



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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Registrar

No. NEPRA/Dir.(Tech.)/LAD-04/ 2181-87

April 20, 2023

Chief Executive Officer,
Faisalabad Electric Supply Company Ltd.
Abdullahpur, Canal Bank Road,
Faisalabad

Subject: **Determination of the Authority in the matter of Investment Plan filed by Faisalabad Electric Supply Company Ltd. (FESCO) under Section 32 of the NEPRA Act for MYT Tariff Control Period from FY 2023-24 TO FY 2027-28**

The Authority as per provisions of Section 32 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 read with Para 23 of NEPRA Guidelines for Determination of Consumer End Tariff (Methodology and Process), 2015 approves the investment plan and losses assessment of FESCO for five (05) years MYT control period from FY 2023 to FY 2027-28.

2. The subject Determination along with **Annex-1 to Annex-V (total 61 pages)** is enclosed herewith for information and further necessary action please

Enclosure: As above


(Engr. Mazhar Aqbal Ranjha)

CC:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Energy (Power Division), 'A' Block, Pak Secretariat, Isbd.
3. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.
4. Secretary, Energy Department., Government of the Punjab, 8th Floor, EFU House, Main Gulberg, Jail Road, Lahore,
5. CEO, NTDC, 414 WAPDA House, Shaharah-e-Quaid-e-Azam, LAHORE
6. Chief Executive Officer. Central Power Purchasing Agency Guarantee Limited (CPA-G), Shaheen Plaza, 73-West, Fazl-e-Haq Road, Islamabad



Determination of the Authority in the matter of Investment Plan filed by Faisalabad Electric Supply Company Limited (FESCO) under Section 32 of the NEPRA Act for MYT Tariff Control Period From FY 2023-24 TO FY 2027-28

1. In compliance with the requirements of the Section 32 of the NEPRA Act and NEPRA Guidelines for determination of the Consumer End tariff (Methodology and Process) 2015, FESCO submitted BoD approved Distribution Company Integrated Investment Plan (DIIP) for Multi Year Tariff (MYT) control period for FY 2023-24 to FY 2027-28 vide its letter dated 19-10-2022. The DIIP submitted by FESCO has been filed for multiyear tariff i.e. for a period of five (5) years. FESCO's responsibilities reflected in the DIIP include the following:
 - i. Strengthening and expansion in system at high voltage (132 and 66 kV) for removing constraints for power transfer from NTDC transmission system to DISCOs system.
 - ii. Increasing sales in their service territory and corresponding expansion of their network at the medium and low voltage level.
 - iii. Expansion in system for reduction in losses and improving quality parameters
 - iv. Administrative measures and Commercial improvement including metering and IT development, Advanced Metering Infrastructure (AMI) project implementation, etc.
 - v. Improving Safety and Capacity building & trainings

2. The above functions have been grouped as follows:

S. #	Major Area	Sub-Projects
1	Secondary Transmission and Grid (STG) Expansion and Rehabilitation Projects	Construction of New 132 kV Grid Stations
		Augmentation of 132 kV Grid Stations
		Extension of 132 kV Transformer Bays
		Extension of 132 kV Line Bays
		Erection of New 132 kV Transmission Lines
		Rehabilitation/Reconductoring of 132 kV Transmission Lines
		Installation of Capacitors at 132 kV Grid Stations
2	Distribution of Power (DOP) Expansion and Rehabilitation Projects	Installation of New 11 kV Lines
		Installation of New Distribution Transformers
		Reinforcement of Overloaded Distribution Transformers
		Installation of New LT Lines
		Installation of 11 kV Capacitors
		11 kV feeder load shifting on new grid stations
3	Energy and Loss Reduction (ELR) Projects	Replacement of Defective/Burnt Distribution Transformers
		Rehabilitation of Existing HT and LT Lines
		GIS Mapping/Re-routification of 11 kV Feeders
		GIS Mapping of LT Lines
4	Deposit Works / Consumer Financing	Installation of New 11 kV Lines
		Installation of New LT Lines
		Installation of New Distribution Transformers
		Installation of new Grid Stations

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5	Commercial Improvement Plans	Installation of Advanced Metering Infrastructure (AMI) / Smart Energy Meters
		Customer Service Improvement
		Anti-Theft Efforts
		Installation of IT Infrastructures
6	Financial Improvement Plan	Enterprise Resource Planning (ERP)
		Oracle Plant Maintenance (SAP PM) for all maintenance activities to be performed
7	Human Resource Improvement Plans	Hiring of Additional Manpower to undertake the Projects
		Capacity Building of Human Resource as per TNA
		Revamping training centers
8	Communication Improvement Plans	Public Communication, outreach and awareness activities
		Mass Media activities
		Corporate Social Responsibility (CSR)
9	Operational Improvement Plans	Transformer Repair Workshop (TRW)
		Lineman Training and Tools

3. In order to fulfill the proceedings under NEPRA Guidelines for determination of the Consumer End tariff (Methodology and Process) 2015, the Authority framed the following issues for the hearing of FESCO held on November 23, 2022. The hearing notice along with list of issues was issued to FESCO on 14-11-2022.

- i. **Whether the claimed cost of Rs. 38,778 Million under the head of STG is justified?**
Petitioner must provide the project wise rationale against requested investment and techno commercial benefits to be achieved through proposed investment in terms of constraints removal, additional energy available for sales through MVA additions, reliability & continuity of supply, reduction in transmission losses, etc.
- ii. **Whether the claimed cost of Rs. 18,266 Million in the head of ELR is justified?** FESCO must provide the basis against requested investment, areas prioritized for loss reduction program and financial impact of T&D losses reduction.
- iii. **Whether the claimed cost of Rs. 6,859 Million in the head of DOP is justified?**
Petitioner to provide the rationale against requested investment in terms of removal of 11 kV Feeder Overloading and benefits of proposed investment in meeting future load growth and timely provision of electricity services to prospective consumers.
- iv. **Whether the claimed cost of Rs. 3,650 Million in the head of Technical Improvement Plan and 2,026 Million for AAMI/AMR is justified?** Petitioner to provide the basis against requested investment in terms of voltage wise areas where AMI/AMR system will be implemented and benefits of proposed investment.

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Whether any plan of AMR/AMI installation on PMT level is included in the investment plan or otherwise.

- v. Whether the claimed cost of Rs.155,245 Million in the head of Annual Recurring Cost which include O&M and R&M expenses is justified.
- vi. Petitioner to provide payback period of investments claimed under the head of DOP, ELR and STG.

4. Issue # 01: Whether the claimed cost of Rs. 38,778 Million under the head of STG is justified? Petitioner must provide the project wise rationale against requested investment and techno commercial benefits to be achieved through proposed investment in terms of constraints removal, additional energy available for sales through MVA additions, reliability & continuity of supply, reduction in transmission losses, etc.

PETITIONER'S SUBMISSIONS FOR STG PROJECTS

4.1. The Petitioner in its DIIP submitted STG investment for FY 2023-24 to FY 2027-28 based on the Power Market Survey (PMS), where the bottom up approach is applied considering the best international practices for the development of ten years forecast which is called Medium-term Load Forecast with facilitation from National Transmission and Dispatch Company (NTDC). Further, it was informed by FESCO that its Load Forecast Department of MIRAD has conducted the detail power Market Survey in association with NTDCL Report to the Study a detailed session for Medium Term Forecast at LUMS PSCE. The scope of STG (Expansion & Rehabilitation) as provided by petitioner is given below:

Sr.	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A. GRID STATIONS (Nos)							
i	New Grid Stations	7	9	4	7	3	30
ii	Augmentation of Transformers	9	6	8	11	2	35
iii	Extension of Existing Grid Stations with T/Former bays	1	5	4	0	5	15
iv	Extension of Existing Grid Stations with Line Bays	2	4	2	4	3	15
v	Installation of Capacitor Banks (MVAR)	100	100	100	100	100	500
Additional (MVA)							
i	New Grid Stations	476	431	210	364	156	1,637
ii	Augmentation of Transformers	124	68	111	143	27	473
iii	Extension of Grid Stations	52	118	52	119	78	419
	Total	652	617	373	626	261	2,530

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B. 132 kV Transmission Lines							
i	132kV Transmission Line (Nos.)	8	11	7	10	6	42
ii	132kV Transmission Lines (km)	98.8	117	54	86.5	66	422

- 4.2. The petitioner in its submissions during hearing and DIIP, has claimed investment requirement of Rs. 38,778 Million for STG (Expansion & Rehabilitation) projects. FESCO stated that the project costing was undertaken on the basis of the most recent procurement costs, and site specific needs. Further, all major equipment, associated equipment, and civil works are included in the estimates. Provision is made for physical and price contingencies. The year wise details of cost claimed by petitioner under the head of STG is as under:

Sr.	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A - GRID STATIONS (Rs. Million)							
i	New Grid Stations	3,618	2,673	3,569	4,114	2730	16,704
ii	Augmentation of Transformers	1224	390	1472	1708	322	5,116
iii	Extension of Existing Grid Stations with T/Former bays	344	348	503	650	1323	3,168
iv	Extension of Existing Grid Stations with Line Bays	28	100	145	156	280	709
v	Installation of Capacitor Banks	420	200	463	486	-	1,569
Sub Total Grids		5,634	3,711	6,152	7,114	4,655	27,266
B - Erection of 132kV Transmission Lines (Rs. Million)							
i	Sub Total Transmission Lines	1141	3617	1850	3204	1701	11,513
Grand Total (Escalated)		6,775	7,328	8,001	10,318	6,356	38,778

- 4.3. Regarding the rationale for selection of STG projects, FESCO briefed the Authority that STG Program is launched to;

- i. Provide relief to the overloaded grid stations and transmission lines
- ii. Accommodate future load growth
- iii. Evacuate power from future 220kV and 500kV NTDC grid stations
- iv. The STG project covers all eight districts under the jurisdiction of FESCO, i.e. Faisalabad, Jhang, Chiniot, Toba Tek Singh, Bhakkar, Mianwali, Khushab and Sargodha.
- v. STG Projects were identified by performing system studies in collaboration with NTDC under TSEP project as follows:
 - a. Verification & Finalization of PMS Report.

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- b. Validation of FESCO Existing Network.
- c. Load flow studies of the system to confirm existing and expected future system constraints.
- d. Identification of sub-projects to eliminate constraints.
- e. Further load flow studies to assess sub project technical viability, and overall compatibility with NTDC system upgrades.
- f. Sub project costs were compiled and then analyzed for financial and economic viability.

4.4. Regarding the rationale for selection of STG projects, petitioners has submitted that STG Projects were identified by performing system studies in collaboration with NTDC under TSEP project as follows:

- Verification & Finalization of (Power Market Survey) PMS Report
- Validation of FESCO Existing Network
- Load flow studies of the system to confirm existing and expected future system constraints
- Identification of sub-projects to eliminate constraints
- Further load flow studies to assess sub project technical viability, and overall compatibility with NTDC system upgrades
- Sub project costs were compiled and then analyzed for financial and economic viability

4.5. The petitioner also submitted following forecast as identified in PMS survey for next years.

CONSUMER GROWTH BY CATEGORY (No. in Million)

Description	Year 1	Year 2	Year 3	Year 4	Year 5
Domestic	4.731	4.968	5.216	5.477	5.751
Commercial	0.485	0.509	0.535	0.562	0.590
Industrial	0.059	0.062	0.065	0.068	0.072
Agriculture	0.057	0.060	0.063	0.066	0.070
Other	0.036	0.038	0.040	0.041	0.044
Total	5.368	5.637	5.918	6.214	6.525
Growth %	5.000	5.000	5.000	5.000	5.000

ENERGY FORECAST (GWh)

Description	Year 1	Year 2	Year 3	Year 4	Year 5
Domestic	8,655	9,094	9,546	10,028	10,498
Commercial	917	982	1,051	1,126	1,206
Industrial	6,253	6,475	6,817	7,161	7,509
Agriculture	1,644	1,773	1,909	2,052	2,203
Other	259	259	259	260	260
Total	17,727	18,582	19,581	20,626	21,675
Growth %	5.7	4.8	5.4	5.3	5.1

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DEMAND FORECAST (MW)

Description	Year 1	Year 2	Year 3	Year 4	Year 5
Total Demand	4,045	4,249	4,491	4,743	4,995

- 4.6. The Petitioner during the course hearing, claimed to achieve following tangible and non-tangible benefits from STG projects:
- i. Improvements in the Capacity of Substations
 - ii. Reduction in loading of existing 132/11kV transformers
 - iii. Sufficient spare capacity to allow connection of additional load resulting from load growth.
 - iv. Improvement in the voltage profile of the substations
 - v. Reduction in transmission and transformation losses
 - vi. System constraints related to overloading, voltage violation and reactive power compensation will be resolved.
 - vii. The quantification of additional energy available for sales and loss reductions is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
STG Energy Savings (GWh)	28.618	20.357	21.438	11.285	6.782	88.48
%age of loss reduction	0.15%	0.10%	0.10%	0.05%	0.05%	0.45%
MVA Additions	652	618	373	626	261	2,530
Incremental Sale (GWh)	2878.606	2728.495	1646.810	2763.815	1152.325	11,170.051

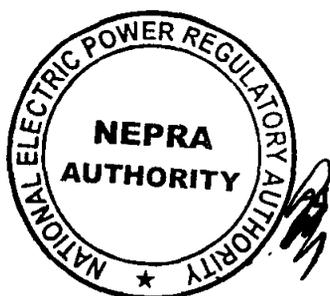
- 4.7. The petitioner also presented a comprehensive financial analysis for STG projects before the Authority to justify the STG investments. The petitioner in its financial analysis claimed following:

Sr	Description	Value
1	Net present Value (NPV)	Rs. 5,325
2	Benefit to Cost Ratio (B.C.R)	1.18
3	Internal Rate of Return	19.31%
4	Payback Period (Years)	8 Years 01 Month

ANALYSIS

- 4.8. The existing sub-transmission network of FESCO which include grid stations and transmission lines is given below.

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Description	Value
FESCO OWNED 132 KV GRID STATIONS (NOS)	85
FESCO OWNED 66 KV GRID STATIONS (NOS)	16
CONSUMER OWNED 132 KV GRID STATIONS (NOS)	23
POWER TRANSFORMERS INSTALLED (NO)	283
INSTALLED CAPACITY OF POWER TRANSFORMERS (MVA)	7,243.6
LENGTH OF TRANSMISSION LINE (KM)	5431.7
NTDC 500 KV GRID STATIONS FEEDING FESCO	2
NTDC 500 KV GRID STATIONS FEEDING FESCO	8
PEAK DEMAND OF FESCO (MW)	3,711

4.9. The Authority has noted that FESCO is one of the largest distribution company in terms of electricity demand, sales and consumption. Further, the existing sub-transmission network of FESCO has constraints/overloading, 45 power transformers are overloaded as per statistics of FY 2021-22. Therefore, Authority believes that it is imperative to remove overloading so that reliability, quality and continuity of the supply is ensured to the 3rd largest DISCO of Pakistan.

4.10. Moreover, the details of proposed new additions as per subject investment plan in FESCO's network for ensuring smooth operations and removal of constraints from transmission networks are given below:

i. Total MVA Added at 132 kV Grids	2,530 MVA
ii. New Transmission Lines/Rehabilitation:	422 km
iii. Capacitors Installation (132 kV)	500 MVAR
iv. New 132 kV Grid Stations (No.)	30
v. Augmentation of 132 kV Transformers (No)	35
vi. Extension of 132 kV Transformers (No)	15
vii. Extension of 132 kV Line Bays (No)	15

4.11. The Authority further observed that FESCO has requested an investment of Rs. 38,778 Million (avg. Rs. 7,755 Million per year) for five year MYT control period. The trend of previous year's investment under STG head reveals that FESCO has claimed 4 times higher cost than the amount utilized during previous MYT control period, the details given below:

FY	Allowed	Utilized	Utilization (%)
2018-19	2,828	880	31%
2019-20	3,252	797	25%
2020-21	2,722	2,052	75%
2021-22	2,616	3,849	147%
2022-23 (prov.)	1,637	1,661	101%
Average 5 years	2,611	1,848	-
Total	13,056	9,239	71

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- 4.12. The comparison of scope of STG works for previous MYT and instant MYT reveals that except New 132 kV grid stations the scope undertaken by FESCO is same for both. Furthermore, it seems that the costs claimed by FESCO are quite higher.

FY	Previous MYT FY 2018-19 to FY 2022-23	Instant MYT FY 2023-24 to FY 2027-28
132 kV Grid Station (No)	15	30
Conversion to 132 kV	5	-
Augmentation	33	36
Extension of T/F Bays	13	15
Extension of Line Bays	35	15
Capacitor Banks (MVAR)	486	500
132 kV D/C	367	422
132 kV SDT	80	16
2 nd Circuit Stringing	186	-
Re-conductoring	73	15
Total Cost	13,056 (Allowed)	38,778 (Requested)

- 4.13. The Authority noted that the escalation factors used by FESCO are quite higher up to 40%, the details of escalation factor is given below.

FY	Escalation Factors used by FESCO		General Practice of Escalation
	Grid Station	Transmission Line	
2023-24	12 %	11 %	Escalation upto 5% Contingency & other charges upto 3%
2024-25	19 %	14 %	
2025-26	27 %	21%	
2026-27	42 %	31 %	
2027-28	40 %	40 %	

- 4.14. In view of above the cost of grid stations has been rationalized at 8% escalation & contingency & other charges.

FY	Claimed Cost Million Rs.			Allowed Cost @8% Escalation Million Rs.	
	Actual Cost	Cost With Escalation	Escalation Factor	Escalation Factor Allowed	Allowed Cost
A. Grid Stations					
2023-24	5,050	5,635	1.12	1.00	5,050
2024-25	3,112	3,711	1.19	1.08	3,362
2025-26	4,858	6,152	1.27	1.08	5,246
2026-27	5,026	7,114	1.42	1.08	5,429
2027-28	3,325	4,655	1.40	1.08	3,590

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Sub Total	21,371	27,267	-	-	22,677
B. Transmission Lines					
2023-24	1,026	1,141	1.11	1.00	1,026
2024-25	3,159	3,617	1.14	1.08	3,412
2025-26	1,531	1,850	1.21	1.08	1,651
2026-27	2,446	3,204	1.31	1.08	2,642
2027-28	1,215	1,701	1.40	1.08	1,313
Sub Total	9,377	11,513	-	-	10,044
Grand Total	30,748	38,778	-	-	32,721

DECISION OF THE AUTHORITY FOR STG INVESTMENT

4.15. In view of foregoing discussion and analysis, the investment of Rs. 32,721 Million is being allowed to FESCO as per following details:

Sr.	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A - GRID STATIONS (Rs. Million)							
i	New 132kV Grid Stations	3,230	2,426	3,059	3,174	2,106	13,995
ii	Augmentation of Transformers	1,105	354	1,262	1,318	248	4,287
iii	Extension (Line Bays)	25	91	124	-	216	456
iv	Extension (Transformer Bays)	315	316	431	622	1,020	2,704
v	Installation of Capacitor Banks	375	175	370	315	-	1,235
Sub Total		5,050	3,362	5,246	5,429	3,590	22,677
B - Erection of 132kV Transmission Lines (Rs. Million)							
i	New 132 kV D/C	1,026	3,412	1,484	2,642	1,021	9,585
ii	New 132 kV SDT	-	-	-	-	292	292
iii	132 kV Re-conductoring	-	-	167	-	-	167
Sub Total		1,026	3,412	1,651	2,642	1,313	10,044
Grand Total STG (Escalated)		6,076	6,774	6,897	8,071	4,903	32,721
Saving Targets							
i	STG Energy Savings (GWh)	28.618	20.357	21.438	11.285	6.782	88.48
ii	%age of loss reduction	0.15%	0.10%	0.10%	0.05%	0.05%	0.45%
iii	MVA Additions	652	618	373	626	261	2,530
iv	Incremental Sale (GWh)	2,878.6	2,728.5	1,646.8	2,763.8	1,152.3	1,1170.1

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5. **Issue # 02: Whether the claimed cost of Rs. 18,266 Million in the head of ELR is justified?** FESCO must provide the basis against requested investment, areas prioritized for loss reduction program and financial impact of T&D losses reduction.

PETITIONER'S SUBMISSIONS FOR ELR PROJECTS:

- 5.1. The Petitioner in its DIIP and during the course of hearing dated 23-11-2022 briefed that the Energy Loss Reduction (ELR) is the part of System Augmentation Program (SAP). Further, ELR cover improvements in Distribution System by installing new feeders, modifying existing feeders, replacing overloaded Transformers, re-conductoring etc.
- 5.2. The petitioner in its submissions during hearing and revised DIIP, has claimed investment requirement of Rs. 18,266 Million for Energy Loss Reduction (ELR) program. FESCO further stated that the ELR comprises of HT and LT proposals and these proposals are prepared / selected where all or any one of the following improvement is required:
- i. Improving Voltage drop (where voltage drop is more than 5%)
 - ii. Reducing Power Loss (where power loss is more than 3.5%)
 - iii. Reducing Annual Energy Loss (where annual energy loss is more than 3%)
 - iv. Decreasing Percentage Loading (where loading is above or equal to 80%)
 - v. Improving Power Factor;
 - o Independent/ Industrial (>0.95)
 - o Mix Load urban (>0.95)
 - o Mix Load Rural (>0.90)
- 5.3. The petitioner provided following scope of ELR works.

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
No. of HT Proposals	32	34	36	38	40	180
No. of LT Proposals	800	850	900	950	980	4,480
Replacement of Old Type T/ Formers (Above 20 Yrs)	646	645	645	645	645	3,244

- 5.4. The year wise details of cost claimed by petitioner under the head of ELR for HT and LT proposals is as under:

Description	Million Rupees					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
HT Proposals	806	1,026	1,259	1,719	1,942	6,752
LT Proposals	944	1,154	1,444	1,855	2,096	7,493
Replacement of Old Type T/Formers (age > 20years)	805	804	804	804	804	4,021

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(Total Project Cost Escalated)	2,555	2,984	3,507	4,378	4,842	18,266
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- 5.5. The Petitioner during the course hearing, claimed to achieve following tangible and non-tangible benefits from ELR projects:
- Revenue enhancement through reduction in AT&C losses, pilferage, outages, and reduction in O&M cost.
 - Provision of more reliable supply of electricity to the consumers
 - Enhance safety conditions for human life and property
 - The quantification of energy savings (GWh) and reduction in losses as result of implementation of ELR program is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
HT Savings (GWh)	68.32	95.14	117.73	136.34	146.99	68.32
LT Savings (GWh)	37.8	53.11	66.3	75.6	90.1	37.8
Total (GWh)	106.12	148.25	184.03	211.94	237.09	106.12
Benefit in terms of additional sales Million Rs.	2,358	3,508	4,638	5,688	6,363	2,358

- 5.6. The petitioner also presented a comprehensive financial analysis for ELR project before the Authority to justify the investments. The petitioner in its financial analysis claimed following:

Sr	Description	Value
1	Net present Value (NPV)	Rs. 18,347
2	Benefit to Cost Ratio (B.C.R)	2.36
3	Internal Rate of Return	47.39%
4	Payback Period (Years)	5 Years 05 Months

ANALYSIS

- 5.7. The 11 kV network assets of FESCO are given below.

Description	Value
NO OF 11 KV FEEDERS ENDING JUN-22	1,265
LENGTH OF HT LINE ENDING JUN-22	46,281
LENGTH OF LT LINE ENDING JUN-22	32,054
LT/HT RATIO	1:1.44
DISTRIBUTION TRANSFORMERS (ENDING 06/2022)	124,801
MVA capacity OF DISTRIBUTION TRANSFORMERS	7,934

- 5.8. The Authority observed that FESCO has excellent LT/HT ratio of 1:1.44. As per international best practices a LT/HT ratio of 1 to 1.2 would be very beneficial to power Distribution Company to achieve optimal loss level and to improve efficiency & voltage regulation of distribution. It is an established fact that increasing HT lines can help in



reducing both line losses and voltage drops thereby increasing efficiency of a company. The main reason for better LT/HT ratio is that FESCO has lower share of rural areas/village electrification programs. Moreover, it is also transpired that FESCO has been able to achieve NEPRA determined T&D losses targets. The historic trend of actual losses incurred by FESCO against NEPRA allowed T&D losses targets is given below:

Financial Year	FESCO's Actual Losses (%)	NEPRA Allowed Losses (%)
FY 2017-18	10.53	10.24
FY 2018-19	9.81	10.24
FY 2019-20	9.56	10.1
FY 2020-21	9.28	9.76
FY 2021-22	9.10	9.34
FY 2022-23	-	8.84

5.9. Further the Authority noticed that out of 1,265 feeders a total of 129 feeders are overloaded. Moreover, 1,383 number of distribution transformers are also overloaded. Therefore, HT and LT proposal and investments as proposed by FESCO are pivotal for eliminating overloading of 11 kV feeders and distribution transformers. The ELR investment will improve the reliability, quality and continuity of the supply in FESCO. A total of 180 new 11 kV feeders will be added by FESCO in five years under ELR program. In addition, chain augmentation and addition of distribution transformers will also be undertaken to relieve the system overloading and ensure smooth operations. ELR investment is also important to maintain and achieve NEPRA determined T&D losses targets.

5.10. FESCO has requested an investment of Rs. 18,266 Million for five year MYT control period under ELR head. However, the details provided by FESCO and correction of escalation factors only confirm the investment of Rs. 12,869 Million, as shown below:

Million Rupees							
Sr	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A	HT Proposals	661	722	850	972	1,295	4,500
B	LT Proposals	1,054	1,235	1,387	1,736	1,550	6,962
C	Tools and Plants	223	273	329	380	433	1,638
D	Material Cost A+B+C (including 12% Store handling Charges)	1,938	2,230	2,566	3,088	3,278	13,100
E	Installation Charges 8%	155	178	205	247	262	1,047
F	Grand Total	2,093	2,408	2,771	3,335	3,540	14,147
G	Dismantled Material	344	372	401	430	459	2,006
H	Net Cost of ELR (F-G)	1,749	2,036	2,370	2,905	3,081	12,141
I	Escalation Factor (@7%)	1.00	1.07	1.07	1.07	1.07	-
		-	143	166	203	216	728

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J	Grand Total (Escalated) (H+I)	1,749	2,179	2,536	3,108	3,297	12,869
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5.11. The trend of previous years investment utilization under the Distribution (Expansion & Rehabilitation) & ELR transpired from above figures that FESCO has fully utilized the investment allowed by NEPRA, details given below:

Financial Year	Allowed by NEPRA	Utilized by FESCO	Utilization (%)
2018-19	1,036	1,714	165%
2019-20	1,735	2,190	126%
2020-21	1,968	2,466	125%
2021-22	2,570	3,071	119%
2022-23	3,193	2,153	67%
Total	10,502	11,594	110%

DECISION OF THE AUTHORITY FOR ELR INVESTMENT

5.12. In view of foregoing discussion and analysis, the investment amount of Rs. 12,869 Million is allowed to FESCO as per following details;

(Million Rs.)

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
HT Proposals	661	722	850	972	1,295	4,500
LT Proposals	1,054	1,235	1,387	1,736	1,550	6,962
T&P for HT & LT proposals	223	273	329	380	433	1,638
Material cost A+B+C (including 12% Store handling Charges)	1,938	2,230	2,566	3,088	3,278	13,100
Installation Charges 8%	155	178	205	247	262	1,048
Grand Total – A	2,093	2,408	2,771	3,335	3,540	14,148
Dismantled Material – B	344	372	401	430	459	2,006
Net Cost of ELR (A-B)	1,749	2,036	2,370	2,905	3,081	12,142
Escalation Factor	1.00	1.07	1.07	1.07	1.07	-
Escalation Cost	-	143	166	203	216	850
Grand Total (Escalated)	1,749	2,179	2,536	3,108	3,297	12,869
Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Saving Targets						
HT Savings (GWh)	68.32	95.14	117.73	136.34	146.99	68.32
LT Savings (GWh)	37.8	53.11	66.3	75.6	90.1	37.8
Total (GWh)	106.12	148.25	184.03	211.94	237.09	106.12
Benefit in terms of additional sales (Million Rs.)	2,358	3,508	4,638	5,688	6,363	2,358

2



6. **Issue # 3: Whether the claimed cost of Rs. 6,859 Million in the head of DOP is justified?**
Petitioner to provide the rationale against requested investment in terms of removal of 11 kV Feeder Overloading and benefits of proposed investment in meeting future load growth and timely provision of electricity services to prospective consumers.

PETITIONER'S SUBMISSIONS FOR DOP PROJECTS:

- 6.1. Regarding the claim of Rs. 6,859 Million under the head of Distribution of Power (DOP) program, FESCO briefed that the DOP head deals with projects to meet future load growth and timely provision of electricity services to prospective consumers. Moreover, petitioner submitted that there are programs where rehabilitation work is undertaken without involving satisfactory benefit to cost (B/C) ratios but are still essential in a DISCO's liability. Such rehabilitation / expansion works are done under the Distribution of Power (DOP) program.
- 6.2. The Petitioner further claimed that DOP deals with projects where the Distribution of Power or continuity of services is the main objective instead of feasibility. Major activities performed under this program are:
- i. Construction of feeders due to addition of a 132 KV new transformer, new 132 KV grid station.
 - ii. Shifting of the load from overloaded grid station / feeder to lightly loaded grid station / feeder.
 - iii. Rehabilitation of feeder by replacement of conductor, pole, structure or the introduction of new ones by mid spanning (to reduce span length).
 - iv. Deteriorated conductor (with broken strands) or a conductor with more / unacceptable number of joints is replaced on top priority basis.
 - v. Augmentation of distribution transformer (with higher capacity) due to the addition of new general connections / increase of load by individual customers.
 - vi. Installation of 11KV capacitors for improvement of power factor/voltage profile
- 6.3. The scope of DOP self-financing work as shared by FESCO is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
HT PROPOSALS: (Nos)						
LOAD SHIFTING ON NEW GRIDS	8	16	18	22	25	89
RECONDUCTORING FEEDERS	12	15	18	22	24	91
LT PROPOSALS:						
ADDITION/AUGMENTATION	541	618	695	773	845	3,472
11KV CAPACITORS	25	30	45	55	70	225



6.4. The cost details of DOP self-financing work is given below:

Million Rupees

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
LOAD SHIFTING / RECONDUCTORING	850	947	1,042	1,086	1,227	5,152
ADDITION/AUGMENTATION OF T/F	366	332	300	319	360	1,677
11KV CAPACITORS	3	4	6	8	9	30
TOTAL	1,219	1,283	1,348	1,413	1,596	6,859

6.5. Regarding DOP Consumer Financed Projects petitioner stated that requirement of new HT/LT Lines and grid stations under deposit works are estimated based on the previous year's trends, the details are provided below:

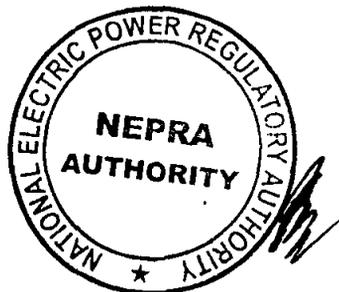
DOP Consumer Financed Scope & Cost

S.N	FY	No. of Grid Stations	Estimated Cost Million Rs.
1	2023-24	5	2017.90
2	2024-25	4	1775.70
3	2025-26	3	1464.97
4	2026-27	2	1074.34
5	2027-28	2	1181.78
Grand Total		16	7,514.69

HT/ LT Consumer Financed Scope & Cost

Sr	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	HT Lines Km	139	152	165	181	190	999.865
	Cost Mln Rs	301.156	325.986	348.039	367.681	384.537	1727.398
2	LT Line Km	158	168	178	188	200	892
	Cost Mln Rs	236.030	250.82	264.07	278.86	297.040	1326.820
Transformers (Nos)							
	a. 25 KVA	1554	1555	2192	2192	2830	10323
	b. 50 KVA	1160	1211	1274	1338	1402	6385
	c. 100 KVA	446	447	511	575	575	2554
	d. 200 KVA	178	185	192	198	205	958
	e. others KVA	1041	1046	1174	1304	1307	5872
	Sub Total	4379	4444	5343	5607	6319	26092
3	Transformers (Mln Rs)						
	a. 25 KVA	1090.558	1090.985	1362.984	1362.984	1635.41	6542.921
	b. 50 KVA	689.040	719.334	756.756	794.772	832.788	3792.690
	c. 100 KVA	359.030	359.835	411.355	462.875	462.875	2055.970
	d. 200 KVA	205.590	213.675	221.760	228.690	236.775	1106.490
	e. others KVA	377.881	382.536	428.235	475.377	478.559	2142.588
	Sub Total	2722.099	2766.365	3181.090	3324.698	3646.407	15640.659

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4	New Service Connections (Nos)						
	a. Single Phase	202232	214617	222872	234024	245736	1119481
	b. Three Phase	53298	53688	58846	61775	64855	292462
	c. MDI	100	106	115	124	129	574
5	New Service Connections (Cost)						
	Single Phase Mln Rs	808.928	858.468	891.488	936.096	982.944	4477.924
	Three Phase Mln Rs	959.364	966.384	1059.228	1111.950	1167.390	5264.316
	L.T TOU Meter Mln Rs	2.630	2.788	3.025	3.261	3.393	15096.200
	Sub Total Mln Rs	1770.922	1827.640	1953.741	2051.307	2153.727	9757.336
	Total Cost Mln Rs (1+2+3+4+5)	5030.213	5170.814	5747.085	6022.689	6481.530	28,452.331

Village Electrification Scope and Cost

Sr. No.	Description	Rs. In Million					
		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	New HT line	1.437	1.517	1.278	1.437	1.357	7.027
2	New LT line	0.342	0.361	0.304	0.342	0.323	1.673
3	Transformers						
	a. 25 KVA	1611.091	1702.071	1432.081	1611.091	1523.006	7879.285
	b. 50 KVA	1589.447	1675.622	1412.31	1589.447	1498.484	7765.309
	c. 100 KVA	541.034	563.117	474.785	541.034	507.909	2627.877
	d. 200 KVA						
	e. others KVA	66.494	70.926	59.844	68.71	64.277	330.251
	Sub Total	3808.066	4011.736	3379.02	3810.282	3593.676	18602.72
Total (1+2+3)		3,809.845	4,013.614	3,380.602	3,812.061	3,595.356	18,611.42

- 6.6. The Petitioner during the course hearing, claimed to achieve following tangible and non-tangible benefits from ELR projects:
- Provision of electricity service to new consumers.
 - Increase in asset base of FESCO
 - The quantification of energy savings (GWh) and reduction in losses as result of implementation of DOP self-financing program is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5
RECONDUCTORNG OF FEEDERS(GWH)	6	9	11	13	15
ADDITION/AUGMENTATION T/F (GWH)	3	4	6	7	9
11KV CAPACITORS (GWH)	2	2.5	3	4.5	5
TOTAL ENERGY SAVED (GWH)	11	15.5	20	24.5	30

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- 6.7. The petitioner also presented a comprehensive financial analysis for DOP projects before the Authority to justify the investments. The petitioner in its financial analysis claimed following:

Sr	Description	Value
1	Net present Value (NPV)	Million Rs. 5,010
2	Benefit to Cost Ratio (B.C.R)	1.96
3	Internal Rate of Return	30.82%
4	Payback Period (Years)	6 Years 05 Months

ANALYSIS

- 6.8. The Authority is of the opinion that DOP program is very important because its purpose is to meet the future load growth and provision of electricity services to new consumers. The consumer growth rate forecasted by FESCO is around 5%. Moreover, the submitted BC ratio and payback period of 1.96 and 6 years 5 months respectively is quite good for DOP works.
- 6.9. Moreover, the Authority noted that FESCO has requested an investment of Rs. 6,859 Million for DOP Self Financing. The scrutiny of data revealed that FESCO has used escalation factors up to 31% which has been rationalized at 7%. The verified amount of DOP Self Financing determined to be Rs. 6,287 Million. The details of DOP Self-financed amount is given below.

Sr. No.	Description	Rs. In Million					
		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	New Line HT Line	301	326	348	368	385	1,727
2	11 kV Fixed 450 KVAR	192	222	252	282	308	1,256
3	LT Capacitors Different KVARs	185	163	175	156	159	838
4	Sectionlizers	315	294	210	158	185	1,161
	Auto Recloser	60	60	69	51	54	294
	Voltage Regulator	77	44	38	38	23	218
	Fault Locator	3	4	5	4	2	18
Total		1,076	1,097	1,089	1,088	1,161	5,511
Installation charges (8%)		86	88	87	87	93	441
Un escalated Cost		1,162	1,185	1,176	1,175	1,254	5,952
Escalation Factor %		1.00	1.07	1.07	1.07	1.07	-
Grand Total (Escalated)		1,162	1,268	1,259	1,257	1,341	6,287

- 6.10. In addition to above petitioner has claimed an amount of Rs. 54,578 Million for Deposit Works / Consumer Financing DOP projects including village electrification. The details are given below:

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Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Grid Stations (Nos)	5	4	3	2	2	16
STG Deposit Works	2,018	1,776	1,465	1,074	1,182	7,515
HT & LT Deposit Works	5030	5171	5747	6023	6482	28,452
Village Electrification	3810	4014	3381	3812	3595	18,611
Total DOP Deposit Works	10,858	10,960	10,593	10,909	11,259	54,578

6.11. The previous years utilization trend of DOP Deposit works is given hereunder; it is transpired that FESCO fully utilized the DOP Deposit works.

Financial Year	allowed by NEPRA	utilized by FESCO	Utilization (%)
FY 2018-19	2,072	3,826	185%
FY 2019-20	2,251	4,329	192%
FY 2020-21	2,583	5,491	213%
FY 2021-22	2,867	5,959	208%
FY 2022-23	3,287	3,670	112%
Total	13,060	23,274	178%

DECISION OF THE AUTHORITY ON DOP INVESTMENT

6.12. In view of foregoing discussion and analysis, the investment of Rs. 6,287 Million for DOP Self Financing and Rs. 54,578 Million for DOP Consumer Financing / Deposit Works is being allowed to FESCO as per following details;

Million Rupees							
Sr	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	New Line HT Line	301	326	348	368	385	1,727
2	11 kV Fixed 450 KVAR	192	222	252	282	308	1,256
3	LT Capacitors Different KVARs	185	163	175	156	159	838
4	Sectionlizers	315	294	210	158	185	1,161
	Auto Recloser	60	60	69	51	54	294
	Voltage Regulator	77	44	38	38	23	218
	Fault Locator	3	4	5	4	2	18
	Total	1,076	1,097	1,089	1,088	1,161	5,511
	Installation charges (8%)	86	88	87	87	93	441
	Un escalated Cost	1,162	1,185	1,176	1,175	1,254	5,952
	Escalation Factor %	1.00	1.07	1.07	1.07	1.07	-
	Grand Total (Escalated)	1,162	1,268	1,259	1,257	1,341	6,287
Consumer Financing / Deposit Works							
	STG Deposit Works	2,018	1,776	1,465	1,074	1,182	7,515
	HT & LT Deposit Works	5,030	5,171	5,747	6,023	6,482	28,452
	Village Electrification	3,810	4,014	3,381	3,812	3,595	18,611
	Total DOP Consumer Financing	10,858	10,960	10,593	10,909	11,259	54,578

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Saving Targets DOP Self Financing						
Re-conductoring (GWh)	6	9	11	13	15	54
Addition of T/Fs (GWh)	3	4	6	7	9	29
Capacitors (GWh)	2	2.5	3	4.5	5	17
TOTAL ENERGY SAVED (GWh)	11	15.5	20	24.5	30	101

7. Issue # 04: Whether the claimed cost of Rs. 3,650 Million in the head of Technical Improvement Plan and 2,026 Million for AAMI/AMR is justified? Petitioner to provide the basis against requested investment in terms of voltage wise areas where AMI/AMR system will be implemented and benefits of proposed investment. Whether any plan of AMR/AMI installation on PMT level is included in the investment plan or otherwise.

PETITIONER'S SUBMISSIONS FOR AMI/AMR/SMART ENERGY METERS

7.1. Regarding the claim of Rs. 3,650 Million under the head of Technical Improvement Plan, petitioner stated that it involves HT/LT digitized GIS Mapping up to consumer level, installation of SCADA system at 66 kV and 132 kV grid stations and capacity building of Technical Services (TS) departments. The scope of technical improvement plan as provided by petitioner is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5
HT Mapping	Web Based Application Design, Data Migration, HT Survey Up-dation	LT Survey HT Up-dation Integration Trainings	Defect liability Period	-	-
Installation of SCADA system to connect FESCO 132 kv & 66 kv Grid Station with DCC & RCC.	Feasibility Study	Hiring of Consultant & Contractor Design, selection and Procurement of RTU, Communication system, Master Stations	Installation of Equipment and Software capacity building of end users	Commissioning and defect liability	-
Capacity Building of Technical Services (TS) Department and purchase of required I.T tools/ software	Capacity Building & I.T tools for Bidding and evaluation process	Capacity Building & I.T tools for G/S & T/Line Design. Purchase of Standards & technical literature	Capacity Building & I.T tools for Protection Design	Capacity Building & I.T tools for AMI/AMR	Capacity Building regarding updation of Technical specifications, standards & SOPs

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7.2. Further, FESCO provided following year wise cost break for technical improvement plan:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
GIS Mapping of HT/LT upto customer & Development of Web Based Application for future updating along with Hardware and Software.	175	140	35	-	-	350
Installation of SCADA system to connect FESCO 132kv & 66kv Grid Station with DCC & RCC.	200	800	1200	300	-	2500
Capacity Building of Technical Services (TS) Department and purchase of required IT tools/software.	150	250	200	100	100	800
Total Million Rs	525	1,190	1,435	400	100	3,650

7.3. Regarding Rs. 2,026 Million for AMI/AMR technology, the petitioner stated that it is part of commercial improvement plan. The Objectives of AMI System/ Smart Energy meters as explained by petitioner in its submissions are as follows:

- i. Reading with Advanced Metering Infrastructure without human intervention and accurate billing for customer's satisfaction.
- ii. Loss reduction and recovery improvement in high loss area.
- iii. Assessment of load profile of each customer on real time
- iv. Availability of real time data for planning purpose etc.
- v. Monitoring of critical alarms and load side management.
- vi. Remote Connection and Disconnection which will be linked through online payment / banking system.
- vii. Load Limitation through disconnection of unapproved extension of load cases.
- viii. Better asset management.

7.4. As far as the scope of AMI project is concerned, FESCO stated it will install AMI meters on 88,219 connections having load of 5 kW and above during the MYT control period. Moreover, AMI meters at selective approximately 200 Nos. PMTs of high loss feeders / areas will also be implemented. FESCO further stated that its commercial improvement plan including implementation of AMI on industrial, tube well and other connections above 5 kW will help in achieving significant improvement in commercial performance as electro-mechanical metering has often subject to inaccurate manual readings and field tampering, resulting in a significant loss of revenue and increased opportunities for theft. Petitioner further said that the AMI project will help reduce distribution losses, enhance load control and load management, provide automated consumption (billing) data, improve revenue / collection and customer services, reduce

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billing complaints, increase operational efficiency, reduce operating costs and modernize the electricity metering and billing operations while also responding to Smart Energy Meter alerts and events. Further, the installation of AMI meters on 200 PMTs as well to monitor the health of transformers.

Description	Tube well and Industrial >15 kW		Others >15kW	>5kW		Total
	Year 1	Year 2	Year 3	Year 4	Year 5	
No. of connections	16,066	16,145	16,008	20,000	20,000	88,219
PMTs	200					200

7.5. FESCO in its DIIP and during the course of hearing provided following year wise cost of AMI project:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
AMI Million Rs.	388	348	430	430	430	2,026.13

7.6. The Petitioner during the course hearing, claimed to achieve following tangible and non-tangible benefits from AMI projects:

- i. Reading with Advanced Metering Infrastructure without human intervention and accurate billing for customer's satisfaction.
- ii. Loss reduction and recovery improvement in high loss area.
- iii. Assessment of load profile of each customer on real time
- iv. Availability of real time data for planning purpose etc.
- v. Monitoring of critical alarms and load side management.
- vi. Remote Connection and Disconnection which will be linked through online payment / banking system.
- vii. Load Limitation through disconnection of unapproved extension of load cases.
- viii. Better asset management.
- ix. The quantification of energy savings (GWh) and reduction in losses as result of implementation of AMI is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
AMI (GWh)	2.52	5.03	7.59	9.85	12.11	37.08

7.7. The petitioner also presented a comprehensive financial analysis for AMI project before the Authority to justify the investments. The petitioner in its financial analysis claimed following:

Sr	Description	Value
1	Net present Value (NPV)	Rs. Million 85
2	Benefit to Cost Ratio (B.C.R)	1.05
3	Internal Rate of Return	17.18%
4	Payback Period (Years)	8 Years 08 Months

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ANALYSIS

- 7.8. The Authority observed that AMI project with remote disconnection features at consumer level on industrial, tube well and other connections having load of 15 kW and above in first phase and then on connections of 5 kW and above in second phase is essential to maintain the NEPRA determined targets of T&D losses and to modernize the distribution network of FESCO. Moreover, FESCO has also included 200 PMTs for installation of AMI system (without remote disconnection feature) to monitor the health of the transformers. This is also a positive step towards achieving the goal PMT level load shedding and surveillance rather the same on feeder level.
- 7.9. Moreover, Technical Improvement Plan which include SCADA, GIS Mapping and training of Technical Staff which is also essential for network modernization especially in view of CTBCM regime.

DECISION OF THE AUTHORITY FOR AMI INVESTMENT

- 7.10 Keeping in view the importance of AMI, SCADA and GIS Mapping project in modernization of FESCO's infrastructure thereby bringing commercial improvements in company, the claimed investment of Rs. 3,650 Million in the head of Technical Improvement Plan and 2,026 Million for AAMI/AMR is being allowed to FESCO.

							Million Rupees
Sr	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	AMI/AMR Metering	388	348	430	430	430	2,026
Technical Improvement Plan							
2	GIS Mapping of HT/LT upto customer & Development of Web Based Application for future updating along with Hardware and Software.	175	140	35	-	-	350
3	Installation of SCADA system to connect FESCO 132kv & 66kv Grid Station with DCC & RCC.	200	800	1200	300	-	2500
4	Capacity Building of Technical Services (TS) Department and purchase of required IT tools/ software.	150	250	200	100	100	800
Total Technical Improvement Plan		525	1,190	1,435	400	100	3,650
Saving Targets							
	AMI / Smart Energy Meters (GWh)	2.52	5.03	7.59	9.85	12.11	37.08

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8. Issue # 05: the claimed cost of Rs.155,245 Million in the head of Annual Recurring Cost which include O&M and R&M expenses is justified?

PETITIONER'S SUBMISSIONS FOR O&M and R&M Expenses

8.1 Regarding the claim of Rs. 155,245 Million under the head of Annual Recurring cost petitioner clarified that this is the estimated existing Operation & Maintenance Cost and Depreciation Expenditure of the proposed new investments. The OPEX is only mentioned here for information. It will separately claimed in the MYT Petition with justification after approval of DIIP improvement plans:

DECISION OF THE AUTHORITY FOR O&M and R&M Expenses

8.2 The Authority considers the submissions of FESCO and also agrees with petitioner that Annual Recurring Cost is part of OPEX and shall be filed along with MYT petition.

9. Issue # 05: Petitioner to provide payback period of investments claimed under the head of DOP, ELR and STG.

9.1 The Petitioner has provided following details of payback period of the investment claimed under DOP, ELR and STG investments.

Energy Saving / Loss Reduction	NPV (Million)	IRR (%)	BC Ratio	Payback Period
Secondary Transmission & Grids (STG)	5,325	19.31	1.18	8-Years, 01-Month,
Distribution of Power (DoP)	5,010	30.82	1.96	06 Years, 05 Months
Energy Loss Reduction (ELR)	18,347	47.39	2.36	05 Years, 05-Month

9.2 Moreover, the FESCO vide email dated 5-12-2022 also submitted following analysis with respect to useful life & WACC which is summarized below:

- i. WACC of 16.21% allowed by NEPRA for FY 2022-23.
- ii. Breakup of WACC is as under:
- iii. Cost of Equity as per CAPM = 16.67%
- iv. Cost of Debt = 16.01% (3 Months KIBOR + 2.75% spread)
- v. WACC as per formula $(16.67\% \times 0.30) + (13.26 \times 0.70) = 16.21\%$
- vi. Time period of analysis 29 years derived from 3.5% depreciation as per company policy being charged on Grids & Distribution equipment.

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- vii. Average Sale & Purchase Rate has been taken as determined by NEPRA for FY 2022-23 indexed with CPI @ 7.41%, 6.52%, 6.50%, 6.50% & 6.50% for FY 2023-24, FY 2024-25, FY 2025-26, FY 2026-27 & FY 2027-28 respectively.
- viii. Determined Average Sale rate for FY 2022-23 derived from the revenue capped by NEPRA for FY 2022-23.

10 In addition to above, FESCO also claimed investment for Vehicles, T&P and functional improvement plans to bring operational efficiency and promote safety culture within DISCO, the details and analysis are as follows:

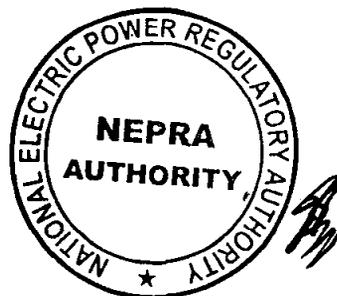
11 **Vehicles:** The Petitioner submitted that the existing transport fleet of the company is very old and also insufficient. Huge funds are required for replacement of old vehicles with new ones as well as availability of power vehicles, power tools and bucket mounted vehicles for working on Transmission & distribution lines. Moreover, the quantity of vehicles claimed under the instant MYT control period are as follows:

Sr.	Description	Quantity (No.)					Total
		Year 1	Year 2	Year 3	Year 4	Year 5	
1	Cars 1800cc	3	2	Nil	Nil	Nil	5
2	Cars 1600cc	8	4	3	Nil	Nil	15
3	Cars 1300cc	8	5	8	4	5	30
4	Cars 1000cc	20	10	16	9	13	68
5	Cars 800cc	10	8	8	6	5	37
6	Cars 660cc	20	15	10	10	10	65
7	Jeeps	Nil	Nil	Nil	Nil	Nil	0
8	Vans	6	5	5	4	5	25
9	Trucks	48	3	20	15	10	96
10	Cranes	16	15	10	10	10	61
11	Pickups	95	40	30	35	Nil	200
12	Bucket Mounted	30	25	20	15	15	105
13	Buses	3	3	3	1	Nil	10
14	Tractors	3	2	2	Nil	Nil	7
15	Fork Lifters	9	5	3	3	2	22
16	Trailers	5	3	2	2	2	14
17	Motorcycles	50	50	50	25	25	200
Total		334	195	190	139	102	960

11.1 The cost breakup of above claimed vehicles as provided by petitioner is given below:

S/N	Description of Items	Rs. In Million					Total
		Year 1	Year 2	Year 3	Year 4	Year 5	
1.	Toyota Car Altis 1.8	18.00	12.00	0	0	0	30.00
2.	Toyota Car Altis 1.6	37.60	18.80	14.10	0	0	70.50
3.	Toyota Car (XLI)	27.20	17.00	27.20	13.60	17.00	102.00

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4.	Suzuki Cultus Car	60.00	30.00	48.00	27.00	39.00	204.00
5.	Suzuki Mehran *	20.00	16.00	16.00	12.00	10.00	74.00
6.	Suzuki Alto Car	18.00	14.40	14.40	10.80	9.00	66.60
7.	Vans	42.00	35.00	35.00	28.00	35.00	175.00
8.	Trucks	240.00	15.00	100.00	75.00	50.00	480.00
9.	Crane 40 Tons	200.00	175.00	125.00	125.00	125.00	750.00
10.	Crane 20 Tons	160.00	160.00	100.00	100.00	100.00	620.00
11.	Single Cabin Pickups	240.5	111.00	74.00	92.50	0	518.00
12.	Double Cabin Pickup	150.00	50.00	50.00	50.00	0	300.00
13.	Bucket Mounted	450.00	375.00	300.00	225.00	225.00	1575.0
14.	Buses	25.50	25.50	25.50	8.50	0	85.00
15.	Tractor	5.10	3.40	3.40	0	0	11.90
16.	Fork Lifters	22.50	12.50	7.50	7.50	5.00	55.00
17.	Trailer 60-Ton	100.00	60.00	40.00	40.00	40.00	280.00
18.	Motorcycles	6.00	6.00	6.00	3.00	3.00	24.00
Sub Total		1,822.4	1,136.6	986.1	817.9	658	5,421

* Suzuki Mehran discontinued in Pakistan.

DECISION OF THE AUTHORITY FOR VEHICLES

- 11.2 FESCO's claimed investment of Rs. 547 million on account of its transport policy for officers (Cars 660 CC — 1800 CC Cars) has been disallowed by the Authority. Only, the cost of operational vehicles has been allowed as per following details.

S/N	Description of Items	Rs. In Million					
		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	Vans	42.00	35.00	35.00	28.00	35.00	175.00
2	Trucks	240.00	15.00	100.00	75.00	50.00	480.00
3	Crane 40 Tons	200.00	175.00	125.00	125.00	125.00	750.00
4	Crane 20 Tons	160.00	160.00	100.00	100.00	100.00	620.00
5	Single Cabin Pickups	240.5	111.00	74.00	92.50	0	518.00
6	Double Cabin Pickup	150.00	50.00	50.00	50.00	0	300.00
7	Bucket Mounted	450.00	375.00	300.00	225.00	225.00	1575.0
8	Buses	25.50	25.50	25.50	8.50	0	85.00
9	Tractor	5.10	3.40	3.40	0	0	11.90
10	Fork Lifters	22.50	12.50	7.50	7.50	5.00	55.00
11	Trailer 60-Ton	100.00	60.00	40.00	40.00	40.00	280.00
12	Motorcycles	6.00	6.00	6.00	3.00	3.00	24.00
Grand Total Vehicles		1,642	1,028	866	755	583	4,874

- 12 **Tools and Plants (T&P):** The Petitioner in its DIIP has stated that it will promote safety culture in order to avoid fatal/non-fatal accidents of employees and public. Further, line staff will be equipped with proper T&P and Personal Protective Equipment (PPEs) which include safety hat, safety belt, safety shoes for line staff, protective rubber gloves, protective leather gloves,

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insulated pleyer, rain coat, D-operating Rod, etc. The summary of cost for T&P and PPE is given below:

Million Rupees						
Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
T&P Cost	478.28	236.42	291.23	341.36	837.97	2185.19
PPE Cost	117	147	177	200	223	864
Safety Equipment	595	383	468	541	1061	3,049

DECISION OF THE AUTHORITY FOR SAFETY EQUIPMENT

12.1 Safety of employees of DISCOs and General Public is extremely important as the human life is indispensable. Therefore, the Authority in line with its vision of Power with Safety has allowed Rs. 3,049 Million to FESCO.

13 **Financial Management Improvement Plan for IT:** The Petitioner submitted the following scope and cost under this head:

Sr. No.	Description	Amount (in Million)					Total
		Year 1	Year 2	Year 3	Year 4	Year 5	
A	ERP System Implementation	61	67	74	82	90	374
B	GAP Analysis of ERP system	10					10
C	Revamping the Internal Audit and Integration with Existing ERP System as Desk Audit (Hardware +Software)	20	3	3	3	3	32
D	Integrated Billing System (IBS Hardware and Other Support SLAs through PITC)	202	125	138	151	166	782
E	Implementation of IT and Security Policy in FESCO Along with HR Setup	12	13	15	16	18	73
F	Online House Allocation System	7	5				12
Total		312	213	229	252	377	1,383

DECISION OF THE AUTHORITY FOR FINANCIAL IMPROVEMENT PLAN

13.1 ERP, Integrated Billing System, IT Security are important initiatives for digitalization of FESCOs record and asset tagging. Therefore, the claimed cost of Rs 1,383 Million are allowed to FESCO.

14 **HR Improvement Plan:** FESCO submitted following scope and cost for HR Improvement plans.

SNo	Description	Rs. In Million					
		Year 1	Year 2	Year 3	Year 4	Year 5	Total
A	Revamping of Training Centres	100	40	30	10	-	180
B	Provision of Safety T&P and Promoting Safety Culture	10	12	18	20	20	80
C	Training of Employees through external training Institutions	50	70	80	100	100	400

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D	Human Resource Information system Implementation	HCM ERP Module implemented successfully.					
E	Conducting the Yard stick Study	-	-	-	-	-	-
F	IT Infrastructure to support new initiatives						
G	Improving the working Environment	50	60	70	80	90	350
H	Others etc.	-	-	-	-	-	-
	Total	210	182	198	210	210	1,010

DECISION OF THE AUTHORITY ON HR IMPROVEMENT PLAN

14.1 HR improvement plan which includes training of employees and improving work environment through revamping the office and training centers are essential for improving technical and management skills of employees. Therefore, Rs.930 Million excluding Safety T&P cost, which is already allowed under the head of T&P and PPE, is being allowed to FESCO.

15 **Commercial Improvement Plan:** Petitioner stated that in order to modernize the billing / metering system, ensure accurate meter reading, eliminate theft it has started AMI project. The cost claimed for commercial improvement plan is given below:

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
AMR / AMI	388	348	430	430	430	2,026
IT infrastructure	20	40	60	80	80	250

DECISION OF THE AUTHORITY ON COMMERCIAL IMPROVEMENT PLAN

15.1 The cost for AMR/AMI and IT has already been allowed in the head of AMI program and Financial Improvement Plan for IT.

16 **Civil Works:** FESCO claimed following investment for civil works for new office buildings and residential colonies to be set up at newly constructed grid stations.

Million Rupees

Sr. No.	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	Office (Future Expansion)	200	250	250	300	300	1,300
2	Offices (Existing Setup)	150	175	200	210	220	955
3	Residential Buildings	100	100	150	170	200	720
4	Residences at new Grid Stations	140	198	96	182	90	706
5	Residences, extension of CHB, Boundary walls, trenches and other works at existing Grid Stations	100	120	130	135	140	625
	Total	690	843	826	997	950	4,306

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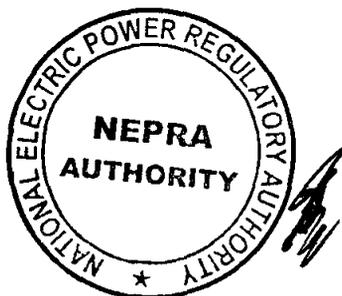
DECISION OF AUTHORITY FOR CIVIL WORKS

- 16.1 The Authority noted that FESCO has claimed huge amount of Rs. 4,306 Million under the head of civil works which will be utilized for office furniture and residential buildings. Further, the major portion of cost is intended for purchase of furniture.
- 16.2 Therefore, keeping in view the previous trend of utilization under the head of civil works an amount of Rs 2,000 Million is allowed to FESCO only for civil works. Further, Authority disallows the cost claimed for purchase of furniture.
- 17 In view of above discussions and analysis, the investment allowed to FESCO under various heads is as follows:

Million Rs.

Head	Year 1	Year 2	Year 3	Year 4	Year 5	Total
STG	6,076	6,774	6,897	8,071	4,903	32,721
ELR	1,749	2,179	2,536	3,108	3,297	12,869
DOP Own Resources	1,162	1,268	1,259	1,257	1,341	6,287
Commercial Improvement (AMI/AMR)	388	348	430	430	430	2,026
Technical Improvement Plan (GIS, SCADA, etc)	525	1,190	1,435	400	100	3,650
Financial Improvement Plan (ERP, IBS, IT & security, etc)	312	213	229	252	377	1383
HR Improvement Plan	200	170	180	190	190	930
Operational Vehicles	1,642	1,028	866	755	583	4,874
Safety Equipment	595	383	468	541	1061	3,049
Civil Works	330	400	376	472	422	2,000
Grand Total Own Resources	12,979	13,954	14,677	15,476	12,704	69,789
Consumer Financing						
STG Deposit Works	2,018	1,776	1,465	1,074	1,182	7,515
HT & LT Deposit Works	5,030	5,171	5,747	6,023	6,482	28,452
Village Electrification	3,810	4,014	3,381	3,812	3,595	18,611
Consumer Financing	10,858	10,960	10,593	10,909	11,259	54,578
Grand Total	23,837	24,914	25,270	26,385	23,963	124,367

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LOSSES ASSESSMENT OF FESCO

18 The T&D losses allowed to FESCO in previous MYT control period i.e. FY 2018-19 to FY 2022-23 is given below. It is important to note that for FY 2021-22 the loss target allowed to FESCO is 9.34% and the actual losses achieved by FESCO are 9.10%.

Financial Year	Allowed 132kV Losses %	Allowed 11kV Losses %	Allowed LT Losses %	Allowed T&D Loss %	Actual T&D Loss Achieved %
FY 2018-19	1.85	6.94	1.45	10.24	9.81
FY 2019-20	1.81	6.87	1.42	10.10	9.56
FY 2020-21	1.77	6.58	1.41	9.76	9.28
FY 2021-22	1.67	6.27	1.40	9.34	9.10
FY 2022-23	1.57	5.87	1.40	8.84	-

19 FESCO in its DIIP has projected following T&D losses for MYT control period from FY 2023-24 to FY 2027-28.

Fiscal Year	Energy Purchase (Million KWH)	Energy Sale (Million KWH)	Units Lost (Million KWH)	%age Projected Losses	Remarks
2021-22	17512.53	15918.79	1593.74	9.10%	Actual Losses
2022-23	18391	16765.24	1625.76	8.84%	NEPRA Target
2023-24	19423	17725.43	1697.57	8.74%	Projected
2024-25	20357	18606.30	1750.70	8.60%	Projected
2025-26	21438	19615.77	1822.23	8.50%	Projected
2026-27	22571	20675.04	1895.96	8.40%	Projected
2027-28	23709	21729.30	1979.70	8.35%	Projected

TRANSMISSION & TRANSFORMATION LOSSES

20 The Transmission Losses allowed to FESCO during FY 2022-23 are 1.57%. The transmission loss target for 1st year of MYT control period i.e. FY 2023-24 is taken same as 1.57 % with overall decrease of 0.40% in preceding years of the MYT control period in line with the submissions of FESCO.

Description	Start Point	Year 1	Year 2	Year 3	Year 4	Year 5
Allowed Transmission Loss	1.57%	1.57%	1.42%	1.32%	1.22%	1.17%
Reduction claimed by FESCO	-	0.15%	0.10%	0.10%	0.05%	0.05%

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- 21 Moreover, 0.05% reduction as claimed in FY 2027-28 (i.e. 5th year) will be considered in next tariff control period.

DISTRIBUTION LOSSES

- 22 The Distribution Losses allowed to FESCO during FY 2022-23 are 7.27% which include 5.87% of H.T/11 kV loss and 1.40% of L.T losses. The Authority keeping has considered the distribution loss target for 1st year of MYT control period i.e. FY 2023-24 as 7.17% and for preceding years the losses targets are determined keeping in view the quantum of allowed investment under the head of Energy Loss Reduction Program (ELR) and AMI projects.
- 23 Moreover, FESCO has been allowed an investment of Rs. 12,869 Million for ELR and Rs. 2,026 Million for AMI project. Further, ELR and AMI initiatives have direct impact on loss reduction of distribution network of DISCO. The cumulative loss reduction targets allowed to FESCO as result of ELR and AMI program are given below:

Description	Start Point	Year 1	Year 2	Year 3	Year 4	Year 5
AMI Reduction	-	0.04%	0.03%	0.04%	0.04%	0.04%
ELR Reduction	-	0.17%	0.22%	0.25%	0.31%	0.33%
Total Reduction Recommended	-	0.21%	0.25%	0.29%	0.35%	0.37%
Allowed Distribution Loss Targets						
Description	Start Point	Year 1	Year 2	Year 3	Year 4	Year 5
Distribution Loss	7.17%	7.17%	6.96%	6.71%	6.42%	6.07%
Assessed Reduction	-	0.21%	0.25%	0.29%	0.35%	0.37%
Segregation of Allowed Distribution Losses						
Description	Start Point	Year 1	Year 2	Year 3	Year 4	Year 5
11 kV Loss Target	5.77%	5.77%	5.60%	5.38%	5.13%	4.82%
L.T Loss Target	1.40%	1.40%	1.36%	1.33%	1.29%	1.25%

- 24 Moreover, 0.37% reduction as assessed in FY 2027-28 (5th Year) will be considered in next tariff control period.

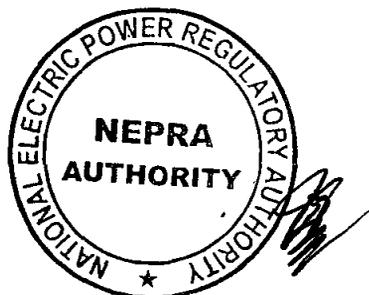
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25 The performance targets which are to be achieved by FESCO though above referred investment is given below.

Strategic Goals	Strategic Objectives	Unit	Current Status FY 22	Five Year Objectives FY 2024 to FY 2028				
				Year 1	Year 2	Year 3	Year 4	Year 5
Improvement in Operational Efficiency	Losses	%	9.10%	8.74%	8.38%	8.03%	7.64%	7.24%
	Collections	%	101.10%	100	100	100	100	100
	SAIFI	Numbers	35.53	34.6	34.3	34	33.6	33
	SAIDI	Hours	1252	1223	1212	1201	1185	1170
	Voltage Variations	%	-	±5 %				
	Power Factor	Numbers	-	0.95				
Improvement Customer care and Service	Reducing Billing Complaints	Numbers	3984	3200	2500	2100	1600	1250
Improvement in FESCO Infrastructure	Human ware	Quality of support services will be improved						
	Infoware	Consumer satisfaction and quality assurance						
	Orgoware	Coordination between directorate will be improved						
	Technoware	Reliability of the power supply and improvement in efficiency						
Comply with applicable Laws & Regulations	NEPRA Rules, Codes etc	Implementation of codes, rules and policies of the company						
Make FESCO Socially responsible	-	Implementation of codes, rules and policies of the company						

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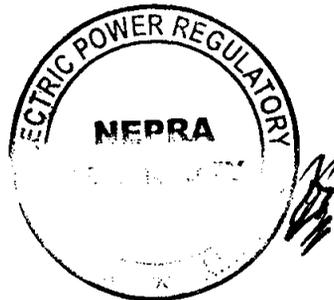




26 DIRECTION OF THE AUTHORITY

- i. FESCO shall submit a quarterly progress report showing utilization of allowed investment, physical progress and the benefits accrued against amount incurred for each project highlighted under different heads. The submitted quarterly progress report shall be reviewed/verified by a third-party consultant/firm selected by the Authority on ToRs approved by the Authority for effective monitoring on quarterly basis. The charges/fees for hiring of the services of third party consultant/firm for this purpose shall be borne by FESCO.
- ii. FESCO shall submit progress report showing achievement of the allowed targets (T&D losses, SAIFI, SAIDI, Reliability, Continuity, Quality of Power Supply and other performance standards) linked with the investment plan approved by the Authority.
- iii. No re-appropriation shall be allowed to FESCO against the approved investments under different heads.
- iv. In case of any deviation under each head of investment for more than 5% of the approved investment plan due to any regulatory decisions/interventions, FESCO shall be required to submit the additional investment requirements for prior approval of the Authority.
- v. FESCO shall submit its Power Acquisition Program as provided under Section 32 of the Act read with the provisions as laid down in NEPRA (Electric Power Procurement) Regulations, 2022.
- vi. FESCO shall ensure implementation of consumer facilitation / services programs through usage of IT tools and advanced softwares and applications.
- vii. FESCO shall ensure zero fatal accidents goal and shall ensure safe working environment for its employees and general public by utilizing approved budget by the Authority against safety plans.

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28. ORDER OF THE AUTHORITY

The Authority as per provisions of Section 32 of the NEPRA Act, 1997 read with Para 23 of NEPRA Guidelines for Determination of Consumer End Tariff (Methodology and Process), 2015 approves the investment plan and losses assessment of FESCO for five (5) years MYT control period from FY 2023-24 to FY 2027-28.

A. Investment Plan

(Million Rs)

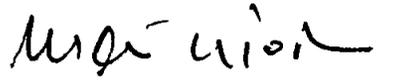
Head	Year 1	Year 2	Year 3	Year 4	Year 5	Total
STG (Annex-I)	6,076	6,774	6,897	8,071	4,903	32,721
ELR (Annex-II)	1,749	2,179	2,536	3,108	3,297	12,869
DOP Own Resources (Annex-III)	1,162	1,268	1,259	1,257	1,341	6,287
Commercial Improvement (AMI/AMR)	388	348	430	430	430	2,026
Technical Improvement Plan (GIS, SCADA, etc)	525	1,190	1,435	400	100	3,650
Financial Improvement Plan (ERP, IBS, IT & security, etc)	312	213	229	252	377	1383
HR Improvement Plan	200	170	180	190	190	930
Operational Vehicles	1,642	1,028	866	755	583	4,874
Safety Equipment (Annex-IV)	595	383	468	541	1061	3,049
Civil Works	330	400	376	472	422	2,000
FESCO Own Resources	12,979	13,954	14,677	15,476	12,704	69,789
Consumer Financing (Annex-V)	10,858	10,960	10,593	10,909	11,259	54,578
Grand Total	23,837	24,914	25,270	26,385	23,963	124,367

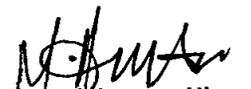
B. T&D Losses Targets

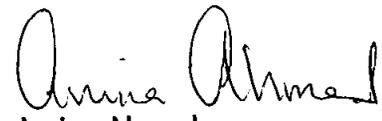
Voltage Level	Start Point	Year 1	Year 2	Year 3	Year 4	Year 5
Transmission Loss	1.57%	1.57%	1.42%	1.32%	1.22%	1.17%
H.T/11 kV Loss	5.77%	5.77%	5.60%	5.38%	5.13%	4.82%
L.T Loss	1.40%	1.40%	1.36%	1.33%	1.29%	1.25%
Total T&D Loss	8.74%	8.74%	8.38%	8.03%	7.64%	7.24%

AUTHORITY


Rafique Ahmad Shaikh
Member


Mathar Niaz Rana (hsc)
Member


Engr. Maqsood Anwar Khan
Member


Amina Ahmad
Member


Tauseef H. Farooq
Chairman

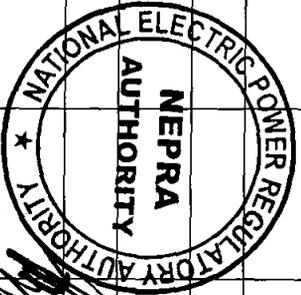



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FINANCIAL YEAR 2023-24

ANNEX - I

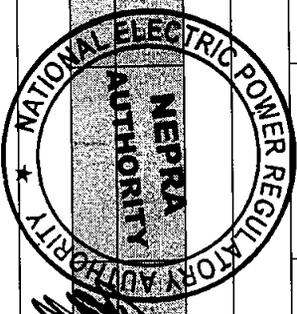
Sr. No.	Name of Grid Station	Proposal	Voltage (KV)	Material (Million PKR)	Civil works (Million PKR)	Land Acquisition Cost (Million PKR)	Installation/ Over Head (Million PKR)	E&SS (Million PKR)	Total (Million PKR)	Total With Escalation (Million PKR)	Remarks
NEW GRID STATIONS (N)											
1	132 kV Jararwala Road Faisalabad	N	132	352.944	58.05	100	30.96	3.87	545.824	545.8	Cost include T/Fs cost & Land in urban area of Faisalabad
2	Chinot-II (Pindi Bhatian Rd.)	N	132	287.28	47.25	30	25.2	3.15	392.880	392.9	Cost include T/Fs cost & Land in urban area of Chinot
3	Sabzi Mandi Sargodha	N	132	287.28	47.25	22	25.2	3.15	384.880	384.9	Cost include T/Fs cost & Land in urban area of Sargodha
4	Gokhuwal	N	132	352.944	58.05	60	30.96	3.87	505.824	505.8	Cost include T/Fs cost & Land in urban area of Faisalabad
5	Kaitha Rd Khushab	N	132	287.28	47.25	21.53	25.2	3.15	384.410	384.4	Cost include T/Fs cost. Land in urban area of Khushab
6	College Road Faisalabad	N	132	352.944	58.05	80	30.96	3.87	525.824	525.8	Cost include T/Fs cost & Land in urban area of Faisalabad
7	Rasoolpura (Bandala-I)	N	132	352.944	58.05	45	30.96	3.87	490.824	490.8	Cost include T/Fs cost & Land in industrial area of Faisalabad
Total Rs. In Million									3230.47		
EXTENSION OF POWER TRANSFORMERS (E)											
8	H.B Shah	E	132	128.05	19.207		10.244		157.500	157.5	T/F spared from Augmentation will be utilized. Book value of T/F taken in estimation.
9	Sargodha City	E	132	128.05	19.207		10.244		157.500	157.5	T/F spared from Augmentation will be utilized. Book value of T/F taken in estimation.
Total Rs. In Million									315.0		
AUGMENTATION OF POWER TRANSFORMERS (A)											
10	Nishahbad	A	132	124.983			9.999		134.982	135.0	Cost include new procurement of T/Fs cost. Extension of CHB required.
11	Chak Jhumra	A	132	111.096			8.888		119.984	120.0	Cost include new procurement of T/Fs cost.
12	Khamana	A	132	124.983			9.999		134.982	135.0	Cost include new procurement of T/Fs cost. Extension of CHB required.
13	Kirana Hill	A	132	111.096			8.888		119.984	120.0	Cost include new procurement of T/Fs cost.
14	Chenab Nagar	A	132	87.951			7.036		94.987	95.0	T/F spared from Augmentation will be utilized. Book value of T/F taken in estimation.
15	A.P Sial	A	132	87.951			7.036		94.987	95.0	T/F spared from Augmentation will be utilized. Book value of T/F taken in estimation.
16	Satiana	A	132	124.983			9.999		134.982	135.0	Cost include new procurement of T/Fs cost. Extension of CHB required.



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17	Small Industrial Estate Faisalabad (T-2)	A	132	124,983			9,999		134,982	135.0	Cost include new procurement of T/Fs cost. Extension of CHB required.
18	Kud Lathi (T-1)	A	132	124,983			9,999		134,982	135.0	Cost include new procurement of T/Fs cost. Extension of CHB required.
Total Rs. In Million									1104.8		



REACTIVE POWER COMPENSATION (R)											
19	Jaranwalla	R	132		187.5				187.500	187.0	Special CB for capacitor switching program complete will be required, cost is reasonable
20	Tardilwanwalla	R	132		187.5				187.500	187.0	switching program complete will be required, cost is reasonable
Total Rs. In Million									374.0		

EXTENSION OF LINE BAY (Ext. of L.B)											
21	Bhabra	Ext. of L.B	132	20,325	3,04875		1,626		25,000	25.0	Reasonable Cost for 02 No. LBays
Total Rs. In Million									25.0		

Total Rs. In Million for the period 2023-24

FINANCIAL YEAR 2024-25

Sr. No.	Name of Grid Station	Proposal	Voltage (KV)	Material (Million PKR)	Civil works (Million PKR)	Land Acquisition Cost (Million PKR)	Installation/ Over Head (Million PKR)	E&SS (Million PKR)	Total (Million PKR)	Total With Escalation (Million PKR)	Remarks
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NEW GRID STATIONS (N)

22	Bakkar Mandi Road Fsd	N	132	179.55	47.25	35	25.2	3.15	290.150	313.4	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
23	Adha Gojra	N	132	179.55	47.25	22	25.2	3.15	277.150	299.3	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
24	Bagh T.T. Singh	N	132	120.555	31.725	20	16.92	2.115	191.315	206.6	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
25	Awagat	N	132	220.59	58.05	20	30.96	3.87	333.470	360.1	New T/Fs will be utilized and include cost of land in semi urban area near Jaranwalla.
26	Swans Road	N	132	89.775	23.625	14.8	12.6	1.575	142.375	153.8	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation. Grid is planned near Mianwali
27	Chhidru	N	132	120.555	31.725	15	16.92	2.115	186.315	201.2	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation. Grid is planned near Mianwali

2

35

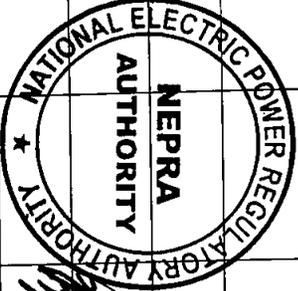
28	Dijkot	N	132	179.55	47.25	20	25.2	3.15	275.150	297.2	01-No. T/F will be utilized from spare due to Augmentation and 01-No. T/F will be procured newly.
29	Saitana Road Faisalabad	N	132	179.55	47.25	20	25.2	3.15	275.150	297.2	01-No. T/F will be utilized from spare due to Augmentation and 01-No. T/F will be procured newly.
30	Darul Ihsan	N	132	179.55	47.25	20	25.2	3.15	275.150	297.2	01-No. T/F will be utilized from spare due to Augmentation and 01-No. T/F will be procured newly.
Total Rs. In Million										2425.9	2673

EXTENSION OF POWER TRANSFORMERS (E)

31	Kala Bagh	E	132	35.00	5.250	2.800	2.800	43.050	46.5	T/F spare from Augmentation will be utilized. Extension of CHB and switchyard not required.
32	Wan Buchran	E	132	35.00	5.250	2.800	2.800	43.050	46.5	T/F spare from Augmentation will be utilized. Extension of CHB and switchyard not required.
33	Nia Lahore	E	132	35.00	5.250	2.800	2.800	43.050	46.5	T/F spare from Augmentation will be utilized. Extension of CHB and switchyard not required.
34	Tarjabad	E	132	132.72	19.908	10.618	163.246	176.3	348	New T/F will be utilized. Extension of CHB and switchyard not required.
Total Rs. In Million										315.8

AUGMENTATION OF POWER TRANSFORMERS (A)

35	Kamalia (T-3)	A	132	55.592	4.447	4.447	60.040	64.8	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
36	New Nishanabad	A	132	55.592	4.447	4.447	60.040	64.8	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
37	Mamu Karjan	A	132	44.011	3.521	3.521	47.532	51.3	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
38	Lalian	A	132	55.592	4.447	4.447	60.040	64.8	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
39	Bhowana	A	132	37.062	2.965	2.965	40.027	43.2	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
40	126 - S.B Sarogdha (T-2)	A	132	55.592	4.447	4.447	60.040	64.8	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.



2

36

Total Rs. In Million

353.9

360

REACTIVE POWER COMPENSATION (R)

NEPRA
NATIONAL ELECTRIC POWER REGULATORY
AUTHORITY

Total Rs. In Million

175.0

420

EXTENSION OF LINE BAY (Ext. of L.B)

Sr. No.	Name of Grid Station	Proposal	Voltage (KV)	Material (Million PKR)	Civil works (Million PKR)	Land Acquisition Cost (Million PKR)	Installation/ Over Head (Million PKR)	E&SS (Million PKR)	Total (Million PKR)	Total With Escalation (Million PKR)		
41	Bhowana	Ext. of L.B	132	9.977	1.497		0.798		12.272	13.3	Extension of CHB and switchyard not required.	
42	18-Hazari	Ext. of L.B	132	9.977	1.497		0.798		12.272	13.3	Extension of CHB and switchyard not required.	
43	G.M Raja	Ext. of L.B	132	19.187	2.878		1.535		23.600	25.5	Extension of CHB and switchyard not required.	
44	A.P Sial	Ext. of L.B	132	9.977	1.497		0.798		12.272	13.3	Extension of CHB and switchyard not required.	
45	220 KV Jaranwala Road	Ext. of L.B	132	19.187	2.878		1.535		23.600	25.5	Extension of CHB and switchyard not required.	
Total Rs. In Million										90.7		100

Total Rs. In Million for the period 2024-25

3361.4

FINANCIAL YEAR 2025-26

Sr. No.	Name of Grid Station	Proposal	Voltage (KV)	Material (Million PKR)	Civil works (Million PKR)	Land Acquisition Cost (Million PKR)	Installation/ Over Head (Million PKR)	E&SS (Million PKR)	Total (Million PKR)	Total With Escalation (Million PKR)		
New GRID STATIONS (N)												
46	Rodi Sultan	N	132	470.48598	31.725	18	16.92	2.115	539.246	582.4	Cost include new procurement of T/Fs cost.	
47	Moochi Wala Jhang	N	132	700.7238	47.25	18	25.2	3.15	794.324	857.9	Cost include new procurement of T/Fs cost. 02-Nos additional L/Bays for T/Lines from 500 KV Fsd west in future.	
48	Lower Canal Road Fsd	N	132	860.88924	58.05	24	30.96	3.87	977.769	1056.0	Cost include T/Fs cost & Land in urban area of Faisalabad	
49	Waght Adla	N	132	470.48598	31.725		16.92	2.115	521.246	562.9	Cost include new procurement of T/Fs cost.	
Total Rs. In Million										3059.2		3569.12

EXTENSION OF POWER TRANSFORMERS (E)

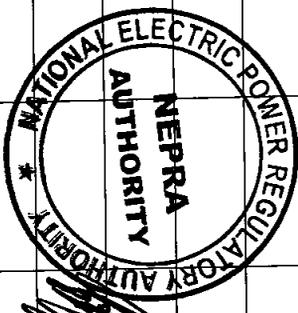
50	Kurd Lahi	E	132	162.24	24.335		12.979		199.551	215.5	Cost include new procurement of T/Fs cost. Extension of CHB required.
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2 31

51	Jauharabad	E	132	162.24	24.335	12.979	199.551	215.5	Cost include new procurement of T/Fs cost. Extension of CHB required.
Total Rs. In Million									
431.0									
502.9									

AUGMENTATION OF POWER TRANSFORMERS (A)

52	Head Faqirhan	A	132	136.637		10.931	147.568	159.4	Cost include new procurement of T/Fs cost. Extension of CHB required.
53	Bhamb (T-1)	A	132	136.637		10.931	147.568	159.4	Cost include new procurement of T/Fs cost. Extension of CHB required.
54	Lalian	A	132	108.171		8.654	116.825	126.2	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
55	Bhabra	A	132	136.637		10.931	147.568	159.4	Cost include new procurement of T/Fs cost. Extension of CHB required.
56	Quardabad	A	132	136.637		10.931	147.568	159.4	Cost include new procurement of T/Fs cost. Extension of CHB required.
57	Sammundi	A	132	136.637		10.931	147.568	159.4	Cost include new procurement of T/Fs cost. Extension of CHB required.
58	132 K.V Thikrawala	A	132	136.637		10.931	147.568	159.4	Cost include new procurement of T/Fs cost. Extension of CHB required.
59	Pathan Kot / Bhagwanwala (T-2)	A	132	153.717		12.297	166.014	179.3	Cost include new procurement of T/Fs cost. Extension of CHB required. Replacement of Bus Bar is required.
Total Rs. In Million									
1261.7									
1472									



EXTENSION OF LINE BAY (Ext. of L.B)

60	Barana	Ext. of L.B	132	23.414	3.512	1.873	28.800	31.1	Reasonable Cost for 02-No. L/bays
61	Chinnot Ind	Ext. of L.B	132	23.414	3.512	1.873	28.800	31.1	Reasonable Cost for 02-No. L/bays
62	Jhang-II	Ext. of L.B	132	23.414	3.512	1.873	28.800	31.1	Reasonable Cost for 02-No. L/bays
63	Darya Khan	Ext. of L.B	132	23.414	3.512	1.873	28.800	31.1	Reasonable Cost for 02-No. L/bays
Total Rs. In Million									
124.4									
145.2									

REACTIVE POWER COMPENSATION (R)

Capac	R	132					145.000	370.0	
Total Rs. In Million									
370									
420									

38

Total Rs. In Million for the period 2025-26

5246.3

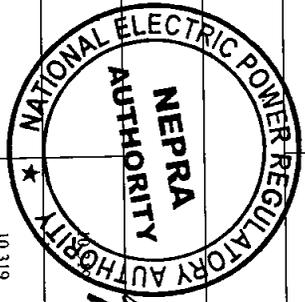
FINANCIAL YEAR 2026-27

Sr. No.	Name of Grid Station	Proposal	Voltage (KV)	Material (Million PKR)	Civil works (Million PKR)	Land Acquisition Cost (Million PKR)	Installation/ Over Head (Million PKR)	E&SS (Million PKR)	Total (Million PKR)	Total With Escalation (Million PKR)
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New GRID STATIONS (N)

64	Sadar Bypass	N	132	452,976	47,250	18,000	25,200	3,150	546,576	590,302	Cost include T/Fs cost & Land in semi urban area of Faisalabad
65	Usman Gani	N	132	452,976	47,250	25,000	25,200	3,150	553,576	597,862	Cost include T/Fs cost & Land in semi urban area of Faisalabad
66	Bukharan	N	132	304,141	31,725	12,000	16,920	2,115	366,901	396,253	Cost include T/Fs cost & 01-No. T/F will be utilized from spare due to augmentation.
67	Sial More	N	132	304,141	31,725	18,000	16,920	2,115	372,901	402,733	Cost include T/Fs cost & 01-No. T/F will be utilized from spare due to augmentation.
68	Chund Bharwana	N	132	304,141	31,725	12,000	16,920	2,115	366,901	396,253	Cost include T/Fs cost & 01-No. T/F will be utilized from spare due to augmentation.
69	Sindhanwala	N	132	304,141	31,725	10,000	16,920	2,115	364,901	394,093	Cost include T/Fs cost & 01-No. T/F will be utilized from spare due to augmentation.
70	Mala More	N	132	304,141	31,725	12,000	16,920	2,115	366,901	396,253	Cost include T/Fs cost & 01-No. T/F will be utilized from spare due to augmentation.
Total Rs. In Million										3173.75	

EXTENSION OF POWER TRANSFORMERS (E)



71	Jaranwala Rd.	E	132	128,98	19,347				158,649	171.3	Cost include new procurement of T/Fs cost. Extension of CHB not required.
72	Allied Fed	E	132	128,98	19,347		10,319		158,649	171.3	Cost include new procurement of T/Fs cost. Extension of CHB not required.
73	Aminpur Rd.	E	132	104,99	15,748		8,399		129,133	139.5	Cost include new procurement of T/Fs cost. Extension of CHB not required.
74	Musa Khel	E	132	104,99	15,748		8,399		129,133	139.5	Cost include new procurement of T/Fs cost. Extension of CHB not required.
Total Rs. In Million										4114.12	

2 39

Total Rs. In Million

621.6

805.8

AUGMENTATION OF POWER TRANSFORMERS (A)

75	Bhanb (T-2)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
76	Sammundri (T-1)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
77	Piplan (T-1)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
78	Shah Pur (T-1)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
79	Head Faqirhan (T-1)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
80	Shorkot City (T-3)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
81	Shorkot City (T-3)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
82	Gojra Rd. Jhang (T-1)	A	132	114.6719025		9.174		123.846	133.8	Cost include new procurement of T/Fs cost.
83	G.F Shah (T-1)	A	132	80.6950425		6.456		87.151	94.1	T/F spare from Augmentation will be utilized Book value of T/F included in estimation.
84	Shorkot Rd (T-2)	A	132	80.6950425		6.456		87.151	94.1	T/F spare from Augmentation will be utilized Book value of T/F included in estimation.
85	Chashma	A	66	50.96529		4.077		55.043	59.4	T/F spare from Augmentation will be utilized Book value of T/F included in estimation.
Total Rs. In Million									1317.7	

REACTIVE POWER COMPENSATION (B)

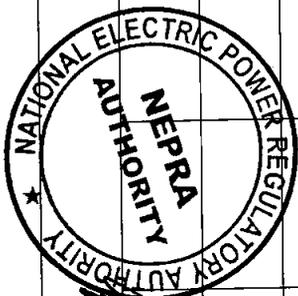
Capex	R	132						209,000	315.0	
Total Rs. In Million									315	

Total Rs. In Million for the period 2026-27

5428.1

FINANCIAL YEAR 2027-28

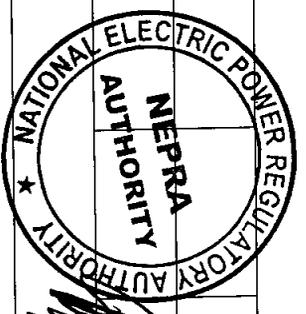
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Sr. No.	Name of Grid Station	Proposal	Voltage (KV)	Material (Million PKR)	Civil works (Million PKR)	Land Acquisition Cost (Million PKR)	Installation/ Over Head (Million PKR)	E&SS (Million PKR)	Total (Million PKR)	Total With Escalation (Million PKR)	
NEW GRID STATIONS (N)											
85	Malkhanwala	N	132	239.4	47.25	18	25.2	3.15	648.000	699.8	Cost include T/Fs cost & Land in rural area of Faisalabad
86	Jhok Sammetry	N	132	239.4	47.25	18	25.2	3.15	648.000	699.8	Cost include T/Fs cost & Land in rural area of Tandlianwala
87	Pull 111	N	132	239.4	47.25	24	25.2	3.15	654.000	706.3	Cost include T/Fs cost & Land in semi urban area of Sargodha
									Total Rs. In Million	2106.0	

EXTENSION OF POWER TRANSFORMERS (E)											
88	FSD City	E	132	128.05	19.207		10.244		314.998	340.2	Cost include new procurement of T/Fs cost. Extension of CHB & switchyard is required.
89	Mochiwala	E	132	128.05	19.207		10.244		314.998	340.2	Cost include new procurement of T/Fs cost. Extension of CHB & switchyard is required.
90	Bhabhra	E	132	128.05	19.207		10.244		314.998	340.2	Cost include new procurement of T/Fs cost. Extension of CHB & switchyard is required.
									Total Rs. In Million	1020.6	

AUGMENTATION OF POWER TRANSFORMERS (A)											
91	Bhalwal (T-2)	A	132	124.983			9.999		134.982	145.8	Cost include new procurement of T/Fs cost.
92	Khenwa (T-3)	A	132	87.951			7.036		94.987	102.6	T/F spare from Augmentation will be utilized. Book value of T/F included in estimation.
									Total Rs. In Million	248.4	

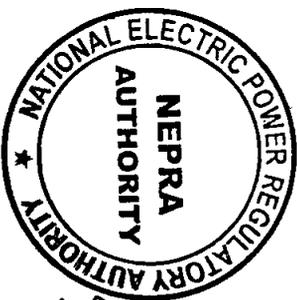


EXTENSION OF LINE BAY (Ext. of L.B)											
93	Pir Mahal	E	132	40.65	6.0975		3.252		50.000	54.0	Extension of Switch yard required, cost is reasonable for 02-No. L/Bays.
94	T. T. Singh	E	132	20.325	3.04875		1.626		25.000	27.0	Extension of Switch yard required, cost is reasonable for 01-No. L/Bay.

41

95	Rajana	E	132	20.325	3.04875		1.626	25.000	27.0	Extension of Switch yard required, cost is reasonable for 01-No. L/Bays.
96	220 kV Sammudri Rd.	E	132	40.65	6.0975		3.252	50.000	54.0	Extension of Switch yard required, cost is reasonable for 02-No. L/Bays.
97	Awagat	E	132	40.65	6.0975		3.252	50.000	54.0	Extension of Switch yard required, cost is reasonable for 02-No. L/Bays.
Total Rs. In Million										216.0
Total Rs. In Million for the period 2027-28										3591.0

2



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FINANCIAL YEAR 2023-24

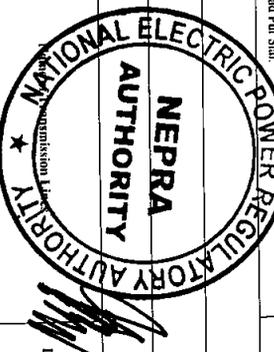
Sr. No.	Name of Transmission Lines	Length (Km)	Circuit	Conductor	Project Cost (Million PKR)	Material (Million Rs.)	Civil Work (Million Rs.)	Over Head (Million Rs.)	E&S Charges (Million Rs.)	Crop Compensation Cost (Million PKR)	Unescalated Cost (Million PKR)	Total With Escalation (Million PKR)
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New Transmission Lines

1	132 KV D/C T/Line for 132 KV Jaranwala Road/GStation from 220 KV G/S Jaranwala Road to Samundari Road T/Line	4	D/C	Rail	58.52	41.35	13.46	3.31	0.40	2	60.5	60.5
2	132 KV D/C T/Line F/F 132 KV G/S Chinnot-II (Pindi Bhanan Rd) from 132 KV D/C T/Line 220 KV Lalian to 132 KV G/S Chinnot-II G/S	20	D/C	Rail	186.00	131.43	42.78	10.51	1.28	5	191.0	191.0
3	220 KV Lalian-Ludewala (In & Out Serpodiha-III Sabzi Mandi)	6	D/C	Rail	87.78	62.03	20.19	4.96	0.61	2.7	90.5	90.5
4	132 KV D/C T/Line for Rasool Pura (Raudala-II) Grid Station	10	D/C	Rail	146.30	103.38	33.65	8.27	1.01	4.5	150.8	150.8
5	132 KV In & out T/Line for Gokhwal from Nisatabad - Chinnot Road T/Line	0.8	D/C	Rail	11.70	8.27	2.69	0.66	0.08	0.5	12.2	12.2
6	132 KV Wan Buchtan-Shahpur (In & out Karha Road Khushab)	15	D/C	Lynn	139.65	98.68	32.12	7.89	0.96	6	145.7	145.7
7	132 KV T/Line from Samundari Road - Jhang Road for College Road G/S	5	D/C	Rail	73.15	51.69	16.82	4.14	0.50	2	75.2	75.2
8	132 KV D/C T/Line from 132 KV G/S Chahinga To 132 KV Grid Station Ahmad Pur Sial.	38	D/C	Rail	350.00	247.31	80.50	19.78	2.42	7	300.0	300.0
Total Rs. In Million											1025.8	1025.8

Total Rs. In Million for the period 2023-24

FINANCIAL YEAR 2024-25



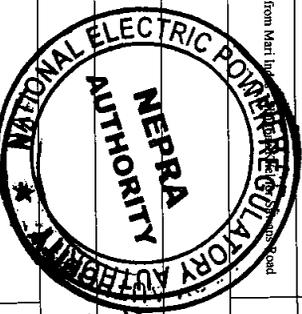
Sr. No.	Name of Transmission Lines	Length (Km)	Circuit	Conductor	Project Cost (Million PKR)	Material (Million Rs.)	Civil Work (Million Rs.)	Over Head (Million Rs.)	E&S Charges (Million Rs.)	Crop Compensation Cost (Million PKR)	Unescalated Cost (Million PKR)	Total With Escalation (Million PKR)
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New Transmission Lines

9	Jhang Rd-Navwala Rd. (In & out D/C Bakar Mandi Road F/Abad)	5	D/C	Rail	170.80	120.69	39.28	9.65	1.18	7	177.8	192.0
10	132 KV T/Line for Adha Gojra G/S from Gojra - Jhang T/Line	5	D/C	Rail	180.30	127.40	41.47	10.19	1.24	8	188.3	203.4
11	132KV In & out T/Line for New Chidaru G/S from Daud Khel - Wan Buchtan T/Line	4	D/C	Lynn	80.60	56.95	18.54	4.56	0.56	9	89.6	96.8
12	132 KV T/Line for Dikes from 220 KV Samundari Road to Samundari T/Line	5	D/C	Rail	160.30	113.27	36.87	9.06	1.11	10	170.3	183.9
13	132KV In & out at Rajana G/S from Murdwala - Kamalia T/Line	13	D/C	Lynn	312.60	220.88	71.90	17.67	2.16	11	323.6	349.5
14	132 KV In & out D/C T/Line from Nisatabad - Liberty to Dar-ul-Ehsan G/S	8	D/C	Lynn	156.80	110.79	36.06	8.86	1.08	12	168.8	182.3
15	132 KV T/Line In & Out Man Indus-Shahpur for Sawana Road G/S	10	D/C	Rail	306.70	216.71	70.54	12.34	2.12	13	319.7	345.3

2

43



16	From 132KV Scarp Colony-Jamrawala (In & out Avirgan)	10	D/C	Rail	320.80	220.68	73.78	18.13	2.21	14	334.8	361.6
17	132 KV T/Line for Bugh T.T. Singh G/S from 220KV T.T. Singh - H.B. Shah T/Line	10	D/C	Rail	366.80	239.18	84.36	20.73	2.53	15	381.8	412.4
18	132 KV D/C T/Line G.M. Raja - Shorkot City	35	D/C	Lynn	660.00	466.36	151.80	37.31	4.55	16	676.0	730.1
19	132 KV T/Line from Mari G/S to G/S	10	D/C	Rail	311.30	219.96	71.60	17.60	2.15	17	328.3	354.6
Total Rs. In Million												3411.8

FINANCIAL YEAR 2025-26

Total Rs. In Million for the period 2024-25

3411.8

New Transmission Lines												
Total	Name of Transmission Lines	Length (Km)	Circuit	Conductor	Project Cost (Million PKR)	Material (Million Rs.)	Civil Work (Million Rs.)	Over-Head (Million Rs.)	E&S Charges (Million Rs.)	Corp Compensation Cost (Million PKR)	Unallocated Cost (Million PKR)	Total With Escalation (Million PKR)
20	132 KV D/C T/Line F/F Road Sultan from 18thzan-G.M. Raja T/Line	5	D/C	Rail	127.06	89.78	29.22	7.18	0.88	17	144.1	155.6
21	132 KV In & out Madhwal from 132 KV Jhang-Khewa T/Line	10	D/C	Rail	234.12	179.56	38.45	14.37	1.75	18	272.1	293.9
22	132 KV In & Out Lower Canal Road from 132KV GTRPS- OTP	4	D/C	Rail	101.65	71.83	23.38	5.75	0.70	19	120.7	130.3
23	132 KV In & out at 220 KV Head Fagrian to - Bhoan T/Line	10	D/C	Rail	254.12	179.56	38.45	14.37	1.75	20	274.1	296.1
24	132 KV In & out at 220 KV Head Fagrian to - Bhakra T/Line	5	D/C	Rail	127.06	89.78	29.22	7.18	0.88	21	148.1	159.9
25	132 KV In & out at 220 KV Head Fagrian to - Bhalwal - Head Fagrian	5	D/C	Rail	127.06	89.78	29.22	7.18	0.88	22	149.1	161.0
26	132 KV D/C T/Line for Wagh Adda from T.T. Singh to Fir Mahal T/Line	15	D/C	Lynn	242.57	171.40	55.79	13.71	1.67	23	265.6	286.8
Total Rs. In Million												1483.6

RECONDUCTORING OF TRANSMISSION LINES (Rec.)

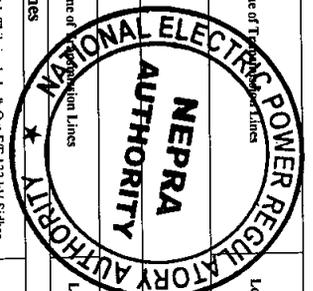
27	Reconductor of 132 KV D/C T/Line from 220 KV Lalian To 132 KV Grid Station Chiswah Nagar.	15	D/C	Rail	150.00					7	157.0	167.0
Total Rs. In Million												167.0

Total Rs. In Million for the period 2025-26

1650.6

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FINANCIAL YEAR 2026-27

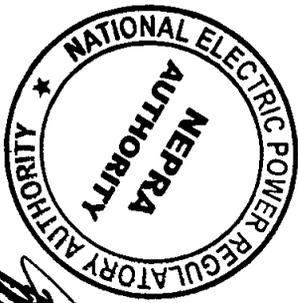
Total	Name of Transmission Lines	Length (Km)	Circuit	Conductor	Project Cost (Million PKR)	Material (Million Rs.)	Civil Work (Million Rs.)	Over Head (Million Rs.)	E&S Charges (Million Rs.)	Crop Compensation Cost (Million PKR)	Unescalated Cost (Million PKR)	Total With Escalation (Million PKR)
	New Transmission Lines											
28	132 KV D/C Narvala Rd.-Thikavala In & Out F/F 132 KV Sidhar By-Pass	5	D/C	Rail	175.19	123.79	40.29	9.90	1.21	23	198.2	214.1
29	132 KV D/C Clinical Power-Bhownana In & out F/F Buhwaran	11	D/C	Lynn	245.27	173.31	56.41	13.86	1.69	24	269.3	290.8
30	132 KV D/C T/L In & out F/F Usman Gant from 132 KV Narvala Rd. -S1 Eshan T/L In	5	D/C	Rail	175.19	123.79	40.29	9.90	1.21	25	200.2	216.2
31	132 KV In & out F/F Sial More from 132 KV Sarogdha-II to -Bhaganwala	15	D/C	Lynn	334.46	236.33	76.93	18.91	2.31	26	360.5	389.3
32	132 KV In & out F/F Chand Bhawan from 132 KV Bhumb-Kot Shahi	12	D/C	Lynn	267.57	199.06	61.54	15.13	1.85	27	294.6	318.1
33	132 KV In & out F/F Sindhawal from 132 KV K/V Piro Mahal to -Shorok Rd.	14.5	D/C	Lynn	323.30	228.44	74.36	18.28	2.23	28	351.3	379.4
34	132 KV D/C In & out F/F Malu More from 132 KV H.B Shahi to -Hanga City	15	D/C	Lynn	334.46	236.33	76.93	18.91	2.31	29	363.5	392.5
35	132 KV D/C T/L In & out at 220 KV G/S Jauharabad from 132 KV Jauharabad to Qandabad T/L In	3	D/C	Rail	105.12	74.28	24.18	5.94	0.73	30	135.1	145.9
36	132 KV D/C T/L In & out at 220 KV G/S Jauharabad from 132 KV T-Promer cement to T-Firing cement T/L In	3	D/C	Rail	105.12	74.28	24.18	5.94	0.73	31	136.1	147.0
37	132 KV D/C T/L In & out at 220 KV G/S Jauharabad from 132 KV Jauharabad to Ludavala New T/L In	3	D/C	Rail	105.12	74.28	24.18	5.94	0.73	32	137.1	148.1
Total Rs. In Million												2641.5

FINANCIAL YEAR 2027-28

Total	Name of Transmission Lines	Length (Km)	Circuit	Conductor	Project Cost (Million PKR)	Material (Million Rs.)	Civil Work (Million Rs.)	Over Head (Million Rs.)	E&S Charges (Million Rs.)	Crop Compensation Cost (Million PKR)	Unescalated Cost (Million PKR)	Total With Escalation (Million PKR)
	New Transmission Lines											
38	132 KV In & out F/F Makhanwala from 132 KV Jaranwala Rd.-Sannandan Rd T/L In	3	D/C	Rail	43.89	31.01	10.09	2.48	0.30	32	75.9	82.0
39	132 KV In & Out F/F Jhak Sammel from 132 KV Salana-Tandilwanwala	16	D/C	Lynn	148.96	105.26	34.36	8.42	1.03	33	182.0	196.5
40	132 KV In & out F/F Pull-111 from 132 KV Chak-126 SB -Sarogdha-II T/L In	2	D/C	Rail	29.26	20.68	6.73	1.65	0.20	34	63.3	68.3

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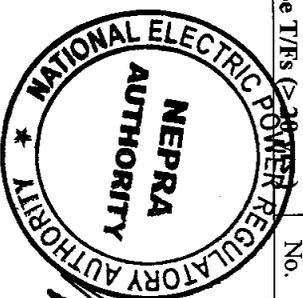
	Name of Transmission Lines	Length (Km)	Circuit	Conductor	Project Cost (Million PKR)	Material (Million Rs.)	Civil Work (Million Rs.)	Over Head (Million Rs.)	E&S Charges (Million Rs.)	Crop Compensation Cost (Million PKR)	Unescalated Cost (Million PKR)	Total With Escalation (Million PKR)
41	132 KV D/C T/Line Kamalia-Rajana T/Line In & out at Pir Mahal	20	D/C	1px	186.20	131.57	42.83	10.53	1.28	35	221.2	238.9
42	132 KV SDT T/Line T.T Simla-Rajana	16	SDT	Rail	234.08	165.40	53.84	13.23	1.62	36	270.1	291.7
43	132 KV D/C 220 KV Samundri Rd. - Awagal T/Line	25	D/C	Rail	365.75	258.44	84.12	20.68	2.52	37	402.8	435.0
Total Rs. In Million for the period 2027-28												1312.4



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ELR SCOPE & COST**i. SCOPE**

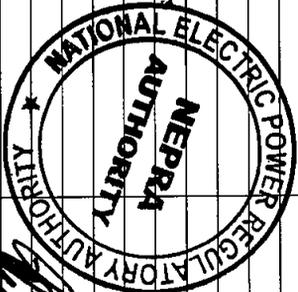
Scope of Work for 11 kV and Below Rehabilitation		unit	Year 1	Year 2	Year 3	Year 4	Year 5	Total
A.								
1 Rehabilitation of HT Lines								
	Number of proposals	Nos.	32	34	36	38	40	180
	New Line	KM	328.89	351.94	375	398.05	421.11	1875
	Reconductoring	KM	255.56	271.53	287.50	303.47	319.44	1437.50
	Re-routing							
2 New Transformers								
	a. 25 KVA							
	b. 50 KVA	No.	302	352	402	452	502	1910
	c. 100 KVA	No.	457	483	557	632	707	2736
	d. 200 KVA	No.	137	143	143	143	148	664
	e. others KVA							
	Sub Total	No.	896	978	1102	1227	1357	5310
3 11 KV Panels		No.	10	13	16	19	22	80
4 11 kV 500 MCM Cable		KM	3.75	3.99	4.22	4.45	4.69	21.1
Scope of Work for LT Rehabilitation								
1 LT Lines Rehabilitation								
	New LT Line	KM	184	208	224	249	285	1150.0
	Reconductoring of LT Line	KM	16	16.5	17	17.2	17.3	84
2 Other Equipments and Material								
	a. Single Phase Meters	No.	60000	75000	80000	85000	105000	405000
	b. Three Phase Meters	No.	7000	9000	11000	10000	8000	45000
	Sub Total	No.	67000	84000	91000	95000	113000	450000
3 Replacement of Old Type T/Fs		No.	646	645	645	645	645	3244



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ii. ELR COST

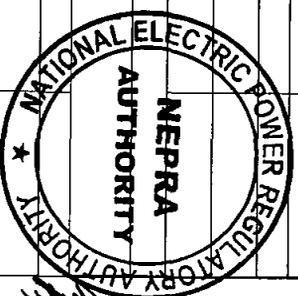
Cost of Work for 11 kV and Below Rehabilitation		Rs. In Million					Total
A.		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	Rehabilitation of HT Lines						
	Number of proposals						
	New Line	425.972	466.127	545.543	628.371	807.034	2873.048
	Reconductoring	261.503	284.751	334.107	380.804	506.117	1767.282
	Re-routing						
	Sub Total	687.475	750.878	879.650	1009.175	1313.151	4640.330
2	New Transformers						
	a. 25 KVA						
	b. 50 KVA	108.512	129.192	151.544	197.016	177.413	763.677
	c. 100 KVA	224.41	242.27	286.966	376.483	341.481	1471.61
	d. 200 KVA	96.523	102.914	105.706	122.222	102.564	529.929
	e. others KVA						
	Sub Total	429.445	474.377	544.216	695.721	621.458	2765.217
3	Installation of 11 kV Panels	9.728	12.961	17.677	22.666	33.137	96.169
4	11kV 500 MCM Cable (km)	1.712	2.084	2.674	3.281	4.638	14.388
	Cost of Work for LT Rehabilitation						
B.							
1	LT Lines Rehabilitations						
	New LT Line	87.200	100.662	111.232	143.061	133.035	575.189
	Reconductoring of LT Line	6.882	7.229	7.639	8.932	7.287	37.969
	Sub Total	94.082	107.891	118.871	151.993	140.322	613.158
2	Other Equipment's and Material						
	a. Single Phase Meters	146.400	186.930	204.800	251.600	252.000	1041.730
	b. Three Phase Meters	76.860	100.942	126.720	133.200	86.400	524.122
	Sub Total	223.260	287.872	331.520	384.800	338.400	1565.852
3	PVC Cables	244.949	291.528	307.501	396.870	357.010	1597.858
4	Connectors	24.675	29.793	35.315	43.601	37.665	171.049
5	Tools & Plants	223.011	273.342	329.278	380.174	432.938	1638.743
6	Recording Meters/ Personnel Computers	0.330	0.319	0.319	0.274	0.274	1.516
	a. Total Cost of Material	1938.667	2231.044	2567.020	3088.555	3278.994	13104.279
	b. Installation Charges (8%)	155.093	178.484	205.362	247.084	262.320	1048.342
	c. Total Cost of Construction	2093.760	2409.528	2772.381	3335.639	3541.313	14152.622
	d. Value of Dismantled Material	343.619	372.399	401.187	429.953	458.740	2005.898
	e. Net Cost of ELR (c-d)	1749	2036	2370	2905	3081	12142
	f. Escalation Factor (7%)	1.000	1.070	1.07	1.07	1.07	-
	Escalated Cost of ELR	1,749	2,179	2,536	3,108	3,297	12,869



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DOP SCOPE (Self Financing)**i. SCOPE**

Sr. No.	Description	Unit	Quantities					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Scope of Work for 11 KV and Below Expansion (Own Resources)								
A.								
1 Expansion of HT Lines								
	Number of proposals	Nos						
	Length of new HT line	Km	139	152	165	181	190	
	Reconductoring	Km					999.865	
2 Transformers								
	a. 25 KVA	Nos						
	b. 50 KVA	Nos						
	c. 100 KVA	Nos						
	d. 200 KVA	Nos						
	e. others KVA	Nos						
	Sub Total	Nos						
3 11 KV Capacitors								
	a. Fixed 450 KVAR	Nos	384	444	504	564	616	
	b. Fixed 900 KVAR	Nos					2512	
	c. Others	Nos						
	Sub Total	Nos						
4 11 KV Panel								
		Nos						
5 11KV 500 MCM Cable								
		km						
Scope of Work for LT Expansion								
B.								
1 New LT Lines								
	Number of proposals	Nos						
	Length of new LT line (Total Wasp + ANT)	Km						
2 LT Capacitors								
	a. Different KVARs	Nos	370	326	350	313	317	
3 Other Equipment's and Material								
	a. Single Phase Meters	Nos						
	b. Three Phase Meters	Nos						
	c. MDI	Nos						
	Sub Total	Nos						
Reliability Equipments								
6 Sectionalizer								
		Nos	150	140	100	75	88	
							553	

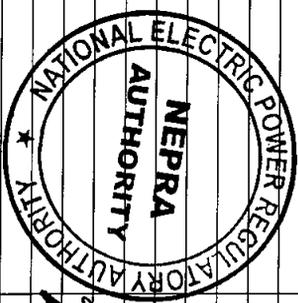


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Auto Recloser	Nos	20	20	23	17	18	98
Voltage Regulators (S/Phase Unit)	Nos	51	29	25	25	15	145
Fault Locator	Nos	230	252	312	255	130	1179

ii. DOP Cost

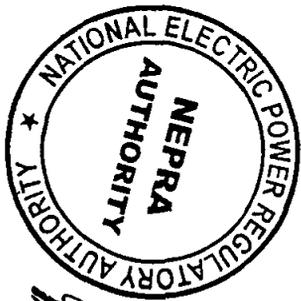
Sr. No.	Description	Rs. In Million					Total
		Year 1	Year 2	Year 3	Year 4	Year 5	
Cost of Work for 11 kV and Below Expansion (DOP)							
A.							
1	Expansion of HT Lines						
	New Line	301.156	325.986	348.039	367.681	384.537	1727.398
	Reconductoring						
2	Transformers						
	a. 25 KVA						
	b. 50 KVA						
	c. 100 KVA						
	d. 200 KVA						
	e. others KVA						
	Sub Total						
3	11 KV Capacitors						
	a. Fixed 450 KVAR	192.000	222.000	252.000	282.000	307.800	1255.800
	b. Fixed 900 KVAR						
	c. Others						
	Sub Total						
4	11 KV Panels						
5	11 kV 500 MCM Cable						
Cost of Work for LT Expansion							
B.							
1	New LT Lines						
	Number of proposals						
	New LT line						
2	LT Capacitors						
	a. Different KVARs	184.827	163.048	175.017	156.279	158.690	837.860
3	Other Equipments and Material						
	a. Single Phase Meters						
	b. Three Phase Meters						
	c. MDI						
	Sub Total						
Reliability Equipment							
	Sectionizers	315.000	294.000	210.000	157.500	184.800	1161.300
	Auto Recloser	60.000	60.000	69.000	51.000	54.000	294.000
	Voltage Regulator (Single Phase Unit)	76.500	43.500	37.500	37.500	22.500	217.500
	Fault Locator	3.450	3.780	4.680	3.825	1.950	17.685
4							



7.50

Total (1+2+3+4)	1076,106	1097,266	1089,219	1087,506	1160,787	5510,883
Installation charges (8%)	86,088	87,781	87,138	87,000	92,863	86,088
Un escalated Cost	1162,194	1185,047	1176,357	1174,506	1253,65	5951,754
Escalation Factor (7%)	1.00	1.07	1.07	1.07	1.07	1.07
Total Escalated Cost (1+2+3+4)	1,162,194	1,268	1,258,702	1,256,721	1,341,406	6,287,023

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S #	Item Description	Quantity					Total
		2023-24	2024-25	2025-26	2026-27	2027-28	
A)	Tools & Plants						
1	Earthing Set	500	500	500	500	500	2500
2	Earth Tester	60	60	60	60	60	300
3	Fiber Class Extension Ladder	600	600	600	600	600	3000
4	Cuffing Hoist (750 Kg)	100	100	100	100	100	500
5	Cuffing Hoist (1500 Kg)	100	100	100	100	100	500
6	Clip On Volt Ampt Meter	157	157	157	157	157	785
7	Clip On Kw Meter	157	157	157	157	157	785
8	Chain Pulley Block (3 Ton)	100	100	100	100	100	500
9	First Aid Box	250	250	250	250	250	1250
10	Pulling Grip (6-10)	157	157	157	157	157	785
11	Pulling Grip (12-15)	157	157	157	157	157	785
12	Adjustable Screw Wrench	3000	3000	3000	3000	3000	15000
13	Line Man Tool Bag	3000	3000	3000	3000	3000	15000
14	Torch 3 Cells	3000	3000	3000	3000	3000	15000
15	Mobile Disc Washing Plant For Transmission Lines	1	0	0	0	1	2
16	Thermovision Camera	14	2	17	19	20	72
17	Voltage Stabilizer, 230v Ac Pure Sinusoidal 3kva	5	3	6	7	7	28
18	Power Cable Semiconductor Screen Removal Kit	15	4	18	20	22	79
19	Secondary Injection Test Set With 0-100A Continuous Output Channel (Accuracy 0.1%), 02 No. Binary Input , Timer Start/ Stop And Provision Of 110VDC Supply With Min Continuous 60VA Burden With Display And Software	4	0	0	0	6	10
20	Primary Injection Test Set With 2400A Continuous, 5000A 3 Minute And Easily Portable	4	0	0	0	6	10
21	Dc Hi-Pot Set (80kv)	3	0	0	4	4	11
22	Phase Sequence Meter/ Tester	5	9	6	7	7	34
23	Working Gloves	1223	10	1480	1628	1791	6131
24	Safety Hat In White Colour (Insulated)	115	11	139	153	168	587
25	Lineman Safety Boot No.7	166	12	201	221	243	843
26	Lineman Safety Boot No.8	226	13	273	301	331	1144
27	Lineman Safety Boot No.9	249	14	301	331	365	1261
28	Lineman Safety Boot No.10	137	15	166	182	201	701



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29	Winch Machine (10ton) For Transmission Line (Uk)	4	17	5	5	6	37
30	Steel Rope 3/4" For Winch Machine	2800	18	3388	3727	4099	1403 2
31	Puller Machine (Zeck Pack SPW-13 Germany) + 2 Drums Of Steel Pilot Size 3/4"	2	19	2	3	3	29
32	Snatch Block / Ruler For Hand Line 2" 1 Ton (Canada Make)	24	20	29	32	35	140
33	Manual Hydraulic Press Machine With Die Set (70mm, 95mm, 120mm, 240mm, 500mm), Capacity 50-Ton	12	21	15	16	18	82
34	Nylon Rope 1"	3700	22	4477	4925	5417	1854 1
35	Nylon Rope 3/4"	3500	23	4235	4659	5124	1754 1
36	Strain Board Made In USA/Canada 14' Length	6	24	7	8	9	54
37	Hydraulic Conductor Cutter For Transmission Line	10	25	12	13	15	75
38	Torque Wrench 3/4"	15	26	18	20	22	101
39	Socket Set Complete 3/4"	34	28	41	45	50	198
40	Rain Coat (Medium)	215	29	260	286	315	1105
41	Rain Coat (Large)	250	30	303	333	366	1281
42	Genrator 5KVA	5	0	6	0	7	18
43	Electric Grass Cutting Machines	20	0	24	0	29	73
44	Leather Safety Jacket For Oprater Staff	205	33	248	273	300	1059
45	Fair Escap Mask (Helmat Type)	142	34	172	189	208	745
46	Temporary Earthing Set For 132KV Transmission Line With 8' Length Rod, Duck Bill Clamp For Earth (PTE), T-Clamp For Earth (PTE), Copper Cable (1/2") For Earth Lead (PTE) (15 Feet Each Lead)	48	35	58	64	70	275
47	Power Cutter For Tree Cutting	16	0	19	0	23	58
48	Line Man Safety Belt Synthetic 40"	42	37	51	56	61	247
49	Cable Cutter (Sizes 19/.52, 19/.83 & 37/.83)	16	39	19	21	23	118
50	Fiber Glass Ladder 15 Feet	30	40	36	40	44	190
51	Adjustable Wrench 200 Mm	50	41	61	67	73	292
52	Adjustable Wrench 300 Mm	50	42	61	67	73	293
53	Rechargeable Torch (Heavy Duty)	120	43	145	160	176	644
54	Lineman/Alm Uniform(Medium)	100	44	121	133	146	544



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55	First Aid Box	120	45	145	160	176	646
56	Dril Machine	20	46	24	27	29	146
57	Nose Plier	20	47	24	27	29	147
58	Measuring Tape 100 Ft	20	48	24	27	29	148
59	Grinder Machine	16	0	19	0	23	58
60	Hot Air Gun	18	51	22	24	26	141
61	Socket Goti Set 1/2"	18	52	22	24	26	142
62	Spanner Set	18	53	22	24	26	143
63	Screw Driver Champion Set	18	54	22	24	26	144
64	Thermovision Gun (Day/Night) Minimum Range 25 Meters	50	55	61	67	73	306
65	Polypropylene Rope 1/2"	2600	56	3146	3461	3807	13070
66	Polypropylene Rope 3/4"	2750	57	3328	3660	4026	13821
67	Polypropylene Rope 1"	2660	58	3219	3540	3895	13372
68	Steel Rope 1/4"	300	59	363	399	439	1560
69	Steel Sling 3/4" * 3'	39	61	47	52	57	256
70	Steel Sling 3/4" * 5'	39	62	47	52	57	257
71	DC Grounding /Earth Fault Relay 110V DC	80	63	97	106	117	463
72	Chain Block 750kg	4	64	5	5	6	84
73	Rope Ladder	24	65	29	32	35	185
74	Clamp On Ammeter With AC/DC Provision With Screen Backlight 0.01- 10A High Resolution	10	66	12	13	15	116
75	Lineman Safety Boot No.11	20	67	24	27	29	167
76	Arc Flash Suit	50	68	61	67	73	319
77	D.E.S / Oil Test Set, Min 80KV	5	69	6	7	7	94
78	Eye Protective Glass	50	70	61	67	73	321
79	Reflective Jacket	50	72	61	67	73	323
80	Nylon Sling 3/4" * 3'	55	73	67	73	81	349
81	Nylon Sling 3/4" * 5'	20	74	24	27	29	174
82	Cotton Inner Gloves	100	75	121	133	146	575
83	Warning Tape (Packets)	101	76	122	134	148	581
84	Warning Cone	101	77	122	134	148	582
85	Vacuum Cleaner	18	78	22	24	26	168
86	Conductor Grip Lynx	48	79	58	64	70	319
87	Conductor Grip Rail	39	80	47	52	57	275
88	Conductor Grip Earth	45	81	54	60	66	306
89	Ratchet Conductor Cutter Gear-Chain Type	4	83	5	5	6	103
B	Personal Protective T&P						
1	Safety Hat Insulated	3000	3000	3000	3000	3000	15000
2	Line Man Safety Belt	2000	2000	2000	2000	2000	10000
3	Protective Rubber Gloves	7000	7000	7000	7000	7000	35000

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4	Protective Lather Globes	7000	7000	7000	7000	7000	35000
5	Line Man Safety Boots	7000	7000	7000	7000	7000	35000
6	Rain Coat	3000	3000	3000	3000	3000	15000
7	D-Operating Rod	1000	1000	1000	1000	1000	5000
8	Insulated Plyer	3000	3000	3000	3000	3000	15000

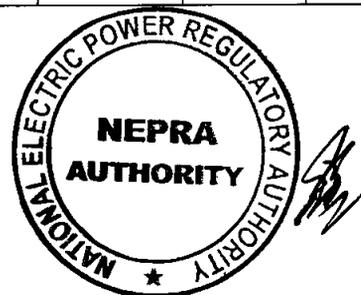
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S #	Item Description	Rs in Millions					Total Amount
		2023-24	2024-25	2025-26	2026-27	2027-28	
A)	Tools & Plants						
1	Earthing Set	23.68	23.68	28.42	34.10	40.92	150.81
2	Earth Tester	21.54	25.85	31.02	37.22	44.67	160.30
3	Fiber Class Extension Ladder	24.00	30.00	36.00	42.00	48.00	180.00
4	Cuffing Hoist (750 Kg)	3.50	4.50	5.50	6.50	7.50	27.50
5	Cuffing Hoist (1500 Kg)	4.50	5.50	6.50	7.50	8.50	32.50
6	Clip On Volt Ampt Meter	3.14	3.93	4.71	5.49	6.28	23.55
7	Clip On Kw Meter	4.71	5.49	6.28	7.06	7.85	31.39
8	Chain Fullley Block (3 Ton)	4.00	5.00	6.00	7.00	8.00	30.00
9	First Aid Box	1.50	2.50	3.50	4.50	5.60	17.60
10	Pulling Grip (6-10)	1.26	1.88	2.51	3.14	3.76	12.55
11	Pulling Grip (12-15)	1.88	2.51	3.14	3.76	3.76	15.06
12	Adjustable Screw Wrench	4.80	6.00	7.20	8.40	9.60	36.00
13	Line Man Tool Bag	4.50	5.50	6.50	7.50	8.50	32.50
14	Torch 3 Cells	3.00	4.00	5.00	6.00	7.00	25.00
15	Mobile Disc Washing Plant For Transmission Lines	250.00	0.00	0.00	0.00	366.00	616.00
16	Thermovision Camera	7.00	8.47	10.25	12.40	15.01	53.12
17	Voltage Stabilizer, 230v Ac Pure Sinusoidal 3kva	0.40	0.48	0.59	0.71	0.86	3.04
18	Power Cable Semiconductor Screen Removal Kit	2.63	3.18	3.84	4.65	5.63	19.92
19	Secondary Injection Test Set With 0-100A Continuous Output Channel (Accuracy 0.1%), 02 No. Binary Input , Timer Start/ Stop And Provision Of 110VDC Supply With Min Continuous 60VA Burden With Display And Software	14.40	0.00	0.00	0.00	30.87	45.27
20	Primary Injection Test Set With 2400A Continuous, 5000A 3 Minute And Easily Portable	8.40	0.00	0.00	0.00	18.01	26.41
21	Dc Hi-Pot Set (80kv)	4.50	0.00	0.00	0.00	9.65	14.15
22	Phase Sequence Meter/ Tester	0.07	0.08	0.10	0.12	0.15	0.53
23	Working Gloves	2.45	2.96	3.58	4.33	5.24	18.56
24	Safety Hat In White (Insulated)	0.17	0.21	0.25	0.31	0.37	1.31
25	Lineman Safety Boot No.7	1.00	1.21	1.46	1.76	2.14	7.56
26	Lineman Safety Boot No.8	1.36	1.64	1.99	2.40	2.91	10.29
27	Lineman Safety Boot No.9	1.49	1.81	2.19	2.65	3.20	11.34

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28	Lineman Safety Boot No.10	0.82	0.99	1.20	1.46	1.76	6.24
29	Winch Machine (10ton) For Transmission Line (Uk)	4.80	5.81	7.03	8.50	10.29	36.43
30	Steel Rope 3/4" For Winch Machine	2.10	2.54	3.07	3.72	4.50	15.94
31	Puller Machine (Zeck Pack SPW-13 Germany) + 2 Drums Of Steel Pilot Size 3/4"	0.09	0.11	0.13	0.16	0.19	0.68
32	Snatch Block / Ruler For Hand Line 2" 1 Ton (Canada Make)	0.25	0.30	0.37	0.45	0.54	1.91
33	Manual Hydraulic Press Machine With Die Set (70mm, 95mm, 120mm, 240mm, 500mm), Capacity 50-Ton	12.60	15.25	18.45	22.32	27.01	95.62
34	Nylon Rope 1"	1.30	1.57	1.90	2.29	2.78	9.83
35	Nylon Rope 3/4"	4.38	5.29	6.41	7.75	9.38	33.20
36	Strain Board Made In USA/Canada 14' Length	2.25	2.72	3.29	3.99	4.82	17.08
37	Hydraulic Conductor Cutter For Transmission Line	1.25	1.51	1.83	2.21	2.68	9.49
38	Torque Wrench 3/4"	0.01	0.01	0.01	0.01	0.02	0.06
39	Socket Set Complete 3/4"	0.02	0.02	0.03	0.04	0.04	0.15
40	Rain Coat (Medium)	0.23	0.27	0.33	0.40	0.48	1.71
41	Rain Coat (Large)	0.29	0.35	0.42	0.51	0.62	2.18
42	Generator 5KVA	2.50	0.00	3.66	0.00	5.36	11.52
43	Electric Grass Cutting Machines	0.50	0.00	0.73	0.00	1.07	2.30
44	Leather Safety Jacket for Oprater	1.33	1.61	1.95	2.36	2.86	10.11
45	Fair Escap Mask (Hclmat Type)	0.15	0.18	0.22	0.26	0.32	1.13
46	Temporary Earthing Set For 132KV Transmission Line With 8' Length Rod, Duck Bill Clamp For Earth (PTE), T-Clamp For Earth (PTE), Copper Cable (1/2") For Earth Lead (PTE) (15 Feet Each Lead)	7.20	8.71	10.54	12.76	15.43	54.64
47	Power Cutter For Tree Cutting	0.80	0.00	1.17	0.00	1.71	3.69
48	Line Man Safety Belt Synthetic 40"	0.08	0.10	0.12	0.15	0.18	0.64
49	Cable Cutter (Sizes 19/.52, 19/.83 & 37/.83)	0.06	0.07	0.08	0.10	0.12	0.42
50	Fiber Glass Ladder 15 Feet	0.45	0.54	0.66	0.80	0.96	3.42
51	Adjustable Wrench 200 Mm	0.05	0.06	0.07	0.09	0.11	0.38
52	Adjustable Wrench 300 Mm	0.05	0.06	0.07	0.09	0.11	0.38
53	Rechargeable Torch (Heavy Duty)	0.14	0.17	0.21	0.26	0.31	1.09
54	Lineman/Alm Uniform(Medium)	0.15	0.18	0.22	0.27	0.32	1.14
55	First Aid Box	0.60	0.73	0.88	1.06	1.29	4.55
56	Dril Machine	0.18	0.22	0.26	0.32	0.39	1.37
57	Nose Plier	0.02	0.02	0.02	0.03	0.03	0.12
58	Measuring Tape 100 Ft	0.02	0.02	0.03	0.03	0.04	0.14
59	Grinder Machine	0.14	0.00	0.21	0.00	0.31	0.66
60	Hot Air Gun	0.02	0.03	0.03	0.04	0.05	0.18

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61	Socket Goti Set 1/2"	0.05	0.05	0.07	0.08	0.10	0.34
62	Spanner Set	0.04	0.04	0.05	0.06	0.08	0.27
63	Screw Driver Champion Set	0.05	0.05	0.07	0.08	0.10	0.34
64	Thermovision Gun (Day/Night) Minimum Range 25 Meters	2.00	2.42	2.93	3.54	4.29	15.18
65	Polypropylene Rope 1/2"	0.52	0.63	0.76	0.92	1.11	3.95
66	Polypropylene Rope 3/4"	0.96	1.16	1.41	1.71	2.06	7.30
67	Polypropylene Rope 1"	1.40	1.69	2.04	2.47	2.99	10.60
68	Steel Rope 1/4"	0.11	0.13	0.15	0.19	0.23	0.80
69	Steel Sling 3/4" * 3'	0.35	0.42	0.51	0.62	0.75	2.66
70	Steel Sling 3/4" * 5'	0.47	0.57	0.69	0.83	1.00	3.55
71	DC Grounding /Earth Fault Relay 110V DC	2.00	2.42	2.93	3.54	4.29	15.18
72	Chain Block 750kg	0.28	0.34	0.41	0.50	0.60	2.12
73	Rope Ladder	0.05	0.06	0.07	0.09	0.10	0.36
74	Clamp On Ammeter With AC/DC Provision With Screen Backlight 0.01- 10A High Resolution	0.12	0.15	0.18	0.21	0.26	0.91
75	Lineman Safety Boot No.11	0.12	0.15	0.18	0.21	0.26	0.91
76	Arc Flash Suit	0.50	0.61	0.73	0.89	1.07	3.79
77	D.E.S / Oil Test Set, Min 80KV	1.50	1.82	2.20	2.66	3.22	11.38
78	Eye Protective Glass	0.20	0.24	0.29	0.35	0.43	1.52
79	Reflective Jacket	0.50	0.61	0.73	0.89	1.07	3.79
80	Nylon Sling 3/4" * 3'	0.33	0.40	0.48	0.58	0.71	2.50
81	Nylon Sling 3/4" * 5'	0.14	0.17	0.20	0.25	0.30	1.06
82	Cotton Inner Gloves	0.05	0.06	0.07	0.09	0.11	0.38
83	Warning Tape (Packets)	0.05	0.06	0.07	0.09	0.11	0.38
84	Warning Cone	0.51	0.61	0.74	0.89	1.08	3.83
85	Vacuum Cleaner	0.72	0.87	1.05	1.28	1.54	5.46
86	Conductor Grip Lynx	4.80	5.81	7.03	8.50	10.29	36.43
87	Conductor Grip Rail	7.80	9.44	11.42	13.82	16.72	59.20
88	Conductor Grip Earth	6.75	8.17	9.88	11.96	14.47	51.23
89	Ratchet Conductor Cutter Gear- Chain Type	1.20	1.45	1.76	2.13	2.57	9.11
B) PERSONAL PROTECTIVE T&P							
1	Safety Hat Insulated	3.00	4.00	5.00	6.00	7.00	25.00
2	Line Man Safety Belt	12.00	13.00	14.00	15.00	16.00	70.00
3	Protective Rubber Gloves	42.00	56.00	63.00	70.00	77.00	308.00
4	Protective Lather Globes	7.00	8.00	9.00	10.00	11.00	45.00
5	Line Man Safety Boots	35.00	42.00	56.00	63.00	70.00	266.00
6	Rain Coat	9.00	12.00	15.00	18.00	21.00	75.00
7	D-Operating Rod	6.00	8.00	10.00	12.00	14.00	50.00
8	Insulated Plyer	3.00	4.00	5.00	6.00	7.00	25.00
Sub Total		595.24	383.43	468.26	541.35	1060.95	3049.22
Total In Millions							3049.22

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YEAR WISE DEPOSIT WORKS (GRID STATIONS & T/LINES) EXPECTED.

S.N	F.Years	No. of Expected Grid Stations	Estimated Cost Rs.
1	2023-2024	5	2017.90-Million
2	2024-2025	4	1775.70-Million
3	2025-2026	3	1464.97-Million
4	2026-2027	2	1074.34-Million
5	2027-2028	2	1181.78-Million
G.Total		16	7514.69-Million

Note:- Estimates / Figures are tentative and based on assumptions by examining previous years data.

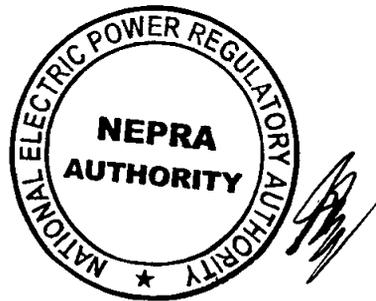
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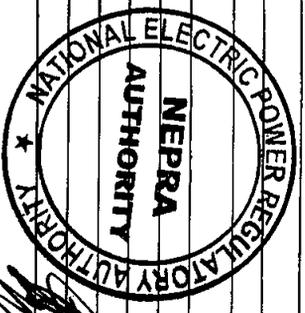


YEAR WISE DETAIL OF DEPOSIT WORKS (GRID STATIONS & T/LINES) EXPECTED.

Sr. No.	Name of Work	Amounting Rs. (In Million)	Financial Year Expected to be completed
1	NISHAT MILLS LIMITED, Plot No. 172-180, 188-197, M-3 Industrial City Sahianwala Faisalabad.	401.00	2023-24
2	ITTEHAD METAL (PVT) LTD, Allama Iqbal Industrial City Faisalabad.	405.16	2023-24
3	132 KV CITI HOUSING SCHEME, Sargodha Road Faisalabad.	402.10	2023-24
4	132 KV No. 2 Allama Iqbal Industrial City Faisalabad	406.06	2023-24
5	132 KV No. 3 Allama Iqbal Industrial City Faisalabad	403.58	2023-24
Total Rs. (In Million)		2017.90	

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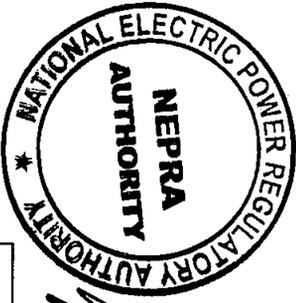




Sr. No.	Description	Rs. In Million					Total
		Year 1	Year 2	Year 3	Year 4	Year 5	
Cost of Deposit Work							
C. Village Electrification							
1	New HT Lines						
	New HT line	1,437	1,517	1,278	1,437	1,357	7,027
2	New LT Lines						
	New LT line	0,342	0,361	0,304	0,342	0,323	1,673
Transformers							
3							
	a. 25 KVA	1,611,091	1,702,071	1,432,081	1,611,091	1,523,006	7,879,285
	b. 50 KVA	1,589,447	1,675,622	1,412,310	1,589,447	1,498,484	7,765,309
	c. 100 KVA	541,034	563,117	474,785	541,034	507,909	2,627,877
	d. 200 KVA						
	e. others KVA	66,494	70,926	59,844	68,710	64,277	330,251
	Sub Total	3,808,066	4,011,736	3,379,02	3,810,282	3,593,676	18,602,72
	Total (1+2+3)	3,809,845	4,013,614	3,380,602	3,812,061	3,595,356	18,611,42
D. Consumer Contribution							
1	New HT Lines						
	New HT line	301,156	325,986	348,039	367,681	384,537	1,727,398
2	New LT Lines						
	New LT line	236,030	250,82	264,07	278,86	297,040	1,326,820
Transformers							
3							
	a. 25 KVA	1,090,558	1,090,985	1,362,984	1,362,984	1,635,41	6,542,921
	b. 50 KVA	689,040	719,334	756,756	794,772	832,788	3,792,690
	c. 100 KVA	359,030	359,835	411,355	462,875	462,875	2,055,970
	d. 200 KVA	205,590	213,675	221,760	228,690	236,775	1,106,490
	e. others KVA	377,881	382,536	428,235	475,377	478,559	2,142,588
	Sub Total	2,722,099	2,766,365	3,181,090	3,324,698	3,646,407	15,640,659
4	11 KV Panel						
5 New Service Connections							
	Single Phase	808,928	858,468	891,488	936,096	982,944	4,477,924
	Three Phase	959,364	966,384	1,059,228	1,111,950	1,167,390	5,264,316
	L.T TOU Meter	2,630	2,788	3,025	3,261	3,393	15,096,200
	Sub Total	1,770,922	1,827,640	1,953,741	2,051,307	2,153,727	9,757,336
	Total (1+2+3+4+5)	5,030,213	5,170,814	5,747,085	6,022,689	6,481,530	28,452,331

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Cost Deposit Basis														
1	New HT Lines													
	Length of new HT line	Km	139	152	165	181	190	999.865						
2	New LT Lines													
	Length of new LT line	Km	158	168	178	188	200	892						
	Transformers													
	a. 25 KVA	Nos	1554	1555	2192	2192	2830	10323						
	b. 50 KVA	Nos	1160	1211	1274	1338	1402	6385						
	c. 100 KVA	Nos	446	447	511	575	575	2554						
	d. 200 KVA	Nos	178	185	192	198	205	958						
	e. others KVA	Nos	1041	1046	1174	1304	1307	5872						
	Sub Total		4379	4444	5343	5607	6319	26092						
	11 KV Panel	Nos												
	Other Equipment's and Material													
	a. Single Phase Meters	Nos	202232	214617	222872	234024	245736	1119481						
	b. Three Phase Meters	Nos	53298	53688	58846	61775	64855	292462						
	c. MDI	Nos	100	106	115	124	129	574						

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