



National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/Director(Tech.)/LAD-01/ 16749-56

October 20, 2025

Chief Executive Officer,
K-Electric, KE House, 39-B,
Sunset Boulevard DHA- 2,
Karachi

Subject: **Decision of the Authority in the matter of Motion for Leave for Review filed by K-Electric and Mr. Muhammad Arif Bilwani against NEPRA Determination dated April 24, 2024 regarding Seven Years Transmission and Distribution Investment Plan and Losses Assessment for MYT tariff Control Period from FY 2023-24 to FY 2029-30**

Enclosed please find herewith the subject Decision of the Authority alongwith Annex-I & II (total 76 Pages) for information and further necessary action.

Enclosure: **As above**


(Wasim Anwar Bhinder)

Copy to:

1. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad
2. Mr. Shehriyar Abbasi, Deputy Secretary, Cabinet Division, Cabinet Secretariat, Islamabad
3. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad
4. Secretary, Energy Department, Government of Sindh, 3rd Floor, State Life Building No. 3, Opposite CM House, Dr. Zai-ud-din Ahmad Road, Karachi
5. Chief Executive Officer, NTDC, 414 WAPDA House, Shaharah-e-Quaid-e-Azam, Lahore
6. Chief Executive Officer, Central Power Purchasing Agency Guarantee Limited (CPPA-G), Shaheen Plaza, 73-West, Fazl-e-Haq Road, Islamabad
7. Mr. Muhammad Arif Bilwani, 24-A, South Park Avenue, Phase-2, DHA, Karachi

Decision of the Authority in the matter of Motion for Leave for Review filed by K-Electric and Mr. Muhammad Arif Bilwani against NEPRA Determination dated April 24, 2024 regarding Seven Years Transmission and Distribution Investment Plan and Losses Assessment for MYT Tariff Control Period from FY 2023- 24 to FY 2029-30

A. BACKGROUND:

1. K-Electric (hereinafter referred as "KE", "K-Electric" or "the Petitioner"), as per provisions of Section 32 of the NEPRA Act and the requirements under NEPRA guidelines for the determination of consumer end Tariff (Methodology and Process) 2015, submitted its Transmission and Distribution Integrated Investment Plans for the Multi Year Tariff (MYT) control period from FY 2023-24 to FY 2029-30 vide its letter dated January 30, 2023 which included CAPEX requirement for its transmission and distribution network to address system expansion, strengthen the network enabling constraints-free power evacuation from power plants/national grid, meet future load growth requirements, reduce T&D losses, conversion/upgradation of 66 kV network, rehabilitate the existing network, improving quality of supply, elimination of load shedding in KE's territory, Improving safety & reliability, AMI project implementation, capacity building & training, etc. The Authority after following due process approved the investment plan of KE vide its determination dated April 24, 2024 ("the Decision"). The summary of approved investment plan is given below:

Approved Investment:

Head	Total Requested Million Rs	Total Approved Million Rs.
Transmission Business	280,916	238,220
Distribution Business	184,650	136,764
Others Support Plans	18,514	17,306
3rd Party Audit by NEPRA	-	200
Grand Total	484,080	392,490

Approved T&D Losses Target:

Losses (%)	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
Distribution Loss	13.46	13.14	12.70	12.25	11.93	11.67	11.48
Transmission Loss	1.30	1.30	1.30	1.30	1.30	1.30	1.30
T&D Loss Target	14.58	14.27	13.83	13.39	13.07	12.82	12.63

**B. FILING OF MOTION FOR LEAVE FOR REVIEW BY KE and MUHAMMAD ARIF
BILWANI:**

2. KE and Mr. Muhammad Arif Bilwani ("intervener" or "Mr. Bilwani") being aggrieved by the Decision, filed Motion for Leave for Review (hereinafter referred as "MLR") dated 13-05-2024 and 15-05-2024 respectively. The grounds taken by the KE and Mr. Bilwani in it's MLRs were reviewed and in order to fulfill the proceedings under NEPRA (Review Procedure) Regulations, 2009, the Authority framed following issues for hearing of stakeholders which included KE, Mr. Bilwani and the commentators including representative from Jamaat-e-Islami Karachi:

▪ **Issue based on Pleadings of K-Electric**

- i. KE in its review submitted an investment indexation mechanism for cost escalation adjustments. Petitioner is required to explain and justify such mechanism. What would be the principles for revision of base cost and calculation / indexation of various cost components of the allowed investments?
- ii. Whether the request of Petitioner to consider applying the notional escalations (5% for FCC and 8% for LCC) for first year FY 2023-24 is justified?
- iii. Whether the requested adjustments in the cost of Land / RoW for Transmission Projects as claimed by KE is justified?
- iv. Whether the request of Petitioner to allow the cost of Rs. 1,253 million for 2x220 kV line bays at 220 kV Surjani grid station for interconnection of New Solar power plants (350 MW) is justified?
- v. Whether the request of the Petitioner to allow cost of Rs. 650 million for civil works/yard extension at 5 grid stations is justified?
- vi. Whether the request of Petitioner for revision of the cost for 132 kV Hub-Vinder-Uthal-Bela (HUVB) transmission project is justified?
- vii. Whether the requested revision in distribution loss reduction targets is justified?
- viii. Whether the requested adjustment of 15% contingency and admin & consultancy charges as against allowed factor of 5% is justified?
- ix. Any other issues(s) which may be considered by the Authority during the hearing.

▪ **Issues based on Submission of Mr. Bilwani**

- i. Whether concerns raised by Mr. Muhammad Arif Bilwani regarding third party validations of KE investment plan are justified?
- ii. Whether the request of Mr. Muhammad Arif Bilwani to revisit T&D losses target allowed to KE is justified?
- iii. Any other issues(s) which may be considered by the Authority during the hearing.



C. PROCEEDINGS IN THE MATTER OF MLRs:

3. In order to provide fair opportunity to the Petitioner, Interveners and Parties to the proceedings, the Authority decided to conduct separate hearings in the matter which were scheduled on 15-08-2025 at NEPRA Headquarter. Accordingly, the hearings notices were issued to all stakeholders on 7-8-2024 and copies of MLRs along with issues framed were sent to parties to the proceedings as well as uploaded on NEPRA website. The hearings were attended by KE, Mr. Bilwani and other stakeholders physically as well as through zoom. The above-mentioned issues were discussed in detail by the participants during the course of the said hearing.
4. Now through this decision, the Authority decides the MLRs filed by the Petitioner and Intervener against the Decision. The issues wise submissions made by KE and Mr. Bilwani in their respective MLRs and during the course of the hearings along with analysis and decision thereon by the Authority are detailed below.
5. The Issue No. 01, 02 and 03 framed in matter of KE's MLR, being closely related in nature, have been clubbed together for the purpose of consolidated discussion and decision, which are detailed in subsequent paragraphs.

Issue # 01: KE in its review submitted an investment indexation mechanism for cost escalation adjustments. Petitioner is required to explain and justify such mechanism. What would be the principles for revision of base cost and calculation / indexation of various cost components of the allowed investments?

Submissions of the Petitioner:

6. KE in its MLR has mentioned that the Authority in its Decision stated that escalations (amounting to PKR 13,090 million) are being allowed notionally for the foreign and local portions of investment respectively and shall be adjusted at the time of annual Tariff adjustments. The relevant excerpt from the Decision is reproduced below:

Para 11 - "The adjustable factors i.e. Escalation, Custom Duties, IDC, Contingencies, and any other head which is over & above the base cost are just notional numbers and shall be adjusted at the time of annual Tariff adjustments as per the given mechanism."

Para 36 - "KE has escalated the bid prices received in April 2021 up to June 2022 based on macroeconomic indicators i.e. exchange rate of PKR 206 / USD on June 30,



2022, and CPI of FY 2021-22. The Authority reviewed KEL's costs for 2021 and after detailed analysis, it is found they are comparable to the prices in the first half of 2022. As a result, the Authority has decided to approve KEL's 2021 costs, which shall be considered at the level of June 2022."

7. The Petitioner submitted that the prices of FY 2021 cannot be considered to be same as prices for FY 2022 as the currency depreciation and inflation observed till June 30, 2022 is significantly higher. Further, K-Electric requested the Authority to clarify that this base escalation allowed should not be removed as the indexation has been allowed from reference macros of FY 2022 so, the escalation amount calculated as per indexation mechanism will be added to the already allowed escalation.
8. Further, KE in its MLR submitted a detailed illustration of investment indexation mechanism for consideration of the Authority which is covering KE request to allow head wise re-appropriation and inclusion of notional escalations as a part of base cost for future indexations.
9. In addition to above, the Petitioner in its MLR highlighted that the determination of the Authority stated that FCC and LCC have been notionally escalated by 5% and 8% respectively for year 2 and onwards. In this regard, it is requested to the Authority to consider applying the escalations for FY 2024 as the base CAPEX has been approved with reference to FY 2022 macroeconomic factors hence the escalation to bring prices from April 2021 to June 2022 level as considered for year 2 and onwards, is required. Hence, it is requested that escalation should also be allowed on investments planned for FY 2024.
10. Beside the above, KE in its MLR pointed out that the escalation considered by the Authority is significantly lower than the currency depreciation (30%) and inflation (US CPI 9% and Local CPI 21%) between June 2021 and June 2022. For cost escalation, in para 13 of the Decision, it is stated as follows.

Para 13 - "The estimated increase of the FCC and LCC components has been indicated. This cost head shall be adjusted to account for the variations being allowed on the FCC and LCC components of the projects. The FCC has been escalated by 5% and the LCC has been escalated by 8% for the year 2 and onwards."

11. It is mentioned by KE that it has analyzed the prices of recent bids received, which clearly show that recent bids received in FY 23 are 28% higher than NEPRA allowed escalated investment amount in Transmission. For Distribution, the actual prices based on purchase orders issued in 2022 are 25% higher than NEPRA allowed



escalated investments at June 2022 level. As a result, from the first year of MYT, there is significant difference in costs allowed by NEPRA and actual prices. In this regard, KE requested the Authority to kindly allow the earlier requested escalation as the allowed escalation factors are significantly lower than actual currency depreciation and inflation as also reflected in actual prices.

12. The Petitioner further mentioned in its MLR that as per the Decision, no consideration has been given to US CPI indexation on the foreign component of investment. In this matter KE would like to highlight that US CPI is also required to be allowed to cover the increase in prices as international market prices also rise over the period of time which is not covered in currency depreciation. In view of the above, KE requested the Authority to review the Decision and allow US CPI indexation of foreign currency component.

Amount in USD 000						
S. No	Description	April 2021 Bid Used for Estimation	Latest Bid (Dated March 2024 and April 2024)	Comparison Latest Bid Vs April 2021	Annualized Increase	Annualized US CPI ¹
1	PTR 40MVA ²	1,127	1,368	21.4%	7.1%	5.6%
2	132KV GIS Bay	204	377	85.4%	28.5%	5.6%
3	XLPE cable 1600 mm ²	209	294	40.5%	13.5%	5.6%
4	Conductor Type STACIR	11	19	69.7%	23.2%	5.6%
5	Shunt Capacitor	30	40	34.2%	11.4%	5.6%

1. Average US CPI increase for the last 3 years is 16.7%
2. Inclusive of AVR Pannel, Nitrogen Injection, MV Cable, Neutral Ground resistor and 11 KV surge arrestor.

13. Further to above, KE during the course of hearing dated 15-8-2024, submitted following mechanism for adjustment of CAPEX (higher or lower) in any year:

- i. In case the amount of actual CAPEX incurred in a year is less than the allowed indexed CAPEX of that year, the under spent amount of CAPEX is requested to be carried over and be added to the allowed indexed CAPEX of next year. Indexation is requested to be applied over the carryover amount (in cases where investments have been deferred due to investment plan/tariff finalization and



for lower growth / external factors like import ban etc. which will be intimated to the Honorable Authority).

- ii. In case the amount of actual CAPEX incurred in a year is higher than the allowed amount of CAPEX of that year, with prior intimation to the Authority, the over-spent amount is requested to form part of the RAB of current year. In case of no prior intimation or approval of Authority, the over spent amount would not form part of the RAB for that year and will be included in RAB for the next year against the investment allowed by Authority for next year.
- iii. Additionally, KE would like to highlight that under the indexation mechanism provided, Large Projects with milestone payments could result in significant variation due to disparity between exchange rates at actual incurrence and monthly average rates. Hence, it is requested that KE be allowed to submit required adjustment where the actual Investment amount for Large Project is enhanced over the allowed indexed investments amount (based on monthly average exchange rates) due to variation in exchange rates.
- iv. Detailed mechanism for calculation with relevant scenarios has been provided with the review motion.

Issue # 02: Whether the request of petitioner to consider applying the notional escalations (5% for FCC and 8% for LCC) for first year FY 2023-24 is justified?

Submissions of Petitioner:

14. K-Electric in its MLR has highlighted that in the Decision FCC and LCC have been notionally escalated by 5% and 8% respectively for year 2 and onwards. The Petitioner requested the Authority to consider applying the escalations for FY 2024 as the base CAPEX has been approved with reference to FY 2022 macroeconomic factors, hence the escalation to bring prices from April 2021 to June 2022 level as considered for year 2 and onwards, is required. The Petitioner requested that escalation should also be allowed on investments planned for FY 2024. The Petitioner also submitted following illustration for consideration of the Authority:

Description	Unit	Legend	FY24		FY25		FY26	
			FCC	LCC	FCC	LCC	FCC	LCC
Illustration: Notional escalation shall be retained and escalation on Year 1 shall be allowed								
Allowed Investment at 2021 PO/bid rates	PKR Mln	A	492	376	525	403	1,083	842

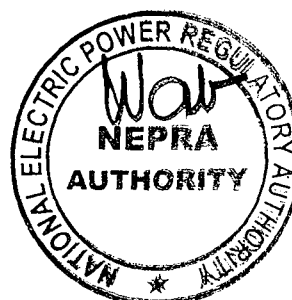
Allowed escalation to bring prices at FY 22 levels (5% FCC & 8% LCC)	PKR Mln	B	-	-	26	32	54	67
Allowed Investment at FY 22 rates	PKR Mln	$C = A + B$	492	376	551	436	1,137	909
Reference Macroeconomic factors for FY 22 For FCC (USD to PKR) For LCC (CPI)	PKR / USD ; No.	D	206.00	158.48	206.00	158.48	206.00	158.48
Updated Illustrative macroeconomic factors	PKR / USD ; No.	E	283.70	252.02	303.56	282.26	324.81	316.13
Indexed Amounts (other than year 1)								
FCC amounts indexed with PKR / USD & LCC with Pak CPI								
As per NEPRA	PKR Mn	$F = A / D \times E$	678	598	774	718	1,708	1,679
To be allowed with inclusion of escalation of year 1 (5% and 8% added to year 1)	PKR Mn	$G = C / D \times E$	712	646	813	776	1,793	1,813
Escalation less allowed	PKR Mn	$H = F - G$	(34)	(48)	(39)	(57)	(85)	(134)

Issue # 03: Whether the requested adjustments in the cost of Land / RoW for Transmission Projects as claimed by KE is justified?

Submission of Petitioner:

15. KE in its MLR has requested to provisionally allow the requested land and RoW cost for transmission projects, which will be accounted for downward adjustments only, on the basis of supporting evidence. The Petitioner, further stated that there is a potential for significant fluctuation in property prices which are unpredictable in nature. Fluctuations in the land prices depend on multiple factors and market condition which are beyond KE's control. In this regard, Petitioner requested the Authority to consider allowing the cost of land at actual without any capping.

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Para 17 - "The Authority has decided to provisionally allow the requested land and RoW cost, which will be accounted for downward adjustments only, on the basis supported by evidence/proofs of purchase of land for grid stations and payments of RoW compensation by K-Electric for the satisfaction of the Authority."

16. In addition to the above, the Petitioner mentioned that the Authority has allowed specific RoW cost of PKR 244 million for HVUB Project. The Petitioner clarified that the bid quoted by bidders include cost for arranging RoW in LCC portion of the bids. The contract is awarded to the bidder securing highest score in techno-commercial evaluation for which robust competitive bidding process is in place. KE makes payment to contractor as per the cost specified in the detailed BOQ of respective project. Therefore, KE humbly requested the Authority to make RoW cost part of LCC portion as done for other projects and the same shall be made subject to LCC escalation mechanism provided by NEPRA.

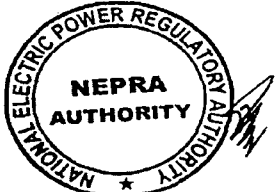
Analysis and Decision on Issues 01-03

17. The above three issues (01, 02 & 03) have been clubbed together and decided in the following paragraphs.
18. Regarding the request/clarification sought by KE regarding the treatment of notional escalations as part of the base cost, the Authority has thoroughly deliberated this matter in the Decision. Therein it is explicitly stated that adjustable factors, including escalation, customs duties, IDC, contingencies, and any other head which is over and above the base cost is just a notional number and shall be adjusted during the annual tariff adjustments according to the established mechanism. The relevant excerpt from the decision is reproduced below:

11. The investments of each project as claimed by KE and being approved by the Authority in this decision is bifurcated in terms of base costs of the projects and other adjustable factors. The adjustable factors i.e. Escalation, Custom Duties, IDC, Contingencies, and any other head which

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Decision of the Authority in the matter of Seven (7) Years Investment Plan & Losses Assessment of K-Electric Limited For MYT Tariff Control Period From FY 2023-24 TO FY 2029-30

is over & above the base cost are just notional numbers and shall be adjusted at the time of annual Tariff adjustments as per the given mechanism. The base cost is further bifurcated into Foreign (FCC) and Local (LCC) components. The basis of approval and indexation of these cost components is explained below:

19. Therefore, the Authority is of the opinion that the notional escalations do not form part of the base cost and will be replaced by the escalation amounts calculated in accordance with the indexation mechanism provided in the Authority's decision. Since these escalation percentage figures are notional and will be substituted with the applicable changes in the relevant indices, the requested modification to their values by KE is unwarranted and hence rejected by the Authority.
20. Regarding the base cost, the Authority, in its Decision has explicitly stated that the base costs were considered at FY 2022 levels, and therefore, indices for FY 2022 were used as the reference for future indexations. As previously clarified, the indicated escalation amount was notional and merely served to illustrate the estimated escalation from FY 2022 onwards. Therefore, the Authority decided to uphold its decision and does not agree to the request of KE for considering escalations of 11% for FCC and 21% for LCC as part of the base cost. Further, the Authority decided to allow the application of the prescribed adjustments/indexation for the 1st year (2023-24) as the base cost is referenced at the macros of FY 2022.
21. With reference to the request for consideration of US CPI indexation, it is emphasized that the Authority has already permitted the exchange rate variations on FCC for KE. In addition to address local inflation, the Authority has allowed the indexation of local NCPI for KE. Further, 3% contingency margin is also allowed to KE on the base cost to cater for any variations and unforeseen circumstances. Therefore, the request of KE for consideration of US CPI is not ceded to by the Authority.
22. With respect to the request of the K-Electric regarding adjustments of CAPEX (higher or lower) than allowed amount, it is decided by the Authority that the unutilized CAPEX in any year is allowed to be carried forward. The portion of the base cost carried forward, as verified by a 3rd Party Firm, will be adjusted for indexation corresponding to the year it was planned/approved to be spent or to the year it was actually spent, whichever is lower. The detailed mechanism is given in Annexure-II.
23. Regarding the request of KE for allowing upward adjustments for the cost of land and RoW compensation for transmission projects, it is noted by the Authority that the costs as claimed by KE at the time of filing original investment plan for land acquisition and RoW compensation were based on the projections made by real estate department of KE and those requested costs were allowed to KE by the Authority without any deductions over the MYT control period of 7-years. It is also noted that cost of land for various grid stations was found ~~over~~ higher than the

overall EPC cost of the same grid stations. The issue has been deliberated at length in the Decision and no new evidence has been provided by the Petitioner. Therefore, the Authority decides to maintain its earlier Decision.

24. As far as the request of KE to allow escalations on the RoW compensation for HVUB transmission line is concerned, it is noted by the Authority that KE, during the proceedings of the original investment plans, submitted that the major reason for non-completion of the HVUB project was RoW cost as it was assumed by KE that the RoW would be provided by Government of Balochistan without any cost implications. Further, it was informed by KE that total cost of RoW was assessed as Rs. 244 million in the original investment plans. Thus, the Authority allowed the requested cost separately under the head of Land/RoW cost for the HVUB project. Moreover, the cost of land and RoW has already been treated as LCC cost component which is subject to downward adjustment only as discussed above. Therefore, the Authority upholds its Decision to implement only a downward revision of the cost of Land/Right of Way (RoW) for Transmission Projects.

25. In view of the foregoing, on issue No. 01, 02 & 03 the Authority decides as under:

- i. The Authority maintains its earlier decision of not allowing the US CPI indexation on the FCC, and decided to replace the CPI with N-CPI to correct the typo.
- ii. The Authority does not agree to the request of KE for considering escalations of 11% for FCC and 21% for LCC as part of the base cost.
- iii. Further, the Authority decided to allow the application of the prescribed adjustments/indexation for the 1st year (2023-24) as well.
- iv. The unutilized CAPEX in any year is allowed to be carried forward. The portion of the base cost carried forward, as verified by a 3rd Party Firm, will be adjusted for indexation corresponding to the year it was planned/approved to be spent or to the year it was actually spent, whichever is lower.
- v. Moreover, for works exceeding the yearly percentage specified in the investment decision, as verified by 3rd Party Firm, the prescribed adjustments corresponding to the year it is spent will be applied, provided that the additional works/completed percentage are in line with the approved scope.
- vi. Furthermore, no indexation/adjustments will be allowed on the full/portion of the base cost carried forward beyond the total prescribed timeline of any project,



in which case only the amount of base cost (either its portion or entire cost), shall be taken into account.

- vii. The Authority also upheld its previous decision to implement only a downward revision of the cost of Land/Right of Way (RoW) for Transmission Projects.
- viii. The Authority decides not to allow the impact of delay to KE however, for the investments approved for the years 1 and 2 of the control period, the following shall be applicable:
 - a. The investments made in 1st year by KE shall be taken into account as per **Annex-I**, which shall be actualized on the basis of audited financial statements. The investments approved for 2nd year and made in the same year shall be allowed, considering the approved base cost, after application of the prescribed adjustment mechanism as maximum cap.
 - b. The portion of the base cost envisaged to be spent in 1st and 2nd years, but carried forward, shall be allowed prescribed adjustment corresponding to those respective years i.e. year 1 and year 2.
 - c. The base cost of the projects that were to be executed/completed only in one year (either in 1st or 2nd year), but were not implemented, shall be allowed prescribed adjustment corresponding to their respective planned years i.e. the years/timelines mentioned in the Decision, when implemented, provided that the implementation should not go beyond 3rd year of investment plan. No indexation/adjustment will be allowed on the amount of base cost (either its portion or entire cost) carried forward beyond 3rd year of investment plan.
 - d. The projects that were planned to commence in 1st and 2nd years, but not started, will be allowed prescribed adjustments on the respective portions corresponding to those years they were planned i.e. the timelines/construction period mentioned in the Decision to be completed, provided that the total completion time, starting from either Year 2 (if applicable) or 3rd year, should not go beyond the timeline given in the Decision. No indexation/adjustments will be allowed on the amount of the base cost (either its portion or entire cost) carried forward beyond the abovementioned timeline.



- e. Notwithstanding the foregoing, KE is directed to evaluate the necessity of implementing projects approved for Years 1 and 2. If, based on a comprehensive need assessment by KE, if any project is determined to be non-essential, KE may consider submitting a request to the Authority for rescheduling the same to subsequent years.
- f. For the purpose of clarity, the prescribed adjustments as mentioned in the Decision along with the modifications approved by the Authority through the instant decision are given in Annex-II.

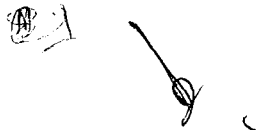
Issue # 04: Whether the request of Petitioner to allow the cost of Rs. 1,253 Million for 2x220 kV line bays at 220 kV Surjani grid station for interconnection of New Solar power plants (350 MW) is justified?

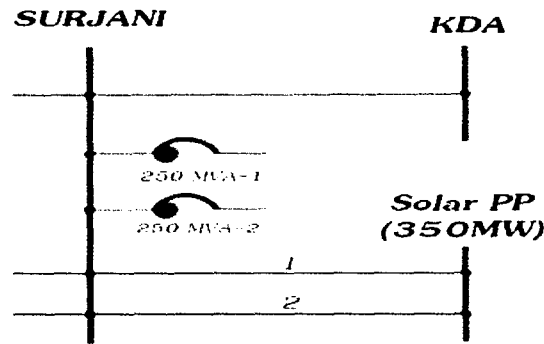
Submission of the Petitioner:

26. The Petitioner submitted that in para 108 of the Decision, the Authority has disallowed the cost Rs. 1,253 million for 2x220 kV line bays at 220 kV Surjani grid station. The relevant para is reproduced below:

Para 108 - "The Authority reviewed KE's claim and noted that an investment of Rs. 1,253 Million for 2x220 kV line bays has been claimed. These line bays are to be constructed in the switchyard of solar power plants. Since the switchyard and allied equipment/works are the responsibilities of the power producer, therefore, this amount of Rs. 1,253 Million is not allowed to KE."

27. In this regard, KE further submitted that for interconnection of Solar Plants with KE network there is a requirement to construct 2 lines bays at 220kV Surjani grid station in addition to bays that will be constructed by power plants within their switchyard/battery limit, which is also evident from below single line diagram (SLD). Keeping in view the above-mentioned facts, KE humbly requested the Authority to consider the investment of bays as the associated Transmission Line for the interconnection of Solar IPP.





28. KE vide its email dated 5-9-2024 has submitted the grid interconnection study for the proposed 350 MW solar power project wherein the consultant i.e. M/s PPI has studied below two options (i). LILO with 220kV Baldia/ Surjani circuit (ii). Direct D/C connection with Surjani grid. Although the report mentioned no technical constraints in both the scenarios however, the option 2 has been selected by the K-Electric for following technical benefits:

- Optimization of network load flow due to proximity of generation near load Centre.
- Considering the importance of 220kV Interconnecting lines between Baldia and Surjani, the addition of two generation plants in LILO arrangement will impact operational flexibility.
- There will be requirement of additional 6 km line construction in LILO arrangement.
- Short-circuit levels in option – 2 are comparatively lower than in option – 1.
- To ensure network reliability for power evacuation of power plants, option 2 is more feasible. This is to minimize NPMV impact.

Analysis and Decision of the Authority:

29. The Authority noted that KE requested approval for Rs. 1.253 billion for 2x220 kV line bays at the Surjani grid station, arguing that these were necessary for interconnecting new solar power plants. In this regard, the consultant i.e. M/s PPI considered two options of the interconnection (i). Loop in Loop Out arrangement (ii). Direct Interconnection Arrangement and the consultant have recommended both options as feasible for interconnection as these fulfil the reliability, load flow and short circuit criteria. A review of both the options revealed that the Option 1 is cost effective as it will not require the line bays.

30. The Authority observed that KE vide its letter dated 16-9-2024 and 04-02-2025 submitted the recommendations of the consultant i.e. M/s PPI for grid

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interconnection of the 350 MW solar power project (120 MW Deh Halkani and 150 MW Deh Metha Ghar power plants) wherein the consultant i.e. M/s PPI has studied two options i) LILO with 220kV Baldia/ Surjani circuit (ii) Direct D/C connection with Surjani grid station. The consultant in its letters has recommended the option 2 of the interconnection which requires line bays based on following technical benefits:

- i. Network Load Flow and Operational Flexibility.
- ii. Ease of commissioning, construction and Load Management.
- iii. Generation Evacuation Reliability and Less Financial Impact in terms of NPMV.
- iv. Technical Operations of the Grid.

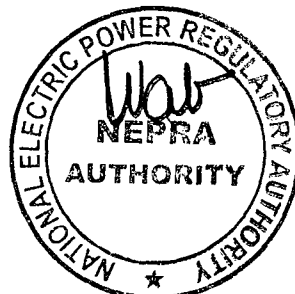
31. The Authority, while considering the submissions of M/s PPI, acknowledged the technical and financial rationale. The Authority is of the opinion that M/S PPI's analysis demonstrated that the option ii of interconnection provides superior network load flow characteristics and greater operational flexibility and enhanced generation evacuation reliability. In view of these merits, the Authority decides as under:

- i. KE shall be allowed the flexibility to choose either interconnection option. For Option 2 (Direct Connection at the 220 kV Surjani Grid Station), the Authority decides to approve an additional amount of Rs. 1,253 million for the interconnection of the 120 MW Deh Halkani and 150 MW Deh Metha Ghar solar power projects, with total amount of Rs. 6,436 million set as the maximum cap. However, if KE chooses Option 1 (LILO arrangement), the previously approved cap of Rs. 5,183 million will apply.
- ii. KE shall carry out a bidding process for this project, which shall be monitored and evaluated by a 3rd Party Firm. The Firm will submit a project evaluation and recommendation report, assessing the competitiveness of the bidding process, and the reasonability of the project costs. The reasonability check shall include the analysis of the project's scope, Bill of Quantities (BoQs), and a comparison with NGC/DISCOs projects implemented in coastal areas.

Issue # 05: Whether the request of the Petitioner to allow cost of Rs. 650 Million for civil works/yard extension at 5 grid stations is justified?

Submission of the Petitioner:

32. KE referred to para 78 of the Decision, which is reproduced below for ease of reference:



Para 78 - "As far as the issue of civil works on 5 grid stations (Site, North Karachi, KEPZ, KDA, and Johar Grids) is concerned, it is noted by the Authority that a separate cost of Rs. 2.927 Million is approved for civil works at various grid stations including these five grid stations in the head of Transmission Maintenance, Protection & Improvement sub head grid station rehabilitation. Therefore, the Authority believes that the cost of Rs. 650 Million seems duplication."

33. In this regard, KE clarified that the scope of work at proposed grid stations majorly involves the cost of 11 kV switchgear & other accessories. Only cost related to installation and related civil works are being kept in addition to switchgear and other accessories cost. Therefore, there is no duplication as civil works included in head of Transmission Maintenance, Protection & Improvement sub head grid rehabilitation pertains to structural improvement of existing aged grids. Moreover, the proposed capex at grid stations Site, North Karachi, KEPZ, KDA, and Johar Grids is critical for managing the load on existing PTs to the extent of 93% loading as envisaged in KE Transmission Planning. Keeping in view of the above-mentioned facts, K-Electric requested the Authority to allow PKR 650 million for yard extension work at Site, North Karachi, KEPZ, KDA and Johar Grids.

34. Moreover, KE after the hearing submitted that KE in its transmission network has more than 70 grid stations and during MYT (2024 – 2030) KE has planned major civil work on 42 grid stations which have been commissioned between 1955 to 2000. With time the civil infrastructure of these aged grid stations has deteriorated and requires significant investment for safe and uninterrupted operations. Following are the major scope of work where investment (Rs. 2,927 million) has been planned for these 42 grid stations:

- Fencing across EHT (66/132K/220KV) yard and gantry area.
- Sealing and water proofing of cable trenches and roof.
- Concreting and flooring works.
- Elevating boundary wall height, executing major structural repairs, installing/reinstalling barbed wire, and upgrading lightning systems.
- Structural upgrade of the control room building, 132 kV / 11 kV yard.
- Replacement of deteriorated trench covers (Power & Control Cable).
- Reinforcement of EHT Gantry/ Pillars inside EHT yard and Gantry area.
- Structural coating and preservation treatments for buildings, yards, and boundary walls.

35. In addition to above KE vide its email dated 5-9-2024 submitted the following details of grid rehabilitation i.e. civil works and yard extension on Site, North



Karachi, KEPZ, KDA, and Johar Grids. The cost of civil works is Rs. 120.648 Million and the electrical equipment and associated material required for yard extension is Rs. 528.885 million. The details of the equipment to be changed at various grid stations is given below:

- i. **Site Grid** – Incoming Panel, Outgoing Panel, Bus Coupler, Capacitor Bank, Civil works.
- ii. **KDA Grid** - Incoming Panel, Outgoing Panel, Bus Coupler, Capacitor Bank, Civil works.
- iii. **KEPZ Grid** - Incoming Panel, Outgoing Panel, Bus Coupler, Capacitor Bank, Civil works.
- iv. **Johar Grid** - Incoming Panel, Outgoing Panel, Bus Coupler, Capacitor Bank, Civil works.
- v. **North Karachi** – Marshalling Pannel, Outgoing Panel, Bus Coupler, Civil works.

Analysis and Decision of the Authority:

36. Regarding the request of KE to allow cost of the yard extension and associated civil works at Site, North Karachi, KEPZ, KDA, and Johar grid stations, the submissions made by K-Electric have been reviewed by the Authority and it is noted that the earlier requested amount of Rs. 650 million was deducted based on duplication of cost and non-provision of requisite information which is now been provided by KE in its instant MLR and post hearing submissions.

37. The Authority observed that cost breakup provided by KE which include an amount of Rs. 528.885 million for yard extension and Rs. 120.648 million for associated civil works has been further reviewed and it is noted that KE used an escalation factor of 21 % for LCC amount and 18% for contingency margins. However, the Authority in its Decision has allowed a notional escalation factor of 8% for LCC and contingency factor of 5%. In view thereof, the requested escalation factor and contingency margins have been rationalized and adjusted to the tune of already allowed factors. After such adjustments an amount of Rs. 506 million is worked out as detailed below:

Description	FCC	LCC	Land	Base Cost	Escalation	Contingency	Total
Yard Extension at 5 grid stations Million Rs.	0	467	0	467	19	21	506



Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	Total
Yard Extension at 5 grid stations Million Rs.	97	112	156	141	-	-	-	506

38. In light of above, the Authority approves an amount of Rs. 506 million for civil works and yard extensions as combined cost for all five grid stations.

Issue # 06: Whether the request of Petitioner for revision of the cost for 132 kV Hub-Vinder-Uthal-Bela (HUVB) transmission project is justified?

Submission of the Petitioner:

39. The Authority noted that KE in its MLR has referred to para 38 of the Decision, which is reproduced as under for ease of reference:

Para 38 - "the Authority hereby decided to allow an additional amount to the extent of Rs. 8,000 million and Rs. 244 million for ROW, while agreeing with the contentions of KE for the increase in cost due to the delay in getting RoW from GoB, combined with the change in scope for the project. This issue is further explained in detail at para 256 — 261 of this decision. Further, the earlier allowed amount of Rs. 7,325 million shall be adjusted in the end-term review and the leftover amount shall be reflected and dealt with in the instant investment plan."

40. In this regard, the Authority found that KE through its letter to NEPRA dated 20th April 2022 (KE/BPR/NEPRA/2022/170) had proposed a revised cost based on change in scope and revised bids price amounting to PKR 21,765 million (at USD exchange rate of Rs 206) for Authority's approval. However, the bids expired in 2022 and subsequently KE initiated the process of retendering. Based on received bids, revised Projects cost works out even higher. Therefore, KE prayed to the Authority to reconsider its decision and consider allowing the amount requested by K-Electric. It is pertinent to mention that this Project is of significant importance to KE, as the existing network is very aged and faces frequent outages, further it will benefit all the consumers as it will ensure evacuation of power from 150 MW Solar Projects to be installed in Baluchistan Region. Any delay in completion of this Project would also result in delay in COD of 150 MW Solar Projects and also severely impact reliability of supply in the HUVB region.

41. The Petitioner further provided following comparison of the costs:

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i. NEPRA Approved CAPEX Vs Latest Bid (Million Rs.)

Description	NEPRA Approved Amount			Proposed Indexation			Latest Bid		
	Grid	TL	Total	Grid	TL	Total	Grid	TL	Total
EPC	7,603	4,725	12,328	13,454	8,567	22,021	15,516	10,992	26,508
NON EPC	2,050	1,191	3,241	3,776	2,262	6,038	67,594	4,5034	11,263
Total Project Cost	9,652	5,916	15,569	17,230	10,828	28,059	22,275	15,496	37,771

ii. NEPRA approved as EPC Vs Bid (Million Rs.)

Description	NEPRA Approved Amount			Proposed Indexation			Latest Bid		
	Grid	TL	Total	Grid	TL	Total	Grid	TL	Total
EPC	9,621	5,948	15,569	17,010	10,773	27,782	15,516	10,992	26,508
NON-EPC	4,118	2,380	6,498	7,229	4,267	11,496	6,759	4,503	11,263
Total Project Cost	13,739	8,328	22,067	24,239	15,040	39,279	22,275	15,496	37,771

iii. K-Electric Requested Vs Bid (Million Rs.)

Description	KE Requested Unindexed			KE Requested Indexed			Latest Bid		
	Grid	TL	Total	Grid	TL	Total	Grid	TL	Total
EPC	9,417	5,796	15,213	16,820	10,570	27,390	15,516	10,992	26,508
NON-EPC	3,888	2,632	6,521	7,365	4,449	11,814	6,759	4,503	11,263
Total Project Cost	13,306	8,428	21,734	24,185	15,019	39,204	22,275	15,496	37,771

Analysis and Decision of the Authority:

42. The Authority observed that the project holds critical strategic importance for K-Electric's network, as it involves replacement of aged infrastructure and enables evacuation of power from upcoming 150 MWp solar projects in the Balochistan region. Any delay in its execution would adversely affect system reliability and defer the commissioning of renewable generation capacity, contrary to the sectoral objectives of enhancing supply reliability and promoting clean energy integration.

43. In view of the above, and considering the justification for cost escalation is supported by market trends, scope enhancement, and technical merits, the Authority decided to allow a cost revision opener for the HVUB project, with an upper cap of Rs. 21,734 million, based on GIS technology. The upper cap of Rs. 21,734 million for the HVUB Project shall be treated as an indexed and adjusted cost. The Authority further directed K-Electric to get design & specification vetting / approval from NGC prior to the bidding of the project. Furthermore, KEL shall carry out a bidding process for this project, which shall be monitored and evaluated by a 3rd Party Firm. The Firm will submit a project evaluation and recommendation report, assessing the

competitiveness of the bidding process, and the reasonability of the project costs. The reasonability check shall include the analysis of the project's scope, Bill of Quantities (BoQs), and a comparison with NGC/DISCOs projects implemented in coastal areas.

Issue # 07: Whether the KE's requested revision in distribution loss targets is justified? Whether the request of Mr. Muhammad Arif Bilwani to revisit T&D losses target allowed to KE is justified?

Submission of the Petitioner:

44. KE in its MLR stated that the investment plan was submitted prior to the close of FY 2023 under which a loss reduction journey of 2.28% during the control period FY 2024-30 was estimated based on FY 2023 (projected) distribution loss of 13.76% thereby reducing to 11.48% till FY 2030. The same has been approved by the Authority in its Decision as follows:

Description	2023	2024	2025	2026	2027	2028	2029	2030	Improvement
Distribution Loss %	13.76	13.46	13.14	12.70	12.25	11.93	11.67	11.48	2.28

45. However, during FY 2023, KE achieved the T&D loss target set by NEPRA and actual distribution loss of 14.54%. The increase in Distribution loss against earlier projection was due to significant adverse changes in macroeconomic factors, however, despite that KE was able to achieve NEPRA targeted T&D loss. It is pertinent to mention that investment plan has been planned and devised for a reduction journey of 2.28%, therefore, KE requested the Authority to consider the below given targets, based on actual FY 23 (in line with NEPRA approved target for FY-23), with approved loss reduction journey as a target for MYT 2024-30:

Description	2023	2024	2025	2026	2027	2028	2029	2030	Improvement
Distribution Loss %	14.54	14.24	13.93	13.49	13.04	12.72	12.46	12.26	2.28

46. Further, KE submitted that in order to avoid over / under recovery of Distribution Loss due to change in sales mix, KE has proposed a mechanism for re-adjustment of Distribution loss targets in its tariff petition along with an opener for adjustment of targets in case of force majeure events beyond KE's control, for example Covid-19 or worsened economic conditions including increase in tariff and imposition of additional taxes that results in consumer tariff increase beyond CPI.

47. In addition to above, K-Electric further submitted that in para 202 of the Decision, a mechanism for sharing loss savings with consumers at a ratio of 75:25 has been included. K-Electric believes that allocating such a significant portion (75%) of loss savings to consumers is very high. Therefore, the Petitioner requested the Authority to reconsider the loss sharing ratios and adjust them to 50:50 instead of 75:25.

48. The Petitioner further referred to para 95 & 202 of the Decision, which is reproduced as under for ease of reference:

Para 95 - "The Authority decided that in case is KE will achieve further better transmission losses than the allowed transmission loss targets for the respective year, then the benefit of additional reduction in losses for that particular year shall be shared with consumers and K-Electric in the ratio of 75:25 respectively."

Para 202 - "The Authority decides that in the event KE achieves T&D losses lower than the allowed targets for the respective year. The benefit of additional reduction in losses for that particular year shall be shared with consumers and K-Electric in the ratio of 75:25 respectively."

49. KE argued that approved mechanism would lead to duplication as illustrated below:

Target	Allowed	Actual (sample numbers)	Loss for sharing
	i	ii	iii = i - ii
Transmission Loss – (Para 95)	1.30%	1.10%	0.20%
Distribution Loss	13.46%	13.46%	-
T&D Loss – (Para 202)	14.58%	14.41%	0.17%
Total % to be shared			0.37%

50. Therefore, to ensure an accurate sharing of the savings and avoid any duplication, the calculation should either follow the treatment outlined in para 202 i.e. combined T&D loss sharing ignoring separate transmission loss sharing under para 95; or allow sharing of transmission loss as per para 95, include a similar mechanism for sharing of distribution loss and ignore the treatment prescribed in above point (i.e. para 202).

Submissions of Mr. Arif Bilwani:

51. Mr. Bilwani submitted the following historic trend of KE Transmission Losses:

FY17	FY18	FY19	FY20	FY21	FY22	FY23
1.50%	0.90%	1.20%	1.11%	1.07%	0.83%	0.86%

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52. Moreover, the Intervener submitted that as evident from the above data that K-Electric's Transmission Losses in the last 6 years have been at maximum of 1.2% & on average 0.995% for the last 6 years when its allowed investment under the previous MYT started bearing results.
53. The Intervener further questioned that how can the transmission losses stand at the same level even after spending hundreds of billions on rehabilitation, overhauling, improvements and loss reduction programs? Moreover, every Investment Proposal as regards to Transmission business has been approved by the Authority on the Investment Recommendation and Validation by M/s PPI the consultant appointed by KE. Same is the case with proposals, recommendations and validations made by KE appointed consultant M/s PITCO Fichtner on the issue of Distribution projects & investment,
54. Mr. Bilwani also highlighted that KE termed its Energy Loss Reduction ("ELR") program as one of the major areas of focus. According to KE, it plans to invest PKR 64,662 million in loss reduction over the control period of seven (07) years. Moreover, the Authority approved a total investment of Rs. 43,323 million on account of ELR Program and Rs. 29,919 million under the head of maintenance and replacements of aged/deteriorated equipment to ensure safety of public and continuity of supply. Further, the Authority approved the following T&D Losses Targets:

Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Distribution Loss %	13.46	13.14	12.70	12.25	11.93	11.67	11.48
Transmission Loss %	1.30	1.30	1.30	1.30	1.30	1.30	1.30
T&D Loss Target %	14.58	14.27	13.83	13.39	13.07	12.82	12.63

55. The Intervener submitted that the above reduction in losses in 7 years average out to only 0.27857% per annum. KE revenue for the year 2023 was Rs. 519.471 billion on the basis of which the annual saving works out to Rs. 1.447 billion and for seven (07) years it works out to Rs. 10.1296 billion only. Mr. Bilwani further questioned the rationale behind investing several hundred billion in T&D rehabilitation and upgradation to save only Rs. 10.1296 billion. It was argued that the Authority has grossly erred in determining the T&D losses for the next seven (07) years without confronting the petitioner and without satisfying the participants on their valid objection, while solely relying on the KE appointed consultant.

56. In addition, Mr. Bilwani emphasized that five state-owned distribution companies despite their short comings, deficiencies, dilapidated and outdated transmission and distribution system and pathetic administrative management are able to achieve T&D losses, as reported by the Authority itself in its State of Industry Report for the year 2023, as under:

IESCO	FESCO	GEPSCO	LESCO	MEPCO
8.06%	8.59%	8.61%	11.29%	14.22%

57. The Intervener further stated that all the above distribution companies are much larger than the KE as regards to their licensed area, T&D Network and number of consumers. KE has the smallest licensed area, smallest network and highest number of consumers per kilometer of network. Despite this the Authority has allowed much higher losses for the next seven (07) years control period to KE, even after allowing it investment of hundreds of billions in the improvement of its system & despite opposition & protest from the consumers which is unpalatable. Mr. Bilwani contended that despite opposition from the participants, and without any discussion and without offering any plausible reason for determining such high T&D Loss completely ignoring the fact that other government owned power distribution companies have much lower T&D Loss ratio, the Authority has determined a loss ratio which even after the passage of seven (07) years will still remain higher than the prevailing loss ratio of the few aforementioned Discos.

58. Mr. Bilwani also quoted the example of Tata Power DDL Power Distribution Company, Delhi, India, which was privatized in 2002 and taken over by TATA under a public-private partnership. At the time of takeover in 2002 the AT&C losses of the company were at a staggering figure of 53% which the new management was able to bring down to 6.39% only in 2023.

Comments of Ministry of Energy Power Division (MoE PD)

59. Meanwhile, MoE (PD), through a memorandum dated December 12, 2024, inter alia, submitted that:

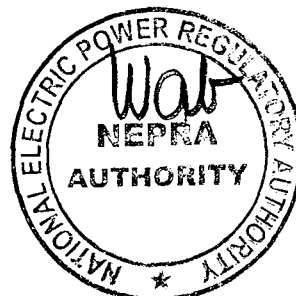
- The target loss reduction for the MYT (2016-2023) was 6.9%, which the company was not only able to achieve but also exceeded by a small margin (the actual reported loss reduction in FY 2023 was 14.54%, compared to a 15.3% target).
- However, the target loss reduction for the current MYT (2024-2030) is only 2.28% (projected to be reduced from 14.24% in FY 2024 to 12.26% in FY 2030).



- iii. The loss reduction targets should be enhanced and reflect the efficiency derived from the proposed investments.
- iv. Loss reduction during an MYT achieved by the most efficient DISCOs should be used as a benchmark. Moreover, even if it becomes harder, there is no reason why the same deteriorates relative to higher watermark achieved in FY 2023.

Response of KE to Mr. Arif Bilwani Submissions

60. KE during the proceedings submitted that T&D loss targets are based on the detailed load flow analysis and investment plan initiatives which have been independently validated by the consultant. Furthermore, since privatization KE has significantly reduced its T&D losses which has resulted in decrease in tariff requirements by PKR 155 billion per annum (T&D loss reduction annual impact of improvement from 34.2% in FY 2005 to 15.3% in FY 2023).
61. Regarding comparison with Tata Power Delhi Distribution Limited (TPDDL or TATA Delhi), KE emphasizes that KE and TATA Delhi are not directly comparable due to various factors mentioned below:
- i. In India, the Government has implemented incentives to curtail theft and recovery losses, such as rationalized tariffs as well as free electricity for consumers using up to 200 units per month. This subsidy significantly aims to reduce losses since these consumers represent that proportion in the total consumer mix where losses are generally higher than other consumer segments.
 - ii. Moreover, macroeconomic conditions such as inflation, GDP and currency stability and its impact on electricity prices to customers as well as their ability to pay their electricity bills differ significantly between the two countries which are beyond KE's control.
62. Moreover, regarding comparison of KE with other DISCOs, KE mentioned that it has consistently reduced T&D loss and has achieved the T&D loss targets set by NEPRA for the MYT FY 2017 – 2023. Furthermore, the losses of Islamabad, Lahore and Faisalabad are comparatively lower as compared to K-Electric due to different city dynamics & socio-economic situation. In addition, Karachi has the highest number of slums & population density with the least monthly household income, as mentioned below.



City	Population Density (per sq. m)	House hold monthly income USD	Number of Slums	Rank in quality life of index	Rank in World Banks ease of doing business assessment	HT to LT ratio
Karachi	4,543	184	900+	166	9	0.37
Islamabad	2,211	266	42+	121	4	1.1
Lahore	1,653	220	356	155	3	2.27
Faisalabad	792	184	169	-	1	1.56
Gujranwala	937	-	82	-	6	1.51

Note: Rank of Faisalabad & Gujranwala in Quality-of-Life Index is not available. Household Monthly Income of Gujranwala not available.

63. Furthermore, K-Electric, through an email dated August 26, 2024, submitted the necessary comparison of TATA Delhi and KE which is reproduced below:

A. **Difference of dynamics and scale of operations:** The difference in dynamics, scale of operations of both the organizations is tabulated below:

Particulars	KE	TATA Delhi	Remarks
Year of privatization	2005	2002	KE is a vertically integrated utility company active in Generation, Transmission and Distribution businesses whereas TPDDL is a DISCOM and is responsible for a part of Delhi City
HT length (in km)	11,298	9,301	Total line length of KE is 2.5 times the line length of TATA Delhi and LT line length of KE is 4 times the LT line length of TATA Delhi.
LT length (in km)	30,871	7,588	
Total Length (in km)	42,169	16,889	
HT to LT ratio	0.37	1.23	KE faces challenges of katchi abadis and RoW and as a result has a lower HT/LT ratio as compared to TATA Delhi.
Number of consumers (2023)	3.56 Mn	1.96 Mn	KE serves 80% more consumers than TATA Delhi.
Peak demand (MW) 2023	3,654	2,115	Similar to number of consumers, KE's peak demand is higher by c. 70%
Number of slums	900+	750	The slums data represent slums in Delhi and Karachi while TATA Delhi provide electricity to a portion of it only and KE supplies electricity to almost areas of Karachi and its suburbs.

Particulars	KE	TATA Delhi	Remarks
Rank in quality-of-life index	166	139	Macro-economic factors are more favorable for TATA Delhi.
Household monthly income (USD)	\$184	\$293	
Rank in Purchasing Power Index	170	43	
Residential applicable tariff without taxes FY 24 – PKR	Variable PKR 4-44 / unit	Variable PKR 0-27/ unit	For TATA Delhi, fixed charges ranging from PKR 68/KW/month to PKR 853/KW/month are charged in additional to variable rate. Important to note that tariff incentives have been announced by Government for TATA Delhi consumers as early as 2015
Investments incurred since privatization till FY 22 (USD in Bn)	1.2	1.3	TATA Delhi has invested USD 1.3 billion as compared to investment of USD 1.2 billion on KE distribution infrastructure. Another distinct feature is the aggressive investment of USD 700 million by TATA Delhi in its first eleven years of privatization due to clarity of tariffs and targeted reduction of AT&C losses. Total capex spend of KE per km circuit of line is almost 1/3 rd of TATA Delhi.
Dividends paid till FY 22 (USD in Mn)	-	159	Since privatization, KE has not paid any dividend to its shareholders and has reinvested the profits earned.

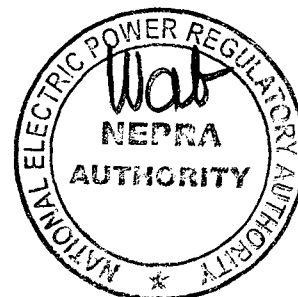
B. Support by government for TATA Delhi in reducing AT&C losses: Following initiatives were introduced by the Government to reduce power theft and enhance recovery:

- i. Establishment of special courts for facilitating faster disposal of theft related cases.
- ii. Facilitated availability of central security forces and police to assist in theft control.
- iii. Timely grant of road cutting / right of way clearances.
- iv. In November 2015, Government introduced a package named UDAY (Ujwal DISCOM Assurance Yojana) to address financial and operational issues faced by DISCOMs. The key features are as follows:
 - a. Reducing cost of power and tariff through rationalization of coal supply, better utilization of coal linkages, transparent auction of coal mines,



- improving efficiency of power generation plants and support integration of renewable energy into the grid.
- b. Debt reallocation and issuance of bonds at lower rates issued by the Government significantly reducing the burden on DISCOMs.
 - c. Government also provided support through various initiatives, including schemes for energy efficiency, smart grids and financial support for infrastructure upgrades. One of the essential features was allowing installation of smart meters, the cost of which was allowed to be passed on to consumers as higher tariffs, if required.
 - d. Focused on adoption of energy efficiency measures such as the use of LED bulbs and efficient agricultural pumps.
 - e. Promoted timely tariff revisions, aligning tariffs closer to the cost of supply, further reducing financial gap and improving revenue sustainability.
- v. The concept of subsidy of up to 50% of tariff for end consumers was introduced back in 2013-14 which further converted into the concept of free electricity for consumers consuming up to 200 units in 2019. Consumers get a 100 percent subsidy for consuming less than 200 units and a 50% subsidy for using up to 400 units in a month.
- vi. The TPDDL model of Public Private Partnership in Distribution is one of the successes and has resulted in significant savings for the Government through operational efficiencies and reduction in AT&C losses. As mentioned above, the same has been achieved due to collaborative efforts of multiple stakeholders. The transformation would not have been possible without the strong support and consistent policies provided by the Regulator coupled with support of the Government
64. KE further submitted that privatization of KE has been successful in Pakistan considering the circumstances the country. KE being a vertically integrated utility has focused on improvements in Generation, Transmission and Distribution businesses at the same time. Despite of facing challenges of inconsistent regulatory policies including drastic change in tariff structure (terms), lack of clarity on supply of national grid, non- notification of coal power plant tariff and cash flows stuck up in circular debt, KE has invested over PKR 544 billion across the power value chain since privatization till 2023. The Government saves approximately PKR 155 billion per annum due to reduction in T&D losses and PKR 110 billion due to improvement in generation efficiency. Had KE not improved operationally including reduction in

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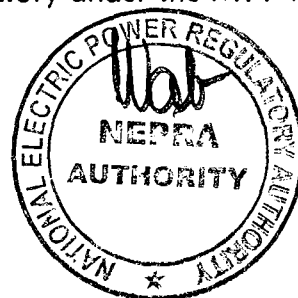


T&D losses and generation efficiency improvements as compared to 2005 levels, KE tariff would have been higher by PKR 17.3/kWh (June 2023).

65. KE reiterated that it is committed on further investments and induction of renewable and local coal generation to continue to improve operationally and reduce the tariff and support from Government and Regulator remain critical for execution of its investment plan.

Analysis and Decision of the Authority

66. The Authority has examined the submissions of the KE, the MoE (PD), Mr. Bilwani, international literature and the findings of the independent consultant M/s PPI and M/s PITCO Fichtner.
67. Regarding the transmission loss target, the Authority noted that KE's actual transmission loss has remained between 0.8% and 1.2% since FY 2017-18, averaging 0.96% for period between FY 2017-18 to FY 2023-24. Whereas, for FY 2023-24, the actual achieved transmission loss level is 0.75%, indicating continued improvement through network reinforcement and replacement of aged conductors.
68. The Authority observed that the independent consultant, M/s PPI, recommended a range of transmission loss from 0.80% to 1.40%, acknowledging dependence of transmission loss on system loading and transmission network configuration. Given that KE has already achieved better transmission loss in FY 2023-24 than allowed target by the Authority and M/s PPI projections, therefore, the Authority considers 0.75% as a fair and achievable benchmark for transmission loss which is reflective of KE's demonstrated performance and future network improvement program.
69. The Authority while considering the M/s PPI projections and co-relating same with average transmission loss of previous years decides to revise transmission loss target for the seven-year tariff control period. The Authority approves a 0.75% yearly transmission loss rate for the seven-year tariff control period. This rate will be adjusted downward based on actual losses, with no sharing mechanism in place. The upper cap for transmission losses is set at 1.0%. The tariff shall be determined each year accounting for 0.75% transmission losses, which shall then be actualized as per above mechanism.
70. Regarding distribution loss targets, Authority noted that a distribution loss of 13.46% was allowed to K-Electric in the decision for FY 2023-24, including 10.07% technical loss and 3.39% law and order margin. The Authority noted that the Intervener emphasized that KE's proposed loss trajectory under the MYT was too



low and not aggressive enough, given its substantial investment program and modern system configuration and with the approved investments in network rehabilitation, technical loss reduction, theft control, and metering modernization. The MOE (PD) also mentioned that KE's loss targets should be aligned with sectoral benchmarks and reflective of expected efficiencies arising from the approved investments.

71. The Authority recognized that consultant M/s PITCO Fichtner has evaluated theoretical technical loss up to 7.00% but has also stressed on the fact that there are other physical network considerations which also contribute to technical losses within the HT and LT network but same cannot be simulated in any load flow analysis. Further, M/s PITCO Fichtner in its report has also acknowledged that all these technical related factors will lead to a certain increase in overall theoretical losses. The technical factors as mentioned by consultant are:

- a) Loose connections, joints, etc.
- b) Repairs of distribution transformers
- c) Usage of deteriorated wires and services
- d) Current imbalances in HT system
- e) Unequal load distribution in LT system

72. In addition to above, it was also observed by the Authority that M/s PITCO Fichtner has not included the impact of service drop wire of residential customers in the distribution loss assessment analysis. Moreover, M/s PITCO Fichtner report also references KE's internal study, which estimated technical losses at 8.11%, and after adding a further 2.00% allowance to account for the unquantified technical parameters, the total technical losses were assessed at 10.11% by KE. The Authority is of the considered view that the omission of the aforementioned parameters by the consultant during the loss assessment whereas the same were duly accounted for by KE in its internal analysis has consequently resulted in the variance observed between the respective assessment outcomes of KE and M/s PITCO Fichtner.

73. The Authority is cognizant of the fact that the technical factors as mentioned above have an impact on technical losses. Moreover, international literature suggests that the factors such as corroded or loose joints, aged or repaired distribution transformers, and deteriorated conductors increase electrical resistance thereby leading to additional I^2R losses and reduce operational efficiency. Additionally, current and phase imbalances in HT and LT circuits are known to aggravate technical losses as well.



74. The Authority is of the opinion that collectively all these factors represent practical deviations from the idealized conditions assumed in theoretical loss models. Therefore, their exclusion from the M/s PITCO Fichtner analysis likely resulted in an underestimation of actual technical losses. The Authority considers that inclusion or allowance for such parameters is methodologically justified and essential for a comprehensive assessment of distribution losses. Further, the Authority views the M/s PITCO Fichtner exclusion of technical factors in the distribution loss assessment as overly theoretical and KE's estimation of same as overstated.
75. Therefore, the Authority in order to be fair and judicious decided to rationalize the impact of these technical related factors and capped same at a level of 1.00%. Further, KE is directed to undertake necessary measures for network to ensure improvements losses, outages and reliability. The Authority is also cognizant of the fact the technical factors though acknowledged by M/s PITCO Fichtner yet haven't been quantified therefore the Authority decided to maintain already approved sharing mechanism of 75:25% between consumer and KE respectively, while also encouraging the utility to make best efforts for improvements.
76. For comparative benchmarking, the Authority notes that TATA Delhi serving a comparable metropolitan region with over two million consumers, mixed income profiles, and legacy theft-prone localities has successfully reduced its aggregate technical and commercial (AT&C) losses from 53% in 2002 to below 7% in recent years. This reduction was achieved through sustained investment in network automation, high-voltage distribution systems, and community-based theft control measures.
77. The Authority notes that TATA Delhi experience shows that even in big and complex cities, major improvements in efficiency can still be achieved if investment, management, and monitoring systems work together with clear responsibility. Furthermore, TATA Delhi's technical performance indicators reflect a highly efficient and well-managed distribution network, characterized by low interruption frequency and duration. The consistently superior SAIFI and SAIDI values shows the utility's strong operational discipline, effective maintenance practices, and successful deployment of modern grid technologies. The Authority feels that KE's Energy Loss Reduction Program, System Maintenance Program and Advanced Distribution Management System (ADMS) along with other network improvement interventions are expected to yield measurable efficiency gains, similar to those achieved by peer utilities in Pakistan and the region.
78. The Authority observes that comparison provided by KE with respect to TATA Delhi is selective, non-exhaustive and descriptive. It frames operational context rather



than technical performance. It focuses primarily on scale, contextual challenges, and macroeconomic factors that favour KE's position, while omitting key quantitative performance and efficiency indicators as given below which are the actual determinants of operational excellence.

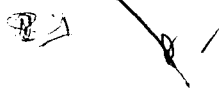
- a) Losses (technical, non-technical, AT&C)
- b) Reliability Indices (SAIFI, SAIDI, etc)
- c) Commercial efficiency (billing & collection)
- d) Customer services
- e) Operational efficiency (O&M cost / km, etc)
- f) CAPEX efficiency
- g) Network condition (transformer failure rate, feeder loading, metering penetration)
- h) Energy sales

79. In view of the foregoing analysis including the submissions of the Petitioner, Intervener, comments of MOE (PD), the analysis of the M/s PITCO Fichtner, KE's own technical assessments, international literature and the benchmarking against comparable DISCOs, the Authority re-evaluated and revised the distribution loss targets of KE. Thereby setting the technical distribution loss target at 8.00% which shall serve as the reference point for the MYT period. The Authority further decides to approve 0.97% loss reduction journey for seven years tariff control period.

80. The Authority also deliberated upon the law & order margin allowed to K-Electric. It was noted that in the decision, a margin of 3.39% had been provided under this head to account for areas affected by security-related and administrative constraints and larger number of slum areas. The Authority observed that there are certain pockets within K-Electric's network which continue to face law and order challenges, however, the overall environment has shown improvement relative to previous MYT control period.

81. The Authority also examined the allowances extended to other DISCOs operating under similar conditions and region such as HESCO, SEPCO, PESCO, and QESCO were each allowed a 1.00% law and order margin for FY 2024-25.

82. Accordingly, taking into account the current security dynamics, the improvements in field access, KE's large metropolitan environment with its own distinct challenges, the Authority decided to allow a 1.00% law and order margin to K-Electric for seven years MYT control period from FY 2023-24 to FY 2029-30. This reflects a reasonable recognition of the residual risks present in certain limited high-loss localities, while simultaneously encouraging the utility to strengthen coordination



with law enforcement agencies, local administration and improve the effectiveness and efficiency of its field operations across the entire network.

Issue # 08: Whether the requested adjustment of 15% contingency and admin & consultancy charges as against allowed factor of 5% is justified?

Submission of the Petitioner:

83. KE in its MLR referred to para 18 of the Decision, which is reproduced as under for ease of reference:

Para 18 – “The Authority has decided to include a 3% contingency factor, to be applicable on transmission projects envisaged between the 2nd and 7th year of the MYT control period. Further, the consultancy & admin charges have been adjusted at a level of 2%, to be applicable on transmission projects during the MYT control period of 7 years. This approach has been adopted similar to the XWAPDA DISCOs-approved investment plans for consistency purposes. The Authority has decided that contingency and other cost shall be adjusted at actual, subject to verification as per the Audit/Monitoring by 3rd Party.”

84. In this regard, KE highlighted that for budgeting purposes and project cost estimates, generally a contingency and other cost estimate of 15% is kept to account for any unforeseen cost like any scope changes after detailed survey and route profile, specific site conditions, unusual increase in commodity prices resulting in higher Bid prices, civil work and other material (copper, cement, steel, etc.) escalations as per the signed / awarded Contract, compliances with regulatory & environmental requirements and any other unforeseen conditions. Further, it includes costs kept for consultancy, departmental and other admin cost.

85. Keeping in view the above-mentioned facts and historical experience in past projects, KE requested the Authority to allow contingency, consultancy and other admin cost at actual with cap of 15% of escalated base cost. Further, KE also requested that such costs to be allowed from year 1.

Analysis and Decision of the Authority:

86. The Authority noted that the issue has been deliberated at length in the Decision and no new evidence has been provided by the KE. Therefore, the Authority decides to maintain its earlier Decision of setting a maximum cap of 5%, which includes 3% for contingency and 2% for admin and consultancy charges. This 5% contingency will

21 ✓

apply only to the approved base cost (FCC and LCC) and will not be applicable to adjusted or indexed factors / figures.

Issue # 09: Whether concerns raised by Mr. Muhammad Arif Bilwani regarding third party validations of KE investment plan are justified?

Submissions of Mr. Arif Bilwani

87. The Intervener, in its MLR and during the subsequent hearing, emphasized that the Authority's decision in the subject matter is heavily reliant on the findings, recommendations, and validations provided by the two consultants—M/s PPI and M/s PITCO Fichtner—engaged and funded by KE itself to perform the assigned tasks. Mr. Bilwani further contended that the independence and impartiality of these consultants is questionable, as they were commissioned to conduct studies, formulate findings, and present recommendations for the financial benefit of the KE, from whom they are also receiving payment.

88. Moreover, the Intervener mentioned that the Authority's stance of questioning them (M/s PPI and M/s PITCO Fichtner) about their ToRs with KE and the criteria they used for the validation and their response to the queries in writing as well as during the meeting with the Authority does not make them fully impartial/neutral/independent. No judicial forum will term them as INDEPENDENT experts and their opinion as unbiased. Had the Authority invited/solicited, through public notice, services of technical and financial experts to carry out the task of scrutinizing the petition/submission of the licensee, drawing out an appropriate TOR, with expected amount of remuneration only then their opinion/findings could have been termed as independent and impartial. The extent to which the Authority has relied on the recommendations/findings of only one expert/consultant, as regards undertaking Investment in Transmission Business, and that too hired by KE itself is evident from some of the paragraphs of the Decision:

"It is noted by the Authority that M/s PPI has developed the base model of KE's transmission network by Considering all the projects in execution/completed up till the year 2025, and then it performed load flow analysis. Based on the results of load flow analysis, M/s PPI has validated the above-referred proposed reinforcements in the transmission system of KE to ensure compliance with the provisions of the grid code." (Page 17)

"Keeping in view the above analysis, especially the load flow analysis performed by M/s PPI on a scientific and proven tool i.e. PSSE, the Authority approves an investment of Rs. 38,503 million for system reliability." (Page 18)

8.1

Response of KE to Mr. Arif Bilwani Submission

89. In response to the above submission of the Mr. Bilwani, KE during the course of hearing pointed out that M/s PPI is a leading Pakistani consultancy firm specializing in the power and energy sectors, established in 2003 and providing comprehensive services in power system planning, design, and project management. Also, the firm is known for its expertise in transmission and distribution network analysis, energy management, and power infrastructure development. Furthermore, it is important to highlight that M/s PPI has previously provided consultancy services to GEPCO, PESCO, MEPCO & several other DISCOs for the determination of their Distribution Tariff for FY 2020 – 2025.

90. Moreover, KE took the stance that M/s PITCO Fichtner were awarded a consultancy contract by KE to review and validate KE's Distribution Network Improvement Plan (NIP). M/s PITCO, a leader in the energy sector since 1938, and M/s Fichtner, a distinguished German engineering firm established in 1922, provided their consultancy services, utilizing their extensive expertise in project management, engineering design, and sustainable solutions across various sectors. With a strong track record, these consultants have contributed to numerous major projects both nationally and regionally, delivering innovative and sustainable solutions tailored to their clients' specific needs. Further, both the consultants have provided independent endorsement to NEPRA on the study on direct directions of NEPRA and also presented their results before the Authority as well.

Analysis and Decision of the Authority:

91. The Authority observed that Mr. Muhammad Arif Bilwani, in his earlier written comments and intervention request dated February 27, 2023, pointed out the necessity of appointing external experts or consultants to assess the veracity of KE's claims presented in the transmission and distribution investment plan, the relevant paras are reproduced below:

The undersigned also requests the Authority to appoint outside experts/consultants, besides its own evaluators, to thoroughly scrutinise the authenticity, veracity of claims & genuineness of all the petitions of the licensee as the licensee itself has, despite having a huge team of experts in the fields of electrical engineering, power engineering, mechanical engineering, experts of finance & accounts & legal experts had to avail the services of outside experts & consultants in preparing not only this but also other petitions either already filed or are in the process of filing.

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Once again the undersigned urges the Authority to engage outside experts/consultants to undertake vetting of the petition to reach a judicious decision.

Further arguments shall be submitted during the hearing.

Muhammed Arif
H. No. 2-A, South Park Avenue, Phase 2,
D. H. A., Karachi.

92. The Authority is of the view that these concerns of the petitioner were duly considered by the Authority in paragraph 28 of the Decision. The excerpt from decision is given below:

COMMENTS OF STAKEHOLDERS:

28. KE needs to look at the latest technologies to ensure optimal use of land, opt for compact solutions, and focus on underground networks in densely populated areas. Further, it must be ensured that the transmission investment caters to the existing and future load growth of the mega city. Moreover, grids are also required to increase the capacity of the interconnection of Karachi with the national grid. It was also suggested to carry out an audit of previous investments for the tariff control period from FY 2017 to FY 2023 by NEPRA, and also to appoint third-party experts/consultants for review of the instant investment plan for the tariff control period from FY 2024 to FY 2030.

93. The Authority further noted that the concerns of the petitioner have already been addressed in paragraph 22 of the Decision wherein the Authority decided to appoint a third-party audit and monitoring firm to perform quarterly evaluations of the approved investments and to assess the prudence of these investments, as per ToRs approved by NEPRA. Additionally, an amount of PKR 200 Million has been allocated by the Authority for this purpose.

94. The Authority further emphasized that it has sought the endorsements of Transmission Investment Plan and Distribution Investment Plan directly from the consultants i.e. M/s PPI and M/s PITCO Fichtner respectively vide letter dated 26-7-2023 and the same was provided by both consultants. Furthermore, the consultants were questioned regarding the basis of validation/endorsement by the Authority as well which was also recognized by the petitioner in the instant MLR.

95. Consequently, the Authority resolved to implement a comprehensive audit and monitoring system conducted by a third party engaged by NEPRA, in accordance with Terms of Reference approved by the Authority, to further validate KE's assertions and guarantee that no unwarranted expenses are transferred to the consumer.

96. The Authority noted that comments of Mr. Muhammad Arif Bilwani in its instant MLR regarding reliance of the Authority upon consultants hired & paid by KE have

already been adequately addressed while assessing the overall investment requirements of KE by the NEPRA.

97. Furthermore, the Authority regularly carries out in house analysis to ensure an informed decision is made. It is results of these engagements that claim of KE of PKR 484 Billion has been reduced to PKR 392 billion.

98. Foregoing in view, the Authority reaffirms and maintains its previous decision in the matter. After thorough consideration, it is decided by the Authority that the concerns raised by the petitioner regarding third-party validation of KE's investment plan have already been adequately addressed in the Decision.

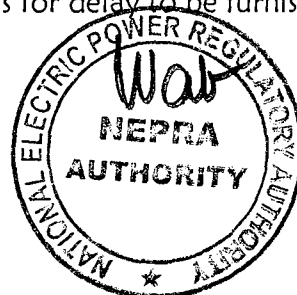
Issue # 10: Any other issues(s) which may be considered by the Authority during the hearing.

Submissions by the Petitioner:

99. In addition to the aforementioned issues, KE requested that following points to be considered:

- a. **Request to allow delay in investments due to delay in Tariff determination and also allow carry over of projects delayed:** KE requested that for execution of the approved investment plan, a sustainable cost-reflective tariff is a key pre-requisite. Tariff is crucial for KE to obtain Board approvals, secure funds and negotiate financing with both local and international lenders for undertaking this investment plan. In the absence of tariff, the execution of investments will be delayed. Consequently, this will cause delays in meeting the approved completion timelines based on which the Investment Plan was prepared and approved. In this regard, KE requested the Authority that the allowed completion period shall be taken as the period requested by KE for completion of planned investments with the addition of days between the date of Distribution, Transmission and Supply tariff determination, whichever is later, and July 01, 2023 and including carryovers of amounts underspent in FY 24 and FY 25.
- b. **Intimation for change in approved investment timelines and Specific approval by NEPRA on request of KE for change in scope:** To better manage the operation specific needs, scope changes, responsiveness to penetration in a particular area / system and flexibility to manage investments in an efficient manner, request made to:
 - Allow giving intimation for delay prior to start of project/stipulated timeline.
 - In case of force majeure, allow delay with reasons for delay to be furnished.

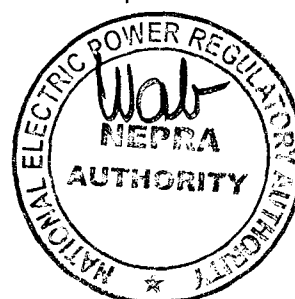




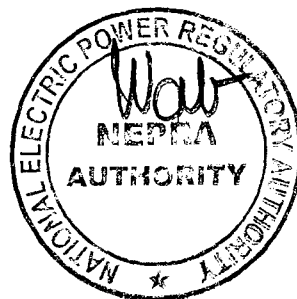
- In case of preponement, provision to request for prior approval.

Further, KE requested the Authority that in case of any change in scope of planning requiring additional investments based on NEPRA / GoP directives or otherwise, or significant change in commodity prices etc. any time during the control period, KE will seek NEPRA's prior approval for investments to be carried out.

- c. **Clarification required on verification of fairness and prudence of CAPEX claims by third party firm:** KE would like to highlight that prudence and fairness are effective before an event and cannot be assessed after the event has taken place / investments occurred as ground reality or conditions may change subsequently. Further, prudence and fairness evaluation is already performed by independent consultants and penalty is already in place in case of not achieving KPIs.
- d. **Request for rectifications in approved amount of IT & ERP infrastructure investment & others in the decision:** There is a mismatch in yearly investments approved by the Authority in order part and in the Annexure Y attached with the Decision which needs correction/rectification, although the total approved amount in this head is same in order part and annexure Y.
- e. **Request to reconsider conditions to fulfill codal formalities requirement to invest on no mains:** KE highlighted that this investment is essential to be carried out as these areas have grown unplanned, without authorization and if left uninvested may lead to safety incidents as well as interference with KE network and deterioration of losses on feeders / PMTs from which such areas are drawing electricity, which will not only result in increase in Distribution loss but will impact the overall loss profile of the feeder resulting in higher load shed as well higher network outages due to interference. KE requested the Authority to reconsider the requirements. Moreover, KE submitted that due to informal nature of these settlements, approvals from civic agencies are not available with the residents.
- f. **Request to update carryover amount of KKI project, rain emergency, BQ III Allied Projects, TP 1000 & other CAPEX:** The investment plan approved by the Authority was submitted before the end of FY 23, including a projected carryover amount that differs from the actual figures. However, certain projects which were assumed to be completed by FY 23 have been delayed due to factors beyond KE's control such as RoW issues, Force Majeure events, etc. Therefore, the Petitioner requested the Authority to consider and allow the carryover amount of such projects amounting to PKR 5,808 million in the instant MYT Control period.



- g. **Clarification on routine CAPEX transferred to O&M:** KE stated that the CAPEX transferred to O&M by the Authority in its Decision is not part of O&M expenses in the Financial Statements and will be required to be added **in addition** to O&M revenue requirements calculated based on actual FY 23 O&M expenses in petitions. Therefore, inclusion of such amounts in O&M expense revenue requirement shall be allowed in tariff petition.
- h. **Clarification on deductions related to disposals:** An amount of PKR 1,194 Mn has been deducted as disposals in the Decision. KE highlighted that the disposals are adjusted from RAB, and therefore, these should not be netted off with the new investment amounts. In this regard, KE requested the Authority to allow amounts for upcoming investments for the control period without any deductions and disposal will be adjusted at the time of tariff proceedings.
- i. **Clarification on direction to meet peak demand & growth targets:** The Decision directs to meet a peak demand target however, KE highlighted that achievement of designated peak demand depends upon multiple factors that are beyond the control of KE, such as economic & weather conditions, therefore it should not be considered as a target for KE. Further, the peak demand projections provided were projected prior to the close of FY 23, KE requested that these shall be reviewed at the time of Supply Tariff petition deliberation under which, any adjustment (over or under) arising due to sent out will also be accounted for accordingly.
- j. **Clarification on ABC Rehabilitation and Replacement investment:** In para 149, of the Decision, the Authority held that ABC **rehabilitation** investments are planned from FY 26 onwards with direction to claim the allowed cost for first two years (FY 24 & 25) in FY 26, after firming up the BOQ subject to verification by the independent consultant or through NEPRA however, as per the plan, investment on ABC **replacement** is planned from FY 26 and onwards. Therefore, a request was made to amend the Decision accordingly.
- k. **Head wise re-appropriation of Investments & Investment revision mechanism:** The Petitioner in its instant MLR has requested clarity regarding the re-appropriation of investment within NEPRA approved limits. The Petitioner requested the Authority to allow re-appropriation of investments within an investment head. KE further requests that the approved investments be monitored on the allowed amounts in total and flexibility should be provided to KE to amend the quantities, specifications, FCC & LCC components and locations in line with prudent utility practices. Considering that the on-ground situation is dynamic and for each project, detailed on ground surveys are carried out and loading analysis are reviewed prior to



investment execution/commitment, as a result investment requirement may vary and hence flexibility is paramount to ensure realization of maximum benefits and achievement of the targeted journey. KE highlighted that the cost breakups in FCC and LCC were projected on the basis of the bids, POs & BOMs available at the time of preparation of investment plan. For transmission, past projects were analyzed to identify the mix of FCC & LCC component. For distribution, cost of direct (Import by KE) & indirect imports (Local purchase from vendor whose raw material is mainly imported) based materials were treated as FCC whereas the cost of material sourced from local vendor (whose raw material is mainly locally sourced), RoW & services were treated as LCC hence, it is important that the same be considered in total.

Analysis and Decision of the Authority:

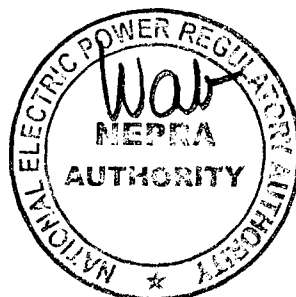
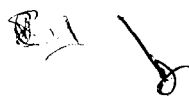
100. The Authority decides as under:

- a. **Flexibility in Investment Timelines and Scope Changes:** The Authority maintained its earlier decision i.e. KE to seek prior approval for rescheduling of projects, in case of change in demand or any other reason. The Authority decides to maintain its earlier decision i.e. not to allow any re-appropriation within any head and sub head of investment plan.

Nonetheless, for the distribution segments, the Authority decides to allow year wise flexibility in scope maximum up to 5%, to be calculated in terms of amount, with the already approved costs as the maximum cap.

Additionally, the Authority decides to allow flexibility between the FCC and LCC portions, provided that the total revised cost shall not exceed the indexed cost based on approved reference bifurcation. KE shall prioritize the use of local components and minimize the foreign portion of costs, while following the least cost principle.

- b. **Verification of CAPEX/Scope of 3rd Party Firm:** The Authority decides that detailed Terms of Reference (ToRs) of 3rd Party Firm(s) shall be separately approved by the Authority.
- c. **Correction/Rectification of IT & ERP Investment Figures:** The Authority approves the correction of typo errors to make Order part and Annex-Y of the Decision consistent with each other.
- d. **Investment in Unplanned Areas (No Mains):** The Authority decides to maintain its earlier decision of fulfilment of codal formalities by KE prior to investing in



no mains areas and shall be dealt with as per the prevailing applicable documents at that time.

- e. **Carryover of Delayed Projects of KKI project, rain emergency, BQ III Allied Projects, TP 1000 & other CAPEX:** The Authority does not consider the request of KE for allowing carry forward of rain emergency, BQ III allied projects, TP 1000 & other CAPEX. Only carry over of HVUB project and KKI project is allowed by the Authority.
- f. **Clarification on CAPEX Transferred to O&M:** The Authority decides to maintain its earlier decision of treatment of O&M nature CAPEX as part of the tariff petition and determination.
- g. **Deductions Related to Disposals:** The Authority decides that the assets disposal proceeds shall be adjusted in the tariff determination / adjustments. KE shall comply with the provisions of all the applicable documents in this regard.
- h. **Peak Demand and Growth Targets:** The Authority decides to maintain its earlier decision regarding the growth of Peak Demand (MW). KE shall ensure the transmission and distribution network expansion to meet the forecasted peak demand of its consumers.

However, in light of the negative growth pattern in energy and peak demand over the past few years, KE shall make all possible best efforts to ensure that its network investments are made on prudent and validated need assessment basis, to avoid any significant underutilization of the regulatory assets.

For this purpose, KE is hereby directed to conduct a thorough need assessment of all projects on a regular basis for the remaining five years, considering the prevailing ground realities. For this assessment, KE will also engage the 3rd Party Firm. Based on this review/assessment, KE shall submit a report, along with the validation/recommendation of 3rd Party Firm, outlining the projects KE plans to execute in the coming year, and the request for rescheduling of any projects. This report shall be submitted prior to the start of each Financial Year, before the beginning of March each year.

Furthermore, the issue of Sent out Growth targets has already been discussed and decided in the supply MYT determination of KE.



- i. **ABC Rehabilitation and Replacement:** The Authority approves the correction of the typo in para 149 of the decision and accordingly the word "rehabilitation" is corrected by word "replacement". On this matter, KE is hereby directed to study the reasons for short lifespan issues of ABC cables and its premature failure to achieve the desired results in certain areas and shall come up with mitigation plan to propose solutions to enhance efficiency and longevity of ABC cables.

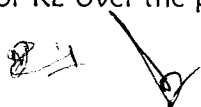
D. MINISTRY OF ENERGY - POWER DIVISION INDEPTH ANALYSIS OF KE'S INVESTMENT PLAN.

101. The MoE (PD), through a memorandum dated December 12, 2024, submitted a detailed analysis of KE's investment plan and tariff petitions, requesting NEPRA to ensure fair judgment in the matter. Although the MoE(PD) did not file a review against the Decision and the Authority under the existing legal framework is not required to consider its contentions and averments during the instant proceedings, however and without prejudice to this legal position, the Authority deemed it appropriate to seek response from the Petitioner on the detailed analysis of MoE (PD), considering that it is an important stakeholder. The following paragraphs indicated the in-depth analysis by the MOE (PD) and response of KE on each point raised by MoE (PD):

Comment # 01: MOE (PD) Submission on Electricity Sales Growth Projections

102. MoE (PD), on this specific issue, submitted that:

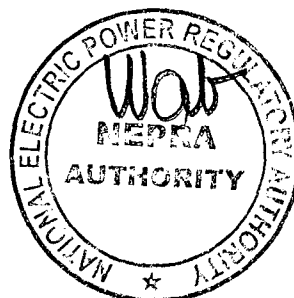
- i. Overall electricity consumption on KE network fell by 7.2% in FY 2023, However KE's investment plan for Transmission and Distribution is based on sustained annual growth through the control period, ranging between 2.2% in 2024 to 1.3% in 2030.
- ii. Similarly peak demand over the past five years has grown at a CAGR of only **0.69%** and decreased year on year by **0.44 %** during FY 2022-23. KE's investment Plan projects 2.9% CAGR for night time 'peak demand'.
- iii. It is unclear why KE is expecting expedited growth in the night-time peak. Especially since their projected growth rate does not reflect the demand growth figures for KE over the past five years, as shown below:



DISCO	2018-19	2019-20	2020-21	2021-22	2022-23
Peak Demand in CPPA-G System	24,839	24,790	26,349	29,131	30,231
Peak Demand Growth Rate over Last Year	(1.83)	(0.20)	6.29	10.56	3.78
KE	3,530	3,604	3,604	3,670	3,654
Peak Demand Growth Rate over Last Year	0.09	2.10	0.00	1.83	(0.44)

- iv. A reasonable assessment of growth-related investments can only be based on the intended outcome of such projects (how many and what types of new customers are to be connected? What is the quantum of expected demand growth? Where is the new demand located?).
- v. However, neither the KE Investment Plan nor the tariff petitions provide any information on the current electrification rate or types of growth catered for through the proposed investments (regularizing illegal connections vs. new demand from new connections vs. demand growth from existing connections etc.).
- vi. There are also no details on the estimated 'electrification gap' KE intends to fill through 'growth' related transmission investments or the type and geographic location of the 'new demand' KE plans to connect through transmission and distribution network expansion.
- vii. Growth related investment needs to be correlated to historic and projected system peak growth and electrification targets based on actual electrification rates in the KE jurisdiction (for example through the latest available census and GIS data).
- viii. Additionally, growth related investments should be differentiated by infrastructure proposed for catering to growth in consumption through existing connections and growth through new customer acquisition.
- ix. The growth figures underpinning investment projections should be based on the actual consumption through September 2024 (for base year estimates) and subsequent growth should be limited to 1 % for now and revised during mid-term review if needed.

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Petitioner's Response:

103. The Petitioner in response, submitted as under:

- i. Power system planning is done keeping in view the projected peak demand over a long-term horizon so that the impact of one-offs and abnormalities due to external factors can be levelized. It is for this reason that PC 4 of the NEPRA approved Grid Code 2023 also recommends demand forecast covering a horizon of at least 10 years. Accordingly, to base demand projections based on recent trend in growth driven by tough macroeconomic situation and COVID year may not be appropriate.
- ii. Historic trends show that growth is observed following a year of depression as also confirmed by the demand (GWh) growth trend below:

Description	2011	2012	2013	2014	2015	2016
Demand (GWh) Growth	1.2%	0.4%	3.0%	2.3%	4.6%	2.4%
Description	2017	2018	2019	2020	2021	2022
Demand (GWh) Growth	0.5%	4.1%	-0.8%	-2.6%	9.3%	3.2%

- iii. Further, a detailed analysis of the demand growth (GWh) with the GDP growth rate results in a correlation of 0.7 times between KE's average demand growth and GDP for the period FY 2006 to FY 2022 as summarized below:

Period	GDP Growth	Demand (GWh) CAGR	Correlation
FY 2006 – FY 2013	3.5%	2.8%	0.8
FY2009 – FY2015	3.8%	2.5%	0.7
FY2014 – FY2021	3.7%	2.4%	0.6
FY 2015 – FY 2022	3.4%	2.4%	0.7

- iv. Therefore, the Petitioner has projected the average demand (GWh) growth of 2.4% based on historic growth and correlation with GDP during FY 06 to FY 22 (historic correlation between KE power demand and GDP growth is 0.7). Moreover, during the same period (i.e. FY 06 to FY 22), KE's peak demand grew by a CAGR of 3.2% (1,447 MW), and therefore, the assumption of 2.9% growth in peak power demand for the period FY 2024 to FY 2030 is prudent.
- v. With regard to the methodology for demand forecasting, DPC-5 of the Distribution Code stipulates various methodologies which include (i) historic population and load growth analysis, (ii) land use and zoning methods, (iii) end-



use energy method, and (iv) any other reasonable and justifiable method. Vide Decision, NEPRA has already performed a detailed analysis of the methodology adopted by KE for power demand planning and found it to be prudent and in compliance with the regulatory requirement.

- vi. The Petitioner referred to para 48 of the Decision, which is reproduced below for ease of reference:

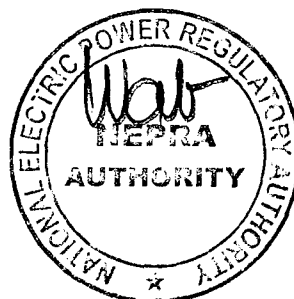
Para 48- "KE has used historic load growth analysis during the different tenures between FY 2006 to FY 2022. Therefore, the Authority is of the view that KE complies with the provisions of the Distribution Code as far as the methodology of the demand forecast is concerned."

- vii. Moreover, it was also submitted that reforms for economic revival along with the planned captive conversion to the grid would stimulate power demand and hence needs to be accounted for in demand planning. Currently, there is a load of around 662 MW of captive consumers in KE service area which is expected to increase their grid utilization following the gas pricing reforms, and another 120 MW to 150 MW of load from captive consumers is expected to come to the grid which would further stimulate growth in power demand.

- viii. Regarding the expedited growth in demand during night hours, it is submitted that KE's projected peak demand is in night hours and hence solar disruption may not impact the same.

- ix. Regarding limiting of growth to 1% for now and its revision during the mid-term if needed, it is stated that:

- a. Demand growth projections have to be aligned with the historical trend, macroeconomic factors as well as spread over a longer horizon, as also required under PC 4 and other enabling provisions of the NEPRA approved Grid Code 2023.
- b. As explained in response to point (a) and (b) above, KE's demand growth (GWh) has had a correlation of 0.7 with the GDP growth of the country and as per different GDP growth projections, the following resultant demand projections have been worked out:



Source for GDP Growth Assumption	GDP Growth Projections	Correlation between KE demand (GWh) and GDP Growth	Demand Growth (GWh)	Demand Growth (GWh) assumed by KE
	A	B	$C = A \times B$	D
IMF	3.8%	0.7	2.6%	2.4%
GoP Project Uraan	6.0%	0.7	4.2%	

Source: International Monetary Fund (IMF), Uraan Pakistan – National Economic Transformation Plan 2024-2029 (Ministry of Planning Development & Special Initiatives)

- c. Therefore, limiting the growth to 1% based on recent trend in growth driven by extremely tough macro-economic situation would be imprudent and is also inconsistent with past trend where growth is always observed following year of depression, and hence, will not align with the key considerations as well as not be in conformity with the prescribed regulatory framework.
- d. In addition, limiting growth to 1% and seeking investment approval subsequently to meet increased power demand may result in delays in execution of growth projects, which can thus have various implications including but not limited to (i) Increased load-shed, (ii) Regulatory non-compliance with regard to loading of individual assets, (iii) Delays in New Connection etc. thus having economic implications.
- e. KE further contended that the Decision already has a mechanism of 3rd party audit of Capex claims of KE.

Analysis and Decision of the Authority:

104. The Authority, on the above submissions made by MoE (PD) and KE, decided as follows:

- i. **Demand forecasting by KE in view of drop in overall electricity consumption (MWh)**
 - a. The Authority noted that the clause DPC-5 of the Distribution Code stipulates various methodologies for demand forecasting. These include (i) *historical population and load growth analysis*, (ii) land use and zoning methods, (iii) end-use energy method, and (iv) any other reasonable and justifiable method.

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- b. Further, the Authority observed that pursuant to PC 4 and other enabling provisions of Grid Code 2023 with regards to power Integrated System Planning (ISP), a long-term horizon needs to be taken into account so that the stable projection is made with impact of outliers and external factors levelized. Accordingly, ISMO for the IGCEP takes into account 20 years demand forecast projections as basis for the next 10 years candidate projects optimization and similarly the TSEP also adopts the demand forecasting for 10 years horizon of same results, which is again aligned with 10 years PMS based load forecasting DISCOs.
- c. The Authority is of the view that pursuant to the national ISP approach, using a long-term planning horizon through IGCEP and TSEP where the projected energy growth is 2.8% and peak power demand is 3.1% (Table 4-5 of draft IGCEP 2024-2033). Whereas in case of KE's historic growth energy and power demand growth approved is 2.4% and 2.9% respectively.
- d. The Authority noted that for the purpose of IGCEP, ISMO has assumed GDP growth of 3.5% over and applying the 0.7 correlation of historical KE's average demand growth with the GDP, results in demand growth of 2.4% which is in line with KE's demand growth projections

Particulars	ISMO BAU Scenario	KE
GDP Growth	3.5%	3.5% (as per ISMO)
Average Power Demand Growth	2.8%	2.4%
Correlation	0.8	0.7

Source: Table 4-5 of draft IGCEP 2024-2033

- e. The Authority re-iterates para 48 of the Decision which provides that, "KE has used historic load growth analysis during the different tenures between FY 2006 to FY 2022. Therefore, the Authority is of the view that KE complies with the provisions of the Distribution Code as far as the methodology of the demand forecast is concerned".
- f. Accordingly, the Authority is of the view that the methodology adopted by KE for power demand planning is found prudent and in alignment with (i). compliance with the regulatory framework, (ii). national level ISP assumptions and (iii) historic correlation between the GDP and energy demand.

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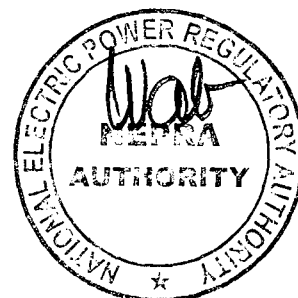
- g. In view thereof, the Authority decides to maintain its earlier decision which is reproduced hereunder for ready reference:

"In view thereof, the Authority is of the view that KE's projections comply with the prescribed methodology as given in the Distribution Code, and seem reasonable based on historical trends, therefore, the same has been agreed by the Authority. The mechanism for adjustments of actual energy/demand parameters against projected numbers shall be decided in the tariff determination of K-Electric. The Authority appreciates KE's plans to eliminate load shedding from 95% of feeders by 2030, however, the Authority directs KE to abide by NEPRA applicable documents as well as directions of the Authority issued from time to time regarding load shedding. Further, the Authority directs KE to meet peak demand up to 5,111 MW as claimed in its investment plan."

- h. Moreover, the necessary deliberation and directions to KE to address the concerns of the stakeholders on the aspect have already been made and referred under relevant paras of Issue # 10 (H).

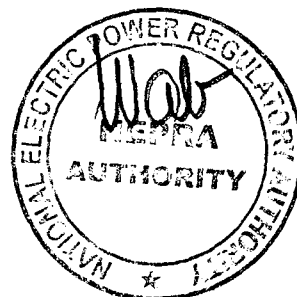
ii. KE claim of expedited growth in peak demand.

- a. The Authority analysed that power system planning is done keeping in mind the projected peak power demand pursuant to PC 4 and other enabling provisions of Grid Code 2023 and other applicable documents. Further the KE's peak power demand grew by a CAGR of 2.3% (475 MW) during FY 2016 (3,195 MW) to FY 2022 (3670 MW) and a CAGR of 3.2% (1,447 MW) during FY 2006 (2,223 MW) to FY 2022 (3,670 MW).
- b. The Authority also noted that in comparison, for the period FY 2016 to FY 2022, NTDC's peak demand grew at a CAGR of 1.4% whereas, NTDC for the purpose of IGCEP in low demand scenario has projected a peak power demand growth at CAGR of 4% between FY 2023 to FY 2030.
- c. The Authority observed that in addition to historical growth till FY 2030, KE has also considered the impact of (i) approximately **500 MW** expected to crystalize from **captive consumers**, and (ii) **Economic revival** – both to impact the power demand.
- d. Further, peak demand during night hours has been considered due to expected induction of solar, the peak demand is shifting to night hours (As stated in KE petition of the investment plan table 42).



- e. In view of the aforementioned, The Authority is of the opinion that since the issue of KE's demand projections has already been discussed and decided in detail in the para 47 of the Decision, thereby, KE's assumption of 2.9% growth in night peak power demand seems reasonable and equally prudent. Therefore, the Authority decides to maintain its earlier decision.
- iii. **Rebasing growth figures on actual consumption and peak demand through September 2024 (for the base year estimates) and limiting subsequent growth to 1%.**
- a. The Authority notes that the Growth Capex accounts for 40% (PKR 150 billion out of PKR 392 billion) of the total approved Investment Plan of KE. The amount of growth Capex is linked with the projected growth in energy and power demand as discussed above. Revision in demand forecast means revision in 40% of the Investment Plan which would render the entire regulatory process of two (02) years ineffective and practically requires revision of a major portion of the Investment Plan which at this stage would be highly imprudent given that two (02) years of the control period are completed.
- b. Further, limiting the growth to annual 1% based on recent trend in growth driven by extremely distressed macro-economic conditions with short term results considered would be inconsistent with applicable documents, historical growth trends and imprudent practice not aligned with national planning.
- c. The Authority considers that the approach of annual review and adjustment etc. would unnecessarily make the regulatory process lengthy and cumbersome and would practically circumnavigate the very purpose of MYT under a seven (07)year Investment Plan. Also, that this approach may contradict with the global practices and efficient planning.
- d. The Authority has already approved a mechanism of third party assessment as to assess the fairness and prudence of KE's actual investments. In case of under investment the cost of CAPEX shall be adjusted annually in tariff to account for actual investments. This will ensure regulatory oversight and prudence check.
- e. Moreover, in the absence of timely approval of the investment and tariff, the licensee would not be able to make the required investments timely and could inadvertently result in (i) increased load-shed, (ii) regulatory non-compliance with network performance standard and Codes including SAIFI, SAIDI, Voltage Drop, loading etc. (iii) delays in new Connection etc. which have serious negative impact on the quality of service.

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- f. In view of the aforementioned, the Authority is of the view that since the recommendations of the rebasing and limiting the growth to the 1% is not aligned with (i). the regulatory framework, (ii). national level ISP assumptions and (iii) historic correlation between the GDP and energy demand and (vi) industry best practices (v). may have impact for the consumer, therefore the Authority decides to maintain its earlier decision.

Moreover, the necessary deliberations on this aspect and directions to KE to address the issue has been made under relevant paras of Issue # 10(H). Furthermore, the investment of 1st year is being actualized through this decision

Comment # 02: MoE (PD) Submission on Transmission Infrastructure Investments

105. MoE (PD), with respect to Transmission Infrastructure Investments, submitted that:

- i. Considering the growth in peak demand on the KE network over the past 5 years (around 140 MW), it is unclear why KE intends to add 2,000 MVA through transformation grid stations listed under "growth projects".
- ii. KE's demand projections (and the resulting investment proposals) need to be based on actual economic growth data for the KE jurisdiction (and not the country as a whole).
- iii. The demand projections through 2030 can be revised resulting in a drop in capital expenditure associated with growth projects.
- iv. It is unclear why KE is proposing to add 406 km of 220 kV and 135km of 132 kV transmission lines without providing justification of associated benefits. Each project needs to be justified explicitly through identifying drivers for the investment (increase in customer base or replacement based on ageing analysis etc.).
- v. Similarly, there is a need to align Transformer MVA with Distribution MVA for Power Transformer and Auto Transformer Capacity, which needs to be adjusted for growth. This can be based on benchmarking transformation capacity and reviewing increase and corresponding replacements based on ageing analysis of failures.

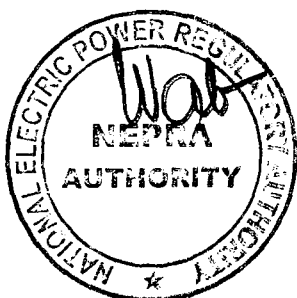


- vi. KE's transmission investment costs per km of transmission line and/or per MVA of transformation capacity needs to be verified, and rationalized through benchmarked against NTDC (adjusted for technology differences).

Petitioner's Response:

106. Petitioner, in response, submitted as follows:

- i. The 2,000 MVAs is the cumulative transformation capacity of 04 four new grids and additions of auto trafo on 03 existing grids. This refers to 220 kV Auto-Trafo capacity which is required to transform capacity from 220 kV to 132 kV. With the addition of KKI grid and replacement of 132 kV generation of Tapal and Gul Ahmed IPPs, unavailability of gas at SGTPS and KGTPS plants which also supply at 132 kV generation, the requirement to transform capacity from 220 kV and 132 kV has increased.
- ii. It is clarified that NEPRA approved capacity addition of 755 MVA in power transformation capacity at 132 kV which is relevant for the purpose of KE's end capability to serve the consumer demand and not the auto-trafo transformation capacity. Further, this also includes 200 MVAs through consumer funded, for which the Capex amount is to be funded by consumers and not part of KE investment.
- iii. Furthermore, KE has also requested flexibility in the MLR. If the Authority allows the same, in case the demand does not materialize, and investments are not needed, KE would defer those investments and tariff would be adjusted annually.
- iv. KE highlighted that KE approached the Ministry of Planning (GoP) multiple times for GDP data of Karachi but the same was not provided. Furthermore, the same was referred to in para 49 of the Decision. Additionally, demand projections take into account both on-grid and behind meter solar penetration.
- v. The addition of lines and other infrastructural investments are based on detailed assessment of the projected growth in power demand, to improve safety and reliability of the network, and end of life assessment as well as to ensure compliance with the regulatory requirements.
- vi. The projected distribution MVA of KE in its investment plan are linked with transmission MVA projections, which were derived through detailed analysis and power system studies, including load flow, short circuit, and dynamic stability



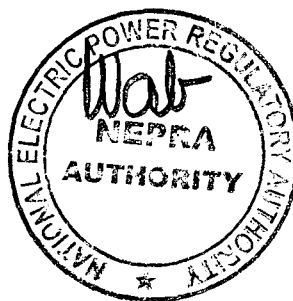
assessments, conducted in accordance with prudent utility practices. Additionally, these projections were further validated by an independent consultant.

- vii. Moreover, MVA capacity additions have been planned in regions with emerging load demands or where potential evacuation or capacity limitations exist in the current network. KE has already submitted as part of Investment Plan the expected loading of underlying assets for which growth investments have been planned and will remain obligated to actualize and review the same periodically to ensure investments are done based on updated estimates and the same will be reviewed by NEPRA appointed 3rd Party auditor.
- viii. The investment plan of KE has been developed keeping in view particular technical and environmental conditions faced by KE which are different from NTDC. These differences were also highlighted during investment plan proceedings and KE also provided detailed justification earlier which have been analyzed in detail by third party consultant and NEPRA team. Some of the key differences is that KE grids have GIS technology whereas NTDC uses AIS technology. Similarly, KE towers are of different specs to accommodate higher vertical clearances and corrosive environment being coastal areas. Further, performance indicators of KE are also much better than NTDC; both reliability and losses.
- ix. Keeping in view the above, the approved Investment Plan has already been devised considering these technological differences.

Analysis and Decision of the Authority:

107. The Authority on the above submissions made by MoE (PD) and KE, decided as follows:

- i. The 2,000 MVAs in cumulative transformation capacity of 04 four new grids and addition in 03 existing grid, this refers to 220 kV Auto-Trafo capacity which is required to transform capacity from 220 kV to 132 kV.
- ii. With the addition of KKI grid 220 KV and replacement of 132 kV generation of Tapal and Gul Ahmed, unavailability of gas at SGTPS and KGTPS plants which also supply at 132 kV generation, the requirement to transform capacity from 220 kV and 132 kV has increased.



- iii. In addition, auto trafo addition at 220kV level have also been planned to cater for loading requirements of existing grid stations as submitted by KE in its Investment Plan submissions and hence these are not solely for growth purposes but would also cater to reliability of network and security of supply for consumers.
- iv. However, it is clarified that the Authority has approved capacity addition of 755 MVA in power transformation capacity at 132 kV which is relevant for the purpose of utility's end capability to serve the consumer demand not the auto-transformer's transformation capacity (*Para 53 of the Decision*).
- v. In view of the above, the Authority maintains its Decision. Further, the Authority added flexibility mechanism, in case the demand does not materialize, and investments are not needed, KE would defer those investment and tariff would be adjusted annually (Para 275 (C)(ix) of the Decision)
- vi. Furthermore, the Authority has decided that KE shall carry out a bidding process for 132 kV HVUB project and 220 kV Transmission line for Interconnection of Deh Halkani and Deh Metha Ghar Solar Projects, which shall be monitored and evaluated by a 3rd Party Firm. The Firm will submit a project evaluation and recommendation report, assessing the competitiveness of the bidding process, and the reasonability of the project costs. The reasonability check shall include the analysis of the project's scope, Bill of Quantities (BoQs), and a comparison with NGC/DISCOs projects implemented in coastal areas. This significantly address the concerns of the stakeholders.

Comment # 03: MoE (PD) Submission on Distribution Investments:

108. Regarding Distribution Investments, MoE (PD) has submitted that:

- i. Cost of AMR meters at PKR 95k+ is deemed to be excessive and can be reduced to PKR 30k, in line with what is being charged by LESCO.
- ii. Network Rehabilitation cost estimated in the range of PKR 11 million per feeder needs alignment and benchmarking with other DISCOs.
- iii. According to data reported by NEPRA, losses on some PMTs with ABC cables are between 15% to 30%. In the case of LT ABC capital expenditure, a strong case needs to be presented whereby the net present value of any ABC related intervention should yield savings greater than the capital expenditure on the cables.



- iv. In addition, the useful life of most ABC cables on KE's network is low compared to the standard life of between 16 to 25 years reported in literature.
- v. A downward revision in sales and peak demand growth projections will lead to a proportionate decrease in growth-related infrastructure investment, resulting in a drop in capital expenditure associated with new feeders and PMTs.
- vi. In the case of LT ABC capital expenditure, a strong case needs to be in place. The net present value of any ABC related intervention should yield savings which are greater than the capital expenditure.
- vii. The distribution investments per unit infrastructure needs to be benchmarked against the DISCOs.
- viii. KE needs to provide evidence to verify the very short useful life of the ABC investments. Even if the payback period is short, maximizing the useful life of the investment is beneficial for the consumers.
- ix. Additionally, many PMT's continue to record high losses despite ABC. Unclear how the company achieves short payback periods given the state of the losses on PMTs with ABC.

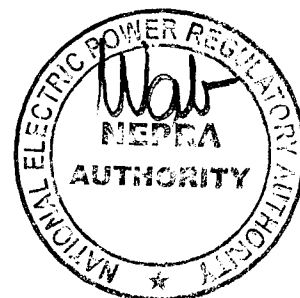
Petitioner's Response:

109. The Petitioner, in response, submitted as follows:

- i. The cost of 95K+ also includes cost of services, installation of ancillary equipment etc. The cost of AMR meter is around PKR 65,000 and in case of KE Investment Plan, AMR meters are mostly CT operated for PMTs and industrial consumers. Three-phase AMR meters cost to KE around PKR 32,000 and are mostly consumer funded as used in net metering and hence are not part of Investment Plan.
- ii. Further, apart from CTO AMR meters, KE's cost of meters is comparable to those of IESCO. Furthermore, for CTO meters, the technical specifications of meters procured by KE has the following additional benefits:
 - Accuracy Class: Higher accuracy class of 0.5 vs 1 for IESCO
 - PLUSH Data Mechanism: Supports PLUSH (Push & Pull both) vs only pull mechanism in IESCO
 - Input/Output Port: Supports Input/Output ports enabling PMT which are not available in IESCO's meters:

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- Temperature sensing
 - Oil Level sensing
 - Modular Design: Supports multiple pluggable modems such as RF, GPRS etc. whereas IESCO meters only supports PLC.
- iii. The Network rehabilitation requirements are not directly comparable with DISCOs, due to differences in scope of work keeping in view the technicalities. Furthermore, KE faces increased consumer interference with network in the form of Kunda and encroachments and Karachi's geographic location being closer to the coastal area which exposes the network to higher corrosion rate increasing the frequency of maintenance. Moreover, Network Rehabilitation is planned to be targeted on selective feeders based on need analysis.
- iv. Additionally, the cost as well as scope of work for KE's entire Investment Plan have been thoroughly validated by independent consultants. Moreover, NEPRA has also undertaken prudence assessment and rationalized the same wherever required.
- v. Regarding observation related to ABC, KE requested PKR 31 billion under the head of ABC, whereas the Authority has allowed only PKR 15.8 billion and an amount of PKR 14 billion (ABC replacement and rehab) has been set-aside and will be allowed after further deliberation. Pay-back period for loss reduction projects including the Capex set-aside by NEPRA is 6 years.
- vi. The useful life of ABC cables procured by KE is 15 to 20 years, however, due to excessive interference by consumers in some areas, the life of the cable is compromised and hence requires early replacement/rehabilitation.
- vii. Regarding the risk of under-performance and not achieving desired losses, in case KE is unable to achieve desired Distribution loss levels then KE will be out of pocket and such cost of excess Distribution loss is not passed-through in tariff. Whereas, in case of DISCOs, such losses become part of circular debt and then are recovered through imposition of surcharges.
- viii. KE submitted a benchmark of $\leq 15\%$ losses on PMTs where ABC is implemented. However, it is pertinent to note that KE's Distribution loss targets are locked for the MYT period based on 15% achievement in ABC areas. In case KE fails to achieve the desired loss levels, then KE will be out of pocket and such cost of excess Distribution loss will not passed-through in tariff.



ix. Regarding benchmarking of distribution investment with DISCOs, the Authority has analysed the investment plan of KE keeping in view technical & environmental differences between KE and DISCOs such as:

- Corrosive coastal environment resulting in higher cost of KE's network.
- KE's distribution network is based on ring circuit system, whereas in case of other DISCOs, the distribution network is based on radial feeder.
- A comparison of the same is appended below:

DISCO Distribution Network with Radial feeder • Overhead conductor feeds from grid station directly to Distribution Transformer • No primary substation or Ring Main Unit • Faults cleared by protection installed at grid station Low cost solution Bottlenecks • Outages affect large number of consumers (fault is not localized) • Restoration through back feeding is not possible • Prone to overhead transient faults • <i>Limited SCADA functionality possible</i>	KE Distribution Network with Ring system • Underground cable feeds from grid station to Primary substation; primary substation equipped with incoming and outgoing switchgear with protection • Feeders connected in ring configuration to allow for back feeding • Fault localization possible by clearance at primary substation High cost due: • M.V cables; approx. 4 km of underground cable connects each grid station to primary sub station • Excessive Right of Way (RoW) cost • Primary substation and its equipment • Ring system suitable for back feed • Legacy system suited for large cities Advantages • Outages are localized and affects fewer consumers • Partial feeder restoration possible through back feeding • Full SCADA functionalities can be implemented • Limited overhead part prone to transient faults
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- Due to unique city dynamics including high ratio of unplanned areas, HT:LT ratio of KE is lower than other DISCOs. The comparison of HT:LT ratio is presented below:

DISCO / KE	2016	2017	2018	2019	2020	2021	2022	2023	2024
FESCO	1.52	1.54	1.53	1.55	1.56	1.54	1.54	1.56	1.55
GEPSCO	1.39	1.38	1.42	1.43	1.47	1.49	1.50	1.51	1.52
KE	0.56	0.51	0.55	0.55	0.61	0.61	0.61	0.61	0.40
LESCO	2.08	2.09	2.14	2.17	2.23	2.21	2.23	2.27	2.30
MEPCO	1.62	1.62	1.62	1.62	1.66	1.68	1.70	1.72	1.73
PESCO	0.84	0.88	0.88	0.89	0.89	0.90	0.90	0.89	0.90
IESCO	1.07	1.07	1.07	1.07	1.08	1.09	1.09	1.10	1.10

- x. In addition to the above, KE also highlighted that despite the allowed investment on Energy Loss Reduction, no significant reduction in losses has been achieved by the most efficient DISCOs in Pakistan as opposed to KE which has significantly reduced its losses by c. 6.9 % in the previous MYT.

Analysis and Decision of the Authority:

110. The Authority, on the above submissions made by MOE (PD) and KE, decided as follows:

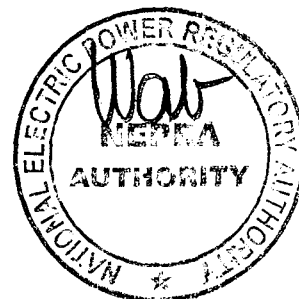
- Regarding cost of AMR Meters, the Authority noted that the analysis done by Power Division in respect of KE also includes cost of services, installation of ancillary equipment etc. Furthermore, the Authority is of the opinion that the difference in cost of AMR meters is due to change in technical specifications, make, accuracy class, CT ratio, enclosure type, etc. which is again subject to the actualization based on NEPRA's third party audit/verification and prudence checks. Moreover, the Authority feels that the cost of AMR (CT operated / industrial) is around PKR 65,000 and in case of KE, AMR meters are mostly for industrial consumers and CT operated.
- Regarding network rehabilitation, the Authority is of the view that rehabilitation requirements are not directly comparable with DISCOs due to increased consumer interference with network in the form of Kunda and encroachments and Karachi's geographic location being closer to the coastal area which exposes the network to higher corrosion rate increasing the frequency of maintenance. Moreover, Network Rehabilitation is planned to be targeted on selective feeders

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based on need analysis, which is again subject to the actualization based on NEPRA's third party audit/verification and prudence checks. Moreover, the CAPEX requested under the Network Rehabilitation is critical to enhance network reliability as well as ensure safety.

- iii. In view of the above, the Authority maintains its earlier decision made vide para 151 of the Decision, which states that, "KE has claimed a cost of Rs. 15,279 million for network rehabilitation on 1,132 feeders which includes covering the bare conductor & exposed conducting parts to avoid accidents and to ensure safety, service continuity and reduction in technical losses. Also, rehabilitation of 1,132 feeders will be done to improve SAIFI and SAIDI by reducing faults. Accordingly, the claimed cost under this head is being allowed, however, the escalation factors used by KE have been rationalized."
- iv. Further, the Authority noted that the costs as well as scope of work for KE's entire distribution investment plan have been thoroughly validated by M/s PITCO Fichtner an internationally reputed consultant engaged with several regional and local organizations as an independent technical evaluator. Moreover, the costs have already been rationalized by NEPRA wherever required.
- v. Moreover, the Investment Plan included third party monitoring mechanism whereby the third-party firm shall be responsible for examining and verifying the fairness and prudence of CAPEX claims and other adjustments of KE against various allowed projects to be implemented during the MYT control period 2024-2030 as per approved investment plan (Para 22 of Decision). This will ensure regulatory oversight and prudence check.
- vi. As far as ABC is concerned, the Authority observed that KE had requested Rs. 31 billion under the head of ABC for approval of the Authority, whereas the Authority allowed only PKR 15.8 billion and has set-aside an amount of PKR 14 billion (ABC replacement and rehabilitation) for further deliberation. Since, the risk of underperformance in terms of the losses target is parked with KE (as distribution loss targets are locked for the MYT period), in case KE is unable to achieve desired distribution loss in particular then KE shall bear the cost of higher losses and such cost is not passed-through in tariff. Therefore, the impugned Decision is upheld to this effect.





Comment # 04: MOE (PD) Submission Investment Plan Revision Mechanism:

111. On the issue regarding Investment Plan Revision Mechanism, MOE (PD) stated as follows:

- i. The indexation methods and treatment of delays and early deployments in the 7-year Investment Plan approved for KE in April 2024 need to be in line with the respective determinations of the Authority.
- ii. Under the Distribution tariff petition dated December 27, 2023, K-Electric has proposed an "investment plan revision mechanism" that tends to transfer cost of delays to consumers. The request for 'revision mechanism' under the K-Electric tariff petition for distribution business should be declined since this has already been determined by the Authority in April, 2024.

Petitioner's Response:

112. The Petitioner, in response submits as follows:

- i. The Petitioner in its MLR filed an indexation mechanism to ensure prudent costs are allowed in a timely manner without overburdening the consumer. KE will ensure that the indexation methods and treatment of delays be in line with the Authority's decision on the MLR.
- ii. Under the requested mechanism, KE has requested for deferral of investment due to pendency of Investment Plan/Tariff as well as in cases where the projected demand doesn't arise, such deferral should not be considered as delay on KE part. Additionally, in case of delay in the completion of the project(s) without intimation to the Authority prior to the start of project or for any other reason without approval of the Authority, KE has requested that no exchange rate variation or any other adjustment shall be given beyond the allowed completion period.

Analysis and Decision of the Authority:

113. The Authority, on the above submissions made by MOE (PD) and KE, decided as follows:

- i. The Authority notes that the submission of the MOE (PD) regarding indexation methods and treatment of delays has already been addressed vide Para 21 of the



Decision, hence the Authority maintains its earlier decision. For ease of reference, the relevant Para 21 of the decision dated 24.04.2024 is reproduced hereunder:

"In case of rescheduling any project(s) to some later date against the timelines being approved in this decision, KE shall have to inform the Authority six months prior to the financial year in which the project(s) was to commence its construction. Upon satisfaction of the Authority of the reasons for rescheduling, KE shall be entitled to the prescribed indexations in later years, without any change in allowed construction time. If information is not provided by the given timeline, KE will receive the IDC of the project(s) for the period allowed in this decision, limited to the project's progress during that time."

- ii. In addition to above, the Authority through this instant decision, have updated the indexation and adjustment mechanism as enclosed at **Annex-II** of the instant decision of the Authority.

Comment # 05: MOE (PD) Submission on Performance Indicators:

114. MOE (PD), with regard to setting of Performance Indicators, suggested that:

- i. The benchmark for SAIFI and SAIDI targets should be set against the levels achieved in FY23 (high watermark in the closing MYT FY23 should be used as a benchmark for the next MYT).
- ii. The actual Transmission Loss in FY23 was 0.86% and there is no reason why the same increases to 1.3% in FY24, and stays at the same level till 2030.
- iii. The assumed loss in FY24 is even higher than the 1.2%, Transmission Loss in FY19, and needs to be explained in the petition to justify KE's reasoning.
- iv. The same may need to be verified through NTDC, with a thorough review and identification of potential transmission losses that can be attributed to interconnections, as well as solar generators.

Analysis and Decision of the Authority:

115. The Authority, on the above submissions made by MOE (PD), analyzed and decided as follows:

- i. NEPRA has already benchmarked performance standards including SAIFI and SAIDI targets for its distribution licensees as laid down in the NEPRA Performance

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Standards (Distribution) Rules, 2005, as amended from time to time, and also have an effective monitoring and enforcement mechanism for the prudent evaluation and reporting of the performance monitoring matrix on quarterly and yearly basis.

- ii. Further, the Authority, through this instant decision, has revised the transmission losses from 1.30% to 0.75% for whole MYT control period of seven (07) years with a cap of 1% transmission losses, hence the issue stands addressed.

Comment # 06: MOE (PD) Submission on Target Loss Reduction:

116. On the specific issue of Target Loss Reduction, MOE (PD) has suggested that:

- v. The target loss reduction for the MYT (2016-2023) was 6.9%, which the company was not only able to achieve but also exceeded by a small margin (the actual reported loss reduction in FY 2023 was 14.54%, compared to a 15.3% target).
- vi. However, the target loss reduction for the current MYT (2024-2030) is only 2.28% (projected to be reduced from 14.24% in FY 2024 to 12.26% in FY 2030).
- vii. The loss reduction targets should be enhanced and reflect the efficiency derived from the proposed investments.
- viii. Loss reduction during an MYT achieved by the most efficient DISCOs should be used as a benchmark. Moreover, even if it becomes harder, there is no reason why the same deteriorates relative to higher watermark achieved in FY23.

Analysis and Decision of the Authority:

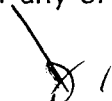
117. The Authority, on the above submissions made by MOE (PD), has already revised the distribution loss targets, hence the issue stands addressed.

Comment # 07: MOE (PD) Submission on Interest During Construction (IDC)

118. MOE (PD), regarding IDC, has submitted that:

- i. Interest During Construction (IDC) makes up 2.7% of the Investment Plan for the Distribution business.
- ii. There is no rationale for incorporating IDC as part of investment plan, since neither KE as a company or any of its distribution projects can be considered green field.





IDC is only justified in circumstances where a green field project cannot service its debt repayments given a lack of revenue.

- iii. In KE's case, the IDC is being petitioned against investment network maintenance and expansion in the normal course of business. The cost of capital on regulatory assets already covers the interest component.
- iv. In such a scenario, incorporating IDC would effectively amount to double charging for the same project investment.
- v. NEPRA should conduct an assessment of the return accruing to KE on CWIP to determine whether additional IDC is warranted.

Petitioner's Response:

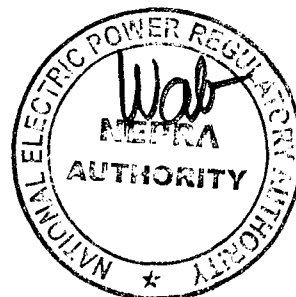
119. KE, in response, submitted as follows:

- a. Although CWIP amount is included in the RAB, there is no additional benefit to KE as the RoRB mechanism has inherent limitations in addressing the timing mismatch between debt repayment and cost recovery in tariff. CAPEX financing typically requires debt to be drawn upfront and begin its repayment, while the depreciation component from which the debt repayment is considered to be offset, is allowed only after the project is capitalized as an operating fixed asset.
- b. Further, paragraph 11 of the Decision explicitly states that IDC and other adjustable factors are just notional numbers and shall be adjusted at the time of annual adjustment as per the given mechanism.

Para 11 *"The investments of each project as claimed by KE and being approved by the Authority in this decision is bifurcated in terms of base costs of the projects and other adjustable factors. The adjustable factors i.e. Escalation, Custom Duties, IDC, Contingencies, and any other head which is over & above the base cost are just notional numbers and shall be adjusted at the time of annual Tariff adjustments as per the given mechanism. The base cost is further bifurcated into Foreign (FCC) and Local (LCC) components..."*

Analysis and Decision of the Authority:

120. The Authority, on the above submissions made by MOE (PD) and KE, decided as follows:



- i. Pursuant to the Authority's Decision in the matter of KE's Determination of Distribution tariff under Multi Year tariff Regime for the Period from FY 2023-24 to FY 2029-30 in case No. TRF-6 I 3/K-Electric/Dist-2024 dated May 23, 2025, the Authority has deliberated and decided this issue under Para 20.39 to Para 20.47. Further, the IDC amount has been excluded from the investment plan hence this issue stands addressed.

Comment # 08: MOE (PD) Submission IT & ERP Upgradation Costs

121. MOE (PD), on the issues of IT & ERP Upgradation Costs, has submitted that:

- i. IT & ERP Upgradation costs have been reallocated within the same budget but need rationalization as over 80% is being spent on hardware.
- ii. Efficient utilization of cloud infrastructure to reduce CAPEX is in order including benchmarking of productivity increase in form of reduced overheads and human resource, development of efficient procurement processes and significant customer service digitization that justify the investment by improvement in collection and operational efficiency.
- iii. Costs associated with SAPA HANA Implementation are excessive and may need to be cross verified for similar projects in other DISCOs, or entities of similar scale, and scope.
- iv. Replacement of End-of-Life equipment must take into consideration utilization of cloud services to avoid heavy capital expenditure. Similarly, laptop costs assumed also seemed to be excessive on a per unit basis.
- v. IT & ERP Infrastructure costs should not be indexed to CPI, and the same should be adjusted on actuals.

Petitioner's Response:

122. The Petitioner, in response submitted as follows:

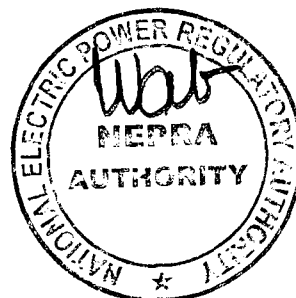
- i. KE has planned IT & ERP investments considering the necessary upgrades and replacements required in installed infrastructure with respect to technological advances. Moreover, necessary replacement of equipment is included in the plan, including laptops and other essential items required for operations which



are a necessity to provide smooth operations throughout the Company and provide reliable supply and services to consumers.

- ii. KE has a vast network infrastructure comprising of fiber-optics, wide-area-networks for 100+ locations, local area networks for 6,000+ nodes, 400+ wireless access points, high speed internet connectivity and virtual private networks and video conferencing.
- iii. The IT infrastructure of KE consists of server farms, enterprise storages, firewalls, network routers and switches, operating systems, and databases from renowned service providers.
- iv. With 6,000+ employees of KE, the costs include providing them with secure and intelligent workspace.
- v. KE's investment plan includes a strategic focus on emerging technologies aimed at driving digital transformation. This encompasses modernization of core systems such as ERP, billing, and CRM, along with enhancements in data governance, advanced analytics, and the adoption of machine learning and Artificial Intelligence (AI). The plan also covers initiatives in Internet of Things (IoT), mobility solutions, convergence of Operational Technologies (OT) with Information Technology (IT), Robotic Process Automation (RPA), and the integration of digital and social media platforms to improve customer engagement and operational efficiency.
- vi. The planned investments in IT infrastructure are aligned with the current state of systems and the upgrades necessary to meet evolving operational needs. Given the rapid pace of technological advancement, the Investment Plan has been designed with built-in flexibility to accommodate such future interventions.
- vii. Regarding laptop procurement, the estimated costs were based on actual market rates at the time of submitting the Investment Plan, and all relevant details have been shared with NEPRA. It is important to note that NEPRA has already reviewed and reduced the proposed capital expenditure for laptops from PKR 2.742 billion to PKR 2.293 billion. Provision of laptops equipped with appropriate technology, cybersecurity features, and required configurations is essential to ensure seamless operations and deliver reliable service to consumers.

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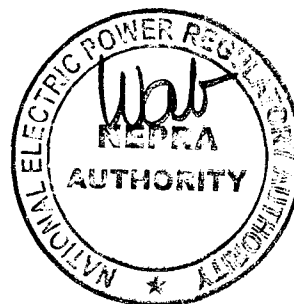
- viii. KE is the first utility company in the country to implement SAP S/4HANA, and as such, there are no direct benchmarks available from other utilities for comparison.
- ix. Additionally, the investment plan framework is designed with built-in safeguards. The allowed cost serves as a maximum cap, subject only to CPI-based indexation and only for the duration specified. The amount ultimately included in the Regulatory Asset Base (RAB) will be the lower of the actual expenditure or the CPI-indexed cap. This ensures that there is no financial risk to consumers in the event that actual costs are lower than the allowed amount.

Analysis and Decision of the Authority:

123. The Authority, on the above submissions made by MOE (PD) and KE, decided as follows:

- i. Regarding, IT & ERP and Laptop Costs, a detailed deliberation was made at the time of decision on the KE Investment plan petition to ascertain the scope and cost which mainly consists of (a). IT Equipment & Business Specific Software and (b). Other Business Specific New Initiatives. The various costs submitted by KE were reviewed by the Authority and a total cost of Rs. 2,855 million which includes Rs. 2,293 million against the purchase and replacement of a total of 7,644 laptops has been approved by the Authority. Further, another cost of Rs. 562 million has been allowed against the purchase of a new LCD/Other IT Equipment Head and Other Business Specific Software as the upper ceiling for base cost and other adjustments for inflation, etc. subject to third party audit and verification.
- ii. With regard to above, the Authority also noted that the existing EOS database for the SAP system is prone to many security vulnerabilities. Therefore, SAP needs to be upgraded with its databases for smooth business processes like billing & invoicing. Thus, the Authority approved the SAP HANA BW Implementation (Upgrade) program vide its Decision being prudent cost.

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E. ORDER OF THE AUTHORITY:

124. The Authority in accordance with the NEPRA Act, NEPRA (Review Procedure) Regulations, 2009 and other applicable documents decides as follows:

- i. The Authority reaffirms and maintains its previous decision in the matter of concerns raised by Mr. Muhammad Arif Bilwani regarding third part validations of KE investment plan. The concerns raised by the petitioner in this regard have already been adequately addressed in the Decision.
- ii. The Authority approves a 0.75% yearly transmission loss rate for the seven (07) years tariff control period. This rate will be adjusted downward based on actual transmission losses, with no sharing mechanism in place. The upper cap for transmission losses is set at 1.0%. The tariff shall be determined each year accounting for 0.75% transmission losses, which shall then be actualized as per above mechanism.

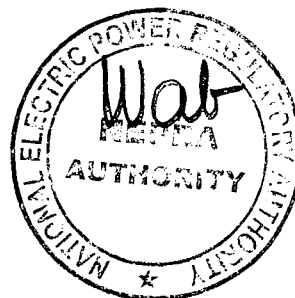
Description	Reference Loss Level	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
Transmission Loss Target (%)	0.86	0.75	0.75	0.75	0.75	0.75	0.75	0.75

- iii. The Authority decided to allow 9% Distribution Losses to K-Electric, comprising of 8% Technical Loss based on the PITCO Fitchner Study including the impact of ground realities and 1% Law & Order, in the matter of the Seven-Year Investment Plan and Losses Assessment of K-Electric Limited for the MYT Tariff Control Period from FY 2023-24 to FY 2029-30. The targeted reduction over seven years is 0.97% for Technical Losses.

Description	Start Point	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
Technical Loss (%)	8.00	7.96	7.80	7.65	7.49	7.34	7.18	7.03
Law & Order Margin (%)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Distribution Loss (%)	9.00	8.96	8.80	8.65	8.49	8.34	8.18	8.03

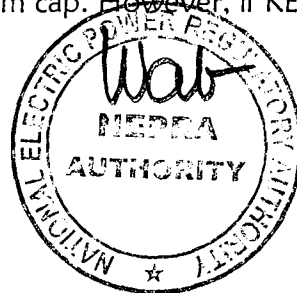
- iv. The Authority decided to maintain the already approved sharing mechanism of 75:25 between consumers and KE, respectively, in case KE performs better than the set distribution loss targets in any year.
- v. The Authority maintains its earlier decision of not allowing the US CPI indexation to KE on the FCC, and also decides to replace the CPI with N-CPI to correct the typographical error.
- vi. The Authority upheld its previous decision to implement only a downward revision of the cost of Land/Right of Way (RoW) for Transmission Projects.
- vii. The Authority does not agree to the request of KE for considering escalations of 11% for FCC and 21% for LCC as part of the base cost.
- viii. The Authority decides to allow the application of the prescribed adjustments/indexation for the 1st year (2023-24).
- ix. The Authority decided that the unutilized CAPEX in any year is allowed to be carried forward. The portion of the base cost carried forward, as verified by a 3rd Party Firm, will be adjusted for indexation corresponding to the year it was planned/approved to be spent or to the year it was actually spent, whichever is lower.
- x. Moreover, for works exceeding the yearly percentage specified in the investment decision, as verified by 3rd Party Firm, the prescribed adjustments corresponding to the year it is spent will be applied, provided that the additional works/completed percentage are in line with the approved scope.
- xi. Furthermore, no indexation/adjustments will be allowed on the full/portion of the base cost carried forward beyond the total prescribed timeline of any project, in which case only the amount of base cost (either its portion or entire cost), shall be taken into account.
- xii. The Authority decides not to allow the impact of delay to KE however, for the investments approved for the years 1 and 2 of the control period, the following shall be applicable:
 - a. The investments made in 1st year by KE shall be taken into account as per **Annex-I**, which shall be actualized on the basis of audited financial statements. The investments approved for 2nd year and made in the same year shall be allowed,

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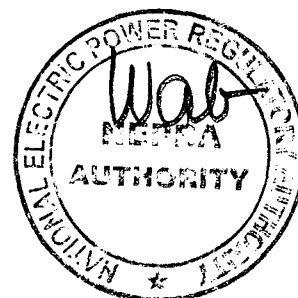
considering the approved base cost, after application of the prescribed adjustment mechanism as maximum cap.

- b. The portion of the base cost envisaged to be spent in 1st and 2nd years, but carried forward, shall be allowed prescribed adjustment corresponding to those respective years i.e. year 1 and year 2.
 - c. The base cost of the projects that were to be executed/completed only in one year (either in 1st or 2nd year), but were not implemented, shall be allowed prescribed adjustment corresponding to their respective planned years i.e. the years/timelines mentioned in the Decision, when implemented, provided that the implementation should not go beyond 3rd year of investment plan. No indexation/adjustment will be allowed on the amount of base cost (either its portion or entire cost) carried forward beyond 3rd year of investment plan.
 - d. The projects that were planned to commence in 1st and 2nd years, but not started, will be allowed prescribed adjustments on the respective portions corresponding to those years they were planned i.e. the timelines/construction period mentioned in the Decision to be completed, provided that the total completion time, starting from either Year 2 (if applicable) or 3rd year, should not go beyond the timeline given in the Decision. No indexation/adjustments will be allowed on the amount of the base cost (either its portion or entire cost) carried forward beyond the abovementioned timeline.
 - e. Notwithstanding the foregoing, KE is directed to evaluate the necessity of implementing projects approved for Years 1 and 2. If, based on a comprehensive need assessment by KE, if any project is determined to be non-essential, KE may consider submitting a request to the Authority for rescheduling the same to subsequent years.
 - f. For the purpose of clarity, the prescribed adjustments as mentioned in the Decision along with the modifications approved by the Authority through the instant decision are given in Annex-II.
- xiii. For Option 2 (Direct Connection at the 220 kV Surjani Grid Station) of Interconnection for Solar Projects, the Authority decides to approve an additional amount of Rs. 1,253 million for the interconnection of the 120 MW Deh Halkani and 150 MW Deh Metha Ghar solar power projects, with total amount of Rs. 6,436 million set as the maximum cap. However, if KE chooses



Option 1 (LIFO arrangement), the previously approved cap of Rs. 5,183 million will apply. KE shall be allowed the flexibility to choose either interconnection option.

- xiv. The Authority approves an amount of Rs. 506 million for civil works and yard extensions as combined cost for all five grid stations, as duplication costs have not been found in the cost claims of KE.
- xv. The Authority decides to allow a cost revision opener for the HVUB project, with an upper cap of Rs. 21,734 million, based on GIS technology. The upper cap of Rs. 21,734 million for the HVUB Project shall be treated as an indexed and adjusted cost. The Authority further directed K-Electric to get design & specification vetting / approval from NGC prior to the bidding of the project. KE shall carry out a bidding process for this project, which shall be monitored and evaluated by a 3rd Party Firm.
- xvi. The Authority decides to maintain its previous decision of setting a maximum cap of 5% for Contingency and other charges, which includes 3% for contingency and 2% for admin and consultancy charges. This 5% contingency will apply only to the approved base cost (FCC and LCC) and will not be applicable to adjusted or indexed factors / figures.
- xvii. The Authority maintains its earlier decision i.e. KE to seek prior approval for rescheduling of projects, in case of change in demand or any other reason.
- xviii. The Authority decides to maintain its earlier decision i.e. not to allow any re-appropriation within any head and sub head of investment plan. Nonetheless, for the distribution segments, the Authority decides to allow year wise flexibility in scope maximum up to 5%, to be calculated in terms of amount, with the already approved costs as the maximum cap. KE shall be liable for prior intimation to the Authority for this change. Additionally, the Authority decides to allow flexibility between the FCC and LCC portions, provided that the total revised cost shall not exceed the indexed cost based on approved reference bifurcation. KE shall prioritize the use of local components and minimize the foreign portion of costs, while following the least cost principle.
- xix. The Authority decides to maintain its earlier decision of fulfilment of codal formalities by KE prior to investing in no mains areas and shall be dealt with as per the prevailing applicable documents at that time.

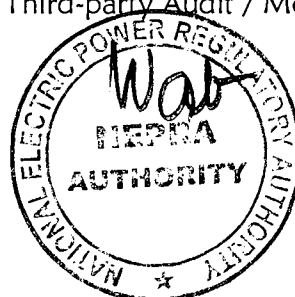


- xx. The Authority does not consider the request of KE for allowing carry forward of rain emergency, BQ III allied projects, TP 1000 & other CAPEX. Only carry over of HVUB project and KKI project is allowed by the Authority.
- xxi. The Authority decides to maintain its earlier decision of treatment of O&M nature CAPEX as part of the tariff petition and determination.
- xxii. The Authority decides that the assets disposal proceeds shall be adjusted in the tariff determination / adjustments. KE shall comply with the provisions of all the applicable documents in this regard.
- xxiii. The Authority approves the correction of the typo in para 149 of the Decision and accordingly the word "rehabilitation" will be corrected by word "replacement". On this matter, KE shall be directed to study the reasons for short lifespan issues of ABC cables and its premature failure to achieve the desired results in certain areas and shall come up with mitigation plan to propose solutions to enhance efficiency and longevity of ABC cables.

F. OTHER TERMS AND CONDITIONS:

- i. The sole right of interpretation regarding this decision rests with the Authority. In the event that the Petitioner or any other stakeholder requires clarification on this decision, they may seek clarification directly from the Authority beforehand. Any expenses incurred by the Petitioner without clear provision will be at their own risk and cost.
- ii. KE is directed to make the best efforts to procure materials and services in a manner that ensures the most cost-effective prices for project execution. Moreover, KE shall prioritize the use of local components and minimize the foreign portion of costs, while following the least cost principle.
- iii. The Petitioner shall clearly document both the investment projects and repair and maintenance projects, ensuring there is no duplication between them. The third-party audit/monitoring shall verify this aspect during regular audits.
- iv. KE shall file modification in its transmission license to include the 500 kV assets for construction, ownership, operation and maintenance.
- v. The Authority decides for a comprehensive 3rd party independent Monitoring / Audit of K-Electric's allowed investment plan. The Third-party Audit / Monitoring

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of allowed investments will be carried out on quarterly basis. The ToRs and mechanism of 3rd party Audit/Monitoring will be formulated by NEPRA. The Authority also decides to include an indicative cost of Rs.200 Million in the investment plan of KE for the purpose of 3rd party Audit/Monitoring of Investment Plan. The amount shall be subject to adjustment upward/downwards based on the cost approved by NEPRA for the Audit.

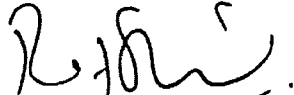
- vi. KE shall ensure zero fatal accidents goal and shall ensure safe working environment for its employees and general public by utilizing approved investment by the Authority against safety plans.
- vii. KE shall also submit a quarterly progress report showing utilization of allowed investment, physical progress and analysis regarding the benefits accrued against amount incurred for each project highlighted under different heads for monitoring purpose on quarterly basis. Moreover, KE shall also provide the above progress on online portal specified by NEPRA for monitoring of investment plan.
- viii. Pursuant to the applicable performance standards, KE shall submit progress report for the performance indicators including but not limited to T&D losses, SAIFI, SAIDI, Reliability, Continuity & Quality of Power Supply and other performance standards achieved as result of implementing Investment Plan approved by the Authority. Moreover, KE shall also provide the above progress on online portal specified by NEPRA for monitoring of Investment Plan.
- ix. The Authority also directs KE that in the event where the planned projects are delayed (due to change in demand or some other reasons) beyond the approved timelines, then KE shall timely approach the Authority to explain the reasons of delay and seek the revised approvals.
- x. KE is directed to study the reasons for short lifespan issues of ABC cables and its premature failure to achieve the desired results in certain areas and shall come up with mitigation plan to propose solutions to enhance efficiency and longevity of ABC cables.
- xi. KE shall carry out a bidding process for 132 kV HVUB project and interconnection of Deh Halkani and Deh Metha Ghar Solar Projects, which shall be monitored and evaluated by a 3rd Party Firm. The Firm will submit a project evaluation and recommendation report, assessing the competitiveness of the bidding process, and the reasonability of the project costs. The reasonability check shall include the analysis of the project's scope, Bill of Quantities (BoQs), and a comparison with NGC/DISCOs projects implemented in coastal areas. For HVUB project, the

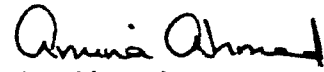


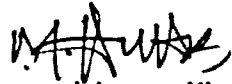
Authority further directed K-Electric to get design & specification vetting / approval from NGC prior to the bidding of the project.

- xii. KE shall make all possible best efforts to ensure that its network investments are made on prudent and validated need assessment basis, to avoid any significant underutilization of the regulatory assets. For this purpose, KE is directed to conduct a thorough need assessment of all projects on a regular basis for the remaining five years, considering the prevailing ground realities. For this assessment, KEL will also engage the 3rd Party Firm. Based on this review/assessment, KEL shall submit a report, along with the validation/recommendation of 3rd Party Firm, outlining the projects KE plans to execute in the coming year, and the request for rescheduling of any projects. This report shall be submitted prior to the start of each Financial Year, before the beginning of March each year.

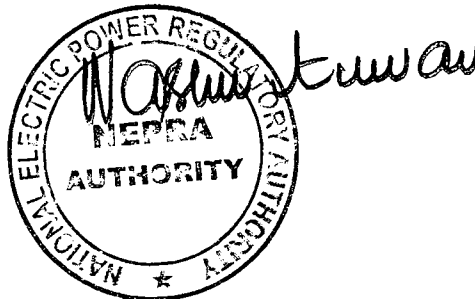
AUTHORITY


Rafique Ahmad Shaikh
Member


Amina Ahmed
Member


Engr. Maqsood Anwar Khan
Member


Waseem Mukhtar
Chairman





Annex-I

Million Rs.

Head	Amount Allowed(un- indexed) FY 2023- 24	Un-audited actual Utilization as reported by KE FY 2023-24
Transmission Growth	11,456	101
System Improvement / Reliability	5,378	718
Reactive Power management & Loss Reduction	318	0
Transmission Interconnection Projects – NTDC & IPPs	22,429	21,344
Current Limiting Reactor	0	0
Total Transmission	39,581	22,163
Distribution Growth	2,151	349
Loss Reduction	6,954	4,320
Maintenance	3,425	4,327
Safety	4,304	2,038
Technology – AMR, Digitization & smart networks	2,858	398
Total Distribution	19,692	11,432
Other support – IT & ERP, Cyber security, etc	3,251	978
3 rd Party Audit Fees	28	
Grant Total	62,552	34,573



Annex-II

PRINCIPLES FOR INDEXATION AND ADJUSTMENT MECHANISM

1. The investments of each project as claimed by KE and being approved by the Authority in this decision is bifurcated in terms of base costs of the projects and other adjustable factors. The adjustable factors i.e. Escalation, Custom Duties, IDC, Contingencies, and any other head which is over & above the base cost are just notional numbers and shall be adjusted at the time of annual Tariff adjustments as per the given mechanism. The base cost is further bifurcated into Foreign (FCC) and Local (LCC) components. The basis of approval and indexation of these cost components is explained below:

FCC and LCC:

2. These two components reflect the estimated expenses of each project, and generally cover the costs of material, civil works, installation, and testing for the projects. The costs being validated by the consultant have generally been taken into account.

Indexations/Escalations for FCC and LCC Components:

3. Under this head, the estimated increase of the FCC and LCC components has been indicated. This cost head shall be adjusted to account for the variations being allowed on the FCC and LCC components of the projects in light of Audit/Monitoring by the 3rd party.

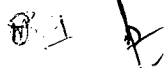
Foreign Cost Component (FCC)

- a. The approved FCC, after applying the prescribed adjustment, shall be considered as a maximum cap, subject to adjustment on an actual basis. Additionally, the Authority has decided to allow flexibility between the FCC and LCC portions, provided that the total revised cost shall not exceed the indexed cost based on approved reference bifurcation KEL shall prioritize the use of local components and minimize the foreign portion of costs, while following the least cost principle.
- b. The FCC shall be allowed exchange rate variations only, which shall be applicable for and during the construction period as stated in the decision of the Authority dated April 24, 2024 and no further escalation/indexation shall be allowed beyond the approved construction period. For example, if a project is stated to be started in FY 2024 with completion in FY 2026, that project shall be given exchange rate variations for three years, from FY 2024 to FY 2026.

- c. For the projects spanning in multi years, the unutilized CAPEX (FCC) in any year is allowed to be carried forward. The portion of the base cost (FCC) carried forward, as verified by a 3rd Party Firm, will be adjusted for indexation corresponding to the year it was planned/approved to be spent as mentioned in the Decision or to the year it was actually spent, whichever is lower.
- d. Moreover, for works exceeding the yearly percentage specified in the Decision, as verified by 3rd Party Firm, the prescribed adjustments corresponding to the year it is spent will be applied, provided that the additional works/completed percentage are in line with the approved scope.
- e. No indexation/adjustments will be allowed on the full/portion of the base cost (FCC) carried forward beyond the total prescribed timeline of any project as mentioned in the Decision, in which case only the amount of base cost (either its portion or entire cost), shall be taken into account.
- f. For these variations, the reference exchange rate of Rs.206/USD shall be used. The revised exchange rate shall be the average of 12-month exchange rates (the last available rate for each month). The amount allowed as per indexation mechanism shall be calculated head wise/project wise, as the case may be, and after adding allowed amount for LCC components, shall be compared with the total actual cost incurred excluding IDC and custom duty. In case the actual cost incurred exceeds the allowed amount the excess amount upto the allowed contingency level shall be allowed. In case the actual amount is lower than the allowed limit, the actual cost will be considered.
- g. The amount being allowed shall be subject to adjustment in light of Audit/Monitoring by 3rd party firm.

Local Cost Component (LCC)

- a. The approved LCC, after applying the prescribed adjustment, shall be considered as a maximum cap, subject to adjustment on an actual basis. Additionally, the Authority has decided to allow flexibility between the FCC and LCC portions, provided that the total revised cost shall not exceed the indexed cost based on approved reference bifurcation KEL shall prioritize the use of local components and minimize the foreign portion of costs, while following the least cost principle.



- b. The LCC shall be allowed NCPI indexation, which shall be applicable for and during the construction period as stated in the decision of the Decision and no further escalation/indexation shall be allowed beyond the approved construction period. For example, if a project is stated to be started in FY 2024 with completion in FY 2026, that project shall be given exchange rate variations for three years, from FY 2024 to FY 2026.
 - c. For the projects spanning in multi years, the unutilized CAPEX (LCC) in any year is allowed to be carried forward. The portion of the base cost (LCC) carried forward, as verified by a 3rd Party Firm, will be adjusted for indexation corresponding to the year it was planned/approved to be spent as mentioned in the Decision or to the year it was actually spent, whichever is lower.
 - d. Moreover, for works exceeding the yearly percentage specified in the Decision, as verified by 3rd Party Firm, the prescribed adjustments corresponding to the year it is spent will be applied, provided that the additional works/completed percentage are in line with the approved scope.
 - e. No indexation/adjustments will be allowed on the full/portion of the base cost (LCC) carried forward beyond the total prescribed timeline of any project as mentioned in the Decision, in which case only the amount of base cost (either its portion or entire cost), shall be taken into account.
 - f. For these indexations, the reference N-CPI shall be used. The reference N-CPI is Average of financial year 2022 (158.48). The revised N-CPI shall be the average of 12-month N-CPIs for the respective year.
4. The amount being allowed shall be subject to adjustment in light of Audit/Monitoring by 3rd party firm.
 5. Moreover, KE is hereby directed to conduct a thorough need assessment of all projects on a regular basis for the remaining five years, considering the prevailing ground realities. For this assessment, KE will also engage the 3rd Party Firm. Based on this review/assessment, KE shall submit a report, along with the validation/recommendation of 3rd Party Firm, outlining the projects KE plans to execute in the coming year, and the request for rescheduling of any projects. This report shall be submitted prior to the start of each Financial Year, ideally by the beginning of March each year.
 6. For the investments approved for the years 1 and 2 of the control periods, the following mechanism shall be applicable:



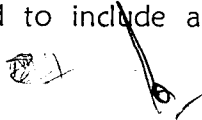
- a. The investments made in 1st year by KE shall be taken into account as per **Annex-I**, which shall be actualized on the basis of audited financial statements. The investments approved for 2nd year and made in the same year shall be allowed, considering the approved base cost, after application of the prescribed adjustment mechanism as maximum cap.
- b. The portion of the base cost envisaged to be spent in 1st and 2nd years, but carried forward, shall be allowed prescribed adjustment corresponding to those respective years i.e. year 1 and year 2.
- c. The base cost of the projects that were to be executed/completed only in one year (either in 1st or 2nd year), but were not implemented, shall be allowed prescribed adjustment corresponding to their respective planned years i.e. the years/timelines mentioned in the Decision, when implemented, provided that the implementation should not go beyond 3rd year of investment plan. No indexation/adjustment will be allowed on the amount of base cost (either its portion or entire cost) carried forward beyond 3rd year of investment plan.
- d. The projects that were planned to commence in 1st and 2nd years, but not started, will be allowed prescribed adjustments on the respective portions corresponding to those years they were planned i.e. the years/timelines mentioned in the Decision to be completed, provided that the total completion time, starting from either Year 2 (if applicable) or 3rd year, should not go beyond the timeline given in the Decision. No indexation/adjustments will be allowed on the amount of the base cost (either its portion or entire cost) carried forward beyond the abovementioned timeline.
- e. Notwithstanding the foregoing, KE is directed to evaluate the necessity of implementing projects approved for Years 1 and 2. If, based on a comprehensive need assessment by KE, if any project is determined to be non-essential, KE may consider submitting a request to the Authority for rescheduling the same to subsequent years.

Cost of Land Acquisition and RoW Compensation for Transmission Projects:

7. The Authority has decided to provisionally allow the requested land and RoW cost, which will be accounted for downward adjustments only, on the basis supported by evidence/proofs of purchase of land for grid stations and payments of RoW compensation by K-Electric for the satisfaction of the Authority.

Contingency and Other Costs for Transmission Projects:

8. The contingencies shall be worked out on the FCC and LCC being approved in this decision and not applicable on the adjusted/indexed numbers. The Authority has decided to include a 3% (upper cap) contingency factor, to be applicable on



transmission projects envisaged between the 2nd and 7th year of the MYT control period. Further, the consultancy & admin charges have been adjusted at a level of 2% (upper cap), to be applicable on transmission projects during the MYT control period of 7 years. The Authority has decided that contingency and other cost shall be adjusted at actual, subject to verification as per the Audit/Monitoring by 3rd Party. The contingencies shall be applicable on the FCC and LCC being approved in this decision and not applicable on the adjusted/indexed numbers for all the projects during the MYT control period of 7 years.

Custom Duties:

9. The customs duties have been included at the rate of 8% in the FCC. The custom duties shall be allowed as per actual, subject to the documentary evidence by KE, certification provided by KE to the correctness and legitimacy of the claimed amount and in light of Audit/Monitoring by the 3rd party.

Interest During Construction (IDC)

10. The issue of IDC has been decided in KE's Determination of Distribution tariff under Multi Year tariff Regime for the Period from FY 2023-24 to FY 2029-30 in case No. TRF-6 I 3/K-Electric/Dist-2024 dated May 23, 2025, under Para 20.39 to Para 20.47 and has been excluded from the allowed investment.

