripping of 220kV UCH I - SKRP cct & UCHI-SIBBI cct 220kV UCH II - SKRP resulted in outage of UCH I & UCHII (970MW) power plants and resulted in partial power failure to balochistan	At 14:35Hrs 220kV UCH I & UCH II were synchronized with system
15	09-06-2016 at 20:05Hrs	GUDDU 747 (brown out)	500kV Guddu747 - Guddu cct & 500 kV Guddu747 -MLTN cct along with 220kV Guddu-Sibbi cct & Guddu - SKPR ccts 1 & 2 ntripped which resulted in generation outage of Guddu747 and MLTN.	At 21:12Hrs Guddu747 - Multan cct energized and Guddu 747 was synchronized with system.
16	22-06-2016 at 06:05Hrs	HUBCO (brown out)	Tripping of 500kV HUBCO-JMSR & HUBCO-NKI circuit caused outage of Hubco (1200MW) power plant.	At 06:44Hrs 500kV HUB-NKI cct normalized and HUBCO synchronized with system
17	23-06-2016 at 04:01Hrs	HUBCO (brown out)	500kV HUB - NKI tripped and 500kV HUB - JMSR was already under fault as on dated 22/06/2016 which caused outage of Hubco (1200MW) power plant.	At 06:25Hrs 500kV HUB-NKI cct normalized and HUBCO synchronized with system

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

38.2 The Petitioner submitted that to avoid such incidents in future cross trip scheme has been implemented and under frequency relays have been installed. Moreover, 10 Steps under frequency scheme for shedding load of 3,108 MW at frequency ranging from 49.3Hz to 48.6Hz has been implemented for post canal closure period i.e. From 16 February to 14 December to avoid blackouts.

38.3 The Authority observed that during FY 2014-15, partial system collapse & network splitting had occurred ten times which is undesirable for the EHV networks. The

Authority therefore directs the petitioner to submit a detailed report regarding the reasons for such collapses and the preventive measures taken or to be taken to avoid such frequent system collapses in future.

39 <u>To provide the progress on metering systems at all the common delivery points</u>

39.1 The petitioner submitted in the instant tariff petition that the maximum demand (kW) of DISCOs is measured through Digital Energy Meters installed at their electrical boundaries called Common Delivery Points (CDPs) by designated metering committee(s) having one or more member of respective DISCOs. In addition, the petitioner also submitted a complete list of CDPs installed at all DISCOs.

39.2 During the proceedings of the hearing, the petitioner informed the Authority that about 96.36% CDPs have independent C.Ts and P.Ts as shown in following table;

Jurisdiction of DISCO	Total No. of CDPs	Number of CDPs with independent C.Ts & P.Ts	% of CDPs with independent C.Ts & P.Ts
LESCO	77	75	97.4
GEPCO	43	39	90.7
FESCO	69	69	100
MEPCO	110	110	100
IESCO	61	60	98.36
QESCO	19	19	100
HESCO	54	52	96.3
SEPCO	42	33	78.57
PESCO	44	43	97.73
KEL	4	0	0
TOTAL	**523**	**500**	**96.36**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

39.3 The Authority appreciates the efforts of the petitioner, however, directs the Petitioner to ensure installation of Secured Metering System (SMS) on remaining CDPs. A comprehensive report in this regard shall also be submitted to the Authority by June 30, 2017.

40 <u>What steps have been taken by NTDC for strengthening of its transmission system in case of implementation of additional AC lines with proposed induction of HVDC?</u>

40.1 The Petitioner on the issue has submitted that in order to interconnect the HVDC transmission lines with the HVAC system at Matiari and Lahore, 500 kV HVAC lines have been proposed to facilitate the reliable evacuation of power from power plants in the Southern part of the country. Estimated cost of the project is around PKR. 5,112 Million for which PC-I has been submitted to the planning commission on 13.04.2016 and the expected completion date is June 2018.

40.2 During proceedings of the hearing, the petitioner presented that COD for Looping In/out of two 500 kV Single Circuits at Matiari is 2018-19 and in the meanwhile, RFP for study of power system stabilizers & series compensation through international consultant to strengthen HVAC System is under preparation while no additional HVAC line is envisaged.

40.3 Similarly for the Receiving End (Lahore) COD for looping In/out of two Lahore – Lahore South 500 kV S/Cs at Lahore HVDC Converter station is 2018 and for Lahore HVDC Converter station – Gakkhar 500 kV double circuit transmission line COD is 2018-19.

40.4 The Authority while accepting the response of the petitioner is of the view that close coordination is required between the Petitioner and the international EPC contractors, which are responsible for construction and O&M of the HVDC projects for on time completion and achievement of COD. Further, since the issue of dispersal of power from major power plants in southern parts of the country is extremely critical, therefore the Authority directs the petitioner to submit the updated progress in this regard on monthly basis.

41 **<u>What steps have been taken by NTDC for power evacuation from upcoming Renewable Energy Projects? What is the maximum size of Renewable Projects at one location?</u>**

41.1 The Authority in the tariff determination of the Petitioner for the FY 2014-15, directed that the renewable energy shall be evacuated on priority basis from the renewable power projects which are achieving COD in coming months, which is in line with the Power Policy 2006 & 2013.

41.2 In response thereof, the Petitioner provided a brief on evacuation of power from Wind Power Plants at Jhimpir & Gharo Clusters as under;

41.3 For Wind power projects, the petitioner submitted that PC-I was approved by ECNEC on 03.07.2014. The project "Evacuation of power from WPPs at Jhimpir & Gharo Clusters" is divided in to two Sub-Projects (i.e Sub Project I & II) with a total estimated cost of PKR 12572.66 Million.

41.4 The Petitioner further submitted that 308 MW WPPs (208 MW at Jhimpir & 100 MW at Gharo) are currently in operation while the transmission lines for upcoming WPPs (938.5 MW) are under construction. The Petitioner also informed that 500 MW WPPs near Jamshoro have been replaced by the 10 X 50 MW WPPs at Jhimpir and PC-I of the proposed interconnection scheme is under process.

41.5 Regarding solar power projects, the Petitioner has stated that PC-I for 1000 MW (400 MW power is feeding MEPCO 132 kV Transmission Network while the evacuation scheme for the other 600 MW in under construction) Quaid e Azam Solar Park, Lal Suhanara was approved by ECNEC on 12-02-2014.

41.6 On the point of Maximum Size of Renewable Projects at One Location, the Petitioner has mentioned the following;

- 1,000 MW Solar Power Projects at Quaid-e-Azam solar park (till 2016-17) – Max. Size of one solar power project is 100 MW.
- 1,489 MW WPPs in Jhimpir area (Dec. 2019) – Max. Size of one WPP is 99 MW.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

41.7 NTDC informed the Authority that following projects are being executed for Evacuation of Power from Wind and Solar Power projects:

41.8 <u>For Wind Power Projects:</u>

- 220 kV Jhimpir New Grid Station
- 220 kV Jhimpir to Gharo T/Line
- 220 kV Jhimpir to T.M.Khan Road T/Line
- 132 kV Jhimpir to T.M.Khan Grid Station T/Line
- 132 kV Interconnection of Wind Power Projects
- Maximum size of Wind Power Plant is 50 MW

41.9 <u>For Solar Power Projects</u>

- 220 kV Grid Station at Lal Suhanara QASP
- 220 kV T/Line from Lal Suhanara QASP to 220 kV Grid Station Bahawalpur
- Maximum size of Solar Power Plant is 50 MW

41.10 The Authority considering the response reasonable, directs the Petitioner to adhere to the stipulated time lines for completion of the aforementioned projects. The petitioner is also directed to submit a detailed progress on every project on quarterly basis.

42 <u>Whether the NTDC/NPCC staff is prepared for the operation of HVDC and HVAC integrated system?</u>

42.1 The Petitioner mentioned during the hearing that all the HVDC and HVAC projects are being executed with foreign funding like World Bank etc. whereby capacity building of the staff has been placed at the top of agenda. USAID is taking a lead role in this regard.

42.2 The Authority agrees with the Petitioner's response.

43 <u>Whether the Planning Department of NTDC is capable of analyzing and carrying out studies of HVDC and HVAC transmission projects? Whether NTDC is capable of performing Transient Network Analysis?</u>

43.1 The Petitioner on the issue presented that its Planning Department possesses sufficient skills for study & analysis of HVAC transmission projects. Further, capacity building of NTDC's Planning department is planned to be carried out through engagement of international consultant for study & analysis of HVDC projects (a new technology in Pakistan) and for performing transient network analysis.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

43.2 The Authority considers Petitioner's reply being satisfactory, however, the Petitioner is directed to share the TORs set for the engagement of international consultant with the Authority.

44 <u>What is the status of transmission lines for evacuation of power of large hydro power projects? Details are required for all upcoming projects.</u>

44.1 The Petitioner in this regard stated that PC-I of the DASU hydropower Power Project is under approval process having a total PC-I cost of US$ 716 Million. The Petitioner provided the following scope of work for evacuation of 2,160 MW Power from the project;

a. 500 kV Double Circuit Transmission line from Dasu to Mansehra.
b. 500 kV Switching Station at Mansehra.
c. 500 kV Double Circuit Transmission Line from Mansehra to Islamabad West substation.
d. Extension at Islamabad West Substation.
e. 500 kV Double Circuit Transmission Line from Mansehra to Faisalabad West Substation.
f. Extension at Faisalabad West Substation.

44.2 The petitioner also submitted the transmission scheme for the dispersal of power from Neelum Jhelum, Karot and Azad Pattan Hydropower Projects. PC-I of the above mentioned projects was approved by ECNEC on March 2, 2015. The Petitioner further submitted that construction of 500 kV Double Circuit Transmission Line for Dispersal of Power from 969 MW Neelum-Jhelum Hydropower Project is expected to be completed by December, 2016. The Petitioner also submitted that selection of EPC contractor for construction of 765 kV Transmission Line from Dasu Project to Islamabad is at an advance stage.

44.3 Status of Evacuation of Power from Neelum Jhelum Hydro Power Project, as provided by the Petitioner, is mentioned below, whereby the overall progress achieved by August 2016 is 75%.

Lot #	Total Tower (Nos.)	Foundations completed (Nos.)	Towers Erected (Nos.)	Stringing Done (km)	Overall Progress
1	115	101	60	1.2	72%
2	146	146	137	3.01	85%
3	162	158	138	Started on 15.08.2016	80%
Overall Progress of the Project:			80%		
Target Date:			Dec 16, 2016.		

NEPRA AUTHORITY
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

44.4 The Authority feels that timely completion of projects for power evacuation from large hydro power plants is very essential therefore the petitioner shall ensure to follow the given time lines. Accordingly the petitioner is directed to provide a detailed progress for each project on quarterly basis.

45 <u>What is status of dispersal of projects for import of power, like 500 kV HVDC Transmission line for 1000 MW power from Tavanir, Iran?</u>

45.1 The Authority, in the tariff determination of the Petitioner for the FY 2014-15, directed the Petitioner to submit a report regarding 500 kV HVDC Transmission Line for dispersal of 1000 MW power from Tavanir, Iran. The Petitioner during the hearing submitted that due to sanctions on Iran much progress could not be achieved on the said project.

45.2 The Petitioner submitted that the feasibility Study report for 1000 MW import of power from Iran to Pakistan through 500 kV HVDC transmission line was submitted by M/s Moshanir (Iran) and M/s NESPAK (Pakistan) in year 2010. However, the progress in this regard remained slow due to sanctions on Iran. Now the final report has been sent to TAVANIR, Iran and a Joint Working Group (JWG) has been formed in September-2016 for the development of TORs.

45.3 The Authority has observed low pace on the progress of the projects, therefore, directs the petitioner to pursue the matter with TAVANIR on war footings and update the Authority on every step forward. The Authority also directs the Petitioner to submit the TORs of the Joint Working Group for perusal.

46 <u>Provide details of the agreement for supplying power to K-Electric.</u>

46.1 The Authority owing to the expiry of Power Sale Agreement for supply of 650 MW to K-Electric on January 25, 2015 and subsequent response from the Petitioner that the matter is under litigation before the High court of Sindh and the Honorable Court has extended interim status quo, directed the Petitioner in the tariff determination for the FY 2014-15 to pursue the matter in coordination with the Ministry of Water & Power.

46.2 The Petitioner during hearing of its instant petition, submitted that all efforts are being made to bring K-Electric on negotiation table and CPPA-G will be requested to provide copy of Power Sale Agreement (PSA) as and when available.

46.3 The Authority observed that an explanation has already been issued to both the Petitioner and the K-Electric in the matter of sale/purchase of electricity after expiry of the PPA and proceedings in this regard under way with the Authority.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

47 Revenue Requirement

47.1 Based on the assessment in the preceding paragraphs, the revenue requirement for FY 2015-16 and FY 2016-17 has been assessed as under;

Description	Allowed FY 2015-16	Allowed FY 2016-17
Revenue Requirement (Rs. in Millions)	29,247	31,413
Avg. MDI (MW)	19,243	19,243
Rs./kW/Month	**126.66**	**136.04**
	(Rs. in Millions)	
Pay & Allowances & Other Benefits	3,471	3,738
Pay & Allowances - Vacant posts	69	245
Employer's Share in Fund Contributions	928	1,021
Ex-WAPDA Pensioners	258	284
Total General Establishment Costs	**4,725**	**5,287**
Rent Rate & Taxes	61	68
Power Light etc.	90	93
Communication	17	17
Office Supplies & Other Expenses	24	27
Travelling Expenses	164	169
Vehicle Maintenance Expense	-	-
Vehicle Fuel Cost	168	174
Professional Fee	13	13
Management Fees	6	6
General Misc. Expenses	17	18
Administrative Costs	**561**	**585**
R&M of Fixed Assets (including vehicles)	**831**	**947**
Insurance	**121**	**121**
Depreciation	**5,099**	**5,994**
Finance Charges	**2,952**	**3,208**
Return on Equity	**13,038**	**14,300**
Prior Year Adjustment	**4,271**	**3,323**
Less: other income	**(2,353)**	**(2,353)**
Total Revenue Requirement	**29,247**	**31,413**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

48 The order part and the Terms & Conditions of the determination are intimated to the Federal Government for notification in the official gazette under Section 31(4) of the NEPRA Act.

49 ORDER

49.1 The National Transmission and Dispatch Company (NTDC) is allowed to charge such tariff and on such terms and conditions as provided hereunder:

49.2 **Use of System Charges**

49.2.1 Since FY 2015-16 has already lapsed, therefore, the Authority has incorporated the impact of difference in the tariff determined for the FY 2015-16 and the tariff actually charged by the Petitioner during this period, in the assessed revenue requirement for the FY 2016-17 as Prior Year Adjustment (PYA).

49.2.2 The Petitioner shall pay Rs.117.79 million to CPPA-G on account of market Operation fee of CPPA-G for the FY 2015-16, which has been included in the revenue requirement of NTDCL while working out the PYA for the FY 2015-16.

49.2.3 Accordingly, NTDCL shall charge its users for provision of transmission and allied services the following two-part tariff i.e. a fixed and variable charge for the FY 2016-17:

Fixed charge (USCF)	=	**Rs.136.04/kW/Month**
Variable charge (USCV)	=	**Rs.0.163363/kWh x LAL Factor**

Where:

LAL Factor is a factor for Adjustment of Losses and Load imposed on the transmission system by user. LAL Factor of unity will be applied till benchmarks are defined by NEPRA.

49.2.4 In case of DISCOs, NTDCL shall charge only the fixed charges i.e. Rs. 136.04/kW/Month. The variable charge shall only be applicable to the energy in kilowatt-hours (kWh) transmitted / delivered during a billing period. Recording of the maximum demand in kW and energy delivered in kWh shall be carried out at meters installed at the common delivery metering points i.e. inter-connection point between:

a) NTDC transmission system (NTDC System) and the bulk power consumer.

b) NTDC system and the transmission system of a special purpose transmission licensee.

c) NTDC system and the transmission system of another country connected under an arrangement approved by the Federal Government.

d) NTDC system and a distribution company receiving power in bulk either for sale to its own consumers or on behalf of another distribution company or a BPC located in another distribution company.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

50 Terms and Conditions:

50.1 **Definitions:**

50.1.1 Bulk Power Consumer (BPC) means a Bulk Power Consumer as defined in NEPRA Act.

50.1.2 Billing Period means a period determined by NEPRA for the purpose of charging the transfer charge to DISCOs or BPC or any other user of transmission ssytem in respect of power delivered. The billing period for the purpose of applying a transfer charge shall be on a one month basis (starting 24:00 hrs of the 1st day of the month and ending 12:00 hrs on the last day of the month) till a shorter billing period is specified by NEPRA through a Competitive Trading Arrangement Transitional Order.

50.1.3 Competitive Market Operation Date = The date as defined under article 7(2) of the License granted to NTDC.

50.1.4 CPPA-G = Central Power Purchasing Agency Guarantee Limited as required under Article 8(a) of the License granted to NTDC.

50.1.5 Delivery metering point means the interconnection point at the grid stations where power is delivered by NTDC to DISCOs, BPCs connected directly to the transmission system or other users of the transmission system and where relevant meters are installed to measure such power delivered.

50.1.6 IPPs = Independent Power Producers established under the Federal Government's Power Policy of 1994 or earlier.

50.1.7 System Peak Demand = The highest system peak demand recorded during a billing period measured over successive periods of 30 minute interval at the receiving metering point of the DISCOs or user of the transmission system. Maximum demand measuring apparatus used for recording the maximum system peak demand during a billing period shall be based on a 30 minutes interval reset basis.

50.1.8 Month means a calendar month according to the Gregorian Calendar.

50.1.9 Power Factor: the rate expressed as a percentage of the kilowatt hours to the kilovolt hours consumed during a billing period.

50.1.10 Use of System Charge means any charge (fixed or variable) payable by a Distribution Company, BPC or any other user of the transmission system for Transportation of Power from Generator to Delivery Metering Point and delivery to a distribution company, BPC or any other user and as required under Article 13 and 14 of the NTDC License.

51 Other Terms and Conditions

- Power Factor Penalty: The DISCOs shall maintain an average power factor during a billing period at the delivery metering point of at least 85% lagging. In the event of the said Power Factor falling below 85% in a billing period the concerned DISCO shall pay to NTDC a penalty as determined by the Authority for general applicability on the recommendation of NTDC and after consultation with the generation and distribution licensees.

- In order to ensure least cost generation, NTDC shall strictly follow the merit order while operating the power plants.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

52 Directions of the Authority

52.1 The directions of the Authority given in the instant petition are reproduced as under;

- To provide its detailed evacuation plan in terms of all upcoming power projects by June 30, 2017.
- To ensure completion of its planned activities within the prescribed timeframe to avoid tripping incidents in future and progress in this regard be shared with the Authority on quarterly basis.
- To file next tariff petition i.e. for the FY 2017-18 on the basis of calculation of MDI on coincidental basis and to share the latest progress on the implementation of system for recording of MDI on coincidental basis with the Authority immediately after the issuance of this determination and on quarterly basis afterwards.
- To file its next tariff petition in time either under SYT or MYT regime, as the Petitioner in the past has failed to file tariff petitions on timely basis i.e. for every financial year.
- To apprise the Authority about the progress of five 220KV Grids Stations along-with allied transmission lines of KPK by June 30, 2017.
- To provide proper evidence and detailed calculations for the requested amounts for the future tariff petitions.
- To complete the process of creation of separate post retirement funds and to transfer the amount of provision already allowed by the Authority in the post-retirement benefits fund.
- To provide complete details in respect of new hiring made during the FY 2015-16 and FY 2016-17 along-with their financial impact in its next tariff petition.
- To ensure implementation of reliability indices for all its future projects.
- To provide a detailed report on the improvements in networks undertaken to prevent transmission system breakdowns resulting in black outs and tripping.
- To provide loading position of its 500 kV and 220 kV components to the Authority on quarterly basis.
- To submit a detailed report regarding the reasons for major incidents of brownouts and blackouts and the preventive measures taken or to be taken to avoid such frequent system collapses in future.
- To ensure installation of Secured Metering System (SMS) on remaining CDPs. A comprehensive report in this regard shall also be submitted to the Authority by June 30, 2017.
- To submit the updated progress regarding dispersal of power from major power plants in southern parts of the country on monthly basis.
- To share the TORs set for the engagement of international consultant for the capacity building of NTDC's Planning department.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

- To provide a detailed progress regarding evacuation of power from large hydro power projects on quarterly basis.
- To pursue the matter with Tavanir Iran on war footings and update the Authority on every step forward and to submit the TORs of the Joint Working Group formed in this regard.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY