5 YEARS BUSINESS PLAN OF TRIBAL AREAS ELECTRICITY SUPPLY COMPANY (TESCO) FOR CONTROL PERIOD (FY2025-26 TO FY2029-30)

This Business Plan entails Goals, Objectives and Initiatives that will help TESCO to achieve them and has been prepared with extensive cross- functional discussions, coordination and teamwork.

Committed to Serve

TABLE OF CONTENTS

Chapter I Executive Summary of Business Plan

1.1 Introduction of TESCO

Tribal Areas Electricity Supply Company, TESCO, is a Public Limited Utility Company, responsible for the distribution of electric power to the population of all 7 Merged Districts formerly known as FATA and all corresponding FR-Regions of Pakistan as set out in TESCO's Distribution License no. 22/DL/2013, granted by NEPRA under the NEPRA Act on August 12, 2013. TESCO was incorporated in Pakistan under the Companies Ordinance Act 1984, on 2nd July 2004, in line with Government policy of unbundling and corporatizing Pakistan's power sector, because of restructuring of WAPDA's Power Wing after the enforcement of NEPRA Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

TESCO's was issued Distribution License by NEPRA for a Period of Twenty Years. TESCO is also working as Deemed Licensee for Supply of Electric Power as per provision to Sub-Section (1) of Section 23E of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, amended up to date for period of five (05) years. A petition for extension of Supplier License (For period of twenty years) as well as Modification & Extension (For period of 10 years) in its Distribution license to synch it with other DISCOs, is also submitted to the Authority for approval. The petitions are under review by the Authority.

TESCO's operational framework encompasses the procurement of electricity from the Central Power Purchasing Agency (CPPA), inclusive of generation and transmission charges regulated by NEPRA, thereby ensuring equitable access to power for its consumers in the given territory. At the forefront of its objectives is the assurance of uninterrupted and consistent power supply to all patrons, complemented by a robust infrastructure of customer service and the establishment and maintenance of reliable electricity distribution networks.

With a workforce of 1,019 dedicated employees, TESCO diligently endeavors to fulfill its mission, extending electricity services to an approximate 0.443 million consumers. This consumer base comprises a diverse mix, with approximately 90.56% constituted by domestic consumers, encompassing residential dwellings in both urban and rural locales, while 6.67% are commercial consumers, comprising businesses such as markets, plazas, and offices in varied settings. Furthermore, 0.97% are industrial consumers, pivotal to economic productivity, with the remaining 1.8% representing miscellaneous entities of our served regions.

1.2 Purpose and Goal of Investment/Business Plan

TESCO's 5 years Business Plan for control period of (FY2025-26 to FY2029-30 aims to enhance its Secondary Transmission & Grids and Distribution functions. This plan is pivotal in determining the tariffs for Transmission and Distribution for the upcoming control period. The Multi Year Tariff petition will be submitted based on the approval of this business plan. This comprehensive business plan outlines TESCO's vision, mission, and core values, along with stakeholder needs, sales forecasts, and consumer demand. It also addresses power supply challenges, organizational development, financial projections, regulatory compliance, quality of service, and strategies for improving delinquent payment collections. This document will guide integrated cross-functional planning, facilitating informed decision-making to align with TESCO's strategic priorities.

The business plan serves as a blueprint for TESCO's leadership, including the CEO and senior managers, to direct their efforts over the next five years toward financial viability and enhanced

governance. The plan focuses on adopting new technologies, upgrading existing systems, and improving human resources. It will be instrumental for the Strategic Planning Committee and the Board in monitoring progress and ensuring the achievement of TESCO's objectives. The plan is also integral to aligning with federal government decisions and priorities.

One of the key objectives is to efficiently enter the Competitive Trading Bilateral Contract Market (CTBCM) as part of significant reforms in Pakistan's power sector. Transitioning from a Single Buyer Model to a competitive wholesale market requires TESCO to adapt its role as a supplier of last resort. The business plan includes investing in an Asset Performance Management System (APMS), SCADA, and AMI to ensure non-discriminatory access to competitive suppliers, strengthening TESCO's role in this new market landscape.

Reducing dependency on PESCO's network and its associated Use of System Charges (UoSC) is another priority. TESCO currently incurs high operational costs due to its reliance on PESCO and NTDC networks. The plan aims to decrease these costs significantly by segregating TESCO's network, projecting a reduction in UoSC to under 650 million by 2029. Aligning the billing mechanism with actual demand patterns will further optimize TESCO’s cost structure, addressing the inefficiencies in the current Maximum Demand Indicator (MDI) reading system.

The business plan focuses on the projects with growth potential as well as upcoming load in the concerned areas. It outlines strategies to improve TESCO’s operational performance and reduce its reliance on government grants. Initiatives to increase electrification from 56% to 65% of TESCO's service area contributing to socio-economic development in underserved regions.

TESCO aims to maintain system losses at 8.89% as well as improve voltage and power factor through the installation of capacitor banks. Direct connections with power generators and implementing N-1 Contingency measures in its grid stations are planned to enhance system resilience and reliability. By connecting directly with upcoming hydel power plants (Kurram Tangi, Koto, Munda), it will help TESCO in decreasing its dependency on PESCO network and improve voltage profile as well as decreased Use of System Charge.

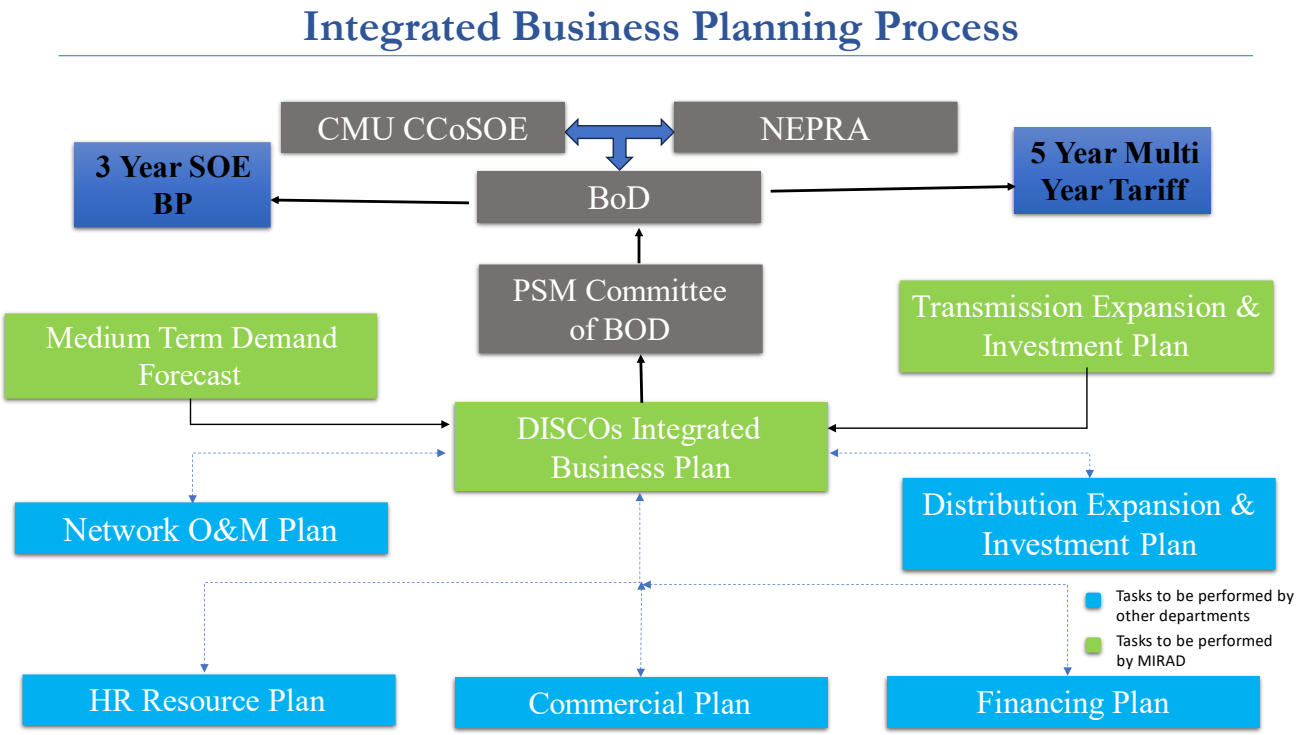
These initiatives underscore TESCO's dedication to operational excellence and customer satisfaction while addressing technological, operational, and institutional challenges. Through this investment plan, TESCO strives to ensure compliance with regulations and uphold its social responsibility to provide electricity and support community development.

1.3 Business Planning Process Approval

1.3.1 PSM Committee Approval

A major reform initiative was started by the Honorable Authority (NEPRA) by according the approval of creating Market Implementation & Regulatory Affairs Departments (MIRAD) in each DISCO. Before this there was no centralized business planning process or department to undertake the most important & holistic job of Business Plan Development and its subsequent implementation by reporting directly to the Board of Director of TESCO.

The business planning process involves a thorough review of the Company Board of Directors before submission to the authority for review & approval.



Integrated Business Planning Process

1.4 Business Plan Flow Chart

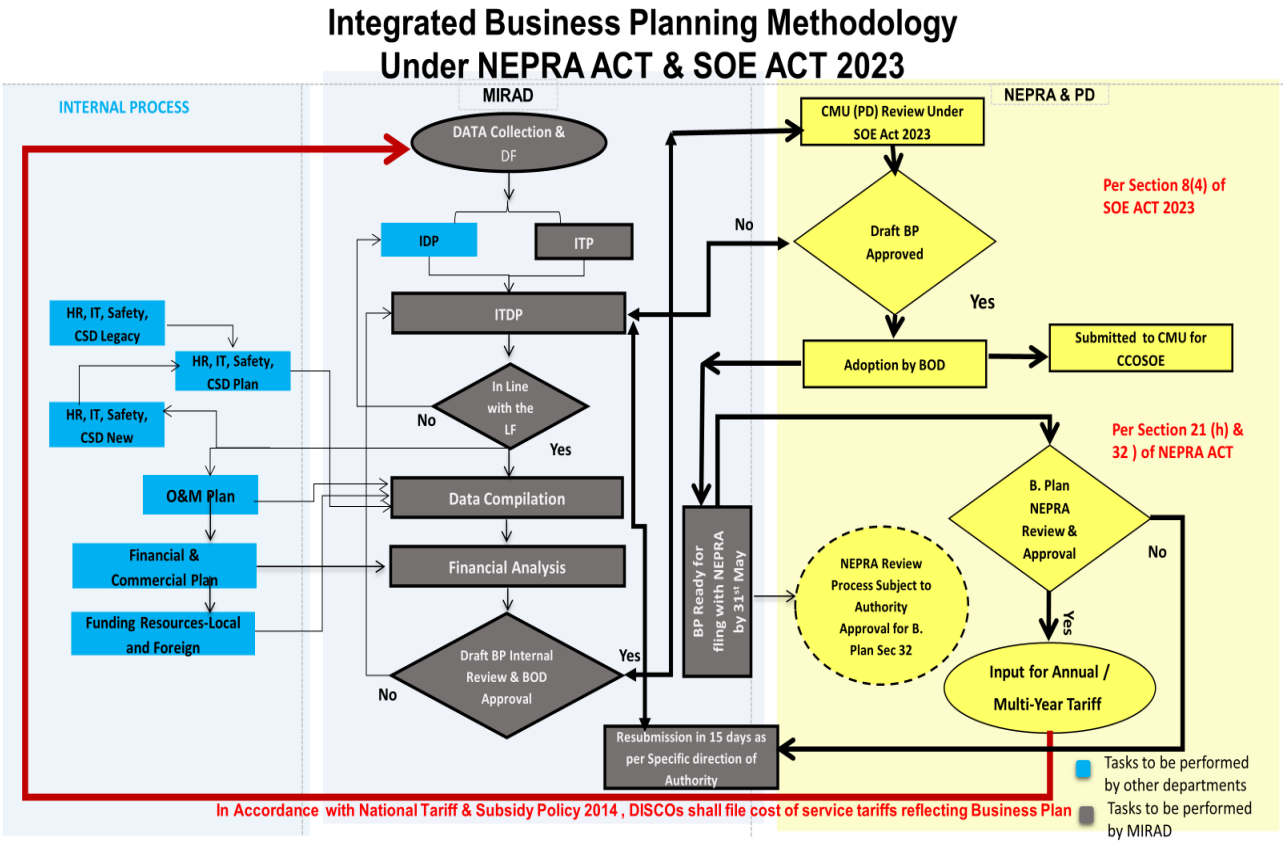


Figure: Integrated Business Planning Methodology

TESCO deputed its team to NTDC to complete a demand forecast, (Power Market Study) for the next ten years. Based on PMS study, TESCO, in coordination with NTDC, developed its Secondary Transmission & Grids Plan and its Distribution Plan for the next five years. This planning process ensured that TESCO could meet future demands efficiently and sustainably.

Following the Integrated Transmission & Distribution Plan (ITDP), sub-plans for all departments were developed for the next five years. These plans were thoroughly reviewed and analyzed, including a comprehensive financial analysis, to ensure alignment with strategic goals and budgetary constraints. The overall process ensured to meet upcoming demand and improve consumer satisfaction.

1.5 Period of Investment Plan:

The period covered by this investment plan is Five years from FY 2025-26 to FY 2029-2030. The projections and forecasts contained in this plan are being submitted to NEPRA for the purposes of evaluation and approval and form a basis for Tariff determination for Transmission and Distribution segments. The major section of this plan covers costs to be incurred, and benefit analysis in relation to projects to be undertaken by TESCO such as System Improvement / Reliability, Reactive Power Management, Loss Reduction, Maintenance, Growth Projects, Interconnection Arrangements, Safety, technology, etc.

Keeping in view macro-economic factors as well as changing dynamics and planning requirements including but not limited to change in Demand / Supply position, change in growth assumptions, change in power procurement plan and projects etc, TESCO has proposed an Investment Plan revision mechanism including Annual Investment Update as well as a Complete Investment Review after every two years to cater the changes required in the Investment plan.

1.6 Company's Investment Plan

The Five-Year Business Plan (2025-26 to 2029-30) is intended to be used by TESCO Board of Directors as a reference guide to the up-gradation and operations of TESCO, taking into consideration the activities projected to occur in the next Five years. Although the Investment Plan is based on a Five-year window, it will be a living document and will be updated to reflect changes in requirements. As per regulatory requirement specified in DIIP formats, two scenarios have been worked out, Best Case Scenario (if implemented, the company will achieve NEPRA standards in Five years, comes with a higher cost) and Optimally Achievable Scenario (based on what company can fund, procure and implement realistically, comes with less cost, but compromise on the performance).

Abstract of the business plan based on the two scenarios is presented hereunder:

Under this Five-year plan TESCO will expand and rehabilitate is Transmission and Distribution (T&D) systems. Moreover, plans have been prepared to improve the financial, commercial, human resource and communications functions, including IT that supports the main T&D business. From new grid stations to AMRs for commercial improvements, initiatives have been planned to improve the overall performance of the company in an integrated manner.

The future investment is all based upon meeting N-1 contingency criteria.

1.7 Costs Summary

1.7.1 Overall Investment:

TESCO is proposing two investment plans (Best & Optimal) with 25,960 million under the Best Case and 14,229 under the Optimal Plan. The Year-wise summary of both cases is here as under.

Rs in Million

Total Investment						
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
Best Case	9,006.60	6,678.94	2,648.84	3,812.66	3,813.38	25,960.42
Optimal	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

1.7.2 Best Case:

TESCO under the Best Plan is proposing an investment of 25,960.42 million over the control period of Five Years.
The detailed breakup of Best Case is summarized here as follows.

Rs in Million

Total Capex Expenses (Best Case)						
Department	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
HR	15.40	0.00	35.80	1.60	2.60	55.40
Construction Division	1,377.00	1,106.99	1,228.54	1,258.83	1,358.83	6,330.20
Grid Construction	5,539.24	3,300.35	1,057.39	1,965.58	1,784.11	13,646.67
SS&TL	307.2	585.2	315.1	564.65	649.3475	2,421.50
Vehicles	19.80	12.60	12.00	22.00	18.50	84.90
APMS	1,268.17	1,344.00	0.00	0.00	0.00	2,612.17
TESCO House	479.79	329.80	0.00	0.00	0.00	809.59
Total	9,006.60	6,678.94	2,648.84	3,812.66	3,813.38	25,960.42

As mentioned earlier, under the Best-Case Scenario (if implemented, the company will achieve NEPRA standards in Five years, comes with a higher cost) and Optimally Achievable Scenario (based on what company can fund, procure and implement realistically, comes with less cost, but compromise on the performance).

Our focus is Optimally achievable case because of funding & financing constraints. Hence TESCO under the optimally achievable case will invest a total of 14,229.27 million PKR.

1.7.3 Total Cost Optimally Achievable Case:

The project-wise summary of investment is here as follows.

Rs in Million

Total Expenses Breakup (Optimal Case)						
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
Growth	1,259.40	503.50	1,413.26	758.83	1,325.64	5,260.63
Maintenance, rain & other emergencies	46.56	59.67	46.26	258.26	281.18	691.94
N-1/N-2 Contingency	255.17	955.20	51.99	822.98	0.00	2,085.34
NPCC Constraints/HPP Interconnection	500.35	750.53	0.00	0.00	0.00	1,250.88
Reliability, stability & loss reduction	65.67	43.78	783.11	1,029.59	688.50	2,610.64
PESCO Wheeling Charges/MDI reduction & Grids interlocking	463.73	253.50	568.12	55.00	435.26	1,775.61
IT & Other Interventions	6.49	21.64	29.76	35.17	43.28	136.33
TESCO House	150.00	150.00	0.00	0.00	0.00	300.00
Others	22.80	22.40	19.60	30.60	22.50	117.90
Total Expenses	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

Due to upcoming demand as well as the meeting current demand unmet due to loadshedding, TESCO will invest a total of 5,260 million in the upgradation of its infrastructure.

Also, currently there is no grid oof TESCO with having an N-1 contingency. Meeting the N-1 contingency is NEPRA requirement under the Performance Standards Distribution Rules as well as Grid code approved by NEPRA. Under an investment of 2085 Million, 12 out of twenty grids of TESCO will be having N-1 contingency as well as 5 grids will be having N-2 contingency. All-important grids feeding industrial load will be having N-1 as well as N-2 contingency over the control period of this investment.

TESCO currently relies heavily on the PESCO Network, with over 70% of its power supplied through PESCO network, resulting in significant wheeling charges. To address this dependency and reduce our cost of doing business, TESCO's investment plan focuses on segregation of its network by connecting directly with NTDC upcoming grids, hydel power plants as well as shifting of load from PESCO grids to TESCO grids. This plan aims to decrease reliance on the PESCO network, lower operational expenses, and provide a more sustainable and reliable energy supply for consumers. It will also be helpful in reducing Use of system charges for Bulk Power Consumers in operationalization of CTBCM market. Through this business plan will decrease wheeling charges of PESCO by 40% by the end of control period of this plan.

1.7.4 Project-wise Breakup:

The main responsible for the execution of this investment plan is Grid Construction division. Grid construction division is fully capable & operationalized department with all the necessary tools & workforce for its execution.

Project-wise breakup of investment is here as:

Rs in Million

Total Capex Expenses (Optimal Case)						
Department	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
HR	3.00	9.80	7.60	8.60	4.00	33.00
Construction Division	897.00	756.99	828.54	758.83	758.83	4,000.20
Grid Construction	1,647.31	1,749.50	1,987.94	1,907.57	1,690.58	8,982.90
SS&TL	46.56	59.67	46.26	258.26	281.18	691.94
Vehicles	19.80	12.60	12.00	22.00	18.50	84.90
IT & Other Interventions	6.49	21.64	29.76	35.17	43.28	136.33
TESCO House	150.00	150.00	0.00	0.00	0.00	300.00
Total	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

1.7.5 Financing:

TESCO will finance the investment through its own sources calculated on the projection of Return on its Regulatory Base expected in the upcoming five years as well as through funding from Provincial Govt of KP (as part of its accelerated electrification as well as annual development program of merged districts), Federal Govt as well as other donor agencies.

The breakup of finances is here.

Rs in Million

Total Expenses (Optimal Case)							
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**	**Share**
Own Sources	1,391.25	1,759.68	1,416.40	1,385.83	1,615.79	7,568.95	53.19%
Funded	1,378.92	1,000.53	1,495.70	1,604.59	1,180.58	6,660.32	46.81%
Total Expenses (Optimal Case)	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.3	100%

The following table shows Project-wise breakup of financing arrangement of TESCO investment under different heads to be executed.

Rs in Million

Financing Breakup (Optimal Case)							
Description	**Financing Arrangement**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
STG Funded	Funded	1,178.92	750.53	1,195.70	1,304.59	880.58	5,310.32
STG Own	Own Sources	468.39	998.97	792.24	602.98	810.00	3,672.59
DOP Funded	Funded	200.00	250.00	300.00	300.00	300.00	1,350.00
DOP Own	Own Sources	697.00	506.99	528.54	458.83	458.83	2,650.20
IT & Other	Own Sources	6.49	21.64	29.76	35.17	43.28	136.33
TESCO House	Own Sources	150.00	150.00	0.00	0.00	0.00	300.00
Others	Own Sources	69.36	82.07	65.86	288.86	303.68	809.84
Total		2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

1.8 Benefits Summary

1.8.1 Expansion And Rehabilitation of Transmission & Distribution System

TESCO plans to achieve Transmission Capacity enhancement by 500 MVA under the best-case scenario & 304 MVA under the Optimal Case, to meet the growing demand through augmentation in existing grid stations and addition of new 132kV grid stations in network. To improve the reliability & stability of transmission network, TESCO will also add One Power Transformer at 132 kV GSS Bajaur, through augmentation in existing grid stations, addition of three new 132 kV grid stations and associated transmission lines which will increase TESCO current transformation capacity by 500 MVA under the best-case scenario & 304 MVA under the Optimal Case.

The Company expects three main direct benefits over the control period of this investment. Catering for the upcoming growth due to improvement in reliability, additional sales as well as reduction in Use of System Charges by Segregating its T&D system from PESCO System.

1.8.2 System Improvement / Reliability

These projects are required to upkeep and reinforce the existing network for ensuring reliability and stability of the power system. Further, new SMART technologies have also been opted for improving efficiency and operational excellence along with the projects required for adhering the technical limits, as per Grid Code, which includes network augmentation for maintaining N-1 contingency, system security and safety standards.

Following major activities are planned to enhance the system in this control period i.e., FY2025-26 to 2029-30:

- Overhauling of AIS bays
- Addition of Power Transformers and allied equipment
- Replacement of relays and allied equipment
- Installation and replacement of composite insulators
- Tower structures rehabilitation/ Transmission line allied equipment
- Underground cable replacement
- Rehabilitation of grid automation system/ Server through Implementation of SCADA

1.8.3 Reactive Power Management and Loss Reduction Projects

Installation of additional capacitor banks at existing 132kV Grid stations alongside capacitors at new 11 kV Feeders will provide compensation for VAR requirement of network / load canters which would also help managing the power factor / quality as per the grid code / prudent utility practices and optimization of transmission losses.

In addition to the above benefits, the proposed investment plan will also assist in improvement in the following areas:

- Improvement in SAIFI & SAIDI by **12%**
- Maintaining Transmission loss at **1.5% &** Distribution Loss at **7.39 %**
- Increase in capacity by **304 MVAs**

The Company expects three main direct benefits over the control period of this investment. Catering for the upcoming growth due to improvement in reliability, additional sales as well as reduction in Use of System Charges by Segregating its T&D system from PESCO System.

1.8.4 Best Case Benefits Summary:

1.8.4.1 Capacity Addition:

Through This Investment TESCO is expecting a Capacity Addition of 500 MVA under the best-case scenario and 304 MVA under the optimal case scenario. The breakup of year-wise Capacity addition under the best-case scenario is here as follows.

Year	Yearly MVA Addition	Cumulative MVA addition
2025-26	132	132
2026-27	184	316
2027-28	132	448
2028-29	0	448
2029-30	52	500
Total	500	500

TESCO also expects an additional sale of 658 GWh through this investment through development of power and electrification of bazaars & providing electricity to industries. Through investment under the head of N-1/N-2 Contingency TESCO will be able to ensure uninterrupted power supply to already serving industries.

TESCO is also expecting a decrease in liability of Wheeling Charges to be paid to PESCO.

1.8.4.2 Overall Impact of Investment under Best Case Scenario:

An overall impact of 7.8 billion is expected over the control period of the investment plan. This is apart from other indirect benefits which TESCO is expecting through the implementation of this business plan.

The Financial Impact is summarized here as follow:

Rs in Million

Year	Financial Impact due to UoSC	Financial Impact due to N-1	Financial Impact due to Sales Growth	Other Savings/Income	Total Impact (PKR)
2025-26	204.17	23.82	505.72	0	733.71
2026-27	204.17	39.18	1,100.24	0	1343.59
2027-28	401.44	52.74	1,398.69	15.2	1868.07
2028-29	401.44	52.74	1,398.69	16.72	1869.59
2029-30	423.17	52.74	1,510.75	18.39	2005.052
Total	1,634.38	221.23	5,914.08	50.312	7,820.01

1.8.5 Optimally Achievable Case:

1.8.5.1 Capacity Addition

TESCO through Investment under the Optimum Case is expecting the following Transmission & Distribution Capacity. The year-wise breakup of Capacity Addition is here as:

Year	Yearly MVA Addition	Cumulative MVA addition
2025-26	**172**	**172**
2026-27	**0**	**172**
2027-28	**80**	**252**
2028-29	**0**	**252**
2029-30	**52**	**304**
Total	**304**	**304**

TESCO is making an investment of PKR 5,260.63 million in its Transmission and Distribution network to enhance system expansion and reliability. This investment aims to support projected growth and ensure a continuous, reliable supply of electricity. Over the five-year control period, TESCO anticipates an increase in sales of 312 GWh, reflecting the positive impact of this substantial investment on operational efficiency and service delivery.

TESCO is also investing 2085.34 million for ensuring N-1/N-2 contingency of its grids (all important grids). Due to increase of the reliable supply TESCO will be able to increase its sales, by decreasing the probability of interruption of supply. Ensuring continues & reliable supply will also increase our sales. TESCO expects an increase in its revenue to increase in its sales. The revenue impact is forecasted on 95% recovery expected for the next five years

1.8.5.2 Total Financial Impact of Investment Plan:

Although the benefits of this investment will be long lasting because of the nature of investment. Some projects will last for decades to follow. It will decrease TESCO cost of doing business and

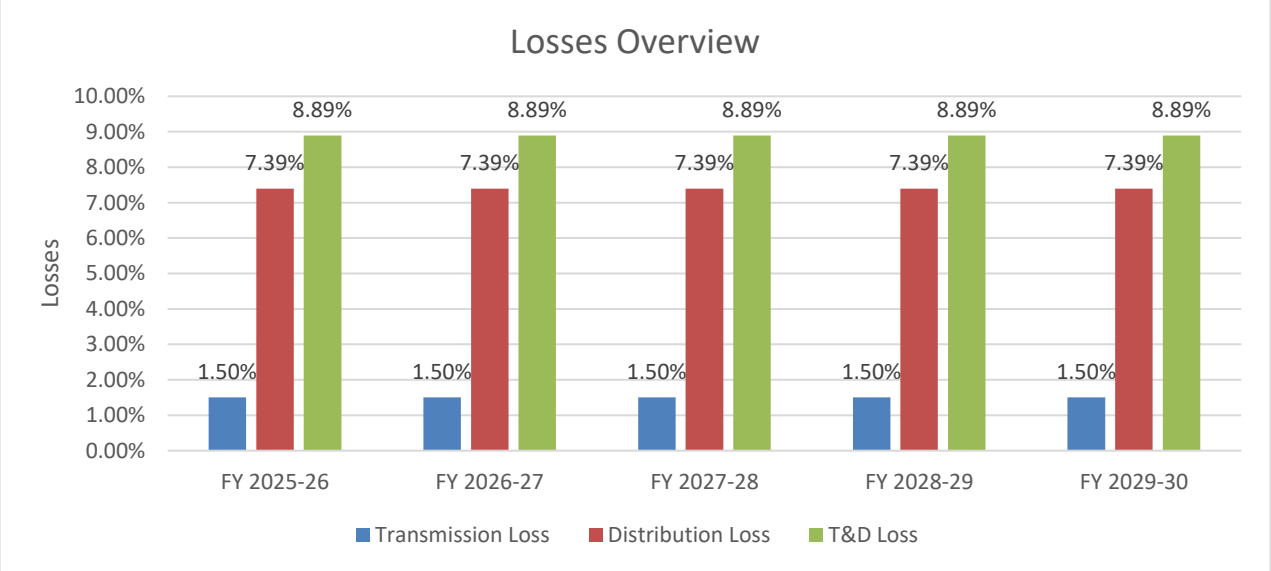
increase its efficiency, reliability and sustainability.
A short summary of expected benefits over the end of control period is here as follows:

Rs in Million

Year	Financial Impact due to UoSC (PKR)	Financial Impact due to N-1 Contingency (PKR)	Financial Impact due to sales Growth (PKR)	Other Savings/Income (PKR)	Total Impact (PKR)
2024-25	124.01	13.71	217.29	0.00	355.01
2025-26	266.26	50.29	668.59	0.00	985.14
2026-27	266.26	54.95	749.62	12.00	1,082.83
2027-28	379.94	62.84	827.85	13.20	1,283.83
2028-29	379.94	72.36	827.85	14.52	1,294.68
2029-30	404.22	72.36	945.81	15.97	1,438.37
Total	1,820.64	326.52	4,237.00	55.69	6,439.85

1.8.6 Loss Reduction and Collections Targets:

TESCO will maintain its losses at 9.89 % despite the expansion of its network and consumer base. TESCO has attained the collection efficiency of 92 % that will be improved up to 95 % during the control period.



This loss reduction will depend upon the policy of the federal and provincial government for the supply of power in former FATA Areas. It shall also be worth mentioning that the Meterization process for the domestic consumer will start after 2023-24 if the special status and current federal government policy will discontinue in former FATA Areas. Furthermore, the Meterization process will be a gradual process and if the federal government will not support the area after 2023-24 then losses will increase due to reduction in Pick Up FATA subsidy.

TESCO is also conducting a Technical Loss Study through a Third-Party Consultant. The contract of this study is awarded to a Joint Venture of Barqaab, PPI & OMS Consortium.

Also, the challenging terrain and prevailing law and order issues in the TESCO jurisdiction have significantly slowed the electrification process. Currently, only 61% of the area is electrified. Both the Government of Khyber Pakhtunkhwa (GoKP) and TESCO through its own sources will arrange funds for village electrification. With adequate funding and improved security, TESCO could electrify the remaining areas at an estimated rate of 1% per year.

Chapter -2: The Company's– Baseline

General Information

2.1 History

Tribal Electric Supply Company, TESCO, is a Public Limited Utility Company, responsible for the distribution of electric power to the population of all 7 Merged Districts formerly known as FATA and all corresponding FR-Regions of Pakistan as set out in TESCO's Distribution License no. 22/DL/2013, granted by NEPRA under the NEPRA Act on August 12, 2013. TESCO was incorporated in Pakistan under the Companies Ordinance Act 1984, on 2nd July 2004, in line with Government policy of unbundling and corporatizing Pakistan's power sector. ESCO's establishment emerged as a consequential outcome of the restructuring efforts initiated within WAPDA's Power Wing, catalyzed by the implementation of the NEPRA Regulation of Generation, Transmission, and Distribution of Electric Power Act (XL of 1997). TESCO's Distribution License No. 22/DL/2013 was issued by NEPRA on August 12, 2013, for the sale of power for the Period of Twenty Years. To make it in line with other DISCOs, TESCO applied for a further extension of ten year until 2043 through a petition submitted to NEPRA, which is currently under review.

Further to the above, TESCO was Deemed Licensee for Supply of Electric Power as per provision to Sub-Section (1) of Section 23E of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, amended up to date for period of five (05) years which expired on dated May 01, 2023. Accordingly, in pursuance of Regulation 3(1) of NEPRA Licensing (Electric Power Supplier) Regulations, 2022 and in accordance with Regulation 3 of the NEPRA Licensing (Application, Modification, Extension, and Cancellation) Procedure Regulations, 2021 TESCO submitted the application to the Authority for grant of Electric Power Supply License to TESCO for a period of Twenty Years until 2043.

The major objectives of the company include ensuring uninterrupted and stable power supply to all its customers along with state-of-the art customer care as well as establishing and operating reliable electricity distribution networks.

Currently, TESCO has 1019 active employees responsible for distributing electricity to approximately 0.443 million consumers. The consumer mix comprises approximately 90.56 % domestic consumers (0.402 million) including residential consumers in both urban and rural areas, 6 .67% commercial consumers (0.028 million) including business consumers such as markets, plazas, and offices in both urban and rural areas, 0.97% industrial consumers (0.004 million) and others 1.8% (0.009 million).
TESCO certificates of incorporation with SECP are attached hereunder.

2.2 Vision, Mission and Core Values of the Company

2.2.1 Company Vision

"To be a leading innovative and efficient electric supply company, providing best possible services to the consumers as a self-sustained and profitable company".

2.2.2 Mission Statement

"To deliver uninterrupted power supply to the consumers at optimal cost, adopting effective complaint redressal mechanism and safety measures, ensuring minimum technical losses with zero theft and 100% recovery".

2.2.3 Core Values:

1. **Integrity:** Uphold ethical standards and transparent practices in all interactions.
2. **Customer Centricity:** Place customer needs and satisfaction at the forefront of every decision-making process, striving to deliver optimal solutions and services.
3. **Be Respectful:** Creating an environment of respect for all stakeholders.
4. **Collaboration:** Promote teamwork and collaboration among employees, stakeholders, and communities.
5. **Creativity and Innovation:** Foster a culture of ongoing enhancement and embrace new technologies with openness.
6. **Responsibility:** Hold ourselves accountable for our actions and outcomes, fostering accountability at every level of operation.
7. **Environment Friendly:** Avoiding pollution and committed to environment friendly practices.

2.3 Organizational Culture:

Keeping in view of the power sector's dynamics, the unique needs of the Tribal Areas and in alignment with the best corporate sector working environment, the organizational culture of **Tribal Areas Electricity Supply Company** shall provide a clean, healthy and amicable environment, accountability and a strong sense of public service. Efficiency, customer services, adherence to regulations, and responsiveness to the needs of the community should be integral aspects of the organizational culture.

2.4 Geographic Coverage:

The network facilities of Peshawar Electric Supply Company (PESCO) were transferred to TESCO after its incorporation. TESCO's service area comprises of all 7 Merged Districts formerly known as FATA and all of FR-Regions.

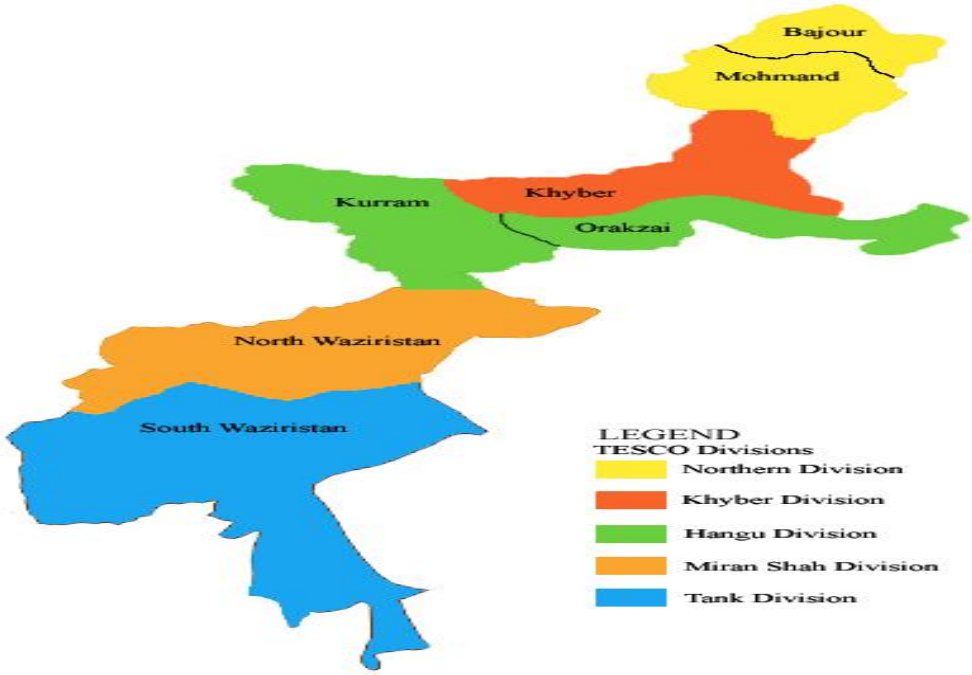


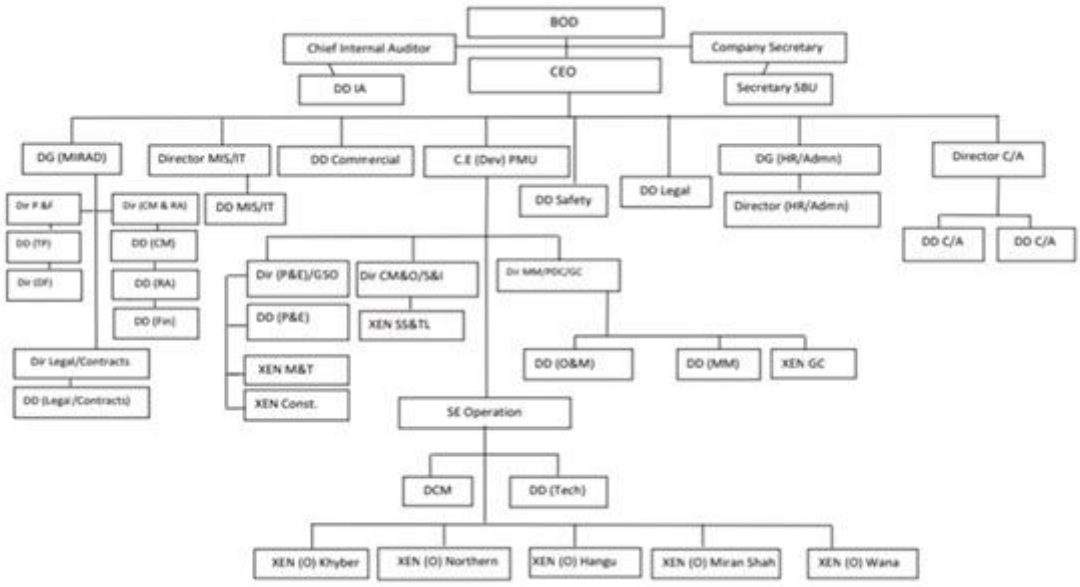
Figure: TESCO Service Area

2.5 Corporate Governance

The Company is whole owned by the Government of Pakistan and the Company is headed by the Chief Executive Officer and is Governed by the Board of Directors, approved by the Federal Cabinet on the recommendation of Power Ministry as per SECP act and Corporate Governance Rules 2017. The BOD Chairman is the elected member of the Board of Directors while there are three executive members of the BOD representing the Federal Government.

2.6 Organizational Structure

The TESCO distribution system's operation section consists of one circle, five divisions, and fourteen subdivisions with allied RO offices in each division. Other than that, consists of divisions of SS&TL, Construction, GSC, M&T, and store.
The Organogram if Company is here:



2.7 Human Resource

The Category wise staff of TESCO including sanctioned, working and vacant positions are shown in the table below.

Table: Category wise Staff of TESCO

Sr. No.	Category	Posts	Sanctioned	Working	Vacant
1	**Officers** (BPS 17 & above)	Engineering Cadre	76	54	22
2		Non- Engineering Cadre	35	26	9
3	**Officials** (BPS 1-16)	Technical Staff	1274	632	642
4		Non-Technical Staff	1062	387	675
Total			**2447**	**1099**	**1348**

2.7.1 Trainings and Developments

TESCO prioritizes workforce development through structured training and capacity-building programs, primarily at its TESCO Training Centre and collaborating with institutions like WAPDA. This comprehensive instruction enhances individual competencies and fosters a culture of continuous improvement and innovation.

2.7.2 HR Strength (Both Technical & Non-Technical):

The total number of staff sanctioned is 2336, of which technical staff is 1274 and non-technical staff is 1062. Out of the sanctioned posts total working staff is 1019, of which technical staff is 632 and non-technical staff is 387.

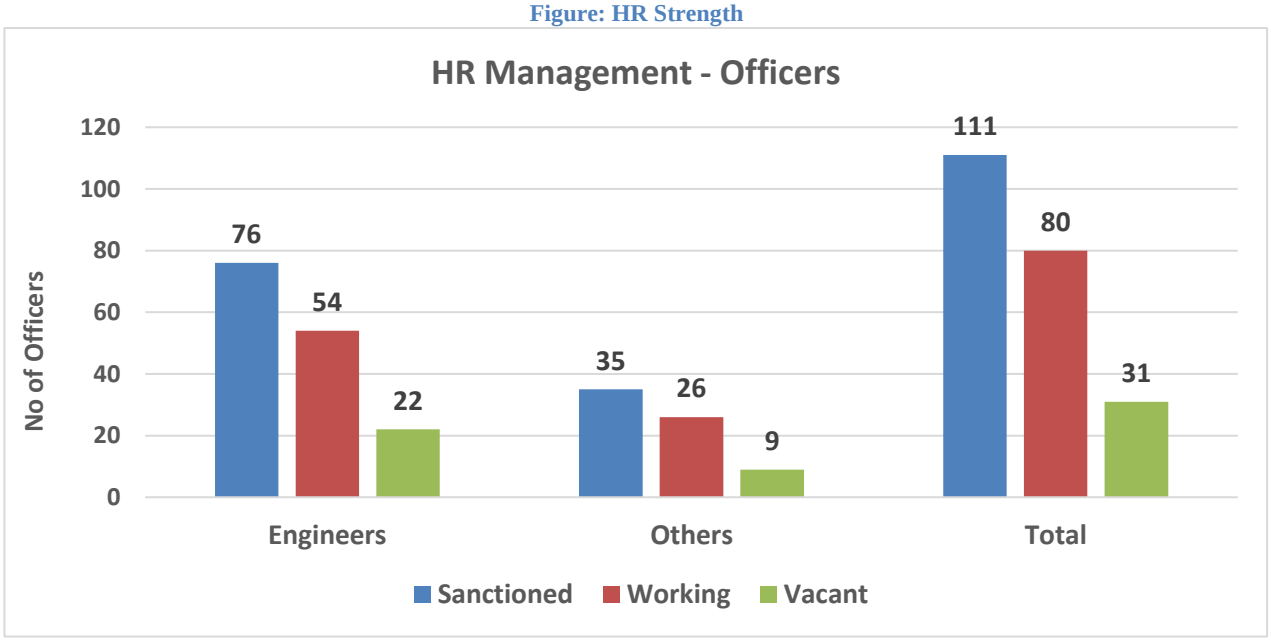
There are 111 total sanctioned positions of Officers Grade 17 & above, of which 80 are technical positions (Engineers) & 28 are of another category. Out of 89 sanctioned positions total 57 officers are working, of which 41 are of Engineering cadre & 16 are non-Engineers. Table 1 shows the category wise staff of TESCO.

Table: Category wise Staff of TESCO

Sr. No.	Officers & Other Staff	Sanctioned	Working	Vacant
1	Engineers	76	54	22
2	Others	35	26	9
3	Technical Staff	1274	632	642
4	Non-Technical Staff	1062	387	675
	Total	2447	1099	1348

An overview of Officers (Grade 17 & above) working in TESCO is here as.

Figure: HR Strength



Overview of Staff working (Grade 01 to 16) in TESCO is here as follows.

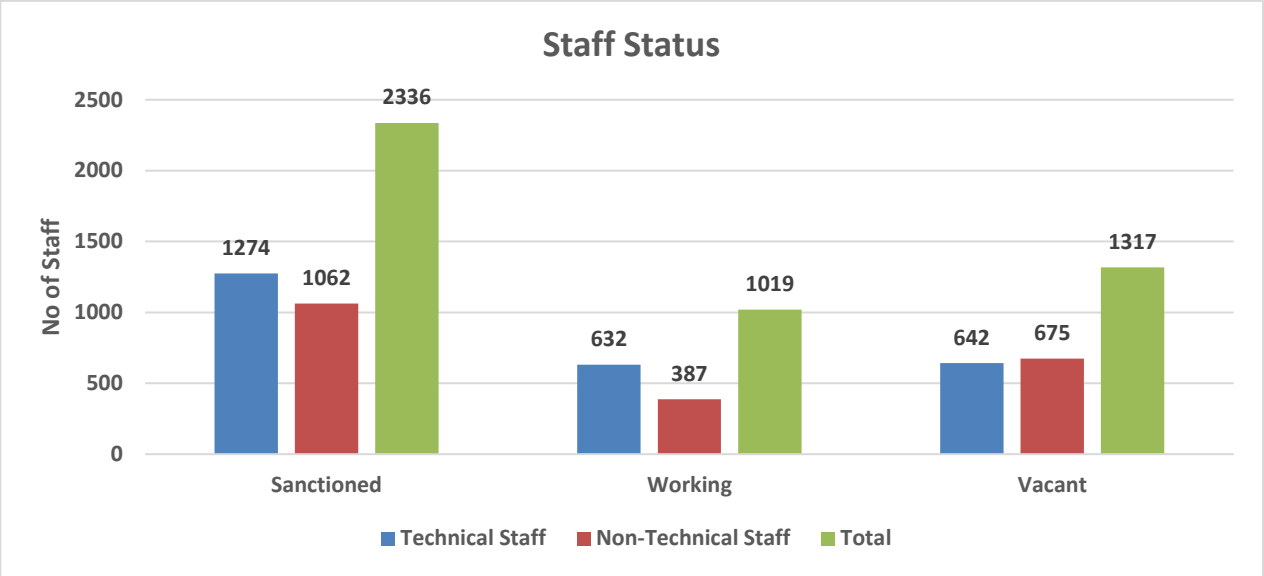


Figure: HR Strength

2.7.3 HR Trainings Programs

TESCO places a high priority on the continuous development and enhancement of its workforce through structured training and capacity-building programs. These initiatives primarily take place within TESCO's own dedicated training facilities, notably the TESCO Training Center, alongside collaborations with esteemed institutions such as the WAPDA Administrative Staff College and the WAPDA Engineering Academy located in Faisalabad.

Aligned with the directives from WAPDA, certain training sessions mandated for officers are conducted at prestigious institutions like the Staff College in Islamabad and the Engineering Academy in Faisalabad. Meanwhile, essential training sessions focusing on safety protocols and other mandatory requirements are held at the TESCO Training Center based in Peshawar.

By leveraging these diverse training avenues, TESCO ensures that its employees receive comprehensive and specialized instruction tailored to their roles and responsibilities within the organization. This commitment to ongoing professional development not only enhances individual competencies but also fosters a culture of continuous improvement and innovation within the company.

Table: Category wise Trainings

Sr. No	Training Conducted	Type Of Training	Total Trained	Man-Days
1	Officers	MMC, SSC, Leadership & Communication Skills	26	105
2	Technical Staff	T-300, T-200, T-500, T-400, Gs-450	70	2310
3	Non-Technical Officers	JMC	1	35
4	Non-Technical Staff	C-100, C-470	15	160

2.8 TESCO Operation System.

TESCO distribution system is comprised of one circle, Five Divisions and Fourteen subdivisions, the details of other formations are here as:

Table: Number of Circles, Divisions, Sub-Divisions and RO Offices

Description	Circles	Divisions	Sub-divisions	R.O Office
Distribution	**1**	**5**	**14**	**5**
SS&TL	**-**	**1**	**6**	**-**
Construction	**-**	**1**	**3**	**-**
GSC	**-**	**1**	**4**	**-**
M&T	**-**	**1**	**-**	**-**
Store	**-**	**1**	**-**	**-**

Each Distribution division has one revenue/customer service office. The distribution circle, divisions, customer services offices and subdivisions deal with all types of customers of the company. The Grid System Operation (GSO) division and subdivisions take care of and maintain the power supply through 132kV and 66kV systems comprising of the transmission lines and grid stations while the Grid System Construction (GSC) executes 66kV and 132kV grid station and transmission lines works. The Metering and Testing (M&T) section takes care of the installation, maintenance and testing of energy meters of all types. The Construction Section undertakes the implementation and execution of investment programs of 11kV (Both overhead and ABC Cables) and LT (0.4 kV), System Augmentation Program (ELR and DOP), deposit works and village electrification.

2.9 Historical Category Wise Number of Consumers:

Table: Historic Category wise Consumers

Financial Year	Domestic	Commercial	Small Industry	M&L Industry	Tube well	Bulk Supply	Public Light	Other	Total
2018-19	4,02,027	28,688	3,440	803	6,187	65	5	1,371	4,42,586
2019-20	4,02,004	28,790	3,356	915	6,194	67	5	1,434	4,42,765
2020-21	4,02,072	29,047	3,320	967	6,238	68	5	1,463	4,43,180
2021-22	4,02,084	29,763	3,291	1,071	6,252	72	5	1,608	4,44,146
2022-23									
2023-24									

2.10 Statistical & Financial Information:

The Statement of Financial Position and Statement of Profit or Loss is shown in Table 5.

Table: Statement of Financial Position as at June 30, 2023

Statement of Financial Position				
				Rs. Mln
	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
NON-CURRENT ASSETS				
Property, plant and equipment	17896	18543	21080	21996
Long term advances	27	32	26	22
TOTAL NON-CURRENT ASSETS	**17924**	**18575**	**21106**	**22018**
CURRENT ASSETS				
Stores and spares	3540	3540	5188	4562
Trade debts	106855	75978	83125	86543
Advances and IOT	0	37055	41001	48329
Receivable from Government	20570	61785	61694	62800
Cash and bank balances	2541	2071	1352	998
Total Current Assets	133506	180429	192360	203232
TOTAL ASSETS	**151430**	**199004**	**213465**	**225250**
EQUITY AND LIABILITY				
SHARE CAPITAL AND RESERVES			0	
Issued, subscribed and paid-up capital	0.01	0	0	0
Deposit for share	427	427	427	427
Accumulated loss	-38741	28296	33101	28162
Total Equity	**-38314**	**28724**	**33528**	**28589**
NON-CURRENT LIABILITIES				
Long term loan from Government of Pakistan	19233	19233	19233	19233
Long term loans	85	73	60	42
Deferred credits	6674	6996	8485	8965
TOTAL NON-CURRENT LIABILITES	**25992**	**26302**	**27778**	**28240**
CURRENT LIABILITIES		0	0	
Consumers' security deposits	448	444	458	289
Current portion of long-term loans	73	85	98	116
Trade and other liabilities	163231	143448	151603	168015
TOTAL NON-CURRENT LIABILITES	**163752**	**143978**	**152159**	**168420**
TOTAL LIABILITIES	**189743**	**170280**	**179937**	**196661**
TOTAL EQUITY AND LIABILITIES	**151430**	**199004**	**213465**	**225250**

Table 1: Statement of Profit or Loss for The Year Ended June 30, 2024

STATEMENT OF PROFIT OR LOSS				
				Rs. Mln
Description	**FY 2020-21**	**FY 2021-22**	**FY 2022-23**	**FY 2023-24**
Sale of electricity	30900	36804	61574	58769
Cost of electricity	23192	47386	52640	59855
Gross profit/ (loss)	**7708**	**-10582**	**8934**	**-1086**
Other income	738	598	553	595
Gross Profit Inclusive Other Income	**8446**	**-9984**	**9487**	**-491**
Operating cost	2327	5199	4591	4379
Financial charges	55	225	91	69
Total Operational Costs	**2382**	**5424**	**4682**	**4448**
Profit / (Loss) before taxation	**6064**	**-15408**	**4805**	**-4939**

2.11 Existing Project Design and Implementation System of DISCO

The project design and implementation system of TESCO is based on the resource allocation (the anticipated amount of material required and obtained for the execution of the project), resource leveling (the required amount of resources to be provided at a proper time e.g., at the start of a phase, more work force and less material may be required as compared to the growth or maturity stage) and resource scheduling/loading (the amount of resources required during the specified phase of the project.

TESCO has the required capability, personnel and expertise to implement and execute a project. It has well-established, functioning departments that are capable of handling projects of similar nature and magnitude. Some of these departments are as under:

- Project Management Unit
- Material Management
- Grid Construction
- Finance
- Commercial
- Planning & Engineering
- Market Implementation & Regulatory Affairs Department

Project implementation is summarized in the form of a flow chart as below:

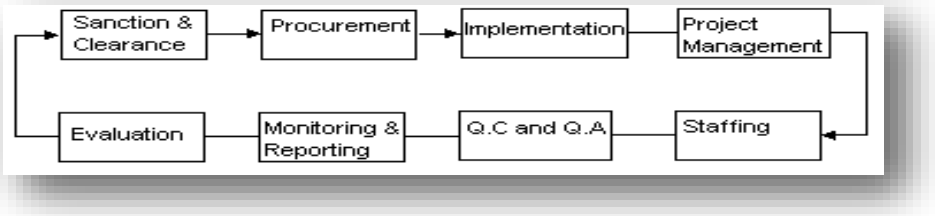


Figure 1:Project Implementation

Further, to align its planning department with current and future needs of the business, TESCO is

restructuring its overall planning function. STG Planning is done by MIRAD in consultation with NTDC and executed by Grid Construction Division. While distribution planning is the responsibility of P&E, on the recommendation of Forecasting study executed by MIRAD. The implementation and execution of Distribution planning is the responsibility of Construction Division.

2.12 Historical Demand of TESCO:

TESCO historical demand over the course of last Five Years are:

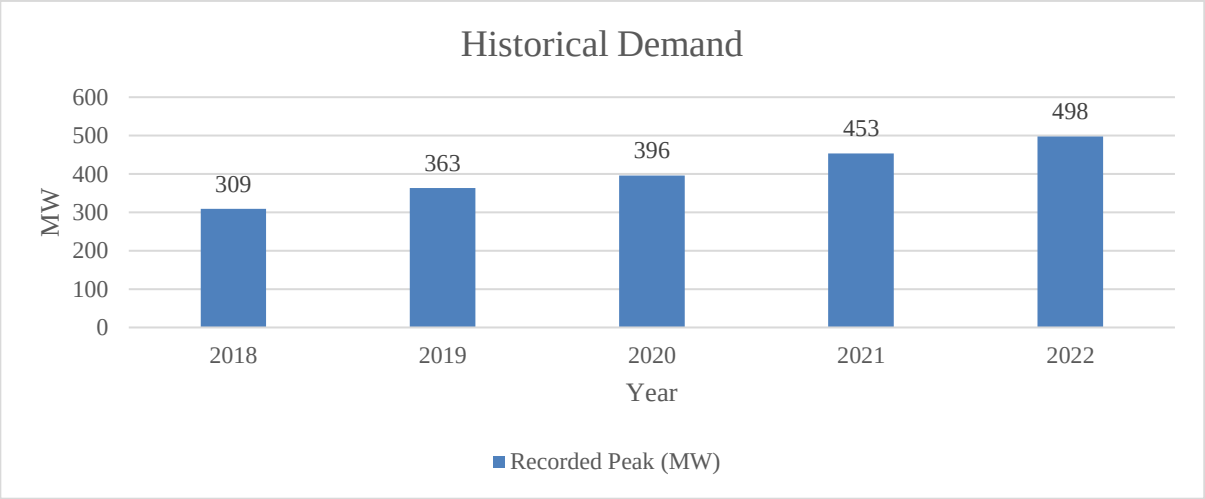


Figure:Historical Load Demand

2.13 TESCO 10 Year Demand Forecast:

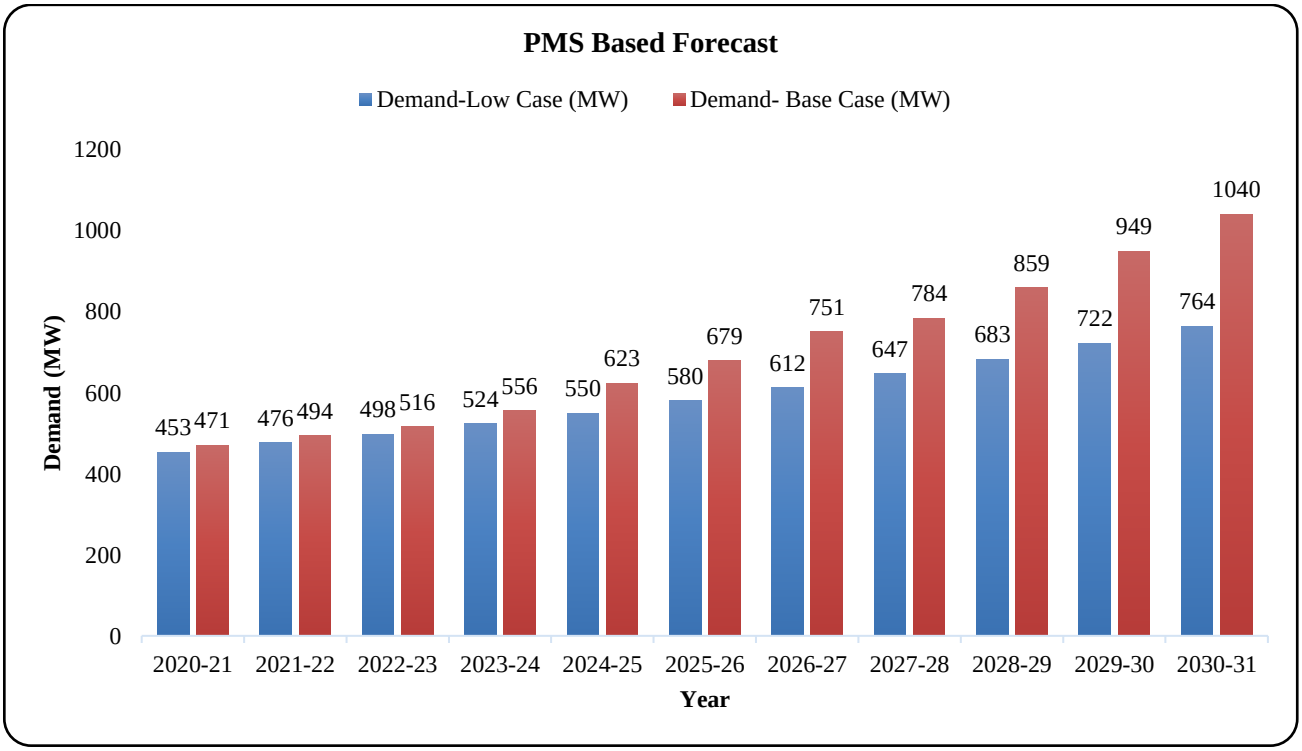


Figure:Maximum Demand and Drawl of TESCO (2020-21)

2.14 Existing Transmission Network

TESCO operates a total of 19 grid stations, of which 14 are 132 kV and 5 are 66 kV. The company owns 815 kilometers of transmission lines, with 582 kilometers operating at 132 kV and 233 kilometers at 66 kV. TESCO's infrastructure includes 58 power transformers with a combined installed capacity of 1,303 MVA (Mega Volt Ampere). Additionally, TESCO has 44 Customer Data Points (CDPs) within its distribution network, which likely serve as points of connection or measurement. The status of key equipment, including power transformers, transmission lines, distribution lines, and distribution transformers, is summarized below.

2.15 Number of 11 kV Feeders:

TESCO operates a total of 335 feeders at 11 kV, to distribute electricity to various areas.

- **Number of Distribution Transformers:** TESCO has 19,465 distribution transformers within its network. These transformers are responsible for stepping down the voltage from higher levels to lower levels suitable for consumption by end-users.
- **Total Installed Capacity of Distribution Transformers:** The combined installed capacity of all distribution transformers within TESCO's network is 1509 MVA (Mega Volt Ampere), indicating the maximum amount of power they can collectively deliver at a given time.
- **Length of 11 kV (HT) Line**: TESCO's high-tension (HT) or 11 kV transmission lines span a total length of 11,093 kilometers. These lines transmit electricity at higher voltages over long distances.
- **Length of 0.4 kV (LT) Line:** TESCO also has low-tension (LT) or 0.4 kV distribution lines, which cover a total length of 6,332.28 kilometers. These lines carry electricity to individual households and businesses at lower voltages suitable for consumption.
- **HT/LT Ratio:** The HT/LT ratio, calculated as 1.752, indicates the proportion between the lengths of high-tension (HT) and low-tension (LT) lines within TESCO's distribution network. This ratio provides insight into the distribution network's configuration and voltage levels.
- **56 Feeders from PESCO Grid:** TESCO receives power supply from the PESCO grid through 56 feeders. This signifies a dependency on PESCO for part of its electricity supply.

2.16 Transmission & Distribution Network:

Table: Existing Transmission and Distribution Network of TESCO

Existing Transmission Network	Existing Distribution Network
• No. of Grid Stations = 19 • 132 kV Grid Stations = 14 • 66 kV Grid Stations = 05 • Length of Transmission Line = 815 **km** • 132 kV Line = 582 km • 66kV Line = 233 km • No. of Power Transformers = 58 • Installed Capacity of P. TFs = 1303 **MVA** • Total CDP Points = 44	• No. of 11 kV Feeders = 335 • No. of Distribution Transformers = 19465 • Total Installed Capacity of Distribution Transformers = 1509 MVA • Length of 11 kV (HT) Line = 11093 km • Length of 0.4 kV (LT) Line = 6332.28 km • HT/LT Ratio = 1.752 * 56 No. Feeders are emanating from PESCO Grid.

2.17 Technical Loss Study of TESCO T&D Network

A study will be conducted through a third part consultant to assess the actual T&D losses of TESCO. This will not only help TESCO to assess the weaknesses in the Distribution Network but also helps NEPRA to analyze the actual losses in TESCO T&D network. Further this study will help the GOP for the Meterization of TESCO consumer, its merits and de-merits in term of Financial and Administrative decision-making process.

Further, this study being not part of previous TESCO MYT, the cost may be claimed in PYA from NEPRA in this year indexation process. The budgetary cost of Rs 50 million is allocated in other expense head in FY 2024-25 for the same. The contract of this study is awarded to a Joint Venture of Barqaab, PPI & OMS Consortium.

The results of the study will be submitted to the Authority on its completion and internal approval.

2.18 Financial Management:

TESCO's current accounting systems and back-office operations rely on outdated legacy systems, incapable of meeting the company's evolving needs. This inadequacy extends to providing timely information crucial for senior management's decision-making and utility operations oversight. While an ERP implementation is underway, existing processes remain manual. Furthermore, TESCO's dispersed geographic cost/revenue centers contribute to reporting delays. The complexity and diversity of financial transactions, coupled with voluminous data, exacerbate these challenges.

The inventory/material management system demands significant manual effort and lacks real-time valuation and status updates. Despite periodic updates, the inventory's valuation remains outdated, weakening internal control and hindering timely project costing and management. Inventory management relies on manual Excel sheets without standardized coding.

The absence of financial system automation and manual integration with billing systems create working capital challenges and delay cash-in-transit follow-ups with banks, impacting TESCO's operational efficiency.

2.19 Commercial Management

TESCO's commercial operations suffered from legacy systems lacking transparency, data accuracy, and efficiency, necessitating a significant overhaul to align with global utility standards. To address these shortcomings, TESCO embarked on a transformative journey aimed at modernizing its commercial procedures and adopting best practices.

The legacy billing system was plagued by manual processes, inadequate controls, and limited transparency, hampering effective customer care and commercial operations. To remedy this, a Customer Information System (CIS) was strategically implemented in select TESCO circles, serving as a critical backbone for improving service delivery and operational efficiency.

The table below depicts the procurement trend from CPPA and subsequent billing to consumers by TESCO.

Description	Units	2023-24	2024-25
Units Received	GWh	1530	1809
Units Sold	GWh	1393	1648
T & D Losses.	%	9.01%	8.89%

The table below gives an illustration of the billing and collection pattern of TESCO

(Revenue in Million Rs)

Description	Units	Base Year 2023-24			Projected FY 2024-25		
		SoP	DoP	Total	SoP	DoP	Total
Units Received	GWh	1530	1530	1530	1809	1809	1809
Units Sold	GWh	1393	1393	1393	1648	1648	1648
Units Loss	GWh	137	137	137	161	161	161
Percentage Loss	%	9.01%	9.01%	9.01%	8.89%	8.89%	8.89%
Energy Charges	Mln. Rs.	16,497	0	16,497	19,915	0	19,915
Capacity Charges	Mln. Rs.	41,356	0	41,356	49,923	0	49,923
Transmission Charges	Mln. Rs.	4,033	0	4,033	4,869	0	4,869
MoF (CPPA-G)	Mln. Rs.	24	0	24	29	0	29
Total Power Purchase	Mln. Rs.	61,911	0	61,911	74,736	0	74,736
Power Purchase	Rs. /kWh	44.46	0.00	44.46	45.34	0.00	45.34

Notes:

TESCO's commercial operations, initially reliant on legacy systems and non-metered domestic consumers, were deficient in transparency, data accuracy, and consumer service provisions. Notably, revenue outcomes were subject to Federal Government subsidies and security-related circumstances. Despite a target of 75%, TESCO achieved a commendable 92% recovery rate through robust efforts. The outdated billing system was marked by manual procedures, deficient controls, and a lack of commercial focus, resulting in limited transparency and unreliable data. To address these

deficiencies, TESCO strategically implemented a Customer Information System (CIS) in specific operational circles, recognizing its pivotal role as a cornerstone for enhancing customer care and optimizing commercial operations.

2.20 Number of Consumers

Historical figures of number of consumers within TESCO's jurisdiction for the last five years. These figures show the total number of consumers in all consumer categories, i.e., Domestic,Commercial, Small industries, Medium & Large industries, Public Lighting, Bulk and Agriculture.

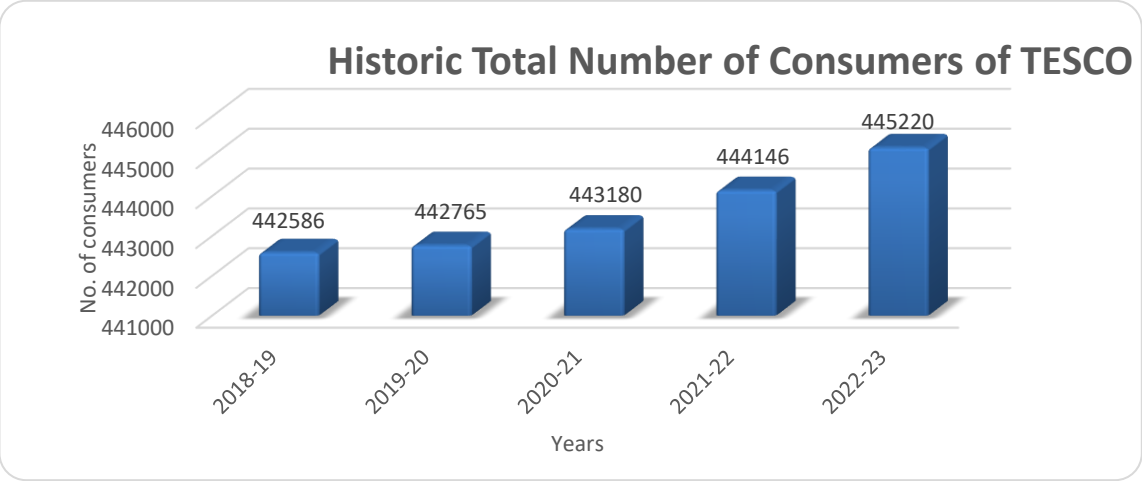


Figure: Number of Consumers

Category-wise, the number of consumers for the last five years i.e. from 2019 to 2023 is shown in the following table.

Table: Historical Number of Consumers in TESCO

Year	Domestic& Others	Commercial	Public Light	Small Industries	M&L Industries	Tube Well	Bulk	Total
2019	403398	28688	5	3440	803	6187	65	**442586**
2020	403438	28790	5	3356	915	6194	67	**442765**
2021	403535	29047	5	3320	967	6238	68	**443180**
2022	403692	29763	5	3291	1071	6252	72	**444146**
2023	**406886**	**30165**	**5**	**3292**	**1152**	**3634**	**86**	**445220**

2.21 Investment Approval

The company adheres to established procedures outlined by WAPDA and utilizes the PEPCO-approved book of Financial Powers for managing various types of expenditures. These documents delineate the financial and administrative authorities vested in different offices for different expenditure categories.

The investment program is structured into three primary components: Development of Power, Rehabilitation/Energy Loss Reduction, and Secondary Transmission Lines and Grid Stations. This program has evolved into the Distribution Integrated Investment Plan (DIIP)/Business Plan, which encompasses plans for other functional areas as well.

The Planning Department, overseen by the CEO and Chief Engineer and in collaboration with departments such as Operations, Finance, and others, is responsible for preparing Project Concept

Notes (PC-1s) for Development of Power, Energy Loss Reduction, Secondary Transmission Lines, and Grid Stations, among others. These PC-1s undergo approval by the Board of Directors/Authority before submission to the Planning Division of the Government of Pakistan. Upon approval by ECNEC (Executive Committee of the National Economic Council), the approved PC-1s form the basis of annual investments. The DIIP will now serve as the framework for obtaining regulatory approval before proceeding with the desired course of action, based on funding sources.

2.22 Internal Audit

In TESCO, three distinct types of audits are conducted: Internal Audit, Government Audit, and Audit by a chartered company. Each audit type serves unique purposes and scopes, aimed at ensuring compliance, identifying discrepancies, and enhancing operational efficiency. However, the internal audit processes within TESCO have historically been governed by legacy systems, which have sometimes fallen short in adequately identifying non-compliance issues with existing procedures.
Examples of these non-compliance issues include instances where units consumed are not billed, cases of damaged or slow meters, inaccuracies in meter readings, billing of units to nonexistent consumers, and failure to monitor accounts with payment arrangements effectively.
To address these challenges, TESCO embarked on a co-sourcing arrangement, engaging a partner to assist in implementing a risk-based audit approach outlined in the new internal audit manual. This collaboration spanned a year and aimed to enhance the internal audit function's effectiveness. Following the evaluation of the audit function's performance after this period, it was evident that significant improvements had been achieved. Desired controls were successfully established within processes, contributing to enhanced compliance and operational integrity. Additionally, the capacity and capability of internal audit staff were bolstered, enabling them to carry out their responsibilities more effectively and proficiently.

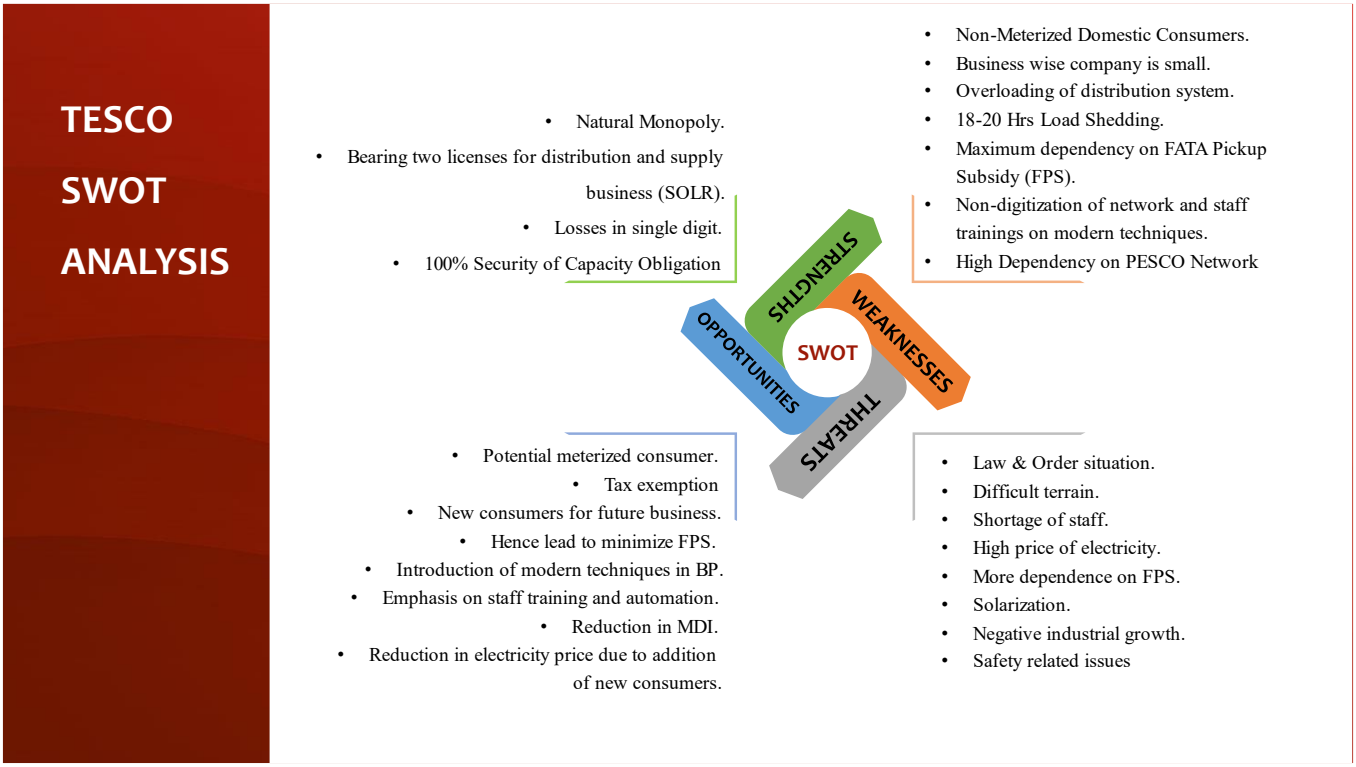
2.23 Legal and Contractual Framework

TESCO's core responsibility is to efficiently distribute electrical power to residential and industrial consumers within its designated service area, operating in accordance with a comprehensive framework of legal and regulatory documents:

- The Companies Ordinance 1984: Governs businesses registered with the Security Exchange Commission of Pakistan (SECP), ensuring legal protection and oversight of financial and corporate entities. TESCO must adhere to its Memorandum and Articles of Association, as prescribed by the ordinance.
- TESCO Memorandum and Articles of Association: These documents outline TESCO's corporate structure and governance, guiding its operations as a Limited Liability Company established in April 2002.
- Distribution License 2002: Granted by NEPRA, this license authorizes TESCO to engage in distribution services and power sales within designated territories, subject to specified terms and conditions.
- NEPRA Performance Standard 2005: NEPRA regulates the electricity sector in Pakistan, determining revenue requirements, tariffs, and other terms for supply. NEPRA also sets performance standards for safe, efficient, and reliable power distribution.
- Income Tax Ordinance 2001: Defines the taxation system for entities like TESCO, obligating compliance with various tax requirements, including filing annual income tax returns, monthly sales tax returns, and withholding taxes.

TESCO fulfills its tax obligations by submitting deductions, including sales tax, withholding tax on sales, goods, and sales tax, to the Government of Pakistan. This ensures adherence to regulatory and taxation mandates within the electricity distribution sector.

2.24 SWOT Analysis of TESCO:



2.25 Overview of Previous Investment (FY 2020-21 to FY 2024-25)

NEPRA, in its tariff determination for FY 2020-21 to FY 2024-25 had allowed Rs 26,423/- million investment to TESCO. Details of the investments made, and benefits achieved during the control period are given below.

2.25.1 Secondary Transmission & Grids:

Since the start of the current tariff control period (i.e. FY21) and up to June 2024, TESCO has invested 5,683 Million PKR in the Transmission business, focusing on capacity enhancement and improved network reliability, enabling TESCO to reduce transmission constraints and serve the power demand.

Further, during the period, 2 new grid stations have been added, along with the addition of 04 number of power transformers in existing grid stations. Moreover, 3 number of the 66 kV grid stations have been upgraded to 132kV voltage level. In addition, over 311 km of new 132kV transmission lines have been constructed. This has consequently improved performance standards.

During the control period, TESCO has made an investment in the development of secondary transmission and grids systems. These investments have been focused on enhancing the system enhancement and reliability.

The summary attached is here as follows:

PKR in Million

Description	Funding Sources	FY 2020-21 (NEPRA)	FY 2020-21 (Actual)	FY 2021-22 (NEPRA)	FY 2021-22 (Actual)	FY 2022-23 (NEPRA)	FY 2022-23 (Actual)	FY 2023-24 (NEPRA)	FY 2023-24 (Actual)	FY 2024-25 (NEPRA)	FY 2024-25 (Projected)	Total NEPRA	Total Actual
Grid Station	Funded	2,130	738	960	0	1,176	850	104	104	0	1,447.35	4,370	3,139.35
	Own Resource	0	0	0	0	0	0	1138	640	0	197.5	1,138	837.5
Transmission Lines	Funded	2,710	635	1,210	0	1,791	532	224	66	1752	0	7,687	1,233
	Own Resource	0	0	0	0	0	0	991	294	0	0	991	294
Others	Funded	0	0	0	0	0	0	0	0	0	0		
	Own Resource	0	0	0	0	0	0	0	0		179.4		179.4
Total		**4,840**	**1,373**	**2,170**	**0**	**2,967**	**3,839**	**4,914**	**1,104**	**1,752**	**1,824**	**14,186**	**5,683**

2.25.1.1 New Grid Stations/Upgradations

TESCO constructed two new Grid Stations and Upgraded 6 old 66 kV grid station to 132 kV Grid station. It also enhanced its Capacity. The details of new grids stations and upgradation of existing grid station is here as follows:

Description	2020-21	2021-22	2022-23	2023-24
132kV New Grid Stations	1	1	-	-
Upgradations of 66kV Grids	2	3	2	

2.25.1.2 New Transmission Lines

During the Control period of the previous Business Plan TESCO constructed Transmission Lines of approximately 386 KM so far. The breakup is here as follows:

Description	2020-21	2021-22	2022-23	2023-24
132kV S/C Transmission Lines KM	33	66	77	34
132kV D/C Transmission Lines KM	87.5	10	38	41

2.25.1.3 Addition of Power Transformers

Apart from construction of new Grid Station and Upgradation of Existing 66 kV Grid Stations TESCO also enhanced its capacity by adding transformers to its Grids for catering load in corresponding areas.

Description	2020-21	2021-22	2022-23	2023-24
Addition of Power Transformers	1	3	2	2

2.25.1.4 Augmentation of Power Transformers:

The details of Augmentation of Power Transformers over the period of last investment plan are here.

Description	2020-21	2021-22	2022-23	2023-24
Augmentation of Power Transformers	1	3	0	0

2.25.1.5 Total MVA Addition During FY 21 to FY 2024:

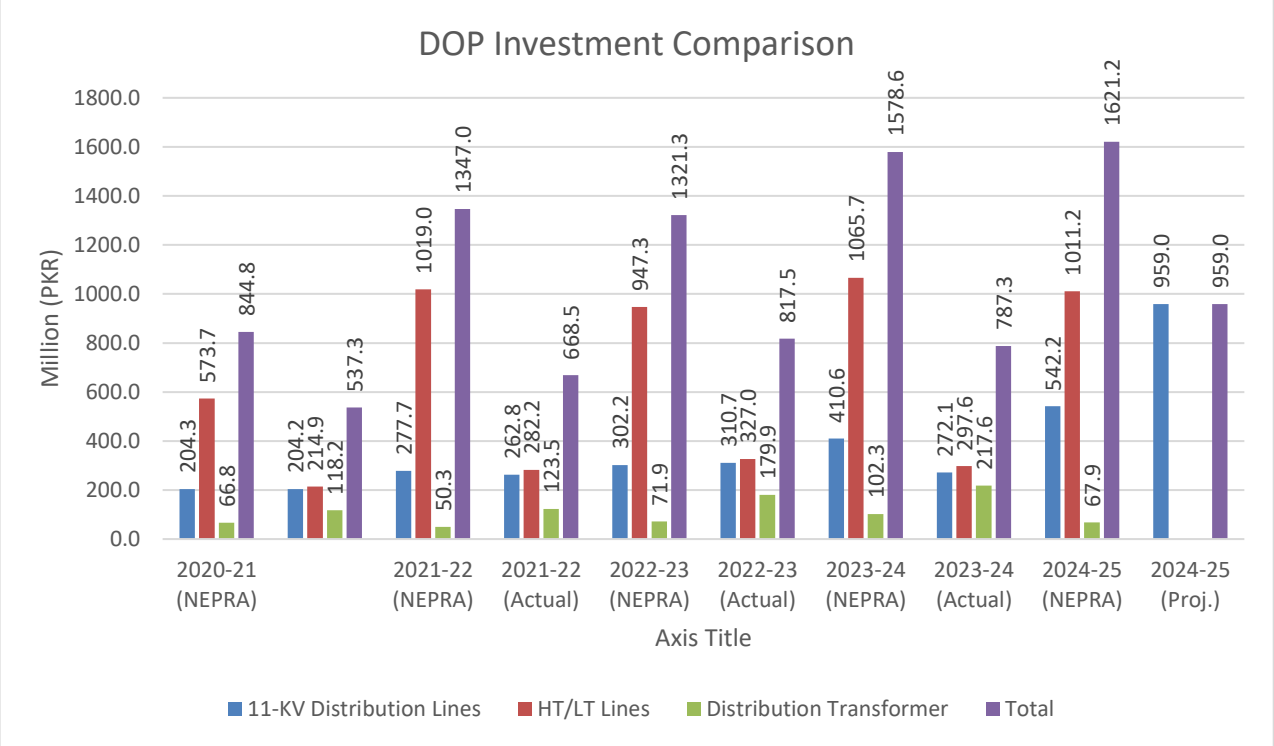
The details of Capacity (MVA) addition during the control period of FY 2020-21 to FY 2023-24 is here as follows:

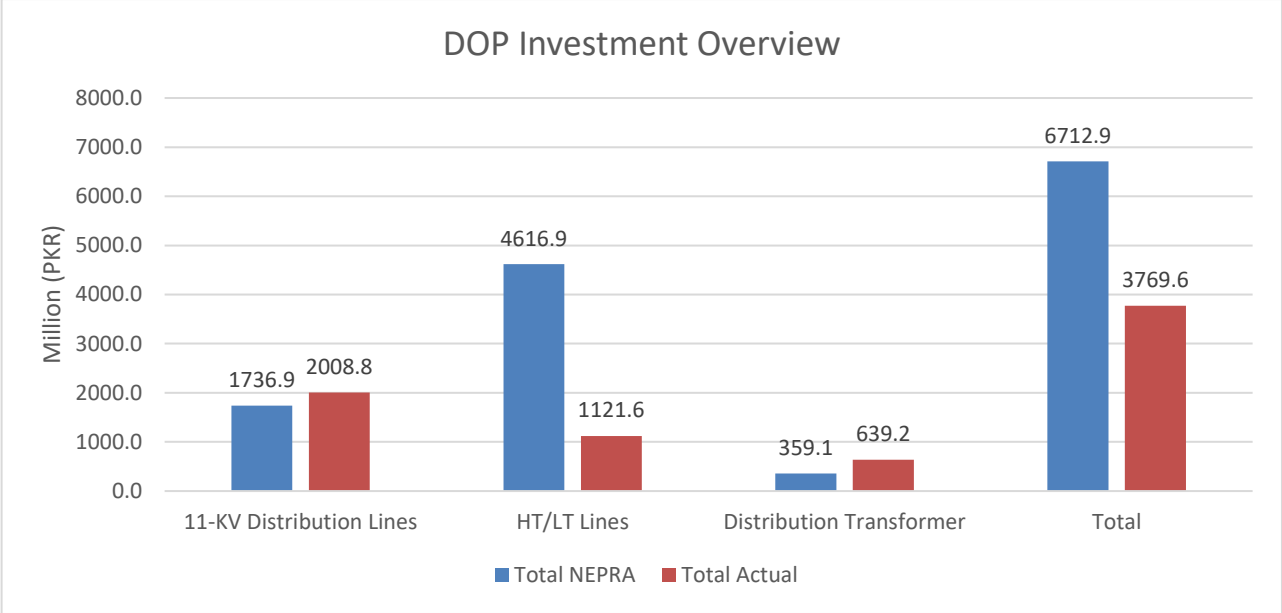
Description	2020-21	2021-22	2022-23	2023-24
MVA Added	169.6	238	65	80

2.25.2 Distribution of Powers:

During the control period, TESCO has made an investment of Rs. 3,769.6/- million in the distribution of power. These investments have been focused on enhancing the system enhancement and reliability.

The details of actual investments are provided below:





Historical Investment Details

2.25.2.1 Addition of New HT/LT Lines during the last Five Years:

TESCO added around 700 KM transmission line during the last 4 years. While the updated progress will be submitted to authority upon completion of tenure.

Description	2020-21	2021-22	2022-23	2023-24
New HT Lines	12	20	14	17
Added Length of HT Lines (Km)	180	180	170	170

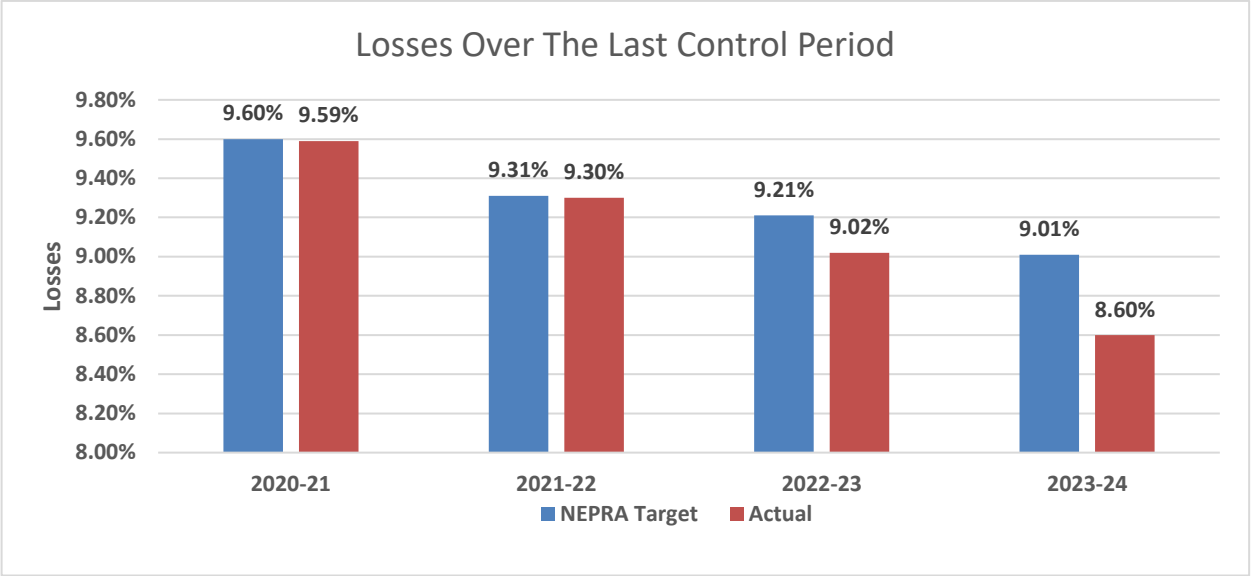
2.25.2.2 Addition of LT Lines:

Description	2020-21	2021-22	2022-23	2023-24
New LT Lines	75	228	204	230
Added Length of LT Lines (Km)	5	11	14	15

2.25.2.3 Distribution Transformers Added

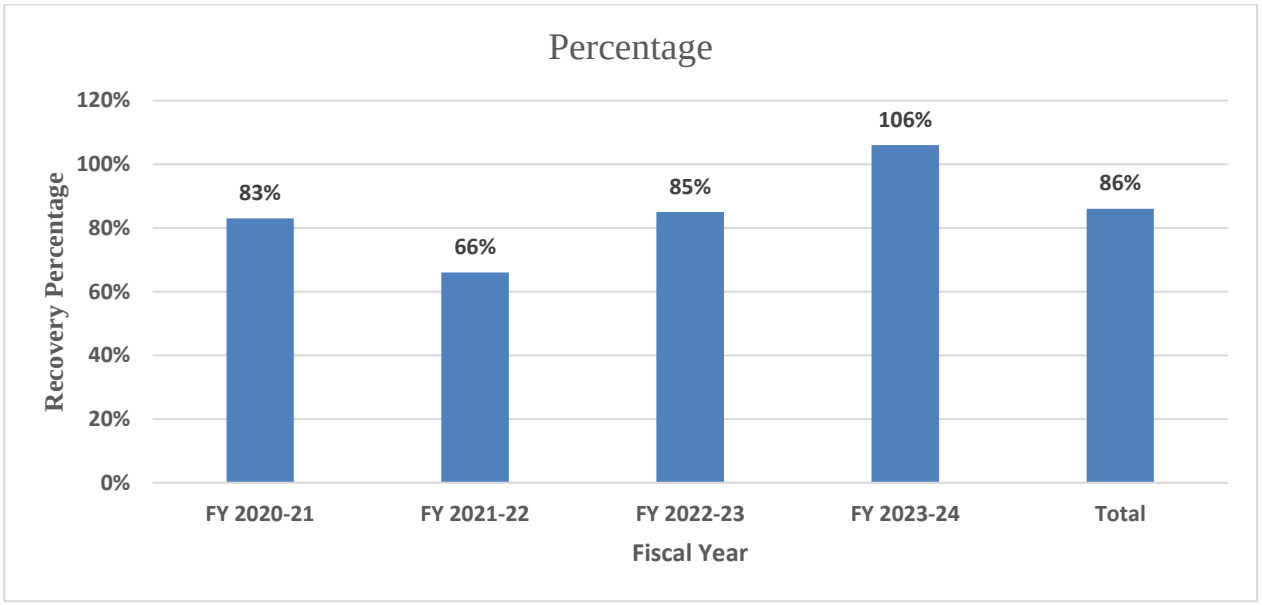
Description	2020-21	2021-22	2022-23	2023-24
Distribution Transformer Added	53	60	362	56
MVA Added	7	9	16.25	9.4

2.25.2.4 Improvement in T&D Losses



2.25.3 Billing & Recovery:

The summary of recovery over the control period of last Business Plan is here as follows:



Chapter # 3 Demand Forecasting (Power Market Survey)

3.1 Introduction

This report is the 31st issue of the Power Market Survey forecast and is prepared by TESCO in coordination of NTDC. The report consists of year wise detailed forecast of energy sales and power demand of TESCO and each sub-station within the company's distribution network. In addition, forecasts for Civil Administrative areas such as Divisions and Districts served by the company's distribution networkis also computed and represented in different tables.

Load forecasting is an important element of the power planning process involving prediction of energy and demand in the future. The forecast serves as the basis for demand and supply-side planning. Load forecasts are typically prepared by utilities for different time frames and scenarios for preparation of power acquisition program, distribution expansion plan, transmission expansion plan and business development plan of the company.

Long term planning requires a system level forecast of total generation requirement and peak demand. Onthe other hand, transmission and distribution planning requires more load level and geographic details toassess location, timing and loading of individual lines, substations and transformation facilities.

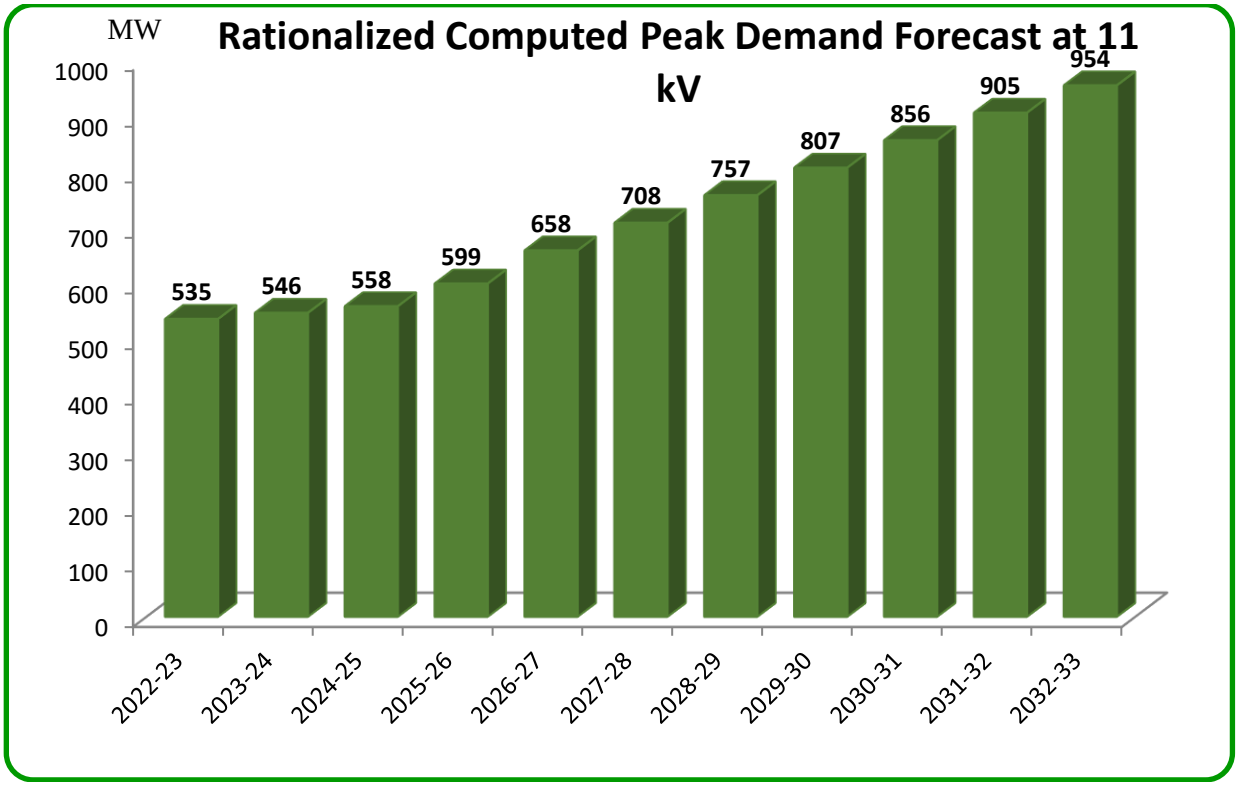


Figure: Rationalized Computed Peak Demand Forecast at 11 kV

Forecasting models fall into the following three general categories:

1. Trend model
2. Econometric based model
3. End-use model

Trend forecast model graphically or mathematically extrapolate past electricity demand trends into

the future. This model has some limitations. They rely on historical data, which may not always capture unexpected events or outliers. Assumptions about future trends may not be held in rapidly changing environments. Over-reliance on past data can lead to a lag in response to emerging trends. It lacks the features of spatial and grid station wise forecasting.

Econometric models represent a more complex 'top-down' approach of forecasting and these models rely on the observed or the implied relationship between past energy consumption and other variables defining past economic output (like GDP data), demographics and price or income variables. Econometric models do not capture non-economic drivers effectively.

End-use models relate energy use to the physical appliances stock levels and use patterns or industrial process. These end use models represent a 'bottom-up' forecasting approach and normally incorporate disaggregate end-use forecast and consumer survey techniques.

This report has been prepared based on Power Market Survey Methodology and the model used is called Power Market Survey (PMS) model. This model uses a bottom-up approach and is a form of end use model which provides energy and power projections for all distribution companies and all grid stations within a company's distribution network.

The PMS model relies on an extensive data base of historical sales and peak demand, future planned and pending load. The data base includes historical figures of consumption by consumer type (i.e., domestic, industrial and commercial etc.) of each feeder of a grid station and overall consumption from a grid station The consumption data is modified to account for unserved energy that may be credited to load shedding.

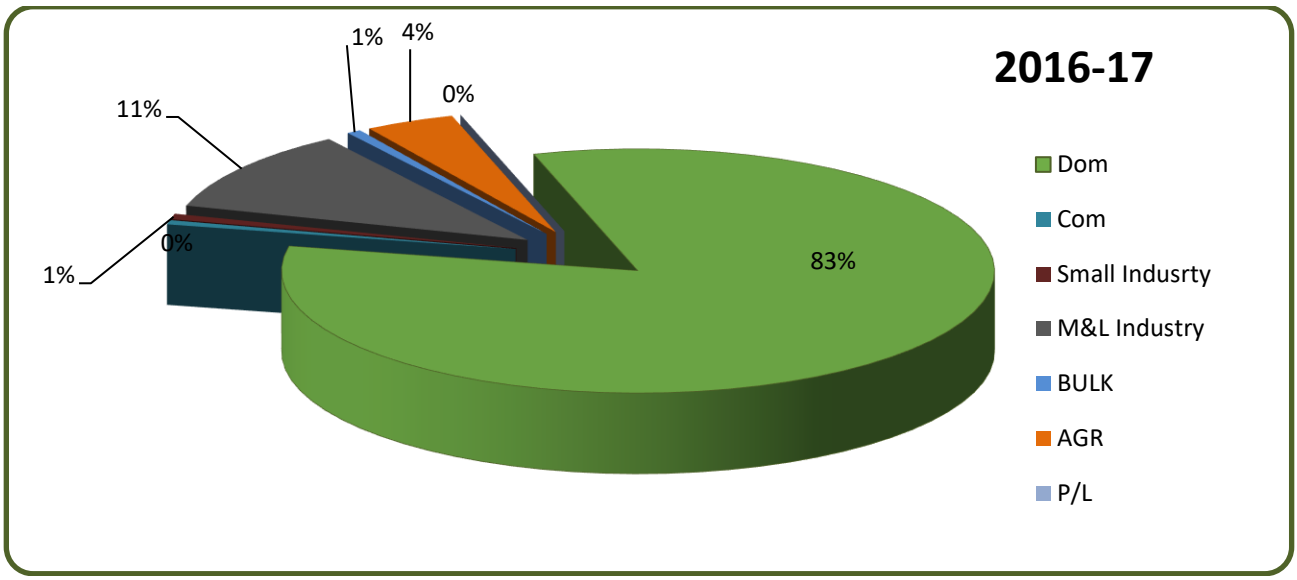
Energy forecasts are computed for each consumption category at the sub area level on the basis of a trendanalysis of recent per consumer sales plus new consumer connection applications. Industrial forecasts arebased on interviews with existing consumers, trend projections and a review of the applications for requestof new and increased service. These analyses are repeated for each sub area for each of the years to be forecasted. The annual peak demand is determined from the resulting energy forecasts by using the load factors and diversity factors developed for each consumer category.

The PMS forecast is based on a mix of end-use, trend projection and known consumer expansionplan therefore it cannot be used reliably to predict demand over the longer term. This model was not designed to predict the effects of changes in economic sector or consumer category growth, changes in electricity prices, and changes in the relationships between income growth and electricity growth due to market saturation and technological change. System operator is using a regression model to capture these changes. Actual consumption data is corrected for load-shedding-related unmet requests. Regression model is used for long term forecasting as the changes in growth occurred due to change in technology, lifestyle over a longer time period.

3.2 Historical Supply and Demand Analysis

Category-wise Sale

Customers within the company can be segregated in different categories. The segregation is usually basedupon the type of applications for which electricity is being used. Major categories include Domestic, Commercial, Small industries, Medium & Large industries, Bulk and Agriculture.



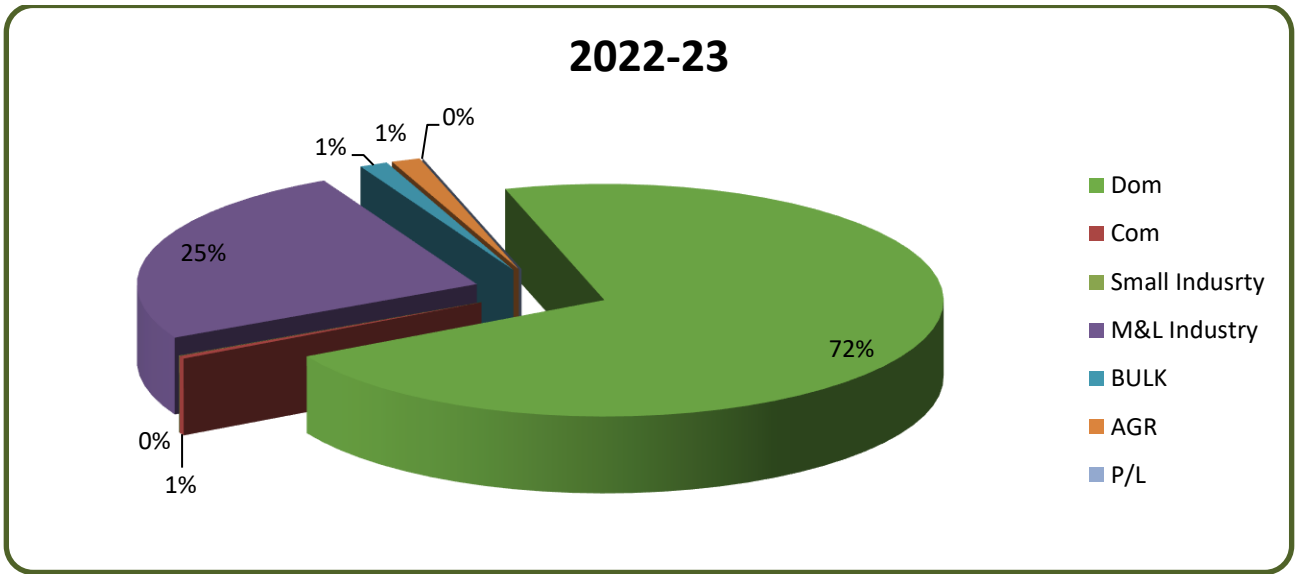
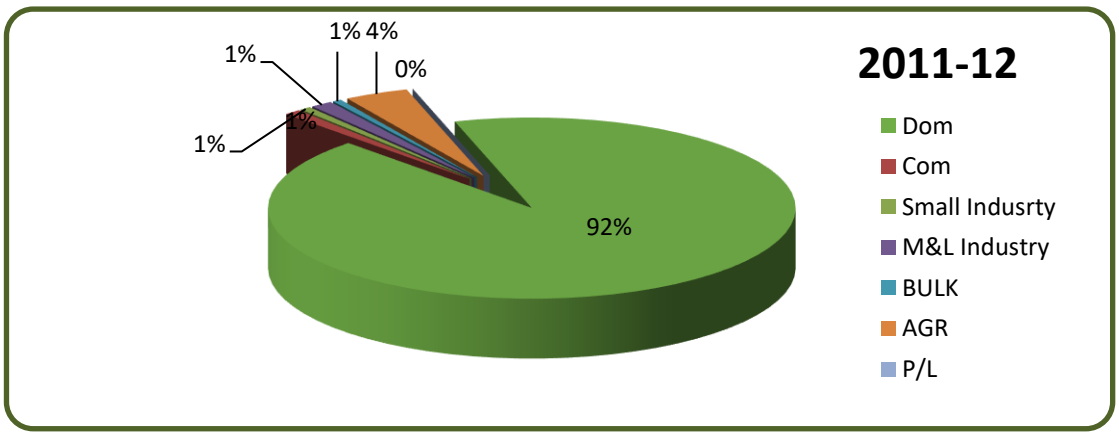


Figure: Historical Category-wise Sale



Category-wise sales for the last five years i.e. 2019 to 2023 are given in the table below.

Table: Historical Sale (GWh) of TESCO

Year	Domestic	Commercial	Public Light	Small Industries	M&L Industries	Tube Well	Bulk	Total
2019	1225	5	0	3	324	36	9	1602
2020	1425	5	0	3	326	32	10	1801
2021	1410	5	0	2	552	31	12	2013
2022	1480	5	0	2	546	26	13	2072
2023	1122	6	0	0.5	394	22	21	1565

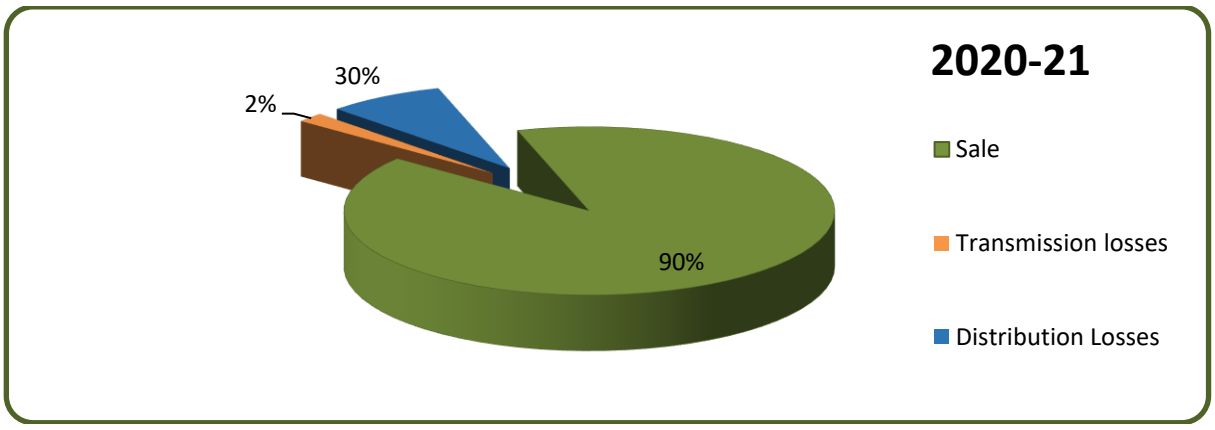
3.3 Transmission and Distribution Losses:

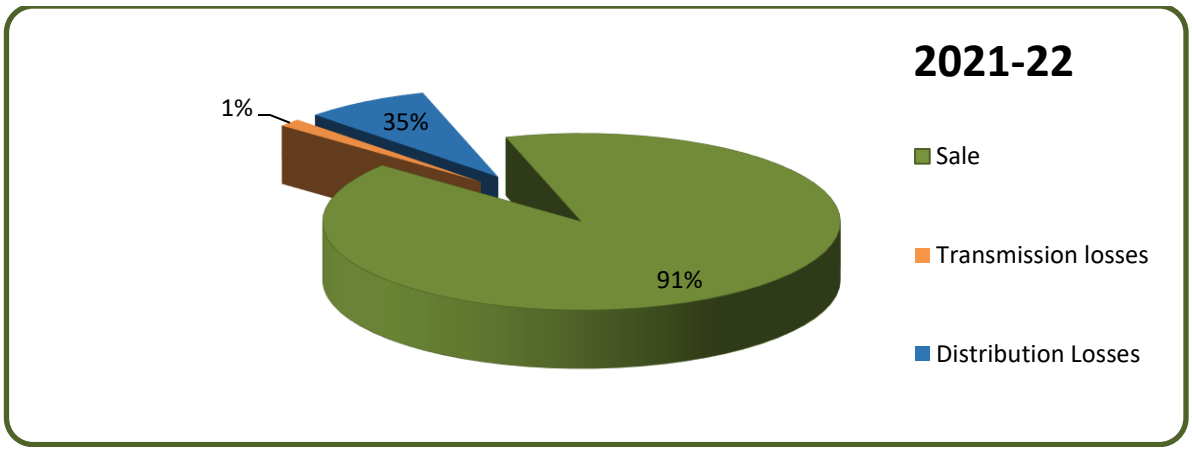
In TESCO's system, losses are divided into two types;

a) Transmission Losses

b) Distribution Losses

The losses of 132 kV transmission lines are considered as Transmission Losses whereas the losses of 11 kV and 440 Volts lines supplying the consumers are called Distribution Losses. In a system, generally thehigh losses are due to overloaded transmission lines, lack of proper maintenance and non-technical losses (theft). Reduction in losses can be achieved throughinstallation of conductors according to load in transmission lines, 11 kV feeders and low-tension lines. Installation of capacitor banks to improve power factor is also an effective method toreduce line losses.





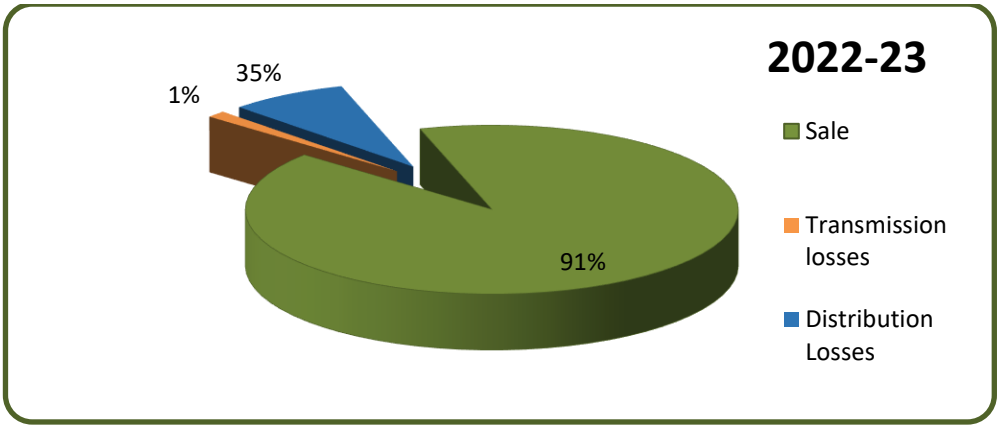


Figure: Historical Energy Sale and Losses (T & D) with their percentages

3.4 Recorded and Computed Peak Demand

Recorded peak demand is the highest electricity demand or maximum power supplied to the consumers during the base year. Computed peak demand is calculated from the recorded peak demand by adding the element of unserved power to the values of recorded peak demand. **Figure 1-4** shows the recorded and computed peak demands (MW) at 11 kV from the year 2018-19 to 2022-23.

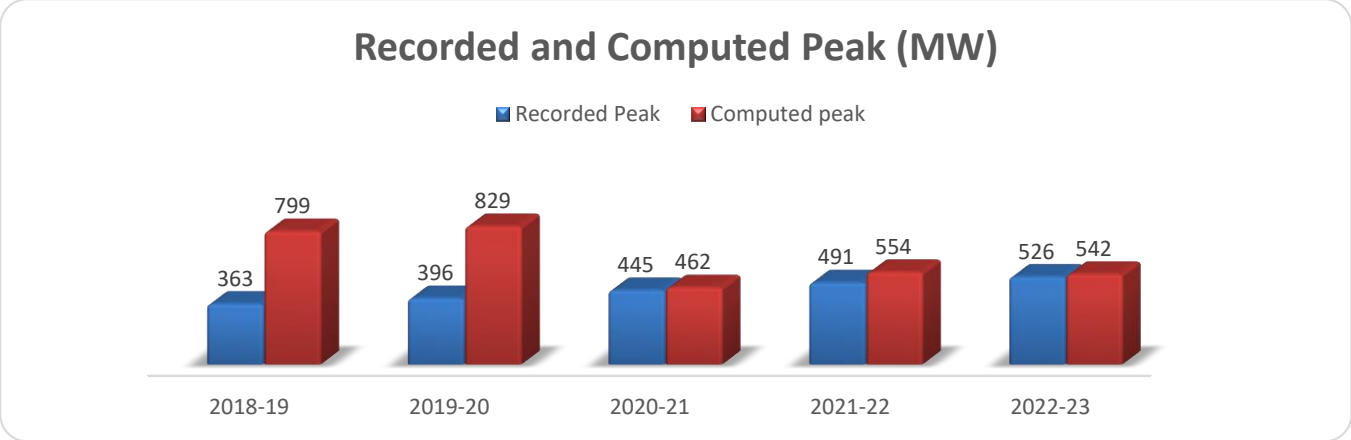


Figure:Historical Recorded and Computed Peak Demands at 11 kV

Historical figures of recorded and computed peak, energy sale and purchase, losses of TESCO from 2019-2023 are given in the following table.

Table: Historical Energy Sale, Energy Purchase, Losses and Peak Demands

Years	Energy Sale (GWh)	Energy Purchase (GWh)	Losses (GWh)		RecordedPeak (MW)	Computed Peak (MW)
			11 kV	132 kV		
2019	1603	1780	177	41	363	799
2020	1803	2001	178	20	396	829
2021	2013	2227	173	41	453	471
2022	2072	2284	179	33	498	562
2023	1565	1720	133	22	533	542

3.5 Number of Consumers

Historical figures of number of consumers within TESCO's jurisdiction for the last five years. These figures show the total number of consumers in all consumer categories, i.e., Domestic,Commercial, Small industries, Medium & Large industries, Public Lighting, Bulk and Agriculture.

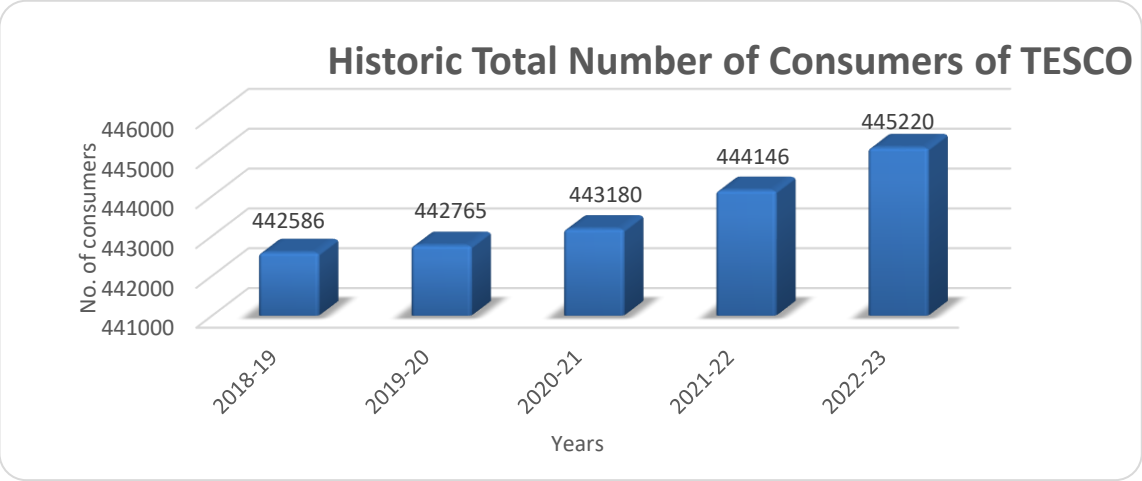


Figure: Number of Consumers

Category-wise, the number of consumers for the last five years i.e. from 2019 to 2023 is shown in the following table.

Table: Historical Number of Consumers in TESCO

Year	Domestic& Others	Commercial	Public Light	Small Industries	M&L Industries	TubeWell	Bulk	Total
2019	403398	28688	5	3440	803	6187	65	442586
2020	403438	28790	5	3356	915	6194	67	442765
2021	403535	29047	5	3320	967	6238	68	443180
2022	403692	29763	5	3291	1071	6252	72	444146
2023	406886	30165	5	3292	1152	3634	86	445220

The detail PMS report is attached herewith as Annex-I

4 CHAPTER 4 Security of Supply (PAP)

4.1 Executive Summary of Security of Supply (PAP)

As per Section-32 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the Act), as amended through Generation, Transmission and Distribution of Electric Power (Amendment) Act, 2018, the Authority was required to specify procedures and standards for the Authority's prior approval of the transmission companies' and distribution companies' investment and power acquisition programmes. The required regulations were promulgated by the Authority as NEPRA (Electric Power Procurement) Regulations, 2022 (Procurement Regulations).

While TESCO, currently carrying out electric power supply business as "deemed licensee" in terms of the amended Act, Regulation 12 of the Licensing Regulations an electric power supplier is required to submit its combined PAP to the Authority on annual basis along with other XWDISCOs. The terms used as Security of Power Supply Plan and PAP will be used interchangeably subject to the conditions that this plan is TESCO's individual plan and not combined PAP.

Besides requirements of the Act, the Licensing Regulations, and the Procurement Regulations, this document is based on Medium Term Load Forecasts (MTLF) as already submitted with the Authority, the IGCEP-2024 (subject to the approval by the authority) and as per the allocation factor given in the Report on Compliance with Capacity Obligations 2022-23 ("Capacity Obligation Report 2022-23") prepared by the CPPA-G (as designate Market Operator) under the provisions of the approved Market Commercial Code (MCC).

It may be noted that the reported compliance status for the Year-4 (FY 2027-28) and Year-5 (FY 2028-29) is based on 80% and 60% required compliance, respectively. The results of Capacity obligation are summarized as below:

S.NO	Description	Forecasted				
		Year-1 2024-25	Year-2 2025-26	Year-3 2026-27	Year-4 2027-28 (80 %)	Year-5 2028-29 (60 %)
1	Capacity Obligations (MW)	627	639	653	532	407
2	Contracted Commissioned (Existing Contracted-Retirement) (MW)	517	517	517	485	481
3	Committed/ Contracted (MW)	87	91	94	157	158
4	Rooftop Solar DG Addition (MW)	1.5	3	5	8	10
5	Total Credited Capacity (MW) (2+3+4)	605	611	616	650	650
6	Shortage of Supply (MW) (5-1)	-22	-29	-37	118	243
7	CO Compliance (%)	-3.5%	-4.5%	-5.7%	22.1%	59.8%

The overview of Compliance status for the period of Year FY (2024-25) to FY (2028-29) is here as follows:

DISCO	Year-1 2024-25	Year-2 2025-26	Year-3 2026-27	Year-4 2027-28	Year-5 2028-29
TESCO	Minor Non-Compliance	Minor Non-Compliance	Serious Non-Compliance	Compliance	Compliance

In view of the fundamental responsibility for ensuring adequate supply for their regulated customer TESCO intends to tap into the committed, not yet contracted, capacities indicated in IGCEP 2024. The quick rooftop solarization in the TESCO network is creating a demand reduction in the distribution network as well decrease in demand in the future power procurement. This is creating a serious threat both to the overall revenue requirement as well as extra expense in the distribution network. Further being non meterization on the domestic side of TESCO this problem aggravated many folds as compared to other DISCOs.

However, TESCO has considered the procurement of power from rooftop solar generation under the net metering rules and considered these additional projected capacities with the capacity obligations as the part of security of supply plan. TESCO has also considered the removal of Transmission and Distribution as the part of investment plan of TESCO to further improve the security of supply plan. Adjusting to the above additional capacities, the position on compliance with the Capacity Obligation is expected to further improve during the time horizon of this Power Acquisition Programme. The year-wise Expected Credited Firm Capacity (MW), %age compliance to the Capacity Obligation and level of compliance, based on the said additional capacities of power generation, are summarized as below:

S.No	Description	Forecasted				
		Year-1 2024-25	Year-2 2025-26	Year-3 2026-27	Year-4 2027-28	Year-5 2028-29
1	**Capacity Obligations (MW)**	627	639	653	532	407
2	**Contracted Commissioned (MW)**	517	517	517	485	481
3	**Committed/ Contracted (MW)**	87	91	94	157	158
4	**Uncontracted (MW) ((2+3)-1)**	-24	-32	-42	110	233
5	**Future Procurement (MW) (2% of Capacity Obligation)**	13	13	13	0	0
6	**Cost Reduction Projects (MW)**	0	0	0	0	0
7	**Constraints Removal (MW)**	0	0	0	0	0
8	Rooftop Solar DG Addition (MW)	1.5	3	5	8	10
9	**Total Credited Capacity (MW) (2+3+5+6+7+8)**	618	623	629	650	650
10	**Net Uncontracted (MW) (9-1)**	-10	-16	-24	118	243
11	**CO Compliance**	-2%	-3%	-4%	22%	60%

The overview of Compliance status for Control Period of FY (after incorporation of changes) is here as follows:

DISCO	Current Year 2023-24	Year-1 2024-25	Year-2 2025-26	Year-3 2026-27	Year-4 2027-28	Year-5 2028-29
TESCO	Minor Non-Compliance	Compliance	Minor Non-Compliance	Minor Non-Compliance	Compliance	Compliance

The detailed Power Acquisition Program is attached herewith as Annex-J

5 CHAPTER -5 NEXT FIVE YEARS GOALS AND OBJECTIVES

5.1 GOALS AND OBJECTIVES MATRIX

The goals are long term targets and objectives are medium term targets. The objectives defined by TESCO are SMART i.e. Specific, Measurable, Attainable, Realistic and Timely. The target setting has been done keeping in view what can be achieved optimally in the next five years. Table below lists the goals and objectives for next three year for the company, are prepared by extensive discussions and coordination within TESCO and goals & objectives from initial exercise are placed.

This matrix also explains the achievement in system reliability, attainment of NEPRA assigned targets like SAIDI, SAIFI< Voltage Profile and or system reliability.

In the below table the goals for TESCO are divided into eight major categories (i) Improving Customer Services (ii) Operational Excellence (iii) Safety (iv) Business Strategy (v) Infrastructure Development (vi) Governance (vii) Legal, regulatory &policy compliance and (viii) Market evolution & preparedness.

Table 2: Improving Customer Services

Strategy Area	Strategic Action	Measurement mode	Inputs by DISCO BoDs							Reference (If any)	Remarks
			Description	Current 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
1. Improving Customer Services	1.1. Customer service responsiveness	% of violation hours	Urban:16 Hrs Rural :24 Hrs	15% 15%	15% 15%	15% 15%	15% 15%	15% 15%	15% 15%	5% on annual basis	NEPRA standard baseline for Urban is 10 Hrs and for rural is 16 hrs which is hard to be met by TESCO due to security reasons, far flung and hard hilly areas.
	1.2. Time frame for new connections	% violations	Sr No	Description	TIME LIMIT (Calendar days)					Consumer Service Manual, Regulatory performance standards (PSDR 2005)	Regulatory performance standards (PSDR 2005), CSM 2021 shall be followed, subject to the completion of codal formalities and clearance of right of way by consumers except issues related to court cases, security measures and availability of material.
			1	For Supply at voltage level upto 400V and load upto 15 KW.	30						
			2	For Supply at voltage level upto 400V and load above 15 kW but not exceeding 70 KW.	53						
			3	For Supply at voltage level upto 400V and load above 70 KW but not exceeding 500 KW.	73						
			4	For Supply at voltage level 111KVor 33KV and load above 500 KW but not exceeding 5000 KW.	106						
			5	For supply at voltage level 66 KV and above for all loads.	496						
	1.3. Reduction in no. of consents / approvals reqd.	No. of redundant consent / approvals removed		TESCO is complying with regulatory & legal requirements.						No redundant Consent is pending	The stake holders involved are Ministry of Energy Power Division, NEPRA, CPPA-G, Provincial Govt and DISCOs.
	1.4. Customer awareness programs	No. of awareness programs (print media / social media / local cable networks)	2	2	6	6	6	6	6	6 no. of annual programs	

Table 3: Operational Excellence

Strategy Area	Strategic Action	Measurement mode	Inputs by DISCO BoDs						Reference (if any)	Remarks
			Current 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
2. Operational Excellence	T&D losses s per Multiyear tariff	%	8.89	8.89	8.89	8.89	8.89	8.89	MYT reference	-
	Progressive improvement in recoveries	%	95.15	95.30	95.45	95.60	95.75	96.00	Commercial Directorate TESCO	-
	Progressive reduction in commercial load shedding	% reduction in average daily load shedding hours	TESCO Providing round the clock supply to commercial/domestic/industrial meterized consumers. However non-meterized consumers are provided electricity subject to availability of policy of Govt & providing of Fund through FATA Pickup Subsidy.						50% by 2029 against the existing baseline	Subject to availability of funds.
	Improving Reliability	(a) SAIDI (b) SAIFI (c) Fault rate	TESCO will make compliance with the requirements as per PSDR standards						Regulatory performance standards (PSDR 2005)	-
	T&D Loss Study	%	TESCO will conduct the T&D Loss study as per actual value of losses to be determined. Study will start this year in 2024-25 and end in the same year.						Regulatory performance standards (PSDR 2005)	Subject to BOD Approval

Table 4: Safety

Strategy Area	Strategic Action	Measurement mode	Inputs by DISCO BoDs						Reference (If any)
			Current Year 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	
3. Safety	3.1. Development & Strengthening of Safety Management System	System Developed & Institutionalized	Approval & Developing of Safety Management System	Implementation					Developing & Implementation of Safety Management System
	3.2. Fatal / non-fatal incidents	No. of incidents	2 (2023-2024)	Nil					According to NEPRA Safety Manual

Table 5: Business Strategy

Strategy Area	Strategic Action	Measurement Mode	Inputs by DISCO BoDs						Reference (If any)	Remarks
			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
4. Business Strategy	4.1 Integrated Distribution and Transmission Plans	Annual Development/ Updating & Submission to NEPRA	a) ITDP Completed with the coordination of Power System Planning of NTDC, Approved by PSM Committee of BoD & Ratified by Board, Submitted to NEPRA	Revised & Rolling ITDP will be submitted to NEPRA for approval					-	Subject to availability of funds & material and clearance of Right of way & security clearance
			Approved by PSM Committee of BoD & Ratified by Board	Revised & Rolling ITDP will be submitted to NEPRA for approval						
			(b) Upgradation of 2 (66 kV to 132 kV) Grid Station	Construction of one New Grid, 01 No 40 MVA Power T/F Addition in Bajaur		Construction of one New Grid		Construction of one New Grid	Jun-2027	
			Cost Rs in (M) : 2078 million	826		503.526		880.582		
			(c) Construction of 132 kV T/L 245.35 KM Transmission Lines	46.6	82.55	54	62	30		
			Cost Rs in (M): 5020 million	755.5246	1705.22	1387.688	1907.568	810		
	4.2. Rural Electrification Plan	Annual Development/Updating	Scheme 1: 15 New express lines to commercial Bazars/Small Industries Cost 1679 Million No of Bazars =11 Will be financed from own sources through RORB. Scheme No 2 15 number of feeders for Electrification of un electrified villages in newly merged Tribal Districts. Cost 1200 Million No of villages = 75 + Will be financed by Provincial Govt	Approval completed from BoD & Submitted to NEPRA for approval, 15% Target	35%	60%	80%	100%	100% by 2027 (completion depends upon the funding from GOP/ sponsoring agencies.	Subject to approval of PC-1 & availability of funds & material and clearance of Right of way & security clearance.
	4.3. Dedicated window for large consumers (11 kV and above)	Cell established and operationalized	Established	–	–	–	–	Compliance		
	4.4. Private Participation through	Phase 1 = Identification of business areas /	-						-	

Strategy Area	Strategic Action	Measurement Mode	Inputs by DISCO BoDs						Reference (If any)	Remarks
			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
	outsourcing of functions	services (bill dist., meter reading, admin O&M, testing commissioning of grid stations)								
		Phase 2 = Progressive outsourcing of business areas / services	-							
	4.5. Aggressive Campaign for Captive Demand Induction	No of captive consumers inducted	No Consumer exist with Captive Generation in TESCO area						-	-
	4.6. DISCO participation in capital market	Phase 1 = Feasibility completed	At present, TESCO has no stake in the capital market of Pakistan as the risk associated with capital market is not affordable. Moreover, TESCO does not have sufficient Institutional strength to launch shares in the capital market			Necessary steps to be taken i.e. cleaning of balance sheet for readiness of TESCO to participate in capital market through floating shares			-	-
		Phase 2 = Action Plan developed								
		Phase 3 = Implementation								
	4.7. Coordinating with Provincial Government for anti-theft measures	No. of Coordination's with Provincial Govt. or its entities	Anti-theft	Anti-theft	Anti-theft	Anti-theft	Anti-theft	M-Meetings		Subject to cooperation of Provincial Administration
		Anti-theft operations concluded	Operations: 50	Operations: 664	Operations: 700	Operations: 780	Operations: 820	ATC-Anti Theft Campaign		

Table 6: Infrastructure Development

Strategy Area	Strategic Action	Measurement mode	Inputs by DISCO BoDs					Reference (If any)	Remarks
			2025-26	2026-27	2027-28	2028-29	2029-30		
5. Infrastructure Development	5.1. SCADA Phase 4 roll-out at 132kV voltage level	SCADA implementation	-	TESCO is working with GIZ for rollout of SCADA in phase-wise				Deadline: 30th June 2029	
	5.2. Technical Control of network through AMI deployment	Phase 1 = Feasibility & roadmap completed	Phase 1 = Feasibility & roadmap completed	Phase 1 = Feasibility & roadmap completed	Determination of 3G/4G	25% Completion	75%		Subject to availability of 3G & 4G as well as improved security conditions
		Phase 2 = Progressive implementation	Phase 2 = Progressive implementation	Phase 2 = Progressive implementation	Services in Ex-FATA Areas, Acquisition of AMI Infrastructure				
	5.3. Business process automation through Enterprise Resource Planning	Finance Module	100%	-		–	–	-	
		MM Module	100%	-					
		HR Module	100%	-					
	5.4. GIS mapping of network	Phase 1 = HT mapping	100 % HT	20% LT	40% LT	70% LT	100% LT	GIS mapping of HT is completed.	After construction of feeders, it will be mapped accordingly
		Phase 2 = LT mapping	0% LT	Due to unmetered and self-extended LT network, GIS mapping is presently not possible. However, 80 number of feeders which are identified will be mapped.				-	-

Table 7: Governance

Strategy Area	Strategic Action	Measurement mode	Inputs by DISCO BoDs						Reference (If any)	Remarks
			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
6. Governance	6.1. Capacity building & training	No. of training programs (technical, commercial procedures, regulatory, HSEQ, corporate governance, market, policy & planning)	1. TESCO will achieve Training of 100 % Staff during the control period. TESCO plans to collaborate with a leading University like LUMS/IBA for imparting training to its managerial staff during the control period of five years. Officers will be trained from renowned Trainings institute like LUMS, NUST etc. Skills Development & Trainings will be imparted to all the employees, throughout the years as per annual training program. In addition to this need basis are arranged to targeted employees where specific skills are required. 2. Revamping of TESCO trainings center 3. Developing of master trainers						Training of 100 % Staff during the control period	Training of 100 % Staff during the control period
	6.2. Introduction of latest HR Utility Practices through Updating of HR Manual	HR Manual Updated	HR manual updated & approved by the TESCO BoD		Implementation & Review where required				-	
	6.3. Appointments		Performance management system (PMS) has been updated and		Implementation & Review where required				Provisions	

Strategy Area	Strategic Action	Measurement mode	Inputs by DISCO BoDs						Reference (If any)	Remarks
			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
	through promotion / new induction on all cadre through competitive process		improved to ensure performance-based promotion. The recruitment policy has been revised to carry out induction by observing merit & transparency. After thorough deliberation at the respective committee, the same was approved by the BoD in Sept 2021.						added in HR Manual	
	6.4. Succession Planning for key management positions		Succession planning is implemented through linking promotion with performance against key result areas (KRAs). A comprehensive training and development program is implemented to enhance the competencies & potential of officers (potential successors) to be able to deliver at next higher positions. The company's recruitment plan is also linked with it succession plan.	Implementation & Review where required					-	
	6.5. Development of mechanism for write-off of bad debts	Mechanism / framework developed	TESCO's domestic consumer claimed is being paid by GOP. Currently there is no policy to write off bad debts. It is suggested that a comprehensive policy may be devised at the Federal Govt. level which will be complied by DISCOs .	_	_	_	_	_	-	Matter to be reviewed by NEPRA.

Table 8: Legal, regulatory & policy compliance

Strategy Area	Strategic Action	Measurement	Inputs by DISCO BoDs				Reference (If any)	Remarks
			Current 2023-24	2024-25	2025-26	2026-27		
7. Legal, regulatory & policy compliance	7.1. Legal & regulatory framework of power sector	Annual compliance	All the requisite fees of Distribution license such as renewal of licence fee etc. Compliance will be ensured on annual basis on timely basis				Annual basis	
	7.2. National Electricity Plan	Annual compliance	All the requisite power acquisition requests has to be made according to the National Electricity Plan/Economic Merit Order/IGCEP/NEPRA Directions				Annual basis	Plan approved and TESCO is working on it in liaison with ministry
	7.3. Performance Agreement between PMO & MOE(PD)	Annual compliance	Compliance will be ensured on annual basis				Annual basis	

Table 9: Market evolution & preparedness

Strategy Area	Strategic Action	Measurement	Inputs by DISCO BoDs						Reference (If any)	Remarks
			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30		
8. Market evolution & preparedness	8.1. Policy, Strategy & Market (PSM) Committee and Risk Management	Board Committee established	Policy, strategy and market reforms (PSM) committee has been constituted/Action completed							compliance
	8.2. MIRAD development and institutionalization	Department developed, positions filled and institutionalized	Department developed, positions filled and institutionalized							compliance
	8.3. Initiation of pilot programs on Distributed Energy Resources integration in the network	No. of pilot programs on annual basis	Presently in TESCO there is no distributed energy project however MIRAD is processing Distributed solar generation cases within approved SOP of NEPRA						Annual targets	compliance
	8.4. Balance Sheets Clean Up	Accounts and balance sheet of DISCOs cleaned up	The matter regarding Intra-company adjustment of receivables is under process at DISCOs level the same will be completed shortly.						Deadline -30th June 2026	

5.2 RATIONALE FOR SETTING GOALS AND OBJECTIVES AND THE PLANNING CRITERIA FOR PROPOSED INVESTMENTS

The goals and objectives that have been narrated were prepared after extensive discussions and coordination efforts within TESCO. These are the targets that TESCO has set and the projects / initiatives have been identified to meet these set targets. The resources requirements for the best case were far more than the capacity TESCO to fund and execute. Initiatives have been identified and prioritized under the optimally achievable scenario keeping in view, the following factors:

- The reliable dispersal of power, especially the power that will be injected within TESCO in next five years, including the variable renewables
- Funding availability as TESCO can arrange funding only up to Rs.14229 million as required under the achievable scenario and not Rs. 25,960 million as required under best case.
- Capacity to procure and execute is another constraint that has limited TESCO's capability to implement the achievable scope, not the larger scope envisaged under best scenario developed
- Meeting the technical parameters specified in the Grid Code, Distribution code performance standards and consumer service manual
- Maintaining losses at 8.89 % over the control period of this Investment Plan.
- Improving internal controls, faster information availability and quality of data through back-office automation
- Improving the competencies of the employees and their morale, through training capacity building and incentives
- Improving corporate brand image by improving internal and external communications
- Safety of line-staff is a key part of DIIP, includes special focus on LM safety
- Return on investment is also considered while planning and prioritizing the interventions
- Other objectives (social uplift e.g., village electrification) are part of the plan as well

6 CHAPTER -6: PROJECTS AND PROGRAMS-SCOPE & ITS COSTING

6.1 EXECUTIVE SUMMARY:

6.2 EXECUTIVE SUMMARY OF STG PLAN

The five-year business plan in respect of TESCO Secondary Transmission & Grids System Expansion is prepared to meet the future load growth as per power market survey and load flow analysis carried out of the area under TESCO jurisdiction of newly merged districts of KP. The STG is investment is primarily to reduce technical loss, to minimize CDP, ensuring N-I contingency as per NTDC Gird code for improvement in socio economic development with enhanced infrastructure.

6.2.1 ABSTRACT OF STG EXPANSION SYSTEM PLAN (BEST CASE):

Under the best-case scenario TESCO plans the construction of eight new 132 kV grid stations. The total length of the transmission line to be laid is 320.8 km, with the addition of one 132 kV power transformer. The overall capacity to be added is 500 MVA. Additionally, N-1 contingency provisions will be implemented across twelve grid stations.

The summary of projects under best case scenario are here as follows:

Sr. No.	Description	YEAR						Total
		Unit	2025-26	2026-27	2027-28	2028-29	2029-30	
Scope of Work of 132 kV Network TESCO								
1	Construction of New grid stations	No.	2	3	2	0	1	**8**
2	Conversion of 66 kV Grid Stations to 132 kV	No.	0	0	0	0	0	0
3	Conversion of Iso Bays	No.	1	0	0	0	0	**1**
4	New 132 kV Transmission Lines	Km	168.6	51.2	96	0	5	**320.8**
5	Addition of Power Transformers	No.	1	0	0	0	0	**1**
6	Augmentation of Power Transformers	No.	0	0	0	0	0	**0**
7	Installation of Capacitors at 132 kV	MVAR	0	0	24	0	0	**24**
8	Installation of Capacitors at 11 kV	MVAR	72	61.2	39.6	9.6	0	**182.4**

6.2.2 GRID STATIONS (BEST CASE):

Sr#	Proposed Substation	Voltage Level (kV)	Type	Capacity (MVA)	Cost of Grid Station (Million Rs)	Funding
Grid Stations for 2025-26						
1	Shakas	132	New	2 X 31.5/40	576.124	Funded
2	Sararogha	132	New	2 X 20/26	505.44	Funded
				Cost (in Million Rs)	**1081.564**	
Grid Stations for 2026-27						
1	Bara II	132	New	2 X 31.5/40	570.44	Funded
2	Dara Adam Khel	132	New	2 X 31.5/40	503.529	Own Sources
4	Mamund	132	New	2 X 20/26	507.004	Funded
				Cost (in Million Rs)	**1580.973**	
Grid Stations for 2027-28						
3	Tirah Maidam	132	New	2 X 20/26	505.004	Funded
				Cost (in Million Rs)	**505.004**	
Grid Stations for 2028-29						
2	SpinWam	132	New	2 X 20/26	880.582	Own Sources
				Cost (in Million Rs)	**880.582**	
Grid Stations for 2029-30						
1	Datta-Khel	132	New	2 X 20/26	880.582	Funded
				Cost (in Million Rs)	**880.582**	

6.2.3 CAPACITY OF GRID STATION:

The year-wise breakup of Capacity Addition is here as follows:

Year	Yearly MVA Addition	Cumulative MVA addition
2025-26	**132.00**	**132.00**
2026-27	**212.00**	**344.00**
2027-28	**52.00**	**396.00**
2028-29	**52.00**	**448.00**
2029-30	**52.00**	**500.00**
Total	**500.00**	**500.00**

TESCO will add 500 MVA transformation capacity from (FY 2025-26 to FY 2029-30). It will enhance the capacity of TESCO infrastructure.

6.2.4 TRANSMISSION LINES:

The summary of transmission lines during the control period under the best-case scenario is here as follows:

Proposed Grid Stations and Associated Transmission Lines (Best Case)						
Sr. No.	**Transmission Lines**	**Voltage Level (kV)**	**Type**	**Conductor Name**	**Length (km)**	**Construction Cost (Million Rs)**
			2025-26			
1	IN/OUT of proposed Bara-New Jamrud T/Line at Proposed Shahkas GSS	132kV	D/C	Rail	1	102.446
2	Jandola - Sararogha T/Line	132kV	SDT	Lynx	30	504.246
3	IN/OUT at MirAli GSS of proposed Kurram Tangi-Bannu Domail T/Line	132kV	D/C	Lynx	46	1250.879
4	132 kV Warsak PESCO-Marble City T/Line	132kV	2nd Circuit Stringing	Lynx	1.6	45.98
5	132kV Bajaur-Lakarrai T/L	132kV	SDT	Lynx	30	785.98
6	IN/OUT of proposed Bannu Domail-Mir Ali T/Line at Alizai	132kV	D/C	Lynx	60	1715.98
	Cost (in Million Rs)					**4405.511**
			2026-27			
1	Feed for BARA II by IN/OUT from existing Sheikh Muhammadi-BARA T/Line	132kV	D/C	Rail	2	142.633
2	132kV Bajaur-Mamond T/Line	132kV	SDT	Lynx	10.2	360.307
3	Bara-2 to Dara Adam Khel Transmission Line	132kV	SDT	Rail	25	509.306
4	132kV T/Line 220kV Jamrud- 132kV Shahkas	132kV	D/C	Rail	1	51.99
5	132kV MirAli-Miranshah T/Line	132kV	SDT	Lynx	21	602.98
	Cost (in Million Rs)					**1667.216**
			2027-28			
6	KALAYA-Tirah Maidam	132kV	SDT	Lynx	17	493
	Cost (in Million Rs)					**493**
			2028-29			
2	Single IN/OUT of Mir Ali-Alizai T/Line at SpinWarm	132kV	D/C	Lynx	5	275
3	132kV New Jamrud-Landikotal Transmission Line	132kV	SDT	Lynx	30	810
	Cost (in Million Rs)					**1085**
			2029-30			
1	132kV Miranshah-Datta Khel T/L	132kV	SDT	Lynx	41	903.523
	Cost (in Million Rs)					**903.523**

6.2.5 Details of Capacitors Bank Installation at 132 kV:

The details of Capacitor bank to be installed at 132 kV level are here as follows:

List of Proposed 132kV Capacitor Bank Installation (Best Case)			
Sr. No.	**Name of Grid Station**	**Capacitor (MVAR)**	**Cost (Million Rs)**
2027-28			
1	132kV GSS Wana	24	42
Cost (in Million Rs)			**42**

6.2.6 Details of Capacitor Banks installation at 11 kV:

The details of Capacitor Banks proposed at 11 kV distribution lines are here as follows:

List of Proposed 11kV Capacitor Banks at existing Grid Station (Best Case)							
List Of Proposed 11kV Capacitor Banks							
Sr#	**Name of Grid Station**	**Power Transformer Code**	**MVA Capacity of P/F**	**2024-25**	**2025-26**	**2026-27**	**2027-28**
	For Existing Grid Stations						
1	132KV Bajaur	T-1	20/26	4.8			
2	132KV Bajaur	T-2	20/26	4.8			
3	132kV GSS Ghallani	T-2	20/26				
4	132kV GSS Parachinar	T-1	20/26	4.8			
5	132kV GSS Parachinar	T-2	10/13		4.8		
6	132kV GSS Parachinar	T-3	20/26	4.8			
7	132kV Sadda	T-1	20/26	4.8			
8	132kV Sadda	T-2	20/26	4.8			
9	132kV GSS Miranshah	T-1	20/26	4.8			
10	132kV GSS Miranshah	T-2	10/13		4.8		
11	132kV GSS Miranshah	T-3	31.5/40	4.8			
12	132kV GSS Alizai	T-1	20/26			4.8	
13	132kV GSS Alizai	T-2	20/26			4.8	
14	132 kV Northern Mohmand	T-1	20/26			4.8	
15	132 kV Northern Mohmand	T-2	20/26			4.8	
16	132kV GSS WANA	T-1	20/26	4.8			
17	132kV GSS WANA	T-2	20/26	4.8			
18	132kV GSS WANA	T-3	31.5/40	4.8			
19	132 kV Razmak	T-1	10/13			4.8	
23	132kV GSS MirAli	T-1	10/13			4.8	
24	132kV GSS MirAli	T-2	20/26		4.8		
25	132kV GSS MirAli	T-3	20/26		4.8		
28	132kV GSS Tangi (PESCO)	T-4	20/26		4.8		
29	132 kV Timergara (PESCO)	T-3	20/26		4.8		
Price				**78.237**	**52.158**	**52.158**	**17.386**

6.2.7 Abstract of STG Expansion System Plan (Optimal case):

The expansion project involves the establishment of three new 132 kV grid stations. A total of 245.1 km of transmission line will be added, along with one 132 kV power transformer. The project will increase capacity by 304 MVA and include the addition of twelve new transmission lines. Furthermore, twelve 132 kV grid stations will be converted to provide N-1 contingency.

The construction of New Grid at Shahkas is important for the evacuation of Power from the upcoming NTDC 220 kV Grid in Jamrud. This 220 kV Grid will be connected with Mohmand Dam to be operational in 2026. Also, it will help in shifting of TESCO Transformers and Feeders from PESCO Hayatabad Grid & PESCO Jamrud Grid, which in turn will help in minimizing of wheeling charges and decrease of CDP Points and ultimately decreasing MDI and overall cost of doing business.

Dara-Adam Khel & Spinwarm grid will help us in shifting feeders from Mattani grids & Spinwarm Grids, apart from catering upcoming industrial and commercial demand in the corresponding regions. It will also help in decreasing wheeling charges and MDI issues.

To reduce the losses associated with 66kV network and recurring maintenance cost of old deteriorated network, it is proposed that one number of 40MVA power transformer be installed at 132kV GSS Bajaur. As per study, the project will result in reduction of 0.9MW losses in 2024-25 at the peak load of TESCO as per PMS Load Forecast Report 2021-22. Expected energy loss reduction after completion of this project is 3.3 million units annually. This project should be done by June 2026.

Installation of 132kV capacitor bank of 24 MVAR is proposed at GSS Wana, in order to reduce loss and improve voltage quality. Installation of this project will result in reduction of losses by 0.1 MW and voltage improvement in normal and contingency conditions. The project will result in loss reduction of 0.737 million units per year. It is recommended that the project may be completed before June 2028.

The summary of projects under Optimal case scenario are here as follows:

Sr. No.	Description	YEAR						Total
		Unit	2025-26	2026-27	2027-28	2028-29	2029-30	
Scope of Work of 132 kV Network TESCO								
1	Construction of New grid stations	No.	1	0	1	0	1	3
2	Conversion of Grid Stations (66 kV to132 kV)	No.	0	0	0	0	0	0
3	New 132 kV Transmission Lines	Km	68.6	119.6	26	26	5	245.1
4	Addition of Power Transformers	No.	1	0	0	0	0	1
5	Capacitors at 132 kV	MVAR	24	0	0	0	0	24
6	Capacitors at 11 kV	MVAR	72	61.2	39.6	9.6	0	182.4

6.2.8 Details of Grid Stations (Optimal Case)

The details of New Grid Stations to be constructed is here as follows:

Proposed Grid Stations and Associated Transmission Lines (Optimally Achievable Case)						
Sr#	**Proposed Substation**	**Voltage Level (kV)**	**Type**	**Capacity (MVA)**	**Cost (Million Rs)**	**Funding/Own Sources**
Grid Stations for 2025-26						
1	Shahkas	132	New	2 X 31.5/40	576.124	Funded
				Cost (in Million Rs)	**576.124**	
Grid Stations for 2027-28						
2	Dara Adam Khel	132	New	2 X 31.5/40	503.529	Own Sources
				Cost (in Million Rs)	**503.529**	
Grid Stations for 2029-30						
3	SpinWarm	132	New	2 X 20/26	880.582	Funded
				Cost (in Million Rs)	**880.582**	

6.2.9 Capacity of Grid Station:

TESCO will enhance its transformation capacity by construction of three new grids and addition of One 40 MVA transformer at Bajaur Grid Station.

The year-wise Transformation Capacity addition is summarized here as follows:

Year	Yearly MVA Addition	Cumulative MVA addition
2025-26	**120**	**120.00**
2026-27	**0**	**120.00**
2027-28	**80**	**200.00**
2028-29	**0**	**200.00**
2029-30	**52**	**252.00**
Total	**252**	**252.00**

6.2.10 Transmission Lines:

Additional Transmission Lines for N-1 (Optimally Achievable Case)						
Sr. No.	**Transmission Lines**	**Voltage Level (kV)**	**Type**	**Conductor Name**	**Length (km)**	**Cost of Project (Million Rs)**
2025-26						
1	Munda-Bajaur T/line	132kV	2nd Circuit Stringing	Lynx	20	106.747
3	132kV Warsak PESCO-Marble City T/Line	132kV	2nd Circuit Stringing	Lynx	1.6	45.98
2	IN/OUT at MirAli GSS of proposed Kurram Tangi-Bannu Domail T/Line (40%)	132kV	D/C	Lynx	23	500.3516
4	IN/OUT of proposed Bara-New Jamrud T/Line at Proposed Shahkas GSS	132kV	D/C	Rail	2	102.446
					Cost (in Million Rs)	**755.5246**
2026-27						
1	Sadda-Parachinar T/Line	132kV	2nd Circuit Stringing	Lynx	29.55	169.216
2	132kV Bajaur-Lakarrai T/L	132kV	SDT	Lynx	30	785.98
3	IN/OUT at MirAli GSS of proposed Kurram Tangi-Bannu Domail T/Line (Remaining 60%)	132kV	D/C	Lynx	23	750.5274
					Cost (in Million Rs)	**1705.7234**
2027-28						
1	132kV T/Line 220kV Jamrud-132kV Shahkas	132kV	D/C	Rail	1	51.99
2	Bara to Dara Adam Khel Transmission Line	132kV	SDT	Rail	25	509.306
3	IN/OUT of proposed Bannu Domail-Mir Ali T/Line at Alizai (40%)	132kV	D/C	Lynx	24	686.392
4	In/Out of Landikotal Transmission line at Shahkas Grid Station	132kV	SDT	Rail	4	140
					Cost (in Million Rs)	**1387.688**
2028-29						
1	132kV MirAli-Miranshah T/Line	132kV	SDT	Lynx	21	602.98
2	Single IN/OUT of Mir Ali-Alizai T/Line at Spinwarm	132kV	D/C	Lynx	5	275
3	IN/OUT of proposed Bannu Domail-Mir Ali T/Line at Alizai (60%)	132kV	D/C	Lynx	36	1029.588
					Cost (in Million Rs)	**1907.568**
2029-30						
1	132kV New Jamrud-Landikotal Transmission Line	132kV	SDT	Lynx	30	810
					Cost (in Million Rs)	810

6.2.11 Addition of Power Transformer:

To reduce the losses associated with 66kV network and recurring maintenance cost of old deteriorated network, it is proposed that one number of 40MVA power transformer will be installed at 132kV GSS Bajaur. As per study, the project will result in reduction of 0.9MW losses in 2024-25 at the peak load of TESCO as per PMS Load Forecast Report 2021-22. Expected energy loss reduction after completion of this project is 3.3 million units annually. This project should be done by June 2026.

The details are here as follows:

Addition of Power Transformers (Optimally Achievable Case)					
Addition of Power Transformer					
Sr#	**Name of Substation**	**Voltage Level (kV)**	**Type**	**Transformation Capacity (MVA)**	**Cost (Million Rs)**
2025-26					
1	132KV Bajaur	132	Ext.	1x31.5/40	250
				Cost (in Million Rs)	**250**

6.2.12 Details of Capacitors Bank Installation at 132 kV:

Installation of 132kV capacitor bank of 24 MVAR is proposed at GSS Wana, in order to reduce loss and improve voltage quality. Installation of this project will result in reduction of losses by 0.1 MW and voltage improvement in normal and contingency conditions. The project will result in loss reduction of 0.737 million units per year. It is recommended that the project may be completed before June 2028.

The details of Capacitor bank to be installed at 132 kV level are here as follows:

List of Proposed 132kV Capacitor Bank Installation (Best Case)			
Sr. No.	**Name of Grid Station**	**Capacitor (MVAR)**	**Cost (Million Rs)**
2027-28			
1	132kV GSS Wana	24	42
	Cost (in Million Rs)		**42**

6.2.13 Details of Capacitors Bank Installation at 11 kV

Installation of 11kV capacitor banks is proposed for all grid stations but it may be done on priority basis for 132V GSS Parachinar, Sadda, Bajaur, MirAli and Landikotal by June 2024.

Installation on other grids may be done as per timelines mentioned in table.

List of Proposed 11kV Capacitor Banks at Existing Grid Station (Optimal Achievable Case)							
List Of Proposed 11kV Capacitor Banks							
Sr#	**Name of Grid Station**	**Transformer Code**	**Capacity of P/F**	**2024-25**	**2025-26**	**2026-27**	**2027-28**
	For Existing Grid Stations						
1	132KV Bajaur	T-1	20/26	4.8			
2	132KV Bajaur	T-2	20/26	4.8			
3	132kV GSS Ghallani	T-2	20/26				
4	132kV GSS Parachinar	T-1	20/26	4.8			
5	132kV GSS Parachinar	T-2	10/13		4.8		
6	132kV GSS Parachinar	T-3	20/26	4.8			
7	132kV GSS Sadda	T-1	20/26	4.8			
8	132kV GSS Sadda	T-2	20/26	4.8			
9	132kV GSS Miranshah	T-1	20/26	4.8			
10	132kV GSS Miranshah	T-2	10/13		4.8		
11	132kV GSS Miranshah	T-3	31.5/40		4.8		
12	132kV GSS Alizai	T-1	20/26				4.8
13	132kV GSS Alizai	T-2	20/26				4.8
14	132 kV Northern Mohmand	T-1	20/26				4.8
15	132 kV Northern Mohmand	T-2	20/26				4.8
16	132kV GSS WANA	T-1	20/26		4.8		
17	132kV GSS WANA	T-2	20/26		4.8		
18	132kV GSS WANA	T-3	31.5/40		4.8		
19	132 kV GSS Razmak	T-1	10/13				
20	132kV GSS MirAli	T-1	10/13				4.8
21	132kV GSS MirAli	T-2	20/26			4.8	
22	132kV GSS MirAli	T-3	20/26			4.8	
23	132kV GSS Tangi (PESCO)	T-4	20/26			4.8	
24	132 kV Timergara (PESCO)	T-3	20/26			4.8	
Cost in Million Rs.				**76.61**	**65.67**	**43.78**	**54.72**

6.3 A brief of Main STG Projects:

6.3.1 STG Growth Projects:

a) **132kV GSS Shahkas:** 132 kV Shahkas Grid Station is proposed and will be connected with NTDC's proposed 220kV Jamrud grid station. This grid station will be feeding source of 132kV New Jamrud, Bara and local load. Moreover, the existing load from PESCO's 132kV GSS Hayatabad will also be shifted to 132kV GSS Shahkas.

b) **132 kV Dara Adam Khel:**
TESCO plans to construct a 132kV grid station with an 80 MVA capacity at Dara Adam Khel in 2027-28 to meet the growing demand from coal mines, small industries, and commercial areas. Additionally, this new grid station will help redistribute the load from the PESCO Mattani Grid Station, improving overall network efficiency and reliability. The project is expected to play a vital role in the socio-economic development of the region by promoting industrialization, fostering business growth, and creating new employment opportunities, thereby boosting the local economy.

c) **Addition of Power Transformer at 132 kV Bajaur:** Currently, 66kV GSS Bajaur is also feeding some load despite the energization of 132kV GSS Bajaur. To reduce the losses associated with 66kV network and recurring maintenance cost of old deteriorated network, it is proposed that one number of 40MVA power transformer be installed at 132kV GSS Bajaur. As per study, the project will result in reduction of 0.9MW losses in 2024-25 at the peak load of TESCO as per PMS Load Forecast Report 2021-22. Expected energy loss reduction after completion of this project is 3.3 million units annually.

6.3.2 STG N-1/N-2 Contingency/ Reliability/ Stability & loss reduction Projects:

a) IN/OUT of proposed Bannu Domail-Mir Ali T/Line at 132kV GSS Alizai:
132kV planned Bannu Domail- MirAli transmission line is proposed to have IN/OUT at 132kV GSS Alizai to avoid overloading of Gurgri-Tall transmission line.
Currently, 132kV GSS Parachinar, Sadda and Alizai are being fed form 132kV Tall (PESCO) grid station. The only feeding source of 132kV GSS Tall i.e., single circuit 132kV Gurgri-Tall transmission line is overloaded under normal conditions. To avoid the overloading of 132kV Gurgri-Tall transmission line, another source to 132kV GSS Alizai is proposed from 132kV Bannu Domail-MirAli transmission line. In the proposed scheme 132kV Bannu Domail-MirAli will be IN/OUT at 132kV GSS Alizai. Till the energization of proposed scheme, technical load shedding will be carried out at 132kV GSS Parachinar, Sadda and Alizai due to overloading constraint. Keeping in view the reliability for the 132kV GSS Alizai, Sadda and Parachinar, the project should be completed as early as possible.

b) Construction of 132 kV Bajaur-Lakarrai Transmission Line:

i. Description:

A 30km long SDT Lynx conductor 132kV Bajaur-Lakkarai transmission line for N-1 contingency of 132kV GSS Lakkarai is proposed.
Currently, 132kV GSS Bajaur is being fed from single circuit 132kV Timergara-Bajaur transmission line and second circuit Munda-Bajaur transmission line is planned for the year 2024-25. On the other hand, 132kV GSS Lakkarai is planned to be connected to 132kV GSS Ghallani through 132kV GSS Northern Mohmand. 132kV GSS Ghallani is being fed from single circuit 132kV Shabqadar- Ghallani transmission line.

ii. Load Forecast in the Area as per PMS 2021-22

The proposed project will have an impact on the reliability of different grid stations. The proposed project of 30km long transmission line between 132kV GSS Bajaur and proposed 132kV GSS Lakkarai will make N-1 contingent to all the grid stations that will be interlinked in a ring after construction of this transmission line. Under normal conditions the following load flows are observed after simulation.

S.No	Description	Capacity
1	Flow from 132kV GSS Shabqadar to Ghallani	37.1 MW
2	Flow from 132kV GSS Munda to Bajaur	33.9 MW
3	Flow from 132kV GSS Timergara to Bajaur	41.7 MW
4	Flow from 132kV GSS Bajaur to Lakarrai	21.3 MW

The proposed project connects 4 No. of 132kV grid stations and if any fault occurs on any source transmission line, then the other source supplies the electricity. the single line diagram of the network when 132kV Timergara-Khar transmission line is under fault.

iii. Improvement in Losses

Both the cases have been compared for voltage profile, losses and reliability. The summary of results for both cases is highlighted below.

Description	Without the Project	With the project	Improvement
Losses (MW)	7.8	7.7	-0.1

In addition to providing N-1 contingency to the grid stations and reduction in losses, the proposed project will also help in voltage improvement under contingency conditions.

6.3.3 NPCC Constraints Removal Projects:

a) IN/OUT of Proposed 132kV Bannu Domail-Kurram Tangi Transmission Line at 132kV GSS MirAli

A single IN/OUT connection at the 132kV MirAli grid station (GSS) is proposed from the planned double circuit 132kV Lynx conductor transmission line between Bannu Domail and Kurram Tangi hydel power station.

By 2024-25, the total diversified load at MirAli, Miranshah, and Razmak grid stations will be 55.43 MW, supplied by the existing Bannu-MirAli line. TESCO's peak demand is projected at 640 MW in June 2025. Kurram Tangi hydel power station will add 18 MW as per IGCEP 2022-31.

Currently, MirAli GSS feeds Miranshah and Razmak, making it critical for power reliability. Overloading on the Bannu-MirAli line has been reported, and any fault would lead to a total outage, violating Grid Code TPCS 3.2.2.

To address overloading and ensure N-1 contingency compliance, the proposed IN/OUT connection will improve reliability, reduce losses by 1.6 MW, and maintain power during faults on any line.

Other additional benefits of the project are as follows

- Removal of overloading constraints of existing circuit

- Compliance of N-1 for 132kV GSS Mir Ali
- Interconnection with WAPDA Hydel and NTDC grid stations, thereby reducing the UoSC incurred from units received through PESCO grid station.
- Reduction in MW loss by 1.6 MW
- Increase in availability of transmission capacity for future grid like 132kV GSS Spinwarm etc.

6.3.4 132 kV Capacitor Bank Installation At 132 kV GSS Parachinar By 2024-25:

A 132kV, 48 MVAR capacitor bank is proposed for installation at 132kV GSS Parachinar by 2024-25 to address low voltage issues under normal and contingency conditions.

Currently, Parachinar GSS is fed by the 78 km Tall-Parachinar line, with a second line planned from Sadda by 2024-25. The forecasted 2024-25 peak load for Parachinar is 49.2 MW, which reduces to 36.9 MW after diversification. Combined with Alizai and Sadda grid stations, the total diversified load reaches 75.45 MW.

Without a capacitor bank, low voltage issues will persist, especially under single-contingency conditions, violating Grid Code criteria. The installation of the capacitor bank will improve voltage, reduce losses, and ensure compliance. Simulations confirm significant voltage improvement and no regulatory violations after the installation.

The summary of results for both cases are highlighted below.

Description	Before Installation	After Installation	Improvement
Losses (MW)	4.1	3.9	-0.2
Voltage Profile (per unit) at 132kV GSS Parachinar	0.74	0.99	-0.25
Voltage Profile (per unit) at 132kV GSS Sadda	0.72	0.99	-0.27

132kV 48 MVAR capacitor bank is proposed at Parachinar to overcome the low voltage problem. Under normal conditions when no transmission element is under fault in the area, 24MVAR should be in-circuit instead of 48MVAR. Under N-1 contingency condition, 48MVAR is necessary to maintain the voltage. Therefore, 48MVAR should be in-circuit when there is any fault with any transmission element in this area.

A brief of every project with load flow analysis, benefits and impact is shown in ITDP report attached herewith as **Annex-K**.

6.4 Executive Summary of Distribution Planning:

The plan outlined herein proposes to ensure the efficient and economical planning of the distribution system through comprehensive strategies. Our objectives encompass various critical aspects, including compliance with regulatory standards, reduction of energy losses, technological integration, system optimization, and service enhancement. By embracing the latest technologies like GIS and fostering a culture of continuous improvement, we aim to streamline operations, enhance infrastructure quality, and optimize network performance. Through meticulous planning and execution, we strive to maintain adherence to standards, facilitate service expansion, and troubleshoot issues effectively. Our focus on infrastructure design, quality assurance, and database management underscores our dedication to maintaining TESCO's reputation for excellence in power distribution.

6.4.1 Expansion of Distribution System for DOP:

11 kV Construction Expansion and Rehabilitation (Optimal Case)							
Optimal Case							
Sr. No.	**Description**	**Unit**	**Quantities**				
Scope of Work for 11 kV and Below Expansion (Dedicated Feeders on Cost Deposit Basis)			**Year**				
			MYT (NEPRA Business Plan)				
			2025-26	**2026-27**	**2027-28**	**2028-29**	**2029-30**
A.							
1	New HT Lines						
	Number of proposals	**Nos**	5	6	8	7	7
	Length of new HT line	Km	51.6	38.3	113	80	80
2	Transformers						
	e. 200 KVA	Nos	1	2	3	3	3
	f. 100 KVA	Nos	25	29	33	37	33
	Sub Total	Nos	26	31	36	40	36
3	**11 KV Panel**	Nos	5	6	8	7	7
4	11KV 500 MCM S/C Cable	Km	0.94	1.2	2.1	2	1.5
5	Shifting of HT Lines from PESCO grid to TESCO	Km	12	59.7	0	13	17
1	**New LT Lines/Extension**						0
	Number of proposals	Nos	5	3	49	0	0
	Length of new LT line/AB cable extension	km	2	4	6.92	4	4
2	Transformers						
	a. 25 KVA	Nos	10	10	24	14	14
	b. 50 KVA	Nos	26	25	20	20	35
	Sub Total	Nos	36	35	44	34	49
3	**New HT Lines (For Village connectivity with HT Feeder)**	Km	0	0	2	0	0
4	LT Capacitors	KVAR	0	0	0	0	0
	a. Different KVARs	KVAR	0	0	0	0	0

6.4.2 Rehabilitation of HT Lines for Reliable Supply of Power

	Year		2025-26	2026-27	2027-28	2028-29	2029-30
	Number of proposals	Nos	25	6	11	8	8
1	Bifurcation		1	0	1	0	0
2	Reconductoring		0	1	0	0	0
3	Re-routing		0	0	0	0	0
4	New HT Lines for grid connectivity	Km	76	22	42	21	21
5	HT Line Reconductoring	Km	0	0	0	0	0
6	11KV Capacitors	Nos	0	0	0	0	0
7	11KV Panels	Nos	0	0	0	0	0
8	Replacement of T/F Earthing	Nos	10	15	15	10	20
9	11-kv Sectionalizers	Nos	0	0	0	0	0
10	11-Kv 500 MCM Cable	Km	8.1	11.1	33	0.9	0.9

6.4.3 Rehabilitation of LT Lines

1	**LT Lines Rehabilitation**						
	Year	Unit	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**
	Number of proposals	Nos	0	0	0	0	0
2	New LT Lines	Km	1.5	2	2	2	2
3	LT Lines	Km	0	0	0	0	0
4	New HT Lines (New T/F Substations)	Km	19.5	0	0	0	0
5	**New Transformer Substations**						0
	a. 50 KVA	Nos	0	0	0	0	0
	b. 100 KVA	Nos	25	20	10	10	10
	c. 200 KVA	Nos	1	2	0	1	2
	Sub Total	Nos	26	22	10	11	12
6	**Replacement of 2-Leg Transformers**						
	c. 25 KVA	Nos	1	1	1	1	1
	d. 50 KVA	Nos	1	1	2	1	1
	e. 100 KVA	Nos	0	1	0	1	0
	f. 200 KVA	Nos	0	0	1	0	1
	Sub Total	Nos	2	3	4	3	3

6.4.4 Replacement of Defective Meters & Others:

7	**Energy Meters (against defective)**		**0**	**0**	**0**	**0**	**0**
	a. Single Phase		200	200	250	250	250
	b. Three Phase	Nos	50	50	60	60	75
	Sub Total	Nos	250	250	310	310	325
8	PVC Cables	km	2	2.5	2.5	3	3
9	P.G.Connectors	Nos	45	50	60	60	60
10	LT Capacitors	Nos	0	0	0	0	0
	Others						

6.4.5 Quantities of Work

Sr. No.	Description	Unit	Quantities				
Scope of Work for 11 kV and Below Expansion			MYT (NEPRA Business Plan)				
			2025-26	2026-27	2027-28	2028-29	2029-30
1	11 KV Panel Out Going	No	5	6	8	7	7
4	500 MCM Cable	Mtr	9.3	12	35.1	2.9	2.9
5	H.T Structure 45 Feet	No	1260	800	800	800	800
6	H.T Structure 58 Feet	No	300	100	50	50	50
7	H.T Structure 36 Feet	No	700	400	400	400	400
8	L.T Structure	No	50	70	170	0	0
9	ACSR Dog 7/186	Mtr	426420	217350	217350	217350	217350
10	ACSR Ospary	Mtr	0	0	0	0	0
11	AAC 7/122	Mtr	12600	565600	565600	565600	565600
13	25/11 KV Transformer	No	5	2	15	8	8
14	50/11 KV Transformer	No	26	26	21	21	23
15	100/11 KV Transformer	No	30	39	40	60	36
16	200/11 KV Transformer	No	1	0	0	0	0
17	Earthing Unit with Thimble	No	2260	1250	1250	1200	1200
18	Stay Rod with Elbow & Thimble	No	322	250	250	250	250
19	GSL Wire 10MM	KG	2500	2500	2500	2250	2250
20	P.G Connector T-110	No	6780	5250	5440	3600	3600
21	Double Arming Bolt 14x5/8	No	285	285	285	285	285

6.4.6 GIS MAPPING & LOAD FLOW STUDIES:

Sr. No.	Description	Unit	MYT (NEPRA Business Plan)				
			2025-26	2026-27	2027-28	2028-29	2029-30
1	GIS Mapping (HT)						
	No of 11KV Feeders	Nos	05	06	08	07	07
	Length of HT Lines Mapped	Km	51.6	38.3	113	80	80
2	Load Flow Study using Synergi						
	11 KV feeders after energization and shifting of load	Nos	05	06	08	07	07
	Processing and sanctioning of new connections, load extensions, change of name, shifting of connection having load above 500 KW	Nos	After completing all the requirements within the stipulated time period outlined in NEPRA CSM-2021				

6.4.7 DURATION OF JOBS

Description	MYT (NEPRA Business Plan)				
	2025-26	2026-27	2027-28	2028-29	2029-30
Short Circuit Analysis in Synergi Electric					
N-1 Contingency Analysis in Synergi Electric					
Distributed Generation Analysis in Synergi Electric					
Reactive Power Compensation Studies and Voltage Optimization in Synergi Electric					
Geo Processing in ArcGis					
Advanced GIS Training					

6.5 Investment for Reliability of System:

Item	Description	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	Earthing System of 132 kV Grids	132 kV GSS Bara	132KV GSS Landi Kotel	132 kV GSS Ghallani	132 kV GSS Parachinar	132KV GSS Wana
2	Protection System for Grid Substations	4 Grids (3 132 kV, 1 66 kV)	3 Grids (2 132 kV, 1 66 kV)	4 Grid Station (3 132 kV, 1 66 kV)	4 Grid Station (3 132 kV, 1 66 kV)	4 Grid Station (4 132 kV Grid Stations)
3	Protection Walls between Power Transformers	2 Grid Stations (132KV GSS Ghallani, 132KV GSS Bajaur)	2 Grid Stations (132KV GSS Miranshah, 132KV GSS MirAli)	132KV GSS Wana	3 Grid Stations (132 KV GSS Parachinar, 132KV GSS Sadda, 132KV GSS AliZai)	132 kV GSS Dara Adam Khel
4	Cable Trenches in Grid Substations	3 Grid Stations (132KV GSS Ghallani, 132KV GSS New Jamrud, 66KV GSS Bajaur)	2 Grid Stations (132KV GSS Razmik, 132 kV Miran shah)	132KV GSS MirALi	3 Grid Stations (132KV GSS Parachinar, 132KV GSS Kalaya, 132KV GSS Sadda)	0
5	Pre-Fabricated Trenches Cover in Switchyards at Grids	3 Grid Stations (132KV GSS Ghallani, 132KV GSS New Jamrud, 66KV GSS Bajaur)	2 Grid Stations (132KV GSS Razmik, 132 kV Miran shah)	132KV GSS MirALi	3 Grid Stations (132KV GSS Parachinar, 132KV GSS Kalaya, 132KV GSS Sadda)	0
6	Power Transformer for Emergencies	0	0	0	132/11.5 KV, 20/26 MVA Power Transformer	132/11.5 KV, 40MVA Power Transformers

a) Earthing System for GSS:

The current earthing systems at grid stations were designed based on the originally installed MVA capacity. However, with the addition of more power transformers with higher MVA ratings, the overall capacity of each grid has increased significantly. It is essential to upgrade the earthing systems to align with the increased MVA capacity. This renewal will help reduce the occurrence of grid-related faults, thereby enhancing the stability of power supply and ensuring more reliable service to consumers.

b) Protection Wall between Power Transformers:

TESCO plans to install protection walls between power transformers at nine grid stations during the control period from FY 2025-26 to 2029-30. This measure is critical for enhancing the safety and reliability of the grid infrastructure. Protection walls serve as physical barriers that prevent the spread of fire or damage from one transformer to another in the event of a fault or failure. By containing potential hazards, these walls help minimize the risk of large-scale outages, reduce downtime, and protect valuable equipment. This installation will ultimately ensure a more stable and secure power supply for consumers while safeguarding TESCO's assets.

c) Construction of Cable Trenches in GSS:

Currently, many grid stations lack concrete cable trenches for 11kV cables, resulting in cables being laid above ground. This not only exposes the cables to potential damage but also creates operational challenges, particularly during fault rectification when cables can become tangled. Properly constructed concrete trenches will protect the cables, extending their lifespan, and significantly improving safety and efficiency for maintenance personnel. TESCO plans to construct and rehabilitate cable trenches at nine grid stations during the control period from FY 2025-26 to 2029-30 to enhance grid reliability and operational safety.

d) Pre-Fabricated Trench Covers in Switchyards:

To ensure the safety and protection of entrenched cables in the switchyard, it is essential to install pre-fabricated trench covers. These covers safeguard the cables from potential damage and incidents within the grid, while also extending the cables' operational life. TESCO plans to construct and rehabilitate pre-fabricated trench covers at nine grid stations during the control period from FY 2025-26 to 2029-30, enhancing both cable protection and overall grid reliability.

6.6 Grid Automation, SCADA & Other IT Interventions:

GSS NAME	2025-26	2026-27	2027-28	2028-29	2029-30
Grid Stations	132KV GSS BARA	-	-	-	-
	132KV GSS New Jamrud)				
	-	132KV GSS Ghallani	-	-	-
	-	132KV GSS Bajaur	-	-	-
	-	-	132KV GSS Wana	-	-
	-	-	-	132KV GSS Parachinar	-
	-	-	-	-	132 kV GSS Shahkas
	-	-	-	-	132 kV GSS Warsak
Revamping of PDC	Phase-I		Phase-II	-	Phase-III

Upgrading grid stations with a SCADA (Supervisory Control and Data Acquisition) system offers multiple advantages. It enables automatic data acquisition, reducing the errors associated with manual data collection, and establishes centralized control and monitoring across all grid stations. This upgrade will alleviate the burden on grid staff by eliminating the need for manual, hourly data recording, thereby streamlining operations and enhancing the overall efficiency and monitoring of TESCO’s grid system. TESCO plans to install SCADA systems at nine grid stations during the control period from FY 2025-26 to 2029-30, subject to internet availability in the respective areas.

6.7 Investment for HR Improvement:

TESCO is committed to the continuous improvement of its workforce comprising of both Management & Non-Management Staff through various mediums such as Physical Trainings (covering both Behavioural & Skill Requirements), E-Learns, Affiliation Programs with Leading Universities & Technical Training Programs. TESCO also plans to partner with leading universities of Pakistan for providing training to its Managerial staff to cope with prevailing challenges. Furthermore, we also have a dedicated facility named which is equipped with state-of-the-art facilities tools for providing training to its managerial and non-managerial staff regularly.

In addition to above, TESCO also plans to undertake various initiatives for Improving the Work Environment such as enhancing the inclusivity of various employees in the work force through Gender Diversity & Disability Confidence initiatives and their subsequent retention and development policies. These initiatives also include initiatives for the physical well being of the employees such as provision of OPD & IPD health coverage for employees and their dependents.

6.7.1 Investment for HR Improvement: (Best Case)

Item	Description	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	Revamping of training Centres	Addition of 01 No classroom & construction of hostel	0	Providing of IT Tools	0	Renovation of TTC
2	Human Resources Information system implementation	HRIS, Phase-I	0	HRIS, Phase-II	0	0
3	IT infrastructure to support new initiatives	0	0	0	Multimedia, Laptop, Training misc. gadgets	0

6.7.2 Investment for HR Improvement: (Optimal Case)

Item	Description	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	Revamping of training Centres	Addition of 01 No classroom & construction of hostel	-	Providing of IT Tools	-	Renovation of TTC
2	Human Resources Information system implementation	HRIS, Phase-I	-	-	HRIS, Phase-II	-
3	IT infrastructure to support new initiatives	-	-	-	Multimedia, Laptop, Training misc. gadgets	-

6.8 Vehicle Plan:

6.8.1 Vehicle Best Plan:

S.No	Description		Year			
1	**Vehicles**	**Unit**	**2025-26**	**2026-27**	**2027-28**	**2028-29**
	a. Heavy Vehicles	Nos	0	0	0	0
	b. Light Vehicles	Nos	0	3	0	8
	c. Cars	Nos	0	0	0	0
	d. Bucket Mounted Trucks	Nos	0	1	0	1
	Sub Total	**Nos**	**0**	**4**	**0**	**9**

6.8.2 Vehicle Optimal Plan:

Description	Unit	Quantities			
Vehicles		**2025-26**	**2026-27**	**2027-28**	**2028-29**
a. Heavy Vehicles	Nos	0	0	0	0
b. Light Vehicles	Nos	0	3	0	3
c. Cars	Nos	3	0	0	0
d. Bucket Mounted Trucks	Nos	0	0	3	1
Sub Total	Nos	3	3	3	4

6.9 IT Plan:

	Finance/ IT Plan.	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	Development of website.	Continues Upgradation				
2	Development of complaint portal.	10	6			
3	Development of e-office.		Phase-I		Phase-II	
4	Development of management information system.	Already Developed and will be continuously improved				
5	Implementation of ERP system.		**Phase-II**		**Phase-III**	
6	Development of Advance Billing system.			**Phase-I**		**Phase-II**
7	Development of prepaid electricity system.			**Phase-I**		**Phase-II**

6.10 Other Operational Plans:

6.10.1 HR Operational Improvement Plan:

TESCO plans to collaborate with a leading University or Training institute for training of its managerial staff to cope with prevailing challenges effectively & efficiently.

a) Best Case

Human Resource Improvement Plan (Best Case)						
S.No	Human Resource Improvement Plan	**MYT (NEPRA Business Plan)**				
		2025-26	**2026-27**	**2027-28**	**2028-29**	**2029-30**
1	Training of employee through external training institution	30	30	30	30	30
2	Conducting The yard stick study	Yes	Yes	Yes	Yes	Yes
3	others etc..					

b) Optimal Case

Human Resource Improvement Plan (Optimal Case)						
S.No	Human Resource Improvement Plan	**MYT (NEPRA Business Plan)**				
		2025-26	**2026-27**	**2027-28**	**2028-29**	**2029-30**
1	Training of employee through external training institution	11	20	20	20	20
2	Conducting The yard stick study	Yes	Yes	Yes	Yes	Yes
3	others etc..					

6.10.2 Distribution Operational Plan

TESCO projects the following Annual Recurring operational activities with improvement in some areas.

S. No	Description	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	AMI Metering	115	115	125	140	140
2	AMR Metering	200	200	240	240	250
3	Digital Metering	800	950	1100	1300	1400
4	New CIS System	0	Phase-I	Phase-I	0	Phase-II
5	Hazard Points Removal	175	175	200	200	230
6	MMR For Meter Reading (Accuracy)	100	100	100	100	100
7	HHU for Meter Reading	20	20	20	30	30
8	Anti-theft efforts	200	300	300	350	350
9	Other etc.	-	-	-	-	-

6.10.3 Operational Plan of Secondary Transmission & Grids System:

a) Rehabilitation of STG System:

Transmission Lines Rehabilitation (Quantity)								
Sr. No	DESCRIPTION	UNIT	QTY	Cost (Millions Rs) Approx.				
				2025-26	2026-27	2027-28	2028-29	2029-30
1	Total Braces required	Kg	280000	50,000	50,000	60,000	60,000	60,000
2	Nuts & Bolts required	No	515,000	91,000	91,000	111,000	111,000	111,000
3	Total Towers to be Rehabilitated	No	400	74	74	84	84	84

Transmission Lines Rehabilitation:

Timely rehabilitation of transmission lines and towers is essential for ensuring grid reliability and preventing outages. Over time, transmission towers can lose structural components such as braces, increasing the risk of collapse, which can lead to prolonged power outages affecting large areas. Re-erecting collapsed towers can take several days, causing significant disruption to consumers. Regular patrolling of transmission line circuits is necessary to identify and fix missing nuts, bolts, and braces. Proper rehabilitation not only enhances structural integrity but also reduces transmission losses and improves system efficiency. TESCO plans to rehabilitate 400 transmission towers during the control period from FY 2025-26 to 2029-30 to strengthen the power network.

b) Material for Transmission Lines Fault Rectification:

S. No	DESCRIPTION	UNIT	2025-26	2026-27	2027-28	2028-29	2029-30
1	S.B.D For Lynx	No	40	40	40	40	40
2	Tension Fitting for Earth Wire	Set	40	40	40	40	40
3	Suspension fitting for Earth Wire	No	40	40	40	40	40
4	Mid Spain Joint for Earth Wire	No	40	40	40	40	40

5	S.B.D For Earth Wire	No	20	20	20	20	20
6	Grounding Set	Set	40	40	40	40	40
7	Disc Insulators 80 KN	No	240	240	240	240	240
8	Disc Insulators 100 KN	No	240	240	240	240	240
9	Dog Conductor	KM	8	8	8	8	8
10	Lynx Conductor	KM	6	6	6	6	6
11	PG T-200	No	100	100	100	100	100

c) TOOLS & EQUIPMENT FOR MAINTENANCE STAFF:

TESCO plans to invest 72 million PKR over the control period to purchase essential tools and equipment for its Maintenance and Protection & Instrumentation departments. This acquisition is critical for ensuring the reliability and efficiency of the grid infrastructure. Proper maintenance tools are necessary for timely inspections, repairs, and upkeep of the electrical network, helping to prevent unexpected outages and equipment failures. Additionally, advanced protection and instrumentation equipment will enhance the grid's ability to detect and respond to faults, improving overall system safety and performance. This investment will enable TESCO to maintain high operational standards and ensure a stable and reliable power supply to its consumers.

Sr.	Description	Year				
		2025-26	2026-27	2027-28	2028-29	2029-30
1	IR Set	_	1	_	1	1
2	Clamp On Meter	2	2	2	2	2
3	SF6 Leakage Detector	_	1	_	_	1
4	DES Test Set	1	_	_	_	1
5	Thermo Vision	_	1	_	1	_
6	Contact Resistance Test Set	1	_	1	_	1
10	Vacuum Integrity Test Set (VIDAR)	0	0	1	0	0
11	Battery Capacity Test Set	0	0	1	0	0
12	Battery Impedance Test Set	0.188	0	0	1	0
13	DC Hi-Pot Test Set	0.11	0	0	1	0

d) Material to Attend Emergencies:

Material To Attend Emergencies at GSS								
Sr.	Description	Unit	Qty	Quantity				
				2025-26	2026-27	2027-28	2028-29	2029-30
1	132KV Circuit Breaker	No	2	1	0	0	1	0
2	11 KV Incoming Panel (40 MVA)	No	5	2	0	2	1	0
3	11 KV Incoming Panel (20/26 MVA)	No	5	1	1	1	1	1
4	11 KV Outgoing Panel 25KV, 630A	No	5	1	1	1	1	1
5	132 KV CT	No	2	1	0	1	0	0
6	132 KV PT	No	2	0	1	0	1	0
7	11 KV CT 400/5	No	25	4	5	7	6	5
8	11 KV CT 800-1600/5	No	10	2	2	3	2	5
9	11 KV CT 1600-2400/5	No	10	2	3	4	2	5
10	11 KV PT 11000/110V	No	5	1	1	1	1	1
11	Line Isolator	No	5	1	1	1	1	1
12	Bus Isolator	No	5	1	1	1	1	1
13	132 KV Lightening Arrestor	No	5	1	1	1	1	1
14	11 KV Lightening Arrestor	No	15	3	3	3	3	3
15	D-Hydration Plant 10000 Liters	No	0	-	_	_	_	0
16	Rectifiers (Electroways)	No	1	0	0	1	0	0
17	Pad Mounted T/F 200KVA	No	2	_	1	_	1	1
18	1000 MCM Cable	KM	1	0	1	0	_	1

e) Internal Communication Improvement Plan:

TESCO recognizes that enhancing internal communication is a critical step before improving external engagement with stakeholders such as consumers and the community. To streamline communication among staff, TESCO plans to invest in key infrastructure, including email systems and telephonic communication tools. The introduction of a centralized mail server, scanners, and smartphones for officers will enable faster and more reliable communication, promoting efficient decision-making and problem-solving. These upgrades are scheduled to take place during the first year of the business plan's implementation, laying the foundation for improved internal coordination.

Externally, TESCO aims to strengthen its public communication and outreach efforts by enhancing its Public Relations (PR) and Customer Services departments. A comprehensive mass media

campaign will be developed to educate consumers on energy conservation and the timely payment of bills. Public outreach programs will target various segments of the community, including schools, industries, and farmers, through seminars, media campaigns, and direct engagement. By increasing consumer awareness and fostering positive relationships, TESCO seeks to build a better brand image as a progressive and customer-centric power distribution company.

TESCO also plans to implement additional initiatives to engage both its employees and the public. An annual Employee Recognition Event will be held to acknowledge high-performing staff, boosting morale and fostering a positive organizational culture. The company will further launch a monthly newsletter to update employees and the public on its achievements, events, and consumer feedback. These efforts, combined with the introduction of internal communication tools and public outreach activities, will help TESCO achieve its long-term goals of improving operational efficiency and enhancing its relationship with consumers.

7 CHAPTER -7: PROJECTS AND PROGRAMS-COSTING

7.1 Executive Summary of Cost

As per the requirement of NEPRA TESCO presents two plans (Best & Optimal case) for the control period of Five Years. The overview of both cases is here as follows:

PKR in Million

Total Investment						
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
Best Case	9,006.60	6,678.94	2,648.84	3,812.66	3,813.38	25,960.42
Optimal	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

7.2 Best Case:

7.2.1 Overview of Best Case:

TESCO under the Best Plan is proposing an investment of 25,960.42 million over the control period of Five Years. The detailed breakup of Best Case is summarized here as follows.

PKR in Million

Total Capex Expenses (Best Case)						
Department	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
HR	15.40	0.00	35.80	1.60	2.60	55.40
Construction Division	1,377.00	1,106.99	1,228.54	1,258.83	1,358.83	6,330.20
Grid Construction	5,539.24	3,300.35	1,057.39	1,965.58	1,784.11	13,646.67
SS&TL	307.2	585.2	315.1	564.65	649.3475	2,421.50
Vehicles	19.80	12.60	12.00	22.00	18.50	84.90
APMS	1,268.17	1,344.00	0.00	0.00	0.00	2,612.17
TESCO House	479.79	329.80	0.00	0.00	0.00	809.59
Total	9,006.60	6,678.94	2,648.84	3,812.66	3,813.38	25,960.42

As discussed earlier, TESCO has two investment scenarios: the Best-Case Scenario and the Optimally Achievable Scenario. Under the Best-Case Scenario, TESCO would invest approximately 26 billion PKR over the five-year control period from FY 2025-26 to 2029-30, allowing the company to meet NEPRA standards within five years. However, this scenario comes with a higher cost.

In contrast, the Optimally Achievable Scenario, which is based on what TESCO can realistically fund, procure, and implement, requires a lower investment of 14,229 million PKR over the same period. Although this scenario involves some compromises on performance, it is more feasible given the company's funding and financing constraints.

Therefore, TESCO's focus is on the Optimally Achievable Scenario, planning to invest a total of 14,229.27 million PKR over the five-year period.

7.2.2 Financing (Best Case):

Overview of Financing of Best Case:

TESCO, under the best case expects the following mode of financing for its projects to be executed during the control period.

PKR in Million

Total Expenses (Best Case)						
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
Own Sources	2,403.31	2,645.25	950.83	2,737.66	1,129.27	9,866.33
Funded	6,603.29	4,033.69	1,698.00	1,075.00	2,684.11	16,094.08
Total Expenses (Best Case)	9,006.60	6,678.94	2,648.84	3,812.66	3,813.38	25,960.42

7.2.3 Details of STG Investment Plan (Best Case)

The details of the breakup of the cost of STG plan for the control period of this business plan is here as follows:

Table: Cost Estimate of 132 kV Network TESCO (BEST CASE)

PKR in Million

S/No.	Description	FY					Total (Million Rs)
		2025-26	2026-27	2027-28	2028-29	2029-30	
1	Grid Stations (New, Conv.)	1081.564	1580.973	505.004	880.582	880.582	**4928.705**
3	Transmission Lines	4405.511	1667.216	493	1085	903.523	**8554.25**
4	132 kV Capacitors	0	0	42	0	0	**42**
5	11 kV Capacitors	52.16	52.16	17.39	0	0	**121.71**
Total (Million Rs.)		**5,539.24**	**3,300.35**	**1,057.39**	**1,965.58**	**1,784.11**	**13,646.67**

7.2.4 Financing Plan STG Investment (Best Case):

The main sources of financing are of two categories, Funded projects to be funded by Provincial Govt through ADP/AIIP schemes or by engaging donor agencies like USAID, UNDP. While the rest of the projects will be executed by TESCO through its own sources allowed by NEPRA through RORB.

PKR in Million

S/No.	Description	2025-26	2026-27	2027-28	2028-29	2029-30	Total
1	Funded	4,655.12	2,089.69	998.00	275.00	1,784.11	9,801.91
2	Own Sources	884.12	1,210.66	59.39	1,690.58	-	3,844.75
Total		5,539.24	3,300.35	1,057.39	1,965.58	1,784.11	13,646.67

7.3 Total Cost Optimally Achievable Case:

TESCO plans to achieve Transmission enhancement by 304 MVA, to meet the growing demand through augmentation in existing grid stations and addition of new 132kV grid stations in network.

To improve the reliability & stability of transmission network, TESCO will also add One Power Transformer at 132 kV GSS Bajaur, through augmentation in existing grid stations, addition of three new 132 kV grid stations and associated transmission lines which will increase TESCO current transformation capacity by 304 MVA. The project-wise summary of investment is here as follows.

PKR in Million

Total Expenses Breakup (Optimal Case)						
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
Growth	1,259.40	503.50	1,413.26	758.83	1,325.64	5,260.63
Maintenance, rain & other emergencies	46.56	59.67	46.26	258.26	281.18	691.94
N-1/N-2 Contingency	255.17	955.20	51.99	822.98	0.00	2,085.34
NPCC Constraints/HPP Interconnection	500.35	750.53	0.00	0.00	0.00	1,250.88
Reliability, stability & loss reduction	65.67	43.78	783.11	1,029.59	688.50	2,610.64
PESCO Wheeling Charges/MDI reduction & Grids interlocking	463.73	253.50	568.12	55.00	435.26	1,775.61
IT & Other Interventions	6.49	21.64	29.76	35.17	43.28	136.33
TESCO House	150.00	150.00	0.00	0.00	0.00	300.00
Others	22.80	22.40	19.60	30.60	22.50	117.90
Total Expenses	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

Due to upcoming demand as well as the meeting current demand unmet due to loadshedding, TESCO will invest a total of 5,260 million in the upgradation of its infrastructure.

Also, currently there is no grid oof TESCO with having an N-1 contingency. Meeting the N-1 contingency is NEPRA requirement under the Performance Standards Distribution Rules as well as Grid code approved by NEPRA. Under an investment of 2085 Million, 12 out of twenty grids of TESCO will be having N-1 contingency as well as 5 grids will be having N-2 contingency. All-important grids feeding industrial load will be having N-1 as well as N-2 contingency over the control period of this investment.

TESCO currently relies heavily on the PESCO Network, with over 70% of its power supplied through PESCO network, resulting in significant wheeling charges. To address this dependency and reduce our cost of doing business, TESCO's investment plan focuses on segregation of its network by connecting directly with NTDC upcoming grids, hydel power plants as well as shifting of load from PESCO grids to TESCO grids. This plan aims to decrease reliance on the PESCO network, lower operational expenses, and provide a more sustainable and reliable energy supply for consumers. It will also be helpful in reducing Use of system charges for Bulk Power Consumers in operationalization of CTBCM market. Through this business plan will decrease wheeling charges of PESCO by 40% by the end of control period of this plan.

7.3.1 Project-wise Breakup:

The main responsible for the execution of this investment plan is Grid Construction division. Grid construction division is fully capable & operationalized department with all the necessary tools & workforce for its execution.

Project-wise breakup of investment is here as:

PKR in Million

Total Capex Expenses (Optimal Case)						
Department	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
HR	3.00	9.80	7.60	8.60	4.00	33.00
DOP	897.00	756.99	828.54	758.83	758.83	4,000.20
STG	1,647.31	1,749.50	1,987.94	1,907.57	1,690.58	8,982.90
Reliability, stability & loss reduction	46.56	59.67	46.26	258.26	281.18	691.94
Vehicles	19.80	12.60	12.00	22.00	18.50	84.90
IT & Other Interventions	6.49	21.64	29.76	35.17	43.28	136.33
TESCO House	150.00	150.00	0.00	0.00	0.00	300.00
Total	2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

The growth projects included are the upcoming 132 kV Shahkas, Dara Adam Khel Grids and addition of one Transformer in 132 kV Bajaur Grids for feeding Industrial and commercial centres in the corresponding areas. Apart from the grids, the DOP projects related to growth included 27 new 11 kV distribution feeders, extension of existing feeders as well as bifurcation & reconductoring.

7.3.2 Details of Investment Plan (Optimal Case)

PKR in Million

S/No.	Description	FY					Total (Million Rs)
		2025-26	2026-27	2027-28	2028-29	2029-30	
1	Grid Stations (New, Conv.)	576.124	0	503.529	0	**880.582**	**1960.235**
2	Extension/Addition	250	0	0	0	0	**250**
3	Transmission Lines	755.5246	1705.723	1387.688	1907.568	810	**6566.504**
4	132 kV Capacitors	0	0	42	0	0	**42**
5	11 kV Capacitors	65.67	43.78	54.72	0	0	**164.16**
6	Conversion of Iso Bays to Line Bays	0	0	0	0	0	**0**
Total (Million Rs.)		**1647.314**	**1749.501**	**1987.938**	**1907.568**	**1690.582**	**8982.90323**

Transmission investment planning is based on the following key assumptions:

- Grid wise forecasted demand.
- Power Transformers planning is designed on load of 85%. This is done to ensure optimum utilization of resources and least cost for consumers, while ensuring reliability of transmission network.
- Augmentation of extended load on existing grid stations where technically possible.
- Installation of current limiting reactor at one location for managing short circuit.

Based on the above-mentioned key assumptions following will be added to TESCO transmission network:

- 3 new 132 kV Grid stations with associated transmission lines and power transformers
- 1 Power Transformers along with peripherals at existing grids
- 245.15 KM lengthy circuits of 132kV transmission lines.

7.3.3 Financing Plan of Optimal Case:

7.3.3.1 Overview of Financing:

TESCO will finance the investment under the Optimal Case mainly under two heads. One funded by Provincial Govt as part of ADP scheme.
The year-wise summary is here as follows:

PKR in Million

S/No.	Description	2025-26	2026-27	2027-28	2028-29	2029-30	Total
1	Funded	1,178.9	750.5	1,195.7	1,304.6	880.6	5310.3
2	Own Sources	468.4	999.0	792.2	603.0	810.0	3,672.6
Total		**1647.31**	**1749.50**	**1987.94**	**1907.57**	**1690.58**	**8982.9**

7.3.3.2 Breakup of Financing under different Heads:

A detailed breakup of financing under the different heads are here as follows:

PKR in Million

Description	Financing	2025-26	2026-27	2027-28	2028-29	2029-30	Total
STG	Funded	1,178.92	750.53	1,195.70	1,304.59	880.58	5,310.32
STG	Own Sources	468.39	998.97	792.24	602.98	810.00	3,672.59
DOP	Funded	200.00	250.00	300.00	300.00	300.00	1,350.00
DOP	Own Sources	697.00	506.99	528.54	458.83	458.83	2,650.20
IT & Other	Own Sources	6.49	21.64	29.76	35.17	43.28	136.33
TESCO House	Own Sources	150.00	150.00	0.00	0.00	0.00	300.00
Others	Own Sources	69.36	82.07	65.86	288.86	303.68	809.84
Total		2,770.17	2,760.20	2,912.10	2,990.42	2,796.37	14,229.27

7.4 DOP Costing:

TESCO wants to invest a total of 4,000 million for the control period of five year in the development of its distribution system.

The breakup of DOP costing is here as follows:

Costing in Rs.					
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**
11 KV Panel Out Going	17,600,000	19,800,000	26,400,000	26,400,000	25,400,000
H.T Structure 45 Feet	254,950,000	196,000,000	216,000,000	201,000,000	201,000,000
H.T Structure 58 Feet	105,000,000	75,000,000	67,500,000	52,500,000	64,500,000
H.T Structure 36 Feet	51,750,000	46,945,000	51,200,000	43,400,000	43,200,000
ACSR Dog 7/186	60,125,220	50,646,350	55,646,350	42,646,350	42,646,350
Steel X-Arm	23,940,000	19,850,000	23,950,000	16,850,000	16,850,000
25/11 KV Transformer	66,26,880	1,035,450	8,283,600	4,141,800	4,141,800
50/11 KV Transformer	19,635,200	19,635,200	9,817,600	9,817,600	19,635,200
100/11 KV Transformer	31,860,000	48,418,000	31,860,000	72,627,000	47,790,000
200/11 KV Transformer	1,416,000	-	-	-	-
Others Material Cost	103,000,000	87,000,000	128,650,000	92,450,000	96,670,000
Total	669,276,420	564,330,000	619,307,550	561,832,750	561,833,350
Installation charges	174,011,869.20	146,725,800.00	161,019,963.00	146,076,515.00	146,076,671.00
2% Charges	3,480,237.38	2,934,516.00	3,220,399.26	2,921,530.30	2,921,533.42
Transportation Charges	50,000,000	43,000,000	45,000,000	48,000,000	48,000,000
Grand Total	**896,768,527**	**756,990,316**	**828,547,912**	**758,830,795**	**758,831,554**

7.5 Investment For Reliability of Supply Improvement:

7.5.1 Overview of Investment for Reliability:

TESCO plans to invest around 828 million over the control period of five years for the improvement of reliability of supply of power and upgradation of its system as well as automation of grids through installation of SCADA and revamping of Power Distribution Centre.

Summary of Costs (Million Rs) Approx.							
Sr.	**Description**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total Cost (M Rs)**
1	Earthing System for Grid Substations	10	20	10	15	0	**55**
2	Protection System for Grid Substations	15.56	12.67	15.26	15.56	13.18	**72.236783**
3	Protection Walls between Power Transformers	10.5	14	7	14	7	**52.5**
4	Cable Trenches in Grid Substations	4.5	4	2	4.7	5	**20.2**
5	Pre-Fabricated Trenches Cover in Switchyards at Grids	6	9	12	9	6	**42**
18	Power Transformer for Emergencies	0	0	0	200	250	**450**
6	SCADA & Other IT Interventions	6.49	21.64	29.76	35.17	43.28	136.33
Total		53.05	81.31	76.02	293.43	324.46	828.27

7.5.2 SCADA & Other IT Interventions Breakup Cost:

A detailed breakup of SCADA and deployment of other technologies for Automation is summarized here as follows:

S.No	Main Component	Description	Unit	Quantity	Price/Unit	Cost (PKR)
1	SCADA Software & Licensing	SCADA Software License (based on nodes/tags)	No.	1	5,000,000	5,000,000
		HMI License	No.	1	1,500,000	1,500,000
		Annual Maintenance & Support	PKR	1	300,000	300,000
		Compatibility with Existing LDIP Meters	-.	1	2,000,000	2,000,000
2	RTU (Remote Terminal Units)	RTU Hardware (per unit, varies by configuration)	No.	29	700,000	20,300,000
		RTU Installation and Commissioning	No.	29	400,000	11,600,000
3	PLC	PLC Hardware and Software	No.	29	1,000,000	29,000,000
		PLC Configuration & Programming	No.	29	300,000	8,700,000
4	Communication System	Communication Cables, Routers, Switches	No.	9	200,000	1,800,000
		Installation of Communication System	No.	9	100,000	900,000
5	Servers & Workstations	SCADA Server	No.	1	2,550,000	2,550,000
		Workstations (Operator Consoles)	No.	3	500,000	1,500,000
6	Data Acquisition System	Sensors, Transducers, and Meters (Where Applicable)	No.	170	200,000	34,000,000
		Data Acquisition System Installation	No.	170	50,000	8,500,000
7	Power Backup System	UPS and Power Backup Solutions	No.	1	700,000	700,000
		Installation of Power Backup Systems	No.	1	50,000	50,000
8	Testing & Commissioning	On-site Testing and Commissioning of SCADA System	-	1	500,000	500,000
	Training & Documentation	Operator Training and Technical Documentation	-	1	300,000	300,000
10	Training & Documentation	Operator Training and Technical Documentation	-	1	300,000	300,000
Sub Total						130,000,000
11	Miscellaneous	Miscellaneous Equipment, Contingency Costs	Lump Sum	1	2%	2,600,000
12	Engineering & Design	System Design & Engineering Services	Lump Sum	1	2%	2,652,000
Grand Total						**135,252,000**

7.6 HR Plan Costing:

7.6.1 HR Improvement Cost (Best Case):

PKR in Million

Item	Description	MYT (NEPRA Business Plan)				
		FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	Revamping of training Centres	3.4	0	5.8	1.6	2.6
2	HRIS implementation	12	0	30	0	0
3	IT infrastructure to support new initiatives	0	0	0	1.7	0

7.6.2 HR Improvement Cost (Optimal Case):

PKR in Million

Item	Description	MYT (NEPRA Business Plan)				
		FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
1	Revamping of training Centres	-	5.80	1.60	2.60	-
2	Human Resources Information system implementation	3.00	4.00	6.00	6.00	4
3	IT infrastructure to support new initiatives	-	-	-	1.70	-

7.7 Vehicles Costing:

PKR in Million

Description	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30	Total
Vehicles (Best Case)	19.80	12.60	12.00	22.00	18.50	84.90
Vehicles (Optimum Case)	19.80	12.60	12.00	22.00	18.50	84.90

7.8 Summary of Annual Recurring Cost:

7.8.1 Summary of Repair & Maintenance Cost under the best Case:

TESCO projects an 1830 million expense for its Repair & Maintenance under the best case.

The summary of R&M for control period of five years is here as follows

PKR in Million

Total Opex Expenses (Repair & Maintenance)					
Department	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**
HR	11.00	14.00	16.00	18.00	18.00
11 kV R&M	92.00	103.50	119.03	136.88	143.72
Safety	8.5	8.9	8.3	8	8.2
P&E	0.5	0	4.34	4.34	0
STG R&M	241.47	197.05	235.30	201.79	232.06
Total	342.47	309.45	366.96	351.01	383.98

7.8.2 R&M as %age of Net Fixed Assets:

TESCO still has one of the lowest R&M costs as percentage of its Net Fixed Assets among all DISCOs despite its dilapidated network and difficult terrain apart from sabotage activities due to law & order situation. TESCO projects to decrease its R&M cost as percentage of Net Fixed Assets because of revamping and rehabilitation of its existing infrastructure.

The summary of R&M cost as %age of its Net Fixed Assets is here as follows:

PKR in Million

R&M as %age of Net Fixed Assets (Best Case)					
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**
Net Fixed Assets	20,879	26,327	27,652	30,008	32,231
Repair & Maintenance	353.47	323.45	382.96	369.01	401.98
R&M as %age of Net Fixed Assets	1.69%	1.23%	1.38%	1.23%	1.25%

7.8.3 Summary of Repair & Maintenance Cost under the Optimal Case:

TESCO projects a 1283 million expense for its Repair & Maintenance under the Optimal case.

The summary of R&M for control period of five years is here as follows:

PKR in Million

Total Opex Expenses (Repair & Maintenance)					
Department	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**
HR	11.00	14.00	16.00	18.00	18.00
Operation Improvement	52.00	59.80	71.76	75.35	82.88
Safety Plan	8.50	8.90	8.30	8.00	8.20
P&E	0.50	0.00	4.34	4.34	0.00
STG Operation & Rehabilitation	145.15	158.34	155.95	169.35	184.96
Total	217.15	241.04	256.35	275.03	294.04

7.8.4 R&M as %age of Net Fixed Assets:

TESCO still has one of the lowest R&M costs as percentage of its Net Fixed Assets among all DISCOs despite its dilapidated network and difficult terrain apart from sabotage activities due to law & order situation. TESCO projects to decrease its R&M cost as percentage of Net Fixed Assets because of revamping and rehabilitation of its existing infrastructure.

The summary of R&M cost as %age of its Net Fixed Assets is here as follows:

PKR in Million

TESCO Repair & Maintenance (Optimal Case)					
Description	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**
Net Fixed Assets	17,264.00	20,522.00	22,436.00	24,477.00	25,506.00
Repair & Maintenance	217.15	241.04	256.35	275.03	294.04
R&M as %age of Net Fixed Assets	1.26%	1.17%	1.14%	1.12%	1.15%

8 CHAPTER 8: BENEFITS AND FINANCIAL ANALYSIS

8.1 Expansion And Rehabilitation of Transmission & Distribution System

TESCO plans to achieve Transmission enhancement by 304 MVA, to meet the growing demand through augmentation in existing grid stations and addition of new 132kV grid stations in network. To improve the reliability & stability of transmission network, TESCO will also add One Power Transformer at 132 kV GSS Bajaur, through augmentation in existing grid stations, addition of three new 132 kV grid stations and associated transmission lines which will increase TESCO current transformation capacity by 304 MVA.

The Company expects three main direct benefits over the control period of this investment. Catering for the upcoming growth due to improvement in reliability, additional sales as well as reduction in Use of System Charges by Segregating its T&D system from PESCO System.

8.2 System Improvement / Reliability

These projects are required to upkeep and reinforce the existing network for ensuring reliability and stability of the power system. Further, new SMART technologies have also been opted for improving efficiency and operational excellence along with the projects required for adhering the technical limits, as per Grid Code, which includes network augmentation for maintaining N-1 contingency, system security and safety standards.

Following major activities are planned to enhance the system in this control period i.e., FY2025-26 to 2029-30:

- Overhauling of AIS bays
- Addition of Power Transformers and allied equipment
- Replacement of relays and allied equipment
- Installation and replacement of composite insulators
- Tower structures rehabilitation/ Transmission line allied equipment
- Underground cable replacement
- Rehabilitation of grid automation system/ Server through Implementation of SCADA

8.3 Reactive Power Management and Loss Reduction Projects

Installation of additional capacitor banks at existing 132kV Grid stations alongside capacitors at new 11 kV Feeders will provide following Benefits:

- compensation for VAR requirement of network / load canters which would also help managing the power factor / quality as per the grid code / prudent utility practices and optimization of transmission losses.

In addition to the above benefits, the proposed investment plan will also assist in improvement in the following areas:

- Improvement in SAIFI & SAIDI by **12%**
- Maintaining Transmission loss at **1.5% &** Distribution Loss at **7.39 %**
- Increase in capacity by **304 MVAs**

8.4 N-1 Contingency:

Through this business plan 14 out of our 22 grids will have N-1 contingency, a long pending regulatory compulsion. It will greatly ensure our continuous power supply and reduce our probability of failure as well as ensure our sales during any eventualities. Also, through this business plan we prioritized those grids which have industrial consumers, as currently industrial consumers are our main cash cows

8.5 Other Tangible Benefits:

8.6 Best Case Benefits Summary:

8.6.1 Capacity Addition:

Through This Investment TESCO is expecting a Capacity Addition of 500 MVA under the best-case scenario and 304 MVA under the optimal case scenario.
The breakup of year-wise Capacity addition under the best-case scenario is here as follows.

Year	Yearly MVA Addition	Cumulative MVA addition
2025-26	132	132
2026-27	184	316
2027-28	132	448
2028-29	0	448
2029-30	52	500
Total	500	500

8.6.2 Growth Impact:

Additional Sales expected due to investment under the head of Best Case. Additional sales of 658 GWh are expected over the horizon of control period of this business plan.

The Table here shows year-wise additional sales expected for the next five years:

Year	Sales Increase due to Reliability/N-1 (GWh)	Cumulative Sales due to N-1/Reliability (GWh)	Sales due to Capacity addition (GWh)	Cumulative Sales (GWh)	Total Sales (GWh)
2025-26	10.03	10.03	212.93	212.93	222.96
2026-27	6.47	16.50	250.33	463.26	479.76
2027-28	5.71	22.21	125.66	588.92	611.13
2028-29	0.00	22.21	0.00	588.92	611.13
2029-30	0.00	22.21	47.19	636.11	658.31
Total	22.21	22.21	636.11	636.11	658.31

TESCO also expects an additional sale of 658 GWh through this investment through development of power and electrification of bazaars & providing electricity to industries. Through investment under

the head of N-1/N-2 Contingency TESCO will be able to ensure uninterrupted power supply to already serving industries.

8.6.3 Revenue Impact:

The impact due to catering growth of sales is here as follows:

Year	Increase in Revenue due to N-1 Contingency	Increase in revenue due to additional sales	Total Revenue Impact
	(Million PKR)	(Million PKR)	(Million)
2025-26	807.2	10,494.67	11,301.87
2026-27	1,033.49	19,256.07	20,289.56
2027-28	1,233.37	23,654.25	24,887.62
2028-29	1,233.37	23,654.25	24,887.62
2029-30	1,233.37	25,305.75	26,539.12

8.6.4 Wheeling Charges Impact:

TESCO is also expecting a decrease in liability of Wheeling Charges to be paid to PESCO.

Year	Impact on UoSc (kWh)	Cumulative Units (kWh)	Savings due to UoSC (Million PKR)
2025-26	74,087,063.00	74,087,063.00	204.17
2026-27	0	74,087,063.00	204.17
2027-28	155,290,643.00	229,377,706.00	401.44
2028-29	0	229,377,706.00	401.44
2029-30	14,632,330.00	244,010,036.00	423.17
Total	0	244,010,036.00	423.17

8.6.5 Overall Impact of Investment under Best Case Scenario:

An overall impact of 7.8 billion is expected over the control period of the investment plan. This is apart from other indirect benefits which TESCO is expecting through the implementation of this business plan.

The summary of overall impact is here as follows:

PKR in Million

Year	Financial Impact due to UoSC	Financial Impact due to N-1 Contingency	Financial Impact due to Growth	Other Savings/Income	Total Impact (PKR)
2025-26	204.17	23.82	505.72	0	733.71
2026-27	204.17	39.18	1,100.24	0	1343.59
2027-28	401.44	52.74	1,398.69	15.2	1868.07
2028-29	401.44	52.74	1,398.69	16.72	1869.59
2029-30	423.17	52.74	1,510.75	18.39	2005.052
Total	1,634.38	221.23	5,914.08	50.312	7,820.01

8.7 Optimally Achievable Case:

8.7.1 Capacity Addition

TESCO through Investment under the Optimum Case is expecting the following Transmission & Distribution Capacity. The year-wise breakup of Capacity Addition is here as:

Year	Yearly MVA Addition	Cumulative MVA addition
2025-26	**172**	**172**
2026-27	**0**	**172**
2027-28	**80**	**252**
2028-29	**0**	**252**
2029-30	**52**	**304**
Total	**304**	**304**

8.7.2 Sales Growth:

TESCO is making a strategic investment of PKR 5,260.63 million in its Transmission and Distribution network to enhance system expansion and reliability. This investment aims to support projected growth and ensure a continuous, reliable supply of electricity. Over the five-year control period, TESCO anticipates an increase in sales of 312 GWh, reflecting the positive impact of this substantial investment on operational efficiency and service delivery.

TESCO is also investing 2085.34 million for ensuring N-1/N-2 contingency of its grids (all important grids). Due to increase of the reliable supply TESCO will be able to increase its sales, by decreasing the probability of interruption of supply. Ensuring continues & reliable supply will also increase our sales.

An expected increase in sales is summarized here as over the control period of this investment.

Year	Sales due to N-1 Contingency (GWh)	Cumulative Sales (GWh)	Sales due to Capacity addition (GWh)	Cumulative Sales (GWh)	Total Sales (GWh)
2025-26	13.066	13.066	180.521	180.521	193.59
2026-27	1.663	14.729	32.412	212.933	227.66
2027-28	2.819	17.548	31.291	244.224	261.77
2028-29	3.401	20.948	0	244.224	265.17
2029-30	0	20.948	47.186	291.409	312.36
Total	20.948	87.239	291.409	1,173.31	1,352.36

8.7.3 Revenue Impact:

TESCO expects an increase in its revenue to increase in its sales. The revenue impact is forecasted at 95% recovery expected for the next five years.

A summary of expected increase is here as follows:

Year	Increase in Revenue due to Improvement in Reliability (Million PKR)	Increase in revenue due to additional sales (Million PKR)	Total Revenue Impact (Million PKR)
2025-26	434.444	6,002.32	6,436.76
2026-27	489.723	7,080.02	7,569.74
2027-28	583.462	8,120.43	8,703.90
2028-29	696.535	8,120.43	8,816.97
2029-30	696.535	9,689.36	10,385.89
Total	2,900.70	39,012.56	41,913.26

8.7.4 Total Financial Impact of Investment Plan:

Although the benefits of this investment will be long lasting because of nature of investment. Some projects will last for decades to follow. It will decrease TESCO cost of doing business and increase its efficiency, reliability and sustainability.

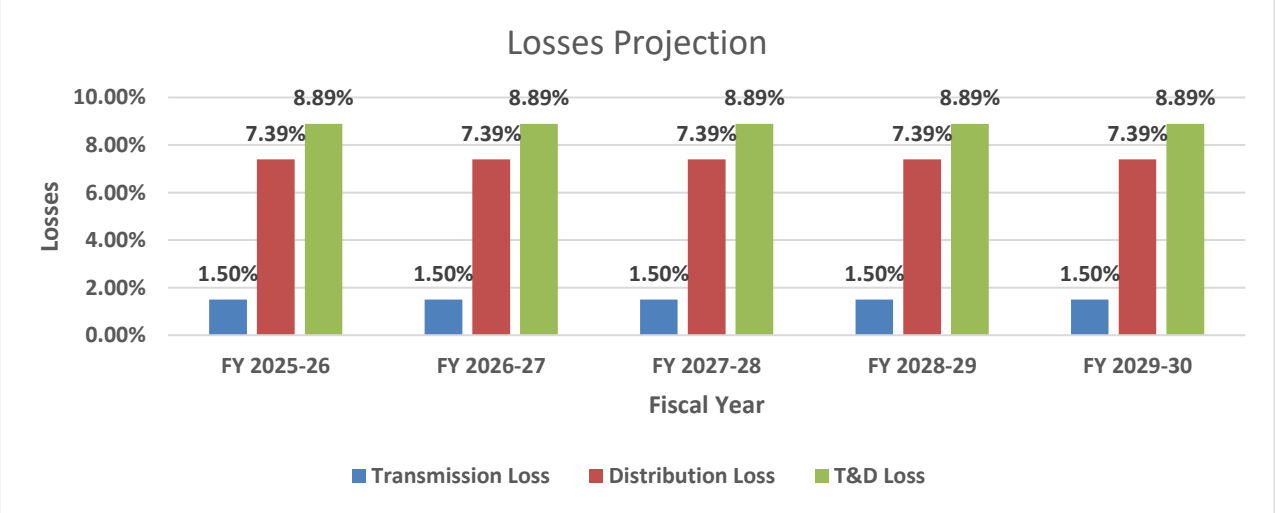
A short summary of expected benefits over the end of control period is here as follows:

Million PKR

Year	Financial Impact due to UoSC	Financial Impact due to N-1 Contingency	Financial Impact due to sales Growth	Other Savings/Income	Total Impact
2024-25	124.01	13.71	217.29	0.00	355.01
2025-26	266.26	50.29	668.59	0.00	985.14
2026-27	266.26	54.95	749.62	12.00	1,082.83
2027-28	379.94	62.84	827.85	13.20	1,283.83
2028-29	379.94	72.36	827.85	14.52	1,294.68
2029-30	404.22	72.36	945.81	15.97	1,438.37
Total	1,820.64	326.52	4,237.00	55.69	6,439.85

8.8 Loss Reduction and Collections Targets:

TESCO will maintain its losses at 9.89 % despite the expansion of its network and consumer base. TESCO has attained the collection efficiency of 92 % that will be improved up to 95 % during the control period.



This loss reduction will depend upon the policy of the federal and provincial government for the supply of power in former FATA Areas. It shall also be worth mentioning that the Meterization process for the domestic consumer will start after 2024-25 if the special status and current federal government policy will discontinue in former FATA Areas. Furthermore, the Meterization process will be a gradual process and if the federal government will not support the area after 2023-24 then losses will increase due to reduction in Pick Up FATA subsidy.

TESCO is also conducting a Technical Loss Study through a Third-Party Consultant. The contract of this study is awarded to a Joint Venture of Barqaab, PPI & OMS Consortium.

8.9 Area Electrification

The challenging terrain and prevailing law and order issues in the TESCO jurisdiction have significantly slowed the electrification process. Currently, only 61% of the area is electrified. Both the Government of Khyber Pakhtunkhwa (GoKP) and TESCO through its own sources will arrange funds for village electrification. With adequate funding and improved security, TESCO could electrify the remaining areas at an estimated rate of 1% per year. The expected benefits of full electrification include:

- Social upliftment of local communities
- Improved law and order
- Enhanced business opportunities and economic growth
- Increased local tourism

9 CHAPTER 09-FINANCIAL & SENSITIVE ANALYSIS

9.1 FINANCIAL ANALYSIS OF TESCO:

The financial analysis of TESCO's investment in its Transmission & Distribution network, totaling 14,229 million PKR under the optimal case over a five-year control period (FY 2025-26 to 2029-30), indicates a significant commitment to infrastructure development. This investment is likely aimed at enhancing operational efficiency, reducing outages, and meeting growing energy demands of industrial & commercial consumers. This capital investment is expected to impact TESCO's cash flows and increase its asset base, while potentially driving higher revenues in the long term. Financially, this could lead to improved revenue, returns on assets (ROA) and profitability, assuming the investment yields anticipated benefits. However, it also involves potential risks, including escalation prices, non-completion of projects on time, delayed approvals or reduced liquidity during the investment phase.

The summary of Power Purchase Analysis is here as follows:

Description	Units	Projected FY 2025-26			Projected FY 2026-27			Projected FY 2027-28			Projected FY 2028-29			Projected FY 2029-30		
		SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total
Units Received	GWh	1855	1855	1855	1900	1900	1900	1946	1946	1946	1991	1991	1991	2038	2038	2038
Units Sold	GWh	1690	1690	1690	1731	1731	1731	1773	1773	1773	1814	1814	1814	1857	1857	1857
Units Loss	GWh	165	165	165	169	169	169	173	173	173	177	177	177	181	181	181
Percentage Loss	%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%
Energy Charges	Mln. Rs.	16,673	0	16,673	18,790	0	18,790	21,177	0	21,177	23,866	0	23,866	26,897	0	26,897
Capacity Charges	Mln. Rs.	54,195	0	54,195	61,078	0	61,078	68,835	0	68,835	77,577	0	77,577	87,429	0	87,429
Transmission Charges	Mln. Rs.	4,513	0	4,513	5,086	0	5,086	5,731	0	5,731	6,459	0	6,459	7,280	0	7,280
Total Power Purchase	**Mln. Rs.**	**75,381**	**0**	**75,381**	**84,954**	**0**	**84,954**	**95,743**	**0**	**95,743**	**107,902**	**0**	**107,902**	**121,606**	**0**	**121,606**

9.2 IMPACT OF INVESTMENT ON DISTRIBUTION MARGIN

TESCO expects that its distribution margin will be impacted by the PKR 14,229 million investment in its Transmission & Distribution network under the Optimal Case. With an assumed 22% annual rise in salaries and pensions (subject to the government policy), and an around 11% annual increase in other expenses due to inflation and external factors, operating costs are expected to grow significantly. While the investment aims to enhance network efficiency and potentially increase revenue, the rising operational expenses could compress the distribution margin. Balancing these costs with improved efficiency and revenue growth will be critical for maintaining profitability and sustaining the investment's long-term benefits.

The following impact on Distribution Margin due to the Capital Investment under the Optimal Case is here as follows:

Rs in Million

Description	Projected FY 2025-26			Projected FY 2026-27			Projected FY 2027-28			Projected FY 2028-29			Projected FY 2029-30		
	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total
Pay & Allowances	361	1,445	1,806	453	1,812	2,265	568	2,273	2,841	713	2,850	3,563	894	3,575	4,468
Post-Retirement Benefits	130	519	649	149	597	746	172	686	858	197	789	986	227	908	1,134
New Hiring	6	24	30	10	41	51	12	48	59	0	0	0	0	0	0
Repair & Maintenance	41	165	206	45	182	227	48	192	240	51	206	257	55	221	276
Travelling Allowance	8	31	38	9	35	43	10	39	49	11	44	55	12	49	62
Vehicle Maintenance	8	32	39	9	36	44	10	40	50	11	45	56	13	51	64
Other Expenses	21	82	103	23	92	116	26	104	130	29	117	147	33	132	165
Total O & M Costs	574	2,297	2,871	698	2,794	3,492	845	3,382	4,227	1,013	4,051	5,064	1,234	4,936	6,170
Depreciation	39	740	779	44	832	875	49	928	977	54	1,028	1,082	59	1,121	1,180
RORB	0	987	987	0	1,036	1,036	0	1,062	1,062	0	1,038	1,038	0	1,005	1,005
Other Income	0	-736	-736	0	-782	-782	0	-845	-845	0	-911	-911	0	-960	-960
Wheeling Charges	0	1,035	1,035	0	1,139	1,139	0	1,252	1,252	0	1,378	1,378	0	1,515	1,515
Distribution Margin	613	4323	4936	742	5018	5761	894	5780	6674	1067	6585	7652	1293	7618	8911

9.3 IMPACT ON TOTAL REVENUE REQUIREMENT:

TESCO projects the following impact on Revenue Requirement over the control period of Five Years (From FY 2025-26 to 2029-30). The assumptions in cost of power is based on historical analysis and upcoming expected price hike in Power Purchase.

PKR in Million

Description	Projected FY 2025-26			Projected FY 2026-27			Projected FY 2027-28			Projected FY 2028-29			Projected FY 2029-30		
	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total	SoP	DoP	Total
Revenue Requirement	75,994	4,323	80,317	85,696	5,018	90,714	96,637	5,780	102,417	108,969	6,585	115,554	122,899	7,618	130,517
Power Purchase	44.60	0.00	44.60	49.08	0.00	49.08	54.00	0.00	54.00	59.48	0.00	59.48	65.49	0.00	65.49
Distribution Margin	0.36	2.56	2.92	0.43	2.90	3.33	0.50	3.26	3.76	0.59	3.63	4.22	0.70	4.10	4.80
Average Tariff	44.96	2.56	47.52	49.50	2.90	52.40	54.50	3.26	57.76	60.07	3.63	63.70	66.19	4.10	70.29

9.4 Assumption of Financial Analysis

- Assumption of 1.5% decrease in KIBOR is taken
- The inflation projection is taken as per IMF projections. (12.71%)
- Calculation of WACC as per NEPRA standards.
- Deferred credit calculation has considered the CWIP and receipt against deposit works should be capitalized for better RoRB.
- The overall works of TESCO through own resource in next five years will be covered through RoRB and depreciation.
- Salaries & Pension are as per Govt policy

9.5 Impact on Tariff Due to Economies of Scale (Addition Sales):

The summary of Tariff Impact due to Additional Sales is here as follows:

PKR in Million

Description	FY 2025-26	FY 2027-27	FY 2027-28	FY 2028-29	FY 2029-30
Total Investment (Own Resources)	1391	1760	1416	1386	1616
Impact on Tariff due to Reduction in UoSC	0.12	0.12	0.23	0.22	0.23
Tariff Impact due to Additional Sales (Reliability Improvement)	0.05	0.04	0.04	0.04	0.03
Tariff Impact due to Additional Sales (Growth/Capacity Addition)	0.58	0.74	0.91	0.84	0.98
Total Impact on Tariff	0.75	0.90	1.18	1.11	1.24
Actual DM	2.92	3.33	3.76	4.22	4.80
Actual Tariff	47.52	52.40	57.76	63.70	70.29
New Expected Tariff	46.77	51.50	56.58	62.59	69.05
New Expected DM	2.17	2.43	2.58	3.11	3.56

10 Chapter 10 Financial Projection

For Projected Profit & Loss Statement and Balance Sheet for the next control period, please refer **Annexure G & H** respectively**.**

11 Chapter -11: Investment Plan Implementation

11.1 Business Planning Organization for Preparation of Investment Plans

TESCO has a rigorous process to collect and analyse the information in relation to the projects being undertaken to compare how well this investment plan is being implemented against expected targets since it is necessary to achieve the KPIs mentioned in **Chapter 06 & 07**. TESCO has prepared this robust investment plan to improve network reliability and quality of supply to further improve the trajectory as submitted here, timely execution of which is dependent upon a sustainable tariff to be allowed by the Authority as per the petitions to be submitted for Transmission and Distribution business segments.

TESCO will continuously monitor the progress against the submitted investment plan and the consequent impact on the KPIs of the same. For this, the Company will implement a quarterly/annual reporting for monitoring the physical and financial progress of the planned investments as given above. Proformas are developed and approved by the BoD for monitoring of the physical & financial progress of all concerned formations. The progress will be presented to the PSM committee of the BoD as well as to the Monitoring & Evaluation Department of NEPRA for perusal on Quarterly Basis.

11.2 Linkage with Performance Standards

Performance targets for Transmission & Distribution have been given in **Chapter (07)** respectively.

12 Chapter 12: Environmental and Social Assessment and its Mitigation Plans

12.1 Environment and Social Assessment and Mitigation Plans

- Align TESCO business practices with the UN SDGs and sustainable business practices.
- Disseminate and create advocacy on circular economy, repurpose and reuse material for suitable purposes, such as paper for recycling, computers for school labs, servers for SMEs etc.
- Promoting SDGs among Stakeholders, Employees, Customers and Community for better capacity building.
- Focus on Employees Health & Wellbeing
- Collaborate with external partners on Digital Inclusion.

12.2 Expected Outcomes:

- Targets for reduction in the GHG emissions
- Sustainable way of business
- Drive culture of recycling in the company
- Targets for diversity & women empowerment within in the company
- Overall, Skill Development & Economic uplift due to the above

13 Chapter 13: Risk Matrix & its Mitigation Plan

There are certain risks associated with the execution of this plan.

13.1 Operational and Financial Risk Management Identification & Mitigation Measures

The following is the Risks & associated Mitigation Matrix against the possible threats which may partially or wholly potentially impact the Business plan.

S.NO	Risk Factor	Potential Impact	Risk Magnitude	Mitigation Strategy
1	Right of way issues during construction activities	Delayed project timeline, increased costs	High	Conduct thorough land surveys beforehand Proper imposition of section-4 by revenue department. Negotiate with landowners for acquisition
2	Land disputes amongst stakeholders	Project delays, legal complications	High	Involvement of local administration and revenue department for dispute resolution. Legal documentation and title verification.
3	Security issues in tribal terrain	Work stoppages, safety concerns for workers	Very High	Collaborate with local government authorities for security measures. Seek co-operation from local elders.
4	Environmental issues	Regulatory fines, project delays	Moderate	Environmental impact assessment. Implement eco-friendly construction practices. Compliance monitoring.
5	Delays in obtaining necessary permits/NOCs	Project delays, increased costs	Moderate	• Early engagement with regulatory bodies/concerned authorities. • Streamlined permit application process.
6	Unforeseen technical challenges	Construction delays, budget overruns	Moderate	• Comprehensive risk assessment. • Contingency plans for various scenarios. • Technical expert consultation. • Regular Monitoring.
7	Disruption due to adverse weather or disasters	Work stoppages, property damage	High	• Emergency response and evacuation plans. • Weather monitoring updates.

8	Inadequate project management	Coordination issues, cost overruns, project delay	Low	• Hiring of Owner Engineer • Experienced project managers. • Regular progress meetings. • Clear communication channels.
9	Safety hazards for workers	Injuries, fatalities	High	• Provision of PPEs. • Establishment of Safety Directorate. • Daily safety talks. • Strict adherence to safety protocols. • Training programs.
10	Cost overruns due to unforeseen circumstances	Financial strain, project delays	Moderate	Early dispute resolution. Accuracy in PC-1 preparation. Regular budget reviews. Contingency funds allocation. Contractual clauses for cost adjustments. Mitigation of loopholes in agreements.
11	Funding constraints or delays	Project delays, inability to proceed, Cost overrun	High	Proper liaison with Federal/Provincial Govt. officials. Diversification of funding sources. Early engagement with donors.
12	Currency exchange rate fluctuations	Increased costs, financial uncertainty	High	Currency risk assessment. Inclusion of escalation clauses in PC-1 for long term contract. PC-1 Preparation in local and corresponding foreign currency.
13	Court cases	Delay in project, cost over run	High	Proper legal pleading of cases in court. Strengthening of legal team.

List of Annexures:

Annexure Description	Annexure Description
A	List of Grid Stations
B	List of Power Transformers
C	Power Transformers Loading Profile
D	List of Transmission Lines Loading Profile
E	Short Circuit Analysis
F	Profit & Loss Statement
G	Balance Sheet
H	TESCO Transmission Network MAP
I	Power Market Survey (Demand Forecasting Study)
J	Power Procurement Plan
K	Integrated Transmission & Distribution Plan

ANNEXURE

Annex-A List of Grid Stations

Sr.	Grid	Voltage Level (kV)	Commissioning Year	Total MVA Capacity	Classification
1	132KV GSS Bajaur	132	1981	52	AIS
2	132KV GSS Northern Mohmand	132	Feb-23	52	AIS
3	132KV Ghallani	132	May-06	79	AIS
4	132 KV Marble City	132	Apr-19	52	AIS
5	132 KV New Jamrud	132	Oct-2018	78	AIS
6	132KV Bara	132	1995	160	AIS
7	132KV Landikotal	132	1985	78	AIS
8	132KV Ali Zai	132	Nov-21	52	AIS
9	132KV Sadda	132	Mar-22	52	AIS
10	132KV Kalaya	132	Jun-24	52	AIS
11	132KV Parachinar	132	Dec-03	65	AIS
12	132KV Mir Ali	132		65	AIS
13	132KV Miran Shah	132		79	AIS
14	132KV Razmak	132	Jan-22	40	AIS
15	132 KV Wana	132		92	AIS
16	66KV Bajaur	66		39	AIS
17	66KV Jandola	66		27.9	AIS
18	66KV Lakarrai	66	1995	39	AIS
19	66KV Warsak	66	1960	26	AIS
20	66kV Pump House	66		7.5	AIS

Annex-B List of Power Transformers:

Name of GSS	Transformer Type	Transformer Name	Voltage kV	Transformer Capacity (MVA)
132KV GSS Bajaur	Power	T-4	132/11.5	26
132KV GSS Bajaur	Power	T-5	132/11.5	26
132KV GSS Northern Mohmand	Power	T-1	132/11.5	26
132KV GSS Northern Mohmand	Power	T-2	132/11.5	26
132KV Ghallani	Power	T-1	132/11.5	13
132KV Ghallani	Power	T-2	132/11.5	26
132KV Ghallani	Power	T-3	132/11.5	40
132 KV Marble City	Power	T-1	132/11.5	26
133 KV Marble City	Power	T-2	132/11.5	26
132 KV New Jamrud	Power	T-1	132/11.5	26
133 KV New Jamrud	Power	T-2	132/11.5	26
134 KV New Jamrud	Power	T-3	132/11.5	26
132KV Bara	Power	T-1	132/11.5	40
132KV Bara	Power	T-2	132/11.5	40
132KV Bara	Power	T-3	132/11.5	40
132KV Bara	Power	T-4	132/11.5	40
132KV Landikotal	Power	T-1	132/11.5	26
132KV Landikotal	Power	T-2	132/11.5	26
132KV Landikotal	Power	T-3	132/11.5	26
132KV Ali Zai	Power	T-1	132/11.5	26
132KV Ali Zai	Power	T-2	132/11.5	26
132KV Sadda	Power	T-1	132/11.5	26
132KV Sadda	Power	T-2	132/11.5	26
132KV Kalaya	Power	T-1	132/11.5	26
132KV Kalaya	Power	T-2	132/11.5	26
132KV Parachinar	Power	T-1	132/11.5	26
132KV Parachinar	Power	T-2	132/11.5	13
132KV Parachinar	Power	T-3	132/11.5	26
132KV Mir Ali	Power	T-1	132/11.5	13
132KV Mir Ali	Power	T-3	132/11.5	26
132KV Mir Ali	Power	T-4	132/11.5	26
132KV Miran Shah	Power	T-1	132/11.5	26
132KV Miran Shah	Power	T-2	132/11.5	13
132KV Miran Shah	Power	T-3	132/11.5	40
132KV Razmak	Power	T-1	132/11.5	40
132 KV Wana	Power	T-4	132/11.5	26
133 KV Wana	Power	T-5	132/11.5	26

134 KV Wana	Power	T-6	132/11.5	40
66KV Bajaur	Power	T-1	132/11.5	13
66KV Bajaur	Power	T-2	66/11.5	13
66KV Bajaur	Power	T-3	66/11.5	13
66KV Jandola	Power	T-1	66/11.5	6.9
66KV Jandola	Power	T-2	66/11.5	7.5
66KV Jandola	Power	T-4	66/11.5	13
66KV Lakarrai	Power	T-1	66/11.5	13
66KV Lakarrai	Power	T-3	66/11.5	13
66KV Lakarrai	Power	T-4	66/11.5	13
66KV Warsak	Power	T-1	66/11.5	13
66KV Warsak	Power	T-2	66/11.5	13
66kV Pump House	Power	T-1	66/11.5	*7.5*
132KV GSS Timergara	Power	T3	132/11.5	13
132KV GSS Tangi	Power	T4	132/11.5	26
132KV GSS Warsak TESCO	Power	T3	132/11.5	26
132KV GSS Hayat Abad	Power	T2	132/11.5	26
132KV GSS Jamrud	Power	T3	132/11.5	26
132KV GSS Mattani	Power	T3	132/11.5	26

Annex-C List of Power Transformers Loading Profile:

Name of GSS	Transformer Type	Transformer Name	Voltage kV	Transformer Capacity (MVA)	%AGE Loading
132KV GSS Bajaur	Power	T-4	132/11.5	26	59%
132KV GSS Bajaur	Power	T-5	132/11.5	26	27%
132KV GSS Northern Mohmand	Power	T-1	132/11.5	26	0%
132KV GSS Northern Mohmand	Power	T-2	132/11.5	26	4%
132KV Ghallani	Power	T-1	132/11.5	13	64%
132KV Ghallani	Power	T-2	132/11.5	26	57%
132KV Ghallani	Power	T-3	132/11.5	40	45%
132 KV Marble City	Power	T-1	132/11.5	26	6%
133 KV Marble City	Power	T-2	132/11.5	26	0%
132 KV New Jamrud	Power	T-1	132/11.5	26	73%
133 KV New Jamrud	Power	T-2	132/11.5	26	77%
134 KV New Jamrud	Power	T-3	132/11.5	26	79%
132KV Bara	Power	T-1	132/11.5	40	51%
132KV Bara	Power	T-2	132/11.5	40	28%
132KV Bara	Power	T-3	132/11.5	40	65%
132KV Bara	Power	T-4	132/11.5	40	63%
132KV Landikotal	Power	T-1	132/11.5	26	87%
132KV Landikotal	Power	T-2	132/11.5	26	62%
132KV Landikotal	Power	T-3	132/11.5	26	93%
132KV Ali Zai	Power	T-1	132/11.5	26	28%
132KV Ali Zai	Power	T-2	132/11.5	26	7%
132KV Sadda	Power	T-1	132/11.5	26	49%
132KV Sadda	Power	T-2	132/11.5	26	58%
132KV Kalaya	Power	T-1	132/11.5	26	78%
132KV Kalaya	Power	T-2	132/11.5	26	0%
132KV Parachinar	Power	T-1	132/11.5	26	70%
132KV Parachinar	Power	T-2	132/11.5	13	78%
132KV Parachinar	Power	T-3	132/11.5	26	87%
132KV Mir Ali	Power	T-1	132/11.5	13	52%
132KV Mir Ali	Power	T-3	132/11.5	26	70%
132KV Mir Ali	Power	T-4	132/11.5	26	78%
132KV Miran Shah	Power	T-1	132/11.5	26	54%
132KV Miran Shah	Power	T-2	132/11.5	13	39%
132KV Miran Shah	Power	T-3	132/11.5	40	28%
132KV Razmak	Power	T-1	132/11.5	40	20%
132 KV Wana	Power	T-4	132/11.5	26	35%
133 KV Wana	Power	T-5	132/11.5	26	63%
134 KV Wana	Power	T-6	132/11.5	40	25%

66KV Bajaur	Power	T-1	132/11.5	13	55%
66KV Bajaur	Power	T-2	66/11.5	13	46%
66KV Bajaur	Power	T-3	66/11.5	13	52%
66KV Jandola	Power	T-1	66/33	6.9	30%
66KV Jandola	Power	T-2	66/11.5	7.5	61%
66KV Jandola	Power	T-4	66/11.5	13	38%
66KV Lakarrai	Power	T-1	66/11.5	13	60%
66KV Lakarrai	Power	T-3	66/11.5	13	72%
66KV Lakarrai	Power	T-4	66/11.5	13	60%
66KV Warsak	Power	T-1	66/11.5	13	64%
66KV Warsak	Power	T-2	66/11.5	13	46%
66kV Pump House	Power	T-1	66/11.5	*7.5*	38%
132KV GSS Timergara	Power	T3	132/11.5	13	93%
132KV GSS Tangi	Power	T4	132/11.5	26	61%
132KV GSS Warsak TESCO	Power	T3	132/11.5	26	90%
132KV GSS Hayat Abad	Power	T2	132/11.5	26	81%
132KV GSS Jamrud	Power	T3	132/11.5	26	98%
132KV GSS Mattani	Power	T3	132/11.5	26	86%

Annex-D: Transmission Line Loading Profile

Transmission Line Loading Profile					
Sr	**Station-1**	**Station-2**	**CCT**	**Voltage Level (kV)**	**Percentage (%)**
1	Timergara	132kV Bajaur	1	132	15.78
2	Timergara	66kV Bajaur	1	66	46.24
3	132KV Shabqadar	Ghallani	1	132	36.89
4	Ghallani	Northern Mohmand	1	132	
5	132KV Shabqadar	Lakarrai	1	66	40.46
6	Warsak PESCO	Marble City	1	132	0.2
7	Sheikh Muhammadi	Bara	1	132	36.87
8	Sheikh Muhammadi	New Jamrud	1	132	17.28
9	Shahi Bagh	Warsak-Spear Sung	1	66	53.38
10	Old Jamrud	Landikotal	1	132	47.34
11	KDA	Kalaya	1	132	6.75
12	Tall	Parachinar	1	132	43.03
13	Tall	Alizai	1	132	22.95
14	Alizai	Sadda	1	132	
15	Bannu	Mir Ali	1	132	36.89
16	Mir Ali	Miran Shah	1	132	
17	Miran Sha	Razmak	1	132	
18	Tank	Wana	1	132	
19	Tank	Jandola	1	66	21.68
20	Gomal Zam	Wana	1	132	0

Annex-E: Short Circuit Analysis

Bus Number	Bus Name	Base kV	Short Circuit Current (kA)	
			3-Phase	1-Phase
1243	Marble City	132	15.7	7.5
1250	Landikotal	132	7.3	3.4
1255	Jamrud Tesco	132	20.2	6.7
1256	SSPS	132	6.5	3.7
1275	Bara	132	18.2	6.4
1276	Bara2	132	17.5	6
1277	Medan Tera	132	1.8	1
1278	Shahkas	132	14.7	5.4
1295	Dara Adam Khel	132	7.2	3.6
1309	Ghiljo	132	4.3	2.1
1346	Mir Ali	132	5.9	2.7
1350	Miranshah	132	4.4	2.2
1351	Data Khel	132	2.1	1.2
1352	Ghallani	132	9.9	5.3
1353	Yakkaghund	132	14.9	7.2
1355	Razmak	132	1.9	1.1
1465	Wana	132	2.7	1.6
1531	Lakarrai	132	5.3	3.4
1535	North Mohmand	132	5.6	3.5
1602	Warsak-D	132	15.6	7.4
1686	Khar Bajaur	132	6.3	4.1
1687	Mamond	132	3.8	2.4
1720	Kalaya	132	20.95	1.2
1755	Sadda Tesco	132	3.6	1.9
1760	Alizai	132	3.5	1.8
1775	Parachinar	132	2.7	1.5
1855	Jandola	132	3.8	2.1
1856	Sararogha	132	2.3	1.3
11104	T4	11	10.7	10.99
11252	T3	11	10.6	10.9
12103	T3	11	10.95	11.1
12431	T1	11	10.9	11.1
12432	T2	11	10.9	11.1
12501	T1	11	10.2	10.7
12502	T2	11	16	17
12503	T3	11	10.2	10.7
12551	T1	11	11	11.1
12552	T2	11	11	11.1
12553	T3	11	11	11.1
12554	T4	11	17.8	18.2

Bus Number	Bus Name	Base kV	Short Circuit Current (kA)	
			3-Phase	1-Phase
12561	T1	11	10.1	10.5
12751	T1	11	17.7	18.2
12752	T2	11	17.7	18.2
12753	T3	11	17.7	18.2
12754	T4	11	17.7	18.2
12761	T1	11	17.6	18.1
12762	T2	11	17.6	18.1
12771	T1	11	7.7	8.6
12772	T2	11	7.7	8.6
12781	T1	11	17.4	18
12782	T2	11	17.4	18
12951	T1	11	10.2	10.6
12952	T2	11	10.2	10.6
13091	T1	11	9.5	10.1
13092	T2	11	9.5	10.1
13461	T1	11	5.3	5.5
13462	T2	11	10	10.4
13463	T3	11	10	10.4
13502	T1	11	9.6	10.1
13503	T2	11	5.2	5.4
13504	T3	11	14.2	15.6
13511	T1	11	8.1	9
13512	T2	11	8.1	9
13521	T3	11	16.7	17.4
13522	T4	11	5.5	5.6
13523	T5	11	10.5	10.9
13531	T1	11	10.8	11
13532	T2	11	10.8	11
13551	T1	11	4.7	5
13552	T2	11	7.8	8.7
14651	T1	11	8.6	9.4
14652	T2	11	8.6	9.4
14653	T3	11	12.2	14
15311	T1	11	9.9	10.3
15312	T2	11	9.9	10.3
15351	T1	11	10	10.4
15352	T2	11	10	10.4
16021	T1	11	10.9	11.1
16022	T2	11	10.9	11.1
16861	T1	11	10.1	10.5
16862	T2	11	15.5	16.6
16863	T3	11	15.5	16.6

Bus Number	Bus Name	Base kV	Short Circuit Current (kA)	
			3-Phase	1-Phase
16871	T1	11	9.3	10
16872	T2	11	9.3	10
17201	T1	11	8.1	9
17202	T2	11	8.1	9
17551	T1	11	9.2	9.9
17552	T2	11	9.2	9.9
17554	T4	11	12.2	13.9
17601	T1	11	9.2	9.9
17602	T2	11	9.2	9.9
17751	T1	11	8.6	9.4
17752	T2	11	4.9	5.2
17753	T3	11	8.6	9.4
18551	T1	11	9.3	10
18552	T2	11	9.3	10
18561	T1	11	8.3	9.2
18562	T2	11	8.3	9.2

Annex-F: Financial Projections - Balance Sheet:

PKR in Million

Description	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29	FY 2029-30
	Projected	Projected	Projected	Projected	Projected
Assets					
Non-Current Assets					
Property Plant & Equipment	24,563	25,787	27,107	28,444	29,529
Long Term Advances	*18*	*16*	*14*	*12*	*10*
Current Assets					
Stores & Spares	4,840	4,985	5,135	5,289	5,447
Trade Debts	89,331	91,117	92,940	94,799	96,695
Advances and Other Receivables (GST/IOT)	45,455	45,500	45,546	45,591	45,637
Receivables From Govt.	64,635	64,700	64,764	64,829	64,894
Cash & Bank Balances	823	971	1,146	1,352	1,595
Total Assets	**229,664**	**233,076**	**236,651**	**240,315**	**243,807**
Subscribed Equity	0.01	0.01	0.01	0.01	0.01
Deposit for share	427	427	427	427	427
Unappropriated Profit	***36,220***	***37,257***	***38,319***	***39,357***	***40,362***
Total Equity	***36,647***	***37,684***	***38,746***	***39,784***	***40,789***
Liabilities					
Non-Current Liability					
Long Term Loans from Government	19233	19233	19233	19233	19233
Deferred Credits	16,935	17,935	19,431	21,036	22,216
Long Term Loans	39	35	31	28	25
Total Long-Term Loan	***36,207***	***37,203***	***38,696***	***40,297***	***41,475***
Current Liability					
Consumer security deposit	359	431	452	475	499
Current portion of long-term loan	133	143	155	167	177
Trades and Other Liabilities	156,318	157,615	158,602	159,593	160,867
Total Liabilities	***193,017***	***195,392***	***197,905***	***200,531***	***203,018***
Total Liabilities and Equity	**229,664**	**233,076**	**236,651**	**240,316**	**243,807**

Annex-G: Financial Projections - Income Statement

PKR in Million

Description		2025-26 Projected	2026-27 Projected	2027-28 Projected	2028-29 Projected	2029-30 Projected
Sales Revenue	[Mln Rs]	79,581	89,932	101,572	114,643	129,557
Power Purchase Cost		75,381	84,954	95,743	107,902	121,606
Gross Profit		4,200	4,978	5,829	6,741	7,951
Other Income		736	782	845	911	960
O&M Expenses		2871	3492	4227	5064	6170
Depreciation		779	875	977	1,082	1,180
Wheeling Charges		1,035	1,139	1,252	1,378	1,515
Total Operating Cost		4,685	5,506	6,457	7,524	8,865
Net Profit		251	254	217	127	46

Annex-H TESCO Transmission Network MAP