# National Electric Power Regulatory Authority
## Islamic Republic of Pakistan

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No. NEPRA/TRF-362/K-Electric-2016/3760-3762

March 20, 2017

Subject: **Determination of the Authority in the Matter of Karachi Electric (K-Electric) Multi Year Tariff (MYT) Petition for Determination of Tariff for the period commencing from July 01, 2016 [Case No. NEPRA/TRF-362/K-Electric-2016]** - Intimation of Determination of Tariff pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997)

Dear Sir,

Please find enclosed the subject determination of the Authority along with Annex-I, II, III, IV, V, VI, and VII (218 pages) in Case No. NEPRA/TRF-362/K-Electric-2016.

2. The Determination is being intimated to the Federal Government for the purpose of notification of the approved tariff 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. Please note that only Order of the Authority along with Annex-I, II, III, IV, V, VI and VII need to be notified in the official gazette.

Enclosure: **As above.**

20/03/17

**(Syed Safeer Hussain)**

Secretary,
Ministry of Water & Power,
Government of Pakistan
Islamabad.

CC:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad
2. Secretary, Ministry of Finance, Islamabad.

National Electric Power Regulatory Authority

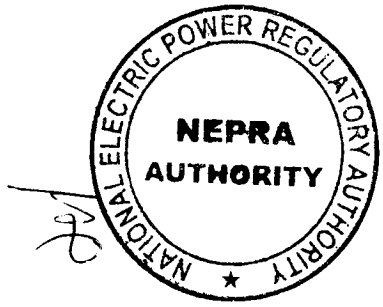
(NEPRA)

PETITION NO: NEPRA/TRF-362/K-Electric-2016

# TARIFF DETERMINATION OF THE AUTHORITY IN THE MATTER OF TARIFF PETITION FILED BY K-ELECTRIC LIMITED UNDER NEPRA TARIFF (STANDARDS AND PROCEDURE) RULES - 1998

ISLAMABAD

MARCH, 2017



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

Himayat Ullah Khan
Vice Chairman

Brig (R) Tariq Saddozai
Chairman

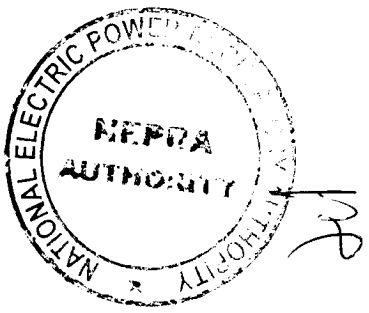
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

**Abbreviations**

| | |
|---|---|
| AIA | Amended Implementation Agreement |
| AMI | Advance Metering Infrastructure |
| AMR | Automatic Meter Reading |
| BoD | Board of Director |
| CAGR | Compound Annual Growth Rate |
| CAPEX | Capital Expenditure |
| CCI | Council of Common Interest |
| CERC | Central Electricity Regulatory Commission |
| COD | Commercial Operation Date |
| COSS | Cost of Service Study |
| CPI | Consumer Price Index |
| CPPA (G) | Central Power Purchasing Agency Guarantee Limited |
| CWIP | Closing Work in Progress |
| DISCO | Distribution Company |
| DM | Distribution Margin |
| ERP | Enterprise resource planning |
| FCA | Fuel Charges Adjustment |
| FY | Financial Year |
| GFA | Gross Fixed Assets |
| GoP | Government of Pakistan |
| GoS | Government of Sindh |
| GWh | Giga Watt Hours |
| HESCO | Hyderabad Electric Supply Company Limited |
| HHU | Hand Held Unit |
| HSD | High Speed Diesel |
| HT/LT | High Tension/Low Tension |
| IA | Implementation Agreement |
| IFRS/IAS | International Financial Reporting Standards/International Accounting Standards |
| IPP | Independent Power Producer |
| KE | K-Electric |
| KIBOR | Karachi Inter Bank Offer Rates |
| KSE | Karachi Stock Exchange |
| KV | Kilo Volt |
| Kw | Kilo Watt |
| kWh | Kilo Watt Hour |

| | |
|---|---|
| LESCO | Lahore Electric Supply Company Limited |
| LPC | Late Payment Charges |
| MDI | Maximum Demand Indicator |
| MEPCO | Multan Electric Power Company Limited |
| MMBTU | One million British Thermal Units |
| MoW&P | Ministry of Water and Power |
| MVA | Mega Volt Amp |
| MW | Mega Watt |
| MYT | Multi Year Tariff |
| NEPRA | National Electric Power Regulatory Authority |
| NPCC | National Power Control Centre |
| NPV | Net Present Value |
| NTDCL | National Transmission & Despatch Company Limited |
| O&M | Operation and Maintenance |
| OGRA | Oil and Gas Regulatory Authority |
| PEPCO | Pakistan Electric Power Company |
| PESCO | Peshawar Electric Supply Company Limited |
| PPA | Power Purchase Agreement |
| PPAA | Power Procurement Agency Agreement |
| PPP | Power Purchase Price |
| PPRA | Public Procurement Regulatory Authority |
| R&M | Repair and Maintenance |
| RAB | Regulatory Asset Base |
| RE | Rural Electrification |
| RFO | Residual Fuel Oil |
| RLNG | Re-gasified Liquefied Natural Gas |
| RoE | Return on Equity |
| ROR | Rate of Return |
| RORB | Return on Rate Base |
| SAIDI | System Average Interruption Duration Index |
| SAIFI | System Average Interruption Frequency Index |
| SBP | State Bank of Pakistan |
| SEPCO | Sukkur Electric Power Company Limited |
| SOT | Schedule of Tariff |
| T&D | Transmission and Distribution |
| T&T | Transmission and Transformation |
| TDS | Tariff Differential Subsidy |

| | |
|---|---|
| TFC | Term Finance Certificate |
| TOR | Term of Reference |
| TOU | Time of Use |
| WACC | Weighted average cost of capital |
| WAPDA | Water and Power Development Authority |
| X-Factor | Efficiency Factor |
| XWDISCO | Ex-WAPDA Distribution Company |



**Determination of the Authority in the matter of Multi Year Tariff Petition filed by K-Electric Limited ("K-Electric") for the period commencing from July 01, 2016 to June 30, 2026**

## 1. INTRODUCTION

1.1. K-Electric Limited (herein referred to as "the Petitioner or K-Electric or the Company or KE"), formerly Karachi Electric Supply Company Limited ("KESCL") was incorporated as a limited liability company on September 13, 1913. The Company is listed on Pakistan Stock Exchange.

1.2. K-Electric is the only vertically integrated utility in Pakistan and is principally engaged in the generation, transmission and distribution of electrical energy to industrial and other consumers within its licensed area of over 6,500 square kilometers, comprising of over 2.4 million customers in Karachi and in the nearby towns of Dhabeji & Gharo in Sindh and Hub, Uthal, Vindar and Bela in Balochistan.

## 2. BACK GROUND

2.1. The Authority, allowed a Multi-Year Tariff (MYT) to K-Electric vide its determination dated September 10, 2002, for a period of seven years, to be applicable from the date of privatization of K-Electric. K-Electric was privatized in 2005 and accordingly the MYT became applicable from 2005 till November 2012, as per the Implementation Agreement (IA) signed between GoP and K-Electric, dated November 14, 2005.

2.2. Subsequently in 2009, shareholding of K-Electric was taken over by the Abraaj Group through KES Power Limited (Holding Company). As a result thereof an Amended Implementation Agreement (AIA) was signed between GoP (Secretary, Ministry of Water & Power) and K-Electric, on April 13, 2009, whereby the Tariff Control period of 7 years was revised and made applicable from the Revised Closing Date (i.e. date of signing the AIA).

2.3. Consequent upon signing of the AIA, K-Electric filed a tariff Petition on April 22, 2009, with the Authority, for an increase in the base tariff, modification in the adjustment mechanism, terms & conditions of supply and security deposit rates etc. The Authority decided the petition of K-Electric vide its determination dated December 23, 2009, wherein along-with certain amendments in the adjustment mechanism and allowing an increase of Rs.0.15/kWh in the distribution part of O&M, the time period of MYT was extended for next seven years to remain applicable from July 01, 2009 till June 30, 2016.

2.4. The MYT awarded to K-Electric was performance based tariff, the concept of performance based tariff awarded to K-Electric was such that it was not allowed a predetermined fixed return on its existing and future investments unlike the tariff allowed under cost plus

regime. The only avenue for K-Electric to earn profits was through bringing in efficiency by making investments from its own resources in its generation, transmission and distribution system. To cap any excessive profits and to extend relief to the consumers, a Claw Back Mechanism was made part of the MYT determination through which K-Electric was required to share its yearly profit above 12% with consumers on the allowed Regulatory Asset Base (RAB). The control period of the allowed MYT to K-Electric expired on June 30, 2016.

## 3. PROCEEDINGS

3.1. The Authority, in order to ensure timely determination of K-Electric's new tariff, considering the fact that its existing MYT was going to expire on June 30, 2016, directed K-Electric vide letter dated July 31, 2015, to file tariff petition for its generation, transmission and distribution functions separately, with detailed costs and underlying assumptions latest by September 30, 2015, to ensure availability of new / revised tariff by the time the MYT period is exhausted.

3.2. K-Electric, is response, vide letter dated September 14, 2015 submitted that considering the significance of the matter, it has engaged an internationally reputed advisory firm with relevant experience in the power sector both nationally and internationally as Consultants/ Experts to assist in submission of the tariff petition. The Authority in view thereof, directed K-Electric vide letter dated November 12, 2015 to file the tariff petition by December 15, 2015. K-Electric responded vide letter dated November 17, 2015 that considering the significance of matter and the complexities involved, it will be able to file the Petition in January 2016.

3.3. K-Electric did not file the petition till January 31, 2016, therefore, the Authority vide its letter dated February 04, 2016 directed K-Electric to file the tariff petition without any further delay so that the procedure for determination of revised tariff can be completed in time.

3.4. K-Electric, finally submitted an Integrated Multi Year Tariff ("I-MYT") petition on March 31, 2016 in accordance with the Rule 3 (1) of the NEPRA Tariff (Standards and Procedure) Rules, 1998, praying for determination of its MYT for a period of ten years commencing from July 01, 2016 to June 30, 2026.

3.5. K-Electric while justifying the I-MYT Petition submitted that considering K-Electric's particular case, the specific environment in which it operates and the analysis it has carried out, unbundling (a) would not be the commercially and practically preferable option; and (b) would result in an increase in cost in view of the associated issues. By implication, tariffs to customers will be lower under continuation of the Integrated Multi Year Tariff (I-MYT).

3.6. K-Electric also submitted that generally it is accepted that there may be benefits associated with unbundling. The principle amongst those is that it enables efficiency savings through the removal of cross-subsidies and independence of business decisions. For unbundling to deliver any benefit, the information needs to be meaningful. K-Electric's business however is currently characterized by a number of joint costs that cannot be meaningfully allocated to different business functions. Most notably, debts that have been secured on one part of KE's business are used to underwrite risks in another part of its business. This avoids the costs that would be incurred in the absence of sovereign guarantees.

3.7. K-Electric further mentioned that there are significant benefits that arise from vertical integration, including ability of K-Electric to optimize investments and operation of the energy system end to end (such as investing in embedded generation to support network stability or investing in networks to increase the reliability of provision of services to customers) and the "natural hedge" between K-Electric's different business units which reduces risks and allows investors to require lower average rates of return. This benefit reduces costs and improves K-Electric's ability to raise and service debt, a critical component of delivering the necessary investment in all parts of the business and to maintain and enhance service to customers. In addition, due to the unique nature of K-Electric, with no obvious competitors, K-Electric's unbundled costs cannot be meaningfully benchmarked.

3.8. In view of the above, K-Electric stated that customers are much better placed if the utility continues to operate in an integrated manner as it will (a) attract the appropriate level of investment across the value chain and hence result in an improved quality of service; and (b) result in lower tariffs for the customers. Therefore, instant petition is being filed on the basis of a continuation of an I-MYT.

3.9. A brief of the reliefs requested by K-Electric in the I-MYT is as under;

i. To continue the existing I-MYT till FY 2026, because it meets the objectives of the business plan.

ii. To change the profit claw back thresholds from 12%, 15% & 18% to 15%, 18% & 20% respectively.

iii. To allow an increase of Rs.0.66/kWh in the O&M component of the tariff, to reduce the ongoing deficit in the recovery of O&M cost.

iv. To include a working capital allowance, on the basis of mechanism to be determined by NEPRA, to cover the late payments by Government entities and Tariff Differential Claims (TDC) by the GoP.

v. To include a force majeure clause for adjustment of irrecoverable costs (or lost revenue) due to business disruption in case of force majeure.

vi. To modify the adjustment mechanism for operation and maintenance (O&M) costs to the effect that the efficiency factor value of X in any year of the control period, should be lower of its existing value (2% or 3% according to business unit) or 30% of the increase in the Consumer Price Index (CPI) for the relevant control year.

3.10. K-Electric also submitted that its Petition is based on number of assumptions and if any of these assumptions are invalid, this could impact the basis of the petition. The assumptions taken by K-Electric are:

- The surplus from revaluation of fixed assets, is included as part of K-Electric's Regulated Asset Base (RAB).
- A continuation of monthly and quarterly tariff adjustment mechanisms.
- A continuation of the formula in the O&M cost adjustment mechanism, which remains as CPI-X.
- Maintaining current transmission and distribution (T&D) loss performance targets.
- Maintaining existing generation target heat rates.
- The protections under the Implementation Agreement continue throughout the tariff control period, including the guarantee of payment for strategic customers.
- Implementation of Time of Use (ToU) metering for residential and commercial customers is deferred, pending finalization of discussions with NEPRA.
- Supplementary charges paid to IPPs under PPA relating to Workers Profit Participation Fund (WPPF) and the Workers Welfare Fund (WWF) are taken to be passed through in the tariff.

3.11. The Petitioner' submission have been examined in the light of the Authority decision, vide para 101 at page 39 of its determination dated September 10, 2002 reproduced hereunder;

*".....The prevailing average sale rate has been distributed proportionately according to the cost of various components. However, the detailed basis of the break-up of the tariff is not given. We would like to be apprised of the break-up of the tariff in more detail in the context of the separated accounts for the three segments of the business i.e. Generation, Transmission and Distribution before the next review in order to establish appropriate transfer pricing....."*

3.12. Further, K-Electric submissions have also been examined in terms of the Articles of three separate licenses for its Generation, Transmission and Distribution functions and the NEPRA Licensing Rules that requires, the licensee to maintain accounting and financial reporting arrangements which enable separate accounts to be prepared for each separate business and showing the financial affairs of each such separate business as if it were a separate company so



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that the revenues, costs, assets, liabilities, capital, reserves and provisions are reasonably attributable to each separate business separately identifiable in the books of licensee.

3.13. In view thereof, the Authority before taking any decision, in terms of admission or otherwise of the I-MYT petition, decided to provide K-Electric with an opportunity of pre-admission hearing to present its case. The hearing was initially scheduled on April 29, 2016, however, upon K-Electric's request the hearing was held on May 13, 2016 at NEPRA Tower Islamabad.

3.14. The Authority while disagreeing to K-Electric's stance during the pre-admission hearing directed it to provide information segregated into its generation, transmission and distribution segments in accordance with the Authority's direction given in the determination of 2002, which was the basis of privatization of KESC, to proceed further in the matter.

3.15. In compliance thereof, K-Electric vide letter dated May 19, 2016 submitted certain information with respect to break-up of its assets with and without revaluation impact and detail of its O&M expenses segregated into Generation, Transmission and Distribution functions along-with its operational data in terms of Auxiliary consumption and Heat Rates/ Efficiencies.

3.16. The Authority after having detailed deliberations and considering all the applicable legal documents, and the fact that existing tariff determination has already completed its legitimate control period, admitted the I-MYT petition for determination of new Tariff under Rule 4 (3) of the NEPRA (Tariff Standards and Procedure) Rules 1998 ("the Rules").

3.17. Consequently, under rule 4 (6) of the Rules, notice of Admission was published in the newspapers on June 24, 2016 and also uploaded on NEPRA's website, whereby Intervention Request and comments were requested within 15 days of the publication of the notice. Individual notices of admission were also sent to the major stakeholders.

3.18. Mr. Tanveer Ahmed Bari representing Karachi Chamber of Commerce & Industry (KCCI) and CPPA-G vide letters dated June 29, 2016 and July 12, 2016 respectively, requested for extension in filing of the Intervention Requests by two weeks, owing to Eid Holidays. Considering request of aforementioned interveners justified, the Authority extended the time for submission of comments.

4. **Interveners**

4.1. In response to the notice of admission, eight intervention requests were received as detailed below;



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| Sr. # | Interveners |
|---|---|
| i | K-Electric Consumer Forum |
| ii | Jamat e Islami |
| iii | Shehri |
| iv | Karachi Chamber of Commerce & Industry |
| v | Mr. Abu Bakar Usman |
| vi | Anwar Kamal Law Associates |
| vii | Whistle Blower Pakistan |
| viii | Mr. Arif Bilvani |

4.2. A brief of the contentions raised by the Interveners is as under;

4.3. **Intervener-Whistle Blower Pakistan - Syed Adil Gilani**

4.3.1. Mr. Adil Gilani representing Whistle Blower Pakistan submitted; i) that the instant petition should have been filed, processed and concluded prior to the expiry of the existing Multi Year Tariff i.e. before 30th June, 2016. ii) The current petition does not merit consideration, being an integrated one, and K-Electric should be directed to file the tariff petition for its operating functions separately along-with complete details/ information like in the case of XWDISCO's, GENCOs, IPP's including the IGTDP, within one month, failing which NEPRA should appoint an administrator to get the requisite information enabling it to determine separate tariff for the three business segments of K-Electric. Granting of separate licenses for Generation, Transmission and Distribution functions to K-Electric, requires that separate tariff be given for all its businesses. iii) That since K-Electric has been granted three separate licenses i.e. Generation, Transmission and Distribution: therefore three separate tariffs be given for all its business. iv) KE was privatized as a vertically integrated utility which is not supportive of the competition and single / integrated tariff has made it difficult to analyze the areas of gains and loss to KE, v) that the request of continuation of single tariff is against the principles of transparency and competition. vi) That privatization of K-Electric neither benefited the National Exchequer nor the consumers, the only beneficiaries are the owners of the company. vii) That the requested modification / adjustments by K-Electric will not only result in increase in the tariff but also expose the consumers to several risks.

4.3.2. The intervener also questioned i) the huge profits being earned by K-Electric without achieving the targeted losses and recovery of its debts.

4.3.3. He further stated that K-Electric caused losses to the consumers/ Exchequer by drawing 650 MW from NTDC and imposing load-shedding while keeping its own generation and power purchase sources idle, violating Economic Merit Order (EMO), inducting low efficiency power plants, non-provision of Time of Use (ToU) meters, overcharging from consumers and



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not allowing the benefit of Claw-Back mechanism to be passed on to consumers. He accordingly demanded that NEPRA should order for an immediate forensic audit of last ten years and the amount of profits earned by K-Electric as a result of its imprudent practices be taken back and returned to the concerned stakeholders. Further, as the period of existing MYT has expired, and legally there is no tariff which K-Electric can charge from its consumers, therefore, tariff determined in 2002 be restored. Moreover, with the improvements claimed by K-Electric post privatization, the next MYT should be lower than the existing MYT, other than the Fuel cost component.

4.3.4. Mr. Gilani sought following clarifications;

- Mechanism to segregate RFO & gas based generation where RFO & gas are burnt simultaneously.
- Annual/ monthly revenue requirements of K-Electric during the 10 years and what it has earned.
- Impact of one slab benefit and monthly FCA of residential consumers using up-to 300 units along with life line and agriculture consumers, on K-Electric's revenue requirement.
- Impact of not operating Site gas and Korangi gas turbines after inclusion of expensive Aggreko rental power plant.
- Impact of operating newer gas plants on open cycle instead of combined cycle mode
- Non-revision of heat rates of KGTPS, SGTPS and KCCP after their conversion to combined cycle mode.
- Impact of not passing on the benefits of FPA to the consumers using up to 300 units or less.

4.4. **Intervener -K-Electric Consumer Forum**

4.4.1. Ch. Mazhar Ali representing the K-Electric Consumer forum argued that the present tariff is very high, as the same was introduced in 2002 when the oil prices were very high and number of consumers were less and if the previous tariff is to be continued then tariff for all slabs should be reduced by 20%. He further submitted that the requested increase of Rs.0.66/ kWh in the O&M cost is unjustified considering the fact that K-Electric has reduced its employees count from 17,000 to 10,000, and no maintenance of the transmission and distribution function is being done by K-Electric.

4.4.2. Ch. Mazhar Ali also stated that change in claw back mechanism does not merit consideration, considering the fact that K-Electric is making huge profits, which may be around Rs.40 billion in the FY 2015-16. He also mentioned that the amount of Rs.0.15/ kWh allowed to K-



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Electric may also be withdrawn in the current circumstances. Moreover, the bank charges & meter rent being charged by K-Electric is illegal.

4.4.3. Ch. Mazhar Ali further submitted that the new slab system is totally unfair as hardly 1% of the consumers use electricity less than 50 units and K-Electric is applying minimum charges formula in-case less than 50 units are used, therefore, previous 2 slab exemption system may be restored and 1st slab should be from 1 to 100 Units having a rate of Rs.4/kWh.

4.5. **Intervener -Jamat E Islami**

4.5.1. Jamat-e-Islami's representative Hafiz Naeem-ur-Rehman submitted that K-Electric's tariff merits reduction due to low oil prices, reduced employees count and increase in consumer base in comparison to FY 2009. He further submitted that K-Electric is violating the spirit of MYT by relying more on power purchases from external sources & lease out options, thus deliberately underutilizing its available generation capacity, which is violation of Rule 8 (3) (b) and (f) of NEPRA Generation Rules. Mr. Naeem also mentioned that as per spirit of the MYT, the tariff was locked for a certain period and during the period, K-Electric can only claim certain predetermined adjustments and variations as expressly provided in the MYT, therefore, Meter Rent and Bank Charges being charged by K-Electric should be reimbursed to the consumers. He was also of the view that any paying consumer should not be subjected to load shedding, the slab of 1-100 units should start from 51-100 to give benefit of first slab of 50 units to the consumers and the tariff should have been reduced with increase in subsidy by the GoP. In view thereof, Mr. Naeem, criticized K-Electric's performance on account of;

- Failure to ensure uninterrupted power supplies to the consumers.
- Excessive load shedding in certain areas during the month of Ramazan.
- Deliberate under-utilization of the available generation capacity thus violating NEPRA Licensing (Generation) Rules 2000.
- Failure to restore power supply to the affected consumers, in case of unscheduled or unplanned interruption, within the specified time limit.
- Failure to upgrade, enhance, plan and maintain the integrity, reliability and efficiency of the transmission and distribution system.

4.6. **Intervener -Karachi Chamber Of Commerce and Industry (KCCI)**

4.6.1. The KCCI argued that K-Electric's petition should not have been accepted considering the fact that its distribution license is going to expire on July 20, 2023 or the petition should have been limited till the date of License.

4.6.2. It also strongly opposed the proposed changes in the claw back formula, increase in the O&M cost, allowing working capital and force majure provision. On the monthly and quarterly adjustments mechanism; KCCI submitted that the same shall only be allowed if the specific limits of generation, plant efficiency and heat rates are achieved. Further, NEPRA should set a year by year T&D losses reduction target for next ten years, as the benefit of improvement of heat rates from 30.4% to 37% and reduction in T&D losses from 35% to 23% has not been reflected in the current tariff and its impact has not been passed on to the consumers.

4.6.3. KCCI has also highlighted the issues of non-implementation of ToU Metering, load shedding, voltage fluctuations, supply of 650 MW from NTDC and missing of proper Fuel Supply agreements with fuel suppliers/ SSGCL.

4.7. **Intervener -Shehri - Citizens for Better Environment**

4.7.1. Mr. Ronald Desouza on behalf of Shehri submitted that K-Electric has failed to provide its consumers electricity at equitable price and of acceptable quality being technically deficient having inadequate & inappropriate installations, lax operations and maintenance practices. The inefficiency and imprudence of the Management is resulting in high cost of electricity, and the theft of electricity in collusion with the company's staff, is making the cost further high for the paying consumers. The issues regarding non-recovery of arrears from the central/ provincial governments, institutions and private parties etc., high power theft, T&D losses, prices of electricity negotiated with IPPs and price of fuel needs to be addressed without affecting the paying consumers. The increases and changes proposed by K-Electric in its petition are solely for its own benefit whose profits have been increasing in recent years, therefore, the interest of consumers' needs to be protected. Mr. Desouza also submitted that the control period of the new tariff must not go beyond the present licensed period of the previous MYT.

4.8. **Intervener -Pasban Pakistan - Mr. Abu Bakar Usman**

4.8.1. Mr. Abu Bakar Usman representing Pasban Pakistan submitted that tariff should be extended only for a period of five years i.e. till June 30, 2021 considering the impact of changes in various economic components, as once extended it would be difficult to modify in subsequent years. He also opposed the proposed modification in the claw back formula & CPI-X mechanism, allowing of force majeure provision and the increase of Rs.0.66/kWh in the O&M cost.

4.8.2. Mr. Usman further suggested not to accept the requested working capital allowance as K-Electric holds payments to SSGCL and PSO which are more than K-Electric's receivables from GoP. On the T&D losses, Mr. Usman has submitted that the current benchmark of 15% is too high and should be reduced to a flat rate 3% for the entire tariff control period.

4.8.3. He further suggested that late payment surcharges being at a very high level may be reduced from current 10% to 2%, and fixed charges for B2 and upward consumers be eliminated in the larger interest in order to support industrial consumers. Moreover, a toll free complaint registration facility be provided.

4.9. **Intervener -Anwar Kamal Law Associates (AKLA)**

4.9.1. The intervener while highlighting the issue of 650 MW energy supplied to K-Electric from the NTDC System, submitted that the combined generation facility of K-Electric's own system and its Power Purchases, is more than the electricity supplied by K-Electric to its consumers. The cost of electricity generated by power plants in K-Electric Generation Basket is much lower than the cost of electricity generated by the Power Plants in the CPPA-G Generation Basket but despite this, NTDC is supplying electricity to the K-Electric. Treating K-Electric at par with other XWDISCOs for the power purchased from NTDC instead of marginal cost has been the biggest favor given to K-Electric resulting in recurring loss of billions of rupees to the economy and the consumers of XWDISCOs, as this results in operations of costlier plants in NTDC's system yet K-Electric does not even pay surcharges like Neelum Jhelum and others which are borne by XWDISCO consumers thereby causing economic loss to them. Importantly, had this incentive been known to the other bidders at the time of privatization of K-Electric, this would have certainly increased the bidding price. The decision of ECC, allowing K-Electric to purchase power from NTDC, was to render K-Electric to meet the load demand of its consumers, however, K-Electric, subsequent to the aforementioned decision, started drawing power to the tune of 650 from NTDC's system without exhausting its full generation capacity which is a contravention of the Power Purchase Agreement (PPA) executed between NTDC and K-Electric in 2010. The generation plants available in the K-Electric system were not fully utilized despite the fact that demand was available in the system.

4.9.2. The Intervener accordingly suggested that for economic dispatch of power plants, the operations of K-Electric power plants should also be placed in the basket of NTDC, thus having a single generation basket in the country. The intervener also submitted that in 2009, K-Electric was fined for underutilizing its own generation as well as power purchase from external sources and NEPRA in its decision stated that if such offense is repeated/continued in future, strict punitive action will be taken against it, however, NEPRA, despite continuous underutilization of power plants by K-Electric has not taken any action.

4.9.3. The Intervener requested that supply of electricity from CPPA-G to K-Electric be stopped immediately and in case K-Electric requires power from CPPA-G or vice versa the agreement based on marginal cost which formed the basis of K-Electric privatization should be restored. An inquiry be held in the matter to ascertain financial losses and the same should be recovered from the K-Electric and passed on to the consumers of XWDISCOs.



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4.10. **Intervener -Mr. Arif Bilvani**

4.10.1. Mr. Arif Bilvani opposed the existing MYT of 2009 by stating that several concessions were granted to KE which were detrimental to the interest of the consumers and GoP.

4.10.2. Mr. Bilvani further submitted that K-Electric's MYT tariff petition should not have been accepted by the Authority due to contravention of the Authority's directions for filing separate petitions for generation, transmission and distribution segments. If the request of the Petitioner for continual of the existing MYT tariff is allowed then it should be as per the MYT determination of 2002 including imposition of price cap, with afresh heat rates of K-Electric's own power plants and efficiency benchmarks, so that K-Electric in order to earn profits keeps on investing into its system and its original IA should be restored. He suggested that since K-Electric has failed to perform in transmission and distribution functions as evident from the frequent breakdowns and Authority's proceedings against it and instead invested in generation function, therefore benchmarks in all three segments needs to be set. On account of T&D losses, Mr. Bilvani stated that future bench marks of T&D losses should be set to be gradually reduced to 9% in next five years. Otherwise, K-Electric be asked to submit tariff petitions for its generation, transmission and distribution functions separately along with investment program and the time frame for its adherence so that the costs of each function can be identified and efficiency benchmarks should be set as such to irradiate any inefficiencies and punitive actions must be taken by the Authority for non-adherence of the investment program. Further, KE's stance of linking the requested investments with continual of tariff is not justified.

4.10.3. Mr. Bilvani further pointed out that tariff of different consumer categories has gone sky high despite the fact that cost of furnace oil has reduced two third of its peak, which was not the aim of privatization whereby it was envisaged that privatization will bring efficiencies in operations by way of making substantial investments in generation segment to cater for the present as well as the future requirements, to curtail dependency on the supplies from GoP/NTDC and maintain a spinning reserve as per the Industry norms.

4.10.4. Mr. Bilvani strongly opposed KE's request for increase of Rs.0.66/kWh in O&M by stating that it has been making huge profits despite its O&M expenses have increased considerably during the period from 2006 to 2015 without any noticeable increase in its generation and despite a reduction in its workforce; one of the main reason for the increase being the provision for bad debts due to under recoveries by K-Electric over the last 10 years, and the consumers should not be burdened for the inefficiencies of K-Electric in form of increase in tariff due the inflated expenses. Mr. Bilvani also pointed out that KE is still getting benefit of additional Rs.0.15/kWh allowed in 2009 for hiring of extra employees, but the said workforce has subsequently been laid off.



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4.10.5. Mr. Bilvani argued that KE will not be able to meet its proposed generation plan of bringing in around 4,610 MW as around 1400 MW from the proposed generation is coal based for which international lending will be difficult to arrange. Further no detail in respect of 2300 MW generation is available.

4.10.6. Mr. Bilvani supported implementation of claw back mechanism without any modification/ change in the sharing thresholds. He also opposed allowing any force majeure allowance for irrecoverable costs for business disruptions to KE.

4.10.7. Regarding the installation of ToU meters Mr. Bilvani submitted that the petitioner should be penalized for non-adherence to the directions of the Authority by not installing the TOU meters and seeking further deferral.

5. **Rejoinder by K-Electric to the comments of Whistle Blower Pakistan (Intervener)**

5.1. The concerns so raised by Whistle Blower Pakistan were forwarded to K-Electric vide letter dated July 26, 2016. K-Electric submitted the following response thereof vide its letter dated September 16, 2016;

5.2. **KE's Tariff Structure**

5.2.1. K-Electric submitted that its tariff structure is performance based, the essence of which is that it self penalizes the entity for any inefficiency. Under this mechanism, the consumer does not have to bear the burden of inefficiency at the utility's end, rather the entity is incentivized to make investment in order to improve efficiency, beat the benchmarks set by the Regulator and earn a reasonable return. In cost plus tariff, the utility's revenue requirement is calculated along with a guaranteed return. If revenue requirement was calculated for K-Electric in previous years, the tariff would have been higher as the company was incurring huge losses. Therefore, keeping the interest of the end consumers in mind, K-Electric was given a performance based tariff which meant that it was not guaranteed any return and had to bear the burden of losses and could not increase the tariff to recoup its costs. It was only by improving generation efficiency and reducing T&D losses that K-Electric was able to reduce costs and become profitable. Now as K-Electric has become profitable, the consumers will benefit from reduction in tariff in the form of claw back.

5.3. **Privatization**

5.3.1. Regarding privatization K-Electric submitted that the same was done after fulfilling all requirements / approvals. K-Electric was in a precarious financial situation before privatization and was incurring huge losses. This financial burden was being borne by GOP in the form of operational subsidies provided to the company to keep it afloat. After



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privatization, K-Electric has now completely changed from an unsustainable loss making entity to an efficiently run profitable utility. This was achieved by investment of Rs.120.7 billion across the value chain since FY09 which increased the generation capacity by 1,037 MW, fleet efficiency increased from 30.4% to 37%, system resilience improved through the reduction of SAIDI by 861 minutes (40%) in last four years, and the reduction of SAIFI by 73% from FY09 to FY15. Further, transformer tripping reduced by 60% between FY09 and FY15, T&D losses reduced from 35.9% in FY09 to 23.7% in FY 15 and 61% of the city has been exempted from load shed. Industry has been kept load shed free since 2010, which has directly contributed to positive economic growth.

5.4. **Monopoly, transparency & competition**

5.4.1. K-Electric submitted that it is important to understand that Pakistan has an evolving power market which needs to address several hurdles before it moves towards a competitive structure. Like new IPPs which are given control periods of more than 20 years, K-Electric's integrated tariff control period is also not an impediment in the process and K-Electric is willing to work with the Regulator as the market develops and the power sector moves towards competition. In a country with a major supply deficit, we feel facilitating investment in the power infrastructure is the first priority. Therefore, providing certainty to the investors through an integrated tariff and a control period of ten years is imperative to attract long tenure investment of PKR 496 billion.

5.4.2. According to K-Electric, being an integrated power provider, K-Electric is responsible for end to end planning for Karachi's power infrastructure and has the ability to plan better infrastructure growth and deliver better services. Power sector planning requires a more holistic approach. K-Electric's integrated structure not only provides it with an added advantage in terms of planning but it also gives it the ability to invest at a cheaper rate in the absence of sovereign guarantee. Having said that, an integrated tariff does not result in lack of transparency. It may be noted that where relevant, NEPRA has already given separate operational performance benchmarks such as generation heat rate, auxiliary consumption and T&D losses. In addition, with audited financial statements that are publically available, K-Electric has given all stakeholders significant visibility into its operations and finances. Moving forward, K-Electric is willing to work with the Regulator to devise segmental reporting procedures for each business unit to further enhance transparency.

5.5. **Profits**

5.5.1. K-Electric regarding its profits submitted that the turnaround has been achieved through relentless dedication and commitment. In total, K-Electric has invested over Rs.120 billion across the value chain since 2009, including Rs.81.4 billion in generation. This investment enabled the Utility to add 1,037 MW in the generation capacity and improve overall fleet



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efficiency from 30.4% in FY 09 to 37% in FY 15. As stated earlier there has been an increase in transmission capacity of 768 MVA (19.5%) and in distribution capacity of 2,351 MVA (55%) through enhancements in infrastructure. T&D losses reduced from 35.9% in FY 09 to 23.7% in FY 15. Further, there was a reduction in fault rates and transformer tripping, system resilience improved and consumers experienced better customer service through one-window solution in the form of Integrated Business Centers (IBC). All these measures resulted in K-Electric recording its first profit in FY 2012 after several years and has been able to exempt 61% of the city from load shed to date. It is important to understand that "high profit" is a relative term. K-Electric has earned profit before tax of Rs.1.7 billion to Rs.15 billion in the last four years which translates into a return on capital & reserves ranging from 1% to 10% and a return on assets ranging from 1% to 8% in the last four years. These are lower than the current market returns as IPPs are being allowed dollar based IRR ranging from 15% to 17% (IRR of 22-23% in PKR terms). In spite of low profit, K-Electric's shareholders did not take any dividends and preferred to re-invest all the profits back in the company to continue the improvement process.

5.5.2. K-Electric also submitted that its financial statements, available to public, are duly audited and K-Electric is compliant with all rules and regulations in this regard. Details of all material litigations are also disclosed in K-Electric's financial statements as per the requirement and hence publically available.

5.5.3. K-Electric also submitted that it has been able to reduce T&D losses significantly over the last seven years (by 34% since FY 09) and even though they are still higher than the benchmark, an improvement of 34% has provided the business justified relief in form of profits. Further, as per the performance based tariff structure, the utility has the right to retain the earning arising from efficiency gains which is the incentive it gets to continuously invest in beating the benchmarks and improving service quality, especially when there is no guaranteed return on its investments. While the performance based structure prevents the utility to pass on costs of inefficiencies to the consumers, the integrated structure provides the ability to absorb the costs through cross subsidizing the business segments and incur investments to improve the performance. Moreover, the tariff structure has an in-built protection mechanism to ensure that excess efficiency gains are shared with consumers in the form of claw back.

5.6. **Separate tariff**

5.6.1. Regarding the segregation of tariff in three segment wise components, K-Electric submitted that in line with the vision of developing the best possible mode of functioning in the greater interest of customers, K-Electric's management evaluated the option of unbundling the company which was also encouraged by NEPRA. K-Electric started examining the benefits, feasibility and cost implications of unbundling and also engaged A. F. Ferguson & Co. (AFF) and PricewaterhouseCoopers LLP (PwC) to analyze the implications of unbundling. Based



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on the analysis, it was concluded that, unbundling in a current scenario (a) would not be the commercially and practically viable option; and (b) would result in an increase in cost in view of the associated issues.

5.6.2. K-Electric also submitted that being a unique organization it has the overall responsibility for developing and managing the power infrastructure in Karachi. This means that unlike other generation and distribution companies, it has to carry out end to end planning of the city's energy system without any sovereign guarantee or GOP support. The integrated tariff structure provides the appetite for further investment and a bankable security structure to pave way for financing of the investment specifically in the absence of any GOP support. Further, the tariff structure has an in-built protection mechanism which ensures that excess efficiency gains are passed on to the end consumer in the form of claw back.

5.6.3. K-Electric further submitted that all the modifications/ adjustments requested in the tariff petition will enable K-Electric, in the absence of sovereign guarantee and GoP support, to deliver its much needed business plan for the betterment of Karachi. The delivery of business plan will help to enhance the capacities inline with the growing demand, improve the performance and bring in efficiencies resulting in lower real tariffs in the long term.

5.6.4. According to K-Electric, being an integrated utility, K-Electric cannot be compared with other Ex-WAPDA DISCOs and NEPRA Tariff Guidelines formed for these DISCOs are not applicable to KE. Further, KE has already provided all the relevant support information required under NEPRA Tariff (Standard and Procedure) rules. It is important to note that KE is the only listed power utility in Pakistan and duly audited financial statements are publically available. All relevant information and documents including daily generation, fuel costs, power purchase details etc. are provided to NEPRA under different reporting mechanisms.

5.6.5. With respect to tariff charged to consumers, KE submitted that it should be noted that the tariff is to be determined for a "supply" of electric power services (whether generation, transmission or distribution) by one party to a different third party. For instance, the "supply" of electric power services takes place when a generating entity supplies electricity to a different entity engaged in transmission; when a transmission entity supplies electric power to a different entity engaged in distribution; or when a distribution entity supplies electricity to a consumer. In the case of K-Electric, the entire sequence is contained within one entity. In other words, K-Electric itself generates, transmits and distributes electricity. The only time that there is a transaction between K-Electric and a third party is when K-Electric sells electricity to the end consumer. It therefore follows that there should be only one tariff applicable to K-Electric, i.e. the tariff to be charged by K-Electric from end consumers.



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5.7. **Dual fuel consumption**

5.7.1. Regarding measurement of fuel consumption in dual fuel plants, KE clarified that in all dual fuel plants, oil & gas are burnt simultaneously in the boiler. Fuel flow meters are installed on gas and FO supply lines that measure consumption of gas and furnace oil separately. The electricity generation is metered on the bus bar through energy meters. Therefore there are no means of swindling in fuel consumption even if both fuels are being used simultaneously as the flow meters record the inflow of each fuel respectively.

5.8. **Fuel cost adjustment related to up to 300 units**

5.8.1. With respect to fuel price adjustment, KE submitted that the negative adjustments are not passed to residential consumers with consumption below 300 units as per policy directive of MoW&P and in line with NEPRA's decision. However, the amount of Fuel Surcharge Adjustment (FSA) not passed to those consumers is deducted from the unrecovered cost in the quarterly variations, thereby adjusting the total tariff.

5.9. **Old plants and Aggreko**

5.9.1. Regarding the operations of Rental power plant namely Aggreko, KE submitted that given the power shortage in 2009 and exhaustion of useful life of old plants with efficiency less than 20%, it was essential that new efficient plants be installed. Accordingly gas based plants were planned and installed on fast track basis and were commissioned from 2009 to 2012. In the meantime, in order to provide a short term relief till the installation of new plants, K-Electric entered into a power rental agreement with Aggreko in 2008. Two plants of 25 MW each were brought online in December 2008 and March 2009, which provided a major relief to the city's energy need. These rental power plants were an interim solution to bridge the demand supply gap until the new plants come online and accordingly were decommissioned when new and efficient fuel plants were added to K-Electric's own fleet.

5.9.2. KE further submitted that the decision of dismantling the old inefficient plants and investment in new plants proved to be correct as these efficient combined cycle plants increased the generation capacity and helped to supply more power on same available gas through increased efficiency.

5.10. **Generation – Combined cycle conversion and Heat Rate**

5.10.1. K-Electric's management installed four new generation plants since 2009 with installed capacity of over 1,000 MW. This initiative required huge investment and the same was planned keeping in view the demand supply situation and the life of existing plants. Therefore certain plants, such as GTPS Kemari, were installed on simple cycle based on the



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availability of funds and the construction timelines. However, those plants were also converted to combined cycle in due course. K-Electric's plants were acknowledged by reputable organizations. As an example, 90 MW GE Jenbecher Site and 90 ME GE Jenbecher Korangi were termed the 'Best Fast Track Project' and 'Best Plant in the Region' respectively by Asian Power magazine. K-Electric's BQPS-II state of the art 560 MW gas power plant has also been widely praised and won the international award provided by IFC/The Economist. Regarding saving on the account of combined cycle plants, it is stated that K-Electric has a performance based tariff structure. Under this mechanism, the utility has the right to retain the earning arising from efficiency gains which is the incentive it gets to continuously invest in outperforming the benchmarks and improving service quality, especially when there is no guaranteed return on its investments. However, the tariff structure has an in-built protection mechanism to ensure that excess efficiency gains are shared with consumers in the form of claw back.

5.11. **Load shed policy**

5.11.1. K-Electric has a well thought and considerate strategy for the citizens of Karachi. K-Electric's Segmented Load shed (SLS) policy divides feeders based on their loss profile which is determined by the T&D losses and recovery ratios in any particular area. High Loss areas in Karachi face up to 7.5 hours of load shedding in the summer months (when energy demand is at its peak) whereas low loss areas face no load shedding whatsoever.

5.11.2. The success of the scheme is clear from the fact that there has been a shift of several areas from high loss to low loss. It is also relevant to point out that at the time when K-Electric's SLS scheme was launched some years ago, there was unscheduled load shed across the board but due to consistent approach and application of the scheme across the city without any discrimination, around 61% of the city is exempted from load shed and there is a growing acceptance that stealing of electricity and illegal abstraction of electricity is a menace which affects all consumers of Karachi equally. Even otherwise this issue has been raised in various constitutional petitions / proceedings before the Honorable High Court of Sindh and elsewhere as the same is similarly sub-judice. The SLS scheme has been so successful in Karachi, in terms of improving financial viability and consumer behavior that Ex-WAPDA DISCOs have also adopted this model, and the MoW&P has formally approved it as part of the National Power Policy 2013.

5.12. **ToU meters**

5.12.1. Regarding the matter of ToU, KE submitted that the matter is being discussed separately with NEPRA, and should be resolved as per the decision reached in respective discussions with NEPRA. K-Electric also urges NEPRA to resolve TOU tariff issues with the issuance of this tariff determination.



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5.13. **Billing**

5.13.1. K-Electric regarding the issue submitted that all K-Electric bills are issued in accordance with the relevant provisions read together with CSM. K-Electric has instituted a centralized billing system under which meter readings are taken through Hand Held devices (HHU) which are connected to the systems. K-Electric has installed controls at several levels to ensure correctness of data entered into the system through these devices. These controls limit the chances of discrepancies in the billing system. Further, if consumers feel that there is some discrepancy in their bills, they can register a complaint through various forums available such as call center, email, social media etc. These complaints are then looked into as per the facts and resolved accordingly.

5.14. **Post privatization period**

5.14.1. K-Electric also submitted that the Financial Improvement Plan (FIP) was paid to K-Electric as part of the Implementation Agreement at the time of privatization to support investment in transmission and distribution system. The amount received was spent on the respective projects and as such has no impact on tariff as K-Electric does not recover cost of investment through tariff but instead is allowed a performance based tariff that has been explained earlier. However, it is important to note that K-Electric was in a precarious financial situation before privatization and relied on operational subsidy from the GoP to keep it afloat. That has not been the case since privatization.

6. **Rejoinder filed by K-Electric to the comments of Karachi Consumer Forum (Intervener)**

6.1. The concerns so raised by Karachi Consumer Forum were forwarded to K-Electric vide letter dated July 20, 2016. K-Electric submitted the following response thereof vide its letter dated August 12, 2016;

6.2. **Fuel Prices & Subsidy**

6.2.1. Fuel prices and Subsidy, KE submitted that it has Multi-Year Tariff (MYT) in which fuel price variation on account of own generation and power purchase cost are passed through in the tariff along with CPI indexation of O&M. This means that market fuel prices are reflected in consumer tariff which showed a reduction as a result of recent drop in fuel prices.

6.2.2. KE further submitted that it has not received any subsidy for operational support from GOP since privatization. It is important to understand that the Government has a uniform tariff policy for consumers across Pakistan and accordingly does not allow DISCOs like KE to charge full determined tariff to the consumers. As per this policy the GOP bears the burden of the differential between the determined tariff (given by NEPRA) and the lower applicable



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tariff that is charged to the end consumer. This is called the 'Tariff Differential Claim (TDC)'and is a relief for customers and not a subsidy to support KE. Tariff Differential claims are filed as per notified rates and are duly verified by the Ministry. However, it is important to note that KE was in a precarious financial situation before privatization and was incurring huge losses. This financial burden was being borne by GOP in form of operational subsidies provided to the company to keep it afloat.

6.3. **Increase in O&M component is unjustified**

6.3.1. According to KE, in 2009 petition KE asked for an increase of Rs. 0.64/kwh in the O&M component as the shortfall in O&M had accumulated due to an in-sufficient base tariff in 2002 and an increase in costs faster than CPI. NEPRA, however, allowed an increase of Rs. 0.15 which meant that the deficit kept accumulating.

6.3.2. Since the new management takeover in 2009, KE has brought in efficiencies in O&M costs by implementing a number of operational improvements across all business units. However, in spite of these efforts, O&M grew in real terms due to increase in generation, transmission and distribution capacities and other efforts for performance improvement. As per the table below, KE's O&M shortfall stands at Rs. 1.44/kwh in FY 2016. KE is willing to absorb more than half of this cost and is only asking for a one time increase of Rs. 0.66/kwh (i.e. 46% of the shortfall).

| | 2016 |
|---|---|
| **O&M (Rs. Million)** | 37,240 |
| **Units Billed (Gwh)** | 12,865 |
| **O&M cost per unit (Rs./ Kwh)** | 2.89 |
| **O&M cost allowed in tariff (Rs./Kwh)** | 1.45 |
| **Shortfall (Rs./Kwh)** | 1.44 |

6.3.3. KE further submitted that it has requested for a small portion of the shortfall which will ensure that it does not divert significant funds away from planned capital expenditure in order to meet the deficit in the recovery of O&M costs. It is notable that, as per the business



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plan after incorporating the impact of 66 paisa, KE will still be bearing average shortfall of Rs. 1/Kwh in the next 10 years on account of O&M.

6.3.4. According to KE, the intervener has stated that KE's employee headcount has reduced by 7000 over the last few years and hence the increase in O&M is unjustified, however, it is worthy to highlight that the decrease in absolute number of employees is due to the fact that certain non-core services have been outsourced. This has been done in line with best practices followed locally as well as internationally to minimize cost and not because these employees were surplus or excessive. It is important to re-iterate that there is still a significant gap between the O&M allowed in the tariff and the actual cost being incurred by KE.

6.4. **Transmission & Distribution Network**

6.4.1. KE submitted that the intervener has argued that KE has not spent any amount on transmission and distribution system maintenance. KE claimed that it has spent over Rs. 36 billion on the expansion and rehabilitation of its transmission and distribution system in last seven years which has resulted in significant improvement in service quality.

6.4.2. Going forward, KE is focusing more on investing in transmission and distribution over the next 10 years. KE has planned an investment of Rs.179 billion in enhancing and upgrading transmission capacity; and another Rs.108 billion in distribution improvements.

6.5. **Change in claw back threshold is not justified**

6.5.1. KE submitted that the intervener has stated that KE has earned huge profits in the last four years and should not be allowed any change in the claw back threshold. According to KE, it is important to understand that "high profit" is a relative term. KE has earned profit before tax, as given in the table below, of Rs. 1.7 billion to Rs.15 billion in the last four years.

| | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|
| | | Rs. in million | | |
| **Profit before tax** | **1,752*** | **4,001*** | **9,575** | **15,076** |
| **Share capital and reserves** | | | | |
| Opening | 113,837 | 125,313 | 128,389 | 130,709 |
| Closing | 125,313* | 128,389* | 130,709 | 157,784 |



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| | | | | |
|---|---|---|---|---|
| **Average** | **119,575** | **126,851** | **129,549** | **144,247** |
| **Return %** | **1%** | **3%** | **7%** | **10%** |
| **Return on operating Assets (Fixed assets and intangible)** | | | | |
| Opening operating assets | 167,514 | 170,443 | 165,186 | 170,663 |
| Closing operating assets | 170,443* | 165,186* | 170,663 | 214,003 |
| **Average** | **168,979** | **167,815** | **167,925** | **192,333** |
| **Return on assets** | **1%** | **2%** | **6%** | **8%** |

*These numbers are as per restatement in 2014.

6.5.2. KE while referring to the table above submitted that it has earned a return on capital & reserves ranging from 1% to 10% and a return on assets ranging from 1% to 8% in the last four years. These are lower than the current market returns as IPPs are being allowed dollar based IRR ranging from 15% to 17% (IRR of 22-23% in PKR terms).

6.5.3. KE Further submitted that in spite of low profit, KE's shareholders did not take any dividends and preferred to re-invest all the profits back in the company to continue the improvement process. Therefore the change in claw back threshold is only a request to rationalize KE's returns in line with the current market rates of returns so that KE is given a level playing field and it continues investing in system up-gradation.

6.6. **Meter Rent & Bank Charges and Concerns**

6.6.1. According to KE the captioned subjects are under discussion in the court and are not related to the tariff discussion.

6.7. **Stay Order**

6.7.1. As far as the stay order issue is concerned, we would like to state that it is KE's legal right to follow the judicial process in case it feels aggrieved from any decision and it is an infringement of KE's legitimate constitutional rights to call for an outright ban on stay orders.

6.8. **High Tariff, Subsidy and Slab System**

6.8.1. KE, responding to the comment of the intervener that KE's subsidy has increased whereas, the tariff has not reduced, explained that as KE does not receive any subsidy for operational support from the Government but rather a tariff differential claim (TDC) which is a relief for consumers. KE, further, clarified that adjustments in the determined tariff are only made on

account of CPI indexation of O&M and fuel cost variations as per a prescribed procedure. The increase in tariff differential claims is a result of government's policy to keep applicable tariff rates constant while determined tariff has increased due to fuel price variations and the change in the slab system is a policy decision taken by MoW&P and NEPRA.

7. **Rejoinder by K-Electric to the comments of the Jamat-e-Islami (Intervener)**

7.1. The concerns so raised by Jamat-e-Islami were forwarded to K-Electric vide letter dated June 22, 2016. K-Electric submitted the following response thereof vide its letter dated August 29, 2016;

7.2. **No. of employees significantly less than in 2009**

7.2.1. KE highlighted that the decrease in absolute number of employees is due to the fact that certain non-core services have been outsourced. This has been done in line with best practices followed locally as well as internationally. It is important to state that there is still a significant gap between the O&M allowed in the tariff and the actual cost being incurred by KE.

7.3. **Increase in customer base**

7.3.1. KE submitted that increasing consumer base does not mean an automatic reduction in tariff. Rather in order to meet the growing demand of Karachi, KE has to make significant investments in increasing its generation, transmission and distribution infrastructure. Since KE has a performance based tariff, the consumer is protected from any imprudent investment and inefficiency on the utility's end. The integrated performance base tariff would give KE the ability to deliver its investment plan with lowest cost and improve system efficiency to further lower consumer tariff over the long term.

7.4. **Reliance on external power sources**

7.4.1. KE submitted that unlike other generation and distribution companies, KE is responsible for end to end planning for Karachi's power infrastructure. In order to meet the growing demand of Karachi, KE not only utilizes its generation capacity but also purchases power from external IPPs. It is incorrect to state that KE does not utilize its own generation capacity and relies only on IPPs or KE has not invested in efficient generation. Over the last few years K-Electric has invested over Rs. 120.7 billion of which Rs. 81.4 billion was spent on enhancing generation capacity and KE was able to add 1,037 MW, as listed below:

- 247 MW Combined Cycle Power Plant at Korangi
- 180 MW GE Jenbacher (GEJB) at Korangi and SITE

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- 50 MW BQPS-1 rehabilitation
- 560 MW BQPS-2

7.4.2. KE also submitted that through adding such fuel efficient plants KE was able to improve its overall fleet efficiency by 22%. KE has planned to invest another Rs. 203 billion on new generation capacity and upgrading existing generation assets over the next ten years as already detailed in the petition.

7.5. **Underutilization of Generation Capacity**

7.5.1. According to KE, with the limited resources available, KE has always strived to optimize generation output and has never intentionally reduced generation capacity. In fact, in the years following 2009, KE has added generation units and enhanced the capacity of older ones to increase the output. It should be noted that certain factors such as gas availability, ambient temperature, availability of gas load, planned and unplanned outages, force majeure etc. play an important role in determining the available capacity at a certain period of time.

7.5.2. KE further submitted that, as required by NEPRA, KE follows an Economic Merit Order (EMO) to utilize plants based on the maximum demand recorded in the load dispatch center (LDC) and as such there is no deliberate underutilization of generation capacities. As per the EMO, power plants are placed in a hierarchy based on their cost effectiveness. The most cost effective plant is utilized first followed by the next in line and so on. The purpose of following the EMO is to produce power at the lowest possible cost so that the end consumer does not bear the burden of high fuel cost due to inefficient operations.

7.5.3. Another crucial factor is the fact that there is a difference between nameplate capacity and actual available energy during operation by KE of its plants, therefore the whole generation scenario needs to be viewed in a holistic way. KE while reiterating its comments, in its rejoinder to comments of Whistle Blower Pakistan, regarding international acclamation of KE's power station BQPS-II, submitted that it remains committed to a long term strategy and providing value to its consumers.

7.6. **Load Shed during Ramzan**

7.6.1. KE submitted that as per Ramzan policy, KE has tried its best to keep Karachi load shed free during the Sehr and Iftar timings. In this respect, KE even held discussions with industrial associations in case it had to load shed the industry, occasionally, to meet the demand deficit during Sehr and Iftar. Therefore it is incorrect to state that households experienced load shedding during Sehr and Iftar timings. Any lack of availability of electric power during these timings was a result of tripping or faults in the system. However KE's team worked round the clock to ensure restoration of power as soon as possible. It is important to keep in mind, as



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already highlighted in the petition that KE's distribution infrastructure is aging and is in need of considerable capital expenditure on maintenance and replacement. KE has invested in up-gradation of the same in the past and plans to invest Rs. 108 billion on up-gradation and expansion of the distribution system over the next ten years.

7.7. **Article 7 & 27 of the Transmission License**

7.7.1. KE denied any violation of Article 7 & 27 of the transmission license and claimed to have invested significantly to upgrade, enhance, plan and maintain the integrity, reliability and efficiency of its transmission and distribution system.

7.7.2. KE further submitted that it has invested around Rs. 36.5 billion since FY 09 in Transmission and Distribution. KE while referring to improvements of SAIFI, SAIDI and MVA's and reduction in transformer tripping and losses from FY-09 to FY 2015, mentioned by it in the rejoinder to comments of Whistle Blower Pakistan under the issue of Privatization claimed that system resilience has improved due to aforementioned improvements and KE has increased transmission capacity by 768 MVA (19.5%) and distribution capacity by 2,351MVA (55%) through investment in T&D infrastructure.

7.7.3. Furthermore, KE also commented that it is focusing more on investing in transmission and distribution over the next 10 years. KE has planned an investment of Rs. 179 billion in enhancing and upgrading transmission capacity; and another Rs. 108 billion in distribution improvements.

7.8. **Lower Furnace Oil Prices & Subsidy compensation ,Charging of Meter Rent , Slab system, Bank Charges , High Profits, Distribution Performance Standards and Load shed**

7.8.1. On the aforementioned issues KE submitted the same response as discussed above however while justifying load shedding, it additionally mentioned that its policy is approved by the Honorable Supreme Court of Pakistan in the judgment reported as 2014 SCMR 220 wherein it has directed that;

*"36...(ii) The competent authority shall take steps to control all kinds of losses after supplying of the generation like line losses, theft. etc. by using modern devices like introducing smart meters and supplying electricity only to consumers, who are ready and willing to make payment, if need be, in advance or without default after submission of the bills.."*

7.8.2. On the performance standards, in addition to what it has mentioned in its rejoinders KE submitted that it has been compliant to Performance Standards (Distribution) rules 2005, rule 3 (3) a- Guaranteed Standard 1 (GS1)-on restoration following unplanned long duration power supply interruptions and states the same in its annual performance report as well.



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8. **Rejoinder by K-Electric to the comment of KCCI**

8.1. The concerns raised by KCCI were forwarded to K-Electric vide letter dated July 22, 2016. K-Electric submitted the following response thereof vide its letter dated August 16, 2016;

8.2. **Distribution License Issue**

8.2.1. KE on the matter submitted that its distribution license is expiring in 2023 whereas, the petition filed asks for a tariff till 2026, KE submitted that it may be noted that the company is a vertically integrated power utility involved in Generation, Transmission and Distribution activities and accordingly has three licenses with different expiry dates for all the functions. Renewal of these licenses is merely a procedural matter and has no link with the tariff control period.

8.2.2. KE also claimed that it has invested in long term infrastructure development and its asset base has a life of over 20 to 30 years. Most of the investment was done during the last 7 years and KE is continuously investing in system up-gradation and expansion every year. This makes the asset base life longer than the expiry of the licenses.

8.3. **Heat Rate, Quarterly & monthly adjustment**

8.3.1. KE submitted that its plants have already undergone heat rate test by independent reputable firms in the presence of NEPRA professionals and KE's quarterly and monthly fuel adjustments are calculated based on the heat rates benchmarked by NEPRA. KE reiterated its comments regarding performance based tariff regime, mentioned in rejoinder to comments of Whistle Blower concerning profits, and submitted that KE has made huge investments since 2009 and, despite the aggressive benchmarks set initially, KE has been able to improve the fleet efficiency along with other indicators. Therefore, quarterly and monthly fuel adjustments should be continued with the NEPRA approved benchmarks.

8.4. **Fleet Efficiency**

8.4.1. KE further submitted that it has invested around Rs.120.7 billion across the value chain since FY 09, which includes Rs.81.4 billion worth of investment in Generation. This represents a 13% increase in total investment compared to the 2009 business plan and has been achieved by foregoing dividends to shareholders and reinvesting profits in the business.

8.4.2. Furthermore, KE mentioned that it was given an aggressive performance benchmarks in 2009 and despite of that KE was successful in increasing the overall fleet efficiency from 30.4% in FY 09 to 37% in FY 15.



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8.4.3. As per the performance based tariff structure, the utility has the right to retain the earning arising from efficiency gains which is the incentive it gets to continuously invest in beating the benchmarks, especially when there is no guaranteed return on its investments. However, the tariff structure has an in-built protection mechanism to ensure that excess efficiency gains are shared with consumers in the form of claw back.

8.5. **Transformer Tripping**

8.5.1. KE while referring to the Post-2009, major efforts were made for optimizing load distribution which resulted aforementioned reduction in transformer tripping (688 in FY 2009 to 274 in FY 2015). Going forward, KE's significant planned investment in upgradation and expansion of the transmission network would mean that there would be no overloading.

8.6. **Generation Capacity**

8.6.1. KE while reiterating its comments regarding Rs. 81 billion investment for enhancing generation capacity mentioned in the rejoinder to comments of Jamat e Islami reliance on external power sources submitted that the additions have resulted in an increase of 1,037 MW in KE's generation capacity over the last seven years. In order to produce cost efficient power and reduce inefficiencies in the system KE decided to decommission power plants that had out lived their useful life and their available capacity & reliability was very low. These plants were highly inefficient and the available capacity mentioned in the generation license did not hold true.

8.6.2. Therefore, KE's efforts and investments to increase capacity should not be undermined by the prudent decision to decommission obsolete plants.

8.7. **Industrial load shed**

8.7.1. Regarding the comments of the intervener, KE reiterated its comments made in the rejoinder to comments of Jamat e Isami under the heading Load shedding during Ramzan and also submitted that the industrial zones experienced load shed occasionally during *Sehr & Iftar* timings. KE also submitted that it maintains a zero load shed policy for industrial zones and has kept the industry free from experiencing load shedding since 2010.

8.8. **Gas Supply Constraints**

8.8.1. KE submitted that GSA discussions are going on separately with SSGC and both parties have agreed on a payment plan for arrears. The company highlighted that KE's payable to SSGC have accumulated in the past due to the liquidity crunch it faces as a result of late payment from other GOP entities and delay in KE's tariff differential claims. However, considering the interests of consumers in mind KE signed a payment plan with SSGC in 2012 which links



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payment of arrears to SSGC with improved gas supply. KE has been paying all its current dues on time since the agreed payment plan and the gas supply has stabilized and is expected to remain the same in future.

8.9. **New Connection time line**

8.9.1. KE submitted that as per clause 4(c), of the NEPRA Performance Standards (Distribution) Rules, the time frame for new connections is specified below:

| Voltage Level | Load | Time Limit (Days) |
|---|---|---|
| 400 v | Upto 15 kW | 30 |
| 400 v | 15 kW - 70kW | 53 |
| 400 v | 70 kW - 500 kW | 73 |
| 11 kV or 33 kV | 500 kW - 5000 kW | 106 |
| 66 kV and above | All loads | 496 |

8.9.2. KE further submitted that it has improved its timeframe for new connections over the last four years and is compliant with NEPRA's performance standards of providing more than 95% of the new connections as per the prescribed time limit.

8.10. **Break up of 61% of the city considered load shed free**

8.10.1. According to KE, Load shed is carried out on the basis of "Feeder Wise" loss profile. The total number of Feeders in FY 2016 stood at 1,524. Of these 61% of the feeders were exempt from load shed; these were profiled as low loss, Industrial and strategic feeders.

8.11. **Estimated GDP improvement of US$ 1-2 billion**

8.11.1. KE also submitted that until 2009 load shed was carried out across the city. Even industrial units were subjected to load shed, meaning loss of output for the economy. Conservative estimate based on 2009 Institute of Public Policy study stated that for every kWh of electricity not available to industry, the economy loses around 50 cents as a national average. After 2010 industries have been exempted from load shed and for additional units provided to the industry it has been estimated that the total contribution to the economy would be in the range of USD 1-2 billion.

8.12. **Benefits of MYT for customers**

8.12.1. KE, while maintaining its stance taken in rejoinder to the comments of Whistle Blower Pakistan under the heading KE' tariff Structure, submitted that it is unfair to say that the only entity that has benefitted from the current tariff is KE and consumers have not gained



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anything. K-Electric has completely changed from an unsustainable loss making utility to an efficiently run profitable utility.

8.12.2. KE further submitted that the integrated performance based tariff structure provides the appetite for further investment and a bankable security structure to pave way for financing specifically in the absence of any GOP support or sovereign guarantee. Under this tariff, KE has been able to invest over Rs. 120.7 billion in the last 7 years. Generation capacity has increased by 1,037 MW, T&D losses have reduced to 23.7%, reliability and quality of power supply has significantly improved and majority of the city is exempt from load shed.

8.13. **Claw back Mechanism**

8.13.1. KE submitted that the KCCI has stated that KE has been exploring the claw back formula and delaying profit sharing with consumers for its own benefit. KE has never refused to share the claw back with consumers and does not seek ways to delay it. There is a difference of opinion regarding the interpretation of the claw back formula for which honorable High Court has been approached and KE supports an expeditious resolution of this issue.

8.14. **Increase in O&M & modification of the X factor**

8.14.1. On the increase in O&M cost, KE maintained the same stance as it submitted in the earlier rejoinders , however with respect to X factor modification, in the current low inflation scenario increase in CPI in May 2015 was 3.16%. This meant that with X factor at 2% (for Generation & Transmission) and 3% (for Distribution) KE was only allowed an indexation of 1.16% and 0.16% respectively. Given that the utility is already experiencing a significant shortfall in O&M component allowing such negligible indexation would result in further exacerbating the deficit. Several cost heads increase faster than the rate of CPI growth and KE is currently being allowed an increase significantly lower than the inflation itself. Therefore it is only reasonable to modify the X factor so that KE has some cushion to manage its O&M costs while also continuously working towards making them more efficient.

8.15. **Working Capital Allowance**

8.15.1. KE submitted that, like other power sector utilities, is severely affected by liquidity crunch due to lack of timely payment by government entities and other public sector consumers. These are uncontrollable and unavoidable costs and it is unfair with KE that it is being made to bear the burden of non-payment by government consumers.

8.15.2. As an example, Karachi Water & Sewerage Board owed Rs. 36 billion to KE as at July 25, 2016. KE cannot disconnect KWSB as it is a strategic consumer and hindrance in its operations will cause difficulty for the entire city



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8.16. **Force Majeure Provision**

8.16.1. KE submitted that it has requested for coverage due to force majeure event such as earthquakes, floods, acts of terrorism etc. KE further submitted that this component is not included in the tariff calculations and has been requested only in case a force majeure event happens, there should be a clause in the determination through which the unavoidable costs could be recovered. This component is included to ensure the ability to cover the costs of resuming the operations and hence lowering the sufferings of consumers at large in case of force majeure event.

8.17. **T&D Losses**

8.17.1. KE submitted that the intervener's statement that KE has accepted defeat with respect to reducing its T&D losses is incorrect as KE has made significant progress towards reducing the T&D losses and has major investment plans to continue to do so.

8.17.2. KE further submitted that the performance benchmarks set initially were aggressive. This issue was also highlighted in the 2009 petition, however, the benchmarks were not revised. KE, however, did not shy away from the challenge and invested to realistically improve T&D as much as possible and continues to do so.

8.17.3. KE also mentioned the improvements in SAIFI, SAIDI and reduction of T&D losses due to its investment around Rs. 36.5 billion since FY 09 in Transmission and Distribution already mentioned in KE's rejoinder to the comments of Whistle Blower Pakistan under Privatization.

8.17.4. KE further submitted that T&D loss phenomena should be understood in the light of ground realities. Karachi is a unique city with its own challenges and dynamics. Unlike other major cities of Pakistan, a significant proportion of Karachi's population lives in illegal settlements on 'unleased' land. KE is unable to install meters in these areas due to the illegal nature of the settlements and has limited avenues to curb the theft of electricity, by residents, through illegal connections to the distribution network. Furthermore, the volatile law and order situation in the city especially restricted access to certain areas, due to localized issues, continues to affect the company's ability to curb theft and ensure timely payments. Total T&D loss is significantly affected by high loss areas such as Liyari, Gadap, Orangi, Baldia and Surjani, etc. KE has administratively divided its distribution areas in 29 parts with each area having its own Integrated Business Centre (IBCs). 12 out of 29 IBC areas are categorized as high loss where distribution loss percentage is 36.4% (2016) due to the challenges above, whereas distribution loss in rest of the 17 IBC areas is 13.7% (2016) i.e. below 15%.



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8.17.5. KE submitted that the intervener has also questioned why there is no relief given to the consumer as T&D losses have reduced from more than 35% to 23.7%. KE further submitted that currently NEPRA's benchmark for T&D loss is 15% which is lower than KE's actual T&D loss and therefore consumers are duly protected from the impact of a higher T&D loss. Further, as per the performance based tariff structure, the utility has the right to retain the earning arising from efficiency gains which is the incentive it gets to continuously invest in beating the benchmarks and improving service quality, especially when there is no guaranteed return on its investments. However, the tariff structure has an in-built protection mechanism to ensure that excess efficiency gains are shared with consumers in the form of claw back.

8.18. **Unbundling & TOU meters**

8.18.1. On the aforementioned contentions, KE has broadly submitted the same arguments as mentioned in the aforementioned rejoinders.

9. **Rejoinder by K-Electric to the comments of SHEHRI (Intervener)**

9.1. The concern so raised by SHERI were forwarded to K-Electric vide letter dated July 20, 2016. K-Electric submitted the following response thereof vide its letter dated August 17, 2016;

9.2. **General comments on KEs performance**

9.2.1. In the initial paragraphs, the intervener has given general comments on the performance of KE and previous Multi Year Tariff determination rather than raising specific issues arising out of the tariff petition. However, KE in its rejoinder highlighted its achievements which it has mentioned in other rejoinders.

9.3. **Non-recovery of substantial arrears from government**

9.3.1. KE submitted that Intervener has shown concern over non-recovery of substantial arrears. KE further submitted that like other power sector utilities it is severely affected by circular debt and has to incur additional working capital costs due to lack of timely payment by government entities and other public sector consumers. These are uncontrollable and unavoidable costs and it is unfair with KE that it is being made to bear the burden of non-payment by government consumers.

9.3.2. KE also submitted that KE is compelled under the Implementation Agreement to continue to supply to certain public sector entities termed as 'Strategic Consumers' despite non-payment of their dues. As an example, Karachi Water & Sewerage Board owed Rs. 36 billion to KE as at July 25, 2016 and KE cannot disconnect KWSB since it is a strategic consumer and hindrance in its operations will cause difficulty for the entire city. KE is currently pursuing legal



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avenues along with approaching Federal and Provincial Government for amicable solution of this issue.

9.4. **Distribution License Issue, High T&D losses and non-recovery from private consumers**

9.4.1. On the aforementioned issues, KE broadly maintained the same arguments as it has submitted in other rejoinders. However, on the distribution license issue it submitted that Pakistan has an evolving power market which needs to address several hurdles before it moves towards a competitive structure. Like new IPPs which are given control periods of more than 20 years, KE's tariff control period is also not an impediment in the process and KE is willing to work with the Regulator as the market develops and the power sector moves towards competition. In a country with a major supply deficit we feel facilitating investment in the power infrastructure is the first priority. Therefore, providing certainty to the investors through a control period of ten years is imperative to attract long tenure investment of over Rs.496 billion.

9.5. **IPP Tariff & Fuel Prices concern**

9.5.1. KE submitted that IPP tariffs are set by NEPRA after due process which includes holding public hearings and addressing concerns raised by interveners. With respect to the fuel prices issue, it is important to understand that fuel prices are mainly driven by international market prices.

9.6. **Concerns on modification/changes in tariff**

9.6.1. KE on the contention reiterated its comments mentioned in its rejoinder to Whistle Blower Pakistan under the contention of Separate Tariff.

9.6.2. KE also submitted that the intervener has not raised any specific concern/argument on the modification changes requested. In the petition KE has already mentioned what challenges it faces and why this tariff petition along with modifications is necessary to enable KE to deliver its investment plan of over Rs.490 billion with lowest cost along with the detailed rationale for each modification.

10. **Rejoinder by K-Electric to the comments of Pasban Pakistan (Intervener)**

10.1. The concern so raised by Pasban were forwarded to K-Electric vide letter dated August 01, 2016. K-Electric submitted the following response thereof vide its letter dated August 26, 2016;



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10.2. **Period of Multi Year Tariff**

10.2.1. -Electric while making submissions on the contention by the intervener repeated its earlier comments, regarding the development, management of power infrastructure in the city, which were part of the earlier rejoinders to the intervener's comments.

10.2.2. KE also submitted that the electricity supply industry is characterized by long-term capital investments. This is especially true for generation and transmission investments (where NEPRA already allows long term tariff). This is because generation and transmission projects essentially require long term planning and involve long gestation periods. As an integrated utility, KE needs to plan for the long term and it requires a longer tariff control period to support its planning horizon.

10.2.3. According to KE, long tenor and regulatory certainty are essential to give investors and lenders the transparency and confidence necessary to make such long term investments. KE has been able to secure 10 year loans on the basis of a continued I-MYT tariff. A longer tariff control period will provide lenders with the necessary comfort that debt will be repaid.

10.2.4. KE also submitted that with respect to impact of economic components, the impact of change in these components such as fuel price and CPI is already accounted for in KE's tariff mechanism. Fuel price variation on account of own generation and power purchase cost is passed through in the tariff and O&M indexation is allowed every year based on the current CPI increase.

10.3. **Increase in capacity and efficiency**

10.3.1. KE submitted that as stipulated in the tariff petition, KE has prepared a comprehensive business plan for next 10 years to meet the growing energy demand of the city. This includes addition of new generation plants, grid stations, transmission lines, feeders and power lines. Along with the addition of capacity, KE has also planned to improve the performance of power system through investments in maintenance and up-gradation of existing generation plants as well as transmission and distribution infrastructure. Further, various distribution initiatives are included in the business plan to reduce the losses and improve the recovery ratio.

10.3.2. As per KE expectations, the increase in capacities will increase O&M expenses as new generation plants, feeders, grid stations etc. would bring the attached O&M requirements. Along with other expenses, these new units would need their respective man power to manage, operate and maintain the systems accordingly. Further, up-gradation and maintenance of existing system also requires expenditure in the form of capital expenditure



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and O&M expenses. Therefore, we disagree with the contention that additional capacities would not result in increase in expenses.

10.4. **Units sent out**

10.4.1. KE while disagreeing with intervener's contention that KE's sent out remains same in all the seasons submitted that KE's units sent out, including units generated by own power plants and power purchased from external sources, depends upon various factors such as gas availability, gas quality and ambient pressure, planned and forced outages, etc. Further, demand is also considered while planning the sent out from KE's system. Demand of electricity increases in summer months and accordingly sent out also increases in those months.

10.5. **Late payment surcharge**

10.5.1. KE submitted that late payment surcharge is a deterrent to avoid late payments and is not compounded as mark-up, instead it's just one time penalty to discourage non/late-payment. Given city's dynamics and challenges, KE is already facing low recovery issues especially in certain high loss areas mentioned above. KE has not asked for any increase in LPS % in these circumstances, however, reduction in % of LPS would encourage non/late payments. Further, LPS is being charged in accordance with NEPRA's rules and regulations.

10.6. **Fix charges from Industrial consumers**

10.6.1. KE submitted that fixed charges are charged to industrial consumers on the basis of "Billing Demand" to compensate for the load used by high load consumers.

10.6.2. According to KE, billing demand was previously defined as the higher of actual maximum demand recorded during the month or fifty percent of total sanctioned load or connected load (whichever is higher). However, since 2011 the formula for computing fixed charges has been changed by NEPRA to ensure that it is billed based on actual maximum load utilized by the consumer. Therefore, the apprehension by intervener that even after charging fixed load, the load is not provided to consumer is incorrect as fixed charges are billed based on maximum utilization by customer.

10.6.3. Regarding its load shed policy for industrial zones KE maintained its stance taken in rejoinder to the comments of Jamat e Islami under the heading of Load Shed during Ramzan and submitted that the fault rates have considerably reduced since last few years.

10.6.4. Further, with respect to minimum charges payable against reservation of load, these are only levied in case electricity bill of the consumer is below the threshold defined in Schedule of Tariff.



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10.7. **Response center-118**

10.7.1. KE submitted that it has set up state of the art 118 Response center through which service representatives are available round the clock to assist consumers with different types of complaints and queries. KE doesn't charge any amount to consumers for these services.

10.8. **Increase in O&M, High Profits , Under-utilization of generation capacity, Modification in x-factor, Claw back, Working capital allowance, Force majeure event, T&D infrastructure , T&D Benchmarks , Fuel**

10.8.1. On the aforementioned contentions, KE has broadly submitted the same arguments as mentioned in afore stated rejoinders.

11. **Rejoinder by K-Electric to the comment of AKLA(Intervener)**

11.1. The concern so raised by AKLA were forwarded to K-Electric vide letter dated August 01, 2016. K-Electric submitted the following response thereof vide its letter dated September 01, 2016;

11.2. K-Electric with respect to concerns on import of power from NTDC, submitted that it procures power from IPPs and NTDC in addition to its own generation so that it has the ability to meet the growing demand of Karachi. Given the limited resources available, K-Electric has always strived to optimize generation output and has never intentionally reduced generation capacity. It should be noted that certain factors such as gas availability, ambient temperature, availability of gas load, planned and unplanned outages, force majeure etc. play an important role in determining the available capacity at a certain period of time. Further, as required by NEPRA, K-Electric follows an Economic Merit Order (EMO). As per the EMO, power plants are placed in a hierarchy based on their cost effectiveness. The most cost effective plant/power source is utilized first followed by the next in line and so on. The purpose of following the EMO is to produce power at the lowest possible cost so that the end consumer does not bear the burden of high fuel cost due to inefficient operations. K-Electric utilizes power from NTDC on this basis and hence has consumer's interest in mind.

11.3. With respect to the suggestion that K-Electric should be added to country wide generation basket, K-Electric stated that it is the only privatized and vertically integrated utility operating in Pakistan with end to end responsibility of generation to distribution without any sovereign guarantee. Hence, making it part of one generation basket is administratively and commercially not possible under existing power generation structure in Pakistan.

11.4. With respect to marginal cost, K-Electric mentioned that it was ECC's decision to treat K-Electric at par with other DISCOs for power purchases from NTDC and accordingly NEPRA



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has approved K-Electric's monthly and quarterly tariff determinations using the basket rate, as applicable for other DISCO's. Here it is important to understand that the fuel costs are pass through in KE's tariff and therefore if K-Electric is able to supply cheap power, the end consumers benefit the most and not the utility itself. Any reduction of 650 MW from NTDC would result in prolonged hours of load shedding across the city of Karachi and its industrial zones which would have a negative impact on Pakistan's economy and would not be in the interest of all stakeholders.

12. **Rejoinder by K-Electric to the comments of Mr. Arif Bilvani (Intervener)**

12.1. The concern so raised by Mr. Bilwani were forwarded to K-Electric vide letter dated August 01, 2016. K-Electric submitted the following response thereof vide its letter dated August 17, 2016;

12.2. K-Electric stated that in the initial paragraphs, the intervener has given general comments on the previous Multi Year Tariff determination rather than raising specific issues arising out of the tariff petition. However, KE would like to comment that the previous MYT determination was not detrimental to the consumers, rather it proved to be beneficial. As also explained in the petition, K-Electric performed well under the MYT regime in the last seven years and consumers benefited in the form of increased generation, capacity enhancement in transmission & distribution, network reliability and improved customer service. KE mentioned its achievements through its investments in generation and T&D already mentioned mainly in KE's rejoinder to the comments of Whistle Blower Pakistan under the heading of Privatization.

12.3. KE, while again, re-stated its comments regarding benefits of incentive based tariff vs cost plus, in its rejoinder to the comments Whistle Blower under heading of Tariff Structure. KE further said that KE's Multi Year Tariff of 2002 along with continuation in 2009 was determined by NEPRA after due process and discussions in public hearings were done on all the issues. The Intervener was also part of the proceedings and shared his concerns which have already been considered and addressed by NEPRA in the respective tariff determination.

12.4. **Assessment of Heat rate and penal provisions for in-efficient utilization**

12.4.1. , regarding the self-penalizing mechanisms in its MYT and appetite for continual of investments, to the comments mentioned in its rejoinder to comments of Whistle Blower Pakistan, stated that NEPRA has also defined performance standards with penal provisions to ensure efficient and reliable supply to consumers.

12.4.2. KE while mentioning the investments made by it in generation and T&D, also stated the improvements achieved by it and submitted that a 13% increase in total investment



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compared to the 2009 business plan and has been achieved by foregoing dividends to shareholders and reinvesting profits in the business.

12.5. **Cancellation of all the stay orders obtained by KE and amendment in implementation agreement**

12.5.1. KE with regard to the contention, reiterated its comments made in the rejoinder to the comments of the Karachi Consumer Forum under the heading of stay orders and submitted that it is an infringement of KE's legitimate constitutional rights to call for an outright ban on stay orders.

12.5.2. KE further submitted that the Implementation agreement is a legal binding agreement between K-Electric and GOP and amendments to the IA were agreed mutually by both the parties. Also, the intervener has raised similar concerns relating to amendment of IA in past tariff proceedings which have already been considered and addressed by NEPRA.

12.6. **Doubts on execution of coal project**

12.6.1. KE submitted that the Intervener has raised doubts over the execution of the coal projects and raised concern that KE will not get the required financing for the same. We would like to submit that KE has prepared the 10 year business plan after due discussions with various parties and chalking out a workable strategy. For coal plant to be commissioned in FY 20, KE has formed a joint venture with Chinese companies and land has been acquired for this project. Further, upfront tariff has been approved by NEPRA. The project has entered in advance stage and financial close is expected in few months as KE has received extremely positive feedback from both local and international lenders in the form of Term Sheets.

12.6.2. KE also submitted that it is important to note that the Government of Pakistan (GoP) does not provide any sovereign guarantee to KE and its lenders for investments. Therefore, KE is responsible for securing investments in generation (including contracting with IPPs), transmission and distribution. While this is a challenge in itself, there are additional complexities associated with attracting and contracting with IPPs which do not get a GoP guarantee. This illustrates the unique position of KE in the Pakistan electricity sector and the necessity to continue the existing I-MYT structure which is essential to enable KE to raise financing for its proposed investments using cross-business security structures. Under the umbrella of integrated structure KE has been able to secure financing of around US$415 million for TP-1000 and other distribution projects. Further, as mentioned above, KE was also successful in forming a joint venture with Chinese companies for the coal project. Despite the challenge of absence of sovereign guarantee, KE is confident to secure further financing and to attract new power producers through offering a bankable security under the continuance of current I-MYT structure.



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12.7. **Focus on gas based plants and revival of BQPS-1 units**

12.7.1. KE regarding the contention submitted that considering the situation of power shortage in 2009 and exhaustion of useful life of old plants having efficiency below 20%, it was essential that new plants on gas with high efficiency should be installed. Accordingly four new gas based plants were installed in the last seven years. These plants were installed on fast track basis and were commissioned from 2009 to 2012. The decision of investment in these plants proved to be correct as these efficient combined cycle plants increased the generation capacity and helped to supply more power on same available gas through increased efficiency. There would have been significant electricity crises if these plants were not installed as the old plants had already completed their life and were highly in-efficient.

12.7.2. KE further submitted that going forward, as stipulated in the business plan, KE has planned to further diversify the fuel mix by adding coal, LNG and dual fuel plants on its fleet. Along with the addition of new projects, KE has also planned to invest around Rs.40 billion on maintenance and upbringing of existing fleet in the next 10 years. This includes comprehensive program for rehabilitation of BQPS units to improve the reliability and availability of these legacy units.

12.8. **Capacity of 2,300 MW to be added from external power producers**

12.8.1. KE, considering the growing demand in future, has planned to add capacity of 2,300 MW through external power producers in the next 10 years. KE has included these projects in the business plan on the basis of agreements, signing of contracts and on–going discussions with various parties. Details of major projects planned to come online in next 2-3 years are given below:

12.9. **Sindh Nooriabad Power Company ("SNPC") IPP – 104 MW**

12.9.1. KE submitted that Sindh Nooriabad is a gas based IPP under public-private partnership with capacity of 104 MW. The project will be divided in two phases designated as SNPC–I and SNPC-II. Under this project, power plant and transmission lines infrastructure are at an advanced stage of construction and gas allocation has been approved. K-Electric has initialed the PPAs with SNPC and SNPC-II and the same will be signed after regulatory approvals.

12.10. **Fauji Coal IPP – 52 MW**

12.10.1. According to KE, Fauji Fertilizers Bin Qasim Limited is setting up a power plant through its subsidiary FFBL Power Company (FPCL) with capacity of 118 MW. This power plant will supply electricity to K-Electric as well as Fauji Fertilizers Bin Qasim Limited. KE will get capacity of 52 MW (net) at 50 Hz. NEPRA had issued the tariff determination for this project,



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however, review petition has been filed by FFBL Power Company Limited (FPCL), which is currently under review with NEPRA. PPA will be signed between the parties, post completion to the regulatory approvals. Construction of the project is underway.

12.11. **Oursun Solar – 50 MW**

12.11.1. As per KE submissions, in order to encourage renewable resources, KE is engaged with several reputable solar power project developers for setting up 100-150 MW solar power plants under IPP structure in its licensed area. The Meeco Group headquartered in Switzerland, through its local subsidiary Oursun Solar, is interested in developing a 50 MW Solar IPP, wherein KE will be power purchaser. The Power Acquisition Request for this project has been admitted by NEPRA and upfront tariff for the project has been allowed. Land for the project has been acquired and PPA draft is being prepared by KE for negotiation and finalization.

12.12. **Coal Conversion of BQPS -1 – 420 MW**

12.12.1. In pursuance of its fuel diversification strategy, KE stated that it is in the process of converting two furnace oil-based units (2x210 MW) out of six units of its 1,260 MW BQPS-1 to coal. An IPP has already been formed for this project by the name of K-Energy (Pvt) Limited, to which KE will lease out units 3 and 4 of BQPS-1.

12.13. **Embedded Generation plan of 1,000 MW (including 750 MW through external IPPs)**

12.13.1. KE has planned to add capacity of 750 MW on its system through three IPP projects of around 250 MW under the umbrella of embedded generation plan. These plants will be developed in areas having high density of load requirement and will help to address the transmission constraints.

12.13.2. KE has started the initial activities of these projects such as signing of Letter of Interest and preparation of Power Purchase Agreement, in collaboration with the respective parties. Further, KE has started discussions with NEPRA on the plan for embedded generation projects.

12.13.3. KE is in discussion with the relevant parties for the projects that are expected to be online after four years and is confident that it will be able to achieve the business plan given the assumptions in the petition stay valid.

12.14. **Financing of new projects**

12.14.1. KE submitted that it disagrees with the intervener's contention that KE is putting pressure on the authority by stating that lending terms will have to be re-negotiated in case there is a



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change in MYT structure. This fact needs to be understood that long term projects do need a certainty to be able to attract the investors and lenders, this is the reason why generation projects are given a tariff of 25 to 30 years along with sovereign guarantee. KE's investment of above Rs.120 billion in last regulatory period speaks out the confidence of investors/ lenders that KE has been able to build on the system and the tariff structure. Backing on this confidence, KE has negotiated loans of around US$ 415 million and the lenders, as per the dynamics of power sector, do need certainty and stability for at least the repayment terms. In case of change in tariff structure, there will be uncertainty which will affect the lender's confidence and will result in delay or termination of the project as lenders would want to re-negotiate financing terms to cover their risk.

12.15. **Investment in T&D system and T&D loss reduction benchmark, KE should file separate tariff petitions with investment strategy, Increase in O&M component of tariff, High profits, Relation of KE's tariff with fuel price and subsidy, Forced Majeure , Deferral of TOU meters , Change in Claw back threshold**

12.15.1. On the aforementioned contentions, KE has broadly submitted the same arguments as mentioned in rejoinders to the comments of the aforementioned interveners. However, on the issue of provision for doubtful debts KE has additionally submitted that Intervener has shown concern over increase in provision. KE submitted that it would like to draw attention to the ground realities and dynamics of the city. Karachi is the largest city of Pakistan (population wise) with its own challenges. As explained above, challenges such as illegal settlements, illegal connections by residents, volatile law and order situation and restricted access to certain areas affect the company's ability of recovery. As in the case of T&D losses, K-Electric's recovery loss is also significantly affected by the high loss areas, where it's recovery loss is around 29% (2016). Accumulated Technical and Commercial (AT&C) loss in these areas is as high as 55% (2016). Recovery has a direct impact on K-Electric's cash flow and K-Electric has invested in a number of initiatives to increase the recovery ratio and improve losses which include offering consumers alternative payment channels, setting up a special instalment facility, partnering with collection agencies and collaboration with law enforcement agencies for recoveries. As a result of these initiatives, collection rates have increased to 90.4% in FY15.

12.15.2. K-Electric also submitted that it has planned to further focus on pulling back lost units and improve recovery through investment in different projects. These include installation of Ariel Bundled Cable to curb theft and improve the system reliability, installation of smart grids, providing easy facility for new connections through Mobile New Connection Vans (MNCVs) and installation of meters at low cost on easy payment instalments for customers residing in low income areas. Considering the difficulty of consumers for paying old dues, K-Electric provides instalment facility to such customers. Further, KE also plans to initiate smart



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metering and remote disconnection and continuation of anti-theft drives with law-enforcement agencies. Along with these initiatives, KE is focusing on engaging with the customers through an outreach program to improve communication with customers and educate them in respect of the costs of theft.

13. **Commentators**

13.1. Written Comments were also received from the following commentators;

| Sr. # | Name of Commentator |
|---|---|
| 1 | Layton Rahmatulla Benevolent Fund (LRBT) |
| 2 | Voice of Karachi (VOK) |
| 3 | Overseas Investors Chamber of Commerce and Industries (OICCI) |
| 4 | Sindh Institute of Urology and Transplantation (SIUT) |
| 5 | Mr. Aneel Mumtaz |
| 6 | Oursun Solar |
| 7 | Government of Sindh (GoS) |
| 8 | Central Power Purchasing Agency Guarantee Limited (CPPA-G) |
| 9 | Federation of Pakistan Commerce and Industries |
| 10 | Karachi Business Intelligence Wing |
| 11 | The Citizen Foundation |
| 12 | Mr. Ali Raza Rind Chairman UC 7, Jehababad Karachi |
| 13 | Mr. Ghulam Rasool Rekani, Chairman UC 6, West, Karachi |
| 14 | United Bank Limited (UBL) |
| 15 | Habib Bank Limited (HBL) |
| 16 | Mr. Moeen Aamir Pirzada, MPA and Mr. Qamar Abbas Rizvi, MPA |

13.2. **Comments from Government of Sindh (GoS)**

13.2.1. A brief of the submissions made by the Government of Sindh, Energy Department is as under;

13.2.2. The GoS while referring to K-Electric business plan of Rs.496 billion, submitted that being a Utility, the Petitioner should invest and focus on the improvement of its distribution business to achieve reliability and quality service to the end consumers, as GoS has already taken measures to invest in the generation business through gas / renewable technologies and to cater for the transmission business in the province, STDC has been established.

13.2.3. K-Electric's privatization resulted in significant foreign direct investment in the country and the Petitioner despite number of issues in terms of labor union and internal operations have shown improvements to some extent in the service since 2009, however a lot more can be done to improve the services like;

- Addition of renewable energy in the Business plan

- Retiring / aging of the plants and replacement of 650 MW NTDC supply in 2020 has not been covered/ taken into account.
- Maintenance of the spinning reserve has not been mentioned for the next ten years
- Improvement in feet efficiency from 37% to 43% is not sufficient in lieu of 72% addition of new plants.

13.2.4. The GoS on the increase in O&M component and other modifications requested in the tariff, submitted that the Petitioner has not mentioned the break-up of the estimated amount/ financial impact of planned projects and break-up of the completion period in relevant components for the proposed 10 years, which requires to be clarified by designing a bar chart / work plan for the knowledge of the stakeholders, as probably the financial impact of all projections would be in trillions which is expected to be borne by the consumers/ stakeholders. The Petitioner has proposed MYT for 10 years on the basis of projected investments in future, which are yet to be materialized, therefore, its impact to be incorporated in the MYT from the beginning is unjustified. Alternatively, once the projects are executed and the costs are justified, only then the Petitioner should ask for increase in tariff.

13.2.5. The GoS also questioned Petitioners' claim of improvement in O&M and minimization of T&D losses, thus achieving high efficiency vis a vis its request to keep the efficiency factor X at the same level. The GoS opposed the request of allowing working capital allowance, force majeure provision and change in claw back thresholds due to improved financial health. The GoS opined that the proposed increase of Rs.0.66/kWh in O&M cost may be rationalized up-to 25% and the time period of ten years be rationalized up-to 33%. The GoS also requested to ensure proviso of net metering / roof top solar system during the tariff control period.

13.3. **Comments- CPPA-G**

13.3.1. A brief of comments submitted by CPPA-G is as under;

13.3.2. CPPA-G submitted that the Petition lacks details on assumptions, rationale and plans that form its basis. CPPA-G suggested a detailed review of the last MYT in terms of K-Electric's actual performance against the targets set by the GoP (Implementation agreement) and the Authority; what was allowed in the tariff to be charged from the consumers and the actual expenses incurred by K-Electric as it may have over recovered e.g. if K-Electric did not make the investments as allowed by NEPRA, then the depreciation charge allowed at the start of the control period would have resulted into incremental revenues. CPPA-G recommended for having an annual review of K-Electric's performance against the targets to true up the expenses and adjust the tariff subsequently. CPPA-G proposed a Tariff control period of three years.

13.3.3. Regarding investment of Rs.496 billion proposed by K-Electric, CPPA-G argued that no information has been provided about the MVAs that will be added in the distribution network, logically it should be more than 3,370 MVAs to be added through power transformers, therefore, a thorough review of the planning processes, capabilities and plans needs to be conducted before approving this huge investment. Further, K-Electric anticipates that maximum demand will grow by 72% in next ten years, whereas details of the forecast method and assumptions have not been provided, which needs to be validated before allowing over $ 4 billion investment.

13.3.4. While opposing change in the claw back thresholds being not comparable with the IPPs, CPPA-G also suggested to re-examine the efficiency factor X upward. On the request of K-Electric for increase in O&M cost by Rs.0.66/kWh, based on the pretext of O&M cost being increasing at higher rate in recent times than CPI, CPPA-G suggested that any modification in this regard should be applied retrospectively as in the past O&M cost did not increase in proportion to CPI.

13.3.5. On the issue of 650 MW, CPPA-G submitted that intake of 650 MW should have been ceased in 2015 instead of 2020 and the additional five years intake needs some serious considerations by the Privatization Commission and the Authority. CPPA-G further mentioned that as per K-Electric, 5,349 MW will be available in FY 2026 with peak demand of 5243 MW i.e. a net surplus of only 106 MW, which based on the grid code is too less of a reserve (contingency, operating and spinning reserve).

13.3.6. CPPA-G proposed that the Revenue requirement for the Generation, Transmission and Distribution segments of K-Electric be worked out separately and then aggregated to form the integrated tariff and financial statement be prepared separately by K-Electric to provide a better insight into the business and to understand the efficiencies and inefficiencies.

13.3.7. On the issue of T&D losses, CPPA-G submitted that K-Electric has not achieved the target of 15% for the FY 2015 as its actual loss stood at 23.7%. Moreover, the segregation of losses into technical and commercial losses is not available, therefore, it is not clear what percentage of loss reduced from 35.9% to 23.7% in FY 2015 was commercial and technical. Similarly for the proposed reduction of losses from 23.7% to 13.8% from FY 2017 to FY 2026, no break-up is available in terms of reduction in commercial and technical losses. This is important as technical and commercial losses need different interventions with huge difference in capital requirements. CPPA-G opined that K-Electric's technical losses are in single digit and rest are administrative losses. CPPA-G was also of the view that once K-Electric supply exceeds its demand, AT&C based load shedding may become difficult to implement, resultantly the loss especially the administrative loss may become more challenging to control. Also the collections of 90.5% for the FY 2015 may deteriorate once load shed in non-paying areas is over in future. Therefore, K-Electric plans of loss reduction need to be looked into detail.



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Further, implementation of smart technologies in terms of what will be implemented and its accrued benefits needs to be elaborated.

13.4. **Commentator -Voice of Karachi**

13.4.1. Voice of Karachi a civil society organization in its written comments submitted that determining the tariff for ten years will have positive effect on welfare of the society, economic efficiency as well as financial performance which will give sense of certainty to citizens of Karachi and also able KE to make its business plan in economically and efficient way.

13.4.2. The commentator further submitted that the KE improved immensely and reduced the power shortage and load shedding significantly. Voice of Karachi also submitted that KE is performing its corporate social responsibility in terms of supplying free electricity to hospitals, education and welfare institution. In view thereof Voice of Karachi support KE's petition.

13.5. **Commentator -Sindh Institute of Urology and Transplant (SIUT)**

13.5.1. Sindh Institute of Urology and Transplant (SIUT) a reputed medical institution in the South Asia region, stated that KE has extensive program to assist welfare institutions in the city in terms of providing free electricity to SUIT as corporate social responsibility service. SUIT also appreciated KE's strong sense of duty to serve that welfare institutions.

13.6. **Commentator -Overseas Investors Chamber of Commerce and Industry (OICCI)**

13.6.1. Overseas Investors Chamber of Commerce and Industry (OICCI) a collective body of major foreign investors in Pakistan submitted that their members are contributing largest share, over one third, of the total taxes collected in Pakistan, and 70% of their members are extremely satisfied with the improvement of quality of service and care provided by KE.

13.6.2. OICCI further stated that KE is planning to invest roughly $5 billion during the next ten years to add new capacity, as well as to improve efficiency of existing generation capacity and additional capacity of 4200 MW during the above period. Besides, KE has also indicated $ 3 Billion in Transmission and Distribution system, resulting an increase in 28% in the transmission network during ten years.

13.6.3. OICCI supported application of KE keeping in view of its ambitious capacity enhancement plans and in view of KE's ever improving operating performance with full confidence that it will also add more incentives for foreign investors to expand their operations and also attract new foreign direct investment in Karachi.



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13.7. **Commentator -Pakistan Business Council (PBC)**

13.7.1. Pakistan Business Council (PBC) a business policy advocacy forum with 60% of their member companies having production facilities based in area of K-Electric or have their Head Offices in Karachi stated that, for Pakistani Companies to be able to compete in the regional and global arenas, the availability, reliability and cost of grid power is a major input factor. The commentator further stated that since 2009, the consumers of K-Electric especially the industrial sector, have seen a significant improvement in availability and reliability of grid power.

13.7.2. PBC also submitted that they support any petition filed by K-Electric for a review in the tariff which includes significant investments in the integrated utility. PBC were of the view that there would be an increase in the competitiveness of industry, due to investments and initiatives proposed by K-Electric, which will lead to a further increase in the availability and reliability of grid power and a long term sustained reduction in cost of power.

13.8. **Commentator -Layton Rahmatulla Benevolent Trust (LRBT)**

13.8.1. Layton Rahmatulla Benevolent Trust (LRBT), a free eye care for the Poor and a beneficiary of free electricity from KE, favored KE's privatization by mentioning that improvements have been noted on the operations side due to better governance and infrastructure in place and committed team of professionals, therefore requested the Authority to take into account this facet of KE's performance, and provide a ruling that is impartial and fair.

13.9. **Commentator -The Federation of Pakistan Chambers of Commerce & Industry (FPCCI)**

13.9.1. The Federation of Pakistan Chambers of Commerce and Industry is a consortium encompassing a vast majority of Karachi's Chambers of Commerce and Industry, and 107 associations of Trade and Industry across the country. FPCCI appreciated KE performance in term of improved facilities and better quality of service, since its privatization, whereby it exempted industries from any load shedding and improved load shedding situation in many parts of the city, with some exception in rains, peak summer and heat wave situation.

13.9.2. The commentator requested NEPRA to monitor the investment program of KE of PKR 496 billion being spent on Generation, Transmission & Distribution on regular basis, however showed its confidence in KE to deliver as per the commitments. The commentator believes that the growth of their industries and its people depends on a stable supply of power at an affordable price, which will only be possible when more investment is made and that it is NEPRA's responsibility to ensure that the investment commitment is fulfilled.

13.9.3. The commentator requested that a fair and balanced approach may be taken by NEPRA, in the best interest of the country and provide relief to the consumers and reduce the Petitioners tariff and make it equal to similar consumer categories in the rest of the country in order to keep uniformity, so that the business community of Karachi will smoothly run their business and sustain investment in the long-term. The commentator also expected NEPRA to play its role in implementing best practices of power utilities in Pakistan's power sector like; unbundling of power utilities, non-monopolistic market etc. which can bring the electricity cost down.

13.10. **Commentator -Our sun Solar Pakistan Limited**

13.10.1. Our sun Solar having an agreement with KE for supply of 50 MW solar power appreciated KE's performance by stating that it has shown a remarkable turnaround from a loss making company to an economically stable entity whereby load shedding has been curtailed, losses have been reduced, investments have been made and are being undertaken in the generation segment. Thus, with all these improvements, KE is considered a better credit on a standalone basis as compared to NTDC.

13.10.2. Our Sun Solar also highlighted that there is need of building new generation projects to keep up with the future requirements, to shut down old inefficient generation to upgrade overall *fleet efficiency and improvements in T&D. All this requires huge investments which needs to be recovered along-with a reasonable return by having a predictable and defined tariff regime. Although NEPRA needs to balance the interest of consumers and the investors, however, if such investments are not encouraged through fair compensation, the interest of consumers will be compromised due to non-availability of sufficient power and quality of service may deteriorate.

13.11. **Commentator -Habib Bank Limited (HBL)**

13.11.1. HBL supported for a long term tariff by mentioning that for large infrastructure projects financing is typically arranged from 7 to 16 years, which require defined cash flows stream to repay debt obligations.

13.12. **Commentator -The Indus Hospital (TIH)**

13.12.1. The Indus Hospital while appreciating KE performance, supported continuation of the existing MYT by mentioning that it will boost the company's image, bring stability and a greater degree of predictability in the operations, something that will encourage the private investors to invest in the company.

13.13. Commentator -United Bank (UBL)

13.13.1. UBL appreciated KE's performance in terms of bringing in major improvements in its financial performance and turning around from a loss making company to a profitable one, building lenders confidence in the process. UBL supported a stable tariff regime with predictable cash flows over a longer tenor as the same is imperative for large infrastructure assets enabling KE to provide lenders with visibility over future cash flows to attract necessary long term investment.

13.14. Commentator -Mr. Ghulam Rasool Rekani, Chairman Union Committee No.06, DMC West.

13.14.1. Mr. Rekani appreciated KE's performance in terms of reduction in load shedding by providing low cost meters and installation of Arial Bundled Cable, which resulted in stable electricity supply, consequently improving the living standard. However, still there is room for improvement in various areas of operations.

13.15. Commentator -Mr. Ali Raza Rind, Chairman Union Committee No.07, Jahanabad Karachi West.

13.15.1. Mr. Rind also appreciated KE's performance in terms of reduction in load shedding by providing low cost meters and installation of Arial Bundled Cable, which resulted in stable electricity supply, consequently improving the living standard, however, still there is room for improvement in various areas of operations.

13.16. Commentator -Mr. Moin Amir Pirzada and Mr. Qamar Abbas Rizvi, Members Provincial Assembly Sindh.

13.16.1. Both Mr. Pirzada and Mr. Rizvi criticized KE's performance in terms of unannounced load shedding, frequent break-downs, nonresponsive complaint centers and high electricity bills. They strongly opposed requested increase of Rs.0.66/kWh in the O&M, modification in the claw back thresholds, working capital allowance and inclusion of force majeure clause, rather requested for reduction in the existing tariff.

13.17. Commentator -Mr. Anil Mumtaz

13.17.1. Mr. Mumtaz objected on late publication of notice of admission of the petition on June 24, 2016 whereas the petition was filed on March 31, 2016 and for not having sufficient time to



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file the comments. Further, Mr. Anil Mumtaz objected on the performance of KE in the last control period in terms of investments and performance standards.

13.18. **Commentator -Sindh Board of Investment (SBI)**

13.18.1. Sindh Board of Investment (SBI) is the primary promotion and business facilitation department of Government of Sindh. SBI while appreciating improved quality of service by KE submitted that in the last six years, KE has been a valuable partner for business and investor whereby most businesses no longer consider electricity to be their major issue. The load shedding exemption has been extended from 24% to 60% by making investment of USD $1.2 Billion across all functions and KE has the plans to invest Rs.496 billion over next ten years as well. SBI further stated that enhancement of transmission network including a 28% increase in Transmission network (km) and capacity of power transformers of 3,370 MVA is also scheduled. SBI recommended to provide KE necessary support in their operation and development of their business.

13.19. **Commentator -The Citizen Foundation (TCF)**

13.19.1. The Citizen Foundation appreciated KE performance and recommended extension of the Multi Year Tariff for another ten years to enable KE to continue its good work both in terms of core service delivery as well as sustaining its positive contribution to the larger community.

14. **Rejoinder by K-Electric to the comments of GoS (Commentator)**

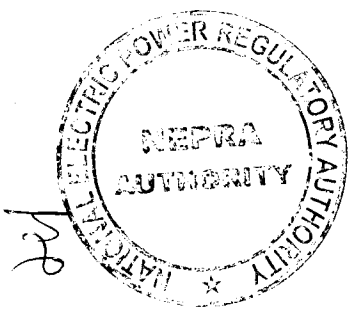
14.1. The comments of GoS were forwarded to K-Electric vide letter dated September 02, 2016. K-Electric submitted the following response thereof vide its letter dated September 19, 2016;

14.2. **Investment in distribution system**

14.2.1. KE submitted that it is a vertically integrated utility generating, transmitting and distributing power. It has the overall responsibility for developing and managing the power infrastructure in Karachi and has to carry out end to end planning of the city's energy system. Therefore it has prepared a holistic business plan covering all three business units.

14.2.2. KE has planned to increase the overall capacity through addition of plants on its own fleet, investment with IPPs to set up new projects and attracting new power producers through offering a bankable security. Sindh Nooriabad project under partnership with Government of Sindh is an example where KE has agreed to purchase power from an IPP set up under public-private partnership.





14.2.3. KE has planned investment of Rs. 179 billion in Transmission system in the next 10 years. This much needed investment will help to relieve and upgrade the existing overloaded network and to enhance the network to complement the increase in generation capacity in the coming years. We appreciate the initiatives of Government of Sindh (GoS) in generation and transmission businesses. Sindh Transmission & Dispatch Company (STDC) formed by GoS will help to improve the situation of power transmission in the province. While STDC will cater the transmission needs of the province, KE's investment will be more focused in its licensed area to maintain, upgrade and enhance the current transmission system, to supplement the increase in generation capacity and purchase of power, inline with the growing demand.

14.2.4. KE with regard to comments on the issue submitted that it has also prepared a comprehensive plan to invest Rs. 108 billion, in the next 10 years, in expanding and improving the performance of the distribution segment. This investment program will enhance the distribution capacity, increase the reliability of power supply, provide sustainable and improved customer service and will help to embrace the latest technology in the sector. This distribution investment plan includes:

- Augmentation of the existing dilapidated network;
- Network expansion through addition of 1,000 new 11kV feeders and 4,500km of additional 11kv power lines;
- Investment in smart grid technology in line with global technological advancements;
- Targeted loss reduction projects such as Aerial Bundled Cabling;
- Preventing and corrective maintenance for the upkeep and improvement of the overall network; and
- Recovery drives and initiatives to improve the collection ratio.

14.2.5. KE further submitted that details of the distribution investment plan can be referred to in the petition. These initiatives will help to overcome the challenges of overloaded network, high T&D losses and low recovery ratio and will improve the overall customer experience.

14.3. **KE's privatization**

14.3.1. KE acknowledged GoS's recognition of the fact that KE's privatization had a significant positive impact on the country's economy and so far KE's journey after privatization has proved to be successful.

14.4. **Renewable energy projects**

14.4.1. KE regarding the matter submitted that considering the current shortage and growing demand of electricity, KE has planned to focus more on base load plants to bridge the demand supply gap. However, KE is fully cognizant of the importance of renewable energy projects and has planned to add renewable energy in its power portfolio by attracting independent power producers. In this regard, KE is engaged with several reputable solar power project developers for setting up 100-150 MW solar power plants under IPP structure in its licensed area. As an example, The Meeco Group headquartered in Switzerland, through its local subsidiary Oursun Solar, is developing a 50 MW Solar IPP, wherein KE will be the power purchaser. The project work has commenced and upfront tariff has been allowed by NEPRA.

14.5. **Impact of outgoing capacity and availability of spinning reserves**

14.5.1. KE submitted that the 10 year business is prepared keeping in view the useful lives of existing plants. Further, the investment and contracting strategy is designed to allow KE to reduce reliance on the 650MW provided by NTDC/CPPA-G, which is assumed to cease in FY 2020. Accordingly, KE has included replacements in the business plan with the plan to almost double its current available capacity and create a surplus/spinning reserve by FY 26.

14.6. **Fleet efficiency**

14.6.1. KE commented that it has added over 1,000 MW to its generation capacity in the last 7 years through four state of the art gas based plants. These plants were the optimum solution of that time and are highly efficient such as BQPS-2 which has gross efficiency of 45.5% on Higher Heating Value (HHV) and approximately 50.5% on Lower Heating Value (LHV). It is important to note that KE's overall fleet efficiency also includes BQPS-1 which is comparatively older and has lower efficiency.

14.6.2. KE also submitted that it plans to add dual fuel, LNG and Coal plants on its fleet. These plants will be added based on latest available technology and will help to further raise the fleet efficiency. For example, the 250 MW dual fuel plant is expected to have an efficiency of 50.1 % (Gas fuel on LHV). Further, with respect to separate heat rate benchmarks, it should be noted that NEPRA has already defined separate heat rate benchmarks for each plant.

14.7. **Investment plan and Tariff**

14.7.1. KE's tariff structure is a performance based tariff, the essence of which is that it self penalizes the entity for any in-efficiency. Under this mechanism, the consumer does not have to bear the burden of a guaranteed return being built-in in the tariff, rather the entity is incentivized to make investment from its own sources in order to improve the efficiency, beat the benchmarks and earn a reasonable return.



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14.7.2. KE further submitted that the investments do not impact tariff as there is no provision for investment or guaranteed return in the tariff. KE is responsible to arrange resources for investments and the only way KE can earn a return is by outperforming against the benchmark set by the Regulator. Therefore, the intervener's concern of taking the impact of future investments in MYT is not correct.

14.7.3. KE while reiterating its comments, mentioned in its rejoinders to comments of various interveners, regarding incentives of MYT submitted that tariff structure has resulted in lower tariff for the end consumers especially when KE was experiencing high losses. In cost plus tariff, the utility is allowed a guaranteed return and hence the tariff would have been higher when the company was incurring huge losses. However since KE was not guaranteed any return as per the performance based mechanism it had to bear the burden of losses and could not earn any return by increasing the tariff. It was only by improving generation efficiency and reducing T&D losses that KE was able to reduce costs and become profitable.

14.7.4. K-Electric further submitted that KE has requested for a continuation of the I-MYT with certain modifications to deliver its investment plan. Customers will benefit from this investment through greater supply of electricity, greater system resilience and lower real tariffs. Further, the tariff structure has an in-built protection mechanism to ensure that excess efficiency gains are shared with consumers in the form of claw-back. Therefore, while this tariff structure will provide KE the opportunity to earn reasonable return, consumers will also benefit from reduction in tariff due to sharing of claw-back once thresholds are crossed.

14.7.5. In addition to the aforementioned KE also submitted that the modifications requested are aimed to resolve the issues currently faced by KE, rather than taking the impact of future projects. Increase in O&M has been requested on the basis of continuing shortfall in O&M expense versus O&M component allowed in tariff. Currently, KE is facing shortfall of Rs. 1.44/kWh (2016) and KE has asked only for a small portion of this shortfall to prevent diversion of significant funds in bridging the gap. Similarly, modification in x-factor has been requested as KE is only getting an annual increase of only 0-1% in this low inflation scenario.

14.7.6. KE submitted that circular debt is a well-known issue of the power sector and KE is also one of the victim. KE has requested for working capital cost on additional financing cost incurred due to piling up receivables from government entities. Further, change in claw back threshold is requested to rationalize KE's returns in line with the current market rates of returns.

14.7.7. According to KE, these modifications are necessary to resolve the above mentioned issues and enable KE to deliver its ambitious business plan. The business plan has been prepared assuming these modifications are allowed and delivery of business plan is linked with these modifications.



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14.8. **Break up of business plan**

14.8.1. KE submitted that it has already provided the break-up of its Rs. 496 billion investment plan in section 5.4.1 of the petition, in considerable detail. To re-iterate, Rs. 203 billion to be invested in generation, Rs. 162 billion will be invested in new generation projects which includes 250 MW dual fuel plant at Korangi to be commissioned by FY 2018, 450 MW LNG plant with expected COD FY 2020 (equity partnership), 700 MW (350 x 2) coal plant with expected COD in FY 2020 (equity partnership) etc.

14.8.2. Further, KE stated that it has also provided a break up of its investment in transmission system over the next 10 years and details of each transmission package are provided in the petition.

14.9. **Net metering policy**

14.9.1. KE, with respect to the concerns regarding net metering, stated that the matter is under discussion with NEPRA currently as KE has requested certain clarifications from NEPRA. Moreover, a 'Distribution Code Review Panel' constituted under clause CM 5 of NEPRA Distribution Code is also working on the amendment in the Regulations related to Net Metering.

14.10. **Collaboration with Government of Sindh**

14.10.1. KE claimed that it is collaborating with the Government of Sindh in SNPC and STDC projects and looks forward to working closely with the Department of Energy in the future as well.

14.11. **High Profits, working capital, forced majeure, claw back, Consumer's interest in I-MYT, Increase in O&M component, Modification in x-factor, Tariff Control Period**

14.11.1. On the aforementioned contentions, KE has broadly submitted the same arguments as mentioned in KE's rejoinders to the comments of various Interveners.

15. **Rejoinder by K-Electric to the comments of CPPA-G (Commentator)**

15.1. The comments of CPPA-G were forwarded to K-Electric vide letter dated September 02, 2016. K-Electric submitted the following response thereof vide its letter dated September 20, 2016;

15.2. **Performance under last tariff control period, Claw back, High profits, O&M X Factor modifications, Increase in O&M Component of tariff 0.66 paisa, T&D Losses**

15.2.1. On the aforementioned contentions, KE has broadly submitted the same arguments as mentioned in its rejoinders to the aforementioned comments of interveners and commentator(s).

15.3. **Import from NTDC and Surplus Reserve**

15.3.1. With respect to Power Purchase Agreement (PPA) with NTDC, KE submitted that it is currently in negotiations with the Government to continue power purchase from NTDC for another five years. Further, the business plan forecasts investment in generation to add capacity and generate a supply surplus (excluding NTDC/CPPA-G) of 106 MW against peak demand by 2026. This surplus is projected against peak demand which is only during certain hours of the day and the surplus when compared to average demand is significantly higher. Moving forward, as KE will continue investment not only in generation capacity but also through, demand side management this surplus over peak demand will further increase.

15.4. **Separate Revenue Requirement & Statements for Generation, Transmission & Distribution**

15.4.1. KE regarding the contention reiterated its comments in rejoinder to Whistle Blower under the heading of Monopoly, transparency & competition.

15.5. **Demand Forecast**

15.5.1. KE submitted that it has conducted detailed demand analysis based on historic demand situations and the prevailing scenario, in order to develop forecasts that provide a realistic demand situation.

15.5.2. According to KE there is a strong correlation between GDP growth and growth in power demand historically and the same was considered while calculating demand. KE used future GDP growth numbers as per NTDC planning studies of economic growth to determine its demand growth analysis.

15.6. **Demand Side Management, Energy efficiency measures and Smart Technologies**

15.6.1. KE submitted that the sustainability and mitigating the adverse effects of climate change are one of the key driving principles at K-Electric. KE runs a comprehensive Energy Conservation & Energy Efficiency program which includes creating awareness to propagate best practices and educate end consumers as well as carry out free of cost energy audits according to global ISO and GHG standards. KE's programs have helped it create awareness and reach out to over a million individuals and save over 240 MW, release 445 MVA



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(equivalent of 130,000 households with 3kw per household) and help reduce $CO^2$ emissions by 1.05 million metric tons per annum.

15.6.2. KE further submitted that it has already started a pilot project to implement smart technologies across its power system. Further, all generation & transmission points and feeders have smart meters installed. KE was one of the first power utilities in Pakistan to embrace smart technology for more reliable and effective power delivery and monitoring.

15.6.3. Going forward, KE plans to invest around Rs. 108 billion in its distribution infrastructure which includes installation of smart technologies across its network. KE also plans to continue its efforts and focus on demand side management over the long term as its power network moves towards smart technologies.

16. **Rejoinder by K-Electric to the comments of Mr. Aneel Mumtaz**

16.1. The comments of Mr. Anil Mumtaz were forwarded to K-Electric vide letter dated September 02, 2016. K-Electric submitted the following response thereof vide its letter dated September 21, 2016;

16.2. KE submitted that the approach of the commentator is based on mala fide intentions with a view to circumvent due process and involve NEPRA in factual controversies which are irrelevant to the subject matter of the MYT Petition. Nevertheless, our response on the comments of Mr. Aneel Mumtaz, are given below:

- With respect to investment and performance in the last regulatory period, KE reiterated its comments mentioned in the aforementioned rejoinders to the comments of Whistle Blower and Jamat e Islami under the heading Privatization and Reliance on external power sources respectively.

- KE submitted that the Commentator has also referred to the decisions of NEPRA relating to heat wave and certain consumer complaints. KE has filed review petitions against both decisions which are currently pending before NEPRA.

- KE further stated that the Commentator has also shown concern regarding timelines for submitting the intervention/comments on the subject petition. We understand that these timelines were already extended by NEPRA and all the proceedings of the tariff determination are being done in accordance with the prescribed rules and regulations.

- KE also submitted that to the extent that any of the above issues are already covered in existing legal proceedings before NEPRA or any other competent forum. The same remain without prejudice to the outcome of such proceedings and KE's right to file any appropriate appeals at a later stage for a final decision of the merits.



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17. **Issues framed for hearing**

17.1. The Authority based on the submissions made by K-Electric in its petition, comments of the Intervener / Commentators, other relevant information /record and to address the concerns/ issues highlighted by the Interveners and Commentators, framed the following issues to be considered during the hearing and for presenting oral and documentary evidence;

1. Whether the Petitioner's request for continuation of existing Multi Year Tariff (MYT) is justified?
2. Whether the tariff should be based on price cap or revenue cap regime?
3. Whether the duration of MYT control period should be 10 years as proposed by the Petitioner?
4. Whether the proposed change in sharing mechanism's thresholds from 12%, 15% and 18% to 15%, 18% and 20% are justified?
5. Whether the existing calculation methodology with respect to Claw Back Mechanism is justified?
6. Whether Petitioner's request for continuation of existing monthly, quarterly & annual adjustment mechanism is justified?
7. Whether the request of the Petitioner to allow working capital allowance to cover late payments by Government entities and Tariff Differential Claims (TDC) by the Government is justified?
8. Whether request of the Petitioner for inclusion of a force majeure clause for adjustment of irrecoverable costs due to business disruption in case of force majeure event is justified?
9. Whether the Petitioner's assumption of continuation of the protection under the Implementation Agreement throughout the tariff control period including the guarantee of payment of strategic customers is justified?
10. Whether the Petitioner's proposed increase of Rs.0.66/ kWh on the existing O&M cost allowed by the Authority is justified?
11. Whether the claimed addition in Generation, Transmission and Distribution by the Petitioner is justified and what are the Petitioner's financing plan in this regard?
12. Whether the Petitioner have a Control Center to dispatch and control its generation facilities?
13. Whether the current practice of the Petitioner to carry out load shedding, despite having sufficient own generation facilities, is justified?
14. Whether the request of the Petitioner to maintain the existing target heat rates of its Power plants is justified?



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15. Whether the request of the Petitioner to maintain existing target of auxiliary consumption of 6.1% for its entire generation fleet is justified?
16. Whether request of the Petitioner to allow efficiency factor "X" as lower of 2% or 30% of increase in CPI allowing annual indexation in O&M cost component of generation is justified?
17. Whether the Petitioner has renewed/ entered into long term Fuel Supply Agreements (FSA) for firm supply of Furnace Oil?
18. Whether the Petitioner has signed Gas Supply Agreement with SSGCL for firm supply of gas?
19. Whether the existing mechanism of calculating weighted average cost of furnace oil while working out the monthly / quarterly adjustments is justified?
20. What are the projections of plant wise generation of energy and energy planned to be procured from external sources for the MYT control period and what is the component wise detail of power purchase cost / price?
21. Whether any cap on power purchase be placed in relation to the new generation by the Petitioner's own resources?
22. Whether the plan of the Petitioner to procure 650 MW from CPPA-G till 2020 is justified? What should be the rates for these purchases i.e. Basket or Marginal rates? K-Electric to respond in light of CCI decision dated November 08, 2012.
23. Whether the planned purchases of K-Electric are in line with the competitive market regime (both generation and retail) being envisaged by NEPRA?
24. Whether the Petitioner's request to allow the supplemental charges i.e. WWF/ WPPF payable to IPP's, as a pass through item is justified?
25. Whether the request of the Petitioner to maintain the existing target with respect to T&D losses is justified?
26. Whether separate target of losses should be set for Transmission (220 kV) and Distribution (132kV and below) segments?
27. Whether the request of the Petitioner to allow efficiency factor "X" as lower of 2% or 30% of increase in CPI allowing annual indexation in O&M cost component of Transmission is justified?
28. Whether the request of the Petitioner to allow efficiency factor "X" as lower of 3% or 30% of increase in CPI allowing annual indexation in O&M cost component of Distribution is justified?
29. Whether the planned addition of new connection (i.e. over 800,000 Nos.), demand in MW & Energy sale in GWh is justified? K-Electric may provide consumer category wise details in this regard.

30. What are the estimates of year wise improvements in the performance benchmarks of the Petitioner considering the projected business plan and proposed investments? The Petitioner may submit the detailed year wise analysis regarding improvement in its performance standards (i.e. T&D losses, LT/HT Ratio, overloading, SAIFI, SAIDI etc.)
31. Whether the Petitioner has installed TOU meters and is charging its consumers on the basis of TOU rates?
32. Whether separate charging of Meter Rent from the consumers is justified?
33. Whether separate charging of Bank Collection Charges from the consumers is justified?
34. Whether the non-payment of interest on consumer's security deposits is justified?
35. What is the basis of amount being charged in respect of new connections by K-Electric from different categories of consumers?
36. What are the concerns of the Petitioner on the application of domestic tariff for Government office, educational institutions and religious institutes?
37. Whether the proposed category wise consumer end tariff is purely cost reflective? Whether the existing terms & conditions of consumer categories (including life line) are needed to be revised?
38. What will be the mechanism for inter DISCO wheeling?
39. Any other issue that may come up during the hearing or afterwards?

18. **Hearing**

18.1. Hearing in the matter was held on September 27 & 28, 2016 at Marriot Hotel Karachi, which was attended by the Petitioner, Interveners, Commentators and other stakeholders i.e. media, general public etc.

18.2. During hearing of the petition, the Interveners requested the Authority to provide copies of KE's presentation, Intervention Requests/ comments received so far and rejoinders by K-Electric thereof, for submission of further comments.

18.3. The Authority acceded to the request of the Interveners and uploaded copies of KE's presentation on the issues framed for hearing, Intervention requests & written comments and KE's response thereof, on NEPRA's website on the same day, enabling the stakeholders to provide further comments, if any, within 10 days of the date of hearing.

18.4. In response thereof, further comments were received from KE Consumer Forum, Jamat-e-Islami and Whistle Blower Pakistan on September 30, October 12 and December 13, 2016 respectively. Although the comments were received after the time prescribed by the Authority for close of evidence, however, considering the importance of the matter and the fact that a multiyear tariff is being awarded which warrants consideration of all the available



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information, by the Authority, in the interest of justice and to make an informed decision, the Authority decided to make these comments / concerns as part of this determination for re-addressal.

19. **Issue wise discussion, Analysis and Determination of the Authority**

19.1. On the basis of the pleadings, available record, evidence produced during the course of hearing and afterwards, the issue-wise findings of the Authority are given hereunder:

20. **Issue: Whether the Petitioner's request for continuation of existing Multi Year Tariff (MYT) is justified? And**

21. **Issue: Whether the duration of MYT control period should be 10 years as proposed by the Petitioner?**

21.1. The Petitioner has requested for the continuation of the I-MYT tariff structure for a period of 10 years in order to have regulatory certainty which, according to it, is essential to finance its strategic and much-needed investment program at the lowest possible cost resulting in number of benefits.

21.2. The Petitioner while justifying the current I-MYT stated that it allowed KE to make substantial progress towards delivering an efficient electricity supply service to customers and allowed the Petitioner to improve operational and financial stability. However, there remain substantial challenges ahead, notably funding the necessary long-term investments required to reduce the demand-supply gap in a rapidly growing economy, dealing with commercial losses and managing circular debt. To meet these challenges, it has drawn up a 10 year business plan, with an ambitious investment program designed to deliver benefits to customers for which it is important that it is provided with a regulatory environment that gives necessary certainty and incentives to secure this investment.

21.3. According to the Petitioner the existing tariff ensured cash flows and regulatory certainty on revenues which ensured investor/ lender confidence, rendered it to secure long-term investments on low financing costs and enabled it to offer a combined security package whereby assets of one business unit can be offered as security for financing against other business units in the absence of sovereign guarantee. Thus, the most appropriate regulatory structure in view of the Petitioner is to extend the current I-MYT to 2026, which it believes will enable the business plan to be delivered, provide a reasonable return on investment and allow any excess profits / benefits to be shared fairly with the consumers.

21.4. The Petitioner further submitted that in order to deliver its business plan, long tenor and regulatory certainty are essential to give investors and lenders the transparency and



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confidence necessary to make such long term investments as it has been able to secure 10 year loans on the basis of a continued I-MYT tariff. A longer tariff control period will provide lenders (Overseas Private Investment Corporation (OPIC), China Export and Credit Insurance Corporation (SINOSURE), Euler Hermes Germany and Citibank, Pakistan) with the necessary comfort that debt will be repaid. The 10 year time period is the most efficient (lowest cost) means of debt financing, whereas a shorter regulatory period would require existing project financing to be renegotiated and debt providers would require higher credit spreads to compensate them for the additional risk of default.

21.5. The Petitioner during the hearing informed that in the control period of the existing MYT, it invested around Rs.120.7 billion in generation, transmission and distribution functions thereby adding 1037 MW, improved capacity of generation fleet from 30% to 37% and reduction of T&D losses from 35.9% in FY-2009 to 23.7% in FY-2015, however, the system infrastructure has impaired over the years and due to the evident demand and supply gap of electricity in its service territory, it intends to invest Rs.496 billion in generation, transmission and distribution functions for up-gradation and expansion of infrastructure to meet the demand supply gap over a span of 10 years under this MYT. However, the Petitioner argued that it has not fully realized the efficiency gains of the investment made by it in the past.

21.6. In the Petitioner's opinion the existing tariff structure protects the consumer through an in-built mechanism to ensure that excess efficiency gains are shared with consumers in the form of claw back and hence lower tariff in long run. Further, it improves transparency by capping excess profits to a reasonable extent. Therefore, the existing tariff structure should be continued to guarantee future investment in Karachi's power sector, continuous improvement in quality of service and lower tariff in the long run.

21.7. The Petitioner also submitted that being a unique organization with overall responsibility for developing and managing the power infrastructure in Karachi, it has to carry out end to end planning of the city's energy system without any sovereign guarantee or GOP support. This means that it has the additional responsibility of stepping beyond the day to day functions of a power utility and design an integrated plan to meet the forecasted demand through investment in generation, transmission and distribution. The existing tariff structure incentivizes new investment, requires to bring efficiency improvements and meet demand; while enabling it to provide a bankable security structure and regulatory certainty to execute its business plan.

21.8. The Petitioner further mentioned that its power infrastructure has aged and though there have been significant investments in up gradation of the system, there is still dire need to continue investing to not only upgrade but expand the infrastructure to meet the expected demand growth. Therefore, there is need for huge investment in Karachi's power



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infrastructure and the existing tariff structure is critical in securing long-term investment for the future expansion of electricity supply in Karachi.

21.9. The Petitioner, while acknowledging that lesser investments in the transmission & distribution functions, reiterated its stance that continuation of previous MYT will ensure a regulatory certainty which is necessary for the investor confidence which in-turn is important for execution of the Petitioner's business plan and the successful execution of the same will result in reduction in demand and supply gap in the form of improvement in customer services, transmission enhancement, capacity enhancement, distribution capacity enhancement.

21.10. In view of the aforementioned, the Petitioner has requested for the continuation of the existing MYT structure to guarantee future investment in Karachi's power sector, continuous improvement in quality of service and lower tariff in the long run.

21.11. On the issue of tariff control period, the Petitioner during hearing delineated that electricity supply industry is characterized by long term capital investments which require long term planning and have long gestation periods and accordingly IPPs and Independent Transmission Companies are given a tariff period over the lifetime of the asset. It further stated that being a Vertically Integrated Utility (VIU), it needs to plan for the long term and requires a tariff control period which provides regulatory certainty, essential to attract investment as it gives visibility over long term cash flows. Further, in the absence of sovereign guarantee for its own generation projects as well as in projects where the Petitioner is an off-taker, its ability to finance future projects requires stability and visibility of cash flows for which a long term control period is necessary. Moreover, it has negotiated debt tenors of 10 years and above for its large infrastructure projects which require revenue projections of 10-15 years, hence tariff control period should at least correspond to the same.

21.12. Most of the Interveners i.e. Whistle Blower Pakistan, K-Electric Consumer Forum, Jamat-e-Islami, Karachi, Sheri and Mr. Arif Bilwani, the Commentators CPPA-G, FPCCI, Mr. Moeen Amir Pirzadaand Mr. Qamar Abbas Rizvi opposed continuation of the tariff which expired on June 30, 2016, by requesting reduction in the new tariff to be determined by the Authority. The interveners while opposing the I-MYT, stated that it did not provide transparency. Moreover, the Petitioner has been granted three separate licenses for its three segments of operations i.e. Generation, Transmission and Distribution; therefore, in terms of its licensing articles, tariff for three separate segments needs to be determined. This is also necessary because the Authority in its determination of September 10, 2002 directed the Petitioner for submission of its petition accordingly.

21.13. The Commentators i.e. Voice of Karachi, Overseas Investors Chamber of Commerce & Industry, Pakistan Business Council, The Indus Hospital and the Citizen Foundation supported the I-MYT petition.

21.14. Jamat-E-Islami, Karachi, KE Consumer Forum and Whistle Blower Pakistan in their further issue wise written comments also opposed the continuation of the of the Multiyear tariff which expired on June 30, 2016.

21.15. Majority of the Interveners and commentators supported reasonable tariff control period owing to stable, predictable cash flows, thus rendering the Petitioner to execute its proposed business plan. CPPA-G, Whistle Blower and GoS, however, proposed a tariff control period of three years, whereas KCCI and SHERI suggested to link the control period with the Petitioner's distribution license expiry date i.e. FY 2023.

21.16. The Authority allowed a Multi-Year Tariff (MYT) to the Petitioner vide its determination dated September 10, 2002, for a period of seven years, to be applicable from the date of its privatization. The Petitioner was privatized in 2005 and accordingly the 7 years period of MYT became applicable from November 2005 till November 2012, as per the Implementation Agreement (IA) signed between GoP and the Petitioner, dated November 14, 2005. The allowed MYT of 2002 was efficiency based tariff wherein no specific predetermined component of return was allowed, rather it was linked with the efficiency improvements and cost reduction, to earn profits. However, it was ensured that due to reduction in its costs and as a result of efficiency improvements, the Petitioner's base tariff was not to be adjusted downwards except in the case of excess profit over the allowed threshold of 12% on regulatory assets base through profit claw-back mechanism.

21.17. Subsequently in 2009, after Petitioner's take over by the Abraaj Group an Amended Implementation Agreement (AIA) was signed between GoP (Secretary, Ministry of Water & Power) and K-Electric, on April 13, 2009, whereby the Tariff Control period of 7 years was made applicable from the Revised Closing Date (i.e. date of signing the AIA).

21.18. Consequent upon signing of the AIA, the Petitioner filed a tariff Petition on April 22, 2009, with the Authority, for an increase in the base tariff and modification in the adjustment mechanism, terms and conditions of supply and security deposit rates. The Authority decided the petition vide its determination dated December 23, 2009, wherein along-with certain amendments in the adjustment mechanism and allowing an increase of Rs.0.15/kWh in the distribution part of O&M, the time period of MYT was extended for next seven years to be applicable from July 01, 2009 till June 30, 2016.

21.19. The MYT remained applicable for a period of 14 years since it was determined in 2002 and as per the decision and notified mechanism, was not subject to any revision in terms of heat



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rates, T&D losses and costs allowed in 2002, except to the extent of adjustments on account of indexation and fuel price variations. Thus, the existing tariff does not reflect the actual efficiencies achieved by the Petitioner over the control period, including reduction in T&D losses, since as per the mechanism the approved target of losses was applicable to the extent of variations in tariff only.

21.20. The Petitioner's argument of continuing the existing MYT on the grounds that it has not fully realized the efficiency gains of the investment it had made in the system, needs to be seen in the sprit of MYT regime whereby the Petitioner was allowed to retain the efficiency gains arising out of the investments made during the control period as no predetermined return was built in the tariff. The Petitioner was allowed to make investments either through its own sources or reduction in operational cost through improvement in the system efficiencies during the control period, without burdening the consumers upfront. That was the reason why the Petitioner was guaranteed that no downward revision would be made during the control period. Any efficiency gains achieved thereon (excluding the impact of profit claw back) was the legitimate right of the Petitioner for that control period. The Petitioner made its commercial decisions on investments keeping in view the allowed time frame. However, after the expiry of the same, the Petitioner's expectation that the same level of efficiency gains/returns would continue in future is something which was not committed or allowed by the Authority. Hence, the argument of the Petitioner in this regard is not valid. Nevertheless, the Authority's decision of Petitioner's tariff for future control period includes "reasonable" return on the written down values of its assets.

21.21. The Authority has carefully considered the Petitioner arguments justifying the continuation of previous tariff regime. The Petitioner has relied on the arguments that it will provide comfort to the lenders in terms of consistent and predictable future cash flows of the utility. The Authority considers that in the case of DISCOs it allows tariff on yearly basis where most of the investment is made by the utilities by way of loans. In the opinion of the Authority the Petitioner is in a better position to negotiate loans for its future investment at better terms as compared to the past, where the utility was sustaining losses. Further the Multi-Year Tariff Regime itself ensures predictable cash flows to the utility which also provides comfort to the lenders. The company being a going concern has to remain there, therefore, has no nexus of the tariff control period. In the Authority's opinion, un reasonable longer control period is more prone to uncertainty. Filing of tariff petition by the Petitioner in FY 2009 itself speaks of this fact.

21.22. On the argument of Sovereign Guarantee, the Petitioner has to understand that an IPP has to enter into Power Purchase Agreement (PPA) with an agent i.e. CPPA-G which is dependent upon the performance of distribution companies, having risk of recovery from different areas of the utilities with different risk profile. DISCOs being owned by GoP have been protected



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through sovereign guarantee for non-performance of its utilities. In contrast the Petitioner being a vertically integrated utility has a direct control over its customer base, hence is not dependent on the government for recoveries. Further, the argument of Sovereign Guarantee is not relevant as it defeats the main purpose of Petitioner's privatization.

21.23. Here it is pertinent to mention that the performance based tariff was awarded to the Petitioner, based on the circumstances prevailing at that time i.e. with inefficient plants , T&D losses hovering at a level of around 40% etc. Hence, the Petitioner was allowed a number of incentives for optimization through its own investment but as on today, the circumstances have changed and the Authority considers that it is the right time that the impact of efficiencies achieved throughout this period to be shared with consumers in terms of reduced tariffs which is in line with the accepted international practice. However, while making the decision of not continuing the existing MYT, a balance needs to be struck ensuring the Petitioner a reasonable return on its existing asset base as well as adequate cash flows to carry out the proposed investments while protecting consumers' interest as well. Although the Authority has already issued its decision on profits to be clawed back and its impact to be passed on to the consumers yet, the claim of the Petitioner for sharing of the excess efficiency gains through profit claw back mechanism needs to be seen in the light of on ongoing litigation scenario. It is also interesting to note that the Petitioner is arguing on something which it itself has disputed in the past. The very objective of privatizing the Petitioner was to achieve an overall efficiency in the sector. The impact of the same in part be enjoyed by the Petitioner for the control period and also be shared with the consumer through the profit claw back mechanism.

21.24. Having considered the comments of the interveners most of whom opposed continuation of the existing MYT and requested to determine separate tariff for generation, transmission and distribution functions, in accordance with the Authority's direction in the determination dated September 10, 2002,the Authority feels that the new MYT to be allowed to the Petitioner should be cost reflective and more transparent in accordance with Guidelines given under Rule 17(3)(iv) & (ix) of Tariff (Standards & Procedure) Rules, 1998 ..

21.25. In view of the foregoing discussion and while agreeing to the interveners' comments the Authority has decided not to continue the previous MYT, rather to rebase the same by taking into account the efficiencies achieved by the Petitioner over time and at the same time allowing the Petitioner a reasonable return on its existing and future proposed investments in accordance with Rule 17 (3) (ii) (iii) (iv) of the NEPRA Tariff (Standards and Procedure) Rules 1998.

21.26. The Authority after careful consideration of the Petitioner's arguments observed that the last control period allowed to the Petitioner was of seven years, during which it was able to raise new debt and injected fresh equity. Here it pertinent to mention that internationally a period



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of five years under a MYT regime is more acceptable, although a longer period is also allowed with midterm reviews. As regard the comparisons of control periods with IPPs and Independent Transmission Companies, the Petitioner must understand that this is done for green field projects as for the first ten years the consumers bear the burden of higher tariff (being front loaded) hence must enjoy the impact of lower tariff for the next 15 years. Further, such projects require one off initial investment and do not require continuous investment as it is essential in the matter of infrastructure utilities , hence the horizon of strategic business investments may change after a reasonable period of five to seven year due to change in environment.

21.27. In view of aforementioned discussion, the Authority considers that the ten year's control period requested by the Petitioner may expose it to greater risks in terms of changes in external factors such as economic volatility or changes in government policies but at the same time it is in the interest of both the consumer and the utility that the allowed control period should be reasonable enough which provides the utility the required certainty to make investment in the system. Thus, keeping in view the historical perspective of the Petitioner, comments of the Interveners/ Commentators, the Authority has decided to allow a tariff control period of seven years.

22. **Issue: Whether the tariff should be based on price cap or revenue cap regime?**

22.1. On the issue of whether the tariff be price capped or revenue capped, the Petitioner submitted that the I-MYT is a performance-based price cap tariff. According to the Petitioner it allows uncontrollable costs to be passed through into tariff, while controllable costs are subject to CPI-X price regulation. No guaranteed return is built in the tariff and the only way the utility earns is through improving efficiency, on the other hand, in a revenue cap regime, a utility is allowed a guaranteed return on investment in advance. Under the price cap regime the consumers' are not required to pay for the underperformance by the utility. Regulatory oversight on the performance of the utility is possible as performance benchmarks are set by NEPRA and the Petitioner has to outperform against those benchmarks in order to earn profits. Thus, the performance based tariff along with price-cap formula has an in-built protection mechanism to ensure that excess profits over the regulatory benchmarks are shared with consumers in the form of claw back.

22.2. The Petitioner also highlighted that being a VIU with responsibility of end to end planning, it requires a price cap tariff that incentivizes improvement in efficiency and provides appetite to meet additional demand through continuous investment in all 3 core functions. Further, NEPRA also emphasized the same point in K-Electric's Determination of 2002 wherein it has been stated that "Under the specific circumstances in which K-Electric would be operating, the request for a price cap is understandable. We do not want to take away the incentive from



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the investor to increase its revenue through increased sales" and hence allowed a price-cap regime to the Petitioner.

22.3. The Interveners Whistle Blower, KE Consumer Forum and representative of Jamat-e-Islami Karachi, through their further issue wise written comments submitted after the hearing, have recommended a Price cap tariff.

22.4. The Authority after careful consideration of the Petitioner's arguments is of the opinion that in a regulated business either utilities revenues are capped in absolute terms i.e. in Rupees millions or the per unit rate is capped in terms of Rs./kWh. The Authority considers that the model used in the last tariff control period was a hybrid model, whereby the price was subject to certain periodic adjustments. Another major difference between the two approaches is that in the case of revenue cap the impact of consumer base/mix is ensured to the Petitioner, whereas in the case of price cap the Petitioner is allowed to improve the consumer base/mix and is allowed to keep the gains achieved to a certain extent. The only modification in the instant case is being made that the overall price is being segregated into three separate components to bring in more transparency and to make it consistent with the licensing terms of Generation, Transmission and Distribution licenses issued to the Petitioner. In the instant case, the price cap approach is being adopted with modification to the extent of aforesaid segregation of tariff components along with modification in the adjustment mechanism that provides adjustment of tariff with the yearly efficiency targets. Primarily, the main determinant in this regard, is whether it is the utility who bears the risk of volumes in terms of sales. These caps may be adjusted with the future regulatory targets or may be kept constant for the whole control period depending on how the future investments are funded e.g. during the last control period the tariff was kept constant as the future investments were being funded through efficiency improvements . In the instant determinations, under price cap regime margin of a reasonable return has been built in lieu of efficiency gains achieved by the utility while re-determining/ rebasing its tariff.

22.5. The Authority while agreeing with the comments of the Interveners, request of the Petitioner and owing to the fact that the Petitioner, being a VIU, has a direct control over its generation sources to meet demand of its consumers, (essentially speaking bears the volume risk of sales) , considers Price Cap with aforementioned modifications a more pragmatic option.

22.6. **A. Calculation of Base Tariff**

22.6.1. Since the Authority has decided to determine the Petitioner's next Multi Year Tariff, therefore, it would require firstly to re-asses the Petitioner's costs for the different components of tariff based on the base case which in the instant case is considered to be the



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FY 2015-16 and secondly how that base case would be adjusted in future during the tariff control period.

22.6.2. While re-assessing the different tariff components for the base case, the Authority would apply the principle of prudency and would also evaluate the improvement in efficiencies achieved by the Petitioner over the previous tariff control period as discussed above.

22.6.3. From hereunder the following issues would be addressed under the head of calculation of Base rate;

- Whether the request of the Petitioner to maintain the existing target heat rates of its Power plants is justified?
- Whether the request of the Petitioner to maintain existing target of auxiliary consumption of 6.1% for its entire generation fleet is justified?
- Whether the Petitioner's proposed increase of Rs.0.66/ kWh on the existing O&M cost allowed by the Authority is justified?
- Whether the claimed addition in Generation, Transmission and Distribution by the Petitioner is justified and what are the Petitioner's financing plan in this regard?
- Whether the request of the Petitioner to maintain the existing target with respect to T&D losses is justified?
- Whether separate target of losses should be set for Transmission (220 kV) and Distribution (132kV and below) segments?

23. **Issue: Whether the request of the Petitioner to maintain the existing generation target heat rates of its power plants is justified?**

23.1. The Petitioner while requesting for the continuation of the existing I-MYT in its Petition also requested for maintaining the existing generation target heat rates.

23.2. During the hearing, the Petitioner submitted that its tariff is a performance based tariff where there is no guaranteed return on investment and the only way it can earn is to improve the efficiency benchmarks through investments. It is also mentioned that huge investments of Rs.120.7 billion since 2009 including Rs.81.4 billion in the generation segment has been made.

23.3. The Petitioner while justifying its request stated that its management installed four new generation plants in the period 2009-2012 with installed capacity of over 1,000 MW. These investments were made to improve the efficiency so that consumers can benefit from increased generation. Under the performance based mechanism, the utility has the right to retain the earning arising from efficiency gains which is the incentive it gets to continuously



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invest in generation assets and improve the fleet efficiency. Generation plants are long term investments with useful life of 25-30 years and it has invested heavily in generation keeping in view the long term nature of the assets and expects to earn a reasonable return through improved efficiency of the generation fleet. According to the Petitioner four new plants have been commissioned in the last 6 years and revision of heat rates in this short span of time is not justified.

23.4. The Petitioner also explained that its tariff structure has an in-built protection mechanism to ensure that excess efficiency gains are shared with consumers in the form of profit claw back. Further, in case of IPPs, the Authority also allows efficiency degradation in heat rates and no such degradation is allowed in case of the Petitioner.

23.5. Here it is pertinent to mention that heat rate of the Petitioner's power plant for Bin Qasim Power Station-I (BQPS-I) was approved in 2002 tariff determination whereas, heat rates for the Korangi Gas-II, SITE Gas-II and Korangi CCPP were approved on provisional basis in the MYT Determination of 2009.

23.6. The Petitioner in the MYT determination of 2009, was directed to perform efficiency (heat rate) test of all its newly commissioned and other upcoming power plants by an Independent Consultant in the presence of NEPRA's experts at the time of commissioning of those power plants for approval of the Authority.

23.7. Pursuant to the directions of the Authority regarding heat rate tests for newly commissioned power plants and after fulfilling all requirements / formalities, the Petitioner engaged M/s PES as an Independent Consultant / Engineer for this task. The tests were conducted on the following dates in presence of NEPRA observers:

| | | |
|---|---|---|
| i. | SITE Gas Engine Power Station-II | 15th Sep 2011 |
| ii. | Korangi Town Gas Engine Power Station-II | 27th Oct 2011 |
| iii. | Korangi Combined Cycle Power Plant | 31st Oct 2011 |
| iv. | Bin Qasim Power Station-II | 14th Jun 2012 |

23.8. The Petitioner submitted the heat rate tests results on following dates;

| | | |
|---|---|---|
| i. | SITE Gas Turbine Power Station-II | 13th December, 2011 |
| ii. | Korangi Town Gas Engine Power Station-II | 25th January, 2012 |
| iii. | Korangi Combined Cycle Power Plant | 16th February, 2012 |
| iv. | Bin Qasim Power Station-II | 2nd July, 2012 |

23.9. The comparison of the results of the heat rate tests conducted by M/s PES and NEPRA's Provisionally approved heat rates is provided hereunder;

| **Net (Btu/kWh) Heat Rate** | SITE Gas Engine Power Station-II | Korangi Town Gas Engine Power Station-II | Korangi Combined Cycle Power Plant | 560 MW BQPS-II (Provisional) | BQPS-I |
|---|---|---|---|---|---|
| **Approved by NEPRA (HHV)** | 9500.00 | 9500.00 | 9110.00 | 7990* | 10650.00 |
| **Heat Rate test by PES (HHV)** | 9646.89 | 9543.80 | 9292.718 | 8195.11 | - |

* = HHV value (equivalent to 7213.5 Btu/kWh net LHV) as guaranteed by the EPC contractor.

23.10. The Authority in respect of SITE Gas Engine Power Station-II (SGTPS-II), Korangi Town Gas Engine Power Station-II (KGTPS-II) and Korangi Combined Cycle Power Plant (KCCP) decided that the existing heat rate allowed / approved by the Authority shall be fixed. Regarding BQPS-II, the Petitioner was directed to conduct the performance (capacity and heat rate) test of its power plant by an Independent Engineer, afresh.

23.11. The Petitioner has requested in the instant petition that the earlier target / approved heat rates of its generating units may be maintained by the Authority. The Petitioner further submitted that its average generation fleet efficiency has increased from 30.4% to 37% in FY 2015 by bringing into operation the new efficient generation plants.

23.12. The Interveners generally opposed the request of the Petitioner for maintaining the existing target heat rates. Government of Sindh while commenting on the heat rate submitted that the fleet efficiency of plants for 10 years has been envisaged from 37% to 43% by the Petitioner which is not sufficient in lieu of 72% addition of new power plants. The efficiencies of new proposed power plants and existing power plants may separately be defined to evaluate the actual performance of the Petitioner Company. Whistle Blower and KCCI in their comments did not agree to the Petitioner's request for maintaining the existing heat rates as well retaining any efficiency gains by the Petitioner and questioned non-revision of heat rates after conversion to combined cycle mode. Mr. Arif Bilvani however, requested for fresh heat rate determination of the Petitioner's power plant.

23.13. In line with the Authority's decision for base case determination of next MYT of the Petitioner, the Authority has decided to determine the heat rates for the Petitioner's entire generation fleet separately including the BQPS-I, keeping in view its different units with different designed efficiencies, remaining useful life and auxiliary consumption as discussed hereunder.

23.14. **Bin Qasim Power Station (BQPS)-I**

23.14.1. The Authority in its Multi-year tariff determination of 2009 allowed BQPS-1, the heat rate value of 10,650 Btu/kWh net HHV flat, which comes out to be 32.04% net HHV thermal



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efficiency flat at RSC. The Authority while determining the heat rate for BQPS-1 mainly considered (i). Designed efficiency of the units (ii). Useful life of units and (iii). Comparison with other similar technology power plants.

23.14.2. Here it is pertinent to mention that BQPS-1 consists of Japanese manufactured six units of 210 MW each. The steam turbine units namely 1, 2, 3, 4, 5 and 6 were commissioned as shown in the following table.

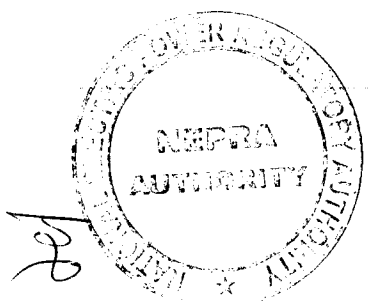
| K-Electric | Fuel | Technology | COD | Installed Capacity (MW) |
|---|---|---|---|---|
| Unit 1 | RFO/Gas | Steam Turbine | 1983 | 210.00 |
| Unit 2 | RFO/Gas | Steam Turbine | 1984 | 210.00 |
| Unit 3 | RFO/Gas | Steam Turbine | 1989 | 210.00 |
| Unit 4 | RFO/Gas | Steam Turbine | 1990 | 210.00 |
| Unit 5 | RFO/Gas | Steam Turbine | 1991 | 210.00 |
| Unit 6 | RFO/Gas | Steam Turbine | 1997 | 210.00 |

23.14.3. The steam turbine based IPPs and GENCOs operating on RFO have been compared for evaluating the heat rate of BQPS-1. Under 1994 power policy, the GOP defined net LHV thermal efficiency of RFO steam turbine based power plants as 38.6% without compensation of degradation and part load adjustments. All power plants installed under this policy including Lalpir, Pakgen and Saba power etc. are required to maintain this efficiency. The short term RFO steam turbine based IPPs including Gulf and Reshma Power also opted for 38.6% net LHV thermal efficiency as mentioned in the upfront tariff for short term IPPs.

23.14.4. The Authority has observed that as per General Electric, a maximum deterioration of 4% in heat rate for RFO fired steam turbine based power plant is reasonable for a 25 years old plant. The Authority further noted that HUBCO has also determined heat rate deterioration of 3.00% after 25 years of operations and 3.3% after 30 years operation of its power plants. The earlier determined / approved thermal efficiency value for BQPS-1 i.e. 33.64% net LHV flat on RFO is already 4.96% lower than thermal efficiency i.e. 38.6% net LHV flat allowed to 1994 power policy power plants. Thus, the Petitioner has already availed the cushion of degradation and part load adjustments. Hence the Petitioner's stance for not allowing degradation curves in line with IPPs operating in the NTDCL system is not justified.

23.14.5. The Petitioner in a presentation made to the Authority stated that with the proposed GLTIP program (for BQPS 1), 10,340 Btu/kWh net HHV flat (equivalent to 32.99% net HHV thermal efficiency flat) on sent out basis may be achieved by the company.





23.14.6. While analyzing the Revaluation report provided by K-Energy Pvt. Ltd., in the matter of coal conversion case of Unit 3 and 4 of BQPS-I, the Authority has noted that the designed thermal efficiency (LHV) of unit 3 and Unit 4 on Oil and Gas is 37.5% and 36% respectively.

23.14.7. The request of the Petitioner for allowing heat rates of BQPS-I on block wise basis (one heat rate for all units) is not justified in current circumstances as Unit 1 and 2 of the BQPS-I will outlive their life by August 2018 and August 2019 respectively, therefore unit wise separate heat rates have been considered by the Authority for the instant petition. Although the Petitioner, in its business plan has projected generation from these two units even after expiry of their useful life, however the Authority is of the considered view that these units may not be continued in future in their existing state. Accordingly, no capacity contribution has been assumed (in projections for the future years) from these units after their useful life is completed. However, if the Petitioner wants to invest in these plants with a view to continue them, the Petitioner needs to carry out its own cost-benefit analysis after complying with in vogue regulatory approvals. The Authority would not burden the consumers with such investment in this regard, hence any gains achieved thereof would be kept by the Petitioner.

23.14.8. Here it is pertinent to mention that Unit 3 and 4 of BQPS-I were excluded from the Generation license of K-Electric vide Authority's determination dated March 13, 2015 owing to leasing out of these units to K-Energy by K-Electric for coal conversion. However, later on, the Petitioner informed that plan for conversion of these units has been scrapped, even then the Petitioner has not assumed any energy from these units in its financial model after December 2018 and has projected power purchase from these units through K-Energy on coal conversion. On the contrary the Petitioner, in its "other capex plan" has proposed major overhaul of both these Units in terms of Turbine, Generator and Boiler. In view thereof, the Authority while making future energy projections for the tariff control period has included Unit 3 and 4 as part of the Petitioner's own generation fleet. The Authority's decision in the matter of GLTIP has been discussed at subsequent stage under the relevant paras of investment.

23.14.9. In view of the foregoing discussion, the Authority approves the following flat unit wise separate thermal efficiencies along with heat rates (without further compensation of degradation and part load adjustment) on sent out basis during the tariff control period and the same will be used in calculation of fuel cost component for the instant petition.

| BQPS 1 | Fuel | Net HHV Flat Thermal Efficiency % at RSC | Net HHV Flat Heat Rate at RSC (Btu/kWh) |
|---|---|---|---|
| **Unit 1** | RFO/Gas | 31.59 | 10802.14 |
| **Unit 2** | RFO/Gas | 32.04 | 10650.00 |
| **Unit 3** | RFO/Gas | 31.03 | 10995.78 |
| **Unit 4** | RFO/Gas | 31.31 | 10898.96 |



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| | | | |
|---|---|---|---|
| **Unit 5** | RFO/Gas | 33.11 | 10304.22 |
| **Unit 6** | RFO/Gas | 33.29 | 10248.90 |

23.15. **Bin Qasim Power Station (BQPS)-II**

23.15.1. Regarding the issue of 560 MW BQPS-II, the Authority back in December 2012, decided that the results of the heat rate tests conducted by M/s PES cannot be relied upon owing to several reasons and approved the net heat rate of the plant as 7,213.5 Btu/kWh (net efficiency 47.30%) without referring to LHV or HHV basis and the same was communicated to the Petitioner vide letter dated 29th Mar 2013. Further, the Authority time and again through its letters directed the Petitioner to conduct the heat rate test afresh but the heat rate tests are still pending.

23.15.2. The comparison of BQPS-II with other power plants operating in the NTDC system having similar gas turbine PG 9171 E as of BQPS-II is tabulated below:

| Plant | Fuel | Net LHV thermal efficiency % at RSC |
|---|---|---|
| BQPS 2 | Natural gas | 47.3 flat |
| UCH-II | Low Btu Gas | 49.3 with PLAC |
| Foundation Power | Low Btu Gas | 48.84 with PLAC |

23.15.3. The net LHV thermal Efficiency in combined cycle mode on gas at ISO conditions is:

| Machine (GT) | As per GE Brochure GER-3574 G (%) | As per Gas Turbine World 2013 GTW Handbook (%) |
|---|---|---|
| PG 9171 E | 52.7 | 52.7 |

23.15.4. The Authority noted that the Petitioner while responding to Govt. of Sindh's comments submitted that "the thermal efficiency of BQPS-II is 45.5% gross HHV and 50.5% gross LHV at reference site conditions". By considering 6.11% auxiliary consumption value the thermal efficiency on net HHV basis worked out to be 42.88%.

23.15.5. Recently, the Petitioner vide its letter dated 10th January 2017 informed the Authority that the company has shortlisted M/s NESPAK for performance test of BQPS-II and same will be carried out after completion of planned annual maintenance (shut down of fifty days) of BQPS-II which is currently underway.

23.15.6. The Authority, until the performance (capacity and heat rate) test of BQPS-II is conducted, approves net LHV 47.3% flat @ RSC or 42.70% net HHV thermal efficiency flat @ RSC

(equivalent to heat rate of 7,990.96 Btu/kWh net HHV flat at RSC) for BQPS-II. Once the test is conducted, the adjustment will be made only if the heat rate in the test is found lower than the above mentioned allowed heat rate. Further no compensation of degradation and part load adjustment is allowed as the approved efficiency is flat for life cycle of the project.

23.16. **Korangi Combined Cycle Power Plant (KCCPP), Korangi Town Gas Engine Power Station-II and SITE Gas Engine Power Station-II:**

23.16.1. The Authority earlier approved heat rate for Korangi CCPP which was based on the tests conducted by Independent Engineer and when these tests were conducted, only one steam turbine was in operation. Now, the Petitioner has enhanced the combined cycle capacity at Korangi CCPP by the adding a second 27.50 MW steam turbine (addition to existing 26.50 MW steam turbine) which has improved the heat rates. In the matter of SITE Gas Engine Power Station-II, Korangi Town Gas Engine Power Station-II facilities the Petitioner has also converted these generation facilities from simple cycle to combined cycle by addition of Steam Turbines of 10 MW each at both locations; hence the corresponding heat rates 9,500 Btus/kWh have improved.

23.16.2. It may be noted that as the factor of degradation in efficiency and part load adjustment have already been considered by the Authority earlier while allowing previous heat rates, therefore for the instant MYT, only the impact of new steam turbines have been considered in order to be consistent with the earlier approved heat rates.

23.16.3. Keeping in view the Authority's decision of rebasing Petitioner's tariff, the impact of aforementioned efficiencies has to be incorporated in the tariff so that the same may be passed on to the consumers in the instant control period. In view thereof, the impact of steam turbine's efficiency on the already Authority's approved heat rates has been calculated. Based on the technical analysis and taking into account the impact of 6.92%, 2.5% and 2.5% auxiliary consumption values for KCCP, Korangi Town Gas Engine Power Station-II and Korangi Town Gas Engine Power Station-II respectively (auxiliary consumption has been discussed separately in the ensuing paragraphs) following flat plant wise heat rates (without further allowance of degradation and part load adjustment) at RSC on sent out basis, are hereby allowed for calculation of the fuel cost components.

| Power Plants | Fuel | Net HHV Flat Thermal Efficiency % at RSC | Net HHV Flat Heat Rate at RSC (Btu/kWh) |
|---|---|---|---|
| Korangi Combined Cycle Power Plant | Gas | 42.91 | 7951.85 |
| Korangi Town Gas Engine Power Station-II | Gas | 40.23 | 8481.58 |
| SITE Gas Engine Power Station-II | Gas | 40.18 | 8492.14 |

23.16.4. For the upcoming power plants or replacement of existing power plants/units, the Petitioner shall perform Capacity and Heat Rate tests in a transparent manner by a reputable Independent Engineer in the presence of NEPRA professionals at the time of commissioning for the Authority's approval. Till approval of performance test results by the Authority, adjustment in the fuel cost component for the upcoming and replaced power plants shall be allowed based on the heat rates as guaranteed by the EPC contractor subject to adjustment. The adjustment in heat rate will be made only if the heat rate in the test is found lower than the heat rates guaranteed by the EPC contractor. Similarly adjustment in capacity will be made only if the actual capacity pursuant to the performance test is found to be higher than the capacity guaranteed by the EPC contractor. The replacement would mean installation of new power plant/ unit (which as per existing fleet includes but not limited to, turbines, engines etc.) in place of existing power plant/ unit with over all higher net thermal efficiencies.

23.17. **Overall Recommended Heat Rates;**

23.17.1. In view of the above discussion, following are the approved net HHV heat rates for the Petitioner's own power plants, to be used for the purpose of base tariff calculations as given hereunder;

| Plant Name | Fuel Type | Heat Rate (Net HHV Flat at RSC) | Efficiency (Net HHV Flat at RSC) |
|---|---|---|---|
| Bin Qasim-I | | | |
| Bin Qasim-I | RFO/ Gas | 10,802.14 | 31.59% |
| Bin Qasim-II | RFO/ Gas | 10,650.00 | 32.04% |
| Bin Qasim-III | RFO/ Gas | 10,995.78 | 31.03% |
| Bin Qasim-IV | RFO/ Gas | 10,898.96 | 31.31% |
| Bin Qasim-V | RFO/ Gas | 10,304.22 | 33.11% |
| Bin Qasim-VI | RFO/ Gas | 10,248.90 | 33.29% |
| KCCP | Gas/ HSD | 7,951.85 | 42.91% |
| BQPS-II | Gas/ HSD | 7,990.96 | 42.70% |
| Korangi Town Gas Engine Power Station-II | Gas | 8,492.14 | 40.18% |
| SITE Gas Engine Power Station-II | Gas | 8,481.58 | 40.23% |

24. **Issue: Whether the request of the Petitioner to maintain the existing target auxiliary consumption of 6.1% for its entire generation fleet is justified?**

24.1. The Petitioner during hearing submitted that the Authority approved the heat rates in the MYT determination of 2009 on sent out basis while taking into account an auxiliary consumption of 6.1% for the whole generation fleet. The Petitioner further stated that currently its actual auxiliary consumption is around 7.6%; however, since it has requested for the continuation of the existing MYT with existing heat rate benchmarks, it is willing to take the challenge and continue the benchmark of 6.1% in respect of auxiliary consumption.

24.2. The Petitioner vide its letter dated 04th January 2017 provided actual auxiliary consumption of its power plants wherein it stated that the major contributors for the higher auxiliary consumption includes operation on partial load, ambient conditions, outages, unit start up and shut down etc.

24.3. A snapshot of the available information is reproduced as hereunder;

| KE own Power Plants (Gross capacity) at mean site conditions | Historic Aux Cons % submitted by KE for FY 2016* | Aux Cons % used by KE in Tariff model for FY 2017 | Actual aux cons % as per KE in its petition for whole generation fleet | NEPRA Approved/indicated Aux Cons % in other Tariff/ License Determinations | NEPRA Indicated Aux Cons % in License of KE | PES Tested Aux Cons % | Aux Cons % as submited by KE (for State of Industry report) for FY 2015-16 |
|---|---|---|---|---|---|---|---|
| BQPS-1 (1200 MW) | 9.40% | 10.60% | 7.60% | 8.96% (TPS M.Garh)<br>7.1% (HUBCO)<br>8.56% (TPS Jamshoro)<br>6.90% (Lalpir)<br>7.67% (Pakgen) | 7.70% | - | 9.40% |
| BQPS-2 (528.41 MW) | 6.20% | 6.60% | | 2.84% (UCH-II) | 4.97% | 6.11% | 6.20% |
| KCCPP (240.1 MW) | 7.90% | 8.80% | | 2.33% (Orient Power)<br>3.24% (Saif Power) | 6.41% | 6.92% | 7.90% |
| KGTPS (97.21 MW) | 2.80% | 2.10% | | 2.5% (SNPCL) | 3.79% | 2.24% | 2.80% |
| SGTPS (97.21 MW) | 3.20% | 2.90% | | 2.5% (SNPCL) | 3.79% | 2.15% | 3.20% |
| Total Aux Cons in MW | 170 | 188 | 164 | 135 | 141 | - | 170 |
| Total Aux Cons % whole fleet | 7.88 | 8.69 | 7.60 | 6.74 | 6.54 | - | 7.88 |
| Gross Capacity MW at Mean Site Conditions | 2163 | 2163 | 2163 | 2004 | 2163 | - | 2163 |
| Net Capacity MW | 1993 | 1975 | 1999 | 1869 | 2022 | - | 1993 |

* Based on 9 months actual and 3 months provisional data

24.4. **Bin Qasim Power Station 1:**

24.4.1. During the last control period, a combined auxiliary consumption was assessed for the whole fleet of the Petitioner. However, in the instant petition, the Authority being cognizant of the fact that Unit 1 and 2 of BQPS-I will be decommissioned after completing their useful life during the tariff control period, considers it imperative to allow unit wise separate auxiliaries and net capacities as exclusion of older/ inefficient units i.e. 1 and 2 of BQPS-I will result in



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improvement in the overall fleet efficiency due to less auxiliaries of efficient units. Here it is pertinent to mention that the values mentioned in license of the Petitioner, historic auxiliary consumption for the FY 2015-16 as submitted by the Petitioner and auxiliary consumption used by the Petitioner in tariff model are inconsistent with each other. Since the available information in this regard indicated substantial variations, hence the Authority decided to carry out its own assessment.

24.4.2. In order to assess the auxiliaries of BQPS-1 a comparison with HUBCO, TPS Jamshoro, TPS M.Garh, Lalpir Power and Pakgen power (being oil fired steam turbine based power plants) was carried out , which showed that the claim of the Petitioner is significantly on the higher side. The Authority while assessing the auxiliaries also considered the fact that the operation of steam turbine on gas fuel requires less auxiliary equipment as compared to RFO, as the operation of power plant on liquid fuel like RFO requires extra auxiliary power for decanting, heating and pumping purposes.

24.4.3. In view of the foregoing discussion, the Authority has decided to allow the following unit wise auxiliary consumption of gross capacity at mean site conditions for operation of BQPS-I on both fuels i.e. RFO/Gas;

| BQPS 1 (RFO/Gas) | Auxiliary Consumption (%) of Gross capacity at mean site |
|---|---|
| Unit 1 | 8.11 |
| Unit 2 | 8.00 |
| Unit 3 | 8.25 |
| Unit 4 | 8.18 |
| Unit 5 | 7.75 |
| Unit 6 | 7.71 |

24.5. **Bin Qasim Power Station II:**

24.5.1. The Petitioner in its presentation to the Authority dated 27th December 2016 and vide its letter dated 4th January 2017 submitted that the increase in percentage of auxiliary load at BQPS-II is mainly due to the gas compressor load.

24.5.2. The Authority while analyzing, the Heat Rate test report of BQPS-II as prepared by M/s PES, confirmed that major contributors of auxiliary power are the gas compressors, which are



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essential for increasing the gas pressure from 03 bar to required 27 bar, for running the gas turbines. There are 03 gas compressors installed at the plant with aggregate load of 17 MW, out of which 02 gas compressors remain normally in service, whereas 01 gas compressor is kept standby to meet any emergency.

24.5.3. Again in the case of Bin Qasim–II, the historic auxiliary consumption values as submitted by the Petitioner for FY 2015-16, in different documents as mentioned earlier are inconsistent with each other. Here it is pertinent to mention that the Authority has been directing the Petitioner to conduct the performance (capacity and heat rate) test of BQPS-II power plant by an Independent Engineer afresh. Owing to the inconsistency in the submitted data, the Authority for the instant petition, has decided to adopt M/s PES's (Independent Engineer) tested value for auxiliary power consumption of BQPS-II (of the gross power output of the plant). By allowing 6.11% auxiliary consumption value the net capacity of BQPS-II comes out to be 496.11 MW. The same would be adjusted in line with the adjustment in capacity which will be made only if the actual capacity pursuant to the performance test is found to be higher than the reference approved capacity.

24.6. **Korangi Combined Cycle Power Plant KCCPP:**

24.6.1. As per the Petitioner, the increased auxiliary consumption values for its Korangi combined cycle gas turbine based power plant is due to additional compressor load in addition to normal standard auxiliary loads. It further submitted that the load of 03 gas compressors installed at the plant is 8 MW. Here it is pertinent to mention that submissions of the Petitioner in respect of Korangi combined cycle power plant at different instances remained inconsistent with each other.

24.6.2. Accordingly for the KCCPP, the Authority has decided to consider the M/s PES's (Independent Engineer) tested value for auxiliary power consumption i.e. 6.92% (of the gross power output of the plant), thus resulting in net capacity of 223.49 MW.

24.7. **Korangi Town Gas Engine Power Station-II and SITE Gas Engine Power Station-II:**

24.7.1. Again in the matter of Korangi Town Gas Engine Power Station-II and SITE Gas Engine Power Station-II, it was observed that the Petitioner submitted different numbers of the auxiliaries which are inconsistent with each other. Thus, in order to assess the auxiliaries of the aforementioned plants the Authority is constrained to rely on available local and international benchmarks for such power plants. One of the most relevant auxiliary benchmark was 2.5 % of gross capacity at reference site conditions (as per Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014). The CERC is using it for different locations across the country. The Authority has allowed the same values of auxiliaries to gas engine based Sindh Nooriabad Power plant. Thus, keeping in view the



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aforementioned, the Authority has decided to allow 2.50% auxiliary consumption value of gross capacity at reference site conditions for Korangi Town combined cycle based gas engine power station-II and SITE combined cycle based gas engine power station-II. With the allowed 2.50% auxiliary consumption value, the net capacity comes out to be 94.78 MW for each plant.

24.8. **Overall Recommended Net Capacity (MW):**

24.8.1. In view of the above discussion, following are the approved net capacity values along with auxiliary consumption values at mean site conditions for the Petitioner's own power plants, to be used for the purpose of calculating generation as given hereunder;

| Plant Description | Installed Capacity at ISO | Gross Capacity at mean site | Approved Net Capacity at mean site | Auxilary Consumption of gross Capacity |
|---|---|---|---|---|
| | MW | MW | MW | % |
| **Bin Qasim Power Station (BQPS 1):** | | | | |
| Unit 1 | 210.00 | 200.00 | 183.78 | 8.11 |
| Unit 2 | 210.00 | 200.00 | 184.00 | 8.00 |
| Unit 3 | 210.00 | 200.00 | 183.50 | 8.25 |
| Unit 4 | 210.00 | 200.00 | 183.64 | 8.18 |
| Unit 5 | 210.00 | 200.00 | 184.50 | 7.75 |
| Unit 6 | 210.00 | 200.00 | 184.58 | 7.71 |
| **Sub-Total** | **1,260.00** | **1,200.00** | **1,104.00** | **8.00** |
| **Korangi 220 MW CCPP:** | | | | |
| Unit-1-4 Gas Turbine of 48.38 MW each | 193.50 | 187.70 | | |
| Unit-5 Steam Turbine | 26.50 | 25.70 | | |
| Unit-6 Steam Turbine (New addition) | 27.50 | 26.70 | | |
| **Sub-Total** | **247.50** | **240.10** | **223.49** | **6.92** |
| **Gas Engines at Korangi Town:** | | | | |
| 32 Gas engines of 3.041 MW each | 97.31 | 87.65 | | |
| Unit 33 Steam Turbine (New addition) | 10.00 | 9.57 | | |
| **Sub-Total** | **107.31** | **97.21** | **94.78** | **2.50** |
| **Gas Engines at SITE:** | | | | |
| 32 Gas engines of 3.041 MW each | 97.31 | 87.65 | | |
| Unit 33 Steam Turbine (New addition) | 10.00 | 9.57 | | |
| **Sub-Total** | **107.31** | **97.21** | **94.78** | **2.50** |
| **Bin Qasim New CCPP (BQPS 2):** | | | | |
| Unit-1-3 Gas Turbine each of 127.8 MW | 383.40 | 347.10 | | |
| Unit-4 Steam Turbine | 189.27 | 181.30 | | |
| **Sub-Total** | **572.67** | **528.40** | **496.11** | **6.11** |
| Total | **2,294.79** | **2,162.92** | **2,013.16** | |

24.8.2. Based on the aforementioned assessment, the Authority has worked out the "reference fuel cost component" for the Petitioner, by taking into account the assessed Net HHV Heat Rates, auxiliaries, reference gas price of Rs.613/mmbtu and Furnace Oil price of Rs.27,744/ Metric Ton as on June 30, 2016. Calorific Value of Furnace Oil has been considered as 40,351 BTU/ Kg. The reference fuel cost component is worked out after calculating plant wise fuel cost

component of each KE's plant. For the purpose of calculating fuel cost of power purchases from all external sources including IPPs and CPPA-G, the actual fuel cost component as on June 30, 2016 has been considered.

24.8.3. Regarding the O&M costs, capacity payments of IPPs and other external sources, actual cost for the month of June 2016 has been considered as it represents the latest indexed costs, which will be applicable effective July 2016. In the matter of energy purchased from CPPA-G, the cost, other than fuel, has been taken based on average of the actual cost charged by CPPA-G to the Petitioner during the FY 2015-16, owing to notable fluctuations in the cost on month to month basis.

24.8.4. Further, the Petitioner vide its letter # KE/BPR/NEPRA/2017/001 dated January 04, 2017 provided detail of its actual gas consumption for two years period i.e. from January 2015 to December 2016, whereby its average annual gas consumption remained at around 177 mmcfd. The same has been used in our calculation, while giving due considerations to practical gas constraints in the relevant months of a year.

24.8.5. Accordingly, the Authority has worked out the following plant wise units sent outs, for the Petitioner's own power plants as well as for the external sources including CPPA(G), based on the approved plant wise Net Capacities, net HHV Heat Rates, as mentioned in the preceding paragraphs, and keeping in view the Plant wise Gas consumption, as per gas availability provided by the Petitioner. For calculating the Petitioners fuel cost as well as fuel cost of power purchase from external resources, the principle of economic merit order dispatch has been kept in view.

| Sr. | Fuel Cost Component (Rs./kWh) | Plant | Net Capacity (MW) | Plant Factor | Units Sent Out (GWh) |
|---|---|---|---|---|---|
| 1 | 4.87 | KCCP | 223 | 68% | 1,339 |
| 2 | 4.90 | BQPS-II | 496 | 85% | 3,694 |
| 3 | 5.20 | KGTPS | 95 | 66% | 549 |
| 4 | 5.21 | SGTPS | 95 | 50% | 416 |
| 5 | 5.82 | Other Misc. /IIL | 23 | 38% | 77 |
| 6 | 5.98 | Anoud | 12 | 70% | 74 |
| 7 | 6.18 | TAPAL | 120 | 85% | 890 |
| 8 | 6.27 | G.Ahmad | 125 | 85% | 933 |
| 9 | 6.28 | Bin Qasim-V1 (GAS) | 185 | 55% | 889 |
| 10 | 6.29 | Kannup | 86 | 61% | 460 |
| 11 | 6.32 | Bin Qasim-V (GAS) | 185 | 52% | 840 |
| 12 | 7.05 | Bin Qasim-VI (FO) | 185 | 25% | 404 |
| 13 | 7.08 | Bin Qasim-V (FO) | 185 | 23% | 372 |
| 14 | 7.32 | Bin Qasim-II (FO) | 184 | 11% | 169 |
| 15 | | CPPA-G | 650 | 95% | 5,409 |
| Total | | | | | 16,515 |

24.8.6. Based on the aforementioned the Petitioner's total fuel and power purchase cost for base case assessment has been worked out as under;

| Units Sent Out | GWh | Rs. in Million | Rs./Kwh (Sent out basis) |
|---|---|---|---|
| Own Generation | 8,673 | 47,260 | 5.45 |
| Power Purchase (excluding CPPA-G) | 2,432 | 20,604 | 8.47 |
| CPPA-G | 5,409 | 35,268 | 6.52 |
| **Total** | **16,515** | **103,132** | **6.24** |

25. **Issue: Whether the Petitioner's proposed increase of Rs.0.66/ kWh on the existing O&M cost allowed by the Authority is justified?**

25.1. The Petitioner requested to continue with the existing MYT rate and additionally requested for an increase of Rs.0.66/kWh in its O&M cost component, however, no further break-up of the requested Rs.0.66/kWh in terms of its Generation, Transmission or Distribution functions was provided.

25.2. The Petitioner justified requested increase on the grounds that its proposed investment plan of Rs. 496 billion over the next ten years would significantly increase its generation, transmission and distribution capacities, which will result in proportional increase in its O&M costs. Based on past trends and future projections, the growth in O&M costs is expected to be much steeper than the growth in CPI. The Petitioner further argued that although it has achieved a number of cost efficiencies in O&M costs, additional cost reductions will be increasingly difficult going forward. It expects the shortfall in its recovery of O&M costs to widen and this will need to be financed by diverting resources from vital investments. However, it also recognizes the regulatory objective of incentivizing cost reduction and minimizing the impact on customers. Therefore, it is willing to share a significant portion of the increase in cost and has proposed an increase of Rs.0.66/kWh in the O&M component of tariff.

25.3. The Petitioner also mentioned that in addition to the investment in infrastructure to deliver technical efficiencies, it plans to invest across all business units in order to enhance operational efficiency. However, significant increase in generation, transmission and distribution capacities will result in a proportional increase in O&M costs, whereas its ability to deliver real reductions in O&M costs is limited by factors outside its direct control. As per the Petitioner, in the last control period, its shortfall in real O&M expenses were cross-subsidized and recovered through the tariff which included the impact of efficiency gains. Nevertheless, it has significantly enhanced operational efficiencies, which means that at this

point, its ability to absorb future real increases in O&M costs is limited. The requested increase in tariff ensures that it continues to be incentivized to manage O&M costs as the requested increase only covers a portion of the deficit in O&M cost recovery. At the same time, it ensures that it does not divert significant funds away from important planned capital expenditures in order to meet the deficit in the recovery of O&M costs.

25.4. The Petitioner during hearing of the petition, submitted that it is currently facing a shortfall of Rs.1.44/kWh in recovery of O&M expenses and significant funds are being utilized to bridge this gap. It also highlighted that a shortfall of Rs.0.64/kWh in its O&M component was requested in the 2009 petition, however the Authority only allowed Rs.0.15/kWh against the requested shortfall.

25.5. The Petitioner also highlighted that since new management took over in 2009, it brought efficiencies in the O&M costs by implementing a number of operational improvements across all business units. In addition it enhanced the generation, transmission and distribution capacities significantly since 2009 which resulted in increasing certain costs faster than CPI. Currently its shortfall is Rs.1.44/kWh and it expects this gap to further widen due to substantial growth and expansion in operations.

25.6. The Interveners KE Consumer forum, KCCI, SHERI, Pasban, Mr. Bilvani and commentators CPPA-G, Mr. Moin Aamir Pirzada and Mr. Qamar Abbas Rizvi all strongly opposed the claimed increase of Rs.0.66/kW, rather some of the Interveners were of the view to withdraw the O&M component of Rs.0.15/kWh allowed in 2009.

25.7. The Authority considers that in the context of the its decision to rebase the tariff, expired on June 30, 2016, the request of the Petitioner for allowing an additional increase of Rs.0.66/kWh on its present O&M component becomes irrelevant. As regards suggestion of the intervener/commentators to continue the existing allowed O&M cost component, it is to be noted that O&M cost component of Rs. 0.46/kWh allowed in the MYT of 2002 was not based on actual cost of the utility rather the overall allowed tariff of Rs. 4.74/kWh was apportioned into different components including the O&M cost based on the value of segment wise assets of the company. The Petitioner was therefore, required to turn around the company from loss sustaining into profit making company within the allowed tariff control period through efficiency improvements by cost reduction and investment in the system from its own sources. It has been noted that the current O&M cost component of the Petitioner of Rs. 1.45/kWh after the allowed annual indexation based on CPI-X is still not sufficient for recovery of its actual O&M cost, rather the same was being managed through cross subsidization within the allowed overall average tariff of Rs. 15.56/kWh.

25.8. In the light of discussion in the preceding paragraphs the Authority decides that the O&M cost of the Petitioner for its generation, Transmission and Distribution function needs to be



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re-assessed on the basis of available record which should ensure recovery of its prudently incurred cost going forward so that the utility remains financially viable to meet its operational expenses as well as able it to pursue its future investment plans, which is also in the interest of consumers.

25.9. In view of the aforementioned the O&M cost component to be allowed to the Petitioner for each segment of its business has been discussed in the following paragraphs;

25.10. O&M COST

25.10.1. The O&M component of its Generation, Transmission & Distribution after the allowed annual indexations based on CPI-X was Rs.1.45/kWh as detailed below;

| Tariff Component | Tariff History | | |
|---|---|---|---|
| | 2002 | 2009 | 2016 |
| | Rs./kWh | Rs./kWh | Rs./kWh |
| Generation O&M | 0.10 | 0.18 | 0.28 |
| Transmission O&M | 0.04 | 0.07 | 0.11 |
| Distribution O&M | 0.32 | 0.73 | 1.06 |
| **Grand Total** | **0.46** | **0.98** | **1.45** |

25.11. O&M – Generation

25.11.1. Petitioner provided the following details in respect of its Generation O&M cost for the FY 2015-16;

| Generation O&M Expenses | FY-2016 | | | | | | | Rs. In thousand | |
|---|---|---|---|---|---|---|---|---|---|
| Description | BQPS I | CCPP | BQPS II | KGTPS | SGTPS | Generation - Central & Old Plant - Note 1 | Generation | Allocated Support Cost | G.Total |
| Salaries & Wages | 414,487 | 148,209 | 156,195 | 83,909 | 75,460 | 193,440 | 1,071,698 | 283,140 | 1,354,838 |
| Other Benefits | 134,642 | 44,181 | 39,265 | 22,194 | 21,570 | 143,995 | 405,846 | 121,420 | 527,266 |
| Rent, Rate & Taxes | 16,829 | - | - | - | 281 | 134,938 | 152,047 | 17,160 | 169,207 |
| Energy Comsumed Within Company | - | - | - | - | - | 16,678 | 16,678 | 1,925 | 18,603 |
| Provision Against Slow Moving & Obsolete Stores & Spa | - | - | - | - | - | 64,991 | 64,991 | 497 | 65,487 |
| Bank Collection Charges | - | - | - | - | - | - | - | - | - |
| Directors' Fees | - | - | - | - | - | - | - | 883 | 883 |
| Professional Charges | - | - | - | - | - | 110,072 | 110,072 | 270,531 | 380,603 |
| Auditors' Remuneration | - | - | - | - | - | - | - | 4,464 | 4,464 |
| Third Party Services | 228,256 | 256,929 | 308,534 | 45,498 | 29,970 | 140,049 | 1,009,236 | 104,416 | 1,113,652 |
| Nepra Licence Fee | - | - | - | - | - | 26,248 | 26,248 | - | 26,248 |
| Public Relations And Corporate Communication | 33 | 137 | - | - | - | 600 | 770 | 9,479 | 10,249 |
| Provision For Doubtful Debts | - | - | - | - | - | - | - | - | - |
| Transport Cost | 12,676 | 369 | 152 | 3 | 241 | 260 | 13,701 | 1,252 | 14,953 |
| Repair & Maintenance | 18,798 | 7,286 | 4,538 | 918 | 1,530 | 572 | 33,642 | 11,156 | 44,798 |
| Stores & Spares Consumed | 227,464 | 210,852 | 241,728 | 282,437 | 150,373 | 12,897 | 1,125,751 | 4,229 | 1,129,980 |
| Legal Services | - | - | - | - | - | 1,050 | 1,050 | 2,050 | 3,100 |
| Other Expenses | 64,796 | 57,391 | 92,823 | 19,804 | 16,489 | 12,392 | 263,695 | 215,231 | 478,926 |
| Total | 1,117,979 | 725,354 | 843,234 | 454,763 | 295,913 | 858,180 | 4,295,424 | 1,047,833 | 5,343,257 |
| Other Opearting Expanses Allocated | | | | | | | | | 419,537 |
| Total Generation Expenses after allocated Cost | | | | | | | | | 5,762,794 |

Note 1: Certain pool generation expenses including salaries, wages and other benefits of senior management of plants and provision for slow moving stores are recorded on central cost centers as per Company's practice.

25.11.2. As per the data provided by the Petitioner its actual Generation O&M cost for the FY 2015-16 was Rs.4,295 million, which after allocation of the support cost & other operating expenses, charged centrally by the Petitioner, proportionally to Generation, Transmission and Distribution based on their actual cost works out to be Rs.5,763 million. Thus, the per unit cost works out as Rs.0.45/kWh based on 12,865 GWh of units sold during the FY 2015-16, as reported by the Petitioner.

25.11.3. With the indexed Generation O&M component of Rs.0.2803/kWh, allowed in its previous tariff, the Petitioner recovered Rs.3,606 million based on 12,865 GWh sold, against its actual cost of Rs.5,763 million, thus, the Petitioner was not being able to recover its actual cost through the allowed tariff at the present sales level and was being compensated through efficiency gains achieved by the Petitioner in the last tariff control period..

25.11.4. Here it is to be noted that the Petitioner did not categorize its O&M cost separately into fixed and variable portions, therefore, in order to have a more realistic and fair assessment of the Petitioner's Generation O&M cost, the expenses under the following cost heads have been categorized as "Variable" owing to their nature and have been linked with the units generated, whereas all other expenses have been considered to be fixed in nature.

i. Stores & Spares Consumed
ii. Repair & Maintenance
iii. Third Party Services

25.11.5. The Authority while evaluating the details of the provided expenses observed that the allocated expenses of Rs. 420 million included an amount of Rs. 367 million under the head of WWF, WPPF, donations and non-adjustable claims of sales tax pertaining to the previous periods. The Authority after careful evaluation of the aforementioned expenses has decided to exclude the expenses of WWF & WPPF for the purpose of assessment of its O&M cost. Further the amounts pertaining to sale tax claims of the previous years and donations have also not been considered. Consequently the Petitioner's O&M cost for its Generation segment to be included in the base case works out to be Rs. 5,333 million. Regarding WWF & WPPF the Authority considers that the utility is required to make payment on account of such cost under the law and therefore are to be considered as pass through cost which will be allowed separately on actual payment basis annually to the Petitioner on provision of verifiable documentary evidence in the future tariff adjustments.

25.11.6. It is important to highlight that in the matter of IPPs, the O&M cost (Variable and Fixed) includes cost of major overhauls, whereas the Petitioner, as per its existing practice and in line with the IAS, capitalizes such costs. Therefore, to have a meaningful comparison, the



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Petitioner's generation O&M cost vis a vis comparable IPPs, has been analyzed by excluding the impact of major overhauls from IPP's O&M cost as mentioned hereunder

| Generation O&M Without Major Over-Hauling | | | | |
|---|---|---|---|---|
| Plant | Actual | Actual Adjusted for P.F | Benchmark Cost adjusted for PF | Benchmark IPP |
| BQPS-II | 0.35 | 0.68 | 1.03 | Uch II |
| KCCP | 0.94 | 0.85 | 0.44 | Saif |
| Bin Qasim | 0.58 | 0.34 | 0.36 | Hubco |
| SGTPS | 1.26 | 1.11 | 1.00 | SNPCL |
| KGTPS | 1.40 | 1.23 | 0.84 | SNPCL |
| | **0.60** | **0.61** | **0.64** | |

25.11.7. The above comparison, reveals that the Petitioner's actual Generation O&M cost exclusive of the cost of major overhauling is quite reasonable as allowed to other IPPs on comparable basis.

25.11.8. In view of the above the Authority has decided to consider Rs. 5,333 million for its base case scenario i.e. Rs. 0.41/kWh based on 12,865 GWh sold for the FY 2015-16.

25.12. **O&M – Transmission & Distribution**

25.12.1. The Petitioner provided the following details in respect of its Transmission O&M cost for the FY 2015-16;

| Transmission O&M Expenses | FY 2015-16 | | |
|---|---|---|---|
| Description | Transmission | Allocated Support Cost | G.Total |
| Salaries & Wages | 692,034 | 182,833 | 874,867 |
| Other Benefits | 263,671 | 78,884 | 342,555 |
| Rent, Rate & Taxes | 51,807 | 5,847 | 57,654 |
| Energy Comsumed Within Company | 242,792 | 28,030 | 270,822 |
| Provision Against Slow Moving And Obsolete Stores And Spares | 33,676 | 257 | 33,934 |
| Bank Collection Charges | - | - | - |
| Directors' Fees | - | 883 | 883 |
| Professional Charges | 8,100 | 19,907 | 28,007 |
| Auditors' Remuneration | - | 4,464 | 4,464 |
| Third Party Services | 573,488 | 59,333 | 632,822 |
| Nepra Licence Fee | 5,706 | - | 5,706 |
| Public Relations And Corporate Communication | 8,958 | 110,294 | 119,252 |
| Provision For Doubtful Debts | - | - | - |
| Transport Cost | 20,360 | 1,860 | 22,220 |
| Repair & Maintenance | 57,877 | 19,193 | 77,070 |
| Stores & Spares Consumed | 86,821 | 326 | 87,147 |
| Legal Services | 4,510 | 8,806 | 13,316 |
| Other Expenses | 68,954 | 56,281 | 125,235 |
| Total | 2,118,755 | 577,200 | 2,695,955 |
| Other Opearting Expanses Allocated | | | 206,940 |
| Total Transmission Expenses after allocated Cost | | | 2,902,896 |

25.12.2. As per the data provided by the Petitioner, the actual Transmission O&M cost of the Petitioner is Rs.2,119 million for the FY 2015-16, which after allocation of the support cost & other operating expenses, charged centrally by the Petitioner, proportionally to Generation, Transmission and Distribution based on their actual costs, works out to be Rs.2,903 million. Thus, the per unit cost works out as Rs.0.23/kWh based on 12,865 GWh of units sold during the FY 2015-16, as reported by the Petitioner.

25.12.3. With the indexed Transmission O&M component of Rs.0.1122/kWh allowed in the existing tariff, the Petitioner recovered Rs.1,443 million based on 12,865 GWh sold, against its actual cost of Rs.2,903 million, thus, not being able to recover its actual cost through the allowed tariff at the present sales level.

25.12.4. For assessment of its transmission O&M cost to be included in the base case the allocated cost of Rs. 181 million included under the head of WWF, WPPF, Donation and non- adjustable claims of sales tax pertaining to the previous periods has been excluded. Regarding WWF & WPPF the Authority considers that the utility is required to make payment on account of such cost under the law and therefore are to be considered as pass through cost which will be allowed separately on actual payment basis annually to the Petitioner on provision of verifiable documentary evidence in the future tariff adjustments.

25.12.5. After accounting for the aforementioned adjustments in the "Other operating expenses", the Petitioner's Transmission O&M cost works out as Rs.2,722 million i.e. Rs.0.21/kWh based on 12,865 GWh sold.

25.12.6. Similarly, for its Distribution O&M cost pertaining to FY 2015-16, the Petitioner provided the following details;

| Distribution O&M Expenses | FY 2015-16 | | |
|---|---|---|---|
| Description | Distribution | Allocated Support Cost | G.Total |
| Salaries & Wages | 4,908,088 | 1,296,702 | 6,204,790 |
| Other Benefits | 1,527,117 | 456,878 | 1,983,995 |
| Rent, Rate & Taxes | 72,676 | 8,202 | 80,878 |
| Energy Comsumed Within Company | 143,535 | 16,571 | 160,106 |
| Provision Against Slow Moving And Obsolete Stores And Spares | 1,482 | 11 | 1,493 |
| Bank Collection Charges | 2,875 | 20,462 | 23,337 |
| Directors' Fees | - | 883 | 883 |
| Professional Charges | 3,554 | 8,734 | 12,288 |
| Auditors' Remuneration | - | 4,464 | 4,464 |
| Third Party Services | 3,307,604 | 342,207 | 3,649,811 |
| Nepra Licence Fee | 33,830 | - | 33,830 |
| Public Relations And Corporate Communication | 7,523 | 92,626 | 100,149 |
| Provision For Doubtful Debts | 15,211,165 | - | 15,211,165 |
| Transport Cost | 146,479 | 13,384 | 159,864 |
| Repair & Maintenance | 176,947 | 58,679 | 235,626 |
| Stores & Spares Consumed | 725,645 | 2,726 | 728,371 |
| Legal Services | 41,852 | 81,717 | 123,568 |
| Other Expenses | 267,614 | 218,430 | 486,044 |
| Total | 26,577,987 | 2,622,675 | 29,200,662 |
| Other Opearting Expanses Allocated | | | 2,595,893 |
| Total Distribution Expenses after allocated Cost | | | 31,796,555 |

25.12.7. As per the provided data, the actual Distribution O&M cost of the Petitioner for the FY 2015-16 was Rs.26,578 million which included provision for doubtful debts to the tune of Rs.15,211 million. After allocating the support cost & other operating expenses, works out as Rs.31,797 million. Thus, the per unit cost works out as Rs.2.47/kWh including provision for bad debts and Rs.1.29/kWh without provision for bad debts, based on 12,865 GWh of units sold during the FY 2015-16, as reported by the Petitioner.

25.12.8. The Petitioner against its actual cost of Rs.16,586 million (excluding provision) recovered Rs.13,636 million based on 12,865 GWh of units sold during the FY 2015-16 at the allowed tariff component of Rs.1.06/kWh. Thus, the Petitioner was not able to recover its actual cost through the allowed tariff at the present sales level.

25.12.9. The Petitioner has included Rs. 2,270 million under the head of WWF, WPPF, donations and non- adjustable claims of sales tax pertaining to the previous periods have been excluded as discussed earlier. However the cost on account of WWF & WPPF will be allowed to the Petitioner annually on actual payment basis as already decided in the matter. However the cost on account of sale tax claims pertaining to previous year and donations has not been allowed.

25.12.10. In addition to the aforementioned, the amount of Rs.23.337 million appearing as bank collection charges under consumer services and administrative expenses represents the cost incurred by the Petitioner for processing of payments by the banks and its reporting to the Petitioner. The Authority believes that the consumers are paying bank collection charges separately @ Rs.8/bill, therefore, this cost needs to be borne by the Petitioner itself and not to be passed on to the consumers, hence, not included in our assessment of Distribution O&M cost. However, the cost of Bill collection charges @ Rs.8/bill (Rs.8 x 2.46 million Consumers x 12) amounting to Rs. 236.884 million as approved by the State Bank of Pakistan have been included in the assessed distribution O&M cost component ). The Petitioner is therefore directed to stop charging bill collection charges separately from the consumers in future. The issue of bank collection charges has also been deliberated as a separate issue in the determination

25.12.11. In view of the above the Petitioner's O&M cost for the Distribution without provision for doubtful debts has been assessed as Rs. 14,529 million i.e. Rs.1.13/kWh based on 12,865 GWh sold.

25.12.12. For the purpose of fair and judicious assessment of the Petitioner's Transmission and Distribution cost, for the base case assessment, the same has been compared with the O&M cost allowed in the matter of XWDISCOs. Here it is pertinent to mention that XWDISCOs distribution system include 132KV network, 66KV, 11KV and below. The Petitioner on the other hand has 220KV and 132KV which is categorized under the transmission network and

its distribution network comprises of 66kv and 11kv and below. Although the Petitioner's transmission network includes 220KV which XWDISCOs do not have, yet keeping in view the efficiency perspective and the fact that the Petitioner is a private entity, its total transmission and distribution cost has been compared with the XWDISCOs O&M cost as mentioned hereunder;

| Description | K.E Trans & Distr FY 2016 | | LESCO Trans & Distr FY 2016 | | IESCO Trans & Distr FY 2016 | | FESCO Trans & Distr FY 2016 | |
|---|---|---|---|---|---|---|---|---|
| | Mln. Rs. | | Mln. Rs. | | Mln. Rs. | | Mln. Rs. | |
| Pay & Allowances | 9,406 | 54% | 18,240 | 89% | 8,168 | 82% | 10,171 | 91% |
| Third Party Services | 4,283 | 25% | | | | | | |
| **Sub-Total** | **13,689** | **79%** | **18,240** | **89%** | **8,168** | **82%** | **10,171** | **91%** |
| Repair And Maintenance | 1,128 | 6% | 1,513 | 7% | 836 | 8% | 576 | 5% |
| WWF / WPPF | 63 | 0% | - | 0% | - | 0% | - | 0% |
| Power | 431 | 2% | 65 | 0% | 29 | 0% | 41 | 0% |
| Transport | 182 | 1% | 415 | 2% | 291 | 3% | 241 | 2% |
| Advertisement | 219 | 1% | 70 | 0% | 5 | 0% | 41 | 0% |
| Others | 1,700 | 10% | 132 | 1% | 685 | 7% | 105 | 1% |
| **Grand Total** | **17,413** | **100%** | **20,436** | **100%** | **10,014** | **100%** | **11,176** | **100%** |

25.12.13. The comparison reveals that the Petitioner's Transmission and Distribution cost is Rs.18,386 million whereas LESCO, IESCO and FESCO's cost is Rs.20,436 million, Rs.10,014 million and Rs.11,176 million respectively. Considering the fact that each utility has its own dynamics in terms of area, sales, network, customer base etc. hence a more appropriate approach would be to analyze the aforementioned costs on per unit basis rather in absolute terms. Thus, the aforementioned O&M costs when translated into per unit basis (keeping the losses level same for apple to apple comparison) has been worked out as given hereunder.

| Company Name | Tran. & Dist. O&M (Rs. In Million) | Unit Received (GWh) | Rs./kWh |
|---|---|---|---|
| K.E | 17251 | 16515 | 1.04 |
| LESCO | 20436 | 19220 | 1.06 |
| IESCO | 10014 | 9086 | 1.10 |
| HESCO | 6351 | 4427 | 1.43 |
| PESCO | 11465 | 8825 | 1.30 |
| SEPCO | 4987 | 3173 | 1.57 |

25.12.14. The analysis indicate that per unit cost of the Petitioner, based on Units available for sale parameter (i.e. before T&D losses) is Rs.1.04/kWh, which is comparable with the cost allowed by the Authority in the matter of XWDISCOs.

25.12.15. In view of the above discussion, the Petitioner's total Transmission and distribution O&M cost (excluding provision for doubtful debts) to be included in the base case has been worked out as Rs.2,722 million i.e. Rs.0.21/kWh and Rs.14,529 million i.e. Rs.1.13/kWh respectively on the basis of 12,865 GWh sold.

25.12.16. Based on the foregoing, the Petitioner's O&M cost for its Generation, Transmission and Distribution Functions for the purpose of calculation of base case is as under;

| Tariff Component | Tariff History | | | Actual | Assessed | |
|---|---|---|---|---|---|---|
| | 2002 | 2009 | Jun-16 | FY 2015-16 | Base Case | |
| | Rs./kWh | Rs./kWh | Rs./kWh | Rs./kWh | Rs. Mln | Rs./kWh |
| Generation O&M | 0.10 | 0.18 | 0.28 | 0.45 | 5,333 | 0.41 |
| Transmission O&M | 0.04 | 0.07 | 0.11 | 0.23 | 2,722 | 0.21 |
| Distribution O&M | 0.32 | 0.73 | 1.06 | * 2.47 | 14,529 | 1.13 |
| **Grand Total** | **0.46** | **0.98** | **1.45** | **3.15** | **22,584** | **1.76** |

* Includes provision for Doubtful debts

25.12.17. The Authority is aware of the fact the Petitioner's assessed O&M cost of Rs.1.76/kWh is higher as compared to the Rs.1.45/kWh already allowed in the previous tariff, however, the same is still lower than the Petitioner' actual cost of Rs.1.97/kWh, exclusive of Provision for doubtful debts and actual bad debts written off. Further it is also lower than the requested component of Rs. 2.11 /kWh (Rs. 1.45/kWh+ Rs. 0.66/kWh requested).

25.12.18. The Authority believes that the assessed amount represents the Petitioner's prudently incurred cost and by not allowing the same will affect the financial viability of the Petitioner which is not in the interest of the consumers.

## 25.13. PROVISION FOR DOUBTFUL DEBTS

25.13.1. As per the information submitted by the Petitioner, an amount of Rs.15,211 million has been charged as Provision for Doubtful debts in the FY 2015-16, which works out to be Rs.1.18/kWh based on 12,865 GWh units sold during FY 2015-16. The current provision is around 8% of the Petitioner's sales revenue as per the draft financial statements for the FY 2015-16. The amount of provision represents inefficiencies of the Company to recover its billed amount. The Authority is of the opinion that the Petitioner's claim is invalid and unjustified as the impact on this account cannot be passed on to the paying consumers.

25.13.2. The Authority while determining the base tariff in 2002 considered the Provision for Doubtful debts amounting to Rs.731 million i.e. around 2% of the projected sales revenue for the FY 2002-03 was made.

25.13.3. The said provision was gradually reduce to less than 1% of the sales revenue from 2003 to 2005, as per the projections attached with the afore-referred determination of 2002, thus setting the target for the Utility for improvement. However, an analysis of the Petitioner financial statements since 2009 and available record depicts that its provision has increased alarmingly as detailed below;

| Description | Unit | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | Total Change |
|---|---|---|---|---|---|---|---|---|---|---|
| Sales Revenue | Rs. Bill | 85,020 | 103,728 | 130,508 | 162,599 | 188,781 | 194,490 | 190,359 | 191,466 | |
| % Change over previous year | % | | 22.00% | 25.82% | 24.59% | 16.10% | 3.02% | -2.12% | 0.58% | 125% |
| Provision against debt Considered doubtful | Rs. Mln | 776 | 1,993 | 2,240 | 2,462 | 6,155 | 6,689 | 9,268 | 15,211 | |
| % Change over previous year | % | | 157% | 12% | 10% | 150% | 9% | 39% | 64% | 1860% |
| Provision as % of Sales Revenue | % | 0.91% | 1.92% | 1.72% | 1.51% | 3.26% | 3.44% | 4.87% | 7.94% | |
| Actual Bad Debts Written off | Rs./kWh | - | 1,178 | 796 | 1,310 | 688 | 1,086 | 1,857 | 2,782 | |
| Inc. / (Dec) in Write offs | % | | 0.00% | -32.44% | 64.57% | -47.49% | 57.89% | 71.07% | 49.80% | 136% |
| Write offs as % Of Sale | % | | 1.14% | 0.61% | 0.81% | 0.36% | 0.56% | 0.98% | 1.45% | |

25.13.4. The analysis shows that the Petitioner's sale revenue increased by about 125% in FY 2016 vis a vis FY 2009, whereas its provision for doubtful debts grew by over 1800% in the same period, for which no cogent reason has been provided. The Petitioner's actual write offs during the said seven years period remained at around 1% of the sales revenue and increased by 136% from FY 2009 to FY 2016, corresponding to increase in sales.

25.13.5. Mr. Arif Bilvani, the Intervener, objected on charging of provision for bad debts, by stating that one of the main reason for increase in the O&M cost of the Petitioner is the provision for bad debts due to under recoveries over the last 10 years. According to him, the consumers should not be burdened for the inefficiencies in the form of increase in tariff due the inflated expenses.

25.13.6. The Authority considers that this increase in the provision for doubtful debts should be viewed along-with the distribution losses. For a more meaningful analysis both the distribution losses and under recovery, the results based on the Petitioner's actual data show an AT&C value of 31.73%,, meaning thereby that practically the Petitioner did not make much improvement in the area of distribution loss reduction. The Authority, while agreeing to the intervener's objection feels that it will be unfair and unjust to pass on the impact of non-recovery to the extent claimed by the Petitioner. It is also to be noted that the Authority in case of XWDISCOs did not allow any provision for the doubtful debts and only actual bad debts written off by the XWDISCOs are allowed. The write offs are allowed only against the private defaulters given that the due process of law has been followed while writing off the receivables. However, write off against receivables of any Government are not allowed considering the fact the Government is a "going concern".

25.13.7. The Authority's decision of not allowing "provision for doubtful debts" is based on the documents required for new connection/extension and reduction of load or change of name in terms of Chapter 2.3 (b) & (h) of the Consumer Service Manual (CSM) and the fact that the risk of credit sales transfers to the third party i.e. Owner of the premises or purchaser of the property as mentioned in Chapter 8 (8.1) of the CSM, reproduced hereunder;

*"a premises is liable to be disconnected if the consumer is defaulter in making payment of the energy consumption charges bill(s), or if he is using the electric connection for a purpose other than for which it was sanctioned, or if he has extended his load beyond the sanctioned load even after receipt of a notice in this respect from DISCOs".*

25.13.8. The Authority is cognizant of the fact that the Petitioner is the exclusive distributor of electricity in its licensed area and in case of default, the connection of the premises, if disconnected, cannot be restored until the outstanding dues are paid in full by the defaulter. Further the distribution company always has the option to recover the outstanding amount through sale of the property after following the due process of law. In addition to this, at the time of connection, the Petitioner also collects security deposits from the consumers, which also serves as a deterrence and mitigates the risk of default by the premises . While considering the Petitioner's arguments with respect to the premises without legal documents, the Authority is of the view that the Petitioner can improve its recovery through installation of prepaid meters linked with the CNIC of the occupants in such like cases.

25.13.9. In view of the above discussion, the amount of provision charged by the Petitioner which as per the latest available record is Rs.15.211 billion, translating into Rs.1.18/kWh for the FY 2015-16, is disallowed, in line with the Authority's decision in the matter of XWDISCOs. However, while disallowing the provision for doubtful debts, the Authority considers that actual write off against private sales, is genuine cost of Petitioner's business. Therefore, the Authority has decided to allow the Petitioner actual write offs of Rs.2,782 million ( which works out to 1.78% of the Petitioner's assessed sales revenue for the base year) i.e. Rs.0.22/kWh as per the latest available information for the FY 2015-16, based on 12,865 GWh sold, for the purpose of base case assessment. Here it is pertinent to mention that while assessing 1.78% cap on Petitioner's total sale revenue for the year has been worked out by considering write off against the Private sale only, it does not include any write off against Government Entities and the same principal would continue while calculating profit claw back whereby any write off against Government entities will not be allowed. For the purpose of actual write offs in future the Petitioner shall complete the following procedures;

1.1. The connection has to be permanently disconnected for more than 3 years and due process of law as per the Land Revenue Act has been followed.

1.2. The amount to be written off shall be duly approved by the Board of Directors (BOD) of the Petitioner.

1.3. The amount of write off shall be duly supported with the details pertaining to the name & address of the premises/consumers, CNIC etc.

## 25.14. DEPRECIATION

25.14.1. The Authority in order to make fair assessment of the Petitioner Depreciation charges for the purpose of inclusion in the base tariff, directed the Petitioner to provide detail of its actual depreciation charges, without including therein the impact of Revaluation, for the FY 2015-16.

25.14.2. The Petitioner provided the following information in this regard;

| Depreciation Component | FY 2015-16 Rs. Mln | FY 2015-16 Rs./kWh |
|---|---|---|
| Generation | 3,755 | 0.292 |
| Transmission | 1,330 | 0.103 |
| Distribution | 1,936 | 0.150 |
| **Total** | **7,021** | **0.546** |

25.14.3. The aforementioned depreciation includes Rs.186 million charged under the head "Admn.", which has been proportionately distributed amongst the Generation, Transmission and Distribution heads. The actual cost incurred by the Petitioner works out as Rs.0.55/kWh (without revaluation) based on 12,865 GWh sold for the FY 2015-16.

25.14.4. The Petitioner includes surplus from revaluation of fixed assets, as part of its Regulated Asset Base (RAB). The Authority in the matter of XWDISCOs did not allow Surplus on revaluation on fixed assets as part of the Regulatory Assets Base, because revaluation surplus is not created through new investments.

25.14.5. In view thereof and being consistent with the Authority's determination in the matter of XWDISCOs, actual depreciation charges of Rs.7,021 million i.e. Rs.0.55/kWh, on historic cost basis i.e. without the impact of revalued amount is being used for the purpose of base case. The allowed depreciation component of Rs.0.55/kWh will remain fixed, with no annual indexation, throughout the tariff control period of (07) seven years. The Authority while making assessment of depreciation has also considered the impact of recent investments undertaken by the Petitioner during the last control period. Moreover the Authority has also kept in view the future investments to be undertaken by the Petitioner, which is discussed in detail under the relevant para of this determination. The depreciation component shall not be indexed during the tariff control period, however, shall be subject to adjustment with the T&D losses target for the respective year.

25.15. **Return on Regulatory Asset Base (RORB)**

25.15.1. In the MYT determined in 2002, no predetermined return was allowed, however, certain efficiency benchmarks were set in terms of Auxiliaries, Heat rates and T&D Losses. The Petitioner was allowed to earn profits only when it outperformed these targeted benchmarks by bringing in efficiency in its operations. The incentive based tariff was primarily allowed owing to the fact that the company was a loss making utility at that time with its actual T&D losses hovering around 40%, however, the tariff was determined while taking 35% level of T&D losses.

25.15.2. By allowing an incentive based tariff, the Petitioner was provided with an incentive to bring in efficiencies and turn around the company. At the same time, in order to ensure that the company does not make windfall profits, a profit claw back mechanism was also provided in the tariff so that the benefit of efficiencies are also shared with the consumers. Over the period, the Petitioner has been able to turn around the company by bringing in efficiencies in terms of lowering its heat rates and bringing down T&D losses.

25.15.3. The Authority while rebasing Petitioner's new tariff considers that a reasonable component of return based on its existing assets needs to be allowed to the Petitioner as the same has been allowed to other power sector entities. Therefore, in line with the International practices and as per the relevant provisions of the NEPRA (Tariff Standards and Procedure) Rules 1998, a component of reasonable return is being added in the base case of the Petitioner to ensure its sustainability in terms of meeting its existing lending commitments and intended future investments. Relevant extract of NEPRA Rules 1998, in this regard, are reproduced hereunder;

Rule 17 *"(ii) tariffs should generally be calculated by including a depreciation charge and a rate of return on the capital investment of each licensees commensurate to that earned by other investments of comparable risk;*

*(iii) tariffs should allow licensees a rate of return which promotes continued reasonable investment in equipment and facilities for improved and efficient service;"*

25.15.4. In pursuance thereof, the Authority has decided to allow a component of return (RoRB), using the WACC approach, for each licensing segment of the Petitioner i.e. Generation, Transmission and Distribution, based on its existing RAB for the FY 2015-16 (excluding the impact of revaluation therein), for the base case, as described in detail hereunder;

25.16. **Change in Definition of Regulatory Asset Base (RAB)**

25.16.1. As per the previous MYT, RAB was calculated from the equity side of the Balance Sheet. The Petitioner was required to make its decisions on commercial grounds with respect to

investments. Since neither any risk of equity investment by way of assured predetermined return on equity was built in the tariff nor any debt risk coverage was allowed to the Petitioner, therefore, the Petitioner was given liberty to finance investments either through equity or debt. Had the Petitioner been allowed predetermined component of return on its assets, the consumers would have been burdened during the initial years when the Petitioner was expected to incur loss. Therefore, in order to avoid burdening the consumers (in case of losses or negative equity), the RAB was worked out from the equity side and the total investment risk was transferred to the Petitioner.

25.16.2. Now keeping in view the present state of affairs of the company it is expected that the company would generate reasonable cash, out of its own operations, for future investments. Further, in the context of Authority's decision with respect to rebasing of Petitioner's tariff whereby a component of return would be added (in lieu of efficiency gains achieved) in its base tariff, the Authority considers it necessary to modify the calculation of RAB while taking the asset side of the financial statements, to encourage more investments for system expansion and rehabilitation for safe and reliable supply of electricity to the consumers. The Authority while changing the definition of RAB also considered the following;

i. Ensure clarity pertaining to the application of profit claw back mechanism.

ii. Exclude the impact of Deferred Tax Assets from the equity, which does not reflect actual equity employed by the company.

iii. To make it consistent with International Practices.

25.16.3. In view of the foregoing discussion, in line with the best International Regulatory practices and being consistent with the Authority's decisions in other cases, the Authority has decided to calculate the RAB from the Assets side of the Balance sheet for the new tariff control period, which shall comprise of the following asset components;

| | |
|---|---|
| | Fixed Assets Without Revaluation (Opening Balance) |
| Add | Additions/ (Deletions) during the Year |
| Less | Accumulated Depreciation on cost (Closing Balance) |
| = | **Net Fixed Assets** |
| Add | WIP on Cost (Closing Balance) |
| Less | Deffered Revenue (Consumer financed Asset) |
| = | **Regulatory Asset Base (RAB)** |
| Average RAB = | ((Current RAB + Last Year RAB) / 2) |

25.17. **Rate of Return on Equity (RoRE)- Generation**

25.17.1. In order to have a fair assessment of the RoE for the Generation segment of the Petitioner, the RoE already allowed by the Authority to comparable power plants has been considered. The Authority observed that the Petitioner's power plants are all thermal based comprising of Gas and Furnace Oil, and the IRR allowed by the Authority in the matter of RFO/ Gas based IPPs is 15% which translates into an RoE of 17%.

25.17.2. Since, the impact of CWIP is included, while calculating the Petitioner's Regulatory Asset Base (RAB) for the purpose of return, meaning thereby that return is being allowed for the construction period as well, therefore, the Petitioner is being allowed RoE of 15% instead of 17%.

25.17.3. The return allowed to Gas / RFO based IPPs is subject to adjustment on account of exchange rate variations, therefore, in the instant case, a factor for exchange rate fluctuations needs to be added in the RoE of 15%. Accordingly to evaluate the future exchange rate fluctuations, historical trend of last seven years US$ vs PKR parity, from June 2009 to June 2016, has been analyzed. The analysis indicates that the overall average exchange rate variation during the aforesaid period remained at about 17.05%. After incorporating the said impact in the RoE of 15%, the RoE on Generation Assets works out as 17.56%. Since the exchange rate fluctuation impact has been incorporated upfront in the Generation RoE, therefore no further exchange rate variations would be applicable during the Tariff control period.

25.18. **Rate of Return on Equity (RoRE)- Transmission**

25.18.1. Similarly to have a fair assessment of the Transmission RoE, the Authority considered the RoE allowed to other transmission companies. The Authority in the matter of Sindh Transmission and Despatch Company (STDC), has allowed 15% IRR without any variation on account of exchange rate fluctuations. Whereas, in the case of Matiari to Lahore HVDC Transmission line project, a private sector project has been allowed 17% IRR based return with exchange rate variation, primarily considering the fact that this was the first Extra High Voltage DC transmission line venture in Pakistan.

25.18.2. In view thereof, the Authority has decided to allow RoE of 15% to the Petitioner on its transmission assets in line with the same allowed in the case of STDC.

25.19. **Rate of Return on Equity (RoRE)-Distribution**

25.19.1. The Authority in the matter of XWDISCOs has allowed ROE of 16.67% without any adjustment on account of exchange rate fluctuations, therefore, in the matter of the Petitioner



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RoE of 16.67% on Distribution assets is allowed without any impact of exchange rate fluctuations in line with the Authority's decision in the matter of XWDISCOs.

25.19.2. In view of the aforementioned discussion, the ROE components for Generation, Transmission and Distribution segments of the Petitioner have been summarized as given hereunder;

| Description | ROE Without Exchange rate Impact | Exchange rate Impact | Assessed ROE |
|---|---|---|---|
| Generation | 15.00% | 2.56% | 17.56% |
| Transmission | 15.00% | 0.00% | 15.00% |
| Distribution | 16.67% | 0.00% | 16.67% |
| **Weighted Average** | **15.21%** | | **16.90%** |

25.20. Cost of Debt

25.20.1. The Petitioner in its financial model for the next 10 years has assumed the following projections;

| Fiscal Year | 2016E | 2017E | 2017E | 2018E | 2018E | 2019E | 2019E | 2020E | 2020E | 2021E | 2021E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Semester Ending | Jun-16E | Dec-16E | Jun-17E | Dec-17E | Jun-18E | Dec-18E | Jun-19E | Dec-19E | Jun-20E | Dec-20E | Jun-21E |
| 3-month US$ LIBOR | 0.81% | 1.13% | 1.41% | 1.65% | 1.84% | 1.87% | 2.03% | 2.12% | 2.26% | 2.34% | 2.46% |
| 6-month KIBOR | 6.41% | 6.49% | 6.74% | 6.92% | 7.10% | 7.83% | 8.18% | 8.82% | 9.55% | 10.03% | 9.70% |

| Fiscal Year | 2022E | 2022E | 2023E | 2023E | 2024E | 2024E | 2025E | 2025E | 2026E | 2026E |
|---|---|---|---|---|---|---|---|---|---|---|
| Semester Ending | Dec-21E | Jun-22E | Dec-22E | Jun-23E | Dec-23E | Jun-24E | Dec-24E | Jun-25E | Dec-25E | Jun-26E |
| 3-month US$ LIBOR | 2.50% | 2.61% | 2.63% | 2.71% | 2.72% | 2.79% | 2.79% | 2.85% | 2.82% | 2.87% |
| 6-month KIBOR | 10.04% | 10.37% | 11.93% | 12.43% | 11.62% | 10.59% | 10.78% | 9.73% | 9.79% | 9.85% |

25.20.2. As shown in the above table, the Petitioner has assumed a spread of 4.5% on LIBOR in case of foreign financing, and additionally has also assumed a hedging cost at 7% for future exchange rate variation. As per the Petitioner's projections, 65% of its long term loans would be in foreign currency and 35% would be local currency, as shown below;

| | FY 17 | FY 18 | FY 19 | FY 20 | FY 21 | FY 22 | FY 23 | FY 17-23 | Composition |
|---|---|---|---|---|---|---|---|---|---|
| Average Long Term Local Loans | 32,751 | 39,911 | 34,257 | 25,208 | 16,679 | 8,424 | 2,886 | 160,117 | 35% |
| Average Long Term Foreign | 10,305 | 28,360 | 49,242 | 57,793 | 58,784 | 51,941 | 40,861 | 297,285 | 65% |

25.20.3. Based on the information provided by the Petitioner in its financial model the average cost of long term loans (including IDC) has been worked hereunder;

| | FY 17 | FY 18 | FY 19 | FY 20 | FY 21 | FY 22 | FY 23 | FY 17-23 | FY 24 | FY 25 | FY 26 | FY 17-26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Long Term Loans | 43,056 | 68,271 | 83,499 | 83,001 | 75,462 | 60,365 | 43,747 | 457,402 | 46,813 | 72,468 | 102,044 | 678,727 |
| Interest including charged to CWIP | 3,938 | 7,125 | 9,925 | 10,700 | 10,154 | 8,377 | 6,270 | 56,489 | 6,742 | 10,392 | 14,636 | 88,260 |
| Average | 9.15% | 10.44% | 11.89% | 12.89% | 13.46% | 13.88% | 14.33% | 12.35% | 14.40% | 14.34% | 14.34% | 13.00% |

25.20.4. In order to have a fair assessment of the Petitioner's cost of Debt, the KIBOR and LIBOR as projected by the Petitioner has been evaluated for seven years. In addition, the Authority also carried out its own projection for future KIBOR and LIBOR values and considers that the Petitioner's projected assessment of LIBOR & KIBOR in this regard reasonable The Authority considers that by taking levelized values of KIBOR and LIBOR based on 7 year's projected cost of debt, the impact of future variation in LIBOR & KIBOR has been incorporated upfront in the base case, therefore, no adjustment in this regard will be made in future. Accordingly, in the instant case KIBOR of 8.63% and LIBOR of 2.02% is considered to be a reasonable assessment. To cover the future exchange rate variations for LIBOR financed loans, the Authority has carried out its own evaluation to determine fair hedging cost. Therefore, in the opinion of the Authority 5.5% is considered to be a fair assessment of hedging cost to cover the future expected exchange rate variations during the allowed tariff control period as against the Petitioner's proposed value of 7%.

25.20.5. Further for making fair assessment of spread over KIBOR/ LIBOR, the Authority has evaluated the Petitioner's negotiated past loans, which indicated that the Petitioner in the past launched TFCs / Sukkuk with a 5 year's term maturity, whereby Rs.1,500 million were raised on 3 month KIBOR + 2.75% spread during FY 2013-14. Similarly Rs.22 billion were raised through 7 years TFC on 3 Months KIBOR plus 1% spread during FY 2014-15. The Authority in the case of XWDISCOs allowed a maximum spread of 2.75% to be adjusted as per actual with a provision for adjustment in tariff in case of savings if any. Similarly IPPs with foreign financing are allowed a spread of 4.5% over LIBOR and 3.5% over KIBOR in case of local financing.

25.20.6. The Authority considers that although it has allowed a maximum spread of 3.5% on KIBOR in the case of IPPs, which in the recent RLNG cases has been reduced to 3%, but considering the previous history of the Petitioner whereby it has managed to raise funds on lower spreads and the fact that the Petitioner in its financial model has also assumed a lower spread i.e. ranging from 1.00-2.50% on KIBOR, the Authority has decided to allow the Petitioner a spread of 2.5% over KIBOR.

25.20.7. Here it is pertinent to mention that the Authority in the matter of tariff allowed to IPPs allows adjustments in terms of fluctuations in KIBOR and LIBOR (in case of foreign financing). Further, exchange rate fluctuation on foreign financing is also allowed. In the case of XWDISCO's Multi Year Tariff, the Authority has also allowed KIBOR variations.



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25.20.8. In light of the above discussion, the Authority has decided to allow a cost of debt based on projected 7 years levelized 6 month KIBOR plus 2.5% spread for local loans and projected 7 years levelized 3 month LIBOR plus 4.50% spread plus 5.5% Hedging Cost for foreign loans for each of the Petitioner's business functions i.e. Generation, Transmission and Distribution.

25.20.9. Consequently, the average cost of debt of the Petitioner works out as 11.71%, based on the proportion of long term local loans i.e. 35% and foreign loans i.e. 65% as detailed below which will remain constant throughout the seven year tariff control period meaning thereby that no adjustment on account of variation in KIBOR/LIBOR, Spread over KIBOR/LIBOR and exchange rate shall be allowed;

| | Rate | Spread | Hedeging | Total | Weight | Allowed |
|---|---|---|---|---|---|---|
| LIBOR | 2.02% | 4.50% | 5.50% | 12.02% | 65% | 7.81% |
| KIBOR | 8.63% | 2.50% | 0.00% | 11.13% | 35% | 3.90% |
| | | | | | | 11.71% |

25.21. **Assessment of Petitioner's Capital Structure**

25.21.1. As discussed above, the previous MYT of the Petitioner, which expired on 30 June, 2016, was designed on the basic principle that the investor would invest either through cash generated through improvements in efficiency or through equity injection and borrowing, hence the RAB was calculated from equity side of the Balance Sheet, with its actual debt equity ratio, which was justified as no predetermined return on equity was allowed to the Petitioner. Now the Petitioner is being allowed a component of return hence the decision of optimum capital structure becomes relevant for making fair assessment.

25.21.2. For different power projects in the generation, transmission and distribution businesses an optimal capital structure (debt : equity) ranging from 80:20 to 70:30has been allowed. The actual debt equity ratio of entities keep on changing with the payment of debts and changing gearing profiles, hence, may or may not be of optimal mix at any specific point in time. That is the reason why Authority allows a mix of capital structure which it considers to be optimum. Accordingly, the Authority has decided to adopt debt equity structure of 70:30, in the instant case for the purpose of calculating WACC.

25.21.3. In view of the forgoing discussion, the Petitioners' WACC has been assessed as 13.47%, 12.70% and 13.20% for the Generation, Transmission and Distribution assets respectively which has been used to calculate RoRB while working out the base case.

| | Generation | Transmission | Distribution | Allowed WACC |
|---|---|---|---|---|
| Return On Equity | 17.56% | 15.00% | 16.67% | 16.90% |
| Cost of debt | 11.71% | 11.71% | 11.71% | 11.71% |
| Equity % | 30.00% | 30.00% | 30.00% | 30.00% |
| Debt % | 70.00% | 70.00% | 70.00% | 70.00% |
| **WACC** | **13.47%** | **12.70%** | **13.20%** | **13.27%** |

25.22. **RoRB Calculations**

25.22.1. Applying the respective WACC for each of segment of the Petitioner's licensed activities i.e. Generation, Transmission and Distribution, the RoRB of the Petitioner has been determined as Rs.11,946 million, Rs.3,631 million and Rs.2,226 million based on its existing RAB of Rs.88,721 million, Rs.28,601 million and Rs.16,869 (without accounting for the impact of revaluation) respectively. The overall RoRB of the Petitioner for the purpose of base tariff works out as Rs.17,804 million based on total RAB of Rs.134,190 million (without accounting for the impact of revaluation). Detailed discussion regarding RAB has been made under the issue of profit Claw Back Mechanism.

| Description | FY 16 | Description | FY 16 | Description | FY 16 | Description | FY 16 |
|---|---|---|---|---|---|---|---|
| Genration RAB | | Transmission RAB | | Distribution RAB | | Consolidated RAB | |
| Fixed Assets (C/B on Cost) | 114,354 | Fixed Assets (C/B on Cost) | 43,612 | Fixed Assets (C/B on Cost) | 52,965 | Fixed Assets (C/B on Cost) | 210,931 |
| Accumulated Depreciation | (41,913) | Accumulated Depreciation | (21,220) | Accumulated Depreciation | (25,572) | Accumulated Depreciation | (88,705) |
| Net Fixed Assets | 72,441 | Net Fixed Assets | 22,392 | Net Fixed Assets | 27,394 | Net Fixed Assets | 122,226 |
| WIP (C/B) | 16.280 | WIP (C/B) | 6,209 | WIP (C/B) | 7,540 | WIP (C/B) | 30,029 |
| Assets + WIP | 88,721 | Assets + WIP | 28,601 | Assets + WIP | 34,934 | Assets + WIP | 152,255 |
| Deffered Revenue | - | Deffered Revenue | - | Deffered Revenue | (18,065) | Deffered Revenue | (18,065) |
| **RAB** | **88,721** | **RAB** | **28,601** | **RAB** | **16,869** | **RAB** | **134,190** |
| **WACC (%)** | **13.47%** | **WACC (%)** | **12.70%** | **WACC (%)** | **13.20%** | **WACC (%)** | **13.27%** |
| **RORB** | **11,946** | **RORB** | **3,631** | **RORB** | **2,226** | **RORB** | **17,804** |

25.23. **Other Income**

25.23.1. As per the available information for the FY 2015-16, the Petitioner has reported "other income" of Rs.6,660.303 million, as detailed below;

| Other Income | Base Case |
|---|---|
| **Income from financial assets** | **2,410** |
| Return on bank deposits | 251 |
| **Late payment surcharge** | **2,159** |
| **Income from non-financial assets** | **4,251** |
| Liquidated damages recovered from suppliers and contractors | 247 |
| Scrap sale – stores and spares | 120 |
| Amortization of deferred revenue | 1,403 |
| Service connection charges | 840 |
| Collection charges - TV license fee | 98 |
| Rental of meters and equipments | 227 |
| Gain on disposal of property, plant and equipment | 27 |
| Others | 1,289 |
| **Total Other Income** | **6,660** |

25.23.2. The Other income mainly comprises of Late Payment Surcharges (LPS), Amortization of deferred revenue, Service Connection charges and Others amounting to Rs.2,159 million, Rs.1,403 million, Rs.840 million and Rs.1,289 million respectively. The Petitioner also disclosed that LPS receivable on delayed payments from various Government/ Govt. controlled entities amounting to Rs.6,536 million has not been recorded as other Income in the Financial statements for the FY 2015-16 and will be accounted for once received.

25.23.3. In the matter of XWDISCOs, NTDCL and CPPA-G, other income is adjusted from the allowed revenue requirement while considering it an additional income over and above its revenue requirement. However, any late payment charges recovered from the consumers are allowed to be retained by the concerned XWDISCOs, to the extent of mark-up on delayed payments to IPPs, which is levied on the XWDISCOs by CPPA-G. The Authority allows XWDISCOs to retain the same to the extent of delayed payments by the consumers, because the utilities have to bear additional financing cost in order to bridge their liquidity gap. Accordingly, to be consistent with the decision in the case of XWDISCOs, the Authority has decided to deduct / adjust the other income of the Petitioner, except for the late payment charges and Return on bank deposits for the purpose of base case assessment as discussed hereunder.

25.23.4. The amount of Rs.2,159 million pertaining to the FY 2015-16 ( to the extent of private consumers only ), on account of LPS, is not being adjusted/ deduced owing to the fact that no working capital allowance is being allowed to the Petitioner, thus, compensating it for any additional cost to be incurred due to delayed payments by the consumers..

25.23.5. On the issue of Interest on Security Deposits, the Petitioner in the past had been paying interest to consumers, however, since 2012 this practice was discontinued by the Petitioner

on the plea that neither this is mandated by law i.e. Companies Ordinance, 1984 nor in the NEPRA Act, 1997 read together with CSM, terms and condition of tariff and/or Electricity Act, 1910. The Petitioner further submitted that no other DISCO/Telco or other utility in Pakistan is paying interest on security deposits.

25.23.6. The Authority while agreeing with the concerns of the Interveners and the fact that consumers in the matter of XWDISCOs are also being given the benefit of Interest on Bank Deposits, directs the Petitioner to pay interest on security deposits to the consumers through their bills in future. Since the interest would be paid directly in the consumer bills hence the Authority has not deducted the amount of Rs.251 million from its total other income, thus enabling it to pay the amount of interest/profit earned on security deposits to the consumers. Here it is pertinent to mention that the issue of interest on security deposit has also been deliberated as a separate issue in the determination.

25.23.7. On the issue of charging of Meter Rent by the Petitioner, the Authority vide its decision dated April 22, 2015 decided that;

*".....charging of meter rent by K-Electric is totally unjustified and unlawful and by doing so, K-Electric has violated the provisions of its granted license.....K-Electric is further directed:*

*a) to immediately stop charging of meter rent from its consumers;*

*b) to workout and intimate the amount so far collected on account of meter rent and refund the same to the consumers through adjustment in their future bills....."*

25.23.8. The Authority in view of its aforementioned decision and while agreeing with the concerns raised by the Interveners/ Commentators, directs the Petitioner not to charge meter rent from the consumers in future. The issue of Meter Rent has also been deliberated as a separate issue in the determination.

25.23.9. Further, the amount of deferred revenue and service connection charges being the consumer money, cannot be allowed to be retained by the Petitioner, hence the same has been adjusted/ deducted from other income as well.

25.23.10. In view of the foregoing discussion, an amount of Rs.4,024 million (Rs.6,660 million less Rs.2,159 million less 251 million less 227 million) has been adjusted from the total Other Income of the Petitioner.

26. **Issue: Whether the claimed addition in Generation, Transmission and Distribution by the Petitioner is justified and what are the Petitioner's financing plans in this regard?**

26.1. The Petitioner has proposed an investment plan of Rs.496,491 million over the next ten years from FY 2017 to FY 2026 comprising Rs.202,597 million new generation capacity as well as

up gradation of existing generation assets, Rs.179,404 million for transmission and Rs.108,490 million for distribution functions as detailed below;

| CAPEX Plan | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rs. In Million | | | | | | | | | | |
| New Generation | | | | | | | | | | | |
| 253 MW Korangi Complex | 13,749 | 9,374 | - | - | - | - | - | - | - | - | 23,124 |
| 250 MW LNG Project | - | - | - | - | - | - | - | 14,905 | 16,924 | 9,260 | 41,089 |
| 330 MW Coal Project | - | - | - | - | - | - | - | 24,593 | 27,925 | 31,400 | 83,918 |
| 700 MW Coal IPP with KE's equity | 1,611 | 1,666 | 1,728 | 891 | - | - | - | - | - | - | 5,896 |
| 450 MW LNG IPP with KE's equity | - | 1,569 | 1,628 | - | - | - | - | - | - | - | 3,197 |
| New 330 MW Coal IPP With KE's Equity | - | - | - | - | - | 1,623 | 1,689 | 1,757 | - | - | 5,069 |
| Total Capex on New Generation Assets | 15,361 | 12,609 | 3,356 | 891 | - | 1,623 | 1,689 | 41,255 | 44,850 | 40,660 | 162,294 |
| Capex on current generation assets | 5,836 | 5,195 | 4,441 | 3,720 | 2,880 | 3,694 | 3,703 | 3,903 | 3,611 | 3,318 | 40,302 |
| Total Generation | 21.196 | 17,805 | 7,797 | 4,611 | 2,880 | 5,317 | 5,393 | 45,159 | 48,460 | 43.978 | 202,597 |
| New Transmission | | | | | | | | | | | |
| Transmission Package 1 | 17,245 | 14,105 | 13,751 | - | - | - | - | - | - | - | 45,101 |
| Transmission Package 2 | 3,778 | 5,905 | 13,014 | 13,610 | 12,431 | - | - | - | - | - | 48,737 |
| Transmission Package 3 | - | - | - | - | - | - | - | 9,937 | 11,283 | 12,687 | 33,906 |
| Transmission Package 4 | - | - | - | - | - | - | - | - | 10,334 | 11,736 | 22,071 |
| Total Capex on New Transmission Assets | 21,023 | 20,009 | 26,764 | 13,610 | 12,431 | - | - | 9,937 | 21,617 | 24,423 | 149,814 |
| Other Transmission Capex | 4,006 | 2,787 | 2,739 | 2,650 | 2,919 | 3,145 | 3,690 | 2,469 | 2,550 | 2,635 | 29,589 |
| Total Transmission | 25,029 | 22,796 | 29,503 | 16,260 | 15,350 | 3,145 | 3,690 | 12,406 | 24,168 | 27,058 | 179,404 |
| New Distribution | | | | | | | | | | | |
| Loss reduction | 2,432 | 2,486 | 2,677 | 2,791 | 3,393 | 4,055 | 4,128 | 3,653 | 3,765 | 3,880 | 33,259 |
| Growth | 3,103 | 3,189 | 3,265 | 4,029 | 5,137 | 5,029 | 4,400 | 5,008 | 5,195 | 5,275 | 43,631 |
| Preventive and corrective maintenance | 1,607 | 1,558 | 1,565 | 1,596 | 1,785 | 1,973 | 1,933 | 1,800 | 1,854 | 1,909 | 17,581 |
| Smart network | 564 | 554 | 637 | 677 | 1,050 | 1,820 | 2,033 | 2,128 | 2,244 | 2,312 | 14,019 |
| Total Capex on New Distribution Assets | 7,707 | 7,787 | 8,144 | 9,094 | 11,366 | 12,877 | 12,494 | 12,589 | 13,057 | 13,376 | 108,490 |
| Other Capital Expenditures | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 6,000 |
| Total Capital Expenditures | 54,532 | 48,988 | 46,044 | 30,566 | 30,196 | 21,939 | 22,177 | 70,753 | 86,285 | 85,011 | 496,491 |

26.2. The Petitioner submitted that although it has undertaken considerable investment during the last MYT, which has improved the performance of the business over the last seven years, but there still remain a number of challenges which need to be addressed for which it has developed a business plan based on the continuation of the existing MYT till FY 2026, resulting in the investment of Rs.496,491 million over the next 10 years.

26.3. The Petitioner further stated that since 2009 it has invested Rs.120.7 billion, including Rs.81.4 billion in generation, a 13% increase in total investment compared to the business plan in 2009, which has largely been due to reinvesting its profits in the business rather than distributing it to the shareholders. By making this investment it added 1,037 MW of generation capacity, 63 km of additional transmission lines along with rehabilitation of its existing network and 2,288 km of distribution circuits. As per the Petitioner, the investment resulted in the following benefits;

- Increase in average generation fleet efficiency from 30.4% in FY09 to 37.0% in FY15.
- Reduction in T&D losses from 35.9% in FY09 to 23.7% in FY15.
- Fault reduction from 2.68/km in FY09 to 1.55/km in FY15.
- Reduction in safety incidents from 7 per annum in FY09 to 4 per annum in FY15.
- Reduction in transformer tripping by 60% between FY09 and FY15.
- Reduction in transformer trips on the 11kV distribution network by 85% between FY09 and FY15.
- Reduction in transmission line trips excluding transient by 59% between FY09 and FY15.

26.4. While justifying the proposed Generation investment plan, the Petitioner submitted that it would result in an additional 4,283MW of highly efficient generation capacity including 1,983 MW addition in its fleet (resulting in improvement in average fleet efficiency from 37.0% in FY15 to 43.3% in FY26). According to the Petitioner, through equity participation with IPPs and procurement of additional 2,300 MW from new external power producers, by offering a bankable security without a sovereign guarantee, would result in moving from a supply deficit of 421 MW to a surplus of 106 MW, thus resulting in an increase in units sent out from 16,111 GWh to 25,462 GWh. It was also stated that population of Karachi is growing at the rate of around 5% annually, largely due to rural to urban migration as a result thereof, its peak demand for electricity is expected to grow by 72%, thus increasing its requirement of capacity to 5,200 MW by 2026. In view thereof, to meet the forecasted demand growth and to maintain the existing generation infrastructure, substantial investment is required in generation (including contracting through IPPs).

26.5. The Petitioner further explained that Gas supply constraints are expected to remain an issue going forward as the constrained and unconstrained demand for natural gas in Pakistan is 6,000 MMCFD and 8,000 MMCFD respectively, whereas the available local supply is currently only 4,000 MMCFD, thus there is no other option but to diversify the generation, by including alternative fuels such as coal. According to the Petitioner, diversification along with improvement in overall fleet efficiency will allow it to achieve overall reductions in its fuel purchase costs and effectively reduce the tariff for customers. This will help in reducing its reliance on NTDC/CPPA-G. As per the Petitioner's projections, the procurement from NTDC/ CPPA-G will be zero by FY 2020.

26.6. Regarding the Transmission function, the Petitioner submitted that there are severe constraints on the capacity of the large and ageing transmission network with an area of more than 6,500 square km, which requires significant investment for its maintenance and up-gradation in order to meet its current and future transmission requirements. The Petitioner further stated that transmission investments are complex and require a significant period of

time to plan and execute. The Petitioner has proposed enhancements in the transmission network by 28% and increase in capacity of its power transformers by 3,370 MVA.

26.7. The Petitioner submitted that in its distribution network it requires considerable capital expenditure in terms of maintenance and replacement due to aging of its infrastructure. Furthermore, the design of the distribution network is inherently complex due to lack of urban infrastructure planning and ad-hoc growth of the city, which made planning and implementation of projects not only expensive but an engineering challenge. The Petitioner also submitted that as T&D losses fall, further reduction becomes progressively more difficult and costly, therefore it plans to invest in theft-free cabling and smart meters. The Petitioner has projected reduction in T&D losses from 23.7% in FY15 to 13.8% in FY26 with expansion in the network by adding over 1,000 new feeders and over 4,500 km of 11 kV underground and overhead circuits, improvements in customer service and increase in the reliability of supply. The details of the Petitioner's proposed investment plans are given as hereunder;

26.8. **Generation Investment;**

26.8.1. The Petitioner provided the following details of the projected investment of Rs.203 Billion in the generation sector;

i. Rs.41 billion to be spent on upgrading and maintaining existing plants

ii. Rs.162 billion to be spent on the following new generation capacity:

- 250 MW dual fuel plant at Korangi, to be commissioned by FY18, to be connected at 132 kV, relieving the 220 kV transmission network and optimizing load management in the KE network.
- 700 MW (350 x 2) coal plant through an equity partnership in an IPP with China Datang and China Machinery Engineering Corporation, for which the land has already been purchased. The plant is expected to be commissioned by FY20.
- 450 MW LNG plant through an equity partnership in an IPP mode, expected to be commissioned by FY20.
- 330MW coal plant through equity partnership, to be commissioned by FY25.
- 250MW LNG plant, expected to be commissioned by FY 26

26.8.2. As per the above details there will be an overall expected increase of 4,283MW in the Petitioner's generation capacity i.e. 1,983MW from equity participation with IPPs and 2,300MW from new external power producers through offering a bankable security without a sovereign guarantee.

26.9. **Investment on existing generation fleet;**

26.9.1. In response to the Authority's observation with respect to the amount to be spent on existing generation fleet, the Petitioner provided the following break-up of the proposed expenditures;

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GLTIP – BQPS 1 | 1,231 | 1,132 | 1,162 | 879 | - | - | - | - | - | - | **4,402** |
| Routine maintenance activities (Plant wise break up available in the financial model) | 4,605 | 4,063 | 3,279 | 2,842 | 2,880 | 3,694 | 3,703 | 3,903 | 3,611 | 3,318 | **35,900** |
| **Total** | **5,836** | **5,195** | **4,441** | **3,720** | **2,880** | **3,694** | **3,703** | **3,903** | **3,611** | **3,318** | **40,302** |

26.10. **Generation Long Term Improvement Plan (GLTIP)**

26.10.1. Regarding GLTIP, the Petitioner stated that this is meant for units 1, 2, 5 & 6 of BQPS-I and is aimed at removing the permanent deration in capacity & degradation in terms of efficiency of units of BOPS-I. The Petitioner while justifying the proposed GLTIP stated that these units are old and several equipment require replacement or repairs and that the capacity, efficiency & reliability of these units is expected to improve as a result of this Program,

26.11. **Routine Maintenance activities**

26.11.1. For the routine maintenance activities, the Petitioner stated that it is required to maintain the performance level of its generating units based upon running hours. The Petitioner further explained that these investments are required so that maximum efficiency of the generating units is maintained as the efficiency gradually decreases, if the overhauling jobs at Turbine, Boilers & Balance of plants are not carried out timely. This investment is required for maintaining and enhancing the dispatch capacity of each generating unit. The Petitioner further explained that with prolong operations, the unit dispatch ability of generating units decreases because of fouling, choking, increased clearances, leakages and therefore maintenance activities are imperative to regain the lost capacities. The Petitioner also mentioned that these costs are capitalized to the extent they qualify as per the Company's capitalization policy under the accounting standards.

26.12. **Investment on new plants;**

26.12.1. The Petitioner in terms of new plants to be added to its generation capacity through its own investment and partnership with IPPs in the next ten years provided the following details;

| Description | Own Plants | | |
|---|---|---|---|
| | 250 MW embedded generation | 250 MW Liquefied Natural Gas (LNG) Plant | 330MW coal plant |
| Installed Capacity (MW) | 253 | 253 | 330 |
| Available Capacity (MW) | 214 | 233 | 300 |
| Auxiliary consumption | 2.00% | 4.50% | 8% |
| Net output (GWh) | 1,839 | 1,947 | 2,418 |
| Efficiency (simple cycle) | 42.10% | | |
| Efficiency (combined cycle) | 45.80% | 56.40% | 35% |
| Fuel Type | Dual Fuel (Furnace Oil and Gas) | LNG | Coal |
| Project Cost (US$ million)* | 202.4 | 250 | 495 |
| Year of Commissioning | FY 2018 | FY 2026 | FY 2027 |

| Description | Equity partnership with IPPs | | |
|---|---|---|---|
| | 700 MW (350*2) coal plant | 450 MW Liquefied Natural Gas (LNG) Plant | 330MW coal plant |
| Installed Capacity (MW) | 700 | 450 | 330 |
| Available Capacity (MW) | 637 | 419 | 300 |
| Efficiency | 39.00% | 56.40% | 39% |
| Fuel Type | Coal | LNG | Coal |
| Project Cost (US$ million)* | 1075 | 450 | 495 |
| Year of Commissioning | FY 2020 | FY 2020 | FY 2025 |

26.13. **Transmission Investment:**

26.13.1. For the Investment of Rs.179 billion proposed under the Transmission Package, the Petitioner stated that Rs.150 billon will be invested in series of Transmission packages for growth in transmission network considering the growing demand and transmission constraints and remaining Rs.29 billion will be invested in overhauling/rehabilitation activities to maintain and upkeep the transmission network in order to ensure reliable performance. The Petitioner provided the following details in this regard;

26.14. **Transmission Package 1 (Project Cost — 45 billion)**

26.14.1. Targets enhancement of 1,000MVA and will increase reliability, stability and grid capacity.

- Addition of eight new grid stations and new transmission lines over 116 km.
- The project will be completed by 2018 and will play a vital role in enhancing the operational flexibility of KE's transmission network, hence relieving the majority of the overloaded EHT circuits. As per the Petitioner, it would provide relief to the saturated 220 kV Baldia and Mauripur grids and improve power quality at the overloaded portions of the KDA/Gulshan KDA/Johar [illegible]/Maymar grids.



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- As per the Petitioner, the funding of this project has already been secured through institutions such as Overseas Private Investment Corporation (OPIC), China Export and Credit insurance Corporation (SINOSURE), Euler Hermes - Germany and Citibank Pakistan on the basis of continuation of the -MYT.

26.15. **Transmission Package 2 (Project Cost — 48.737 billion:**

- Further enhancement of 1,500MVA for expansion of grid and transmission capacity from FY17 onwards.
- As per the Petitioner, Siemens has already been engaged to perform a grid study with the objective of identifying key areas in the network to target.
- Expected to be completed in two phases and includes addition of new grid stations, extension of 11 kV Power feeders with power transformers and new interconnecting grid.

26.16. **Transmission Packages 3&4 (Project Cost — 33.906 billion & 22.071billion respectively)**

- Expected to commence from FY24 and completed by FY27.
- To be invested across two packages and will deliver increased network capacity and further enhancements to enable KE to meet increased capacity and generation needs.
- Based on the transmission network study conducted by M/S Siemens and Long Term Network Study conducted by Power Planners International.

26.17. **Transmission Capex on existing network**

26.17.1. The Petitioner has planned an amount of Rs.29 billion to be invested on overhauling and rehabilitation activities as mentioned hear under;

| FY | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Transmission Capex (Rs. In Mln) | 4,006 | 2,787 | 2,739 | 2,650 | 2,919 | 3,145 | 3,690 | 2,469 | 2,550 | 2,635 | **29,590** |

26.17.2. The Petitioner submitted that this investment is necessary to ensure reliable performance of its transmission network:

- Rehabilitation at Grids and transmission lines ensure that equipment functions at its optimum position and reduces downtime and improves overall system efficiency.
- Due to close proximity to ocean and pollution in the city, its line insulators and other transmission hardware are badly effected so regular repair and replacement of insulators ensure line stability.



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- Revamping of GIS bays, transformers and other key grid hardware allows continuity of supply and extension of equipment life.

26.17.3. The Petitioner stated that this investment will be incurred on;

- Grid System Maintenance (GSM)
- Grid System Protection (GSP)
- Transmission — Overhead network
- Transmission — Underground network
- Telecom
- Supervisory Control and Data Acquisition (SCADA)
- Civil works

26.17.4. Year wise breakup of the Petitioner's proposed investment under the Transmission system is as under;

| Year | Transmission Package 1 | Transmission Package 2 | Transmission Package 3 | Transmission Package 4 | Other Capex | TOTAL |
|---|---|---|---|---|---|---|
| 2017 | 17,245 | 3,778 | - | - | 4,006 | 25,029 |
| 2018 | 14,105 | 5,905 | - | - | 2,787 | 22,797 |
| 2019 | 13,751 | 13,014 | - | - | 2,739 | 29,504 |
| 2020 | - | 13,610 | - | - | 2,650 | 16,260 |
| 2021 | - | 12,431 | - | - | 2,919 | 15,350 |
| 2022 | - | - | - | - | 3,145 | 3,145 |
| 2023 | - | - | - | - | 3,690 | 3,690 |
| 2024 | - | - | 9,937 | - | 2,469 | 12,406 |
| 2025 | - | - | 11,283 | 10,334 | 2,550 | 24,167 |
| 2026 | - | - | 12,687 | 11,736 | 2,635 | 27,058 |
| **TOTAL** | **45,101** | **48,738** | **33,907** | **22,070** | **29,590** | **179,406** |

26.18. **Distribution Investment**

26.18.1. The Petitioner submitted that it plans to invest Rs.108 billion in expanding and improving the performance of the distribution segment as mentioned hereunder;

| Distribution Capex Plan | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Loss reduction | 2,432 | 2,486 | 2,677 | 2,791 | 3,393 | 4,055 | 4,128 | 3,653 | 3,765 | 3,880 | 33,259 |
| Growth | 3,103 | 3,189 | 3,265 | 4,029 | 5,137 | 5,029 | 4,400 | 5,008 | 5,195 | 5,275 | 43,631 |
| Preventive & Corrective maintenance | 1,607 | 1,558 | 1,565 | 1,596 | 1,785 | 1,973 | 1,933 | 1,800 | 1,854 | 1,909 | 17,581 |
| Smart network | 564 | 554 | 637 | 677 | 1,050 | 1,820 | 2,033 | 2,128 | 2,244 | 2,312 | 14,019 |
| **Total (Rs. In Mln)** | **7,707** | **7,787** | **8,144** | **9,094** | **11,366** | **12,877** | **12,494** | **12,589** | **13,057** | **13,376** | **108,490** |

26.18.2. An over view of the Projects included in the above four areas as provided by the Petitioner is as under;

26.19. **Loss Reduction Projects**

26.19.1. The Petitioner plans to invest in sustainable loss reduction projects which include Aerial Bundled Caballing (ABC), Technical Loss reduction and Meter Replacement Projects. These will help curb power theft, improve load management, support accurate consumption recording, while also improving technical losses and the overall quality of service.

26.20. **Growth Related Projects**

- Includes augmentation of the existing dilapidated network and laying of new infrastructure.
- Expansion of the network to meet system growth by constructing more than 1000 new 11kV feeders and 4500 km of additional 11kv power lines.
- As a result of the implementation of these projects, overall system reliability will increase and customer service will improve.

26.21. **Smart Network**

26.21.1. In order to remain in line with the latest technological advancements, it plans to invest in Smart Grid technology;

- This will involve conversion of existing network into smart network by installing smart devices at feeders, PMTs and at customer level.
- This will provide KE the ability to better monitor the grid, increase stability, reduce losses and optimize outage management.
- Smart Grid technology also allows remote disconnection and activation which is expected to significantly improve collections and address losses.

26.22. **Preventive & Corrective Maintenance**

26.22.1. This is planned for the upkeep and improvement of the overall network to help reduce the number of faults and improve network reliability and continued service delivery.

26.22.2. Improved collection rates are an important value driver for the business and can deliver improvements to KE's cash position. Improvements in collections will be driven by a number of initiatives including:



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- Laying of additional 11 KV feeders to relieve overloaded feeders and to reduce faults and tripping.
- Preventive work on feeders and PMTs.
- Corrective work to rectify faults, change faulty meters and address complaints.
- System Improvement schemes for segregation, shifting and relieving of overloading.

26.23. **Prospective Benefits**

26.23.1. The Petitioner submitted that in addition to improvements mentioned with relevant activities, the following benefits will also accrue to the consumers;

- Enhancement of the transmission network including a 28% increase in transmission network (km) and an increase in capacity of power transformers by 3,370 MVA.
- Reduction in transmission and distribution losses from 23.7% in FY 15 to 13.8% in F 26.
- Additional connections to over 800,000 new customer with an aggregate load of 3,754 MW by FY26.
- Enhancement of Distribution network by adding over 1,000 new feeders and over 4,500km of 11kv underground and overhead circuits.
- Improvement in customer service, including an increase in the reliability of supply
- System Average Interruption Duration Index (SAIDI) expected to improve from 1,330 minutes per customer per annum in FY 15 to 481 minutes per customer per annum in FY 26.
- System Average Interruption Frequency Index (SAIFI) expected to reduce from 22.21 interruption per customer in FY 15 to 8.03 interruptions per customer in FY 26.
- Distribution fault rates expected to reduce from 1.5/km to 0.6/km.
- Moving from a supply deficit of 421 MW to surplus in capacity of 106 MW.
- Improvements in customer service, including an increase in the reliability of supply.
- Real reduction in the tariff and improved affordability for customers.
- Secure and uninterrupted supply of power.

26.24. **Financing Plan;**

26.24.1. The Petitioner provided the following Financing plan corresponding to the proposed investment plan.

| Project name | Break up of total cost | | | | | | Borrowing cost | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total cost in PKR* | IDC capitalized | Net cost | Debt - Foreign | Debt - local | Equity | Base | Loan tenure | Average KIBOR / LIBOR during loan tenure | Spread** | Hedging cost | Total cost |
| | a | b | c = a - b | d | e | f = c - (d + e) | | | h | i | j | k = h+i+j |
| **Capex details - future projects** | | | | | | | | | | | | |
| **Generation** | | | | | | | | | | | | |
| 253 MW Korangi Complex | 23,124 | 1,067 | 22,057 | - | 19,410 | 2,647 | KIBOR | FY 17 - 23 | 9.0% | 1.0% | 0.0% | **10.0%** |
| 250 MW LNG Project | 41,089 | 4,519 | 36,570 | 25,599 | - | 10,971 | LIBOR | FY 24 - 33 | 3.3% | 4.5% | 7.0% | **14.8%** |
| 330 MW Coal Project | 83,918 | 10,785 | 73,133 | 51,193 | - | 21,940 | LIBOR | FY 24 - 33 | 3.3% | 4.5% | 7.0% | **14.8%** |
| 700 MW Coal IPP with KE's equity | 5,896 | - | 5,896 | - | - | 5,896 | | | | | | |
| 450 MW LNG IPP with KE's equity | 3,197 | - | 3,197 | - | - | 3,197 | | | | | | |
| 330 MW Coal IPP With KE's Equity | 5,069 | - | 5,069 | - | - | 5,069 | | | | | | |
| Capex on current generation assets | 40,302 | - | 40,302 | - | - | 40,302 | | | | | | |
| | | | | | | | | | | | | |
| **Transmission** | | | | | | | | | | | | |
| Transmission Package 1 | 50,368 | 6,289 | 44,079 | 36,607 | 2,205 | 5,268 | | | | | | |
| Foreign | | | | | | | LIBOR | FY 17 - 26 | 2.3% | 5.1% | 7.0% | **14.4%** |
| local | | | | | | | KIBOR | FY 17 - 26 | 9.4% | 2.5% | 0.0% | **11.9%** |
| Transmission Package 2 | 48,737 | 8,753 | 39,984 | 35,559 | - | 4,425 | LIBOR | FY 18 - 27 | 2.5% | 4.5% | 7.0% | **14.0%** |
| Transmission Package 3 | 33,906 | 4,358 | 29,549 | 20,684 | - | 8,865 | LIBOR | FY 24 - 33 | 3.3% | 4.5% | 7.0% | **14.8%** |
| Transmission Package 4 | 35,279 | 4,558 | 30,721 | 21,504 | - | 9,216 | LIBOR | FY 25 - 34 | 3.5% | 4.5% | 7.0% | **15.0%** |
| Other Transmission Capex | 29,589 | - | 29,589 | - | - | 29,589 | | | | | | |
| | | | | | | | | | | | | |
| **Distribution** | | | | | | | | | | | | |
| Distribution capex | 108,490 | 345 | 108,145 | 5,396 | - | 102,749 | LIBOR | FY 17 - 26 | 2.3% | 4.5% | 7.0% | **13.8%** |
| | | | | | | | | | | | | |
| **Other capex** | 6,000 | - | 6,000 | - | - | 6,000 | | | | | | |
| | | | | | | | | | | | | |
| **Current loans** | | | | **Outstanding loan at June 2016** | | | **Remaining tenure** | | | | | |
| Syndicated Loan for Rs. 7.7 billion term facility | | | | | 6,050 | | KIBOR | FY 17 - 19 | 7.2% | 2.5% | 0.0% | **9.7%** |
| Long term diminishing musharka (Sukook 22 b) | | | | | 21,527 | | KIBOR | FY 17 - 22 | 8.5% | 1.0% | 0.0% | **9.5%** |
| | | | | | | | | | | | | |

**Note: The above details have been extracted from the financial model developed for projections submitted with KE's 1-MYT petition.**

*: Total capex includes capex of Rs. 13,208 million (including foreign loan of Rs. 7,446 million and IDC of Rs. 2,570) of Transmission Package 4 which is planned post 2026. Further, amount of total capex of Rs. 50,368 million for TP-1 includes Rs. 5,267 million relating to FY 16. These two amounts are not included in capex amount of Rs. 496 billion submitted with the petition which relates to FY 17-26.

** Spread is based on IRR which reflects effective cost after taking into account interest, impact of Export Credit Agency (ECA) premium , upfront fee, other costs etc.

26.24.2. The Interveners KE Consumer Forum and Representative of Jamat-e-Islami Karachi, through their issue wise written comments did not support the petitioner's plan. Whistle Blower on the issue while disagreeing with the claimed additions in generation in the past opined that the proposed additions in Generation, Transmission and Distribution needs to be viewed critically by NEPRA to ensure transparency and while approving the investment schemes the economic analysis of each investment should be carried out. The plan should be approved in consultation with stakeholders and its analysis/recommendations by world class consultants. The approved plans should be notified in Gazette and available on the Petitioner and NEPRA's website. The intervener also showed its concern on in-efficient burning of gas, low efficiency of FFBL and high electricity cost of oursun solar plant.

26.25. **Generation Investment**

26.25.1. The Petitioner has proposed investment of around Rs.202,597 million in the Generation segment over the next ten years period, which works out Rs.64,999 million for the allowed tariff control period of seven years.



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26.25.2. During the seven years period, the Petitioner has planned to add a 253 MW Korangi Power Complex dual fuel plant i.e. Gas/ RLNG and Furnace Oil, which as per the Petitioner's projections will become operational on open cycle mode by FY 2018 and on combined cycle mode in FY 2019 at a cost of Rs.23,124 million. The Petitioner's estimated investment in the generation per MW has been compared with other comparable projects and is found to be reasonable. It is noted that the Petitioner has not provided complete information pertaining to the reference technical parameters and has indicated proposed efficiency (without referring to LHV, HHV, net, gross, ISO or at mean site conditions) on furnace oil based operation only. For the time being the information as provided by the Petitioner has been incorporated in the MYT; However, the Petitioner is directed /needs to provide the following information (in respect of aforementioned power plant) within 30 days of the issuance of instant MYT determination:

i. Make, Model & Type of Technology.

ii. OEM and EPC guaranteed figures for net LHV flat thermal efficiency (at mean site conditions) on pipeline quality gas, RLNG, HSD (if applicable) and furnace oil based simple and combined cycle mode of operation.

iii. OEM and EPC guaranteed figures for net capacity along with auxiliary consumption (at mean site conditions) on pipeline quality gas, RLNG, HSD (if applicable) and furnace oil based simple and combined cycle mode of operation.

iv. Clear time lines regarding COD on open cycle and on combined cycle mode.

26.25.3. The Petitioner is also directed to;

i. File LPM in due course before the Authority for inclusion of the above mentioned power plant.

ii. Perform performance (Capacity and Heat Rate) test by a reputable Independent Engineer in the presence of NEPRA professionals at the time of commissioning of 253 MW Korangi power plant. The net capacity and fuel cost component may be subject to revision on the basis of actual capacity and heat rates established as a result of performance test. Therefore, it is very important that the tests are conducted and supervised transparently by the specialists of International repute in this field.

26.25.4. The seven years period also includes equity investment of Rs.12,405 million in the generation companies as equity partner by the Petitioner. Since these projects would come under IPP mode whereby returns of the projects are determined and allowed separately by the Authority under relevant rules and regulation, being a separate company, therefore, the investments under this mode are not being considered in the base case assessment. Any such investment by the Petitioner in its associated generation companies will not add to its fixed asset base and the Petitioner would earn profits out of it in the shape of dividend. However at



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any point in time during the tariff control period the Petitioner would not utilize its asset base as collateral to fund investment in the associate companies.

26.25.5. It is also noted that the proposed investment includes Rs.29,468 million for current generation assets, which includes GLTIP for the BQPS-I amounting to Rs.4,402 million and routine maintenance activities for the remaining power plants, amounting to Rs.25,066 million during the seven years control period.

26.25.6. The Authority considers that the proposed investment for Unit 1 and 2 of the BQPS-I cannot be considered prudent because these units will outlive their life by August 2018 and August 2019 respectively. Although the Petitioner, in its business plan has projected generation from these two units even after expiry of their useful life, but the Authority is of the considered view that these units should not be continued for operation after expiry of their useful life being quite old and inefficient (Steam turbines). In view thereof the proposed investment to the extent of Unit 1 and 2 of BQPS-I being unjustified is hereby disallowed.

26.25.7. Accordingly, in the instant determination, the relevant tariff components with respect to Unit 1 and 2 of BQPS-I have been determined by taking into account unit wise capacities, heat rates and auxiliaries allowed for the BQPS-I Power Plant, based on its existing conditions and without taking into account the impact of GLTIP. The Petitioner, however, with the GLTIP program expects the capacity, efficiency and reliability of these units to improve. The Authority in order to provide an incentive to the Petitioner, has neither considered the proposed investment of GLTIP in its workings nor any corresponding gains thereof; thus, if the Petitioner intends to carry out such investments, it would be purely its commercial decision and would be done through its own resources, hence is allowed to retain the benefits of the improved efficiencies of BQPS-I if any, for the control period, occurring due to the proposed GLTIP. Moreover the investments on this account has not been considered in RAB for RORB calculations.

26.25.8. Regarding Routine Maintenance Activities, the Petitioner stated that the same is required to maintain the performance level at maximum achievable efficiency of the generating units because the efficiency gradually decreases, if the overhauling jobs at Turbine, Boilers & Balance of plants are not carried out timely. The Authority while agreeing with the Petitioner's concerns has decided to allow the said cost as part of CPAEX as requested by the Petitioner. In case the Petitioner fails to make this investment, it will lose on account of deterioration in efficiency as per the generation plan the cost of which will be borne by the Petitioner itself.

26.25.9. Having considered the Investment of Rs.48,190 million under the head of Generation as reasonable is allowed to the Petitioner for the seven years tariff control period which includes



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Rs.23,124 million for the 253 MW New Korangi Power Complex and Rs.25,066 for the Routine maintenance activities.

26.26. **Transmission and Distribution:**

26.26.1. The Petitioner has an investment plan of Rs.287 billion for its transmission and distribution system during the next ten years. Out of which Rs.179 billion will be spent on the maintenance and up-gradation of the transmission network for ensuring its capability to meet current and future transmission requirements and Rs.108 billion in expanding and improving the performance of distribution sector to enhance its distribution capacity, increase its reliability, provide sustainable and improved customer service by adopting the latest technology in the sector. The proposed investment has been bifurcated into Growth related projects and loss reduction projects as under;

| Proposed Investment Plan | Transmission | Distribution | Total |
|---|---|---|---|
| | Rs. In Million | | |
| Growth related projects | 150 | 44 | **194** |
| Loss Reduction projects | 29 | 64 | **93** |
| **Grand total** | **179** | **108** | **287** |

26.26.2. Out of Rs.179 billion proposed to be invested in the transmission sector, Rs.150 will be invested in series of transmission packages for growth in the network considering the growing demand and transmission constraints. Remaining Rs.29 billion will be invested in overhauling and rehabilitation activities to maintain and upkeep the transmission network. For the distribution system, out of total proposed investment of Rs.108 billion, Rs.34 billion will be invested on loss reduction projects, Rs.43 billion for future growth related projects, Rs.17 billion on preventive & corrective maintenance measures and Rs.14 billion on smart network.

26.26.3. The Authority, while assessing the claimed investments in transmission and distribution sectors, observed that the existing base line conditions of the networks of the Petitioner are as follow:

26.27. **Existing Network Conditions:**

| Transmission System | Unit | Quantity |
|---|---|---|
| **Grid Stations** | | |
| 220 kV Grid Stations | No. | 7 |
| 132 kV Grid Stations | No. | 54 |
| 66 kV Grid Stations | No. | 3 |
| Power Transformers | No. | 147 |
| Capacity of Power Transformers | MVA | 8200 |
| **Transmission Lines (220 kV, 132 kV & 66 kV)** | | |
| Total Length of Transmission Lines | KM | 1249 |

| | | |
|---|---|---|
| **Distribution System** | | |
| 11 kV Feeders | No. | 1524 |
| Total Length of 11 kV Lines | KM | 9247 |
| Total Length of LT Lines | KM | 18000 |
| Distribution Transformers | No. | 23321 |
| Capacity of Distribution Transformers | KVA | 6302340 |
| **Service Connections** | | |
| Residential & Commercial | No. | 2402547 |
| Industrial | No. | 64993 |
| Others | No. | 14588 |
| **Total KE Consumers** | **No.** | **2482128** |
| **Existing HT/LT Ratio** | -- | 1:1.9 |
| **Average Length of 11 kV Feeders** | KM | 6.07 |

26.28. Current System Constraints:

| Description | Unit | Quantity |
|---|---|---|
| Overloaded Power Transformers at Grid Stations | No. | 42 |
| Grid Stations facing Low Voltage Problems | No. | 0 |
| Overloaded / High Loss 11 kV Feeders | No. | 104 |
| Overloaded Distribution Transformers | No. | 648 |
| No. of 11 kV Feeders facing Low Power Factor | No. | 0 |

26.28.1. Since the Authority has decided to allow a Tariff control period of seven years, therefore, the Investment plan of the Petitioner for the Transmission and Distribution system is also analyzed in the context of a seven year's period i.e. till FY 2023 and to the tune of Rs. 185,241 million.

26.28.2. The Petitioner while justifying its proposed transmission investments referred to the Long Term Transmission Network Study conducted by Power Planner International (PPI) and submitted vide letter No: SBD/AR/NEPRA-0135/2016-1021 dated: October 21, 2016,. While evaluating the submissions of the Petitioner, the information provided in the study being the detailed document in this regard, has been considered.

26.28.3. The Authority, while reviewing the study, considered the normal forecast scenario for assessing the proposed investments of the Petitioner. Under the normal forecast scenario, a total number of 12 new grid stations (3 grids at 220 kV level and 9 grids at 132 kV level) having total transformation capacity of 2260 MVA (1500 MVA at 220 kV level and 760 MVA at 132 kV level) will be added in the transmission systems of KE in next 10 years. In addition, a total of 1660 MVA (500 MVA at 220 kV level and 1160 MVA at 132 kV level)



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transformation capacity will be enhanced at existing 220 kV and 132 kV grid stations. A total of 693 KMs (237 KMs of 220 kV and 456 KMs of 132 kV) new transmission lines will be laid in next 10 years.

26.28.4. A spot-year-wise breakup of the additions to be made in the transmission system under the normal forecast scenario is given in the following table.

| Spot Year | Addition of New Transformers at Existing Grids | | Addition of New Transmission Lines (km) | | New Grid Stations | |
|---|---|---|---|---|---|---|
| | 220kV | 132kV | 220kV | 132kV | 220kV | 132kV |
| 2018-19 | 0 | 15 x 40 MVA | 53 | 264.32 | 2 x 250MVA (1 Grid) | 8 x 40MVA (4Grids) |
| 2019-20 | 0 | 1 x 40 MVA | 0 | 64.71 | 0 | 0 |
| 2021-22 | 0 | 4 x 40 MVA | 0 | 25.9 | 0 | 0 |
| 2024-25 | 2 x 250 MVA | 9 x 40 MVA | 183.9 | 101.54 | 4 x 250MVA (2Grids) | 11 x 40 MVA (5 Grids) |
| TOTAL | **500 MVA** | **1160 MVA** | **236.9** | **456.47** | **1500 MVA** | **760 MVA** |

26.28.5. Having considered the referred studies and keeping in view the condition of the Petitioner's existing Transmission and Distribution System, the Authority feels that the Petitioner has to undertake substantial investment. The Authority has examined the year wise proposed investment in Transmission and Distribution and in its opinion the proposed investment is reasonable and justified for meeting the existing as well as future system growth requirements. Accordingly the Authority has decided to allow an investment of Rs.115,773 million in transmission and Rs.69,468 million in distribution (a total of Rs.185,241 million) during the control period, the breakup of which is given hereunder;.

26.28.6. Year wise and Project wise break-up of the allowed investments for the Transmission and Distribution system for the seven years period is as under;

**Transmission Plans:**

**(Million Rs.)**

| Year | Transmission Package 1 | Transmission Package 2 | Other Capex | TOTAL |
|---|---|---|---|---|
| 2017 | 17245 | 3778 | 4006 | 25029 |
| 2018 | 14105 | 5905 | 2787 | 22797 |
| 2019 | 13751 | 13014 | 2739 | 29504 |
| 2020 | 0 | 13610 | 2650 | 16260 |
| 2021 | 0 | 12431 | 2919 | 15350 |
| 2022 | 0 | 0 | 3145 | 3145 |
| 2023 | 0 | 0 | 3690 | 3690 |
| TOTAL | 45101 | 48738 | 21936 | **115775** |

**Distribution Plans:**

**(Million Rs.)**

| Year | Loss Reduction | Growth | Maintenance | Smart Network | TOTAL |
|---|---|---|---|---|---|
| 2017 | 2432 | 3103 | 1607 | 564 | 7706 |
| 2018 | 2486 | 3189 | 1558 | 554 | 7787 |
| 2019 | 2677 | 3265 | 1565 | 637 | 8144 |
| 2020 | 2791 | 4029 | 1596 | 677 | 9093 |
| 2021 | 3393 | 5137 | 1785 | 1050 | 11365 |
| 2022 | 4055 | 5029 | 1973 | 1820 | 12877 |
| 2023 | 4128 | 4400 | 1933 | 2033 | 12494 |
| **TOTAL** | 21962 | 28152 | 12017 | 7335 | **69466** |

26.28.7. Thus, the Petitioner with the approved investment plan, would accomplish the following milestones;

a. **Approved Additions during the control period of 7 years:**

- Total MVA Addition at Grid Stations: 800 MVA + 820 MVA (5 new Grids)
- New Transmission Lines Addition: 408 km
- New HT (11 kV) Lines Addition: 1000 km

b. **Approved Additions against the allowed Investments for the Spot Year 4 (2024-25)**

- Total MVA Addition at Grid Stations: 860 MVA + 1440 MVA (7 new Grids)
- New Transmission Lines Addition: 285 km

c. **Network Conditions after implementation of Transmission Projects;**

- Total MVA Capacity of Power Transformers: 12120 MVA
- Total Length of Transmission Lines: 1942 km
- Total length of HT (11 kV) Line after Implementation: 13747 km
- The HT and LT ratio after Implementation: 1:1.2
- Total Number of Feeders after Implementation: 2524 Nos.
- Average Length of 11 kV Feeders after Implementation: 5.45 km
- Elimination of overloading of power transformers, 11KV feeders & Distribution transformers.
- The issue of low power factor will be resolved in the control period.
- Reduction in T&D losses from 22.10% in FY 2016 to 12.53% in 2023 as below;



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| FY | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|
| Loss Reduction (%) | 22.10 | 20.40 | 19.20 | 17.71 | 16.23 | 14.56 | 13.54 | 12.53 |

*The target for the reduction of T&D losses over the control period has been discussed in detail under the relevant issue.*

26.28.8. In addition to above, the Petitioner has also proposed investment of Rs.600 million each year i.e. Rs.4,200 million for the seven year control period as "Other Capital Expenditure", which as per the Petitioner includes the investments pertaining to I.T infrastructure, hardware, Civil Works, Furniture, Fixtures and equipment's as detailed hereunder;

| Description | FY 17 | FY 18 | FY 19 | FY 20 | FY 21 | FY 22 | FY 23 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Rs. in million | | | | | | | |
| IT infrastructure, hardware and others | 172 | 172 | 172 | 172 | 172 | 172 | 172 | 1,204 |
| Civil Works, Furniture, Fixtures and equipments | 428 | 428 | 428 | 428 | 428 | 428 | 428 | 2,996 |
| | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 4,200 |

26.28.9. The Authority considering the aforementioned investments necessary for its smooth operations hence the same is allowed.

27. Issue: Whether the request of the Petitioner to maintain the existing target with respect to T&D losses is justified?

28. Issue: Whether separate target of losses should be set for Transmission (220 kV) and Distribution (132 kV and below) segments?

28.1. The Petitioner on the issue submitted that its current losses are higher than NEPRA benchmark of 15%, however, as it has applied for a continuation of all the existing operational benchmarks, it is also willing to take the challenge to maintain the T&D loss benchmark, under the exiting tariff regime. The Petitioner highlighted the following challenges in this regard;

- Lack of good governance and urban planning resulting in expansion of illegal / unapproved areas within the city. (Multiple controls for e.g. CDGK, SBCA, DHA, Clifton, each with its own parameters).
- Urbanization/ influx settling in Karachi resulting in mushroom growth in the outskirts without planned infrastructure.
- Limited access to certain areas due to law & order issues ·

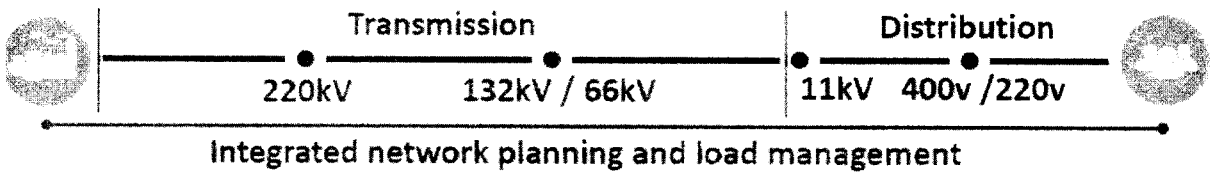
- Loss reduction is mainly focused through CAPEX-based projects which require more time to reap the desired outcomes.

28.2. The Petitioner provided the actual and projected reduction in T&D losses till 2026 as follow.

| FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.90% | 34.90% | 32.20% | 29.70% | 27.80% | 25.30% | 23.70% | 22.10% | 20.90% | 19.80% | 18.80% | 17.80% | 16.80% | 16.00% | 15.40% | 14.80% | 14.30% | 13.80% |

28.3. While justifying its request the Petitioner mentioned that it has been able to reduce the T&D losses from 35.9% in FY09 to 23.7% in FY15. It is important to note that Karachi still has certain areas to which access is restricted due to localized issues. This makes it increasingly difficult to further reduce T&D loss without significant investment. Apart from these areas, the opportunities for reducing T&D loss are diminishing as most of the process based improvements have been achieved and technological advances will have to be relied upon to sustain the low loss levels.

28.4. On the point of having separate target for the Transmission and Distribution losses, the Petitioner submitted that it has a unique structure unlike other Discos and operates its own transmission network, planning of which is dependent upon the load growth and location of load centers which in-turn are governed under the Distribution (11kV) license.




28.5. The Petitioner also stated that operationally the performance of various voltage levels is dependent upon consumer demand, hence if the distribution (11kV) does not perform optimally this would also affect the transmission's performance. This can also be seen in instances of high or low demand, where the load requirement of the distribution network determines the transmission loss. Thus, the transmission and Distribution loss target should be kept bundled together.

28.6. The Petitioner further explained that being more than 100 year old company, it operates with multitude of systems within its overall network (Overhead, Underground, hybrid of the two Materials of different specifications based on the requirement etc.). Unlike radial 11KV and 400 Volts of other DSICOs, its system both at 11KV and 400 Volts is interlinked and has a real time shifting of load on account of operational reasons. Owing to this interconnectivity of the network, tail-end becomes the source-end and this uniqueness impacts on calculation of losses.



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28.7. The Petitioner also mentioned that in comparison with other DISCO's, it operates in an environment where there is a lack of urban infrastructure with proper planning and design, thus leading to operate a network with less than minimum optimum standards of HT: LT ratio, whereby LT surpasses the HT length and hugely increases the technical losses in our system.

28.8. The Petitioner further stated that through NEPRA's directions to other DISCOs, the only loss calculation mechanism acceptable is the real time AMR based environment. However, this only caters for higher voltages of 11KV and above, for which it is already in the process of creating the environment at different voltage levels. The Petitioner also submitted that it has initiated a process of installing phased out AMRs at PMT i.e. the 400Volts level. The number of nodes increases progressively as we go downstream from higher to lower voltage levels. For voltage of 400V and 220 Volts, again this environment is difficult at this stage because this requires changing/installing all the meters at consumer level. It is also pertinent to note that despite installation of AMR's at consumer level, it does not guarantee effective energy accounting as there is an overlap of administrative and technical losses. The difference in sent out from a PMT and the actual unit consumed, will be amalgamation of both loss types. In view of the above, the Petitioner stated that currently it is not possible to differentiate between technical and non-technical losses at 11 kV and below level and thus loss reduction plans are based on feeder level with targeted CAPEX and process based initiatives addressing both the issues together. This is a practical approach which is CAPEX based and results in benefiting both environments. Operationally, technical and administrative losses do have a direct and indirect bearing on each other.

28.9. The Petitioner vide its letter dated January 04, 2017 submitted the following bifurcation of its historic losses into transmission and distribution levels;

| Year | Transmission Loss | Distribution Loss | Total T&D Loss | Year –Wise Reduction |
|---|---|---|---|---|
| 2011 | 2.10% | 30.10% | 32.20% | - |
| 2012 | 1.50% | 28.20% | 29.70% | 2.50% |
| 2013 | 1.20% | 26.60% | 27.80% | 1.90% |
| 2014 | 1.20% | 24.10% | 25.30% | 2.50% |
| 2015 | 1.40% | 22.30% | 23.70% | 1.60% |
| 2016 | 1.30% | 20.80% | 22.10% | 1.60% |
| TOTAL REDUCTION (2011-2016) | | | | **10.10%** |

28.10. Based on its aforementioned submissions, the Petitioner projected the following decrease in its T&D losses over the tariff control period;



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| Year | Base Transmission losses (%) | Reduction in Transmission losses (%) | Base Distribution losses (%) | Reduction in Distribution losses (%) | Target T&D losses (%) |
|---|---|---|---|---|---|
| FY – 2016 | 1.3 | 0 | 20.8 | 1.6 | 22.1 |
| FY – 2017 | 1.3 | 0 | 19.6 | 1.2 | 20.9 |
| FY – 2018 | 1.3 | 0 | 18.5 | 1.1 | 19.8 |
| FY – 2019 | 1.3 | 0 | 17.5 | 1.0 | 18.8 |
| FY – 2020 | 1.3 | 0 | 16.5 | 1.0 | 17.8 |
| FY – 2021 | 1.3 | 0 | 15.5 | 1.0 | 16.8 |
| FY – 2022 | 1.3 | 0 | 14.7 | 0.8 | 16.0 |
| FY – 2023 | 1.3 | 0 | 14.1 | 0.6 | 15.4 |
| FY – 2024 | 1.3 | 0 | 13.5 | 0.6 | 14.8 |
| FY – 2025 | 1.3 | 0 | 13.0 | 0.5 | 14.3 |
| FY – 2026 | 1.3 | 0 | 12.5 | 0.5 | 13.8 |

28.11. The Interveners while disagreeing with the Petitioner's proposed loss target suggested to reduce it further. Mr. Abu Bakar Usman proposed to reduce the target T&D loss level to straight 3% whereas Mr. Bilvani was of the view that future bench marks of T&D losses should be set to be gradually reduced to 9% in next five years. Mr. Gilani stated that for FY 16-17, T&D losses should be taken as 13% and the losses target should be continued to be reduced by 2% annually till its loss level reaches the level of losses of IESCO, FESCO or GEPCO.

28.12. Here it is pertinent to mention that the tariff in 2002 was set at T&D losses of 35% against the actual reported T&D losses of 40.1%, thus providing an upfront relief to the consumers to the extent of 5.1%. Under the performance based tariff awarded to the Petitioner in 2002, and subsequently modified by the Authority in 2009, it was not allowed a predetermined fixed return on its existing and future investments unlike the tariffs allowed under cost plus regime. The only avenue for the Petitioner to earn profits was through bringing in efficiency by making investments either from equity injection or cash generation through efficiency improvements in its generation, transmission and distribution system.

28.13. The Petitioner was given the incentive to earn profits out of reduction in technical losses, pilferage, improvement in power generation efficiency and other efficiency measures and the base tariff remained undisturbed and was not subject to review during the control period (refer para 68, 84 and 115 of the 2002 MYT determination).

28.14. The Authority in its MYT determination of 2009,provided the following target of T&D losses to the Petitioner to be reduced to 15% by the end of tariff control period i.e. FY 2015-16.

| FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|
| 25.0% | 23.0% | 21.0% | 19.0% | 17.0% | 15.0% | 15.0% |



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28.15. The aforementioned T&D losses target was applicable to the extent of variations only, in the Petitioner's own Fuel cost and external Power purchase price, as per the adjustment mechanism prescribed in MYT of 2009 (Para 11of Annexure-A of 2009 determination). By adjusting the allowed variations in Fuel cost and external purchases, on the aforementioned targeted T&D losses every year, the level of T&D losses currently built into the existing tariff of the Petitioner works out at around 30% as on June 30, 2016. The actual T&D loss of the Petitioner however was at 22.10% for the FY 2015-16.

28.16. The Authority has examined the issue of T&D losses in more detail and considers that more appropriate approach to judge the performance of the utility in this context would be on the basis of Aggregated Technical and Commercial loss (AT&C) methodology, which also takes in to account the loss sustained by the utility due to non-recovery of amount billed to the consumers. Findings show that based on reported T&D losses of 22.10% and recovery (revenue collection) of 87.64% for FY 2015-16, the AT&C loss of K-Electric works out to be 31.73% whereas the same at previous approved target of 15% works out to be 25.50%. This shows that though K-Electric has made some progress in reducing its T&D losses starting from FY 2009 however, it has not been able to achieve the target of 15% T&D set by the Authority in 2009. The obvious reason for not achieving the target of T&D losses, besides difficult working environment as reported by the Petitioner above, was lack of required investment in its transmission and distribution networks. The Authority therefore, considers that it would be unfair to the pass on the impact to the extent of under recoveries to the consumers.

28.17. However, an important question before the Authority is as to what should be the starting point for the T&D losses to be built into the base case. One approach is to start with the Petitioner's actual losses as of June 30, 2016, which would not be out of context as the Petitioner's tariff is being rebased, whereby impact of loss reduction and improved heat rates would shared with the consumers immediately through the newly determined base case. The other approach as suggested by some interveners would be to start from the targeted level of losses i.e. 15%, which the Petitioner was required to achieve at the end of tariff control period.

28.18. The Authority considers that its decision for setting T&D loss target for the current as well as future years has significant impact on the tariff of the utility and therefore needs to be seen in the context of Petitioner's ability to achieve future targets to be set by the Authority as well as its ability to make investments for future reduction in T&D losses. The Authority understands that taking 15% target of T&D loss to start with in the initial year is possible with continuation of the existing tariff and adjustment mechanism as requested by the Petitioner, which however is not in the interest of consumers. Since the Authority has



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already decided to rebase the Tariff of the Petitioner, therefore, while setting base case there is a need to assess the level of T&D losses afresh.

28.19. In order to have a fair assessment of the Petitioner's Technical losses, the Authority, in the absence of any technical study, either by the Petitioner itself or through third party, carried out its own analysis. As per the analysis, the Petitioner's Technical loss works out to be 16.90% comprising of 1.30% Transmission loss and 15.60% Distribution losses, against the allowed target of 15%. The Authority believes that the target of 15% was based on the premise that the Petitioner will make investments in its Transmission and Distribution functions to reduce its losses, however, the Petitioner instead diverted its investments more towards the Generation segment of its business. Lack of Investment in the T&D system, resulted in deterioration of the system over the time, consequently resulting in higher technical losses as compared to the allowed target. Based on the technical analysis, the current level of Technical losses for its transmission and distribution networks has been assessed as 16.90% (1.30% Transmission and 15.60% Distribution).

28.20. Here it is pertinent to mention that the Authority, in the matter of HESCO, SEPCO and PESCO, has allowed a margin of 5.5%, 13% and 11% respectively on account of Law and Order situation. The Authority observed although the law and order situation in Karachi improved a lot over the past few years yet there are some areas in the city such as Orangi, Korangi, Baldia, Layari and Malir etc. where there are high loss and low recovery issues owing to restricted excess and illegal possession of property where the Petitioner cannot serve its consumers with metered billing. The Authority therefore considers it justified to provide the Petitioner some margin of law and order situation like it has already allowed in the case of HESCO and some other Discos to be treated separately from technical T&D losses with yearly targets of progressive reduction in the future years. Accordingly a margin of 5.2% has been assessed on account of law & order for the Petitioner.

28.21. Accordingly, the total T&D losses of the Petitioner for the FY 2015-16 including margin of law & order has been assessed as 22.10%.

28.22. The Authority also observed that the Petitioner has achieved a reduction of 10.10% in T&D losses in previous 6 years (2011-2016) without any major CAPEX in the transmission and distribution sectors. The Petitioner in its instant petition has projected to reduce its T&D losses from 22.1% in FY-2016 to 13.8% in FY-2026 (an overall reduction of 8.3% i.e. 0.83% per year) through an investment plan of about Rs.94,448 million for loss reduction projects in transmission and distribution sectors over the next 10 years, which works out as Rs.63,251 million for the seven years allowed tariff control period.

28.23. The Authority noted with concern that the Petitioner has not proposed any reduction in its Transmission loss which remains at 1.3% over the next 10 years period despite the fact that



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an investment amounting to Rs.29,589 million has been estimated in improving the existing transmission network.

28.24. The Authority believes that with the proposed investments of Rs.21,936 million, over the seven years tariff control period, in terms of overhauling and rehabilitation activities in the existing transmission networks, the Petitioner's transmission losses would come down. Accordingly, the Authority has assessed a reduction of 0.17% in the transmission losses over a period of seven years.

28.25. The Petitioner has proposed a reduction of 8.3% in its distribution losses from 20.8% in FY 2016 to 12.5% in FY 2026 as a result of planned investment of Rs.64,859 million in sustainable loss reductions projects at distribution levels which includes Aerial Bundled Cabling (ABC), technical loss reduction and meter replacement projects. This will not only help in technical loss reduction but will also be useful for improvement in load management including remedy to reduce network overloading, support accurate energy consumption recording and improve the overall quality of service.

28.26. The Authority feels that by allowing a huge investment of Rs.41,315 million, over next 7 years, for the distribution system improvement and loss reduction activities; the Petitioner is expected to achieve better results than the proposed reduction, which as per the Authority's assessment keeping in view the proposed investment and the improving Law & Order situation of Karachi, as acknowledged by the Petitioner itself, shall be 4.20% in terms of distribution technical losses, and 5.2% in term of Margin for Law & Order.

28.27. The Authority, based on the above assessment, approves the following reductions in T&D losses of the Petitioner for the next 7 years:

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| Year | Transmission Loss Decrease | Distribution Loss Decrease | Decrease in Law & Order Margin | Total Decrease | Allowed T&D loss Targets (%) |
|---|---|---|---|---|---|
| 2015-16 | | | | | 22.10 |
| 2016-17 | 0.00 | 0.10 | 1.60 | 1.70 | 20.40 |
| 2017-18 | 0.03 | 0.17 | 1.00 | 1.20 | 19.20 |
| 2018-19 | 0.04 | 0.45 | 1.00 | 1.49 | 17.71 |
| 2019-20 | 0.05 | 0.63 | 0.80 | 1.48 | 16.23 |
| 2020-21 | 0.02 | 0.85 | 0.80 | 1.67 | 14.56 |
| 2021-22 | 0.02 | 1.00 | 0.00 | 1.02 | 13.54 |
| 2022-23 | 0.01 | 1.00 | 0.00 | 1.01 | 12.53 |
| Total Decrease (%) | **0.17** | **4.20** | **5.20** | **9.57** | |

28.28. In view of above discussion the Authority has decided to approve T&D loss target of 20.40% for FY 2016-17. Thus, the consumers have been given immediate relief by reduction of 9.6% losses from 30.0% already built in the existing tariff. If compared on the basis of AT&C loss, as discussed above, the allowed T&D target for the current year is still lower by 5.1% (25.50% based on AT&C with 15% previous target of T&D loss). Further, unlike the previous MYT, whereby the base tariff was not adjusted with targeted T&D losses as per the main frame work and spirit of previous MYT, the consumer end tariff will now be adjusted with the yearly targeted T&D losses in accordance with the framework, provisions and adjustment mechanism of the new MYT being approved for the Petitioner.

28.29. **Summary of Base Case Assessment**

28.29.1. In view of the discussion made in the preceding paragraphs, function wise i.e. Generation, Transmission & Distribution base case of the Petitioner has been worked out as under;

| K-Electric Base Tariff | | | | |
|---|---|---|---|---|
| Tariff Components | Remarks | Rs./kWh | Remarks | Rs./kWh |
| | | | | |
| Generation | At Bus Bar | 7.5125 | At Unist Sold Basis | 9.6438 |
| Transmission | At Transmission Sent Outs | 0.4692 | At Unist Sold Basis | 0.5945 |
| Distribution | At Units Sold | 1.3668 | At Unist Sold Basis | 1.3668 |
| Base Tariff on Units Sold Basis | | | | 11.6051 |



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## 28.30. Base Case Adjustment Component

28.30.1. In order to project the Petitioner's generation and subsequent fuel and power purchase cost for the tariff control period of seven years, the Petitioner was asked to provide its future average system demand from FY 2017 to FY 2026. The Petitioner provided the following year wise projected average system demand;

| Year | FY16 | FY17 | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Demand (Gwh) | 18,648 | 19,499 | 20,177 | 20,878 | 21,604 | 22,356 | 23,133 | 23,937 | 24,770 | 25,631 | 26,522 |

28.30.2. It was observed that the Petitioner in its future projections has assumed load shedding during the proposed tariff control period, starting from 233 MW in 2017 to 121 MW in 2026, when the aforementioned demand is compared with its projected sales in the corresponding years. Further, the Petitioner has assumed purchases from CPPA-G till 2020.

28.30.3. The Authority being cognizant of the fact that the issue of withdrawal of power from CPPA-G is sub-judice in the honorable High Court of Sindh, whereby parties have been directed to maintain the 'status quo', and the Petitioner is currently withdrawing power from CPPA-G, therefore, for the purpose of projection, the Authority has assumed the same in line with the Petitioner's estimates in this regard. On the issue of load shedding, as per the findings of the Authority in the matter of heat wave issue in Karachi during the summer of 2015, it was found that the Petitioner could not transmit the electricity owing to constraints in the transmission system. The Petitioner as per its future investment plan has proposed to make an investment of around Rs.116 billion in its transmission network from FY 2017 till FY 2023, whereby its Transmission Package-I will be completed by FY 2019. Further an investment of around Rs.10 billion has been projected under the head of other transmission CAPEX. The Authority understands that with the aforementioned proposed investment, the Petitioner shall be able to overcome its existing transmission constraints, thus shall be able to transmit its projected demand from FY 2020 onwards. In view thereof, the Authority while making its future projections in terms of units sold till FY 2019 has based its workings on the number of units sold as assumed by the Petitioner in its projections, which includes a certain level of load shedding. The Authority considers that in view of the proposed and allowed investment in transmission & distribution system there should be no load shedding in the Petitioner system from FY 2020 onwards. Accordingly, the sales/units sold by end of FY 2020 have been projected based on yearly average projected demand of the Petitioner as provided by the Petitioner and the targeted level of T&D losses. Further, supply of energy from CPPA-G has not been considered after December 2019, as assumed by the Petitioner in its projections.



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28.30.4. The Petitioner as per its Business plan, has proposed addition of a new 253 MW Korangi Power Complex dual fuel plant i.e. Gas/ RLNG and Furnace Oil, which as per the Petitioner's projections will become operational by FY 2018 and converted to combined cycle in FY 2019. The Petitioner has assumed generation from this plant based on furnace oil, therefore, the Authority while making the future projections in terms of generation and fuel cost of this plant, has assumed the same capacity, efficiency and fuel type as projected by the Petitioner. Here it is pertinent to mention that the Petitioner is required to obtain approval of capacity, heat rates and auxiliary consumption of its own upcoming power plants after conducting performance test at the time of commissioning for commercial operations.

28.30.5. Regarding new IPPs and other external sources, which the Petitioner has projected to come on line during the tariff control period, the same assumptions, as taken by the Petitioner in its business model in terms of capacities, heat rates, Fuel cost etc. have been considered by the Authority while making its future projections. The Petitioner is required to obtain approval of tariff from the Authority as prescribed under the NEPRA Rules & Regulations before entering into power purchase agreement.

28.30.6. The Petitioner assumed an increase of around 12.5% CAGR in its Transmission and Distribution O&M cost, during the control period. If the historical increase in Transmission and Distribution O&M cost of the Petitioner, over a period of last seven years is analyzed, it also works out to be as around 8% CAGR. This indicates that the Petitioner has made its projections keeping in view the historic trend of increase in its O&M costs and also its future expansion plans. The Authority is aware of the fact that the Petitioner's Transmission and Distribution O&M costs would increase during the control period due to expansion in its infrastructure and inflation. In view thereof, the Authority through its projections has made sure that the Petitioner is reasonably compensated. The Authority while ensuring reasonable compensation has also assured the protection of end consumers through provision of annual adjustment on account of efficiency benchmarks based on CPI-X. The Authority considers that the Petitioner should adopt measures to reduce its costs keeping in view the technological advancements.

28.30.7. The Authority for working out the Generation O&M in the base case has assessed plant wise variable O&M cost Rs./kWh, that includes Stores & Spares Consumed, Repair & Maintenance and Third Party Services. The future Generation Variable O&M has been assessed considering the future projected generation from individual power plants. Further the costs have been projected using the projected CPI – X to cater for the impact of inflation. Here it is pertinent to mention that in the matter of IPPs, no X-Factor is levied while allowing the CPI indexation. The Petitioner's Generation O&M component was subject to efficiency factor in the past. Considering the future generation plans of the Petitioner, whereby proportion of external purchases vis a vis own generation is expected to increase during the control period,



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which will result in excess recovery of the generation O&M component by the utility. The Authority has decided to apply a correction (X) factor along with the annual CPI indexation to lower the impact of expected over recoveries. The Authority observed that despite the application of correction factor, the Petitioner shall be making over recoveries owing to higher external purchases; the impact of the same has been catered for while working out the base rate adjustment component.

28.30.8. All components in the generation O&M, other than the ones mentioned above, have been assumed to be fixed costs. The future projection of Fixed Generation O&M has been linked with the own generation capacities available with the Petitioner. Meaning thereby whenever a plant is retired, the Fixed O&M component of the plant is excluded from the projections and vice versa. Further the costs have been projected using the projected CPI – X to cater for the impact of inflation.

28.30.9. The fuel cost component of the Petitioner own generation fleet has been worked out using Rs.27,744/MT and Rs.613/ MMBTU for furnace oil and gas respectively, further the C.V for furnace oil has been assumed as 40,351 BTU/kg. The same prices have been assumed throughout the control period considering variation in prices as pass through cost.

28.30.10. The total cost of IPPs and external purchases is a pass through item, therefore, the Authority has not projected any increase in the O&M and Capacity charges of these plants for the control period.

28.30.11. The reduction in T&D losses were applied on yearly basis during the control period, as per the discussion above.

28.30.12. The other income excluding amortization of deferred credit for the control period, has been projected by taking the current component of Rs.0.20/kWh, adjusted with CPI on the basis of future projected units.

28.30.13. CPI has been projected in line with the Projections of the Petitioner.

28.30.14. For the purpose of making future projections for the tariff control period, the depreciation charges have been calculated based on the Petitioner projected RAB, without taking into the impact of revaluation and by applying therein the depreciation rates for each category of assets as per the Company policy depicted in the financial statement.

28.30.15. To ensure future viability of the Petitioner during the tariff control period, the Authority while making future projections, has worked out the write offs at 1.78% of the Petitioner's sales revenue.



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28.30.16. The Petitioner proposed an investment plan of around Rs.496 billion over the next ten years from FY 2017 to FY 2026 comprising of Rs.203 billion in new generation and upgrading the existing generation assets, Rs.179 billion in transmission and Rs.108 billion in distribution functions not only to meet the existing demand but to cater for the future growth in terms of reliable supply of electricity. Since the Authority has determined control period of seven years as against ten years; therefore for the seven years tariff control period, the estimated investment works out as Rs.254 billion, which also includes Rs.14 billion on account of investment in associate generation companies as equity participation by the Petitioner. The same has not been considered for calculation of RAB. Accordingly, projected RAB (as discussed in the preceding paragraphs) and corresponding depreciation has been worked out by taking into account the impact of allowed investments.

28.30.17. As per the Petitioner's request, the cost of major overhauls, has been considered as part of CAPEX, while projecting the future asset base of the Petitioner, thus allowing it to earn return on the same and recover the actual investment through depreciation.

28.30.18. Unlike the existing MYT, which expired on 30th June, 2016, whereby the Petitioner was not allowed a predetermined return in the base tariff, the instant determined tariff includes a component of return. The base case assessment of Rs.11.6051/ kWh on the basis of aforementioned assumptions (including sales growth) has been used to project the financial statements of the Petitioner for the tariff control period. It was noted that the base rate did not ensure an overall WACC of 13.27% on the projected RAB (with the allowed investments) during the control period. In order to ensure that the utility is able to make the required level of investments, an additional component of Rs.0.5507/kWh is being included in the assessed base case of Rs.11.6051/kWh.

28.30.19. Since the component of Rs.0.5507/kWh over and above the base case is exclusively allowed for the purpose of ensuring a WACC of 13.27% for the allowed future investments during the seven years tariff control period, therefore, the Authority has decided to carry out a midterm review, after completion of four years of the tariff control period, to the extent of allowed investments only. If at the mid- term review it is observed that although the Petitioner has substantially (75% of the works) completed the allowed investments, however, has failed to complete a portion or a component of the promised investments in time, then the Petitioner would be bound to justify / substantiate that delay with evidence and come up with firm deadline of completion of the remaining portion of the investment. If it is found at the mid-term review that the Petitioner has not completed substantial portion of the allowed investment then the base rate adjustment component of Rs.0.5507/kWh shall be adjusted after thorough analysis and review by the Authority, at the midterm review. In addition, the Authority would initiate proceedings against the Petitioner as per the law.



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28.30.20. The Authority is cognizant of the fact that the Petitioner would earn Return component assessed on its generation fleet on its future external purchases. The same has been taken care of while working out base rate adjustment component However the consumer interest is further protected through profit claw back mechanism in-case the proportion further changes over & above the projections.

28.30.21. In view of the discussion made in the preceding paragraphs, function wise i.e. Generation, Transmission & Distribution base rate of the Petitioner including the base rate adjustment component has been worked out as under;

| K-Electric Base Tariff | | | | |
|---|---|---|---|---|
| Tariff Components | Remarks | Rs./kWh | Remarks | Rs./kWh |
| | | | | |
| Generation | At Bus Bar | 7.5125 | At Unist Sold Basis | 9.6438 |
| Transmission | At Transmission Sent Outs | 0.4692 | At Unist Sold Basis | 0.5945 |
| Distribution | At Units Sold | 1.3668 | At Unist Sold Basis | 1.3668 |
| Base rate Adjustment Component | | | At Unist Sold Basis | 0.5507 |
| Base Tariff on Units Sold Basis | | | | 12.1558 |

28.30.22. **B. Tariff applicable w.e.f. July 01, 2016**

28.30.22.1. Considering the fact that base rate has to be applicable with effect from July 01, 2016, therefore, the same has been indexed as per the indexation mechanism prescribed in the instant determination. Subsequently the same has been adjusted with the T&D loss target allowed by the Authority for the FY 2016-17 i.e. 20.40%. The approved tariff to be applicable w.e.f July 01, 2016 has been adjusted/indexed based on the following parameters.

28.30.23. **Generation**

28.30.23.1. For this purpose the estimated generation of K-Electric's own generation fleet as well as external sources including energy import from CPPA-G for the FY 2016-17 has been worked out based on the Authority's approved benchmarks i.e. heat rates, auxiliary consumptions as well as net capacity for K-Electric's own generation fleet, keeping in view the plant wise Gas consumption as per gas availability provided by the Petitioner. For calculating the Petitioner's fuel cost as well as fuel cost from external sources the principle of economic order dispatch has been kept in view.

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Financial Year 2017

| Sr. | Fuel Cost Component (Rs./kWh) | Plant | Net Capacity (MW) | Plant Factor | Units Sent Out (GWh) |
|---|---|---|---|---|---|
| 1 | 4.02 | Fauji IPP | 52 | 28% | 129 |
| 2 | 4.87 | KCCP | 223 | 68% | 1,339 |
| 3 | 4.90 | BQPS-II | 496 | 85% | 3,694 |
| 4 | 5.20 | KGTPS | 95 | 66% | 549 |
| 5 | 5.21 | SGTPS | 95 | 50% | 416 |
| 6 | 5.53 | Nooriabad IPP - Phase 2 | 50 | 43% | 186 |
| 7 | 5.53 | Nooriabad IPP - Phase 1 | 50 | 43% | 186 |
| 8 | 5.82 | Other Miscellaneous /IIL | 23 | 38% | 77 |
| 9 | 5.98 | Anoud | 12 | 70% | 74 |
| 10 | 6.18 | TAPAL | 120 | 85% | 890 |
| 11 | 6.27 | G.Ahmad | 125 | 85% | 933 |
| 12 | 6.28 | Bin Qasim-VI (GAS) | 185 | 55% | 889 |
| 13 | 6.29 | Kannup | 86 | 61% | 460 |
| 14 | 6.32 | Bin Qasim-V (GAS) | 185 | 52% | 840 |
| 15 | 7.05 | Bin Qasim-VI (FO) | 185 | 25% | 404 |
| 16 | 7.08 | Bin Qasim-V (FO) | 185 | 23% | 372 |
| 17 | 7.32 | Bin Qasim-II (FO) | 184 | 31% | 501 |
| 18 | 4.03 | CPPA-G | 650 | 95% | 5,409 |
| Total | | | | | 17,348 |

28.30.23.2. Consequently the Petitioner's own fuel cost as well as the power purchase cost for the FY 2016-17 has been worked out as under;

| Units Sent Out | GWh | Rs. in Million | Rs./Kwh (Sent out basis) |
|---|---|---|---|
| Own Generation | 9,005 | 49,689 | 5.52 |
| Power Purchase (excluding CPPA-G) | 2,934 | 25,241 | 8.60 |
| CPPA-G | 5,409 | 35,268 | 6.52 |
| **Total** | **17,348** | **110,198** | **6.35** |

28.30.24. <u>O&M Cost</u>

28.30.24.1. The assessed base case O&M cost components for K-Electric's Generation, Transmission and Distribution functions have been indexed with CPI-X, (where X is lower of 2% or 30% of change in CPI for Generation & Transmission functions and lower of 3% or 30% of change in CPI for Distribution function) and after adjustment on account of T&D loss target for the FY 2016-17 i.e. 20.40%, the same works out as under;

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| Tariff Component | Assessed | | Indexation | | Assessed | Adjusted for Losses target @ 20.40% |
|---|---|---|---|---|---|---|
| | Base Case | | CPI-X | | FY 2016-17 | |
| | Rs. Mln | Rs./kWh | CPI | X | Rs./kWh | Rs./kWh |
| Generation O&M | 5,333 | 0.4146 | 3.17% | 0.95% | 0.4238 | 0.4147 |
| Transmission O&M | 2,722 | 0.2116 | 3.17% | 0.95% | 0.2163 | 0.2117 |
| Distribution O&M | 14,529 | 1.1293 | 3.17% | 0.95% | 1.1544 | 1.1297 |
| **Grand Total** | **22,584** | **1.7555** | | | **1.7944** | **1.7561** |

28.30.25. Depreciation, Return on Regulatory Asset Base, Bad Debts and Other Income

28.30.25.1. Since the Depreciation, Return on Regulatory Asset Base, Bad Debts written off, Other Income and Base Rate Adjustment Component are not subject to any indexation therefore the same as assessed for the base case shall be applicable for the FY 2016-17, after adjustment with T&D loss target of FY 2016-17 i.e. 20.40%.

| Tariff Component | Assessed | | Adjusted for Losses target @ 20.40% |
|---|---|---|---|
| | Base Case | | FY 2016-17 |
| | Rs. Mln | Rs./kWh | Rs./kWh |
| Depreciation | 7,021 | 0.5458 | 0.5341 |
| RORB | 17,804 | 1.3839 | 1.3543 |
| Bad Debts | 2,782 | 0.2163 | 0.2117 |
| Other Income | (4,024) | (0.3127) | (0.3061) |
| Base Rate Adjustment | 7,085 | 0.5507 | 0.5389 |
| **Grand Total** | **30,668** | **2.3839** | **2.3329** |

28.30.25.2. In view of the aforementioned discussion, K-Electric's tariff applicable w.e.f. 1st July, 2016 has been determined as under;

| K-Electric Tariff w.e.f. July 01, 2016 | | | | |
|---|---|---|---|---|
| Tariff Components | Remarks | Rs./kWh | Remarks | Rs./kWh |
| | | | | |
| Generation | At Bus Bar | 7.6271 | At Units Sold Basis | 9.5817 |
| Transmission | At Transmission Sent Outs | 0.4729 | At Units Sold Basis | 0.5864 |
| Distribution | At Units Sold | 1.3622 | At Units Sold Basis | 1.3622 |
| Base Rate Adjustment Component | | | At Units Sold Basis | 0.5389 |
| Tariff applicable w.e.f. July 01, 2016 | | | At Units Sold Basis | 12.0692 |

**Note: Detailed working is given at Annex-I of this determination.**



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29. **Issue: Whether the existing calculation methodology with respect to Claw Back Mechanism is justified?**

30. **Issue: Whether the proposed change in sharing mechanism's thresholds from 12%, 15% and 18% to 15%, 18% and 20% are justified?**

30.1. The Petitioner on the issue submitted that while the MYT structure enables and incentivizes to deliver its business plan, (without any guaranteed return but purely through efficiency gains), the claw back mechanism within the tariff structure reduces the risk of regulated tariffs being set high, as excess profits (or in other words, the excess benefits of the efficiency gains) are shared with customers.

30.2. The Petitioner further mentioned that Claw back provides benefits both in terms of transparency and allowing customers to share any upside returns. However, it needs to earn a reasonable return on its long term investments, to offset accumulated losses and to provide incentives to its shareholders for future investment. Currently, claw back becomes payable when the pre-tax rate of return on the regulated assets base exceeds 12% (in local rupee terms). This is significantly below the market rate of return on similar assets in both Pakistan and international markets. As an example, unlike KE, IPPs in Pakistan are provided with minimum 25 year contracts and a dollar indexed rate of return of 15% to 20%. These returns are backed by sovereign guarantees and all tax incidences are passed through in the tariff, whereas KE is exposed to a higher risk as it does not benefit from sovereign guarantees and also has to bear the complete tax burden. Accordingly, KE requested that the claw back thresholds in the MYT should be changed to 15%, 18% and 20%.

30.3. The Petitioner, during the hearing stated that being an integrated utility it is responsible for end to end planning of the city's power needs. While citing the example of Matiari to Lahore HVDC Transmission line project, the Petitioner submitted that its risk portfolio is higher than other private investors as it has no sovereign guarantee and has to bear complete burden of tax and exchange rate devaluation. The existing claw back thresholds are lower than the current market returns offered to other private investors such as IPPs and transmission service providers which are being allowed dollar based IRR ranging from 15% to 17% (IRR of 22-23% in PKR terms) for control period of 25 years from the date of COD.

30.4. While supporting the existing calculation methodology of claw back, the Petitioner submitted that it has a performance based tariff structure where there is no guaranteed return included in tariff, rather the entity is incentivized to investment in order to improve the efficiency, beat the benchmarks and earn a reasonable return. Under the performance based tariff, Claw back mechanism provides protection to consumers from the burden of excess efficiency gains ensuring that returns earned by the entity are reasonable. The Petitioner further stated that since debt component is not allowed in its tariff, the claw back calculation



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methodology covers both the debt and equity investments, which is essential to attract and support the long term investment of Rs.496 billion planned by it in the next ten years through a mix of debt and equity financing, therefore this mechanism should continue.

30.5. The Petitioner while justifying the inclusion of surplus on revaluation of fixed assets as part of Regulatory asset base stated that it is a 'capital reserve' in nature and hence should be included in the regulatory asset base and since it's returns under claw back thresholds represent real returns, therefore, correspondingly revaluation surplus should be included in the regulatory asset base. The Petitioner also referred to NEPRA's Uniform System of Accounts which classify 'Surplus on Revaluation of Assets' under Share capital & Reserves.

30.6. The Interveners / commentators while supporting the existing claw back mechanism calculation methodology, opposed any change in the claw-Back thresholds. Mr. Gilani through its further comments opined that due to low interest rate and improved law and order situation which makes doing business easier, the sharing thresholds need to be changed downward i.e. from 12%, 15% and 18% to 10%, 12% and 15%.

30.7. The Authority in its MYT determination of 2002 allowed a Claw Back Mechanism whereby the annual return on the regulatory asset base (RAB) when exceeding the prescribed limits, was to be shared with the consumers through a reduction in tariff.

30.8. The Petitioner in its tariff petition dated 2009, requested that the claw-back mechanism be removed and be re-considered for inclusion in the next tariff determination to be made in future. The Authority, however, rejected the Petitioner's plea and the Claw Back Mechanism remained intact as per the following formula;

*30.9. CLAWBACK FORMULA*

*30.9.1. To the extent that the annual real return* on the regulatory asset base** exceeds the limits prescribed hereunder, the surplus return shall be shared with consumers through a reduction in tariff, on the basis set out below;*

*a) Where the real annual return exceeds 12% but remains within 15%*

*25% of the profit value in excess of 12% Return on Assets ("ROA") will be transferred to the consumers*

*b) Where the real annual return exceeds 15% but remains within 18%*

*In addition to (a) above, 50% of the profit value in excess of 15% ROA will be transferred to the consumers*

*c) Where the real annual return exceeds 18%*



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*In addition to (a) plus (b) above, 75% of the profit value in excess of 18% ROA will be transferred to the consumers.*

* *The annual return on the regulatory asset base shall be the audited earnings before interest and tax for that year divided by the average of the opening and closing regulatory asset base for that year.*

** *The regulatory asset base shall be the audited share capital and reserves plus bank and other borrowings less cash and securities.*

*3. The decrease in average sale rate ($S_{ICB}$) will be calculated as under.-*

$$(\Delta S_{ICB}) = \frac{\Delta Ps}{U_{ST}}$$

*Where Ps = The aggregate profit to be transferred to the consumers calculated according to sub paras (a), (b) and (c) of para 2 above.*

*$U_{ST}$ = Estimated units expected to be sold during the twelve months commencing from January 1st of the financial year following the year for which profits are calculated.*

*The above reduction shall be applied uniformly to all consumer classes"*

30.9.2. As *per* the aforementioned mechanism, the Audited earnings before interest and tax (EBIT) for the year were taken for calculating the percentage of return whereby any expenses booked by the Petitioner in its P&L were accepted as such including provision for bad debts (since it was included in the base tariff), except for the incremental depreciation due to assets revaluation which was added back into EBIT.

30.9.3. *Here* it is pertinent to mention that the amount worked out through the aforementioned claw back mechanism pertaining to the FY 2012, 2013 and 2014, was disputed by the Petitioner mainly on the issue of inclusion of accumulated losses and exclusion of revaluation surplus on fixed assets while calculating the RAB. The Petitioner challenged Authority's decisions in this regard, in the honorable High Court of Sindh. Although Interveners/ Commentators have supported the existing claw back methodology, however, considering the fact that the principles of the assessment has changed due to change in circumstances ( as discussed in the proceeding paragraphs ), the Authority is of the considered view that the mechanism needs to be revised and elaborated in more detail for the better understanding and clarify to all the stakeholders. However it is clarified that the Authority has decided to change the few features of profit claw back mechanism purely due to change in assessment principles which



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in no case will affect the earlier profit claw back mechanism and the amounts determined to be payable through Authority's earlier decisions.

30.9.4. The Authority has already discussed the reasons for changing the definition of RAB and the decision of optimum capital structure under relevant paras of the instant decision. In view thereof, the Authority has decided to calculate the RAB from the Assets side of the Balance sheet for the future tariff control period, which shall comprise of the following asset components;

| | |
|---|---|
| | Fixed Assets Without Revaluation(O/B) |
| Add | Additions during the Year |
| Less | Accumulated Depreciation on cost |
| = | **Net Fixed Assets** |
| Add | WIP on Cost (C/B) |
| Less | Deffered Revenue (Consumer financed Asset) |
| = | **Regulatory Asset Base (RAB)** |
| Average RAB = | ((Current RAB + Last Year RAB) / 2) |

30.9.5. On the concern of the Petitioner that claw back calculation methodology which expired on 30th June, 2016, covers both the debt and equity investments, as no debt component was allowed in its existing tariff, the Authority, considers that in the instant decision, the Petitioner has been allowed WACC based return, which includes a reasonable return on equity and also the cost of debt. Further, a component of LPS is also allowed to cover its short term financing cost, hence addresses the concerns of the Petitioner in this regard.

30.9.6. On the issue of inclusion of revaluation reserve in the RAB, the Authority considers that it does not allow Surplus on revaluation on fixed assets as part of Regulatory Assets Base, owing to the fact that revaluation surplus is not created due to new investments rather through asset revaluation, whereby value of the existing assets is reworked on the basis of its replacement cost or market value. In order to compensate the Petitioner in this regard considering change in principle of assessment, the Authority has allowed a nominal WACC, meaning thereby, the impact of inflation on the existing asset base is catered for.

30.9.7. **EBIT Calculation**

30.9.7.1. Previously the Petitioner's EBIT as per its Audited Financial Statements was considered for calculating the percentage of return, and only the impact of incremental depreciation due to assets revaluation was added back, thus any expenses charged to P&L were allowed including provision for bad debts.



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30.9.7.2. In the light of the Authority's instant decision to disallow provision for bad debts and allow only write offs coupled with the changes / adjustments made in the Other Income has necessitated revision in calculation of EBIT for the purpose of claw back mechanism. Pursuant thereto, the Audited EBIT of the Petitioner shall be adjusted as mentioned hereunder to work out the EBIT for any particular financial year for the purpose of claw back mechanism.

30.9.8. **For the purpose of application of Claw Back, the EBIT shall be worked out as under;**

**Earning Before Interest and Tax as per the financial Statement**

Add Provision for Doubtful debt

Add Any other provision / expense charged by the Petitioner that the Authority considers unjustified

Add Depreciation charged to P&L with revaluation

Less Actual Writeoffs (Maximum at 1.78% of Electricity Sales Revenue)

Less Depreciation for the Year on Cost basis

Less Late Payment Surcharge (LPS)

**EBIT for the pupose of application of Clawback**

30.9.9. **Claw Back Thresholds**

30.9.9.1. The Authority in order to ensure an overall 13.27% WACC over control period, on the Petitioner's investments current and future investments, has included a base rate adjustment component of Rs.0.5507/kWh in the base tariff. The base rate adjustment component has been discussed in detail in the ensuing paragraphs.

30.9.9.2. The Base rate adjustment component would only be ensured if the Petitioner's profit claw back threshold in the initial years of the tariff control period is set higher than 13.27% and the extra profits collected in initial years would enable the Petitioner to reinvest in future and execute Authority's allowed investment plan as discussed under the relevant head.

30.9.9.3. Accordingly to ensure the Petitioner a WACC of 13.27% during the tariff control period, the Authority has decided to revise the claw back thresholds on year to year basis, during the tariff control period as mentioned hereunder;

| Tariff Control Period | | | | | | |
|---|---|---|---|---|---|---|
| 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year |
| 16.75% | 13.44% | 11.33% | 12.93% | 12.90% | 12.57% | 13.15% |

30.9.9.4. Pursuant to revision of the claw back thresholds, the limits for sharing of excess returns over and above the allowed returns also need to be revised. Accordingly, the following sharing mechanism shall be applicable if the annual EBIT of the Petitioner, as recalculated by the



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Authority (discussed above), exceeds the prescribed claw back threshold for the respective year. Further, any corporate tax liability to the extent of current tax paid and WPF , WPPF ( without the impact of deferred tax impact ) would be treated as pass through and shall be allowed separately through adjustment in the tariff. This addresses the Petitioner's concern of changing the claw back thresholds upward and the issue of tax burden. The threshold/ limits of sharing excess profits with consumers is given hereunder;

**Claw Back Sharing**

| Year | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year |
|---|---|---|---|---|---|---|---|
| Sharing 25% | 16.75%-19.75% | 13.44%-16.44% | 11.33%-14.33% | 12.93%-15.93% | 12.90%-15.90% | 12.57%-15.57% | 13.15%-16.15% |
| Sharing 50% | 19.75%-22.75% | 16.44%-19.44% | 14.33%-17.33% | 15.93%-18.93% | 15.90%-18.90% | 15.57%-18.57% | 16.15%-19.15% |
| Sharing 75% | Over 22.75% | Over 19.44% | Over 17.33% | Over 18.93% | Over 18.90% | Over 18.57% | Over 19.15% |

30.9.9.5. The decrease in average sale rate ($S_{1CB}$) will be calculated as under.-

$$(S_{1CB}) = \frac{Ps}{U_{ST}}$$

Where Ps = The aggregate profit to be transferred to the consumers calculated in according with the methodology as discussed earlier.

$U_{ST}$ = Estimated units expected to be sold during the twelve months following the date of decision of the Authority. Any over or under recovery in this regard shall be adjusted subsequently.

30.9.9.6. The above reduction shall be applied uniformly to all classes of consumer categories (excluding Life Line Consumers) directly in their monthly bills vide Authority's separate decision in this regard.

31. **Issue: Whether the Petitioner's request for continuation of existing monthly, quarterly and annual adjustment mechanism is justified?**

31.1. Petitioner on this issue has submitted that the MYT is a performance-based price control tariff. It allows uncontrollable costs to be passed through into tariffs, while controllable costs are subject to CPI-X price regulation. Accordingly, monthly, quarterly and annual adjustment mechanisms were devised to pass the impact of uncontrollable costs (fuel price and power purchase price) and adjust the controllable costs with CPI-X and therefore this mechanism is justified and should be continued. The commentator namely Mr. Tanveer Bari highlighted that FCA allowed to KE is always lower than FCA allowed in case of other XWDISCOs.



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31.2. Regarding the aforementioned submissions of Mr. Tanveer Bari, the Authority considers that the aforementioned contrast is due to the difference in mechanism of calculating fuel price variations in KE and XWDISCOs. In case of XWDISCOs, the monthly fuel price variations are calculated on the basis of the fuel cost references established vide their yearly tariff determinations whereas in case of KE the fuel variations are calculated by comparing actual costs of the current month and reference month, being the last month of the last quarter. Further, the Petitioner has its own generation fleet which is not part of the national pool, thus any costs pertaining to its own fleet is also reflected in the monthly FPA cost.

31.3. In the Authority's approved tariff adjustment mechanism as per the 2009 MYT determination, the fuel cost of the Petitioner's own generation and PPP were adjusted only to the extent of change in prices, whereas the base tariff was kept constant. The risk of change in overall mix and efficiency, favorable or unfavorable, pertaining to KE's own fleet and its power purchases was borne by the Petitioner as the base tariff was fixed. Since the consumers were not exposed to the aforementioned risk hence was not accounted in the mechanism. Further, the target of T&D losses, as specified in the MYT determination, was also applied on these components to the extent of monthly/quarterly variations. Likewise, the O&M component was allowed indexation, with adjustment of X factor, enabling the Petitioner to recover its actual costs through improvement in operations.

31.4. Keeping in view the Petitioner's inefficient operations in 2002, the purpose of awarding performance based tariff and corresponding adjustment mechanism, was to incentivize it to bring efficiency in its operations, since it was not granted any predetermined fixed rate of return, therefore, the efficiencies in the form of improved generation efficiency, reduced T&D losses, increase in consumer base and other operational improvements were allowed to be retained by the Petitioner for the control period. Nevertheless, to cap any excessive profits and to extend relief thereof to the consumers, a Claw Back Mechanism was made part of the MYT determination through which it was required to share its yearly profit above 12% with consumers on the allowed Regulatory Asset Base (RAB).

31.5. The Authority is of the view that through awarded performance based mechanism; the Petitioner has been able to bring improvements in its operations especially in terms of its thermal efficiency and T&D losses, the same were reported as a part of its profits. However, since the assessment principles has changed ( as discussed above ) and the fact that as per Petitioner's own future plans , it is more relying on external purchases rather than building its own generation plants, the Authority considers it necessary to modify the adjustment mechanism accordingly. The discussion of adjustment mechanism for each cost component of tariff is produced below;



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- Fuel Cost Component of KE's Own Generation: As explained above that the variations, mainly to the extent of change in prices, were allowed in the captioned tariff component of KE to encourage the utility to improve its generation mix/efficiency. It has been observed that the efficiency of KE's generation fleet has improved considerably since the award of MYT in 2002. As fuel cost component constitutes significant portion of the total tariff; therefore, its efficiency gains contributed quite largely in the earnings reported by the company. The impact of said efficiency gains, beyond a certain limit, was meant to be passed on to the consumers through profit claw back mechanism. However, keeping in view the ongoing litigation with respect to the profit claw back mechanism, the efficiencies already achieved by the Petitioner in terms of its generation fleet and the fact that the Authority has allowed separate component of return on its existing and proposed future investments, the Authority has decided to modify the adjustment mechanism in such a way that impact of efficiency/mix is passed on to the consumers. The Petitioner shall only be allowed to retain the improvements in efficiency, if any, in its existing generation fleet achieved through its additional investment which is not accounted for in the instant decision, during the approved control period of this tariff. However, the efficiency improvement in KE's generation fleet through introduction of new efficient power plants or through replacement of the existing power plants/units shall be captured and reflected in the Petitioner's tariff from time to time. In addition, the fuel cost component would be adjusted with the targeted T&D losses every during the control period. The detailed adjustment mechanism of this tariff component is attached herewith as **Annexure-II**.

- Power Purchase Price: Under the previous mechanism, the variations in PPP component were used to be computed in such a way that the Petitioner was encouraged to optimize its operations not only pertaining to its own generation fleet but the allowed incentive also included optimization of its overall basket. Thus, the associated risks and incentives were borne by the Petitioner. However, the impact of the said optimization gains, if any beyond a certain limit, was meant to be passed on to the consumers through profit claw back mechanism. However, keeping in view the ongoing litigation scenario and the fact that as per Petitioner's own future plans, it is more relying on external purchases, the Authority has decided to modify the adjustment mechanism in such a way that PPP component of tariff shall be reflective of actual cost paid by the utility to its external generation sources. In addition, unlike the adjustment mechanism which expired on 30th June, 2016, the PPP component would be adjusted with the targeted T&D losses during the control period. The detailed adjustment mechanism of this tariff component is attached herewith as **Annexure-III**.



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- O&M Cost Components: The Authority has decided to continue the previous adjustment mechanism of O&M components of tariff of the company in this MYT as the same is quite in line with what has been allowed in other similar cases. However, unlike previous mechanism, the O&M cost components shall be adjusted on yearly targets of T&D losses. The discussion about the application of efficiency factor has been explained in the relevant issue. The detailed adjustment mechanism of this tariff component is attached herewith as **Annexure-IV.**

- Base Tariff Adjustment, Other Income, Return and Depreciation Components: The allowed components in respect of return and depreciation shall remain fixed throughout the control period except for the adjustment with the targeted yearly T&D losses. The adjustment mechanism of these tariff components has also been explained in **Annexure-IV.**

32. **Issue: Whether the plan of the Petitioner to procure 650 MW from CPPA-G till 2020 is justified? What should be the rates for these purchases i.e. Basket or Marginal rates? KE to respond this issue in light of CCI decision dated November 08, 2012.**

32.1. The Petitioner during the hearing submitted that any reduction of 650 MW from NTDC at this stage would result in prolonged hours of load shedding across the city of Karachi and its industrial zones which would have a negative impact on Pakistan's economy. The Petitioner also mentioned that in accordance with the ECC's decision, NEPRA in its determination dated September 29, 2008 stated that the Petitioner shall be treated at par with other DISCO's and shall be charged on the basis of similar mechanism as approved for XWDISCOs. Accordingly NEPRA has approved KE's monthly and quarterly tariff determinations using the basket rate, as applicable for other DISCO's. The Petitioner further explained that as per the CCI decision of November 8, 2012 communicated by MoW&P, it was decided to devise modality for reducing sale of power from NTDC to the Petitioner through financing of oil bill to support KE's generation. Subsequently, the Petitioner & MoW&P engaged to resolve the issue and a special sub-committee was also formed by the Prime Minister and several meetings of the sub-committee have been held and currently negotiations are going on for new power purchase agreement with NTDC/CPPA-G.

32.2. The Petitioner submitted that as per the negotiations, it expects the PPA to be extended for next 5 years and has included this assumption in the business plan. Further, it has planned to increase the generation capacity and purchase of power and targets to be self-sufficient by FY 2020 in this respect. The Petitioner further submitted that fuel costs are pass through in the tariff and therefore if it is able to supply cheap power, the end consumers benefit the most and not the utility itself. The Petitioner while justifying its request stated that despite major investment on generation side it has not been able to meet the abrupt growth in demand,



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therefore, considers 650 MW an important part of its generation plan till 2020 as this cheaper electricity will render it to invest on the generation side and to become self-reliant. Responding to a question from the Authority regarding the rate of power purchase, the Petitioner stated that according to ECC's decision dated August 26, 2008, it is to be treated at par with DISCOs i.e. NTDCL will supply 650 MW at basket rate.

32.3. The Interveners / Commentators generally opposed withdrawal of 650 MW by the Petitioner from NTDCL. AKLA while arguing submitted that supply of electricity by CPPA-G to the Petitioner is causing huge financial losses, therefore should be stopped immediately and in case the Petitioner requires power from CPPA-G or vice versa, the agreement based on marginal cost should be restored. Whistle Blower also questioned the purchase of 650 MW electricity from NTDCL by stating that the Petitioner is imposing load-shedding while keeping its own generation and power purchase sources idle. Mr. Gilani also proposed to have an arrangement whereby CPPA-G can purchase power from the Petitioner's power plants thus mitigating the loss to the consumers of XWDISCOs. Whistle Blower in its further comments stated that there should be one National Grid Company and One System Operator and in case of more than one generation basket, there is no justification of procurement of 650 MW by the Petitioner on rates at par with other DISCOs.

32.4. The Authority in its determination dated April 14, 2004 in the matter of tariff petition filed by NTDCL, approved to charge the Petitioner on the basis of marginal cost for the power supplied by NTDCL. Later on, the Economic Coordination Committee (ECC) vide its decision dated August 26, 2008 decided to treat the Petitioner at par with other distribution companies for the purpose of tariff i.e. K-Electric be charged at basket rates instead of Marginal cost. In pursuance thereof, the Petitioner filed a petition to the Authority for application of basket rates in respect of energy purchased from NTDCL.

32.5. The Authority, keeping in view the aforementioned decision of ECC, approved basket rates for supply of electricity to the Petitioner by NTDCL. Accordingly, a power purchase agreement was signed between NTDCL and the Petitioner on January 26, 2010 for five years for sale/purchase of 650MW on basket rates. Subsequently, a decision was made by the Council of Common Interest (CCI) in its meeting on the subject of "Equitable Distribution of Electricity" held on November 08, 2012 with respect to the modalities for withdrawal of 350 MW of electric power from NTDCL by the Petitioner, wherein it was decided to reduce the supply of energy by 300MW from NTDCL to K-Electric.

32.6. However, the aforementioned decision of the CCI has been impugned by way of the following suits /petitions by K-Electric in the Honorable High Court of Sindh at Karachi:

a. C.P. No.D-4485/2012(S.I.T.E. Association of Industry etc. vs. Federation of Pakistan, etc.);
b. Suit No.1728 / 2012 (Abdul Karim Khan vs. Federation of Pakistan, etc.); and

c. Suit .No.205 /2014 (K-Electric Limited, etc. vs. Federation of Pakistan, etc.).

32.7. Injunctive orders have been passed in all the three matters. The relevant parts of the orders states that;

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.

32.8. Notwithstanding the fact that proceedings regarding decision of the CCI, to reduce the supply of energy to 350MW to K-Electric by NTDCL, are still pending in the Honorable Court, the Authority has issued explanations to both NTDCL and the Petitioner for continuation of power sale/ purchase even after the lapse of the PPA. The proceedings of which are still under process with the Authority pending finding of special sub-committee, formed by the Prime Minister, is awaited.

32.9. For the purpose of projections only, in the future years of the control period, the Authority has assumed 650 MW as per the Petitioner's plan and the benefit of which is passed on to the consumers in the projections. Here it is pertinent to mention that the issue of withdrawing 650 MW is between GOP and the Petitioner which would be decided by the special committee, followed by PPA to be signed between the parties, if the GOP decides to continue for agreed time period or otherwise. The issue marginal vs. basket rate will be examined and any further proceedings in the matter will be carried out keeping in view the outcome of the aforementioned events accordingly.

32.10. Further, charging of marginal rate for the power purchased by Petitioner will result in high tariff and increased subsidy payments by the GoP. The Authority, however at the same time understands that since the issue is sub-judice in the honorable High Court of Sindh, whereby parties have been directed to maintain the 'status quo', therefore, any further proceedings in the matter if required will be carried out in light of the final order of the Court.



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33. Issue: Whether the request of the Petitioner to allow efficiency factor "X" as lower of 2% or 30% of increase in CPI allowing annual indexation in O&M cost component of generation is justified?

34. Issue: Whether the request of the Petitioner to allow efficiency factor "X" as lower of 2% or 30% of increase in CPI allowing annual indexation in O&M cost component of Transmission is justified?

35. Issue: Whether the request of the Petitioner to allow efficiency factor "X" as lower of 3% or 30% of increase in CPI allowing annual indexation in O&M cost component of Distribution is justified?

35.1. The Petitioner in its instant I-MYT Petition while requesting for an increase in the O&M cost by Rs.0.66/kWh requested for modification of the adjustment mechanism of the O&M cost to the effect that the efficiency factor X, in any year of the control period, should be the lower of its existing value (2% for Generation & Transmission functions and 3% for Distribution function) or 30% of the change in the Consumer Price Index (CPI) for the relevant control year, as this will help protect the business in periods of low inflation.

35.2. The Petitioner during the hearing mentioned that it is already experiencing a significant shortfall in O&M component and allowing such negligible indexation after adjustment of existing X factor would result in further exacerbating the deficit. The increase currently being allowed is significantly lower than the inflation itself, whereas several cost heads increase faster than the rate of CPI growth. Therefore, it is reasonable to modify the X factor so that it has some cushion to manage its O&M costs efficiently.

35.3. The Interveners KCCI and Commentators Govt. of Sindh/ CPPA-G opposed any change in the X-Factor. CPPA-G rather submitted to set the factor higher as it is only linked to O&M costs which are only up-to 10% of the total tariff thereby resulting in low efficiency target for the petitioner. Representative of Jamat-e-Islami Karachi and KE Consumer forum in their further comments also opposed the request of the Petitioner whereas Whistle Blower supported the same by citing example of NEPRA's recent decision in the matter of MYT of three XWDISCOs

35.4. The Petitioner in the MYT of 2002 was allowed O&M cost component for transmission, distribution and generation, to be adjusted by inflation index (CPI) minus an efficiency factor "X" each year as mentioned below;



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| O&M tariff with CPI indexation | Tariff Component | X-Factor | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Year 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | Ps./kWh | FY 03 | FY 04 | FY 05 | FY 06 | FY 07 | FY 08 | FY 09 |
| Generation | 10 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| Transmission | 4 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| Distribution | 32 | 0 | 0 | 0 | 3 | 3 | 3 | 3 |
| Total | 46 | | | | | | | |

35.5. The "X" factor was kept at zero for the first three years' of the MYT due to the fact that company was expected to remain in accumulated losses and afterward efficiency factor of 2%, 2% and 3% was set for Generation, Transmission and Distribution respectively irrespective of the change in CPI.

35.6. Consequent upon signing of the AIA in 2009, the Petitioner filed a tariff Petition with the Authority, for an increase in the base tariff and modification in the adjustment mechanism, terms and conditions of supply and security deposit rates etc. The Petitioner requested the Authority to consider re-setting of the "X" factor to zero recognizing the fact that the efficiency gains were unlikely to be achieved within the period of this tariff determination.

35.7. The Authority vide its determination dated December 23, 2009 for re-setting the "X" factor to zero stated the following;

*"the Authority considers that it will also be in the interest of KESCL to remain within the confines of the approved budget regarding its O&M expenses and reduce its actual annual expenditure per unit of sales in future through reduction in T&D losses and with proper utilization of funds for the operation and maintenance of plant and equipment and human resource in the upcoming/new generating facilities. The application of X factor on annual CPI adjustment will enable KESCL to cut its excessive/unwarranted expenditure by not getting the full annual inflationary raise in tariff based on CPI to achieve the desired level of operational efficiency.*

*The Authority has therefore decided that X factor as already approved in the Authority's Previous Determination shall remain intact and effective till expiry of the next seven years tariff control period as provided in the modified Mechanism for adjustment of CPI – X."*

35.8. The Authority in the case of Multi-Year tariff petition of XWDISCO's for the FY 2015-16 to FY 2019-20 has determined efficiency factor to the lower of the applicable X factor or 30% of CPI. Here it is pertinent to mention that the Authority in the case of the XWDISCOs has allowed the indexation of CPI on absolute basis i.e. Revenue Cap, whereas the existing tariff of the Petitioner is a price cap model, meaning thereby that the indexation will be on Rs./kWh basis, resulting in increased recoveries under the head of O&M due to increase in sales. With the new base tariff, the Petitioner would be able to recover its full O&M cost going forward, therefore, to provide it with the incentive to reduce its overall O&M cost in



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future and to share the benefits of such improvement with the consumers, the Authority has decided to retain the efficiency factor.

35.9. Here it is pertinent to mention that the O&M cost allowed in the newly determined base case of the Petitioner represents its prudently incurred cost for the FY 2015-16 (excluding provision for bad debts) which is comparable with the O&M cost allowed to Generation, Transmission and Distribution companies operating in the Country, therefore, the argument of the Petitioner with respect to significant shortfall in recovery of O&M component through allowed O&M cost component, becomes invalid.

35.10. As per the available information, change in CPI (General) Pakistan was 3.17% for May 2016 as compared to May 2015 and 3.16% for May 2015 vis a vis May 2014. The Authority considering the current lower inflationary trends and to be consistent with its decision in the matter of XWDISCOs, has decided to accept the Petitioner request of setting the efficiency factor X as lower of 2% or 30% of increase in CPI for the Generation and Transmission functions and lower of 3% or 30% of increase in CPI for the Distribution function.

36. **Issue: Whether the request of the Petitioner to allow working capital allowance to cover late payments by Government entities and Tariff Differential Claims (TDC) by the Government is justified?**

36.1. The Petitioner on the issue has submitted that it incurs additional costs in holding working capital to cover late payments by Government entities and TDC by the Government, due to circular debt. This is an uncontrollable and unavoidable cost. Therefore, the Petitioner has requested that a working capital allowance should be included as a pass through component in the tariff on the basis of a mechanism to be determined by NEPRA. The Petitioner also mentioned that Circular debt has constrained its liquidity since March 2016, its net receivable from Government entities (after off-setting payable to Government entities) amounted to Rs.51 Billion which increased to Rs.57 billion as of August 2016. Circular debt is expected to remain a significant issue as it is compelled under the Implementation Agreement to continue to supply electricity to certain public sector entities (e.g. Karachi Water and Sewerage Board) despite non-payment of its dues. This adds to its cost of supply and additional working capital allowance is sought to compensate for this cost. Accordingly, the Petitioner requested a working capital allowance to compensate for the unavoidable costs to address the circular debt challenge on the basis of a mechanism to be determined by NEPRA. The Petitioner during hearing reiterated its submissions and requested that the mechanism should account for both receivables and payables with respect to circular debt to allow for working capital cost i.e. finance cost incurred on net receivable amount from government entities. The Petitioner also mentioned that it is trying to resolve the issue of piling up receivables from government entities through discussions with respective authorities. In this respect, rigorous discussions are going on with Government of Pakistan and Government of Sindh.



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36.2. All the Interveners opposed allowing of any working capital allowance to KE. Whistle Blower in this regard submitted that K-Electric, if fails to recover from any other party or consumers, the burden cannot be shifted on to the other electricity consumers, thus there is no justification to allow working capital allowance as requested by the Petitioner.

36.3. After going through the submissions of the Petitioner and the objections / concerns shown by the Interveners and Commentators thereof, the Authority is of the view that the matter of delayed payment of TDC claims is something between the GoP and the Petitioner. The Petitioner may take up the matter of delayed TDC with GoP and any cost thereof may be settled between GoP and the Petitioner rather than being passed on to the consumers in the tariff. Further, the issue of delayed payment by Government entities or strategic customers may be resolved through payment mechanism in the new Implementation Agreement, if any, to be signed between the GoP and the Petitioner.

37. **Issue: Whether the request of the Petitioner for inclusion of a force majeure clause for adjustment of irrecoverable costs due to business disruption in case of force majeure event is justified?**

37.1. The Petitioner has submitted that there is currently no provision for costs incurred (or lost revenue) as a result of force majeure events such as earthquakes, floods, acts of terrorism etc. and accordingly requested that a force majeure clause be included in the MYT. These costs are, by definition, largely uninsurable, and outside of its control. In an extreme and unforeseen event, these costs could be significant and may disrupt execution of its investment plan. The Petitioner accordingly requested that an additional component should be included in the MYT to recover the unavoidable costs (or lost revenue) due to such events. These costs shall be computed after the occurrence of such an event at which point it shall estimate the financial impact and request NEPRA's approval for inclusion in the tariff.

37.2. During hearing, the Petitioner explained that it has adequate insurance policies for its assets in line with the best practices, however, the unavoidable costs or lost revenue under force majeure events are largely uninsurable, and outside its control, and the requested clause will account for the costs incurred or lost revenue, over and above the insurance policy. This component is being included to ensure the ability to cover the costs of quickly resuming the operations and hence lowering the sufferings of consumers at large in case of force majeure event. This request is in line with the force majeure clause included in Power Purchase Agreement of IPPs.

37.3. The Interveners / commentators strongly opposed allowing of any force-majeure clause to the Petitioner. Whistle Blower in this regard submitted that adjustment of irrecoverable cost due to business disruption in case of force majeure cannot be shifted on to the consumers. Force



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majeure is a defined term and there is no justification for inclusion of the force majeure clause.

37.4. The insurance cost as provided by the Petitioner has been included in the calculation of the base case assessment. However, any insurance cover which as per the Petitioner is not available in the market is essentially speaking are risks attached to distribution business, and therefore has to be borne by the Petitioner itself. Further, the existing MYT regime is so designed that the volume risk is borne by the Petitioner, thus its argument with respect to revenue loss is not justified either. In view of the aforementioned, the Petitioner request for inclusion of force majeure clause in tariff is not acceptable.

38. **Issue: Whether the Petitioner's assumption of continuation of the protection under the Implementation Agreement throughout the tariff control period including the guarantee of payment of strategic customers is justified?**

38.1. The Petitioner in its MYT petition has assumed that the protections under the Implementation Agreement will continue throughout the tariff control period, including the guarantee of payment for strategic customers. The Authority considering the fact that previous IA was signed between GoP and the Utility, and the Authority was not a party to it, decided to make the same as an issue for discussion during the hearing.

38.2. The Petitioner during the hearing submitted that the implementation agreement signed between KE and GoP on November 14, 2005, as amended with mutual consent on April 13, 2009 provides certain supports and guarantees to the Petitioner. The amended agreement has expired in April 2016 and KE is in negotiation with Federal and Provincial governments for its continuation. Although it has undertaken considerable investment which has improved the performance of the business over the last seven years, there remain a number of significant challenges that need to be addressed. The Petitioner further stated that it has developed a comprehensive business plan that addresses these challenges. The business plan is based on the continuation of the MYT until FY 2026 and results in investing Rs.496billion over the next 10 years.

38.3. The Petitioner mentioned that while preparing the business plan, it has assumed the protections under the Implementation Agreement to continue throughout the tariff control period, including the guarantee of payment for strategic customers. The absence of this protection under IA, joined with absence of sovereign guarantee, will further increase its risk profile and will highly impact its capability of negotiating workable rates with the lenders and provide bankable security to the IPPs and without this protection, it will be exposed to a huge risk of recovery of principal and markup from GoP entities including TDC. The Petitioner while justifying its assumption mentioned that these costs are outside its control and will be unjust to make it bear these costs and will have a direct impact on the business



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plan and in the absence of such protections under IA, these costs may be required to be compensated in tariff.

38.4. The Interveners showed serious concerns over the amended implementation agreement by stating it being illegal and not acceptable. Mr. Gilani while opposing the same also highlighted that there are several other privatization agreements like Share Purchase Agreement, Subscription Agreement and O&M Agreement which are also binding on the Petitioner but it has never presented a report with respect to its liabilities under the other agreements and therefore, the matter should be agreed between the concerned parties and consumers should not be burdened.

38.5. Here it is worth mentioning that the previous IA and the AIA were signed between GoP *(Secretary, Ministry of Water & Power)* and the Petitioner whereas NEPRA was not a party to the same. In view thereof and while agreeing with the concerns of the Interveners, the Authority is of the view that the Petitioner needs to take up the matter with the GoP, in order to seek any relief on the issue.

39. **Issue: Whether the Petitioner has renewed/ entered into long term Fuel Supply Agreements (FSA) for firm supply of Furnace Oil?**

39.1. The Petitioner during the hearing stated that it has a long term agreement with Pakistan State Oil which is valid until 2020 and has a clause for further extension with the mutual consent of the parties.

39.2. Mr. Gilani while referring to the purchases made from Byco, submitted that NEPRA needs to check the conditions under which the Petitioner can buy RFO from the other Oil Marketing Companies (OMCs) while it has entered into FSA with PSO. He also opined that the Petitioner shall ensure buying RFO on the best effective price and NEPRA should check the issue of Calorific Value of the supplied oil.

39.3. The Authority considers that although a long term FSA will ensure an un-interrupted supply of Furnace Oil to enable the Petitioner to meet its peak demand of electricity in summer and in the gas shortage months, however, being a deregulated product, the Authority is of the view that it should be Petitioner's commercial decision to buy furnace oil from any other OMC if available on competitive rates, thus passing the benefit of cheaper purchases to the consumers, owing to the fact that this is a pass through cost. The Authority further observed that while making monthly / quarterly variations, fuel cost is worked out, as per the benchmarks set by the Authority in terms of heat rates, auxiliaries and the Calorific values etc. and are not allowed to the Petitioner as per actuals. The benchmark allowed to the Petitioner in terms of calorific value represent an average figure, which is not adjusted either



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upward or downward in contrast to IPPs where CV is adjusted as per actual and any gain or loss is passed on to the consumers.

40. **Issue: Whether the Petitioner has signed Gas Supply Agreement with Sui Southern Gas Supply Company (SSGCL) for firm supply of gas?**

40.1. The Petitioner on the issue submitted that it does not have a Gas Supply Agreement (GSA) with SSGC which has been pending since the time of privatization. It was decided in Cabinet Committee on Energy Crises (CCEC)'s meeting dated July 30th 2009 that:

*"SSGC will guarantee availability of 276 MMCFD of gas and with adequate pressure which will comprise of 236 MMCFD already allocated and additional 40 MMCFD of additional quantities and KE would also execute the GSA with SSGC in this regard."*

40.2. The Petitioner also submitted that it has been continuously making efforts to enter into a long term GSA with SSGC and after rigorous efforts, a payment plan was signed between KE and SSGC to streamline the payment modalities of current and old dues, along with minimum quantity of supply for summers and winters. This payment plan was renewed in 2015 and 2016 whereby KE has paid a total of Rs.12.7 billion to SSGC to settle outstanding arrears since FY 13. Thereafter it is receiving relatively stable supply compared to 2011. The Petitioner is of the view that in the absence of a signed GSA, the payment plan and explicit allocation as per CCEC's decision will ensure smooth gas supply throughout the year. It further stated that it is in discussion with SSGC to formalize and sign a Gas supply agreement as soon as possible. The Petitioner also mentioned that in its business plan it has diversified its fuel mix with significant additional capacity based on Coal and LNG fuel.

40.3. The Interveners strongly criticized the Petitioner for not having a firm GSA with SSGCL and emphasized it to enter into a GSA with SSGCL for its own generation capacity of over 1000 MW. Mr. Gilani in his further comments stated that NEPRA should not allow gas to be used in gas power plants with efficiency lower than 45%. He also pointed out that the Petitioner claims variations in gas price but does not pay its dues to SSGCL and also generates energy on gas while claims fuel variations on FO, which is un-justified.

40.4. The Authority observed that while allowing monthly / quarterly adjustments, consumption of the fuel is carefully verified from the original invoices of fuel suppliers i.e. SSGCL, PSO and Byco. Moreover, units claimed to be generated on gas from BQPS-I are also assessed in terms of actual quantity of gas consumed and other Authority's approved bench marks for these units.



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40.5. In view thereof, and considering the comments of the Interveners, the Authority directs the Petitioner to finalize its GSA with SSGCL without any further delay and share a copy of the same with the Authority.

41. **Issue: Whether the Petitioner's request to allow the supplemental charges i.e. WWF/ WPPF payable to IPP's, as a pass through item is justified?**

41.1. The Petitioner during the hearing, submitted that NEPRA allows IPPs to pass through any additional costs e.g. corporate income tax, WPPF, WWF, PPFME payments, CLFME payments etc., in order to guarantee their allowed returns. The Petitioner also stated that the MYT incentivizes improvement in efficiencies through investments and operational effectiveness. However, there is absolutely no relationship between the MYT and payment of pass through items i.e. WPPF and WWF allowed to IPPs by NEPRA. The Petitioner stated that being a private entity with no support of government funding, its capacity to fund its operations and run the utility on a sustainable basis will be significantly impacted if it is not allowed to pass these costs on to its consumers. The Petitioner further submitted that the spirit of MYT will be defeated if any efficiency gains are lost through unjustified absorption of IPP related pass through payments by the utility. Therefore these supplemental charges i.e. WWF/WPPF payable to IPPs should be allowed as a pass through item in KE's tariff.

41.2. The Interveners Jamat-e-Islami and KE Consumer forum in their further comments opposed allowing the WPPF and WWF cost to K-Electric, whereas, Whistle Blower opined that since the Petitioner has applied for distribution tariff, therefore, NEPRA should give the same treatment to the Petitioner in the matter of WWF/WPPF as other DISCOs.

41.3. The Authority observed that in the MYT of 2009, the cost related to WWF/ WPPF were disallowed while making adjustments on the grounds that no provision was available for allowing such costs in the mechanism. However, being cognizant of the fact that in the matter of other IPPs in CPPA-G basket, the WWF/WPPF payments are allowed as pass through items, as per their PPAs. The Authority noted that K-Electric is required under the law to make payments on account of WPPF and WWF to the IPPs, such as Tapal and Gul Ahmad as pass through cost under the PPAs signed with these IPPs. The Authority therefore considers that the Petitioner's request for allowing cost related to WPPF and WWF is justified. The Authority has therefore decided to allow the cost of WPPF and WWF as pass through cost on actual basis subject to provision of verifiable documentary evidence for adjustment on prospective basis pertaining to the new tariff control period.

42. **Issue: Whether separate charging of Meter Rent from the consumers is justified?**

42.1. The Petitioner regarding charging of meter rent submitted during the hearing that Meter rent is recovered as a cost for replacement of meters which is changed after a certain period of



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time as per the utility practice, as it is responsible for the maintenance of meter and to keep it in perfect running condition. The Petitioner stated that cost for replacement of meter is fully borne by it in case of any discrepancy which is not attributable to consumer, in compliance with NEPRA approved Consumer Service Manual. The Petitioner while referring to NEPRA's tariff determination of 2002, further stated the meter rent was recognized as part of the Petitioner's revenue and shown in the P&L of the said determination.

42.2. The Interveners i.e. KE Consumer Forum and Jamat-e-Islami Karachi opposed separate charging of meter rent. Jamat-e-Islami was of the view that by charging meter rent, the Petitioner has acted in contravention to the spirit of MYT whereby it could only charge such costs which were allowed to it, therefore, meter rent already charged should be reimbursed to the consumers.

42.3. Here it is pertinent to mention that the Authority on the issue of separate charging of meter rent vide its decision dated April 22, 2015 decided as under;

*".....charging of meter rent by K-Electric is totally unjustified and unlawful and by doing so, K-Electric has violated the provisions of its granted license.....K-Electric is further directed:*

*a) to immediately stop charging of meter rent from its consumers;*
*b) to workout and intimate the amount so far collected on account of meter rent and refund the same to the consumers through adjustment in their future bills....."*

42.4. The Petitioner against the aforementioned decision of the Authority filed a Civil Suit in Honorable Sindh High Court ("SHC") whereby the honorable SHC, has barred NEPRA from taking any coercive action in the matter against the Petitioner.

42.5. The Authority observed that as per the provisions of the CSM, at the time of new connection, the cost of meter is borne by the consumers therefore there is no point in charging meter rent from the consumers against which it has already been paid the full cost. Further the CSM also provides that the cost of replacement of meters owing to any discrepancy, not attributable to the consumers, cannot be charged from the consumers, hence, levy of any kind of meter rent is against the prudent utility practices.

42.6. In view of the above discussion and while agreeing with the submission of the Interveners, the Petitioner is directed to stop charging of meter rent in future from those consumers who pay their cost of meter .

42.7. In case of any meter replacement, owing to fault of consumers, the matter shall be dealt with as per the relevant provisions of the CSM. Meter rent charged by the Petitioner's pertaining



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to period prior to July 01, 2016 would be dealt in light of final order of the Honorable Sindh High Court.

43. **Issue: Whether separate charging of Bank Collection Charges from the consumers is justified?**

43.1. The Petitioner regarding separate charging of Bank collection charges submitted during the hearing that these are similar in nature to other supplementary items added in the consumer bills such as GST, Income Tax, Electricity Duty, PTV License Fee etc. and has no control over how much amount to be charged as these charges have been approved in the past by the State Bank of Pakistan in its capacity to regulate provision of banking services. Therefore, this is essentially a pass through item. The Petitioner further stated that Bank charges related to processing of payment and its reporting to KE are already being borne by the Petitioner and not charged to consumers.

43.2. The Interveners KE Consumer Forum and representative of Jamat-e-Islami Karachi opposed separate charging of Bank Collection charges by terming it unfair and illegal.

43.3. The Authority in its decision dated March 13, 2015 in the matter of Bank Collection Charges directed the Petitioner to immediately stop charging bank collection charges from the consumers. The Petitioner, however, challenged the aforesaid decision of the Authority in the Honorable High Court of Sindh.

43.4. The Authority while considering the legitimacy of the cost (Bank Collection Charges) and the concerns raised by the Interveners has decided to include the amount of bank collection charges of Rs.236.884 million (2.46 million consumers x 8 x 12) upfront in the new base rate, rather than to be recovered from consumers separately from the monthly bills. Therefore, the Petitioner shall not charge bill collection charges separately from the consumers in future.

43.5. The Authority also while analyzing the available information of the Petitioner noted an amount of Rs.23.337 million appearing as bank collection charges under consumer services and administrative expenses, which as per the Petitioner represented the cost incurred for processing of payments by the banks and it's reporting to the Petitioner. Considering the fact that bank collection charges have been built in the tariff to be recovered from consumers @ Rs.8/bill the Authority believes that inclusion of this cost of Rs.23.337 million will again result in duplicate charging from the consumers, thus the cost being incurred by the Petitioner for processing of its payments by the banks and reporting to the Petitioner needs to be borne by the Petitioner itself and cannot be passed on to the consumers, therefore is disallowed.

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43.6. However with regard to the issue of Bank Collection charged by the Petitioner's pertaining to period prior to July 01, 2016 would be dealt in light of final order of the Honorable Sindh High Court.

44. **Issue: What are the projections of plant wise generation of energy and energy planned to be procured from external sources for the MYT control period and what is the component wise detail of power purchase cost / price?**

44.1. The Petitioner provided the following plant wise unit sent out of its own fleet and power purchases, projected for the next ten years, during hearing of the Petition.

| Units Sent Out | 2,017 | 2,018 | 2,019 | 2,020 | 2,021 | 2,022 | 2,023 | 2,024 | 2,025 | 2,026 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Own Generation & IPPs with KE's Equity** | | | | | | | | | | |
| BQPS-1 | 3,416 | 2,940 | 1,449 | 1,339 | 1,318 | 1,346 | 1,429 | 1,478 | 1,400 | 1,341 |
| KCP 247 MW | 1,255 | 1,296 | 1,411 | 1,447 | 1,470 | 1,420 | 1,274 | 1,308 | 1,296 | 1,296 |
| BQPS-2 560MW | 4,007 | 4,036 | 3,510 | 4,022 | 3,955 | 3,850 | 3,980 | 3,476 | 3,795 | 3,795 |
| KGTPS-Jenbacher | 508 | 470 | 615 | 460 | 473 | 535 | 504 | 640 | 508 | 508 |
| SGTPS-Jenbacher | 472 | 471 | 573 | 471 | 471 | 505 | 473 | 576 | 503 | 503 |
| New Korangi Power Complex | | 840 | 1,839 | 1,149 | 460 | 460 | 460 | 461 | 460 | 460 |
| New LNG Project | | | | - | - | - | - | - | - | 869 |
| 700 MW Coal IPP | | | | 394 | 4,743 | 4,743 | 4,743 | 4,756 | 4,466 | 3,321 |
| Engro LNG | | | | 3,128 | 3,120 | 3,120 | 2,880 | 1,892 | 918 | 1,208 |
| New Coal IPP | | | | | | | | | 2,234 | 2,234 |
| **Total** | **9,658** | **10,053** | **9,397** | **12,410** | **16,010** | **15,979** | **15,743** | **14,587** | **15,580** | **15,535** |
| | | | | | | | | | | |
| NTDC | 4817 | 4817 | 4817 | 2428 | | | | | | |
| Other External Purchases | 2987 | 3320 | 4739 | 4922 | 4603 | 5526 | 6693 | 8813 | 8789 | 9926 |
| | | | | | | | | | | |
| **Grand Total Units Sent Out** | **17,462** | **18,190** | **18,953** | **19,760** | **20,613** | **21,505** | **22,436** | **23,400** | **24,369** | **25,461** |
| | | | | | | | | | | |
| **Power Purchase Cost* (RS./kWh)** | | | | | | | | | | |
| | | | | | | | | | | |
| Fuel Cost/ Unit | 5.88 | 5.7 | 5.56 | 4.93 | 4.67 | 4.46 | 4.53 | 4.7 | 4.88 | 4.97 |
| O&M Cost/ Unit | 0.3 | 0.34 | 0.36 | 0.42 | 0.51 | 0.48 | 0.52 | 0.53 | 0.55 | 0.61 |
| Capacity Payment/ Unit ** | 1.81 | 2.29 | 2.84 | 3.7 | 4.44 | 5.36 | 5.51 | 5.62 | 5.47 | 5.79 |
| | | | | | | | | | | |

*Please note that these tariffs are based on certain set of assumptions and the actual tariff will be subject to NEPRA's determination in future and accordingly the actual power purchase cost will be passed through in tariff.**Capacity payment per unit rate is calculated at 100% dispatch factor.

44.2. Mr. Gilani on the issue suggested that there should be one Grid Company with one System Operator so that the country's resources are utilized in the most economical way.

44.3. The Authority has noted that with the aforementioned projections, the Petitioner's total sent out, including own generation, would increase to 25,461 GWh in FY 2025-26 from 17,462 GWh in FY 2016-17, thus an overall increase of around 46% has been assumed.

44.4. A careful review of the projections made by the Petitioner reveal that more reliance has been placed on purchases from external sources as compared to its own generation as unit sent outs from Petitioner's own generation have reduced from 9,658 GWh in the FY 2016-17 to 8,772 GWh in the FY 2025-26, despite induction of new capacity of around 450 MW. The external purchases, including future IPPs wherein the Petitioner is planning to make equity investments, are increasing from 7,804 GWh to 16,689 GWh by FY 2025-26 i.e. around 46%,



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despite the fact that purchases from NTDCL have been assumed to be discontinued by FY 2020.

44.5. With the aforementioned projections, the Petitioner's mix in terms of own generation vis a vis external purchases would change over the proposed tariff period as under;

| Units Sent out | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|---|---|---|
| Own Generation | 55% | 55% | 50% | 45% | 40% | 38% | 36% | 34% | 33% | 34% |
| Power Purchase | 45% | 45% | 50% | 55% | 60% | 62% | 64% | 66% | 67% | 66% |

44.6. Here it is pertinent to mention that Article XI (GOP Support) of the Implementation Agreement dated November 14, 2005, signed between the Petitioner and the GoP (Secretary, Ministry of Water & Power), provided that;

*"Subject to the Company's compliance with the Laws of Pakistan and upon submission of a request in writing from the Company to PPIB/NEPRA (to be made no later than the 3rd anniversary of the Completion Date), GOP shall facilitate the Company in its efforts to enhance its generation capacity by an amount of 1000 MW in excess of the maximum permitted capacity stated in the Generation License No. GL/04/2002 dated 18 November 2002 issued by NEPRA to the Company".*

44.7. As per the Petitioner's latest license modification-VI dated April 02, 2015, the Petitioner's de-rated capacity is 1,762.926 MW against 1,412 MW mentioned in the initial license dated November 18, 2002, meaning thereby that the Petitioner effectively added only around 351 MW in its own Generation Capacity over the period of 14 years. Thus, the Petitioner, in the past, relied more on power purchase from external sources rather than its own generation. The current projections of the Petitioner also seem to be in the same directions.

44.8. One of the reason for increased external purchases vis a vis own generation could have been the fuel price and power purchase adjustment mechanism prescribed in the previous MYT, whereby the Petitioner was allowed to retain the benefits occurring due to change in the mix. The adjustment mechanism was approved for the Petitioner as per the spirit of the MYT and the fact that no component of return was built in the tariff, it was allowed to retain the benefits of optimization of mix due to its weak financial health and high actual T&D losses of around 40% at the time of grant of MYT.

44.9. Considering the fact that a separate component of return has been allowed in the newly determined tariff, the Authority has decided to do away with the existing adjustment mechanism of fuel and power purchase cost variations and opted for the weighted average adjustment mechanism to the extent of variation in fuel price in the own generation as well as power purchase cost along-with variation in generation mix to pass on to the consumers.



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45. **Issue: What are the concerns of the Petitioner on the application of domestic tariff for Government office, educational institutions and religious institutes?**

46. **Issue: Whether the existing terms & conditions of consumer categories (including life line) are needed to be revised?**

46.1. The Petitioner submitted during the hearing that it is providing power to these consumers on domestic tariff in line with the terms and conditions of tariff and currently has no concerns on the same. However nothing has been stated regarding changing the terms & conditions of the life line consumers.

46.2. The Interveners KE Consumer Forum and Jamat-e-Islami Karachi through their further comments agreed to the revision of the existing terms and conditions of the consumer categories. On the point of application of domestic tariff, the Interveners proposed to have Uniform Policy, in consultation with relevant stakeholders, that should be economically beneficial to society.

46.3. The matter of changing terms and conditions of lifeline and residential consumers was raised by XWDISCOs in the tariff petition for the FY 2012-13 and the Authority took comments of all XWDISCOs on the matter during the tariff determination process for the FY 2013-14. Accordingly, the following modifications to the terms and conditions of lifeline and residential consumers were proposed;

- The criteria for Lifeline consumers is be modified and only those residential consumers having single phase electric connection with a limited sanctioned load up to 1 kW and consumption of less than 50 units should qualify to be the life line consumers.
- A floating average of six months consumption of lifeline consumers should not exceed 50 units.
- In case of detection billing under the category of lifeline consumers, 1 year average floating billing should be less than 50 units.
- All government offices, educational institutions and mosques should be removed from the category of residential consumers.

46.4. The Authority after completion of the consultative process and careful consideration decided to modify the Terms & Conditions to the extent of the following in the matter of XWDISCOs in their tariff determination for the FY 2015-16;

a. The criteria for Lifeline consumers is modified to include only those residential consumers having single phase electric connection with a sanctioned load up to 1 kW.



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b. At any point of time, if the floating average of last six months consumption exceed 50 units, then the said consumer would not be classified as life line for the billing month even if its consumption is less than 50 units. For the purpose of calculating floating average, the consumption charged as detection billing would also be included.

46.5. In order to be consistent with rest of the country the Authority has decided that in the matter of the Petitioner, the terms & conditions of lifeline consumers to modify to the extent as mentioned above.

46.6. The XWDISCOs in their tariff petitions also raised concerns regarding application of Domestic Tariff for the Government Offices, Educational Institutions and Mosques by submitting that as per the existing definition of domestic tariff defined in 'Terms and Conditions of Tariff', 'domestic tariff' includes Govt. offices, educational institutions (Private & Public Sector) and mosques. Consequently, these institutions are billed under the head of domestic tariff and enjoy facilities available for domestic consumers like lower rate for lifeline consumers & slab-benefits. The Authority held an independent hearing on the issue to deliberate and seek comments from all the DISCOs. In view thereof, the Authority in the matter of XWDISCOs in their tariff determination for the FY 2015-16, decided to create a New General Services Category by changing terms & conditions of the residential consumers and decided to restrict residential category as Residences and Places of worship, excluding thereby all government and other offices, educational institution. Thus, the consumer category A3 General services was created which included;

a. Approved charitable/religious institutions
b. Government and semi – Government Offices and institutions
c. Government Hospitals and dispensaries
d. Educational Institutions
e. Water supply schemes including water pumps and tube wells operating on three phase 400 volts other than those meant for the irrigation or reclamation of Agricultural land.

46.7. Accordingly, in the matter of the Petitioner the consumer category "A-3 General Services" has also been created which shall include the aforementioned consumers as has been done in the matter of XWDISCOs. The terms and conditions of the tariff are being amended accordingly. In addition to aforementioned, the Authority has issued NEPRA (Supply of Electric Power) Regulations, 2015, notified vide SRO No. 1134 (I)/2015 dated November 13, 2015 in line with that the Authority has introduced category J in the Petitioner schedule of tariff. Moreover, terms and conditions of the tariff of B-1 and B-2 consumer categories have also been amended.



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47. **Issue: What will be the mechanism for inter DISCO wheeling?**

47.1. The Petitioner on the issue submitted that currently there is no tie line between KE and any other DISCO for the mechanism of inter-DISCO wheeling and it will adhere to the guidelines given by NEPRA in future regarding inter-DISCO wheeling mechanism.

47.2. Keeping in view the aforementioned, a mechanism with respect to Inter Disco wheeling has been prescribed in the determination under the order part. Here it is pertinent to mention that the Authority has already issued NEPRA (Wheeling of Electric Power) Regulations, 2016 which have been notified vide SRO. 549(1)/2016 dated 13 June 2016.

48. **Issue: Whether the existing mechanism of calculating weighted average cost of furnace oil while working out the monthly / quarterly adjustments is justified?**

48.1. During the hearing, the Petitioner submitted that it calculates cost of furnace oil consumed based on moving weighted average where average price changes after each purchase transaction, whereas, NEPRA calculates the price based on periodic weighted average on monthly basis. Both the methods are acceptable for calculating the cost of consumption and NEPRA may continue with the method currently under practice.

48.2. The Interveners generally raised the concern that impact of low oil prices has not been passed on to the consumers. Further through their issue wise responses, KE Consumer Forum and Jamat-e-Islami opposed the Petitioner's current working of weighted average cost of FO.

48.3. On the point of passing on the impact of reduction in oil prices to the consumers, the Authority noted that the same has been passed on to the consumers through Authority's monthly FCA decisions, as per the adjustment mechanisms prescribed in existing MYT. However, the amount of FCA being passed on to the KE consumers is different vis a vis XWDISCOs, owing to difference in fuel costs references & mechanism.

48.4. Regarding mechanism of calculating weighted average cost of furnace oil, the Authority believes that either of the two approaches i.e. weighted average or moving weighted average method results in passing on the same cost of fuel to the consumers over a period of time. The temporary price difference between the two methods arises only due to the fact that in total weighted average method, currently being followed by the Authority, the impact of all purchases made during the month is accounted for, whereas in case of moving weighted average, impact of purchases made till the point of consumption are taken into account. The Authority therefore decides that it has been consistently using weighted average method and the therefore same shall be continued in future for working out the price of F.O. The Petitioner is hereby directed to apply the weighted average method for calculation of monthly F.O in its future adjustments to the Authority.



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49. **Issue: Whether the non-payment of interest on consumer's security deposits is justified?**

49.1. The Petitioner on the issue submitted that payment of interest on security deposits is not mandated by law as it is neither covered under the Companies Ordinance, 1984 nor NEPRA Act, 1997 read together with CSM, terms and condition of tariff and/or Electricity Act, 1910. Furthermore, no other DISCO/Telco or other utility in Pakistan is paying interest on security deposit. The Petitioner stated that in view thereof and in accordance with the approval of its Board of Directors in 2012, it discontinued payment of interest on security deposits to the consumers.

49.2. The Interveners Whistle Blower, KE Consumer Forum and Jamat-e-Islami, through their issue wise comments submitted that Security deposits be paid to the consumers as per past practice. Whistle Blower also mentioned that the Petitioner is not entitled to use the amount of security deposits for any other purpose, meaning thereby that the Petitioner must be depositing this amount in the bank and earning profit on this amount.

49.3. The Authority observed that in the matter of XWDISCOs, the amount of interest on bank deposits appearing in their financial statements is adjusted/ deducted while determining the consumer end tariff, thus effectively consumers are being passed on the benefit of interest on security deposits in the shape of lower determined tariff. Therefore, stance of the Petitioner that no other utility is paying interest on security deposits is not correct.

49.4. The Authority also noted that as per the available information provided by the Petitioner, amount of interest earned on Bank Deposits is reflected under the head of Other Income. As discussed in the preceding paragraphs under the issue of other income, the Authority has not adjusted the said amount while adjusting/ deducting the Other Income for base rate calculations of the Petitioner, unlike XWDISCOs where such amount is deducted. Therefore, to pass on the benefit of interest earned by the Petitioner on Consumers' Security Deposit, it is imperative that the Petitioner pays the same through individual bills to the consumers.

49.5. In view of the foregoing, the Authority while agreeing with the concerns of the Interveners, the fact that consumers in the matter of XWDISCOs are also being given the benefit of Interest on Bank Deposits, directs the Petitioner to pay interest on security deposits to the consumers henceforth through their bills.

50. **Issue: Whether any cap on power purchase be placed in relation to the new generation by the Petitioner's own resources?**

51. **Issue: Whether the planned purchases of K-Electric are in line with the competitive market regime (both generation and retail) being envisaged by NEPRA?**



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51.1. The Petitioner on the issue of cap on power purchase submitted that as a vertically integrated utility, it is pursuing a comprehensive investment strategy catering towards expansion, enhancement, and rehabilitation of all 3 of its core functions in a prudent manner. The Petitioner also mentioned that demand in its system is increasing at a fast rate and hence it is important that it not only expands its supply capacity but at the same time increase the transmission capacity and upgrade the distribution system for the smooth and uninterrupted supply of the generated power up to the consumer. Therefore it plans to invest Rs.496 billion over the next 10 years focusing on:

- Generation – Rs.203 Billion
- Transmission- RS.179 Billion
- Distribution- RS.108 Billion

51.2. The Petitioner also highlighted that all the proposed investment in generation cannot be raised on its own given the limited capital and borrowing capacity, therefore, it has embarked on a plan where it is working on expanding its generation portfolio by;

a. Projects on its own books-Investment of Rs.148 billion
b. Projects where it shall acquire partial equity and is directly involved in the development phase- Investment of Rs.14 billion.
c. Projects being developed by external developers as pure IPPs, where KE will provide bankable securities.

51.3. Regarding future plans of the Petitioner for competitive market regime, the Petitioner submitted that Pakistan has an evolving power market which needs to address several hurdles especially the significant shortfall in supply, before it moves towards a wholesale competitive market; accordingly it is willing and open to play its role in facilitating the development of a competitive market. The Petitioner further stated that for all the power purchases, NEPRA approves the Generation License (GL) and tariff and the GL approved by NEPRA already includes a condition for compliance with Competitive Trading Arrangement clause. Further, recently NEPRA has approved several generation projects with overall capacity of over 10,000 MW with similar conditions and having duration longer than or equal to 25 years. Accordingly, its business plan envisages that future power purchases will follow the same process of generation license and tariff approval with NEPRA.

51.4. Considering the recent developments in moving towards a Competitive Trading Bilateral Contract Market (CTBCM) which necessitated creation of CPPA-G as the Market Operator to facilitate for the establishment and functioning of a Single Buyer Plus (SBP) trading arrangement, the Authority considers that either to go for the own generation or purchase power from external sources, should be the Petitioner's own commercial decision with the



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objective of ensuring affordable and uninterrupted power supply to the consumers of its licensed territory. Here it is pertinent to mention that even if the Petitioner purchases electricity from external sources its tariff would be determined by the Authority in an IPP mode, therefore, the Petitioner will not charge any un-prudent cost from the consumers.

51.5. While appreciating willingness shown by the Petitioner to play its role in facilitating the development of the competitive market, the Authority directs the Petitioner to develop and share its plans/ recommendations regarding competitive market regime in consultation with CPPA-G within a period of two years.

52. **Issue: Whether the proposed category wise consumer end tariff is purely cost reflective?**

52.1. The Petitioner stated that it had submitted its cost of service study to NEPRA based on which schedule of tariff was based previously. Further, being a performance based tariff where only adjustments made to the schedule of tariffs are with respect to fuel prices (uncontrollable costs) and O&M (adjusted with CPI-X), the Petitioner submitted that the same schedule of tariff should continue.

52.2. Whistle Blower through its para wise comments mentioned that Tariff to be determined by NEPRA should be cost reflective and any Cost of Service study, if conducted earlier, should be provided to us and also be shared with all relevant stakeholders through NEPRA and K-Electric's websites.

52.3. The Authority has observed that the Petitioner did not provide its cost of service study with the MYT Petition, whereas, Rule 17 (ix) of the Rules 1998 states that;

*"tariffs should, to the extent feasible, reflect the full cost of service to consumer groups with similar service requirements;"*

52.4. Since the Petitioner has not submitted cost of services study along with the Petition, therefore the Authority is constrained to use its best judgment for development of the schedule of tariff of the Petitioner.

53. **Issue: Whether the current practice of the Petitioner to carry out load shedding, despite having sufficient own generation facilities, is justified?**

53.1. The petitioner, in its tariff petition, informed the Authority that it conducts load shed to bridge the demand supply gap and has a well thought and considered strategy of reward and reprimand. Industrial zone of its jurisdiction are exempt from load shedding as industrial consumers play an important role in terms of their contribution to Pakistan's tax base, exports, GDP and overall employment. The petitioner further explained that there had been unscheduled load shedding across the board due to consistent approach and application of



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the scheme, 61% of the city is now exempted from the load shedding and there is a growing acceptance that stealing of electricity and illegal abstraction of electricity is a menace which affects all consumers of Karachi equally.

53.2. The Petitioner submitted that as per its Segmented Load Shed (SLS) policy, it divides feeders on the basis of their loss profile determined by Aggregate Technical & Commercial (AT&C) loss in any particular area. High loss areas face up to 7.5hours of load shedding in summer months when demand is at peak whereas low loss areas face no load shedding. Furthermore the petitioner stated that it conducts a quarterly review process wherein it evaluates the AT&C loss of each area and profiles it as high or low loss respectively. Due to SLS scheme there has been a shift of several areas from high loss to low loss. The petitioner highlighted that Ministry of Water and Power has announced a segmented load shed policy in 2013 whereby areas with losses greater than 80% will face up to 18 hours of load shed. Ministry of Water and Power has formally approved it as part of National Power Policy 2013.

53.3. The Petitioner mentioned that currently, there is shortfall against peak demand in its system. The petitioner argued that the nameplate capacity of power plants should not be confused with available capacity as it is dependent on gas availability, ambient temperature, and availability of gas load, planned and unplanned outages, and force majeure. These factors play an important role in determining the available capacity at a certain period of time. The petitioner informed that it dispatches power as per the Economic Merit Order (EMO) from its own generation and imports from external sources in order to achieve lowest variable cost to end consumers as required under the provisions of NEPRA Act and License (Generation) Rules 2000.

53.4. The Authority after careful evaluation of the Petitioner's stance is of the view that its segmented load shed policy is inconsistent with the Authority's approved Performance standards in this regard. However keeping in view the fact that the same practice is being carried out throughout the country, the Authority has decided to address the issue in a separate proceedings to be initiated in due course of time. In the mean while the Authority, directs the petitioner to immediately start taking necessary measures such as completion of it Transmission projects, replacement of existing conductors/ cables with Aerial Bundled Cable (ABC), installation of AMR mechanism and prepaid meters etc. so as to reduce and gradually eliminate load shedding in city of Karachi within the next three years as incorporated in Authority's projections in the instant MYT.



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54. **Issue: Whether the forecasted addition of new connection (i.e. over 800,000 Nos.), demand in MW & Energy sale in GWh is justified? K-Electric may provide consumer category wise details in this regard.**

54.1. The petitioner, based on its projected load growth pattern, has estimated an addition of over 800,000 new connections with an aggregate load addition of 3,754MW in next 10 years i.e. from 2,482,128 in FY 2015 to 3,333,256 in FY 2026, as per the following category wise detail of new consumer additions;

| Customer Category | FY 15 | FY 26 |
|---|---|---|
| Residential & Commercial | 2,402,547 | 3,246,372 |
| Industrial | 64,993 | 68,531 |
| Public Sector Consumers | 14,588 | 18,352 |
| Total | 2,482,128 | 3,333,255 |

54.2. The Petitioner has projected its peak demand to increase from existing around 3200MW in FY 2016 to above 5200MW by FY 2026. The additions through new connections has been estimated on the basis of applications received and estimation of new load within that vicinity.

54.3. The petitioner also submitted that there is a major increase in residential category owing to mega residential housing schemes which are currently under development such as DHA city (application received for 100MW new load), Bahria Town Karachi (already contracted for 600MW new load), Textile city (expected new load of 50MW), Malir housing projects and Fazaia housing scheme. In addition there is also an aggregated demand of over 1000MW capacity required in existing areas for which new investments in generation, transmission and distribution will be required to accommodate the growing demand and to improve availability and reliability of electricity.

54.4. The petitioner also submitted that its projected Compound Average Growth Rate (CAGR) in terms of energy sales will stand at 4% over the next 10 years as identified in the following table:

| Existing sent out energy in FY 2015 | Expected sent out units in terms of Organic Growth in next 10 years | Expected sent out units in terms of new connections | Expected energy sales in FY 2026 |
|---|---|---|---|
| 16,111 GWH | 5,432 GWH | 3,919 GWH | 25,462 GWH |

54.5. The Authority, while assessing Petitioner's claim of 800,000 new consumers, noted that an increase of about 2,000 MW in demand is expected in next 10 years (3,200 MW in FY 2016 and 5,200 MW in FY 2026). The Petitioner over the last 5 years has consistently shown a growth of 5% per year in its power demand and in the instant petition, the Petitioner also



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claims the same pattern of 5% growth in power demand every year over next 10 years MYT period. However, over last few years it has showed approximately 3.3% growth. The Authority noted that in FY 2011, the Petitioner's total no. of consumers were 2,109,623 whereas in FY 2015 the number has increased to 2,482,128, showing an addition of 372,505 consumers, which translates to around 3% growth per year. The Authority notes that the same growth pattern of 3% has been followed by the Petitioner for the next 10-years resulting in addition of 800,000 consumers by FY 2026.

54.6. To cater for the projected growth, the Petitioner has planned investment of Rs.149,812 million in its transmission capacity, by adding 8 new grid stations having 1,000 MVA transformation capacity along with lying of 116 km of new allied transmission lines under Transmission Package TP-1 to be completed by FY 2018. Further, 1,500 MVA for expansion of existing Grid Stations will be executed under Transmission Package TP-2. The Authority observed that these transmission enhancement projects are supported by the Long Term Transmission Network Study conducted by Power Planner International (PPI). While reviewing the Study, the Authority, noted that the same is based on the analysis with three different scenarios which are (i) low forecast scenario (ii) normal forecast scenario and (iii) high forecast scenario.

54.7. Under normal forecast scenario a total number of 12 new grid stations (3 grids at 220 kV level and 9 grids at 132 kV level) having total transformation capacity of 2260 MVA (1500 MVA at 220 kV level and 760 MVA at 132 kV level) will be added in the next ten years. In addition a total of 1660 MVA (500 MVA at 220 kV level and 1160 MVA at 132 kV level) transformation capacity will be enhanced at existing 220 kV and 132 kV grid stations. A total of 693 KMs (237 KMs of 220 kV and 456 KMs of 132 kV) new transmission lines will be laid in next 10 years.

| A spot-year-wise breakup of the aforementioned figures is presented in the following table: **Spot Year** | **Addition of New Transformers at Existing Grids** | | **Addition of New Transmission Lines (km)** | | **New Grid Stations** | |
|---|---|---|---|---|---|---|
| | **220kV** | **132kV** | **220kV** | **132kV** | **220kV** | **132kV** |
| 2018-19 | 0 | 15 x 40 MVA | 53 | 264.32 | 2 x 250MVA (1 Grid) | 8 x 40MVA (4 Grids) |
| 2019-20 | 0 | 1 x 40 MVA | 0 | 64.71 | 0 | 0 |
| 2021-22 | 0 | 4 x 40 MVA | 0 | 25.9 | 0 | 0 |
| 2024-25 | 2 x 250 MVA | 9 x 40 MVA | 183.9 | 101.54 | 4 x 250MVA (2 Grids) | 11 x 40 MVA (5 Grids) |
| **TOTAL** | **500 MVA** | **1160 MVA** | **236.9** | **456.47** | **1500 MVA** | **760 MVA** |

54.8. Besides above, the Petitioner, in order to accommodate the future demand of 800,000 new consumers, plans to invest Rs.43,631 million in the distribution growth related projects which include addition of 1000 new 11 kV feeders and laying of 4,500 km of additional 11 kV power lines.

54.9. The Authority feels that above identified projects will cater for the future demand of 800,000 new consumers over the next 10 years. In view thereof, the submission of the petitioner is accepted by the Authority for the purpose of future planning which will help in reduction of the number of faults, improvement in HT/LT ratio up to the standard of 1:1.2, SAIFI, SAIDI, reduction in T&D losses and providing relief to existing transmission & distribution networks overloading.

55. **Issue: The Petitioner did not have control center to dispatch and control its generation facilities. What are the Petitioner's plans in this regard?**

55.1. The Petitioner during the hearing submitted that it has State of Art Control Centre which is equipped with SCADA system (Sinaut Spectrum Version 4.5.1) and the monitoring of entire Transmission Network and Generation is done from the control center. The Petitioner while responding to a query on Economic Merit Order (EMO), submitted that following EMO through control center in the present demand supply situation in the country is not possible and the SCADA system installed at the control room does not have the necessary facility for online monitoring and real time dispatch control system of power plants.

55.2. According to Grid Code, Scheduling & Dispatch of generation is performed by the system operator i.e. the Petitioner in the instant case. The Generation Scheduling sub code (SDC 1) defines the roles and responsibilities of the System Operator and Code Participants in the scheduling of available generation facilities. The Petitioner being a vertically integrated utility (VIU) dispatches its own power plants by itself.

55.3. Regarding Economic Merit Order, the Petitioner has always claimed that it is using SCADA (Supervisory Control and Data Acquisition) for carrying out the economic merit order dispatch. However, SCADA is primarily used for the acquisition of data which includes data from grid stations and the allied transmission lines. On the other hand economic merit order dispatch requires a dedicated software which takes into account the variable cost (fuel cost) on daily / hourly basis to operate the available power plants. It appears from the Petitioner's provided historic data (during working of fuel price adjustments for previous periods) that a general pattern of operation of power plants is being followed.

55.4. In order to ensure economic merit order, the Petitioner needs to submit the incremental and marginal cost curves along with system constraints list such as outages status, fuel shortage



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and power evacuation issues (in addition to economic merit order) to the Authority on regular basis.

55.5. Keeping in view the above, the Petitioner is directed to follow grid code strictly and to build a state of the art real time online dispatch, control and monitoring center having a dedicated software with the objective of determining the most efficient, low-cost and reliable operation of a power system by dispatching the available electricity generation resources to supply the load on the system so as to achieve the objective to minimize the total cost of generation.

56. **Issue: Whether the Petitioner has installed TOU meters and is charging its consumers on the basis of TOU rates?**

56.1. The Petitioner on the issue submitted during the hearing that it is charging industrial consumers on the basis of TOU rates whereas, for the residential and commercial consumers, it has shared its concerns with NEPRA and submitted a report with a detailed analysis to a committee formed for this purpose and decision from NEPRA is pending to date. The Petitioner submitted the following concerns during hearing;

a) Certain commercial entities work during the day and do not fall under the peak and off peak hours. Therefore there should be a way to exclude them from TOU tariff.

b) Implementation of TOU tariff should not impact the revenue of KE and hence KE suggests that a quarterly adjustment mechanism be developed to account for any increase/decrease in determined revenues of KE due to ToU implementation.

56.2. The Interveners Whistle Blower, KCCI and Mr. Bilvani showed their concerns regarding non-compliance of the Authority's directions in terms of installation of ToU meters by the Petitioner and requested NEPRA to penalize the Petitioner for non-adherence of the directions.

56.3. Here it is pertinent to mention that the Authority vide its MYT determination of 2009, approved the terms and conditions of KESCL whereby it was directed that;

- All existing consumers having sanctioned load of more than 5kW and above shall be provided ToU metering arrangement not later than June 30, 2011.
- All new consumers having sanctioned load of 5kW and above shall be provided ToU metering arrangement with effect from January 01, 2010.

56.4. Subsequently the Authority in its decision dated October 15, 2010 with respect to Motion for Leave for Review filed by KESCL extended the applicable dates for the installation of ToU meters to the following;



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- All existing consumers having sanctioned load of more than 5kW and above shall be provided ToU metering arrangement and shall charge on the basis of approved TOU rates not later than December 31, 2012.

- All new consumers having sanctioned load of 5kW and above shall be provided ToU metering arrangement and shall be charged with TOU rates with effect from July 01, 2010.

56.5. The Authority understands that the decision for implementation of ToU Meters was taken to enable the consumers to adjust their consumption patterns in order to reduce demand in the system during peak hours, however, despite Authority's clear directions, the Petitioner, in view of its foregoing concerns, has still not implemented the directions of the Authority.

56.6. The Authority also understands that due to concerns of the Petitioner regarding revenue loss and KE MYT being fixed for the 7 year tariff control period, the facility of availing TOU metering could not be extended to the consumers. Therefore, to address the concerns of the Interveners and the issue of loss of revenue as raised by the Petitioner, the Authority in the instant determination, has designed the Petitioner's tariff for each consumer category on the basis of the consumer mix and for peak and off-peak consumption figures as provided by the Petitioner, thus, the concern of the Petitioner for any loss of revenue arising due to ToU Meters has been catered for.

56.7. In view thereof, the Petitioner is directed that;

a. All existing consumers having sanctioned load of more than 5kW and above shall be provided ToU metering arrangement not later than December 31, 2017 and shall be billed on ToU rates.

b. All new consumers having sanctioned load of 5kW and above shall be provided ToU metering arrangement with immediate effect and shall be billed on ToU rates.

c. To start billing immediately on ToU rates to the consumer who have already been provided with ToU meters.

57. **Issue: What is the basis of amount being charged in respect of new connections by K-Electric from different categories of consumers?**

57.1. The Petitioner during hearing submitted that new connections costs are calculated as per prudent utility practices in accordance with NEPRA's consumer service manual chapters 2 & 5, and clause 3(3) NEPRA ECR 2003. The Petitioner also submitted that cost sharing policy was recently introduced in line with NEPRA directives communicated vide letter dated 05-



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04-16 and all the cost estimates are prepared in line with prudent utility practices and include cost of material (including meter), labor and transport, store and procurement, and supervision charges.

57.2. The Interveners Whistle Blower, K-Electric Consumer Forum and Representative Jamat-E-Islami Karachi, showed their serious concerns regarding charging of higher rate on new connection by the Petitioner and suggested that NEPRA should determine these rates, charges etc. for all DISCOs immediately.

57.3. The Authority observed that Chapter 5 of the Consumer Service Manual states;

57.4. **SECURITY DEPOSITS AND OTHER CONNECTION CHARGES**

**5.1 New Service Connection Charges**

*(a) "All service connection charges after sanction of a new connection, a demand notice for security deposit as per the rate approved by NEPRA and other connection charges as per provision made in Consumer Eligibility Criteria Regulations....."*

**Regulation 3 Part-II, Eligibility Criteria of the Consumer Eligibility Criteria notified vide S.R.O. 743 (I)/2003 dated 26th July, 2003** states that;

*"(3) All charges to be deposited by an applicant shall be estimated in accordance with the prudent utility practices, instructions issued by the licensee and orders of the Authority issued from time to time."*

57.5. The Authority observed that vide its determination dated December 02, 2010, it approved the Security Deposit rates for all classes of consumers. However, in respect of other connection charges, the Consumers Eligibility Criteria does not provide any specific rates rather it states the same to be in accordance with the prudent utility practices, instructions issued by the licensee and orders of the Authority issued from time to time.

57.6. The Authority further observed that XWDISCOs for the "other connections charges" under A1 and A2 categories rely upon the rates mentioned in WAPDA letters dated May 21, 1998 & July 1, 2002 and PEPCO letter dated September 03, 2009, where as K-Electric through its letter dated January 10, 2017 has submitted its document "New Connection Policy Directives, Guidelines and SOPs". The perusal of all the above mentioned documents reveal that different rates based on different criteria are being used for calculating other connection charges such as storage, supervision and installation etc. In view thereof, the Authority considers that the issue requires separate proceedings through consultation of relevant stakeholders so as to ensure equitable basis for charging of other connection charges from consumers all across the country. Till such time, K-Electric shall ensure that other connection



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charges pertaining to new connections to the prospective consumers are comparable with the XWDISCOs preferably LESCO.

58. **Issue: Overbilling, Detection Billing**

58.1. The Authority has received large number of complaints pertaining to incorrect meter reading and over billing. The Authority observed that in the matter of XWDISCOs, the Authority has directed to print the snapshot of meter reading on the electricity bills of the consumers not only to enhance the level of confidence of the consumers but also to create an effective quality check on the Meter Readers. The same measures shall be adopted by the Petitioner.

58.2. Further, the Petitioner with the option of Advance Metering System may also reduce its losses and increase its revenue collection. The effectiveness of such tools to detect and discourage theft and other ways of unmetered consumption has been enormous, as shown by the recent experience in developing countries (including the Dominican Republic, Honduras, and Brazil). This is particularly important considering the fact that the Petitioner issues huge numbers of bills in "Assessed Mode" and the same can be avoided by taking the said measures.

58.3. In furtherance to the above, the Authority in order to address consumers' complaints regarding detection billing, directs the Petitioner that while establishing the illegal abstractions of electricity, as defined in Section 9.1 (b) of the CSM, the Petitioner must strictly follow the procedure as defined in the CSM and if established, the detection billing for the unclaimed energy shall be served limited to the period of past three billing months or six months with the approval of CEO prior to the date of establishment of illegal abstraction.

58.4. It is also pertinent to mention that large number of complaints are being received regarding the metering issues. In case the Petitioner doubts the accuracy of any metering equipment, the Petitioner, in addition to its existing testing lab should also provide the facility of mobile testing laboratory having exactly calibrated equipment at the door step of the affected consumer to check the accuracy of the meter, in presence of the consumer (or its representative). The calibrated equipment should indicate the last calibration date of the testing equipment.

59. **Issue: What are the estimates of year wise improvements in the performance benchmarks of the petitioner considering the projected business plan and proposed investments? The petitioner may submit the detailed year-wise analysis regarding improvements in its performance standards (i.e. T&D losses, HT/LT ratio, overloading, SAIFI, SAIDI and etc.)**

59.1. The Petitioner during the hearing submitted that its current HT/LT ratio is 1:2, which it aims to improve to an optimum level over the control period of 10-years by relocating distribution transformers at load centers, addition/augmentation/splitting of distribution transformers,



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improving joints and connections at distribution level etc. In addition to this, the fault rates are expected to be reduced from 1.5/km to 0.6/km.

59.2. On the issue of overloading the petitioner submitted that out of 1,524 feeders, on an average only 15 feeders are overloaded above their rated capacity. Moving forward, it intends to add 1,000 new feeders over the control period, thereby reducing the overloading to negligible levels. The Petitioner provided the following improvements in its performance indices over the ten years period;

| Year | T&D Losses (%) | SAIFI (times) | SAIDI (minutes) |
|---|---|---|---|
| FY 2017 | 20.9 | 20 | 1169 |
| FY 2018 | 19.8 | 18 | 1087 |
| FY 2019 | 18.8 | 17 | 1006 |
| FY 2020 | 17.8 | 15 | 925 |
| FY 2021 | 16.8 | 14 | 842 |
| FY 2022 | 16.0 | 13 | 762 |
| FY 2023 | 15.4 | 11 | 686 |
| FY 2024 | 14.8 | 10 | 614 |
| FY 2025 | 14.3 | 9 | 546 |
| FY 2026 | 13.8 | 8.03 | 481 |

59.3. The Petitioner has proposed a comprehensive investment plan to reduce the number of faults, improve HT/LT ratio, SAIFI, SAIDI, and reduce T&D losses and relieve the existing network overloading situations and to cater for the future growth.

59.4. The Authority observed that at 132 kV grid stations, out of a total of 129 power transformers, 42 power transformers are overloaded above 80% of their rated capacity for which the Petitioner is planning to add 1660 MVA additional capacity at its existing 132 kV grid stations which will eliminate the factor of overloading of the transmission systems. The Authority also noted that at 11 kV level, out of a total of 1,524 feeders, 104 feeders are overloaded above 80% of their rated current carrying capacity for which it is planning to add 1000 new 11kV feeders having 4,500 KMs length over a period of 10-years. With the implementation of these projects, on one hand the overloading of existing 11 kV feeders will be eliminated and on the other hand future demand of additional 800,000 consumers will be catered for. The Authority understands that after implementation of these projects, the average length of 11kV feeders will improve to 5.4 KMs as compared to its existing average length of 6.1 KMs. Similarly, current HT/LT ratio of 1:2 which will also improve to 1:1.2 (the ratio of 1:1.2 is considered reasonable as per prudent utility practices) by undertaking procedural improvement measures in LT networks as proposed by the petitioner. In view thereof the Authority considers the Petitioner's aforementioned targets of SAFI and SAIDI improvements as reasonable. Regarding improvement in T&D losses the Authority has determined the yearly targets as mentioned below and also discussed under the relevant issue.



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59.5. The Authority while accepting the targets of SAFI and SAIDI expects the Petitioner to comply with the following future targets for achieving the standards bench marks;

i. Improve existing HT/LT ratio of 1:1.9 to 1:1.2 as per standard benchmark.

ii. Eliminate overloading of 42 power transformers at existing 132 kV grid stations by addition of 1660 MVA capacity of power transformers.

iii. Removal of overloading of 104 feeders at 11 kV level by undertaking procedural improvement measures in distribution networks.

iv. Achieve the following performance targets and losses:

| Description | Existing | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|
| SAIDI (Minutes) | 1330 | 1197 | 1077 | 970 | 873 | 785 | 707 | 636 |
| SAIFI (Nos.) | 22.21 | 20 | 18 | 17 | 15 | 14 | 13 | 11 |
| T&D Losses level (%) | 22.10 | 20.40 | 19.20 | 17.71 | 16.23 | 14.56 | 13.54 | 12.53 |

v. Time frame for new connection in terms of Overall Standard 3 of PSDR 2005 is as follows:

| S. # | Description | Time limit for issuance of demand notice after receipt of application | Time limit for provision of connection after payment of demand notice |
|---|---|---|---|
| 1 | For supply at voltage level up to 400 V and load up to 15 kW | 10 days | 20 days |
| 2 | For supply at voltage level up to 400 V and load above 15 kW but not exceeding 70 kW | 15 days | 38 days |
| 3 | For supply at voltage level up to 400 V and load above 70 kW but not exceeding 500 kW | 15 days | 58 days |
| 4 | For supply at voltage level up to 11 or 33 kV and load above 500 kW but not exceeding 5000 kW | 30 days | 76 days |
| 5 | For supply at voltage level 66 kV and above for all loads | 45 days | 451 days |

vi. Supply Restoration (in minutes) must be complied as per Guaranteed Standard 1 of PSDR 2005.

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59.6. **Complaints against KE for disconnection of electricity supply on account of underutilization of load**

59.6.1. The Authority on receipt of various complaints from industrial consumers regarding issuance of disconnection notices by the Petitioner on account of under-utilization of their sanctioned load, directed the Petitioner to refrain from disconnection of supply of all such consumers unless they are making payments of their bills and submit its comments/report in this regard.

59.6.2. During different monthly FCA hearings of K-Electric, the consumers apprised the Authority that despite issuance of interim restraining order, the Petitioner was still disconnecting the power supply of the consumers to whom the notices were issued.

59.6.3. Upon inquiry, the Petitioner failed to provide any cogent reason for non-compliance of the Authority's direction. Accordingly, the Authority directed the Petitioner that;

*"the KESCL shall not disconnect power supply to industrial consumers who have been issued notices of disconnection under section 20 of the Electricity Act 1910 read with chapters 8 and 14 of the Consumer Service Manual for underutilization of the sanctioned load and directs KESCL to restore power supply to all such consumers whose connections were disconnected after issuance of the Notices, within a period of three days, i.e. till March 15, 2012 unless these consumers were either defaulters for payments of their electricity dues or were involved in the theft of electricity".*

59.6.4. The aforementioned order of the Authority was challenged by the Petitioner in the High Court of Sindh vide Constitutional Petition (CP) No. D-956 of 2012, whereby the Honorable Court through interim order dated March 15, 2012 suspended the Authority's order to the extent of restoration of electric supply of already disconnected consumers. The industrial consumers, simultaneously, filed civil suits before the Honorable High Court of Sindh against the notices issued by the Petitioner, however, the matter was decided in favour of the Petitioner. The consumers approached the Honorable Supreme Court of Pakistan by filing Civil Petition No. 1546 of 2012. The honorable Supreme Court of Pakistan referred the matter back to the Honorable High Court of Sindh owing to already pending case filed by the Petitioner in C.P. No. D-956 of 2012 on similar grounds. The Honorable High Court of Sindh in its Judgment dated 23rd September 2015 in C.P. No. D-956 of 2012 decided that;

"*NEPRA shall proceed with the complaint pending with it and give its decision in accordance with law.*"

59.6.5. Pursuant to the Judgment of the Honorable High Court, the Authority conducted a hearing on 18th March 2016 at Karachi, which was attended by representatives of the Complainants and the Petitioner.



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59.6.6. The Authority after considering the submissions of the Petitioner and the complainants, during the hearing, established that action of the Petitioner with respect to issuance of notices to industrial consumers on account of under-utilization of sanctioned load and obtaining undertaking from them to utilize 50% of the load was illegal and in violation of the provisions of the NEPRA Act and applicable documents. Accordingly, the Petitioner was directed to refrain from issuing such notices & disconnection of supply and obtaining such undertaking(s) from its consumers, in future, based on the following grounds;

i. As per the provisions of the NEPRA Act and NEPRA Consumer Eligibility Criteria, 2003, it is the responsibility of the licensee to supply electricity within its service territory on a non-discriminatory basis to all such consumers who meet the eligibility criteria laid down by the Authority. The Petitioner failed to provide uninterrupted power supply to the consumers as per NEPRA standards which compelled the consumers to keep the option of self-generation for their industries. Had the Petitioner provided uninterrupted power supply to the industrial consumers, then its stance for issuance of notices would have been justified.

ii. When a consumer obtains a particular load of electricity sanctioned, this load basically represents total requirement of electricity which it intends to utilize. He, therefore, genuinely expects that the entire sanctioned load committed to it would be made available to him at all times for consumption. However, the Petitioner failed to fulfill its responsibilities and legal obligations.

iii. The industrial consumers, on account of irregular and unreliable supply of electricity over a long period of time, suffered production/business losses and decided to look for alternative source of energy. Setting up one's own power generation facility to supplement its energy needs may result in loss of revenue to the Petitioner, however, the loss so incurred is due to the Petitioner inability to meet the demand of its service territory. It was solely on account of the failure of the Petitioner to discharge its contractual as well as legal obligation that many consumers were constrained to seek uninterrupted power supply by setting up their own in-house generation facility.

iv. It was the prime responsibility of the Petitioner, as a licensee, to meet the ever increasing demand of energy anywhere in its service territory by increasing its generation and transmission capacity, so that the consumers may have full confidence in the supply system of the Petitioner. The consumers have the right to be supplied with reliable electric power to the extent of their sanctioned load by the Petitioner and the Petitioner is bound to maintain the requisite supply level. Under clause 4.1 of the NEPRA Consumer Eligibility Criteria, 2003 it is the duty and responsibility of the Petitioner to reinforce its distribution system within its service territory according to the demand of energy.

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v. It is beyond logic that a person would heavily invest in alternative source of energy and keep the most convenient source of energy on standby. However, the frequent interruptions which resulted in loss of business forced the consumer to look for alternative means. Mere committing a specified load to its consumers without ensuring reliable supply of energy is not sufficient to seek reciprocal commitment that a consumer would use the Petitioner's electricity as its primary source of energy. It is only when the requisite supply is made available at all times that the reciprocal commitment can be enforced.

59.6.7. The Petitioner against the aforementioned order of the Authority has filed a review on October 03, 2016, which is under process with the Authority. Till the finalization of the review, the Petitioner is directed to refrain from disconnecting supply of consumers due to under-utilization of their sanctioned load.

59.7. **Provision of Hook Connections by K-Electric Limited**

59.7.1. The Authority upon receipt of various complaints in 2013 regarding non provision of regular connections and excessive billing, directed the Petitioner to submit its response in the matter. The Petitioner submitted that the complainants are having Hook Connection (HC) as they were using electricity through hooks and never applied for new connection. The Petitioner further submitted that the complainants were issued difference of bills on the basis of connected load as they were using higher load than the sanctioned load.

59.7.2. The Authority during the proceedings noted with great concern that the Petitioner sanctioned the HCs by allotting consumer numbers against such connections and connected them with its system directly without installation of meters and fixed bills were being charged from such consumers on the basis of load. The Authority considering this practice in violation of tariff terms and conditions and Consumer Service Manual issued an explanation to the Petitioner on August 21, 2013 for violation of provisions of NEPRA Act, Rules & Regulations, Terms and Conditions of supply, license and applicable documents.

59.7.3. The Petitioner submitted its written response on September 05, 2013. A hearing opportunity was also provided to the Petitioner on November 18, 2013, which was held at Karachi.

59.7.4. After considering the submissions made by the Petitioner in writing and during the hearing, the Authority decided that Hook connection category introduced by the Petitioner is in violation of its tariff terms and conditions approved by the Authority.

59.7.5. Consequently following directions were given to the Petitioner vide the Authority decision dated February 27, 2014, to resolve the issue;



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i) Provision of hook connections be immediately stopped and in future connections be given in accordance with the prevailing rules/regulations.

ii) Existing hook connections be regularized within a period of three months by relaxing regular procedure/requirements. Charges for regularization of these hook connections (i.e. security deposit, cost of meter etc.) be recovered in easy installments of 12 to 24 months.

iii) An advertisement be made in print media by the Petitioner for information of general public to regularize their hook connections within a period of three months. Hook connections shall be disconnected/removed after the lapse of stipulated time period and legal proceedings be initiated against the delinquents who do not regularize their hook connections.

iv) No billing shall be made on account of hook connections after three months. The Petitioner shall depute mobile teams to visit the sites and take action on the spot for regularizations of hook connections.

v) An advertisement be made in print media by Consumer Affairs Division, NEPRA for information of general public mentioning that:

a) To regularize their hook connections within a period of three months.

b) Hook connection shall be disconnected/removed after three months and legal proceedings shall be initiated against the delinquents who do not regularize their hook connections.

c) In case of any problem in regularization of hook connections, the individual concerned may approach Consumer Affairs Department, NEPRA and file complaints against the Petitioner.

59.7.6. The Petitioner however challenged the aforementioned decision in the Honorable High Court of Sindh vide CP No. D-2843/2014, whereby the Honorable Court vide its order dated May 31, 2014 ordered that till next date of hearing no coercive action shall be taken by NEPRA against the Petitioner, thus the matter is still sub-judice. The matter will be decided in light of the final order of the Honorable Sindh High Court.

59.8. **Net Metering**

59.8.1. Government of Sindh in its comments to the Authority has requested to ensure net metering arrangement for the consumers of K-Electric. The Authority notes that it has already introduced net metering regime through its *NEPRA (Alternative and Renewable Energy) Distributed Generation and Net Metering Regulations, 2015* which are also applicable in the case of K-Electric. The Authority therefore directs the Petitioner to provide net metering



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arrangement to the consumers in accordance with the applicable provisions of the afore said Regulations.

60. The Order part along with all Annexures attached with this determination is intimated to the Federal Government for notification in the official gazette under Section 31(4) of the NEPRA Act.

61. **ORDER**

61.1. The Authority having heard the petitioner, Interveners, Commentators and perusal of the information/ record has re-determined K-Electric's Multi Year Tariff (MYT) comprising of three separate segments i.e. Generation, Transmission and Distribution in line with the articles of Licenses issued for the respective functions read with the Rule 17(3) (xiii) of the Tariff (Standards and Procedure) Rules, 1998. The segment-wise tariff so determined is indicated hereunder;

**K-Electric Tariff w.e.f. July 01, 2016**

| Tariff Components | Remarks | Rs./kWh | Remarks | Rs./kWh |
|---|---|---|---|---|
| Generation | At Bus Bar | 7.6271 | At Units Sold Basis | 9.5817 |
| Transmission | At Transmission Sent Outs | 0.4729 | At Units Sold Basis | 0.5864 |
| Distribution | At Units Sold | 1.3622 | At Units Sold Basis | 1.3622 |
| Base Rate Adjustment Component | | | At Units Sold Basis | 0.5389 |
| Tariff applicable w.e.f. July 01, 2016 | | | At Units Sold Basis | 12.0692 |

I. K-Electric is allowed to charge tariff from its consumers as indicated in the schedule of tariff attached as Annex -V to this determination.

II. The period for the Multi Year Tariff shall be of seven years applicable from July 01, 2016 till June 30, 2023.

III. The consumer end tariff shall be subject to the following adjustments;

- The fuel cost component of KE's own generation power plants shall be adjusted in accordance with the mechanism attached herewith as Annex-II.
- The Power Purchase Cost component shall be adjusted in accordance with the mechanism attached herewith as Annex-III.
- The actual payments in respect of WWF and WPPF to the IPPs shall be considered as pass through and shall be adjusted on yearly basis upon production of verifiable documentary evidence.



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- The O&M, Depreciation, RORB, Other Income and base rate adjustment components shall be adjusted in accordance with the mechanism attached herewith as Annex-IV.

IV. The following flat thermal efficiencies and heat rates (Net HHV) for K-Electric's own existing generation fleet have been determined, for the Tariff Control Period;

| Plant Name | Heat Rate (Net HHV) | Efficiency (net HHV) |
|---|---|---|
| **Bin Qasim-I** | | |
| Bin Qasim-I | 10,802 | 31.59% |
| Bin Qasim-II | 10,650 | 32.04% |
| Bin Qasim-III | 10,996 | 31.03% |
| Bin Qasim-IV | 10,899 | 31.31% |
| Bin Qasim-V | 10,304 | 33.11% |
| Bin Qasim-VI | 10,249 | 33.29% |
| **KCCP** | 7,952 | 42.91% |
| **BQPS-II** | 7,991 | 42.70% |
| **SGTPS** | 8,492 | 40.18% |
| **KGTPS** | 8,482 | 40.23% |

V. The following auxiliary consumption of gross capacity at mean site conditions have been allowed, for the Tariff Control Period;

| Plant Description | Installed Capacity at ISO | Gross Capacity at mean site | Approved Net Capacity at mean site | Auxilary Consumption of gross Capacity |
|---|---|---|---|---|
| | MW | MW | MW | % |
| **Bin Qasim Power Station (BQPS 1):** | | | | |
| Unit 1 | 210.00 | 200.00 | 183.78 | 8.11 |
| Unit 2 | 210.00 | 200.00 | 184.00 | 8.00 |
| Unit 3 | 210.00 | 200.00 | 183.50 | 8.25 |
| Unit 4 | 210.00 | 200.00 | 183.64 | 8.18 |
| Unit 5 | 210.00 | 200.00 | 184.50 | 7.75 |
| Unit 6 | 210.00 | 200.00 | 184.58 | 7.71 |
| **Sub-Total** | **1,260.00** | **1,200.00** | **1,104.00** | **8.00** |
| **Korangi 220 MW CCPP:** | | | | |
| Unit-1-4 Gas Turbine of 48.38 MW each | 193.50 | 187.70 | | |
| Unit-5 Steam Turbine | 26.50 | 25.70 | | |
| Unit-6 Steam Turbine (New addition) | 27.50 | 26.70 | | |
| **Sub-Total** | **247.50** | **240.10** | **223.49** | **6.92** |
| **Gas Engines at Korangi Town:** | | | | |
| 32 Gas engines of 3.041 MW each | 97.31 | 87.65 | | |
| Unit 33 Steam Turbine (New addition) | 10.00 | 9.57 | | |
| **Sub-Total** | **107.31** | **97.21** | **94.78** | **2.50** |
| **Gas Engines at SITE:** | | | | |
| 32 Gas engines of 3.041 MW each | 97.31 | 87.65 | | |
| Unit 33 Steam Turbine (New addition) | 10.00 | 9.57 | | |
| **Sub-Total** | **107.31** | **97.21** | **94.78** | **2.50** |
| **Bin Qasim New CCPP (BQPS 2):** | | | | |
| Unit-1-3 Gas Turbine each of 127.8 MW | 383.40 | 347.10 | | |
| Unit-4 Steam Turbine | 189.27 | 181.30 | | |
| **Sub-Total** | **572.67** | **528.40** | **496.11** | **6.11** |
| **Total** | **2,294.79** | **2,162.92** | **2,013.16** | |



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VI. In case K-Electric decides to lease out any of its existing power plants or Units including Unit 3 and 4 of BQPS-I, before expiry of their useful life, the indexed tariff components for the said plant or Unit i.e. O&M, Depreciation and RoRB components shall be adjusted from the tariff prevalent at the time of leasing out of such power plant/ unit. The O&M, Depreciation and RoRB components in terms of unit 3 & 4 of BQPS-I included in the tariff to be applicable from July 01, 2016 are Rs.0.0361/kWh, Rs.0.0260/kWh and Rs. 0.0220/kWh respectively.

VII. The heat rates of BQPS-II have been determined on the basis of heat rates guaranteed by the EPC contractor. K-Electric is directed to conduct performance test (Capacity and heat rate) of BQPS-II and submit the same to the Authority for approval. The adjustment in heat rate will be made only if the heat rate in the test is found lower than the allowed heat rate. Similarly adjustment in capacity will be made only if the actual capacity pursuant to the performance test is found to be higher than the reference approved capacity.

VIII. For the upcoming power plants or replacement of existing power plants/units, the Petitioner shall perform Capacity and Heat Rate tests in a transparent manner by a reputable Independent Engineer in the presence of NEPRA professionals at the time of commissioning for the Authority's approval. Till approval of performance test results by the Authority, adjustment in the fuel cost component for the upcoming and replaced power plants shall be allowed based on the heat rates as guaranteed by the EPC contractor subject to adjustment. The adjustment in heat rate will be made only if the heat rate in the test is found lower than the heat rates guaranteed by the EPC contractor. Similarly adjustment in capacity will be made only if the actual capacity pursuant to the performance test is found to be higher than the capacity guaranteed by the EPC contractor. The replacement would mean installation of new power plant/ unit (which as per existing fleet includes but not limited to, turbines, engines etc.) in place of existing power plant/ unit with over all higher net thermal efficiencies.

IX. For the upcoming power plants or replacement of existing power plants/units, no adjustment in tariff except to the extent of Heat rates and Auxiliaries shall be made.

X. K-Electric is directed to obtain approval of the Authority for future power acquisition along-with the rates and other terms and conditions for purchase of power from external sources. K-Electric shall not be allowed any adjustment in tariff on account of power purchase cost variation in respect of those power sources for which prior approval of the Authority has not been obtained. For this purpose K-Electric shall submit its request for power acquisition along-with the rationale and relevant documents.

XI. The cost of WWF/WWPF related to K-Electric shall be allowed as pass through cost on actual basis subject to provision of verifiable documentary evidence for adjustment on yearly basis to be recovered in the next ye



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XII. K-Electric has not been allowed any provision on account of the Doubtful debts in the tariff, however, Bad Debts written off @ 1.78% of the Petitioner assessed sales revenue has been allowed in the base case. For the purpose of actual write offs in future, K-Electric shall complete the following procedures;

- The connection has to be permanently disconnected for more than 3 years and due process of law as per the Land Revenue Act has been followed.
- The amount to be written off shall be duly approved by the Board of Directors (BOD) of the Petitioner.
- The amount of write off shall be duly supported with the details pertaining to the name & address of the premises/consumers, CNIC etc.

XIII. K-Electric has not been allowed the impact of Revaluation on its Regulatory Assets Base while working out the Depreciation charges and Return on Rate Base.

XIV. Other Income, excluding the impact of Late Payment charges (LPC), Interest on Bank Deposits and Meter Rent, has been deducted from the base case assessment.

XV. K-Electric shall pay interest earned on security deposits to the consumers through electricity bills.

XVI. K-Electric shall not charge bank collection charges from the consumers separately in their bills.

XVII. K-Electric is directed to stop charging of meter rent in future from those consumers who pay their cost of meter. In case of any meter replacement, owing to fault of consumers, the matter shall be dealt with as per the relevant provisions of the CSM.

XVIII. K-Electric is hereby allowed a total investment of Rs.237,631 million for the seven years tariff control period for its Generation, Transmission and Distribution Systems as given hereunder;

| Investment Allowed | |
|---|---|
| **Function** | **Rs. In Million** |
| Generation | 48,190 |
| Transmission | 115,775 |
| Distribution | 69,466 |
| Others | 4,200 |
| **Total** | **237,631** |

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XIX. K-Electric shall place relevant documentary record of its additional investment decisions on its official website for information of the consumers.

XX. Neither the Investments proposed by K-Electric in associate companies nor any return thereof has been considered in the tariff.

XXI. A midterm review to the extent of allowed Investments only shall be carried out, after completion of four years of the tariff control period, and in case of under performance by K-Electric, the base rate adjustment component shall be adjusted through a mechanism which would be prescribed by the Authority.

XXII. K-Electric has been allowed the following target of T&D losses during the tariff control period;

| | Tariff Control Period | | | | | | |
|---|---|---|---|---|---|---|---|
| FY | 1st Year | 2nd Year | 3rd Year | 4th Year | 5thYear | 6th Year | 7th Year |
| Allowed T&D Losses (%) | 20.40 | 19.20 | 17.71 | 16.23 | 14.56 | 13.54 | 12.53 |

XXIII. Profit Claw Back Mechanism shall become applicable, if the regulated EBIT of K-Electric exceeds the following thresholds in the respective year and shall be determined as prescribed in the Annex-VII.

| Tariff Control Period | | | | | | |
|---|---|---|---|---|---|---|
| 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year |
| 16.75% | 13.44% | 11.33% | 12.93% | 12.90% | 12.57% | 13.15% |

XXIV. The X-Factor shall be applicable as lower of 2% or 30% of change in CPI for the Generation and Transmission functions and lower of 3% or 30% of change in CPI for the Distribution function.

XXV. Terms and Conditions of supply of K-Electric have been modified in line with the terms and conditions of supply for XWDISCOs as prescribed in Annex-VI.

XXVI. The issue of new connection charges shall be decided through separate proceedings with consultation of all the relevant stakeholders. Till such time K-Electric shall ensure that other connection charges pertaining to new connections to the prospective consumers are comparable with the XWDISCOs preferably LESCO.

XXVII. The Authority may review the tariff applicable to each class of consumers for rationalization or modification from time to time as deemed appropriate, in such a manner that the overall rate would remain the same.



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XXVIII. K-Electric shall ensure that;

a. All existing consumers having sanctioned load of more than 5kW and above shall be provided ToU metering arrangement not later than December 31, 2017 and shall be billed on ToU rates.

b. All new consumers having sanctioned load of 5kW and above shall be provided ToU metering arrangement with immediate effect and shall be billed on ToU rates.

c. To start billing immediately on ToU rates to the consumer who have already been provided with ToU meters.

XXIX. Reference CPI for allowing future CPI-X indexations is 205.99 as on May 31, 2016.

XXX. Furnace oil price of Rs.27,744/Metric Ton has been assumed to work out the Fuel cost component of K-Electric's own power plants.

XXXI. Gas price has been assumed as Rs.613/mmbtu.

XXXII. For the power purchase cost (Fuel, O&M and Capacity charges), the actual cost for the month of June, 2016 has been taken as reference.

XXXIII. Any corporate tax liability to the extent of current tax paid (without the impact of deferred tax impact) would be treated as pass through and shall be allowed through adjustment in the tariff.

XXXIV. All components of the tariff shall be adjusted with yearly target of T&D losses.

XXXV. K-Electric is allowed to charge the users of its system a "Use of system charge" (UOSC) equal to:

i) Where 220kV, 132 kV and 66kV system is involved;

$$UOSC = TM(Gross) \times \frac{(1-L)}{(1-0.013)} \quad Paisa/kWh$$

ii) Where only 11 kV distribution systems is involved;

$$UOSC = DM(Gross) \times \frac{(1-L)}{(1-0.062)} \times \text{AFA(D)} \quad Paisa/kWh$$

iii) Where Transmission Network along with 11 kV distribution systems are involved;

$$UOSC = TM + DM(Gross) \times \frac{(1-L)}{(1-0.075)} \times \text{AFA(TD)} \quad Paisa/kWh$$

Where;



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Gross Transmission Margin for FY 2016-17 is set at Rs. 0.5864/kWh to be adjusted on respective year regulatory assessments.

Gross Distribution Margin for FY 2016-17 is set at Rs. 1.6682/kWh (without taking the impact of other income) to be adjusted on respective year regulatory assessments.

Gross Transmission & Distribution Margin for FY 2016-17 is set at Rs.2.2546/kWh (without excluding impact of other income) to be adjusted on respective year regulatory assessments

'L' is the overall percentage loss assessment for the respective year.

AFA (D) = Adjustment factor for assets at 11 kV level i.e. 42%.

AFA (TD) =Adjustment factor for assets at Transmission Network along with 11 kV level i.e. 67%.

XXXVI. The Petitioner shall be obligated for adjustment/ recovery of any /all amounts in respect of matters currently pending in the courts or with the Authority or arising out in future pertaining to previous MYT determination /decisions of the Authority. The Authority in such cases shall prescribe the method of recovery/adjustment of such costs /claims based on its decision in the matter.

XXXVII. The Petitioner is directed to provide net metering arrangement to the consumers in accordance with the applicable provisions of *NEPRA (Alternative and Renewable Energy) Distributed Generation and Net Metering Regulations, 2015.*

XXXVIII. No adjustment on account of variation in KIBOR and LIBOR shall be allowed to K-Electric during the tariff control period.

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**The summary of directions;**

1. To stop charging bill collection charges separately from the consumers in future.

2. To pay interest on security deposits to the consumers through their bills in future.

3. To stop charging of meter rent in future from those consumers who pay their cost of meter

4. To provide following information regarding 253 MW Korangi Power Complex dual fuel plant i.e. Gas/ RLNG and Furnace Oil within 30 days of the issuance of instant MYT determination:

   v. Make, Model & Type of Technology.

   vi. OEM and EPC guaranteed figures for net LHV flat thermal efficiency (at mean site conditions) on pipeline quality gas, RLNG, HSD (if applicable) and furnace oil based simple and combined cycle mode of operation.

   vii. OEM and EPC guaranteed figures for net capacity along with auxiliary consumption (at mean site conditions) on pipeline quality gas, RLNG, HSD (if applicable) and furnace oil based simple and combined cycle mode of operation.

   viii. Clear time lines regarding COD on open cycle and on combined cycle mode.

5. The following with regards to 253 MW Korangi Power Complex dual fuel plant i.e. Gas/ RLNG and Furnace Oil;

   iii. File LPM in due course before the Authority for inclusion of the 253 MW Korangi Power Complex dual fuel plant i.e. Gas/ RLNG and Furnace Oil.

   iv. Perform performance (Capacity and Heat Rate) test by a reputable Independent Engineer in the presence of NEPRA professionals at the time of commissioning of 253 MW Korangi power plant. The net capacity and fuel cost component may be subject to revision on the basis of actual capacity and heat rates established as a result of performance test. Therefore, it is very important that the tests are conducted and supervised transparently by the specialists of International repute in this field.

6. To apply the weighted average method for calculation of monthly F.O in its future adjustments to the Authority.

7. To develop and share its plans/ recommendations regarding competitive market regime in consultation with CPPA-G within a period of two years.



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8. To follow grid code strictly and to build a state of the art real time online dispatch, control and monitoring center having a dedicated software with the objective of determining the most efficient, low-cost and reliable operation of a power system by dispatching the available electricity generation resources to supply the load on the system so as to achieve the objective to minimize the total cost of generation.

9. To comply following directions regarding ToU;

    d. All existing consumers having sanctioned load of more than 5kW and above shall be provided ToU metering arrangement not later than December 31, 2017 and shall be billed on ToU rates.

    e. All new consumers having sanctioned load of 5kW and above shall be provided ToU metering arrangement with immediate effect and shall be billed on ToU rates.

    f. To start billing immediately on ToU rates to the consumer who have already been provided with ToU meters.

10. In case of doubts about the accuracy of any metering equipment, the Petitioner, in addition to its existing testing lab should also provide the facility of mobile testing laboratory having exactly calibrated equipment at the door step of the affected consumer to check the accuracy of the meter, in presence of the consumer (or its representative). The calibrated equipment should indicate the last calibration date of the testing equipment.

11. Till the finalization of the review, the Petitioner is directed to refrain from disconnecting supply of consumers due to under-utilization of their sanctioned load.

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*Detial of Tariff FY 2016-17*

| Description | Unit | FY 17 | | |
|---|---|---|---|---|
| | | *Mln. Rs.* | *Rs. /kWh (Unit Sent Out)* | *Rs. /kWh (Unit Sold)* |
| **GENERATION** | | | | |
| K.E System | [GWh] | 9,005 | | |
| Power Purchase | [GWh] | 2,934 | | |
| NTDC | [GWh] | 5,409 | | |
| | [GWh] | **17,348** | | |
| **Fuel Cost** | | | | |
| K.E System | | 49,689.04 | 2.8643 | **3.5983** |
| Power Purchase (IPPs, etc.) | | 17,703 | 1.0204 | **1.2820** |
| CPPA-G | | 21,790 | 1.2561 | **1.5780** |
| | | **89,182** | **5.1408** | **6.4583** |
| **Generation O&M** | | | | |
| K.E System | | 5,727 | 0.3301 | **0.4147** |
| Power Purchase (IPPs, etc.) | | 7,538 | 0.4345 | **0.5459** |
| CPPA-G | | 13,478 | 0.7769 | **0.9760** |
| | | **26,743** | **1.5416** | **1.9366** |
| Depreciation | | 3,840 | **0.2213** | **0.2781** |
| RORB | | **12,549** | **0.7234** | **0.9088** |
| **Generation Total** | | **132,313** | **7.6271** | **9.5817** |
| **TRANSMISSION** | | | | |
| Units Purchased | [GWh] | 17,348 | | |
| Transmission Loss (%) | | 1.3% | | |
| Units Lost | [GWh] | 226 | | |
| Units Sent Out | [GWh] | **17,122** | | |
| O&M | | **2,923** | **0.1707** | **0.2117** |
| Depreciation | | 1,360 | **0.0795** | **0.0985** |
| RORB | | 3,815 | **0.2228** | **0.2762** |
| **Transmission Total** | | **8,098** | **0.4729** | **0.5864** |
| **DISTRIBUTION** | | | | |
| Units Purchased | [GWh] | 17,122 | | |
| Distribution Loss (%) | | 19.35% | | |
| Units Lost | [GWh] | 3,313 | | |
| Units Sent/Sold | [GWh] | **13,809** | | |
| O&M | | 15,600 | 1.1297 | 1.1297 |
| Bad Debts | | **2,923** | 0.2117 | 0.2117 |
| Depreciation | | **2,175** | 0.1575 | 0.1575 |
| Other Income | | (4,227) | (0.3061) | (0.3061) |
| RORB | | **2,338** | 0.1693 | 0.1693 |
| **Distribution Total** | | **18,810** | **1.3622** | **1.3622** |
| Base Rate Adjustment Component | | *7,442* | | *0.5389* |
| Avg. Sale Rate | | **166,663** | | **12.0692** |

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## MECHANISM FOR ADJUSTMENT IN TARIFF DUE TO VARIATION IN FUEL PRICE

1. The fuel cost component of tariff of KE's own generation power plants f shall be adjusted due to change in fuel prices, generation mix and volume. KE shall be allowed adjustment in this tariff component on monthly and quarterly basis.

### Adjustments on Monthly Basis

2. The change in KE own generation's fuel cost component due to variation in fuel prices, generation mix and volume shall be passed on to the consumers of KE directly in their monthly bills in the form of Fuel Charges Adjustment ("FCA"). Following steps shall be followed to calculate these variations;

i. The monthly fuel cost of each power plant/unit (on each fuel in case of dual fuel power stations) in KE's own generation system will be calculated based on actual units generated based on the target of heat rates and auxiliary consumption, approved by the Authority, as per the following formula;

$$CoF = (GBB \times HR \times FP_{(CM)})$$

| | | |
|---|---|---|
| CoF | = | Cost of Fuel of each power station/unit in Million Rupees |
| GBB | = | Generation at Bus Bar of power station after its approved auxiliary consumption expressed in GWh |
| HR | = | The approved heat rate for each power station/unit in BTUs/kWh at Bus Bar. |
| $FP_{(CM)}$ | = | Price of fuels for the current month converted into Rs./BTUs. The price of gas as notified by the relevant Authority shall be used. In case of deregulated fuels, the prices shall be verified from the documentary evidences to be submitted by KE. The conversion in BTUs shall be made based on calorific value approved by the Authority. For the determined fuel component in this tariff determination, the furnace oil and gas prices of Rs, 27,744/Metric ton and Rs. 613/MMBTu respectively have been used as reference. Calorific value of 40,351 BTUs/kg for furnace oil has been used. |

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Note: For dual fuel power plants/units, total fuel cost shall be calculated totaling the cost of energy generated on each fuel.

ii. The fuel cost of each power station shall be totaled to arrive at monthly fuel cost of KE's whole generation fleet.

$$TCoF_{(WG)} = CoF1 + CoF2 + CoF3 \ldots\ldots CoF_N$$

| | | |
|---|---|---|
| $TCoF_{(WG)}$ | = | Total Cost of Fuel in Million Rupees of whole generation fleet of KE |
| COF1 | = | Cost of Fuel in Million Rupees of 1st power plant/unit |
| COF2 | = | Cost of Fuel in Million Rupees of 2nd power plant/unit |
| COF3 | = | Cost of Fuel in Million Rupees of 3rd power plant/unit |
| $CoF_N$ | = | Cost of Fuel in Million Rupees of Nth power plant/unit |

iii. The weighted average fuel cost shall be worked out by dividing the total fuel cost of whole generation fleet of KE with the total units sent out (both own generation and power purchases) by KE in that month.

$$WAFC_{(WG)} = TCoF_{(WG)} / TUSO$$

| | | |
|---|---|---|
| $WAFC_{(WG)}$ | = | Weighted Average Fuel cost of KE's whole generation fleet in Rs./kWh |
| $TCoF_{(WG)}$ | = | Total Cost of Fuel in Million Rupees of whole generation fleet of KE |
| TUSO | = | Total Units Sent Out based on targeted auxiliaries (KE's own generation + Power Purchases) in GWh |

iv. The computed monthly weighted average cost shall be compared with the reference weighted average cost to compute monthly FCA portion of change in KE own generation's fuel component. The formula is produced below;

$$FCA(OG) = \{WAFC_{(WG)(CM)} - WAFC_{(WG)(RM)}\}$$

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| | | |
|---|---|---|
| FCA(OG) | = | The required Increase/ (Decrease) in Rs./kWh in fuel cost component of KE's own generation for the current month over the last month of the previous quarter to be reflected in the monthly bills of consumers as part of Fuel Charges Adjustment. |
| $WAFC_{(CM)}^{(WG)}$ | = | Weighted Average Fuel cost of KE's whole generation fleet of the Current Month in Rs./kWh |
| $WAFC_{(RM)}^{(WG)}$ | = | Weighted Average Fuel cost of KE's whole generation fleet of the Reference Month in Rs./kWh |

v. For the purpose of above adjustment the Current Month would mean the month for which adjustment is required and the Reference Month would mean the last month of the preceding quarter.

vi. For the purpose of adjustment for the months from July 01, 2016 to September, 2016, the determined fuel cost component of Rs.2.8643/kWh, calculated on total units sent out basis, shall be used as reference.

vii. The generation at Bus bar for each power station/unit shall be worked out after subtracting the auxiliary consumption, set by the Authority, from the gross generation for each generating unit/power station.

viii. The price of furnace oil shall be worked out on the basis of monthly weighted average method taking into account the opening stock, monthly purchases and closing stock. The price of gas as notified by the relevant Authority shall be used to calculate the cost and corresponding variations. In case of other fuels, the costs and variations shall be computed using prices that are either notified by the relevant Authority or based on the documentary evidences submitted by KE.

ix. In case it is not possible to calculate energy on each fuel for the dual fuel power stations then the energy generated shall be worked out based on proportionate BTUs consumed (based on Authority's benchmark calorific value) of each fuel.

The calorific value of furnace oil has been set as 40,351 BTUs/Kg. No variations in the calorific value shall be allowed on actual basis during the tariff control period. The calorific value of other fuels shall be approved by the Authority before allowing variation thereon.

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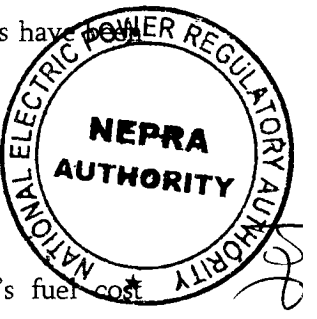
xi. K-Electric shall submit its monthly adjustment request with in seven days following the current month. The request shall be submitted on a prescribed format as provided in this Mechanism. KE shall submit the following information/data for verification.

- Complete monthly data showing plant/unit wise gross generation, actual auxiliary consumption, fuel consumption, installed capacity, de-rated capacity, plant availability, power dispatched and system demand data.
- Fuel stock position (opening and closing), Furnace Oil/Gas/Other Fuels purchased during a month along with duly verified copies of purchase orders.
- KE shall be obligated to provide any additional information, if required, during the processing of the relevant adjustment request.

xii. The approved monthly FCA shall be notified by the Authority and shall be charged in the month intimated by the Authority in the respective monthly FCA decision. The determined FCA shall be charged on the basis of units consumed by each consumer in the month for which it is calculated.

xiii. K-Electric in its FCA request shall certify that data provided is accurate and plants have been operated following economic despatch.




**Adjustment on quarterly basis.**

xiv. The impact of monthly variations in Million Rupees in KE own generation's fuel cost component to the extent of targeted T&D losses, not taken into account in the monthly FCAs, shall be adjusted on quarterly basis, i.e. approved respective monthly FCA times the total units sent out multiplied by the allowed level of T&D losses. The impact of these variations shall be worked out based on targeted units to be sold in the next quarter and shall be adjusted in the Schedule of Tariff of KE. Upon recovery of the allowed variations, this impact shall be reversed in the next quarterly adjustment.

xv. Furthermore, in order to bring KE's tariff on current level of fuel prices, the KE own generation's fuel cost component shall be adjusted at the price level of last month of each quarter. The weighted average fuel cost of last month of quarter under consideration shall be

compared with the weighted average fuel cost of reference month of last quarter to work out this impact. The resultant variations in terms of Rs./kWh shall be adjusted in the SOT of KE. For the purpose of adjustment for the quarter July 01, 2016 to September, 2016, the fuel cost component of Rs./kWh, calculated on units sold basis, shall be used as reference.

xvi. The determined fuel cost component shall also be adjusted with the target of yearly T&D losses while making the adjustment for the quarter April-June every year.

xvii. The aforesaid quarterly adjustments shall be made in the consumer end tariff using following yearly target of T&D losses;

| FY | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|
| Loss Reduction (%) | 22.10 | 20.40 | 19.20 | 17.71 | 16.23 | 14.56 | 13.54 | 12.53 |

xviii. K-Electric shall submit the quarterly adjustment request within fifteen days (15), following the last month of each quarter.

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## MECHANISM FOR ADJUSTMENT OF FUEL PRICE VARIATIONS

| Generation on Gas, F.O and Others at Bus Bar | Unit | Reference month | Current Month |
|---|---|---|---|
| Bin Qasim Power Station Unit-I<br>Bin Qasim Power Station Unit-II<br>Bin Qasim Power Station Unit-III<br>Bin Qasim Power Station Unit-IV<br>Bin Qasim Power Station Unit-V<br>Bin Qasim Power Station Unit-VI<br>Korangi Gas Turbine Power Station<br>SITE Gas Turbine Power Station<br>Bin Qasim Power Station-II CCPP<br>Korangi Combined Cycle Power Station<br>New Power Station(s) | GWh | | |
| **Total** | | | |
| **Price of Fuel** | | | |
| Gas | (Rs/MMBTu) | | |
| Furnace | (Rs/M.Ton) | | |
| Others | | | |
| | | | |
| **Approved Heat Rates at Bus Bar-Gas, F.O, Others** | | | |
| Bin Qasim Power Station-I<br>Bin Qasim Power Station Unit-II<br>Bin Qasim Power Station Unit-III<br>Bin Qasim Power Station Unit-IV<br>Bin Qasim Power Station Unit-V<br>Bin Qasim Power Station Unit-VI<br>Korangi Gas Turbine Power Station<br>SITE Gas Turbine Power Station<br>Bin Qasim Power Station-II CCPP<br>Korangi Combined Cycle Power Station<br>New Power Station(s) | BTU/kWh | | |
| **Cost of Fuels (Gas, F.O, Total , Others)**<br>Bin Qasim Power Station-I<br>Bin Qasim Power Station Unit-II<br>Bin Qasim Power Station Unit-III<br>Bin Qasim Power Station Unit-IV<br>Bin Qasim Power Station Unit-V<br>Bin Qasim Power Station Unit-VI<br>Korangi Gas Turbine Power Station<br>SITE Gas Turbine Power Station<br>Bin Qasim Power Station-II CCPP<br>Korangi Combined Cycle Power Station<br>New Power Station(s) | Mln Rs. | | |
| **Total Cost of Fuel** | Mln Rs. | | |
| Weighted Average Cost- Current Month | Rs./kWh | | |
| Less Weighted Average Cost- Reference Month | Rs./kWh | | |
| **Required Increase/Decrease- KE's Own Generation** | Rs./kWh | | |

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Annex-III

## MECHANISM FOR ADJUSTMENT IN TARIFF DUE TO VARIATION IN POWER PURCHASE PRICE ("PPP")

1. This mechanism shall be applicable to make adjustments in the PPP component of KE's tariff due to variation in fuel prices, energy mix, inflation, exchange rate etc. on monthly and quarterly basis.

### Adjustment on Monthly Basis

2. The change in the fuel component of PPP due to variation in fuel prices and energy mix shall be passed on to the consumers of KE directly in their monthly bills in the form of FCA. Following steps shall be followed to calculate these variations;

i. The actual fuel cost of each power station/source, determined/approved by the Authority, shall be totaled to arrive at monthly total fuel cost of all the power stations.

$$TCoF_{(WPPP)} = CoF1 + CoF2 \ldots\ldots CFN$$

| | | |
|---|---|---|
| $TCoF_{(WPPP)}$ | = | Total Cost of Fuel in Million Rupees of all external generation sources |
| COF1 | = | Cost of Fuel in Million Rupees of 1st power plant/unit |
| COF2 | = | Cost of Fuel in Million Rupees of 2nd power plant/unit |
| COFN | = | Cost of Fuel in Million Rupees of Nth power plant/unit |

ii. The weighted average fuel cost of the PPP shall be worked out by dividing the total fuel cost with the total units sent out (both own generation and power purchases) by KE in that month.

WAFC (WG) = TCoF (WG) / TUSO

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| | | |
|---|---|---|
| $WAFC_{(WPPP)}$ | = | Weighted Average Fuel cost of all external generation sources in Rs./kWh |
| $TCoF_{(WPPP)}$ | = | Total Cost of Fuel in Million Rupees of all external generation sources |
| TUSO | = | Total targeted Units Sent Out (KE's own generation+ Power Purchases) in GWh |

iii. The computed monthly weighted average fuel cost shall be compared with the reference weighted average fuel cost to compute the PPP fuel component part of FCA. The formula is produced below;

$$FCA\text{-}PPP = \{WAFC_{(WPPP)(CM)} - WAFC_{(WPPP)(RM)}\}$$

| | | |
|---|---|---|
| FCA-PPP | = | The required Increase/ (Decrease) in PPP's fuel cost component for the current month over the reference month to be reflected in the monthly bills of consumers as part of Fuel Charges Adjustment. |
| $WAFC_{(WPPP)(CM)}$ | = | Weighted Average Fuel cost component of PPP of the Current Month |
| $WAFC_{(WPPP)(RM)}$ | = | Weighted Average Fuel cost component of PPP of the Reference Month |

iv. For the purpose of above adjustment, the Current Month would mean the month for which adjustment is required and the Reference Month would mean the last month of the preceding quarter. For the purpose of adjustment for the months from July 01, 2016 to September, 2016, the fuel cost component of PPP of Rs. 2.2765/kWh, calculated on units sent out basis, shall be used as reference.

v. The monthly adjustment shall be restricted to the fuel component of PPP and shall be passed on to the consumers as part of FCA in accordance with the above formula.

vi. K-Electric shall, within seven days following the Current Month, request for FCA to compensate for variations in fuel component of PPP. The request shall be submitted on a prescribed format as provided in this Mechanism.

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vii. KE shall submit the following information/data for verification.

- Complete monthly data showing power purchased in GWh, installed capacity, de-rated capacity, plant availability, power dispatched and system demand data.
- Duly verified copies of invoices raised by each external source of power along with duly verified copies of their purchase orders/bill stickers.
- K-Electric shall also provide separate workings/indexations for all the tariff components along with the applicable currency exchange rate, US CPI etc. in accordance with approved determination/power purchase agreement.
- KE shall be directed for the provision of any additional information, if required, during the processing of relevant adjustment request

viii. The approved monthly FCA shall be notified by the Authority and shall be charged in the month intimated by the Authority in the respective monthly decision. The determined FCA shall be charged on the basis of units consumed by each consumer in the month for which FCA is calculated.

**Adjustment on quarterly basis.**

ix. The impact of monthly variations in Million Rupees in fuel cost component of PPP to the extent of targeted T&D losses, not taken into account in the monthly FCAs, shall be adjusted on quarterly basis. The impact of these variations shall be worked out based on targeted units to be sold in the next quarter and shall be adjusted in the SoT of KE. Upon recovery of the allowed variations, this impact shall be reversed.

x. In addition, the monthly variations in Million Rupees in the variable O&M and fixed costs, as allowed by the Authority, shall be adjusted on quarterly basis using weighted average method on targeted units sold basis. The impact of these variations shall be worked out based on targeted units to be sold in the next quarter and shall be adjusted in the SoT of KE. Upon recovery of the allowed variations, this impact shall be reversed. For the purpose of these adjustments for the quarter July 01, 2016 to September, 2016, the O&M and capacity charges components of Rs. 1.5219/kWh, calculated on units sold basis, shall be used as reference.

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xi. Furthermore, in order to bring KE's tariff on current level of prices, each cost component of PPP shall be adjusted at the price level of last month of each quarter. The total weighted average PPP of last month of quarter under consideration shall be compared with the total weighted average PPP of reference month of the last quarter to work out this impact. For the purpose of these adjustments for the quarter July 01, 2016 to September, 2016, the PPP of Rs. 4.3819/kWh, calculated on units sold basis, shall be used as reference.

xii. The determined PPP component shall also be adjusted with the target of yearly T&D losses while making the adjustments for the quarter April-June every year.

xiii. The net quarterly variation in the power purchase cost (Fuel + Fixed part) shall be adjusted in the consumer end tariff based on the following yearly target of T&D losses.

| FY | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|
| Loss Reduction (%) | 22.10 | 20.40 | 19.20 | 17.71 | 16.23 | 14.56 | 13.54 | 12.53 |

xiv. K-Electric shall submit the quarterly adjustment request within fifteen days (15), following the last month of each quarter. K-Electric shall be entitled to monthly/quarterly adjustment of PPP only from such sources whose tariffs are determined/approved by the Authority. The approved tariff of wind/solar power projects shall only be allowed variations on quarterly basis.

xv. The actual payments in respect of WWF and WPPF to the IPPs shall be considered as pass through and shall be adjusted on yearly basis upon production of verifiable documentary evidences. Upon recovery of the same, the impact of these items shall be reversed.

xvi. For the purpose of above adjustment the Current Quarter would mean the quarter for which adjustment is required and the Reference Quarter would mean the quarter preceding the Current Quarter.

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xvii. The approved quarterly adjustment in tariff along with the revised schedule of tariff shall be sent to GoP for notification.

## MECHANISM FOR CALCULATIONS OF POWER PURCHASE COST VARIATIONS

| Generation at Bus Bar | Unit | Reference month | Current Month |
|---|---|---|---|
| Tapal<br>Gul Ahmed<br>NTDC<br>KANUPP<br>PASMIC<br>Others | GWh | | |
| **Total** | | | |
| | | | |
| **Rate of Power Purchase** | **Unit** | **Last month** | **Current Month** |
| Tapal<br>Gul Ahmed<br>NTDC<br>KANUPP<br>PASMIC<br>Others | Rs./ kWh | | |
| **Total** | | | |
| | | | |
| **Total Cost of Power Purchase** | | | |
| Tapal<br>Gul Ahmed<br>NTDC<br>KANUPP<br>PASMIC<br>Others | Mln. Rs. | | |
| | | | |
| Weighted Average Cost- Current Month | Rs./kWh | | |
| Weighted Average Cost- Reference Month | Rs./kWh | | |
| **Required Increase/Decrease in the consumer end tariff** | Rs./kWh | | |

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## MECHANISM FOR ADJUSTMENT OF O&M, BAD DEBTS, BASE RATE ADJUSTMENT COMPONENT, OTHER INCOME, DEPRECIATION AND RETURN COMPONENTS

1. This mechanism shall be applicable to make adjustments in the O&M cost components of KE's tariff. The breakup of approved O&M cost components for the generation, transmission and distribution segments adjusted for FY 2016-17 of KE is indicated in the following table;

**TABLE - I**

| O&M Component | Symbol | Component (Rs/kWh) |
|---|---|---|
| (1) | (2) | (3) |
| Generation owned by K-Electric | Go | 0.4147 |
| Transmission | To | 0.2117 |
| Distribution | Do | 1.1297 |
| **Total Rate** | | **1.7561** |

2. The productivity/efficiency factor (X factor) for future years as applicable to O&M component relating to each segment of generation, transmission and distribution will be;

X factor = lower of 2% or 30% of change in CPI for Generation & Transmission functions and lower of 3% or 30% of change in CPI for Distribution function

3. The O&M component of each segment (Generation, Transmission and Distribution) of Tariff shall be varied to the extent of the change in CPI as per the following formula;

$$OM_I = OMo * \{1 + ((C_{PN}-C_{PO})/C_{PO}) - X \text{ factor})\}$$

OMI = Revised O&M Component of each segment

OMo = Reference O&M Component of each segment

CPN = New CPI (CPI General as notified by the Pakistan Bureau of Statistics for the month of May each year)

CPO = Reference CPI (CPI General as notified by the Pakistan Bureau of Statistics for the month of May of the previous year)

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X = Respective efficiency factor, for the concerned component as per Para 2

4. For the purpose of initial indexation falling due on July 01, 2017 the new CPI will be that of May 2017, the previous O&M components of the tariff shall be as indicated in Table-1 above and the previous CPI shall be that of May, 2016 i.e. 205.99 as notified by the Federal Bureau of Statistics (FBS).

5. The above tabulated O&M components have been adjusted with T&D losses of 20.40% applicable for the financial year 2017. These components, after making aforesaid indexation, shall also be adjusted with yearly losses, as targeted in this determination. The formula for adjustment on new losses shall be as follows;

$$OM_{ADJ} = OM_I * (1-TL_{(PY)})/ (1-TL_{(NY)})$$

$OM_{ADJ}$ = Adjusted O&M Component to be applicable in the next year of each segment

$OM_I$ = Revised O&M Component of each segment

$TL_{(PY)}$ = Target of Losses in the Previous Year

$TL_{(NY)}$ = Target of Losses in the Next Year

6. The adjusted O&M components of tariff resulting from application of CPI indexation and loss adjustment applicable from July 01, 2017 shall become the reference O&M component for application of indexation on July 01, 2018. The CPI as of May, 2017 shall become the previous CPI and the new CPI shall be that of May, 2018 for applying indexation on July 01, 2017. The same procedure will be repeated for the subsequent yearly indexation.

7. The aforesaid variation in the O&M components of tariff i.e. Generation, Transmission & distribution shall be aggregated to form the resulting variation in average sale rate that shall be applied to all categories of consumers.

8. The determined Return, Base Rate Adjustment, Other Income, Bad Debt and Depreciation components of the tariff of KE shall remain fixed throughout the control period, except for adjustment with the yearly target of T&D losses.

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Annex-V

# SCHEDULE OF ELECTRICITY TARIFF
## FOR K-ELECTRIC LIMITED
## DETERMINED FOR THE FY 2016-17

## A-1 GENERAL SUPPLY TARIFF - RESIDENTIAL

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh | |
|---|---|---|---|---|
| a) | For Sanctioned load less than 5 kW | | | |
| i | Up to 50 Units | - | | 4.00 |
| | For Consumption exceeding 50 Units | | | |
| ii | 1- 100 Units | - | | 10.10 |
| iii | 101- 200 Units | - | | 11.35 |
| iv | 201- 300 Units | - | | 12.10 |
| v | 301- 700 Units | - | | 13.10 |
| vi | Above 700 Units | - | | 14.45 |
| b) | For Sanctioned load 5 kW & above | | | |
| | | | Peak | Off-Peak |
| | Time Of Use | - | 14.45 | 12.60 |

As per decision of the Authority, residential consumers will be given benefit of only one previous slab.
Consumption exceeding 50 units but not exceeding 100 units will be charged under the 1-100 slab.
Under tariff A-1, there shall be minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single Phase Connections: Rs. 75/- per consumer per month
b) Three Phase Connections: Rs. 150/- per consumer per month

## A-2 GENERAL SUPPLY TARIFF - COMMERCIAL

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh | |
|---|---|---|---|---|
| a) | For Sanctioned load less than 5 kW | | | 12.40 |
| b) | For Sanctioned load 5 kW & above | 400.00 | | 12.60 |
| | | | Peak | Off-Peak |
| c) | Time Of Use | 400.00 | 14.45 | 11.30 |

Under tariff A-2, there shall be minimum monthly charges at the following rates even if no energy is consumed.

a) Single Phase Connections; Rs. 175/- per consumer per month
b) Three Phase Connections: Rs. 350/- per consumer per month

## A-3 GENERAL SERVICES

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh |
|---|---|---|---|
| a) | General Services | - | 12.50 |

Under tariff A-3, there shall be minimum monthly charges at the following rates even if no energy is consumed.

a) Single Phase Connections; Rs. 175/- per consumer per month
b) Three Phase Connections: Rs. 350/- per consumer per month

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## B INDUSTRIAL SUPPLY TARIFFS

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh | |
|---|---|---|---|---|
| B1 | Upto 25 kW (at 400/230 Volts) | - | | 12.45 |
| B2(a) | 25-500 kW (at 400 Volts) | 400.00 | | 10.70 |
| B3(a) | For all loads upto 5000 KW (at 11,33 kV) | 380.00 | | 10.20 |
| B4(a) | For all loads upto 5000 KW (at 66,132 kV) | 360.00 | | 9.40 |
| | Time Of Use | | Peak | Off-Peak |
| B1(b) | Upto 25 kW (at 400/230 Volts) | - | 14.45 | 10.20 |
| B2(b) | 25-500 kW (at 400 Volts) | 400.00 | 14.45 | 10.30 |
| B3(b) | For All Loads up to 5000 kW (at 11,33 kV) | 380.00 | 14.45 | 9.35 |
| B4(b) | For All Loads (at 66,132 kV & above) | 360.00 | 14.45 | 8.65 |
| B5 | For All Loads (at 220 kV & above) | 340.00 | 14.45 | 8.00 |

For B1 consumers there shall be a fixed minimum charge of Rs. 350 per month.
For B2 consumers there shall be a fixed minimum charge of Rs. 2,000 per month.
For B3 consumers there shall be a fixed minimum charge of Rs. 50,000 per month.
For B4 consumers there shall be a fixed minimum charge of Rs. 500,000 per month.
For B5 consumers there shall be a fixed minimum charge of Rs. 1000,000 per month.

## C - SINGLE-POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh | |
|---|---|---|---|---|
| C -1 | For supply at 400/230 Volts | | | |
| a) | Sanctioned load less than 5 kW | - | | 12.65 |
| b) | Sanctioned load 5 kW & up to 500 kW | 400.00 | | 11.70 |
| C -2(a) | For supply at 11,33 kV up to and including 5000 kW | 380.00 | | 10.70 |
| C -3(a) | For supply at 132 and above, up to and including 5000 kW | 360.00 | | 10.40 |
| | Time Of Use | | Peak | Off-Peak |
| C -1(c) | For supply at 400/230 Volts 5 kW & up to 500 kW | 400.00 | 14.45 | 10.30 |
| C -2(b) | For supply at 11,33 kV up to and including 5000 kW | 380.00 | 14.45 | 9.35 |
| C -3(b) | For supply at 132 kV up to and including 5000 kW | 360.00 | 14.45 | 8.65 |

## D - AGRICULTURE TARIFF

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh | |
|---|---|---|---|---|
| D-1 | For all Loads | 200.00 | | 10.50 |
| | Time of Use | | Peak | Off-Peak |
| D-2 | For all Loads | 200.00 | 14.45 | 9.35 |

Note:- The consumers having sanctioned load less than 5 kW can opt for TOU metering.

## E - TEMPORARY SUPPLY TARIFFS

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh |
|---|---|---|---|
| E-1(i) | Residential Supply | - | 14.00 |
| E-1(ii) | Commercial Supply | - | 14.00 |
| E-2 (i) | Industrial Supply | - | 14.00 |
| E-2 (ii) | Bulk Supply | | |
| | (a) at 400 Volts | - | 14.00 |
| | (b) at 11 kV | | 14.00 |

For the categories of E-1(i&ii) and E-2 (I&ii) above, the minimum bill of the consumers shall be Rs. 50/- per day subject to a minimum of Rs.500/- for the entire period of supply, even if no energy is consumed.

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## F - SEASONAL INDUSTRIAL SUPPLY TARIFF

125% of relevant industrial tariff

**Note:**

*Tariff-F consumers will have the option to convert to Regular Tariff and vice versa. This option can be exercised at the time of a new connection or at the beginning of the season. Once exercised , the option remains in force for at least one year.*

## G- PUBLIC LIGHTING

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh |
|---|---|---|---|
| | Street Lighting | - | 12.00 |

Under Tariff G, there shall be a minimum monthly charge of Rs.500/- per month per kW of lamp capacity installed.

## H - RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh |
|---|---|---|---|
| | Residential Colonies attached to industrial premises | - | 12.00 |

## J - SPECIAL CONTRACTS UNDER NEPRA (SUPPLY OF POWER) REGULATIONS 2015

| Sr. No. | TARIFF CATEGORY / PARTICULARS | FIXED CHARGES Rs/kW/M | VARIABLE CHARGES Rs/kWh | |
|---|---|---|---|---|
| J -1 | For supply at 66 kV & above and having sanctioned load of 20MW & above | 360.00 | | 10.40 |
| J-2 | | | | |
| (a) | For supply at 11,33 kV | 380.00 | | 10.70 |
| (b) | For supply at 66 kV & above | 360.00 | | 10.40 |
| J-3 | | | | |
| (a) | For supply at 11,33 kV | 380.00 | | 10.70 |
| (b) | For supply at 66 kV & above | 360.00 | | 10.40 |
| | Time Of Use | | Peak | Off-Peak |
| J -1(b) | For supply at 66 kV & above and having sanctioned load of 20MW & above | 360.00 | 14.45 | 8.65 |
| J-2 (c) | For supply at 11,33 kV | 380.00 | 14.45 | 9.35 |
| J-2 (d) | For supply at 66 kV & above | 360.00 | 14.45 | 8.65 |
| J-3 (c) | For supply at 11,33 kV | 380.00 | 14.45 | 9.35 |
| J-3 (d) | For supply at 66 kV & above | 360.00 | 14.45 | 8.65 |

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## TERMS AND CONDITIONS OF TARIFF
## (FOR SUPPLY OF POWER SPECIFIC TO EACH CONSUMER CATEGORY)

### PART-I

### GENERAL DEFINITIONS

The Company, for the purposes of these terms and conditions means K-Electric engaged in the business of distribution of electricity within the territory mentioned in the licence granted to it for this purpose.

1. "Month or Billing Period", unless otherwise defined for any particular tariff category, means a billing month of 30 days or less reckoned from the date of last meter reading.
2. "Minimum Charge", means a charge to recover the costs for providing customer service to consumers even if no energy is consumed during the month.
3. "Fixed Charge" means the part of sale rate in a two-part tariff to be recovered on the basis of "Billing Demand" in kilowatt on monthly basis.
4. "Billing Demand" means the highest of maximum demand recorded in a month except in the case of agriculture tariff D2 where "Billing Demand" shall mean the sanctioned load.
5. "Variable Charge" means the sale rate per kilowatt-hour (kWh) as a single rate or part of a two-part tariff applicable to the actual kWh consumed by the consumer during a billing period.
6. "Maximum Demand" where applicable, means the maximum of the demand obtained in any month measured over successive periods each of 30 minutes' duration except in the case of consumption related to Arc Furnaces, where "Maximum Demand" shall mean the maximum of the demand obtained in any month measured over successive periods each of 15 minutes' duration.
7. "Sanctioned Load" where applicable means the load in kilowatt as applied for by the consumer and allowed/authorized by the Company for usage by the consumer.
8. "Power Factor" means the ratio of kWh to KVAh recorded during the month or the ratio of kWh to the square root of sum of square of kWh and kVARh,.
9. Point of supply means metering point where electricity is delivered to the consumer.
10. Peak and Off Peak hours for the application of Time Of Use (TOU) Tariff shall be the following time periods in a day:

| | * PEAK TIMING | OFF-PEAK TIMING |
|---|---|---|
| April to October (inclusive) | 6.30 PM to 10.30 PM | Remaining 20 hours of the day |
| November to March (inclusive) | 6.00 PM to 10.00 PM | -do- |

* To be duly adjusted in case of day light time saving

11. "Supply", means the supply for single-phase/three-phase appliances inclusive of both general and motive loads subject to the conditions that in case of connected or sanctioned load exceeding 4 kW supply shall be given at three-phase.
12. "Consumer" means a person of his successor-in-interest as defined under Section 2(iv) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).
13. "Charitable Institution" means an institution, which works for the general welfare of the public on no profit basis and is registered with the Federal or Provincial Government as such and has been issued tax exemption certificate by Federal Board of Revenue (FBR).





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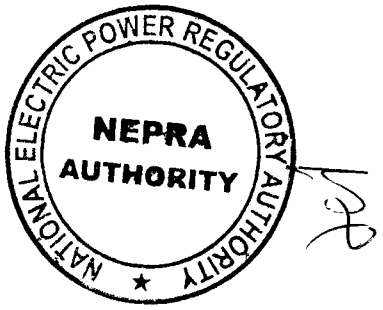
14. NTDCL means the National Transmission and Dispatch Company Limited.
15. CPPA(G) means Central Power Purchasing Agency Guarantee Limited (CPPA)(G).
16. The "Authority" means "The National Electric Power Regulatory Authority (NEPRA)" constituted under the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

## GENERAL CONDITIONS

1. "The Company shall render bills to the consumers on a monthly basis or less on the specific request of a consumer for payment by the due date.
2. The Company shall ensure that bills are delivered to consumers at least seven days before the due date. If any bill is not paid by the consumer in full within the due date, a Late Payment Charge of 10% (ten percent) shall be levied on the amount billed excluding Govt. tax and duties etc. In case bill is not served at least seven days before the due date then late payment surcharge will be levied after 7th day from the date of delivery of bill.
3. The supply provided to the consumers shall not be available for resale.
4. In the case of two-part tariff average Power Factor of a consumer at the point of supply shall not be less than 90%. In the event of the said Power factor falling below 90%, the consumer shall pay a penalty of two percent increase in the fixed charges determined with reference to maximum demand during the month corresponding to one percent decrease in the power factor below 90%.



## PART-II

**(Definitions and Conditions for supply of power specific to each consumer category)**

### A-1 RESIDENTIAL

**Definition**

"Life Line Consumer" means those residential consumers having single phase electric connection with a sanctioned load up to 1 kW.

At any point of time, if the floating average of last six months' consumption exceed 50 units, then the said consumer would not be classified as life line for the billing month even if its consumption is less than 50 units. For the purpose of calculating floating average, the consumption charged as detection billing would also be included.

1. This Tariff is applicable for supply to;

   i) Residences,
   ii) Places of worship,

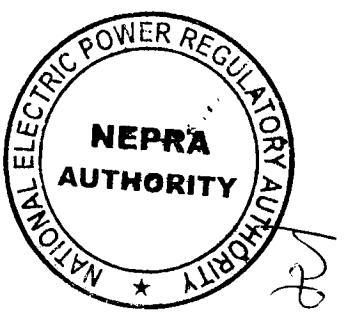
2. Consumers having sanctioned load less than 5 kW shall be billed on single-part kWh rate i.e. A-1(a) tariff.
3. All new consumers having sanctioned load 5 kW and above shall be provided T.O.U metering arrangement and shall be billed on the basis of tariff A-1(b) as set out in the Schedule of Tariff.
4. All existing consumers having sanctioned load 5 kW and above shall be provided T.O.U metering arrangement and converted to A- 1(b) Tariff by the Company.

### A-2 COMMERCIAL

1. This tariff is applicable for supply to commercial offices and commercial establishments such as:

   i) Shops,
   ii) Hotels and Restaurants,
   iii) Petrol Pumps and Service Stations,
   iv) Compressed Natural Gas filling stations,
   v) Private Hospitals/Clinics/Dispensaries,
   vi) Places of Entertainment, Cinemas, Theaters, Clubs;
   vii) Guest Houses/Rest Houses,
   viii) Office of Lawyers, Solicitors, Law Associates and Consultants, All Private Offices etc.

2. Consumers under tariff A-2 having sanctioned load of less than 5 kW shall be billed under a Single-Part kWh rate A-2(a).
3. All existing consumers under tariff A-2 having sanctioned load 5 kW and above shall be billed on A-2(b) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff A-2(c).
4. All new connections having load requirement 5 kW and above shall be provided T.O.U meters and shall be billed under tariff A-2(c).



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## A-3 GENERAL SERVICES

1. This tariff is applicable to;

   i. Approved religious and charitable institutions
   ii. Government and Semi-Government offices and Institutions
   iii. Government Hospitals and dispensaries
   iv. Educational institutions
   v. Water Supply schemes including water pumps and tube wells operating on three phase 400 volts other than those meant for the irrigation or reclamation of Agriculture land.

1. Consumers under General Services (A-3) shall be billed on single-part kWh rate i.e. A-3(a) tariff.

## B INDUSTRIAL SUPPLY

**Definitions**

1. "Industrial Supply" means the supply for bona fide industrial purposes in factories including the supply required for the offices and for normal working of the industry.
2. For the purposes of application of this tariff an "Industry" means a bona fide undertaking or establishment engaged in manufacturing, value addition and/or processing of goods.
3. This Tariff shall also be available for consumers having single-metering arrangement such as;

   i) Poultry Farms
   ii) Fish Hatcheries and Breeding Farms and
   iii) Software houses

**Conditions**

An industrial consumer shall have the option, to switch over to seasonal Tariff-F, provided his connection is seasonal in nature as defined under Tariff-F, and he undertakes to abide by the terms and conditions of Tariff-F and pays the difference of security deposit rates previously deposited and those applicable to Tariff-F at the time of acceptance of option for seasonal tariff. Seasonal tariff will be applicable from the date of commencement of the season, as specified by the customers at the time of submitting the option for Tariff-F. Tariff-F consumers will have the option to convert to corresponding Regular Industrial Tariff category and vice versa. This option can be exercised at the time of obtaining a new connection or at the beginning of the season. Once exercised, the option will remain in force for at least one year.

## B-1 SUPPLY AT 400 VOLTS THREEPHASE AND/OR 230 VOLTS SINGLE PHASE

1. This tariff is applicable for supply to Industries having sanctioned load up-to 25 kW.
2. Consumers having sanctioned load up-to 25 kW shall be billed on single-part kWh rate.
3. All existing consumers under tariff B-1 shall be provided T.O.U metering arrangement by the Company and convert it to-B1 (b) Tariff.
4. All new applicants i.e. prospective consumers applying for service to the Company shall be provided T.O.U metering arrangement and charged according to the applicable T.O.U tariff.





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## B-2 SUPPLY AT 400 VOLTS

1. This tariff is applicable for supply to Industries having sanctioned load of more than 25 kW up to and including 500 kW.
2. All existing consumers under tariff B-2 shall be provided T.O.U metering arrangement by the Company and converted to B-2(b) Tariff.
3. All existing consumers under tariff B-2 shall be billed on B-2(a) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff B-2(b).
4. All new applicants i.e. prospective consumers applying for service to the Company shall be provided T.O.U metering arrangement and charged according to the applicable T.O.U tariff.

## B-3 SUPPLY AT 11 kV AND 33 kV

1. This tariff is applicable for supply to Industries having sanctioned load of more than 500 kW up to and including 5000 kW and also for Industries having sanctioned load of 500 kW or below who opt for receiving supply at 11 kV or 33 kV.
2. If, for any reason, the meter reading date of a consumer is altered and the acceleration/retardation in the date is up to 4 days, no notice shall be taken of this acceleration or retardation. But if the date is accelerated or retarded by more than 4 days, the fixed charges shall be assessed on proportionate basis for the actual number of days between the date of the old reading and the new reading.
3. The supply under this Tariff shall not be available to a prospective consumer unless he provides, to the satisfaction and approval of the Company, his own Transformer, Circuit Breakers and other necessary equipment as part of the dedicated distribution system for receiving and controlling the supply, or, alternatively pays to the Company for all apparatus and equipment if so provided and installed by the Company. The recovery of the cost of service connection shall be regulated by the NEPRA eligibility criteria.
4. All existing consumers under tariff B-3 shall be provided T.O.U metering arrangement by the Company and converted to B-3(b) Tariff.
5. All existing consumers under tariff B-3 shall be billed on B-3(a) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff B-3(b).
6. All new applicants i.e. prospective consumers applying for service to the Company shall be provided T.O.U metering arrangement and charged according to the applicable T.O.U tariff.

## B-4 SUPPLY AT 66 kV and 132 kV

1. This tariff is applicable for supply to Industries for all loads of more than 5000 kW receiving supply at 66 kV and 132 kV and also for Industries having load of 5000 kW or below who opt to receive supply at 66 kV or 132 kV.
2. If, for any reason, the meter reading date of a consumer is altered and the acceleration/retardation in the date is up to 4 days, no notice shall be taken of this acceleration or retardation. But if the date is accelerated or retarded by more than 4 days, the fixed charges shall be assessed on proportionate basis for the actual number of days between the date of the old reading and the new reading.
3. If the Grid Station required for provision of supply falls within the purview of the dedicated system under the NEPRA Eligibility Criteria, the supply under this Tariff shall not be available to such a prospective consumer unless he provides, to the satisfaction and approval of the Company, an independent grid station of his own including Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus as part of the dedicated distribution system for receiving and controlling the supply, or, alternatively, pays to the Company for all such Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus if so provided and installed by the





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Company. The recovery of cost of service connection shall be regulated by NEPRA Eligibility Criteria.

4. All existing consumers under tariff B-4 shall be provided T.O.U metering arrangement by the Company and converted to B-4(b) Tariff.
5. All existing consumers under tariff B-4 shall be billed on B-4(a) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff B-4(b).
6. All new applicants i.e. prospective consumers applying for service to the Company shall be provided T.O.U metering arrangement and charged according to the applicable T.O.U tariff.

## B-5 SUPPLY AT 220 kV AND ABOVE

1. This tariff is applicable for supply to Industries for all loads of more than 5000 kW receiving supply at 220 kV and above and also for Industries having load of 5000 kW or below who opt to receive supply at 220 kV.
2. If, for any reason, the meter reading date of a consumer is altered and the acceleration/retardation in the date is up to 4 days, no notice shall be taken of this acceleration or retardation. But if the date is accelerated or retarded by more than 4 days, the fixed charges shall be assessed on proportionate basis for the actual number of days between the date of the old reading and the new reading.
3. If the Grid Station required for provision of supply falls within the purview of the dedicated system under the NEPRA Eligibility Criteria, the supply under this Tariff shall not be available to such a prospective consumer unless he provides, to the satisfaction and approval of the Company, an independent grid station of his own including Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus as part of the dedicated distribution system for receiving and controlling the supply, or, alternatively, pays to the Company for all such Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus if so provided and installed by the Company. The recovery of cost of service connection shall be regulated by NEPRA Eligibility Criteria.
4. All the new industrial consumers shall be billed on the basis of ToU tariff B-5 given in the Schedule of Tariff.

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## C BULK SUPPLY

"Bulk Supply" for the purpose of this Tariff, means the supply given at one point for self-consumption not selling to any other consumer such as residential, commercial, tube-well and others.

**General Conditions**

If, for any reason, the meter reading date of a consumer is altered and the acceleration/retardation in the date is up to 4 days no notice will be taken of this acceleration or retardation. But if the date is accelerated or retarded by more than 4 days the fixed charges shall be assessed on proportionate basis for actual number of days between the date of old reading and the new reading.

### C-I SUPPLY AT 400/230 VOLTS

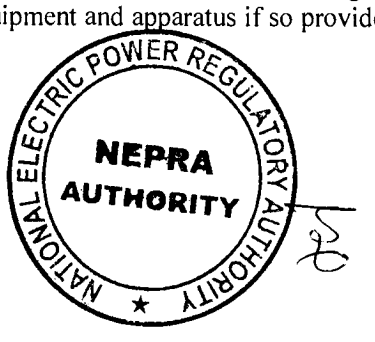
1. This Tariff is applicable to a consumer having a metering arrangement at 400/230 volts, having sanctioned load of up to and including 500 kW.
2. Consumers having sanctioned load less than 5 kW shall be billed on single-part kWh rate i.e. C-I(a) tariff'.
3. All new consumers having sanctioned load 5 kW and above shall be provided T.O.U metering arrangement and shall be billed on the basis of Time-of-Use (T.O.U) tariff C-1(c) given in the Schedule of Tariff.
4. All the existing consumers governed by this tariff having sanctioned load 5 kW and above shall be provided T.O.U metering arrangements.
5. All existing consumers under tariff C-1 having sanctioned load 5 kW and above shall be billed on C-1(b) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff C-1(c).

### C-2 SUPPLY AT 11 kV AND 33 kV

1. This tariff is applicable to consumers receiving supply at 11 kV or 33 kV at one-point metering arrangement and having sanctioned load of up to and including 5000 kW.
2. The supply under this Tariff shall not be available to a prospective consumer unless he provides, to the satisfaction and approval of the Company, his own Transformer, Circuit Breakers and other necessary equipment as part of the dedicated distribution system for receiving and controlling the supply, or, alternatively pays to the Company for all apparatus and equipment if so provided and installed by the Company. The recovery of the cost of service connection shall be regulated by the NEPRA eligibility criteria.
3. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff C-2(b) as set out in the Schedule of Tariff.
4. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to C-2(b)
5. All existing consumers under tariff C-2 shall be billed on C-2(a) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff C-2(b).

### C-3 SUPPLY AT 66 kV, 132 kV AND ABOVE

1. This tariff is applicable to consumers having sanctioned load of more than 5000 kW receiving supply at 66 kV, 132kV and above.
2. If the Grid Station required for provision of supply falls within the purview of the dedicated system under the NEPRA Eligibility Criteria, the supply under this Tariff shall not be available to such a prospective consumer unless he provides, to the satisfaction and approval of the Company, an independent grid station of his own including Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus as part of the dedicated distribution system for receiving and controlling the supply, or, alternatively, pays to the Company for all such Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus if so provided and installed by the



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Company. The recovery of cost of service connection shall be regulated by NEPRA Eligibility Criteria.

3. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to C-3(b).
4. All existing consumers under tariff C-3 shall be billed on C-3(a) tariff till such time that they are provided T.O.U metering arrangement; thereafter such consumers shall be billed on T.O.U tariff C-3(b).
5. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff C-3(b) as set out in the Schedule of Tariff.

## D AGRICULTURAL SUPPLY

"Agricultural Supply" means the supply for Lift Irrigation Pumps and/or pumps installed on Tube-wells intended solely for irrigation or reclamation of agricultural land or forests, and include supply for lighting of the tube-well chamber.

**Special Conditions of Supply**

1. This tariff shall apply to:

   i) Bona fide forests, agriculture tube-well and lift irrigation pumps for irrigation of agricultural land.

   ii) Tube-Wells meant for aqua-culture, viz. fish farms, fish hatcheries and fish nurseries.
   iii) Tube-wells installed in a dairy farm meant for cultivating crops as fodder and for upkeep of cattle.

2. If, for any reason, the meter reading date of a consumer is altered and the acceleration/retardation in the date is up to 4 days, no notice shall be taken of this acceleration or retardation. But if the date is accelerated or retarded by more than 4 days, the fixed charges shall be assessed on proportionate basis for the actual number of days between the date of the old reading and the new reading.
3. The lamps and fans consumption in the residential quarters, if any, attached to the tube-wells shall be charged entirely under Tariff A-1 for which separate metering arrangements should be installed.
4. The supply under this Tariff shall not be available to consumer using pumps for the irrigation of parks, meadows, gardens, orchards, attached to and forming part of the residential, commercial or industrial premises in which case the corresponding Tariff A-1, A-2 or Industrial Tariff B-1, B-2 shall be respectively applicable.

**D-1 For all loads**

**D-2 Time of Use for all loads**

1. Consumers having sanctioned load less than 5 kW shall be billed on single-part kWh rate i.e. D-1 tariff given in the Schedule of Tariff.

2. All new consumers having sanctioned load 5 kW and above shall be provided TOU metering arrangement and shall be charged on the basis of Time-of- Use (T.O.U) tariff D- 2 given in the Schedule of Tariff.
3. All the existing consumers having sanctioned load 5 kW and above shall be provided T.O.U metering arrangements and shall be governed by D-1 till that time.

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## E -1 TEMPORARY RESIDENTIAL/COMMERCIAL SUPPLY

Temporary Residential/Commercial Supply means a supply given to persons temporarily on special occasions such as ceremonial, religious gatherings, festivals, fairs, marriages and other civil or military functions. This also includes supply to touring cinemas and persons engaged in construction works for all kinds of single phase loads. For connected load exceeding 4 kW, supply may be given at 400 volts (3 phase) to allow a balanced distribution of load on the 3 phases. Normally, temporary connections shall be allowed for a period of 3 months which can be extended on three months basis subject to clearance of outstanding dues.

**Special Conditions of Supply**

1. This tariff shall apply to Residential and Commercial consumers for temporary supply.
2. Ordinarily the supply under this Tariff shall not be given by the Company without first obtaining security equal to the anticipated supply charges and other miscellaneous charges for the period of temporary supply.

## E -2 TEMPORARY INDUSTRIAL SUPPLY

"Temporary Industrial Supply" means the supply given to an Industry for the bonafide purposes mentioned under the respective definitions of "Industrial Supply", during the construction phase prior to the commercial operation of the Industrial concern.

**SPECIAL CONDITIONS OF SUPPLY**

1. Ordinarily the supply under this Tariff shall not be given by the Company without first obtaining security equal to the anticipated supply charges and other miscellaneous charges for the period of temporary supply.
2. Normally, temporary connections shall be allowed for a period of 3 months, which may be extended on three months' basis subject to clearance of outstanding dues.

## F SEASONAL INDUSTRIAL SUPPLY

"Seasonal Industry" for the purpose of application of this Tariff, means an industry which works only for part of the year to meet demand for goods or services arising during a particular season of the year. However, any seasonal industry running in combination with one or more seasonal industries, against one connection, in a manner that the former works in one season while the latter works in the other season (thus running throughout the year) will not be classified as a seasonal industry for the purpose of the application of this Tariff.

**Definitions**

1. "Year" means any period comprising twelve consecutive months.
2. All "Definitions" and "Special Conditions of Supply" as laid down under the corresponding Industrial Tariffs shall also form part of this Tariff so far as they may be relevant.

**Special Conditions of Supply**

1. This tariff is applicable to seasonal industry.
2. Fixed Charges per kilowatt per month under this tariff shall be levied at the rate of 125% of the corresponding regular Industrial Supply Tariff Rates and shall be recovered only for the period that the seasonal industry actually runs subject to minimum period of six consecutive months during any twelve consecutive months. The condition for recovery of Fixed Charges for a minimum period of six months shall not, however, apply to the seasonal industries, which are connected to the Company's Supply System for the first time during the course of a season.

3. The consumers falling within the purview of this Tariff shall have the option to change over to the corresponding industrial Supply Tariff, provided they undertake to abide by all the conditions and restrictions, which may, from time to time, be prescribed as an integral part of those Tariffs. The consumers under this Tariff will have the option to convert to Regular Tariff and vice versa. This option can be exercised at the time of obtaining a new connection or at the beginning of the season. Once exercised, the option will remain in force for at least one year.

4. All seasonal loads shall be disconnected from the Company's Supply System at the end of the season, specified by the consumer at the time of getting connection, for which the supply is given. In case, however, a consumer requires running the non-seasonal part of his load (e.g., lights, fans, tube-wells, etc.) throughout the year, he shall have to bring out separate circuits for such load so as to enable installation of separate meters for each type of load and charging the same at the relevant Tariff.

5. Where a "Seasonal Supply" consumer does not come forward to have his seasonal industry re-connected with the Company's Supply System in any ensuing season, the service line and equipment belonging to the Company and installed at his premises shall be removed after expiry of 60 days of the date of commencement of season previously specified by the consumer at the time of his obtaining new connection/re-connection. However, at least ten clear days notice in writing under registered post shall be necessary to be given to the consumer before removal of service line and equipment from his premises as aforesaid, to enable him to decide about the retention of connection or otherwise. No Supply Charges shall be recovered from a disconnected seasonal consumer for any season during which he does not come forward to have his seasonal industry re-connected with the Company's Supply System.

## G PUBLIC LIGHTING SUPPLY

"Public Lighting Supply" means the supply for the purpose of illuminating public lamps.

**Definitions**

"Month" means a calendar month or a part thereof in excess of 15 days.

**Special Conditions of Supply**

The supply under this Tariff shall be used exclusively for public lighting installed on roads or premises used by General Public.

## H RESIDENTIAL COLONIES ATTACHED TO INDUSTRIES

This tariff is applicable for one-point supply to residential colonies attached to the industrial supply consumers having their own distribution facilities.

**Definitions**

"One Point Supply" for the purpose of this Tariff, means the supply given by one point to Industrial Supply Consumers for general and domestic consumption in the residential colonies attached to their factory premises for a load of 5 Kilowatts and above. The purpose is further distribution to various persons residing in the attached residential colonies and also for perimeter lighting in the attached residential colonies.

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"General and Domestic Consumption", for the purpose of this Tariff, means consumption for lamps, fans, domestic applications, including heated, cookers, radiators, air-conditioners, refrigerators and domestic tube-wells.

"Residential Colony" attached to the Industrial Supply Consumer, means a group of houses annexed with the factory premises constructed solely for residential purpose of the bonafide employees of the factory, the establishment or the factory owners or partners, etc.

**Special Conditions of Supply**

The supply under this Tariff shall not be available to persons who meet a part of their requirements from a separate source of supply at their premises.

## J. SPECIAL CONTRACTS UNDER NEPRA (SUPPLY OF POWER) REGULATIONS 2015

Supply for the purpose of this tariff means the supply given at one or more common delivery points;

i. To a licensee procuring power from K-Electric for the purpose of further supply within its respective service territory and jurisdiction.

ii. To an O&M operator under the O&M Agreement within the meaning of NEPRA (Supply of Power) Regulations 2015 duly approved by the Authority for the purpose of further supply within the service territory and jurisdiction of the K-Electric

iii. To an Authorized agent within the meaning of NEPRA (Supply of Power) Regulations 2015, procuring power from the K-Electric for further supply within the service territory and jurisdiction of the K-Electric

### J-1 SUPPLY TO LICENSEE

1. This tariff is applicable to a Licensee having sanctioned load of 20 MW and above receiving supply at 66 kV and above.
2. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to J-1(b).
3. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff J-1(b) as set out in the Schedule of Tariff.

### SUPPLY UNDER O&M AGREEMENT

#### J-2 (a) SUPPLY AT 11 KV AND 33 KV

1. This tariff is applicable to an O&M operator receiving supply at 11 kV or 33 kV under the O&M Agreement duly approved by the Authority.
2. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to J-2(c).

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3. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff J-2(c) as set out in the Schedule of Tariff.

**J-2 (b) SUPPLY AT 66 KV AND ABOVE**

1. This tariff is applicable to an O&M operator receiving supply at 66 kV & above under the O&M Agreement duly approved by the Authority.
2. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to J-2(d).
3. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff J-2(d) as set out in the Schedule of Tariff.

**SUPPLY TO AUTHORIZED AGENT**

**J-3 (a) SUPPLY AT 11 KV AND 33 KV**

1. This tariff is applicable to an authorized agent receiving supply at 11 kV or 33 kV.
2. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to J-3(c).
3. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff J-3(c) as set out in the Schedule of Tariff.

**J-3 (b) SUPPLY AT 66 KV AND ABOVE**

1. This tariff is applicable to an authorized agent receiving supply at 66 kV & above.
2. Existing consumers governed by this tariff shall be provided with T.O.U metering arrangement and converted to J-3(d).
3. All new consumers shall be provided TOU metering arrangement and shall be billed on the basis of tariff J-3(d) as set out in the Schedule of Tariff.

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Annex – VII

## CLAWBACK MECHANISM FOR PROFIT SHARING WITH THE CONSUMERS

1. K-Electric Limited shall, on yearly basis and within the first week of January, submit the proposed adjustment of tariff arising out of the transfer of a portion of the profits of the preceding financial year to consumers according to the Claw-Back formula as provided hereunder along with the basis of the calculations supported with the relevant audited financial statements:

## CLAWBACK FORMULA

2. To the extent that the Annual Return on the Average Regulatory Asset Base (hereinafter referred to as "Average RAB") exceeds the limits prescribed hereunder the surplus return shall be shared with consumers through a reduction in tariff, in annual sharing proportions as set out below:

Claw Back Sharing

| Year | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | 6th Year | 7th Year |
|---|---|---|---|---|---|---|---|
| Sharing 25% | 16.75%-19.75% | 13.44%-16.44% | 11.33%-14.33% | 12.93%-15.93% | 12.90%-15.90% | 12.57%-15.57% | 13.15%-16.15% |
| Sharing 50% | 19.75%-22.75% | 16.44%-19.44% | 14.33%-17.33% | 15.93%-18.93% | 15.90%-18.90% | 15.57%-18.57% | 16.15%-19.15% |
| Sharing 75% | Over 22.75% | Over 19.44% | Over 17.33% | Over 18.93% | Over 18.90% | Over 18.57% | Over 19.15% |

3. The Annual Return on the RAB shall be respective year's Earnings Before Interest and Tax (hereinafter referred to as "EBIT") divided by the Average RAB. Method for calculation of both EBIT and Average RAB are mentioned is hereunder;

4. EBIT shall be worked out according to formula mentioned hereunder;

**Earning Before Interest and Tax as per the financial Statement**
Add Provision for Doubtful debt
Add Any other provision / expense charged by the Petitioner that the Authority considers unjustified
Add Depreciation charged to P&L with revaluation
Less Actual Writeoffs (Maximum at 1.78% of Electricity Sales Revenue)
Less Depreciation for the Year on Cost basis
Less Late Payment Surcharge (LPS)
**EBIT for the pupose of application of Clawback**

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Average RAB

5. Average RAB shall be worked out according to the following formula;

| | |
|---|---|
| | Fixed Assets Without Revaluation(O/B) |
| Add | Additions during the Year |
| Less | Accumulated Depreciation on cost |
| = | **Net Fixed Assets** |
| Add | WIP on Cost (C/B) |
| Less | Deffered Revenue (Consumer financed Asset) |
| = | **Regulatory Asset Base (RAB)** |
| Average RAB = | ((Current RAB + Last Year RAB) / 2) |

The decrease in average sale rate ($S_{ICB}$) will be calculated as under.-

$$(\ S_{ICB}) \quad = \quad \frac{Ps}{U_{ST}}$$

Where Ps = The aggregate profit to be transferred to the consumers calculated in according with the methodology as discussed earlier.
$U_{ST}$ = Estimated units expected to be sold during the twelve months following the date of decision of the Authority.

6. The above reduction shall be applied uniformly to all classes of consumer categories (excluding Life Line Consumers) directly in their monthly bills vide Authority's separate decision in this regard.

7. The Authority shall make its determination, after the completion of the procedural requirements, as soon as possible but not later than Forty five (45) days of the receipt of the request for reduction in rates and shall notify the same in the official gazette.

8. In case, K-Electric does not submit a request for tariff adjustment in a certain year, the Authority shall review the audited financial statements on its own and approve a tariff reduction, based on the aforementioned formulae, required to be passed on to the consumers, based on the respective proportion of profits.

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9. The decrease in consumer class-wise tariff shall be allowed in terms of paisas per kWh rounded to two decimal places.

10. K-Electric shall not carry out any adjustment in the consumer end tariff unless allowed, approved or directed by the Authority.

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