GUJRANWALA ELECTRIC POWER COMPANY LIMITED

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OFFICE OF CHIEF EXECUTIVE OFFICER, GEPCO LTD.
WAPDA Rest House, W-Block, Peoples Colony, Gujranwala
(Market Implementation and Regulatory Affairs Department)

No. GEPCO/MIRAD/DIIP-2024/ 3542-43 Dated: 04 / 10 /2024

The Registrar, NEPRA
NEPRA Tower, Attaturk Avenue (East),
G-5/1, Islamabad

Subject: - SUBMISSION OF DISTRIBUTION COMPANY INTEGRATED INVESTMENT PLAN (DIIP) FOR TARIFF CONTROL PERIOD FROM FY 2025-26 TO FY 2029-30

Reference: Your office letter No. NEPRA/Director (Tech)/LAD-II/8292-98 dated 05-06-2024

This is complying to your office letter referred to above, and in continuation of DG MIRAD GEPCO's request vide letter No. GEPCO/MIRAD/3101-06 dated 25/09/2024.

Having been duly authorized by the GEPCO Board of Directors, in its 172nd meeting held on September 26, 2024, to submit GEPCO's Investment Plan for consideration of the honorable Authority, I Engr. Muhammad Ayub, Chief Executive Officer, GEPCO take this opportunity to submit attached herewith Business Plan of GEPCO for the period from FY 2024-25 to FY 2029-30 duly approved by GEPCO BOD, for kind consideration of honorable Authority and further processing thereof. The GEPCO BOD resolution, as issued by the Company Secretary GEPCO, is also being attached for reference and record.

The above-mentioned Business Plan of GEPCO is a comprehensive and composite document covering both licensed functions of GEPCO, i.e. Electric Power Supplier and Distribution of Electric Power. The Distribution Company Investment Plan (DIIP) of GEPCO for the tariff control period from FY 2025-26 to FY 2029-30 with applicable supporting details is major part of the submitted Business Plan.

For any further information, deliberations and clarifications, Director General MIRAD GEPCO can be reached through mobile phone (0318 399 1820) or email (gepco.dgmirad@gmail.com).

DA/ As Above

CHIEF EXECUTIVE OFFICER
GEPCO HQ, GUJRANWALA

Copy To:

1) The Deputy Secretary (Corporate Affairs) in continuation GEPCO's letter No.249-50 dated 08/07/2024 and subsequent clarifications vide No.GEPCO/MIRAD/1380-81 dated 09/08/2024. (Copy of Final Business Plan Attached)

GUJRANWALA ELECTRIC POWER COMPANY
65/A Model Town G.T. Road Gujranwala Phone No. 055-9200995, Fax 055-9200122

EXTRACT OF MINUTES OF 172nd MEETING OF THE BOARD OF DIRECTORS OF GEPCO HELD ON SEPTEMBER 26, 2024

Agenda Item 09	**To Consider the following recommendations of 14th meeting of the Policy, Strategy, Other Operations and Marketing (PSM) Committee held on 06-09-2024:**

9.2. Business Plan for the years 2024-25 to 2029-30.

Resolution:

172nd BOD-R- 14. Considering the recommendation of the Policy, Strategy, Other Operations and Marketing (PSM) Committee, the Board unanimously RESOLVED that approval be and hereby is accorded in principle for the Business Plan for the years 2024-25 to 2029-30 for onward submission to NEPRA.

Note:

The above Board Resolution is based on the following confirmations from the management:

- ***a.*** *No material information has been withheld and the working papers represent all facts of the case.*
- ***b.*** *All legal and codal formalities have been complied with.*
- ***c.*** *There is no conflict of interest of any officer of the GEPCO.*
- ***d.*** *Concerned official / officer of GEPCO's management would be liable for any omission / misstatement of the facts and figures in the working papers.*

Company Secretary
GEPCO

2024-25 TO 2029-30

GEPCO BUSINESS PLAN 2024-25 TO 2029-30

Providing Power for Progress and Prosperity

GUJRANWALA ELECTRIC POWER COMPANY LIMITED

Table of Contents

List of Tables

List of Figures

Glossary

Term	Abbreviation
ABC	Aerial Bundled Conductor
AEB	Area Electricity Board
AEDB	Alternative Energy Development Board
AJK	Azad-Jammu Kashmir
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
APMS	Asset Performance Monitoring System
ATC	Aggregate Technical and Commercial
BAS	Behaviour Assessment Safety
BOD	Board of Directors
BPC	Bulk Power Consumer
CA	Connection Agreement
CCMS	Customer Complaint Management System
CE	Chief Engineer
CEO	Chief Executive Officer
CNIC	Computerized National Identification Number
CO	Capacity Obligation
CPPA-G	Central Power Purchasing Agency Limited
CSRH	Customer Service Response Handbook
CTBCM	Competitive Trading Bilateral Contract Market
CWIP	Capital Work in Progress
DIIP	Distribution Integrated Investment Plan
DNO	Distribution Network Operator
DOP	Distribution of Power
DSM	Demand Side Management
EBIT	Earnings Before Interest and Taxes
ELR	Energy Loss Reduction
ENC	Electricity New Connection Portal
ERM	Enterprise Risk Management
ERP	Enterprise Resource Planning
FAT	Factory Acceptance Test
FBR	Federal Board of Revenue
FICO	Financial Accounting & Controlling
GENCO	Generation Company
GEPCO	Gujranwala Electric Power Company
GIS	Geographic Information System
GM	General Manager
GoP	Government of Pakistan
GSC	Grid System Construction
GSO	Grid System Operation
GTDC	GEPCO Training and Development Centre
GWh	Giga Watt-Hour

Term	Abbreviation
HCM	Human Capital Management
HPP	Hydro Power Plant
HSE	Health, Safety and Environment
HT	Hight Tension (11 kV)
IBS	Integrated Billing System
IDTP	Integrated Distribution and Transmission Plan
IGCEP	Indicative Generation Capacity Expansion Plan
IT	Information Technology
kV	Kilo Volt
LDA	Load Data Acquisition
LT	Low Tension (0.4 kV)
M&T	Metering and Testing
MCC	Market Commercial Code
MIRAD	Market Implementation and Regulatory Affairs Department
MIS	Management Information System
MkWh	Million Kilo Watt-hour
MM	Material Management
MO	Market Operator
MoE (PD)	Ministry of Energy (Power Division)
MOU	Memorandum of Understanding
MTLF	Medium-Term Load Forecast
MW	Mega Watt
MYT	Multi-Year Tariff
NE Plan	National Electricity Plan
NE Policy	National Electricity Policy
NEECA	National Energy Efficiency and Conservation Authority
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Centre
NTDC	National Transmission and Dispatch Company
OT	Operational Technology
PAP	Power Acquisition Programme
PD	Project Director
PEECA	Punjab Energy Efficiency and Conservation Authority
PEPCO	Pakistan Electric Power Company
PIS	Power Information System
PITC	Power Information Technology Company
PMS	Power Market Survey
PPA	Power Purchase Agreement
PPAA	Power Purchase Agency Agreement
PPDCL	Punjab Power Development Company Limited
PPE	Personal Protective Equipment
PPIB	Private Power Infrastructure Board
PPMC	Power Planning and Monitoring Company

Term	Abbreviation
PPS	Pakistan Power Sector
PS	Project System
PSDP	Power Sector Development Programme
PSM	Policy, Strategy, Other Operations & Marketing Committee
PV	Photovoltaic
RORB	Return on Rate Base
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAP	System Augmentation Programme
SCADA	Supervisory Control and Data Acquisition
SCED	Security Constrained Economic Dispatch
SCI	Statement of Corporate Intent
SDG	Sustainable Development Goals
SDO	Sub-Divisional Officer
SE	Superintendent Engineer
SO	System Operator
SOE	State Owned Enterprise
SOLR	Supplier of Last Resort
SPA	Special Purpose Agent
SRM	Strategic Roadmap
STG	Secondary Transmission and Grid
STLF	Short-Term Load Forecast
SWOT	Strength, Weakness, Opportunity, Threat
T&P	Tools and Plants
TSD	Technical Services Department
TSEP	Transmission System Expansion Plan
UOSA	Use of System Agreement
UOSC	Use of System Charges
WACC	Weighted Average Cost of Capital
WAPDA	Water and Power Development Authority
XEN	Executive Engineer
XWDISCO	X-WAPDA Distribution Company
YTD	Year-to-Date

List of Annexures

EXECUTIVE SUMMARY

The Board of Directors and Management of Gujranwala Electric Power Company ("GEPCO") being cognizant of importance of Business Planning in shaping the future of the Company and steering it through the challenges thereof. The GEPCO is also well aware of multiple legal, policy, regulatory and governance requirements concerning independent future outlook, resulting from its multidimensional roles, firstly; as a business entity, secondly; as a vital service providing arms within the Pakistan Power Sector and, thirdly; as a commercial state-owned enterprise (SOE).

GEPCO's Vision, Mission and Core Values, are the driving force behind the efforts currently being made and envisaged for the future. GEPCO clearly understands required contribution towards emerging power sector as per approved Competitive Trading and Bilateral Contract Market (CTBCM) design. As part of Strategic Direction, GEPCO is set to take-up the twine roles, vis; Supplier of Last Resort – the Market Participant, and Electric Power Distribution – the Market Service Provider through supplying least cost electric power to its regulated consumers as per NEPRA determined tariffs and provide uninterrupted open access to all the users of the net-work without any discriminations.

Gujranwala Electric Power Company (GEPCO), incorporated as a Public Limited Company on 25th April 1998, is responsible for the delivery (supply & distribution) of electric power to over 4.6 million consumers of all civil districts of Gujranwala Division in the province of Punjab, Pakistan as per the Distribution License No. DL/04/2023 of May 09, 2023 and Supply Licence No. SOLR/04/2023 dated December 27, 2023.

Running under an overarching supervision and guidance of Board of Directors, appointed by the Government of Pakistan; business operations are carried out under the leadership of Chief Executive Officer. Main source of electricity supply is the purchase of power from generators through Central Power Purchasing Agency (CPPA), bilateral contracts with small hydropower projects and Solar PV Net-Metering Distributed Generators. In line with the Vision and Mission statements of the Company, the major objectives of the company include ensuring adequate, quality, uninterrupted, safe 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, GEPCO has over 11,343 active employees, employed in eight directorates, 10 Circles (6 Operations, 1 Construction, 1 GSO, 1 GSC & 1 M&T), 43 Divisions, and 158 Sub-Divisions; and is responsible for distributing electricity to over 4.71 million consumers. The consumer mix comprises approximately 87% urban and rural domestic consumers, 9% commercial consumers, 2% large, medium and small industrial consumers, 1% agricultural consumers and 1% others, including AJK. The sales mix consists of 60% domestic, 7% commercial, 23% industrial, 4% of agricultural and 6% of other consumers category.

This business plan, covering a period of Six (6) years (1+5 years), is manifestation of the collective wisdom and thought process of the Board of Directors and Management to ensure readiness of the Company in achieving its visions, mission and medium-term objectives as per the Statement of Corporate Intents (SCI), also referred to as Strategic Road-Map (SRM), of the company during the said business plan horizon. In line with the guidance provided in the State-Owned Enterprises (Governance and Operations) Act, 2023 (SOE Act) and the State-Owned Enterprises (Ownership and Management) Policy, 2023 (SOE Policy), the said SCI/SRM has emerged from the collective detailed

review and identification of the Strategic Issues and shaping Strategic Actions associated thereto. Besides detailed SWOT analysis of the Company, the strategic issues were recognized for alignment with power sector reforms as per the CTBCM design, Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (NEPRA Act), the National Electricity Policy 2021 (NE Policy), the National Electricity Plan 2023-27 (NE Plan) and the regulations and rules promulgated under NEPRA Act.

As mentioned, the business plan in hand covers 6 years (1+5 year) plan horizon, in a conscious attempt to cover for the upcoming 5-year Multi-Year Tariff (MYT) control period commencing from July 1, 2025.

The Eight (8) Strategic Areas, envisaged to be attended to through 53 Strategic Actions (Goals / Sub-Goals), forming fundamental basis for the business plan in hand are Improving Customer Services (5 Goals), Operational Excellence (8 Goals), Safety (7 Goals), Strategic Focus / Business Strategy (6 Goals + 3 Sub-Goals), Infrastructure Development (4 Goals + 2 Sub-Goals), Governance (9 Goals), Legal, Regulatory and Policy Compliance (4 Goals) and Policies and Strategies (5 Goals).

The business plan, through a planning aligned approach provides adequate assurance on the ability of the Company towards its twin roles, i.e., security of electric power supply as Supplier of Last Resort and strong net-work outreach as Distributor of Electric Power, during the plan horizon.

Security of Supply:

Case Description	Assessment of Security of Supply (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATTS (Firm Capacity)					
Tentative GEPCO Share in Generation:						
Existing Installed	2,595	2,592	2,579	2,434	2,434	2,375
Committed/ Contracted Projects	397	686	766	979	1,025	1,069
Committed/ Un-Contracted Projects	16	24	25	25	25	25
System Constraint	49	49	-	-	-	-
Total Firm Capacity	**3,057**	**3,350**	**3,370**	**3,438**	**3,484**	**3,468**
Capacity Obligation	**2,773**	**2,826**	**2,889**	**2,948**	**3,041**	**3,126**
Firm Capacity as %age of Capacity Obligation	110.2%	118.6%	116.6%	116.6%	114.5%	110.9%
Compliance Status	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant

Investment Programme:

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	[Million Rs.]						
Investment Plan							
STG	14,985	12,097	7,045	12,044	6,956	5,369	**58,496**
ELR	4,116	4,974	5,499	2,928	3,692	3,799	**25,007**
DOP	306	355	348	238	347	587	**2,181**
APMS	-	1,817	3,773	3,999	-	-	**9,588**
Safety Hazard Removal & Earthing	1,452	1,230	1,662	1,828	2,011	2,212	**10,396**
AMR/AMI	5,149	3,171	-	-	-	-	**8,319**
SCADA	513	1,360	1,496	1,720	247	271	**5,606**
Transport	1,835	800	850	600	800	500	**5,385**
Civil Works	835	650	564	530	460	450	**3,489**
ABC Cable	-	-	115	127	139	153	**535**
ERP	50	50	30	30	30	30	**220**
GIS Enterprise/ Mapping	220	70	60	-	-	-	**350**
Sectionalizers	75	-	-	-	-	-	**75**
IBS and Allied Equipment	500	50	50	50	50	50	**750**
Software, Studies, Licences	40	50	50	50	50	50	**290**
Others (Consumer Contribution/Deposit Works)	7,022	7,725	8,497	9,347	10,281	11,310	**54,182**
Total	**37,098**	**34,397**	**30,038**	**33,491**	**25,064**	**24,781**	**184,870**
Financing Arrangement							
Debt Financing	-	1,302	2,703	2,865	-	-	**6,869**
Own Resources	30,076	25,371	18,839	21,279	14,783	13,472	**123,819**
STG Deposit Works	909	1,000	1,100	1,210	1,331	1,464	**7,013**
Deposit Works (PD Construction)	1,495	1,644	1,808	1,989	2,188	2,407	**11,531**
HT&LT Deposit Works - Capital Receipt	4,222	4,645	5,109	5,620	6,182	6,800	**32,579**
Village Electrifications - SDGs (SAP)	396	436	480	528	580	638	**3,058**
Total	**37,098**	**34,397**	**30,038**	**33,491**	**25,064**	**24,781**	**184,870**

1. SETTING THE PERSPECTIVE

1.1. Introduction

Gujranwala Electric Power Company (GEPCO), incorporated as a Public Limited Company on 25th April 1998, is responsible for the delivery of electricity to over 4.71 million consumers of all civil districts of Gujranwala Division in the province of Punjab, Pakistan as set out in GEPCO's Distribution License No. DL/04/2023, granted by NEPRA under the NEPRA Act on May 09, 2023 and GEPCO's Supply Licence No. SOLR/04/2023, granted by NEPRA on December 27, 2023. As a result of the restructuring of WAPDA's Power Wing, GEPCO assumed its official operations and is since then being headed by a Chief Executive Officer (CEO). GEPCO pays a power purchase price (in Rs/kWh energy charge & Rs. /MW capacity charge) for the electricity it procures through the Central Power Purchasing Agency (CPPA) or through bilateral contracts with Generators, which would include the generation and transmission charges regulated by NEPRA. In line with the Vision and Mission statements of the Company, the major objectives of the company include ensuring adequate, quality, uninterrupted, safe 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, GEPCO has over 11,343 active employees, employed in eight directorates, 10 Circles (6 Operations, 1 Construction, 1 GSO, 1 GSC & 1 M&T), 43 Divisions, and 158 Sub-Divisions; and is responsible for distributing and supplying electricity to over 4.71 million consumers. The consumer mix comprises approximately 87% domestic consumers (4.1 million) including residential consumers in both urban and rural areas, 9% commercial consumers (0.44 million) including business consumers such as markets, plazas, and offices in both urban and rural areas, 2% industrial consumers (0.09 million) consisting of large and small industrial loads, 1% agricultural consumers and 1% others. It may be mentioned that the 'others' include supply to AJK through – 11 kV distribution feeders. The sales mix consists of 60% domestic, 7% commercial, 23% industrial, 4% of agricultural and 6% of other consumers category.

1.2. Vision, Mission and Core Values of the Company

All actions and efforts of GEPCO team are guided by its Vision and Mission embodying the Core Values, as detailed below, at the heart.

1.2.1. Vision Statement of GEPCO

"To become the leading Electric Power Utility in Pakistan and maintain that position."

1.2.2. Mission Statement of GEPCO

"To maintain a high level of Safety and provide excellent customer services as an Electric Power Utility matching the standards set forth by the Regulator, while making profits and ensuring sustained growth. Infuse contemporary technology into our infrastructure and modernize it regularly."

1.2.3. Core Values of GEPCO

Ethics:

We are committed to maintaining high professional standards of conduct and personal integrity in our daily activities.

Leadership:

Our seniors take responsibility for their people. They provide the direction, the means and tools for their success.

They remain devoted to developing, stimulating, encouraging and empowering individuals.

Teamwork:

Sound strategy and execution require diverse talents to work in unison where people work together towards common objectives. We emphasize ability to listen, observe and understand each other.

Culture of excellence:

Our organizational culture reflects an environment where leadership, innovation and achievements are encouraged and rewarded at all levels. We foster trustworthiness through open dialogue with our employees, sharing of information, knowledge, experience and mutual respect.

Courtesy:

We are courteous with our customers, stakeholders, and towards each other and encourage open communication.

Responsibility:

We are responsible as individuals and as teams for our work and our actions. We welcome scrutiny, and we hold ourselves accountable.

Integrity:

We have integrity as individuals and as teams our decisions are characterized by honesty and fairness.

1.3. Strategic Positioning

As the Pakistan Power Sector (PPS) undergoes another set of continued reforms, GEPCO is all set to add value to the evolving wholesale competitive electricity market in line with Competitive Trading & Bilateral Contract Market (CTBCM) regime.

Towards this end, moving ahead of the single territorial electric power service provider within service territory; GEPCO, as envisaged per CTBCM, has initiated transformation as multirole service provider as “Electric Power Supplier” and “Power Distributer”. As per regulation, GEPCO shall, however, continue to be “Supplier of Last Resort” so as to ensure continued, uninterrupted, reliable and adequate power supply to any and all the customers at all times, within the Service Territory.

At present GEPCO has acquired separate licences from NEPRA for its Distribution and Supply businesses. Moreover, GEPCO is registered with Market Operation (MO) as Distribution Service Provider in its role as Distribution Network Operator and as Market Participant in its role as Supplier of Last Resort.

As Power Distributor, i.e., the Distribution Network Operator (DNO), GEPCO pledges to provide interconnection facility and open access to its system for all intending Users (Market Participants) including, but not limited to, the eligible Generation Companies, Bulk Power Consumers, Traders, Competitive Electric Power Suppliers, Distributed Generation etc. at reasonable and affordable prices, without any favor or, otherwise, discrimination or restrictions. Taking natural monopoly wire-business role, the DNO, we are well aware that the position requires us to ensure embedding principles of

impartiality, non-discrimination and arm's length transaction even while dealing with Power Supplier arms of our own company.

As Electric Power Supplier, GEPCO is all set to take the daunting task of facing competition at wholesale market level and, thus gearing up to ensure retention of base load Bulk Power Consumers (BPC). We also clearly understand that our commercial priorities shall not undermine the rights of embedded regulated customers.

GEPCO has already submitted its petition for Use of System Charges (UoSC) for open-access to NEPRA for approval. Similarly, draft Use of System Agreement (UoSA) and Connection Agreements (CA) have also been submitted to NEPRA for necessary approval.

GEPCO, having clear understanding of the future challenges, responsibilities, obligations and opportunities in its role as regulated power sector utility (distribution and supply) company in terms of NEPRA Act, a Commercial State Owned Enterprise in terms of SOE Act & Policy, 2023 and, above all, a mature, vibrant, efficient and responsible corporate body; is ready and set to face and embrace all future challenges, including the privatization in terms of article 11 and 12 of the SOE Policy, 2023.

1.4. Purpose of Business Plan:

1.4.1. SOE Act, 2023

Section 8 of the SOE Act under the Chapter of "Measurable Performance" is reproduced below;

"8. Business plan.—(1) The Board of every state-owned enterprise shall, prior to the commencement of each financial year, adopt a business plan in respect of the following three financial years which shall contain information about the operations, strategic direction, and financial and non-financial performance measures of the state-owned enterprise and demonstrates how the state-owned enterprise shall achieve its primary objective:

Provided that the business plan must be effective on the first day of the first financial year to which it applies.

(2) If a state-owned enterprise has one or more subsidiaries, the business plan must, for each subsidiary and for the group as a whole, include information about the operations, strategic direction and financial projections of the state-owned enterprise.

(3) The business plan of a state-owned enterprise shall be prepared in consultation with the Division to which the business of the state-owned enterprise has been allocated under the Rules of Business, 1973 and the draft under consultation shall be simultaneously submitted to the Central Monitoring Unit and the adopted business plan shall be submitted to the Federal Government for information.

(4) The board of every state-owned enterprise shall at the start of each financial year, adopt and cause to have published a statement of corporate intent for the state-owned enterprise or the group comprising the state-owned enterprise and its subsidiaries (if any), in respect of that year and the following two financial years in the manner and form set out in Schedule-III."

1.4.2. Business Plan 2020-21 to 2024-25

GEPCO submitted its 5-year business plan for the period 2020-21 to 2024-25 in September, 2021 under Section-32 of NEPRA Act. along with MYT for the same

period. The investment plan submitted in this business plan was the basis for the tariff petition of MYT 2021-25. A summary of investment plan submitted is given below;

Table 1-1 Investment Plan submitted with MYT 2020-25

Description			2020-21	2021-22	2022-23	2023-24	2024-25	Total
A	**Investment Plan**							
	DOP	[Mln Rs]	460	533	712	712	856	**3,273**
	ELR		550	600	700	700	700	**3,250**
	STG		1,732	2,199	4,439	6,591	5,971	**20,932**
	ERP		185	186	55	30	30	**486**
	AMR/AMI (DOP)		0	288	900	843	0	**2,031**
	SCADA		0	0	158	420	473	**1,051**
	Others (Consumer Contribution/Deposit Works)		2,450	2,600	2,650	2,700	2,750	**13,150**
	Customer Facilitation Program		177	350	250	270	280	**1,327**
	Total		**5,554**	**6,756**	**9,864**	**12,266**	**11,060**	**45,500**
B	**Financing Arrangement**							
	Own Resources	[Mln Rs]	3,104	4,156	7,214	9,566	8,310	**32,350**
	Capital Contribution/Deposit Works		2,450	2,600	2,650	2,700	2,750	**13,150**
	Total		**5,554**	**6,756**	**9,864**	**12,266**	**11,060**	**45,500**

1.4.3. Business Plan 2022-23 to 2026-27

GEPCO prepared its business plan for the period 2022-23 to 2026-27 in line with strategic road map (SRM) agreed and signed with Ministry of Energy (Power Division) and GEPCO's 8th STG plan approved from BoD GEPCO. First 3-years of this plan i.e., 2022-23 to 2024-25 were incorporated in MYT as revised investment plan. A summary of investment plan is given below;

Table 1-2 Updated Investment Plan submitted with Business Plan 2022-27

Sr No	Description	Unit	2022-23	2023-24	2024-25	2025-26	2026-27	Total
A	**Investment Plan**							
	STG- Own Source/Loan		4,440	6,591	5,971	4,812	3,404	25,218
	DOP	[Mln Rs]	712	712	856	900	900	4,079
	AMR/AMI		900	843	-	-	-	1,743
	SCADA		158	420	473	-	-	1,051
	ERP		55	30	30	30	30	175
	ELR		700	700	700	1,000	1,000	4,100
	Customer Facilitation		250	270	280	300	300	1,400
	Others (Consumer Contribution/ Deposit Works)		2,650	2,700	2,750	2,800	2,800	13,700
	Total		**9,864**	**12,266**	**11,060**	**9,843**	**8,433**	**51,467**
B	**Financing Arrangement**							
	Own Resources	[Mln Rs]	7,214	9,566	8,310	7,043	5,633	37,767
	Capital Contribution/ Deposit Works		2,650	2,700	2,750	2,800	2,800	13,700
	Total		**9,864**	**12,266**	**11,060**	**9,843**	**8,433**	**51,467**

1.4.4. GEPCO MYT 2020-21 to 2024-25

GEPCO's first multi-year tariff (MYT) was approved by NEPRA on 02, June 2022 for the period 2020-21 to 2024-25 while transitioning for single-year tariff to multi-year tariff regime. This MYT incorporated the revised investment plan as per business plan 2020-25 as tabulated in **Table 1-1** above. Separate tariffs were approved for both distribution and supply businesses under this MYT.

1.4.5. GEPCO MYT 2025-26 to 2029-30

GEPCO's next MYT is to be prepared and approved for the period FY: 2025-26 to 2029-30 (5-years or any other period as deemed appropriate). This instance of business plan will lay foundation for the investment and security of supply for the upcoming MYT. GEPCO's investment plan under section-32 will be submitted to NEPRA after necessary revisions in due course of time for formal approval before submitting petition for the MYT.

1.5. Goals of The Business Plan

The Business Plan entails GEPCO's vision, mission, core values, stakeholders' needs, general indicators, sales and consumer forecasts, power supply issues in line with Regulatory Framework as enunciated by NEPRA through approval of CTBCM. The Plan also takes account of limitations, human resources and organizational development, financial projections, regulatory requirements including quality of service, subsidies and legal restrictions affecting timely collection of delinquent payments, performance indices with initiatives and risk assessment and will serve as a central reference document for integrated cross-functional planning, and periodic

performance reviews, that will help GEPCO make informed decisions based on priorities. The Business Plan of GEPCO for the period 2024-25 to 2029-30, in addition to the broader CTBCM framework, is guided by the National Electricity Policy 2021, National Electricity Plan 2023-27, Indicative Generation Capacity Expansion Plan (IGCEP) approved by NEPRA in February 2023, NEPRA (Electric Power Procurement) Regulations 2022, GEPCO's Secondary Transmission Plan as integrated with Transmission System Expansion Plan of NTDC and the Demand Forecast of GEPCO recently submitted to NEPRA.

In line with the National Electricity Policy and Plan, and in pursuance of the SOE Act and Policy, 2023, GEPCO has envisioned a future course of action through development of the Statement of Corporate Intent (SCI), hereinafter also referred to as Strategic Roadmap (SRM) for 2024-25 to 2029-30. For the purpose of the SRM, GEPCO management has carried out a detailed SWOT analysis; which provides the key focus areas, i.e., Strategic Areas, to be worked on during the plan period. The said SRM provides detail of strategic areas and strategic actions to be taken during the SRM period. With the concurrence of GEPCO BOD the management has proposed 8 strategic areas with 48 goals and 5 sub-goals covering some of the main goals.

Annex 1: Corporate SWOT Analysis of GEPCO

Accordingly, the Plan in hand is aligned to the strategic positioning and SRM of GEPCO, as delineated earlier herein above, to establish medium term outlook based on its Electric Power Supplier and Electric Power Distribution Businesses separately. The main goal of the Business Plan, set out by GEPCO, is to ensure and assure itself and consumers towards the adequacy and sufficiency of power supply during the plan horizon and to establish seamless outreach of its power distribution network for all Users through a robust achievable Investment Plan. This plan is a living reference document which will be used by the CEO and senior managers of GEPCO to focus their activities and energies for the next ONE plus FIVE years in making GEPCO an operationally reliable, technically resilient and financially viable company by improving the regulation and governance of the entity, introducing new technologies, including upgrade of existing technology and machinery and improving human resources in line with best utility and business practices worldwide. This plan will also be utilized by the Policy, Strategy, Other Operations and Marketing Committee of the Board for regular monitoring, to ensure that company achieves its stated objectives.

This Investment Plan covers a six-year (1+5 years) period from FY 2024-25 to FY 2029-30, encompassing the following areas:

- Demonstrating GEPCO's Power Supply and Power Distribution capabilities and eligibility.
- Identifying projections of power demand, power resources and population served expected in the time period from 2024-25 to 2029-30
- Illustrating the strategic objectives for 2024-2030, the investment plan is designed for coordinated preparedness to accomplish the strategic goals in the six-year timeframe of the Business Plan.
- Projecting the financial impact on GEPCO's bottom-line of implementing the project plans.

2. BASELINE

2.1. General Information

2.1.1. History

Gujranwala Electric Power Company Limited (GEPCO) has been setup over the area of jurisdiction and electrical network of former Area Electricity Board, which was created in early 80s. At the time of corporatization, it encompassed the areas of existing districts of Gujranwala, Hafizabad, Sialkot, Narowal, Gujrat and Mandi Bahauddin.

Earlier in 1960s, the Govt. of Pakistan (GoP) had decided to set up an independent and autonomous Authority to deal with all available water resources and power system network including power generation, transmission and distribution. The department was formed and named as Water and Power Development Authority (WAPDA), the 2nd biggest department in Pakistan after Pak Army. In 1980s, the power distribution network of WAPDA was sub-divided into eight Area Electricity Boards (AEB), Gujranwala was one of the AEBs among said Area Electricity Boards dealing with power distribution system.

In 1998, WAPDA was dis-integrated into two main sectors PEPCO and WAPDA. Where, WAPDA was restricted to only deal with water resources as well as hydro power generation and PEPCO (Pakistan Electric Power Company) was formed as overall in-charge / Company of Thermal Power Generation (GENCOs: Generation Companies), Transmission (NTDC: National Transmission & Dispatch Company) and Distribution (DISCOs: Distribution Companies). PEPCO was formed as temporary in-charge Company of Pakistan Power Sector reforms, currently the PEPCO has been renamed as Power Planning and Monitoring Company (PPMC) Pvt. Limited to take macro monitoring and planning roles while leaving the micro-management of the affairs of individual companies to the respective Managements and the BODs of each company.

GEPCO was incorporated on 25th April 1998 and obtained certificate for commencement of business on 5th June, 1998. The Management and the Administration is entrusted to its Board of Directors (BOD) nominated by Ministry of Energy (Power Division), Islamabad after approval of Federal Cabinet headed by the Prime Minister of Islamic Republic of Pakistan under the umbrella of regulator i.e., National Electric Power Regulatory Authority (NEPRA).

GEPCO got its first Distribution Licence No. 04/DL/2002 on 23rd April, 2002 under NEPRA Act. After inception of CTBCM regime, GEPCO got its Distribution Licence No. DL/04/2023 on 9th May, 2023 and its supply No. SOLR/04/2023 on 27th December, 2023 under NEPRA Act.

2.1.2. Geographic Coverage

The jurisdiction area of GEPCO comprising upon six administrative districts i.e., Gujranwala, Hafizabad, Sialkot, Gujrat, M.B. Din and Narowal is as under:

Figure 2-1: Geographic Map for service territory of GEPCO

2.1.3. Company Structure

The Organizational structure of the Company under upcoming Whole Sale (CTBCM) scenario including proposed amendments (to be approved by BOD GEPCO) is as under:

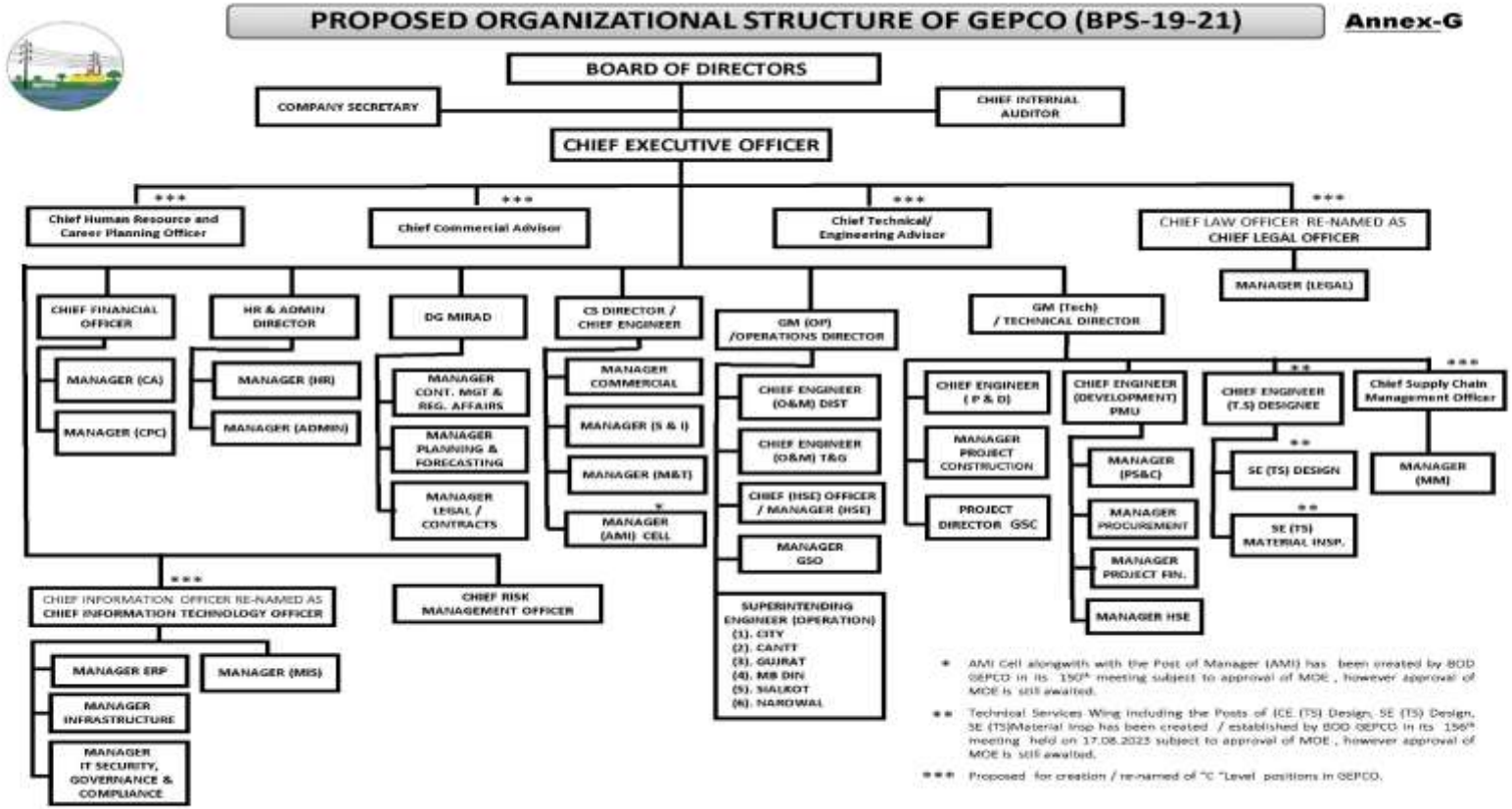


Figure 2-2: GEPCO Organogram (Provisional)

2.1.4. Existing Operation System of GEPCO

The existing operation of the Company is comprising upon the following structure:

Table 2-1 Operating Structure of GEPCO ending June-2024

Formation	Circles	Divisions	Sub Divisions
Operation	6	24	119
Construction	1	6	12
GSO	1	3	18
GSC	1	2	5
M&T	1	7	-
Civil Works	0	1	4
TOTAL	**10**	**43**	**158**

2.2. Existing Secondary Transmission Network

Following is the current detail of Secondary Transmission Network of GEPCO:

- No. of Grid Stations = 62 No. (Excluding 220kV Ghakhar and Sahowala Grid stations)
  - 132 kV Grid Stations = 61 No.
  - 66 kV Grid Stations = 01 No.
- Length of Transmission Line = 2,866 km
  - 132 kV = 2,751 km
  - 66 kV = 115 km
- No. and Capacity of Power Transformers = 186 No, 5,633 MVA
  - 132/11 kV = 184 No, 5,532 MVA
  - 132/66 kV = 01 No, 37.5 MVA
  - 66/11 kV = 01 No, 13 MVA

The proposed projects under DIIP in respect of GEPCO are in accordance with anticipated load assessed through Demand Forecast (Power Market Survey) as detailed in Chapter-3.

Moreover, the comprehensive detail of Secondary Transmission Network along with their loading position is given in Annex as:

Annex 2: Grid wise MVA Capacity of Power Transformers

Annex 3: Max. Recorded Load of Power Transformers

Annex 4: Max. Recorded Load of Transmission lines

2.3. Existing Distribution Network

Following is the detail of Distribution Network of GEPCO:

- No. of 11 kV Feeders = 1,027 No.
- No. of Distribution Transformers = 95,447 No.
- Total Installed Capacity of Distribution Transformers = 6,653 MVA

- Length of 11 kV (HT) Line = 25,460 km
- Length of 0.415 kV (LT) Line = 18,673 km
- HT/LT Ratio = 1.36

The detail of distribution network along with their loading position is given in Annex as:

Annex 5: Max. Load recorded on 11 kV feeders

2.4. Network Performance

2.4.1. Power Outages

Table 2-2 The detail of outages during FY 2023-24

FY	Nature of Outage		132 kV Lines	66 kV Lines	33 kV Lines	11 kV Feeders
2022-23	Planned	No. of Tripping(s)	11	7	-	6,166
		Duration (min.)	2,808	2,100	-	1,188,322
	Forced	No. of Tripping(s)	69	4	-	44,446
		Duration (min.)	44,825	132	-	3,664,408

2.4.2. Performance Indicators

Following table highlights the results achieved by GEPCO in terms of steady improvements made as per NEPRA's Performance Standards for Distribution Companies:

Table 2-3 GEPCO Performance Indicators for last 4 years

Description	2019-20	2020-21	2021-22	2022-23	2023-24
SAIFI (Nos)	25.64	24.8	23.03	22.02	55.89
SAIDI (minutes)	42.4	40.3	38.98	38.59	4,217.94
Fatal Accidents	3	4	3	3	4
Actual T&D Losses (%)	9.53	9.27	9.17	8.91	11.48
Average Daily Load Shedding (hours)	0	1	2	2	1
Recovery (%)	95.03	105.1	99.7	99.86	99.07

2.4.3. Transmission and Distribution Network Losses Details

Table 2-4 GEPCO Network losses for last 2 years

Distribution Network Line Losses					
Period	Units (Millions)			% Losses	% Inc/Dec
	Received	Billed	Lost		
2023-24	11,848	10,573	1,275	10.76	2.68
2022-23	11,374	10,455	919	8.08	-0.15
2021-22	12,563	11,529	1,034	8.23	

Transmission Network Line Losses					
Period	Units (Millions)			% Losses	% Inc/Dec
	Units Received	Units Sent Out	Lost		
2023-24	11,944	11,848	96	0.80	-0.10
2022-23	11,478	11,374	104	0.90	-0.12
2021-22	12,693	12,563	131	1.03	

Overall Company Line Losses					
Period	Units (Millions)			% Losses	% Inc/Dec
	Units Received	Units Billed	Lost		
2023-24	11,944	10,573	1,371	11.48	2.56
2022-23	11,478	10,455	1,023	8.91	-0.26
2021-22	12,693	11,529	1,164	9.17	

Note: %Inc/Dec is with respect to same period last year.

2.4.4. Segregation of Technical and Administrative Losses

The Transmission Network Technical Losses study was conducted in year 2012 by M/s PPI and reported 2.06% losses in Transmission Network. Whereas, the 3rd party study regarding evaluation and segregation of technical and administrative losses of Distribution Network was conducted by M/s Barqaab in J/V with M/s LMKT in 2015-16. The said reports have already been submitted before NEPRA; the abstract of technical losses study is given as:

Table 2-5 Segregation of technical and administrative losses in GEPCO

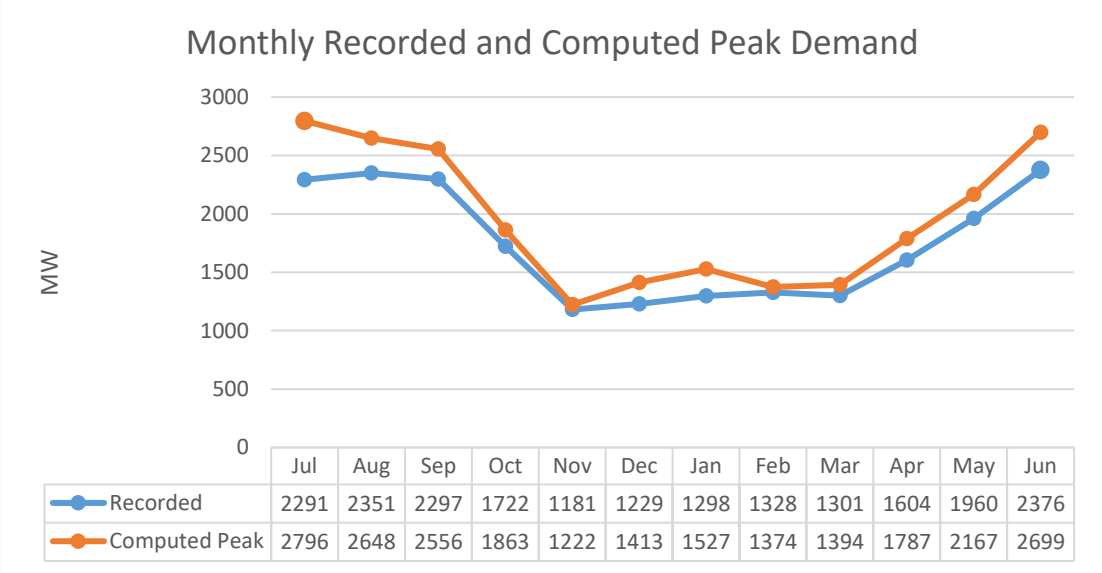
Description	Losses Evaluated by 3rd Party accepted by NEPRA	%age Losses (FY:2015-16) As per 3rd Party Report	Actual Losses (2015-16)	Actual Losses (2022-23)
Transmission Network Losses	M/s PPI Lahore conducted study in 2012 and reported STG loss as 2.06%	1.57% (Actual)	1.57%	0.90%
HT Network Losses	M/s Barqaab in J/V with M/s LMKT (2015-16)	4.22%	9.15%	8.08%
Transformation Losses		1.13%		

Description	Losses Evaluated by 3rd Party accepted by NEPRA	%age Losses (FY:2015-16) As per 3rd Party Report	Actual Losses (2015-16)	Actual Losses (2022-23)
LT Network Losses		3.18%		
Total Distribution Loss %		8.52%		
Administrative Losses		0.68%		
Total Losses:		10.71%	10.58%	8.91%

2.5. Power Demand and Supply

2.5.1. Load Demand

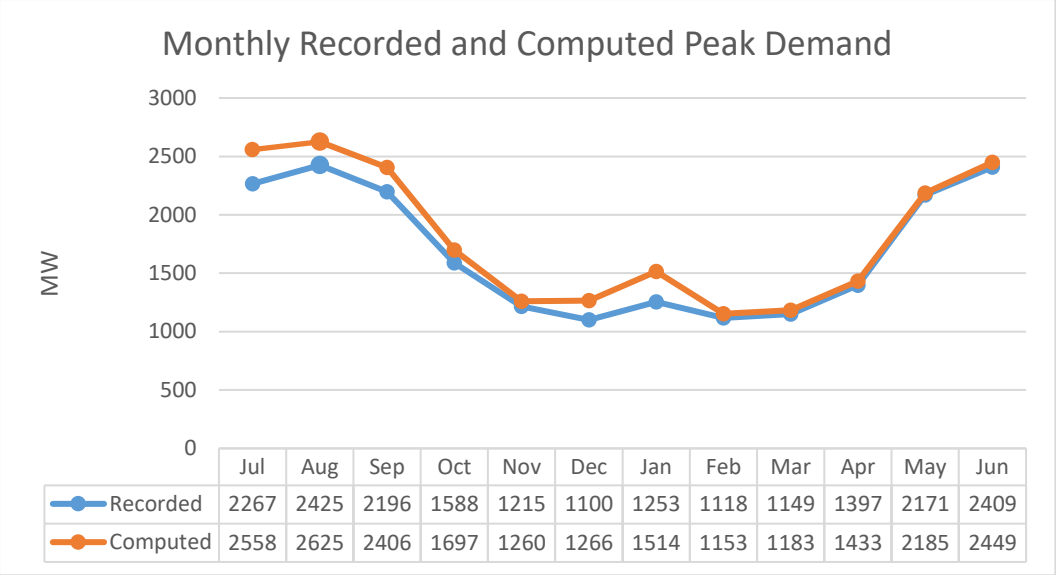
During FY 2022-23 the maximum computed load of 2,796 MW was recorded during 07-2022, whereas the maximum recorded load to the tune of 2,376 MW during 06-2023.



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Recorded	2291	2351	2297	1722	1181	1229	1298	1328	1301	1604	1960	2376
Computed Peak	2796	2648	2556	1863	1222	1413	1527	1374	1394	1787	2167	2699

Figure 2-3: Monthly load profile of 2022-23

During FY 2023-24 the maximum computed load of 2,625 MW was recorded during 08-2023, whereas the maximum recorded load to the tune of 2,425 MW during 08-2023.



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Recorded	2267	2425	2196	1588	1215	1100	1253	1118	1149	1397	2171	2409
Computed	2558	2625	2406	1697	1260	1266	1514	1153	1183	1433	2185	2449

Figure 2-4: Monthly load profile of 2023-24

2.5.2. Sales Mix and Revenue Mix

GEPCO has about 4.71 Million connections with average monthly collection for the year 2023-24, approximately 26.6 Billion Rupees (excluding taxes). The Consumer, Consumption & Revenue Mix of GEPCO is as follows:

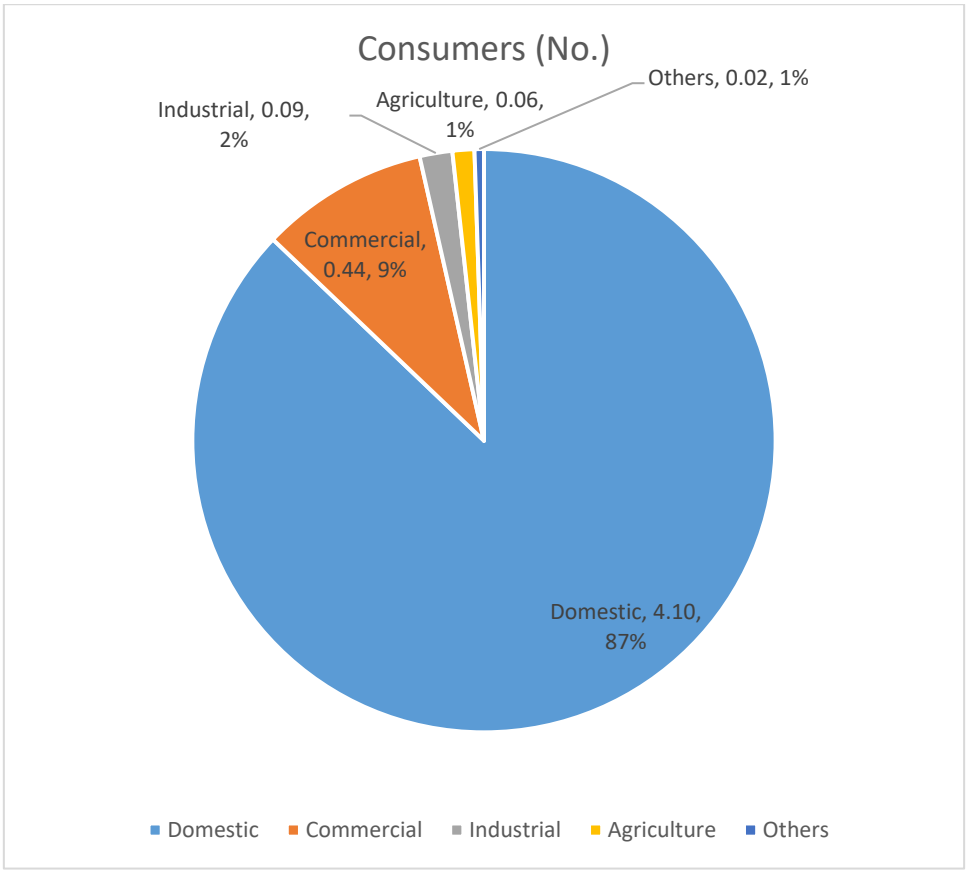


Figure 2-5: category wise Consumer mix of GEPCO

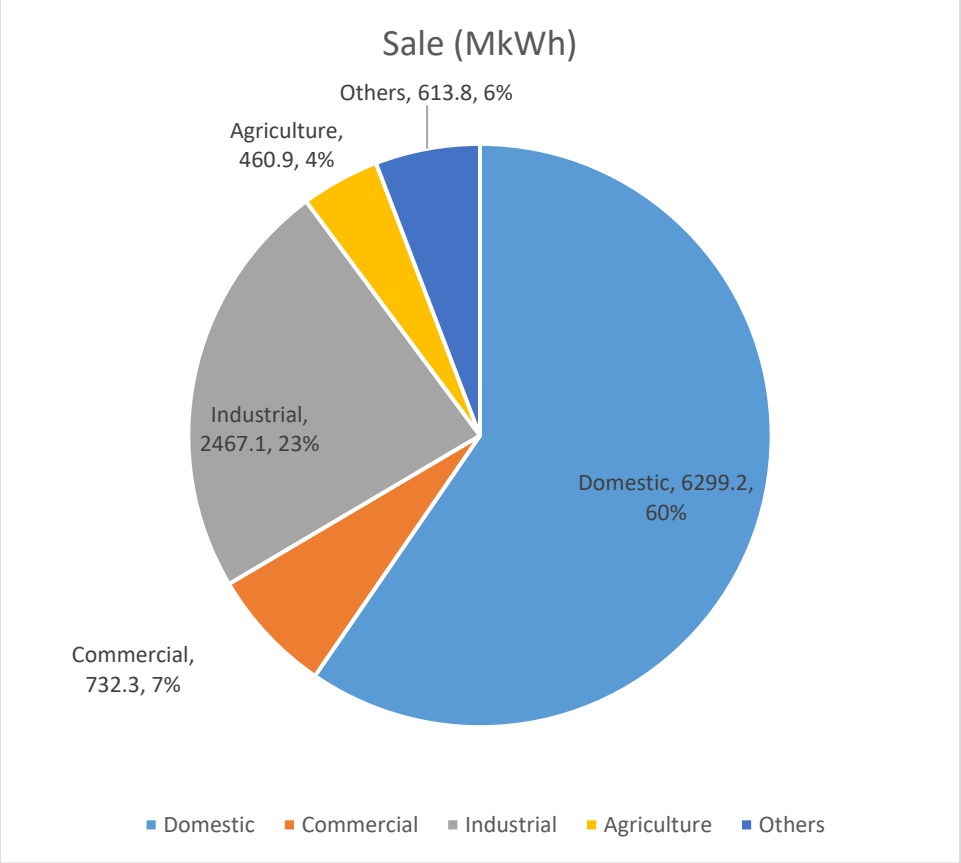


Figure 2-6: category wise sales mix of GEPCO

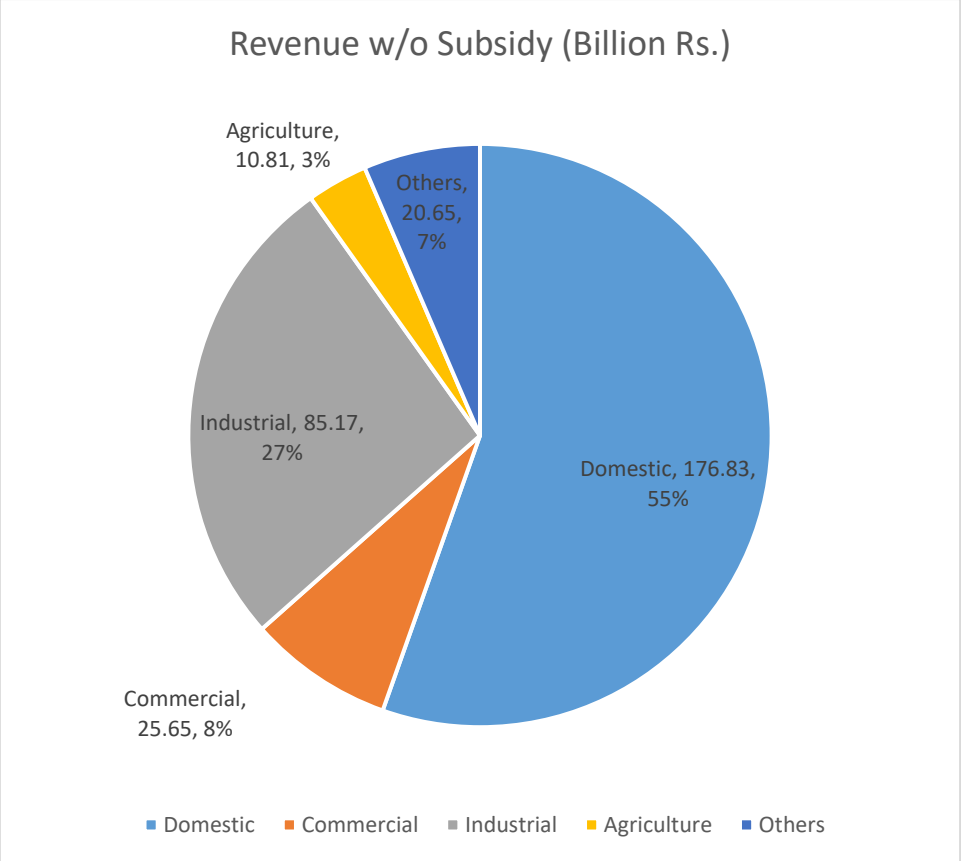


Figure 2-7: category wise revenue mix of GEPCO

2.6. Commercial Management

2.6.1. Statistical Information

Purchase & Sale of Electricity, Network Energy Losses in respect of GEPCO for the last Five years and YTD (Mar-2024) 2023-24 are as below:

Table 2-6 GEPCO Commercial statistics

Years	Units Purchased	Units Sold	Actual Loss	Cost of Electricity	Sales of Electricity
	GWh	GWh	(%)	Million PKR	
2018-19	11,100	10,004	9.87%	127,971	152,895
2019-20	10,993	9,946	9.53%	143,817	150,044
2020-21	12,038	10,922	9.27%	144,511	165,310
2021-22	12,693	11,529	9.17%	228,252	234,609
2022-23	11,478	10,455	8.91%	258,627	305,023
2023-24	11944	10,573	11.48%	313,794	345,017

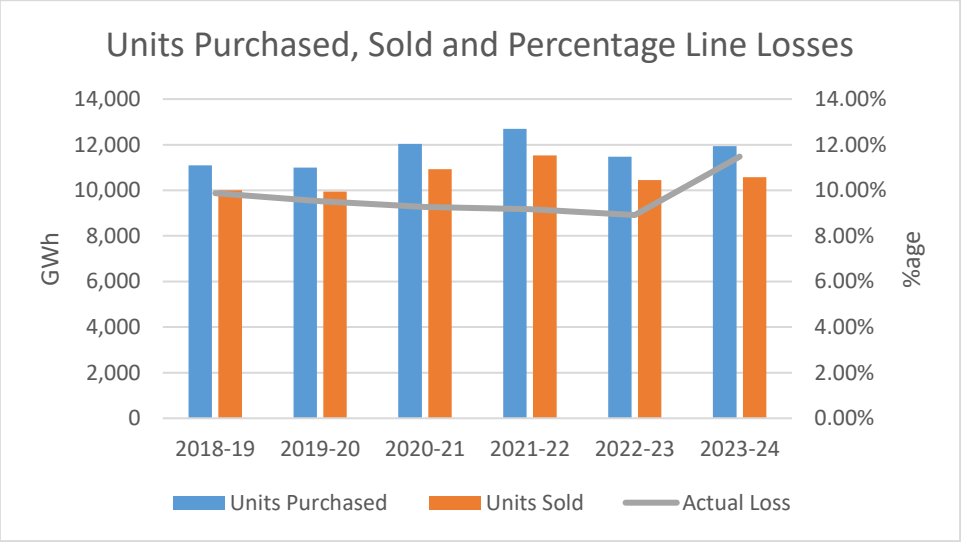


Figure 2-8: Trend of Purchase, Sale and Line losses

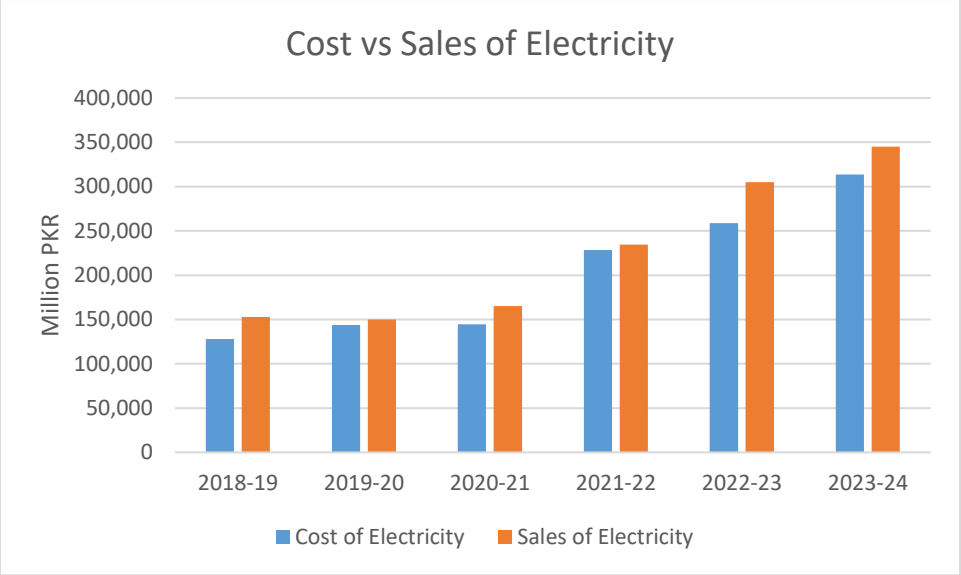


Figure 2-9: Trend of cost and sales of Electricity

2.6.2. Financial Saving Through Reduction in Line Losses

The financial savings achieved through sustained reduction in line losses are:

Table 2-7 GEPCO Financial saving through reduction in losses

Description	Unit	2019-20	2020-21	2021-22	2022-23	2023-24
Sale of Units	GWh	9,946	10,922	11,529	10,455	10,573
Line Losses	%	9.51	9.27	9.17	8.91	11.48
Units to be Purchased at Previous Year's Losses (a)	GWh	11,035	12,070	12,707	11,511	11,354
Units Purchased for the Year (b)	GWh	10,993	12,038	12,693	11,478	11,944
Savings in Units (a-b)	GWh	41.75	32.01	13.47	32.69	-590.31
Average Purchase Rate	Rs./kWh	13.08	12.01	18.00	22.61	26.49
Total Savings	Rs. Million	546	384	242	739	-15,637

2.6.3. Summary of Units Purchased and Billed

Summary of units purchased, units billed, number of consumers, recovery against the billed amounts etc. during the periods FY 2022-23 and FY 2023-24 (YTD up to Mar 2024) are provided as below:

Table 2-8 GEPCO summary of units purchased, sold and recovery

Year	Units Purchased	Units Billed	No. of Consumers in Million	Amount Billed	Amount Recovered	Receivables	Average Rate Per Unit	% OF COLLECTION AGAINST BILLING
	MkWH	MkWH		(Rs. Million)	(Rs. Million)	(Rs. Million)	(Rs.)	
2021-22	12,693	11,529	4.16	249,149	248,407	45,392.99	21.61	99.70%
2022-23	11,478	10,455	4.41	336,507	336,041	43,031	32.19	99.86%
2023-24	11,944	10,573	4.71	454,998	450,775	60,497	43.03	99.07%

2.6.4. Replacement of Defective Meters

GEPCO replaced 464,175 No. of defective energy meters in FY 2022-23 and 320,031 No. in FY 2023-24. More detailed is given below:

Table 2-9 Detail of replacement of defective meters

Period	Total defective meters replaced	Meters Replaced	
		As per CP-90	Without CP-90
2022-23	464,175	156,626	307,549
2023-24	320,031	113,262	206,769

2.6.5. Number of Pending New Connections

GEPCO has 44,934 No. of applications pending for installation at the end of June 2023, and 36,689 application pending installation at the end of Jun-2024. The detail is given as:

Table 2-10 Detail of Ripe, un-Ripe pending new connections

Period	Connections	Pending Application		
	Installed	Ripe	Un-Ripe	Total
2022-23	239,077	24,945	19,989	44,934
2023-24	317,365	9,238	27,451	36,689

2.6.6. Pending Dues

Abstract of GEPCO's Receivable (Debtors) against energy dues as of June 30, 2023 and December 31, 2023, respectively, is given as below:

Table 2-11 GEPCO receivables

Description	As on 30-06-2023	As on 30-06-2024
Govt. Debtors		
Federal Govt.	1,510	2,826
AJK Govt.	4,898	4,299
Provincial Govt.	48	1,759
Total Govt. Debtors	6,456	8,884
Private Debtors		
P/Disconnected	2,258	4,321
Spillover	19,426	31,707
Deferred Amount	5,698	4,726
Subsidies	6,602	6,388
On installments	229	499
Running Defaulters		
Up to 2 Month	2,464	4,800
Above-to 2 Months	291	56
Total Private Running Defaulters	2,755	4,856
Total Private Debtors	36,968	52,495
Un-ID Cash/Credit Balance	(393)	(883)
Net Receivables	43,031	60,497

2.6.7. Customer Service Centers

GEPCO is committed to providing excellent customer service to all its esteemed customers. To this effect a central customer services center is developed and maintained at GEPCO Headquarter, while 6 no. customer service centers are operational in all 6 circle offices of GEPCO. These customer service centers operate as a one-window facility for all customers. In future, GEPCO is planning to extend such customer service centers in far-off division offices of GEPCO.

2.7. Health, Safety and Environment

Taking guidance and wisdom from the Holy Quran:

“and whoever saves the life of a person is as if he has saved the life of the whole of humankind” (Al-Quran 5:32)

GEPCO’s commitment towards health, safety and environment is evident from its **HSE policy**;

“Committed to provide safe & healthy working environment to reduce **potential risks** for prevention of **work-related injuries**, **ill-health** and **damage to environment** within legal requirements through capacity building of all concerned duly giving **recognition to performance** and **reprimand on violation**.”

GEPCO’s HSE directorate is fully functional and consists of dedicated professionals. GEPCO has revolutionized the management of HSE through continued training and development of all field staff and awareness of general public as well as safety inspections and HSE audits. GEPCO ensures availability of PPE and T&P items in filed offices for timely provision to field staff. Status of on-site HSE audits and Behavior Assessment Safety (BAS) Walks for last 5 years is as follows;

Table 2-12 Detail of HSE Audits, workplace visits and BAS Walks

Description	HSE Audits, PPE/T&P Parades	Workplace visits	BAS Walks	Persons Involved in BAS Walks
Year				No.
2019-20	84	386	106	314
2020-21	69	241	42	116
2021-22	193	1817	59	128
2022-23	139	3240	81	204
2023-24	114	7065	125	309

In order to ensure of safety of line staff as well as general public, safety hazards are being identified and being removed by setting right tilted/ broken poles, shifting of line passing above houses etc. Detail of removal of safety hazards for last 5 years is as below;

Table 2-13 Detail of Hazards Removal

Description	Line Staff Hazards removed		Public Safety Hazards removed	
Year	No.	Amount (Rs. Million)	No.	Amount (Rs. Million)
2019-20	1441	57.63	1100	115.05
2020-21	21	1.23	190	19.88
2021-22	775	30.53	698	73.12
2022-23	68	4.89	552	123.07
2023-24	1	0.07	160	51.76

The outcome of all these efforts is evident from the reduction in no. of accidents as detailed below;

Table 2-14 Detail of Fatal/ Non-Fatal Accidents in GEPCO

Description	Employees		Public		Animal	Total Accidents
	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal	
Year						No.
2017-18	10	12	19	13	5	**59**
2018-19	1	10	11	13	4	**39**
2019-20	3	8	5	0	0	**16**
2020-21	4	3	3	1	0	**11**
2021-22	3	2	7	0	0	**12**
2022-23	3	3	6	2	0	**14**
2023-24	4	2	3	1	0	**8**

However, GEPCO is committed to reducing these accidents further to **Zero (0)** accidents in future.

2.8. Commercial Improvement Projects

2.8.1. IT-MIS

An independent IT directorate is operational at GEPCO to look after the complete Management Information System (MIS) related to Company's operation. Currently, 04 No.'s Computer Centers are operational in different cities under the jurisdiction area of GEPCO including Gujranwala, Gujrat, Sialkot and Narowal. The Basic functions of Computer Centers are to manage complete billing process, providing up-dated defaulter list, management of GEPCO web site, updating of GEPCO MIS operations including losses and recovery, employees pay rolls management, computer network management at Company level, Hardware, Software development, maintenance and services etc. GEPCO has successfully implemented the Integrated Billing System (IBS) in collaboration with PITC to ensure efficiency, reliability, transparency and accuracy in the billing and accounting process of the company.

2.8.2. Automation-ERP

To meet with the challenges of new era of technology, it is the requirement of the Company to automate its daily operational activities. GEPCO developed Human Resource Information System and successfully implemented & maintained from last ten years.

Management has taken the initiative to implement ERP (Enterprise Resource Planning) in the Company for prompt information leading to informed judgments and decisions. For this purpose, the Management has already procured the services of M/s A.F. Ferguson & Co., Chartered Accountants, as Quality Assurer for preparation of Feasibility Study, Bid Document, Evaluation Reports, and Program Management & Implementation of ERP in GEPCO. All modules of ERP i.e., FICO, HCM, PS and MM are already live and operational, however, further improvements are being made for paper less environment.

2.8.3. AMI/AMR

GEPCO's AMI projects aims at replacing existing energy meters with AMI enabled energy meters for automatic meter reading as well collection of consumer load profiles, critical events and to control pilferage of electricity through remote detection of theft of electricity and remote disconnection in case of non-recovery.

GEPCO has established an AMI cell comprising a dedicated team of professionals for operation and management of this AMI programme. In line with SCI, GEPCO's AMI project has been divided into 4 phases as below;

Phase 1 >25 kW: Replacement of CT/ PT Operated Energy Meters against B3, B2 and other tariff categories having sanctioned load 25 kW and above

Phase 2 5-25 kW (Industrial & Agriculture): Replacement of Whole current 3-phase energy meters of industrial and agriculture consumers

Phase 3 5-25 kW (All consumers): Replacement of all 3-phase whole current energy meters other than industrial and agriculture consumers

Phase 4 < 5 kW: Replacement of S/Phase energy meters subject to feasibility

Phase-1 of the AMI project has already been completed in 2022-23 and phase-2 of the project is in progress and will be completed up-to Jun-2025.

Current position of installation of AMI meters in GEPCO is as below;

Table 2-15 Status of AMI meters in GEPCO up-to 15-Sep 2024

Sr. No	Name of Circle	HT Meters	LT Meters	3 P Meters	Total
1	City Gujranwala	104	3,888	19,368	23,360
2	Cantt Gurjanwala	96	2,709	17,672	20,477
3	Gujrat	39	1,692	4,167	5,898
4	Sialkot	28	2,621	9,399	12,048
5	Narowal	9	407	2,986	3,402
6	M.B.Din	4	759	4,691	5,454
7	**GEPCO**	**280**	**12,076**	**58,283**	**70,639**

2.9. Capacity Building

2.9.1. Establishment and Operationalization of MIRAD

In line with NEPRA's approval of CTBCM and Roadmap thereof, GEPCO has established Market Implementation & Regulatory Affairs Department (MIRAD) to lead GEPCO team in effective and smooth implementation of CTBCM and be GEPCO's interface thereof. The charter of MIRAD, as envisaged by NEPRA and the Ministry of Energy (Power Division) includes the following functions:

- Bilateral power purchase contract agreement
- Legal and Regulatory affairs
- Billing and settlement with the market operator
- Financial Health Assessment / Security Cover
- Demand Forecasting
- Transmission planning.
- Integrated Business Planning & Performance Monitoring

GEPCO, taking the lead, hired the Director General MIRAD in July, 2021 and subsequently transferred adequate professional, selected through internal competitive process, to MIRAD. Currently all sections of MIRAD GEPCO are fully functional with 18 out of 20 professionals on board. A full scale systematic, periodic and perpetual program for training of MIRAD professional, including professionals of MIRAD GEPCO, sponsored by NEPRA and CPPA-G is also being undertaken, whereby the GEPCO's professionals are the lead beneficiaries.

Further, Policy, Strategy, Other operations & Marketing (PSM) Committee of the Board of Directors of GEPCO is also in place to support and guide MIRAD in complying with its charter as directed by NEPRA and the Ministry of Energy (Government of Pakistan).

2.10. Human Resource Management

Under the leadership and guidance of the Chairman BOD GEPCO and Chief Executive Officer of the Company, HR & Administration directorate manages the recruitment and placement of the "right people on right jobs" as well as enhancing their levels of motivation, morale and job satisfaction to help in achieving the goals of the Company.

The Human Resource and Administration directorate GEPCO team consists of very skilled & qualified professionals with admirable analytical approach.

2.10.1. Existing Status Workforce

To execute, control, maintain the network and provide better services round the clock to our valued customer, As on March 2024, GEPCO consists of 11,343 skilled and energetic professionals. In which 83% consists of technical (9,466-Nos.) and 17% consists of non-technical personal (1,877-Nos):

Table 2-16 Workforce status of officers and officials

Description	Officers		Officials		Total		Grand Total
	Tech	Non-Tech	Tech	Non-Tech	Tech	Non-Tech	
Sanctioned	358	123	13,186	4,544	13,544	4,667	18,211
Working	285	82	9181	1795	9,466	1,877	11,343
Vacant	73	41	4,005	2,749	4,078	2,790	6,868
	114		6,754		6,868		
	23.70%		38.09%		37.71%		

2.10.2. Capacity Building

2.10.2.1 Officers Trained

During the FY: 2022-23, 80 officers (BPS-17 to 19) completed training courses from the WAPDA and GEPCO Institutions, as per detail given below:

Table 2-17 Officers' trainings in GEPCO

Sr. No	NAME OF COURSE / TRAINING	No. Of Officers Trained		
		2021-22	2022-23	2023-24
1	JMC at WAPDA Staff College (JMC)	1	14	15
2	Middle Management Course (MMC)	1	4	12
3	Senior Management Course (SMC)	0	5	5
4	Sector Specific Course for Junior Engineer	2	6	2
5	Technical Refresher Course for XEN	4	7	4
6	Technical Refresher Course for SE	2	2	2
7	Safety Trainings	75	42	32
Total		**85**	**80**	**72**

2.10.2.2 Officials Trained

At Regional Training Centre GEPCO 68 courses / trainings (including safety trainings) were scheduled in which 4,749 No. employee trainings were conducted during FY-2021-22. During the year FY-2022-23 2,996 No. employee trainings were conducted. During the FY: 2023-24 1,786 No. employee trainings have been conducted.

GEPCO is also providing the training opportunities to the newly hired technicians and facilitating the old employees with the training workshops and sessions to upgrade their original skills.

2.11. Financial Management

2.11.1. Investment Made in Last 5 Years

The detail of investment made along-with source of financing in last five years is as:

Table 2-18 Historical investment detail in GEPCO

Description		2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	DOP	245	265	450	485	677	1,255	1,721
2	ELR	410	587	520	605	2,805	2,232	3,973
3	STG-Own Sources	1,338	1,163	1,679	1,732	1,964	3,053	4,103
4	STG-ADB Payments through own sources	287	339	30	-	190	-	-
5	ERP	3	86	285	185	33	28	26
6	Customer Facilitation Program	-	-	507	177	347	-	43
7	AMR/AMI	-	-	-	-	-	1,324	2,583
8	SCADA	-	-	-	-	-	-	67
9	Consumers' Deposit Works	1,960	2,855	3,278	2,758	2,927	7,009	6,561
Total		**4,243**	**5,295**	**6,749**	**5,942**	**8,943**	**14,901**	**19,078**
Financing Arrangement								
Loans		287	339	-	-	-	-	-
PSDP / Own Sources		1,996	2,101	3,471	3,184	6,016	7,892	12,517
Consumers' Financing		1,960	2,855	3,278	2,758	2,927	7,009	6,561
Total		**4,243**	**5,295**	**6,749**	**5,942**	**8,943**	**14,901**	**19,078**

The capital expenditure figures for the year 2023-24 ending Jun 30, 2024 are provisional.

2.11.2. Project Design and Implementation System of GEPCO

At present projects are being executed through the following financial arrangements:

i. GEPCO Own resources

ii. Consumer Deposits

However, GEPCO has ability to attract international and local funding against projects based on strength of its balance sheet. For future projects, if needed, GEPCO may explore financing from international lenders and local banks.

2.11.3. Financial Performance

The Overall Financial Performance (Profit / Loss) is as follows:

Table 2-19 Historical Profit/ loss detail in GEPCO

PROFIT AND LOSS ACCOUNT						(Rs. in Mln)
Description	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (Provisional)
Revenue						
Electricity Turnover	152,895	150,044	165,310	234,609	305,023	345,017
Cost of Electricity	(127,971)	(143,817)	(144,511)	(228,252)	(258,627)	(313,794)
Gross Profit	24,925	6,227	20,799	6,357	46,395	31,223
Amortization of Deferred Credit	910	1,014	1,111	1,241	1,417	1,486
	25,834	7,241	21,911	7,598	47,813	32,709
Operating Cost						
O&M Cost	(16,878)	(21,270)	(19,866)	(27,074)	(27,402)	(31,994)
Depreciation	(2,112)	(2,270)	(2,430)	(2,629)	(2,984)	(3,308)
Total Expenses	(18,990)	(23,540)	(22,296)	(29,703)	(30,386)	(35,301)
Operating Profit	6,844	(16,299)	(385)	(22,105)	17,427	(2,592)
Other Income	2,019	3,019	3,413	3,689	8,076	6,552
EBIT	8,863	(13,280)	3,027	(18,416)	25,503	3,960
Financial Charges	(1,594)	(1,498)	(1,582)	(1,626)	(1,682)	(1,694)
EBT	7,269	(14,779)	1,445	(20,042)	23,821	2,266
Taxation	(773)	(342)	(369)	(544)	(937)	(2)
Profit/ (Loss) After Taxation	6,496	(15,120)	1,076	(20,586)	22,884	2,263

The trend of Equity, Liabilities and Assets (provisional figures for 2023-24) is depicted below;

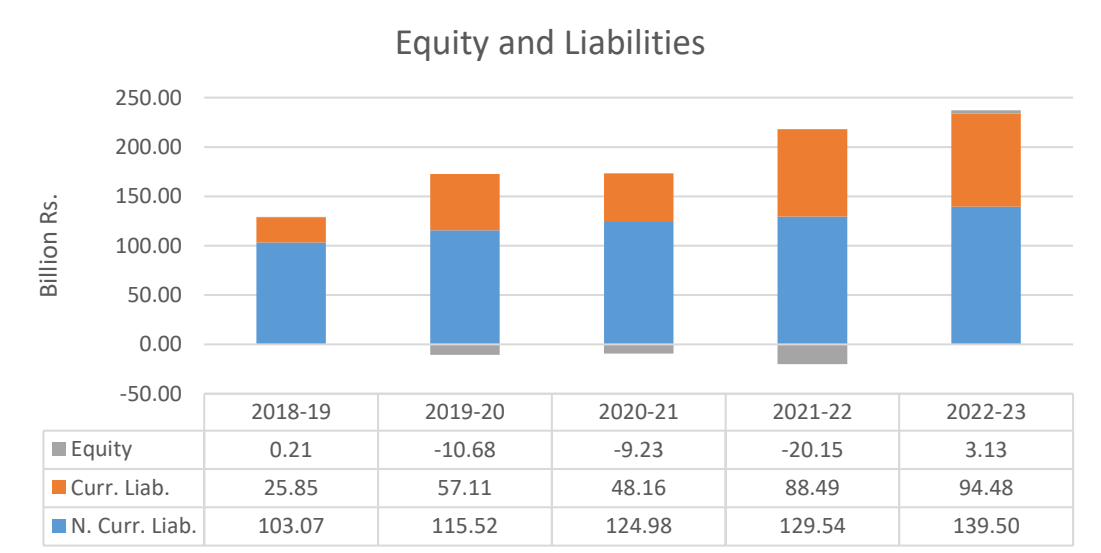


Figure 2-10: Trend of Equity and Liabilities of GEPCO

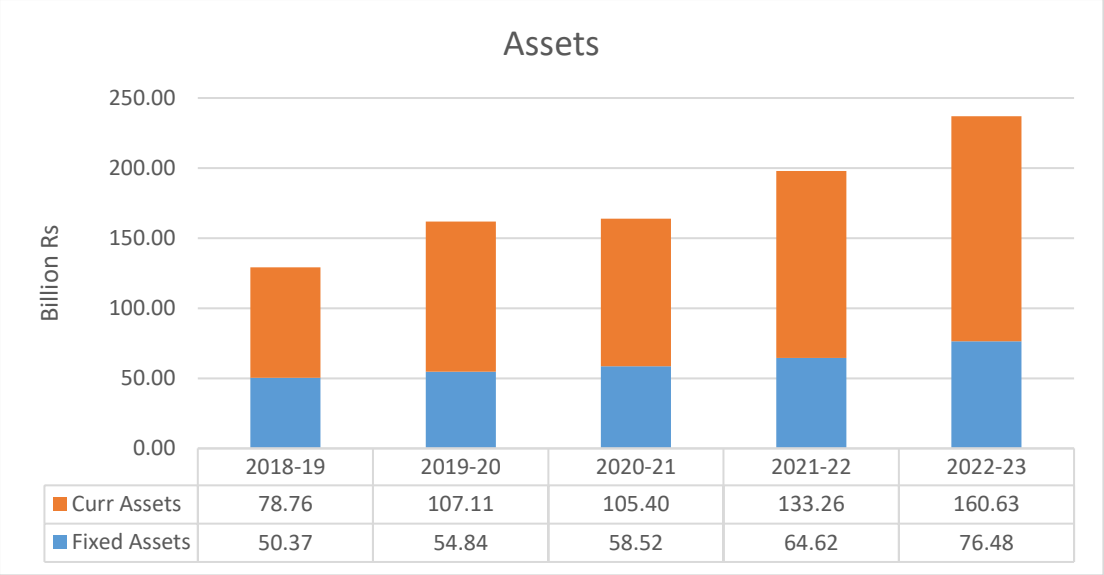


Figure 2-11: Trend of Assets in GEPCO

Ratio Analysis is given as:

Table 2-20 Historical Ratio analysis for GEPCO

Ratio Analysis	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Profit Ratio -%	16.30%	4.15%	12.58%	2.71%	15.21%	9.05%
Operating Expense Ratio-%	12.42%	15.69%	13.49%	12.66%	9.96%	10.23%
Net Profit Ratio-%	4.25%	-10.08%	0.65%	-8.77%	7.50%	0.66%
Interest Coverage Ratio	5.56	-8.86	1.91	-11.33	15.16	2.34

2.12. Internal Control

- **Investment Approval:**

Investment approval is requested each year in different heads including STG, ELR, DOP and other system development programs and approved by the GEPCO BOD on recommendation of the TF&P Committee.

- **Internal Audit:**

Internal Audit is functioning as a part of internal control in GEPCO for efficient and effective utilization of funds. The scope of internal audit is:

- To review major decisions for economy, efficiency and effectiveness.
- To review the measures employed to safeguard assets and conduct physical verification of such assets and to review actual vs budgeted income / expenses and assess reasons for major variances.
- To review the suitability of the accounting policies employed and to review the accounting and internal control systems including design of the system and monitoring their operations.

2.13. Analysis of main issues being faced by GEPCO

- **Financial Issues:**

The Company has the following financial issues:

- Tax Issues with FBR
- Subsidies
- AJK Receivables etc.

- **Investment Needs:**
  - STG head
  - ELR head
  - DOP head
  - Other system development program
- **Shortage of Staff:** GEPCO is facing shortage of 114-Nos. officers out of which 73-Nos are technical whereas 41-Nos are non-technical officers. Furthermore, 6,754-Nos posts of officials are also vacant due to which it is very problematic to manage the operational & maintenance work of the company. Overall, GEPCO is facing shortage of 6,868-Nos of employees, working strength is 11,343 out of 18,211.

3. DEMAND FORECAST FOR NEXT FIVE YEARS

3.1. Consumer Growth by Category

Table 3-1 Consumer Growth by Category

							(Nos in Million)
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Domestic	4.36	4.62	4.89	5.17	5.46	5.76	6.07
Commercial	0.45	0.47	0.48	0.50	0.52	0.54	0.56
Industrial	0.09	0.09	0.09	0.10	0.10	0.10	0.11
Agriculture	0.06	0.06	0.06	0.06	0.07	0.07	0.07
Other	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Total	**4.98**	**5.26**	**5.55**	**5.86**	**6.18**	**6.50**	**6.84**
Growth%	5.77%	5.62%	5.58%	5.47%	5.41%	5.30%	5.24%

3.2. Net-Metering Projections

Net Metering Trajectories and impact on forecast							
Year	Annual Net Metering Addition		Cumulative Net Metering Connections		Cumulative Expected Energy Produced by Additional Net-metering base year	Cumulative Purchase from Net Metering at Sale level	Cumulative Net metering consumers self-utilization
	No.	MW	No.	MW	MkWh	MkWh	MkWh
2023-24	13,777	148.97	18,262	234.56			
2024-25	26,154	340	44,416	574.56	475	224	251
2025-26	28,769	374	73,185	948.56	1,007	474	533
2026-27	31,646	411.4	104,831	1,359.96	1,591	749	843
2027-28	34,811	452.54	139,642	1,812.50	2,235	1,052	1,183
2028-29	38,292	497.8	177,934	2,310.30	2,942	1,385	1,558
2029-30	42,121	547.57	220,055	2,857.87	3,721	1,751	1,970
2030-31	46,333	602.33	266,388	3,460.20	4,577	2,154	2,423
2031-32	50,966	662.56	317,354	4,122.76	5,519	2,597	2,922
2032-33	56,063	728.82	373,417	4,851.57	6,555	3,085	3,470
2033-34	61,669	801.7	435,086	5,653.27	7,694	3,621	4,074

Note: Above Net-Metering Projections are based on the historical trends of net-metering till date and with the assumption of continuity of Net-Metering regulations/ policy in current shape. However, above projections do not guarantee/ ascertain the capability of distribution and transmission network of GEPCO to cater for this increasing growth in Net-Metering. GEPCO is planning to conduct a detailed hosting capacity study in this regard, the results of this study will be shared with the Authority in due course of time.

3.3. Losses Targets:

The targets of line losses used in this demand forecast are provided below;

Year	LT Loss	HT Loss	Distribution Loss	Transmission Loss	Total Loss
2023-24 (Reported)	5.32%	5.75%	10.76%	0.80%	11.48%
2023-24 (Adjusted with 11kV Import)	5.18%	5.80%	10.68%	0.89%	11.48%
2024-25	3.82%	4.44%	8.09%	0.88%	8.90%
2025-26	3.80%	4.42%	8.05%	0.87%	8.85%
2026-27	3.77%	4.40%	8.01%	0.86%	8.80%
2027-28	3.75%	4.38%	7.97%	0.85%	8.75%
2028-29	3.73%	4.36%	7.93%	0.84%	8.70%
2029-30	3.71%	4.34%	7.89%	0.83%	8.65%

LT Loss is with respect to received at LT portion of the network i.e., (Sales + LT Losses)

HT Loss is with respect to received at HT portion of the network i.e., (Sales + LT Losses + HT Losses) = (Net Sent out at 11 kV + Net-Metering Export)

Transmission Loss and total loss is with respect to total company receipt i.e., Net-Received at 132 kV + Net-Metering Export

An Alternative to reference for loss calculation is provided below;

Year			1	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Units Received CDP	CPPA	GWh	2	11,813	11,398	11,143	10,803	10,457	10,104	9,725
	SPP	GWh	3	31	33	33	33	33	33	33
	Total	GWh	4=(2+3)	**11,844**	**11,432**	**11,176**	**10,836**	**10,491**	**10,138**	**9,759**
T&T Losses		GWh	5 = 4-7	96	103	101	100	98	97	96
		%age	6=5/4x100	**0.81%**	0.90%	0.91%	0.92%	0.94%	0.95%	0.98%
Sent Out at 11 kV		GWh	7	**11,748**	**11,329**	**11,075**	**10,737**	**10,393**	**10,041**	**9,663**
Export from Net-Meter		GWh	8	**100**	**224**	**474**	**749**	**1,052**	**1,385**	**1,751**
Available for Distribution		GWh	9=7+8	**11,848**	**11,553**	**11,549**	**11,485**	**11,445**	**11,425**	**11,414**
Distribution Losses		GWh	10=9-12	1,275	935	930	920	912	906	900
		%age	11=10/8x100	10.76%	8.09%	8.05%	8.01%	7.97%	7.93%	7.89%
Units Sold		GWh	12	**10,573**	**10,618**	**10,619**	**10,566**	**10,533**	**10,520**	**10,514**
Total System Receipts		GWh	13=4+8	**11,944**	**11,655**	**11,650**	**11,585**	**11,543**	**11,522**	**11,509**
T&D Losses		GWh	14=13-12	**1,371**	**1,037**	**1,031**	**1,019**	**1,010**	**1,002**	**996**
		T&T %age	15=5/13x100	0.80%	0.88%	0.87%	0.86%	0.85%	0.84%	0.83%
		Dist. %age	16=10/13x100	10.67%	8.02%	7.98%	7.94%	7.90%	7.86%	7.82%
		Total %age	17=14/13x100	**11.48%**	**8.90%**	**8.85%**	**8.80%**	**8.75%**	**8.70%**	**8.65%**

Here,

Transmission Losses (6) are referred with respect to receipt of Transmission network i.e., Net-Received at 132 kV

T&T and Distr. Losses at (15, 16) above are both referred w.r.t to GEPCO Receipt i.e., Net-Received at 132 kV + Net-Metering Export.

3.4. Global Energy Demand Forecast

Table 3-2 Energy and Demand Forecast (Recorded)

Year	Energy Sale		Distribution Losses		Energy Received at 11 kV	Peak Demand at 11KV	Transmission Losses		Energy Sent Out	Total Loss	Energy Purchased from the System (GWh)	Load Factor	Peak Demand
	(GWh)	G.R (%)	(GWh)	(%)	GWh	MW	(GWh)	(%)	(GWh)	(%)		(%)	(MW)
2023-24	10573		1275	10.76%	11848	2425	96	0.80%	11944	11.48%	11844	55%	2445
2024-25	10618	0.4%	935	8.09%	11553	2423	103	0.88%	11655	8.90%	11432	53%	2444
2025-26	10619	0.0%	930	8.05%	11549	2469	101	0.87%	11650	8.85%	11177	51%	2490
2026-27	10566	-0.5%	920	8.01%	11486	2524	100	0.86%	11586	8.80%	10837	49%	2546
2027-28	10533	-0.3%	912	7.97%	11445	2576	98	0.85%	11543	8.75%	10492	46%	2598
2028-29	10521	-0.1%	906	7.93%	11426	2658	97	0.84%	11523	8.70%	10139	43%	2680
2029-30	10515	-0.1%	900	7.89%	11415	2732	96	0.83%	11511	8.65%	9760	40%	2755
	-0.1%				-0.6%	2.0%			-0.6%		-3.18%		2.01%
2030-31	10484	-0.3%	892	7.84%	11376	2827	94	0.82%	11470	8.60%	9316	37%	2850
2031-32	10420	-0.6%	882	7.80%	11302	2906	92	0.81%	11394	8.55%	8797	34%	2929
2032-33	10337	-0.8%	870	7.76%	11207	3009	90	0.80%	11297	8.50%	8213	31%	3034
2033-34	10203	-1.3%	854	7.72%	11056	3093	88	0.79%	11144	8.45%	7524	28%	3118
CAGR (2022-23)	-0.36%				-0.69%	2.46%			-0.69%		-4.44%		2.46%

Table 3-3 Energy and Demand Forecast (Computed)

Year	Energy Sale		Distribution Losses		Energy Received at 11 kV	Peak Demand at 11KV	Transmission Losses		Energy Sent Out	Total Loss	Energy Purchased from the System (GWh)	Load Factor	Peak Demand
	(GWh)	G.R (%)	(GWh)	(%)	GWh	MW	(GWh)	(%)	(GWh)	(%)		(%)	(MW)
2023-24	10940		1319	10.76%	12259	2625	99	0.80%	12358	11.48%	12259	52.9%	2646
2024-25	10985	0.4%	967	8.09%	11952	2620	106	0.88%	12058	8.90%	11834	51.1%	2644
2025-26	10986	0.0%	962	8.05%	11948	2668	105	0.87%	12053	8.85%	11579	49.1%	2692
2026-27	10933	-0.5%	952	8.01%	11885	2727	103	0.86%	11988	8.80%	11239	46.6%	2750
2027-28	10900	-0.3%	944	7.97%	11844	2781	101	0.85%	11945	8.75%	10894	44.3%	2805
2028-29	10887	-0.1%	938	7.93%	11825	2867	100	0.84%	11925	8.70%	10540	41.6%	2891
2029-30	10882	-0.1%	932	7.89%	11814	2945	98	0.83%	11912	8.65%	10161	39.1%	2969
	-0.09%				-0.61%	1.93%			-0.61%		-3.08%		1.94%
2030-31	10850	-0.3%	923	7.84%	11773	3044	98	0.82%	11871	8.60%	9717	36.1%	3069
2031-32	10786	-0.6%	913	7.80%	11699	3127	96	0.81%	11795	8.55%	9198	33.3%	3153
2032-33	10704	-0.8%	901	7.76%	11604	3236	94	0.80%	11698	8.50%	8614	30.1%	3262
2033-34	10570	-1.3%	884	7.72%	11454	3324	91	0.79%	11545	8.45%	7924	27.0%	3350
CAGR (2022-23)	-0.34%				-0.68%	2.39%			-0.68%		-4.27%		2.39%

3.5. Consumer Category wise Demand Forecast

Table 3-4 Category Wise Energy and Demand Forecast (Recorded)

Description			Domestic	Commercial	Public Light	Small Industries	M&L Industries	Tube Well	Bulk	Total
Low Forecast (Recorded)	Energy	Base Year (2023-24)	6743	732	15	483	1985	461	155	10573
		2026-27	6914	680	16	452	1850	495	159	10566
		2029-30	7184	618	17	410	1619	506	161	10515
		2033-34	7371	483	18	356	1288	520	167	10203
		GR (CAGR)	0.9%	-4.1%	2.1%	-3.0%	-4.2%	1.2%	0.8%	-0.4%
	Demand	Base Year (2023-24)	1735	210	4	145	453	125	32	2164
		2026-27	1864	229	5	153	479	137	34	2323
		2029-30	2030	258	5	164	509	144	35	2517
		2033-34	2304	308	5	185	570	157	35	2854
		GR (CAGR)	2.9%	3.9%	1.7%	2.5%	2.3%	2.3%	0.8%	2.8%

Table 3-5 Category Wise Energy and Demand Forecast (Computed)

Description			Domestic	Commercial	Public Light	Small Industries	M&L Industries	Tube Well	Bulk	Total
Base Forecast (Computed)	Energy	Base Year (2023-24)	6977	758	15	499	2053	477	160	10940
		2026-27	7148	706	16	469	1918	512	164	10933
		2029-30	7419	645	17	426	1687	522	166	10882
		2033-34	7606	511	19	372	1356	535	171	10570
		GR (CAGR)	0.9%	-3.9%	2.0%	-2.9%	-4.1%	1.2%	0.7%	-0.3%
	Demand	Base Year (2023-24)	1878	227	5	157	490	135	35	2343
		2026-27	2014	247	5	165	518	148	37	2509
		2029-30	2188	278	5	176	548	155	37	2713
		2033-34	2476	331	5	199	613	169	38	3067
		GR (CAGR)	2.8%	3.8%	1.7%	2.4%	2.3%	2.2%	0.8%	2.7%

3.6. District Wise Demand Forecast

Table 3-6 District Wise Energy and Demand Forecast Growth Rates

Description		Energy Sale	Energy Purchased at 132KV	Peak Demand at 132KV
Gujranwala	GR (CAGR)	-0.16%	-4.32%	3.20%
Gujrat		0.58%	-2.11%	2.55%
Hafizabad		0.91%	-1.13%	2.35%
Mandi B. Din		-0.02%	-3.34%	2.45%
Sialkot		-2.85%	-12.78%	2.64%
Narowal		2.19%	1.21%	2.61%

Annex 6: GEPCO Demand Forecast Report 2024-34

4. GOALS AND OBJECTIVES FOR THE PLAN PERIOD

(Strategic Roadmap/ Statement of Corporate Intent)

4.1. Improving Customer Service

Table 4-1 Strategic Area 1: Improving Customer Service

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
1.1. Alignment of workflows / processes with integrated consumer e-platform	a) Consumer Service Response Handbook developed	Developed	Maintain & Update						
	b) Platform established (by PITC)	Developed	GEPCO Workflows and performance monitoring to be integrated with central E-Platform						
	c) DISCO workflows aligned & performance monitoring of customer services linked with integrated e-platform	Partially Compliant		Enable Logging of applications / requests / services of the electricity consumers at central platform					
1.2. Customer service responsiveness	% of violation a) Currently based on CCMS till FY-2023 b) Commencing from FY-2024, it shall be based on central E-Platform	0%	Current status to be maintained.						
1.3. Time frame for new connections (a) Voltage level up to 400 V and load up to 15 kW	% of violation a) Currently based on ENC till FY-2023	20	15	10	5	5	5	5	5

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
(b) Voltage level up to 400 V and load above 15 kW but not exceeding 70 kW	b) Commencing from FY-2024, it shall be based on central E-Platform)	16	14	12	8	5	5	5	5
(c) Voltage level up to 400 V and load above 70 kW but not exceeding 500 kW		16	14	12	8	5	5	5	5
(d) Voltage level 11 kV or 33 kV and load above 500kW but not exceeding 5000 kW		20	15	10	5	5	5	5	5
(e) Voltage level 66 kV and above for all loads		0	0	0	0	0	0	0	0
(f) Aggregated (All new connection applications)		18	15	11	7	5	5	5	5
1.4. Reduction in no. of documents /approvals	Identification of the requisite documents pursuant to targets of NE-Plan for various consumer classes: a- Residential: 2 documents	4	4	2	Will be maintained				
	b- Commercial: 3 documents	4	4	3	Will be maintained				
	c- Industrial: 5 documents	7	7	5	Will be maintained				
1.5. Customer awareness programs	No. of awareness programs (print media / social media / local cable networks)	6	6	6	6	6	6	6	6

4.1.1. Alignment of workflows/ processes with integrated consumer E-platform

With the goal to align GEPCO workflows and processes with integrated consumer e-platform, current workflow and process areas have been identified and assessed which need to be integrated with E-platform and will result in value addition and/or improved efficiency. These identified areas are;

4.1.1.1 Consumer Service Response Handbook

The Customer Service Response Handbook (CSRH) has already been developed, to be updated as and when required. This CSRH serves as a comprehensive guide for the consumers to interact with GEPCO. It provides detailed information on various channels (conventional and unconventional) by which consumers can lodge and track their complaints/ or give suggestion for service improvement and ensures a seamless experience for consumers. Some key points included in the CSRH are listed below;

Contact Information: Provides distinct contact details for different inquiries, such as general queries, billing issues, outage reporting and emergency contacts.

Communication Channels: Outlines various communication channels available to consumers, such as phone, SMS, email, mobile apps and web portals.

Emergency Response: Explains how consumers can request for emergency response in cases of urgency of service requirements anywhere e.g., Electrical Hazard or Natural Disaster etc.

4.1.1.2 E-Platform establishment

An integrated E-Platform has been established centrally by PITC for DISCOs to streamline the process of handling and reporting consumer complaints (https://ccms.pitc.com.pk/complaint). This platform facilitates consumers in submitting new connection and related (change of name, load, tariff), complaints online, including line, non-line, power outage, billing complaints and lead requests. Complaints can be registered through SMS (at 8118), Web-Portal, mobile applications and call (at 118). This integrated e-platform enables consumers to report their complaints quickly and conveniently and enables GEPCO to address and resolve them in a timely manner.

4.1.1.3 GEPCO workflows aligned & performance monitoring of customer services linked with integrated E-platform

GEPCO workflows and processes regarding customer service have been aligned with customer E-Platform by establishing responsibility and redressal timeline for each type of complaint. Performance monitoring of employees related to customer service shall be based upon the E-platform data.

4.1.2. Customer Service Responsiveness

As per Direction of MoE (PD) each and every complaint is registered through integrated E-platform (Customer Complaint Management System, CCMS) and average percentage violation in consumer service responsiveness is calculated through following procedure:

Cumulative allowed time of all the incoming complaints is computed from the CCMS; in such a way that all the incoming complaints are grouped into their respective categories and allowed time of each respective complaint is multiplied by the number of complaints in that category.

Cumulative actual complaint resolution time is evaluated based on the total time taken to resolve the incoming complaints (based on CCMS); in such a way that all the actual resolution time of the complaints by the consumers is summed up. Finally average percentage violation is computed. Currently GEPCO is compliant as Power Division has established a target to progressively reduce the underlying metric to 0% violations which GEPCO already achieved and will be maintained in next years.

4.1.3. Time frame for new connections

Pursuant to the Consumer Service Manual (January 2021) Section 2.10 and associated Annexure III, which obligates that each DISCO shall provide percentage violations in following categories:

a) Voltage level up to 230/400 V and load up to 15 kW

b) Voltage level up to 230/400 V and load above 15 kW but not exceeding 70 kW

c) Voltage level up to 230/400 V and load above 70 kW but not exceeding 500 kW

d) Voltage level 11 kV or 33 kV and load above 500 kW but not exceeding 5000 kW

e) Voltage level 66 kV and above for all loads

f) Aggregated (all new connection applications)

Following measures have been identified and implemented to minimize delays in providing connections to applicants;

Application Submission: Application submission procedures have been streamlined as Application forms are available online in English/ Urdu at the same time (https://enc.com.pk/) to ensure that all necessary documents are submitted and verified promptly.

Infrastructure Readiness: A web-based new connection application has been developed in coordination with PITC and all new connection, Extension/ Reduction of Load and Change of Name applications are being received and processed through online web application.

Resource Allocation: Resource allocation has been optimized to ensure that sufficient staff and equipment are available to handle connection requests efficiently.

Communication: Enhancement of communication channels with applicants to provide regular updates on the status of their applications and provision of a very easy to understand web-based page for regular update about customer application.

Performance Monitoring: Performance Evaluation Report of SDOs has been amended to include promptness for providing new connections to applicants as a performance matric. A mechanism is being developed through PITC to monitor progress each field staff for new connection.

By implementing these measures, delays in new connections will be minimized and the performance standards set by the Authority will be achieved. Performance will be continuously monitored closely and further improvements will be made as necessary.

4.1.4. Reduction in number of documents/ approvals

As per Strategic Directive 119 of NE Plan 2023-27,

“Number of documents required for the purpose of connection services for the consumers shall be progressively reduced as under:

a) residential: 2 documents;

b) commercial: 3 documents;

c) industrial: 5 documents.

Provided further, commencing from December 2023, only online submission of documents, for the purpose of connection services, shall be accepted by the DISCOs. Provided further, Regulator shall accordingly amend the Consumer Service Manual to give effect to this Strategic Directive".

GEPCO is in consultation with PPMC, have identified redundant/un-necessary documents / approvals that may be removed and MoE(PD) on behalf of GEPCO shall take up the matter with the Authority for revision of the Consumer Service Manual.

Currently; Residential connection applicants have to provide (04) documents (viz Applicant CNIC, Witness CNIC, Property proof, Affidavit). These requirements will be minimized to (02) documents (viz applicant CNIC, Property proof), Commercial connection applicants have to provide (05) documents (viz Applicant CNIC, Witness CNIC, Test Report, Property proof, Affidavit). While we are in a process to minimize these requirements up to (03) documents (viz applicant CNIC, Test Report, Property proof) and similarly; for Industrial connection applicants, document requirement will be curtailed to (05) from (07) by 2024-25.

4.1.5. Customer Awareness programs

To encourage customer awareness and achieve public awareness of rationales behind various policy decisions, GEPCO is carrying out mass outreach programs through various means, like social media, electricity bills, print media and electronic media.

Social media: GEPCO maintains active profiles on popular social media platforms such as Facebook, X(Twitter), and Instagram. Through these platforms, updates about services, response to consumer queries and consumer feedback are managed. Social media allows to engage directly with consumers in real-time and address their concerns promptly.

Local Cable Networks: Collaboration with local cable networks is made to broadcast informative videos and commercials that educate customers about services and initiatives of GEPCO. Broadcasting on local cable networks ensures that desired message reaches a wide audience, including those who may not have access to digital media.

Some thematic areas for the said programs are energy efficiency, complaint management system, safety, incentive schemes and Net Metering etc.

4.2. Operational Excellence

Table 4-2 Strategic Area 2: Operational Excellence

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets							Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29 / FY- 29-30		
2. Operational Excellence	2.1. 3rd Party assessment of technical losses of distribution and transmission (132 kV)	Segregation of technical and administrative losses	-	Bidding and Award of Work	Completion and submission to NEPRA	Implementation and continued compliance to the recommendations of study.				CE (P&E)	CE (P&E)
	2.2. Improvisation of Medium-Term Load Forecasting Tool	Accurate Medium Term demand forecasting	Visual FoxPro based PMS tool	In-house development of MTLF tool in Python	Development of robust MTLF tool through 3rd party with integration of IBS, LDI, AMI etc.	Implementation and updating of MTLF tool				DG (MIRAD)	DG (MIRAD)
	2.3. Development of Short-Term Load Forecasting Tools.	Accurate Short term Demand Forecasting	Humanly estimated STLF	Hourly Demand data from Jan-2022 to May-2023 collected from PITC	Acquisition of historical and current data from PITC	Development of STLF tool through 3rd party with live integration of LDI Galaxy	Implementation and updating of STLF tool.			DG (MIRAD)	DG (MIRAD)

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
	2.4. Progressive reduction in losses	Line Loss (%)	8.91%	11.48%	8.90%	8.85%	8.80%	8.75%	8.70%	8.65%	CSD	CE (O&M)
		(a) technical losses (%)	8.82%	11.39%	8.82%	8.77%	8.73%	8.68%	8.64%	8.59%		
		(b) administrative losses (%)	0.09%	0.09%	0.08%	0.08%	0.07%	0.07%	0.06%	0.06%		
	2.5. Progressive improvement in recoveries	Actual recoveries % (recoveries improvement%) e.g. FY-23: 100% (0.33%)	99.86%	100%	100%	100 %	100 %	100 %	100 %	100 %	CSD	CSD/ CE (O&M)
	2.6. Progressive reduction in revenue-based load shedding from Feeder-based to Targeted segment/transformer/consumer based	No. of feeders in following categories: a- CAT-III b- CAT IV c- CAT V d- CAT VI e- CAT VII	Currently no any feeder in GEPCO fall within the Category-III to Category-VII. Any intermittent appearance of such feeders in data is due to procedural errors, which is normally rectified immediately.								CE (O&M)	CE (O&M)

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
	2.7. Anti-Theft Measures	a) Outsourcing of Feeders with Losses 30.1% to 60% RFPs approval from BoD as per directions from PPMC i) Award of Contracts for Phase-1 ii) Award of Contracts for Phase-2 iii) Award of Contracts for Phase-3 e.g. No. of Feeders outsourced (recovery improvement on respective	Currently no any feeder in GEPCO fall within the Category-III to Category-VII. Any intermittent appearance of such feeders in data is due to procedural errors, which is normally rectified immediately.		10 Category-II Feeders (Pilot Project)	Any further process for outsourcing of high loss feeders will be taken in case of real need for the same based on authentic data and results of Pilot Project of 10 Feeders.					CSD	CSD

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
		feeders %)										
		b) ABC deployed (km)	-	-	-	-	100	100	100	100		CE (O&M)
		c) Feeder sectionalizing of relevant categories through establishment of Load Break Switch at T-Offs	NIL		Pilot	Targets to be determined based on pilot project results						CE (O&M)

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
	2.8. Improving Reliability SAIDI SAIFI Fault rate (no. of faults/km) a) Currently based on GSO data till FY-2023 b) Commencing from FY-2024, it shall be based on LDIP data of PITC	SAIDI (minutes per year)	38.59	4,217.94	4,007.04	3,600	3,190	2,764	2,347	1,958	GM (Op.)	CE (O&M)
		SAIFI (times per year)	22.02	55.89	53.1	48.3	43.2	38.3	33.3	28.5		
		Above figures and targets are subject to revision based on change in methodology by NEPRA.										
		Fault rate (i) 132kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		Fault rate (ii) 66kV-33kV-11 kV	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07		
		Fault rate (iii) 400/230V	8.51	8.27	8.04	7.82	7.60	7.39	7.19	7		
		Fault rate (iv) Aggregate	3.44	3.33	3.21	3.10	3.00	2.90	2.80	2.70		

4.2.1. 3rd Party assessment of technical losses of distribution and transmission (132 kV) networks

GEPCO has recently completed the bidding process for hiring of 3rd party services for study on technical losses of distribution and transmission network of GEPCO. With a commitment of timely, fair and accurate assessment of technical losses, the study is expected to be completed within FY:2024-25 and will help in assessing necessary measures to reduce the technical losses to meet future targets assigned by NEPRA/ MoE (PD).

4.2.2. Improvisation of Medium-Term Load Forecasting Tool

The process of medium-term load forecasting is being carried out in GEPCO in collaboration with NTDC using Power Market Survey (PMS) model on a software tool developed in Visual FoxPro. The software tool being utilized for MTLF is outdated, lacks modern UI and requires much care and expertise while operating it. Moreover, PMS model being utilized form MTLF is highly dependent on expertise of the employees and lacks modern techniques and integration with other technologies being employed across the organization.

To ensure that the improvisation process for MTLF is carried out effectively, A new section for Demand Forecast within Market Implementation and Regulatory Affairs Department (MIRAD) has been created which assembled a team of experts with experience in load forecasting and data analysis. This team is working closely with operations and planning departments to identify key areas for improvement and implement the necessary changes. Demand Forecast team is also exploring the possibility of incorporating new technologies, such as artificial intelligence and machine learning, into forecasting tools to further improve its accuracy and reliability. As a first step, a new web-based software tool using Python language has been internally developed for MTLF using PMS model.

GEPCO has recently signed an MOU with LUMS for development of machine learning based medium term demand forecasting tool. This tool will help in forecasting the future demand of GEPCO up-to feeder level and the same forecast will be used transmission planning, distribution network planning and electric power procurement.

4.2.3. Development of Short-Term Load Forecasting Tools

Development of short-term load forecast (STLF) is an obligation of GEPCO as per Grid Code and Distribution code for smooth operations of distribution network as well as for efficient working of System Operator (SO) in operating the National System under Security Constrained Economic Dispatch (SCED). At present STLF is being developed manually without any software tool, relying only on the expertise of the relevant professionals, past data and weather forecasts. GEPCO has planned to engage a 3rd party consultant to develop a customized tool for STLF based on machine learning and using inputs of historical demand, weather forecast, social events and MTLF.

The biggest challenge in developing STLF tool is availability of hourly demand data for all node points of GEPCO. The same data is collected under Load data acquisition (LDA) project since 2015 and being stored on the servers hosted by PITC. GEPCO is in close coordination with PITC to acquire this data and develop STLF on it. Due to technical and financial challenges, the data of only one year (2022) is available with GEPCO. Secondly, GEPCO has taken the initiative to replace flawed AMR meters installed on 11 kV feeders under LDA with new ones to improve the quality of data.

4.2.4. Progressive reduction in losses

A comprehensive plan has been prepared aimed at reducing distribution and transmission losses. The loss reduction plan focuses on the following key areas (details provided in later parts of this business plan):

Infrastructure Upgrades: A comprehensive plan for upgrading of infrastructure, including transformers, conductors, and other distribution equipment has been developed to reduce technical losses associated with aging and inefficient equipment.

Loss Reduction Measures: GEPCO is implementing various loss reduction measures, such as load balancing, voltage regulation, controlling theft of electricity, replacement of defective/ Sluggish meters and power factor correction, to minimize losses in our distribution network.

Metering and Billing Improvements: Metering and billing processes are being improved to ensure accurate measurement of electricity consumption and reduce losses due to billing errors.

AMI: The advanced metering infrastructure (AMI) technology is being used to improve the efficiency of the distribution system and reduce technical losses.

These measures, combined with commitment to continuous improvement, will enable to achieve the targets for the reduction in distribution losses.

4.2.5. Progressive improvement in recoveries

A comprehensive plan aimed at improving recoveries has been developed and implemented focuses on the following key areas:

Billing Accuracy: Accuracy of billing processes is the key to reduce disputes in the billing and improve recoveries.

Timely Billing: It is being ensured that bills are issued to consumers in a timely manner to avoid delays in payment and improve cash flow.

Technology Adoption: we are committed to leverage technology, such as automated billing and payment systems, to improve the efficiency of our billing and collection processes. It is believed that these measures, combined with commitment to excellence, will enable to achieve the targets for improvement in recoveries.

4.2.6. Progressive reduction in revenue-based load shedding from Feeder-based to Targeted segment/transformer/consumer based

At present there is no revenue-based load shedding in GEPCO as there are no feeders which fall under category III and above. Any intermitted appearance of such feeders in data is due to procedural errors which is normally rectified immediately. GEPCO is committed to maintain this position by employing reduction in losses and improvement in recoveries in future.

4.2.7. Anti-Theft Measures

Currently no any feeder in GEPCO fall within the Category-III to Category-VII. Aerial Bundled Conductor **(ABC)** cable has been planned from year 2026-27, after deployment of APMS will be started. The isolated pockets with high administrative losses will be identified through APMS and ABC cable will be utilized to control theft in those areas.

4.2.8. Improving Reliability (SAIDI, SAIFI, Fault Rate)

Reliability improvement plan focuses on the following key areas:

Infrastructure Upgrades: The infrastructure upgrade includes sufficient investment in secondary transmission and grids, distribution network (DOP, ELR), SCADA, GIS Mapping, Sectionalizers (to tested through pilot), APMS, Hazard Removal and earthing of structures etc. Further upgrade of aging infrastructure, such as transformers, cables, and other equipment, is prioritized to improve the reliability and performance of our distribution system. All said initiatives, besides increase in customer base, shall enable network/ system to effectively respond to the quality of service aligned with customer demand.

Asset Management: Implementing an effective asset management system is being planned in GEPCO and Asset tagging is also in process. This strategy will ensure that our infrastructure is maintained and replaced in a timely manner, reducing the likelihood of failures and interruptions.

Tree Cutting/ Vegetation Management: GEPCO will enhance Tree Cutting/vegetation management program to prevent tree branches and other vegetation from coming into contact with power lines, which can cause outages.

Training and Development: A comprehensive training and development program is in place for continuous development of skilled workforce. Training Centers have been developed at Regional and even Circle level. These training programs for the staff have been designed in such a way that ensures to equip them with the skills and knowledge needed to maintain and operate distribution and transmission system effectively.

However, the targets for SAIFI (13) & SAIDI (14) assigned by NEPRA as per distribution performance standard rules, 2005 are apparently in disconnect of ground realities of the distribution/ transmission networks. During a meeting held on dated 04-11-2022 with NEPRA team it was agreed that all the targets will be revised as per the methodology to be updated keeping in view recommendations from all Discos. Recommendations of GEPCO have already been sent (vide Memo No. MIRAD/C.M&R.A/1613-17 Dated: 16-11-2022). Accordingly, the above targets are based on current methodology, which may be revised as per revised methodology of NEPRA once received.

4.3. Safety

Table 4-3 Strategic Area 3: Safety

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
3.1. Development & Strengthening of Safety Management System	System Developed & Institutionalized (%) i. functionalization and Institutionalization of HSE directorate in the company ii- Staffing of adequate manpower for the said function (%)	Safety Function institutionalized Initial needed staffing completed	To be maintained						
	b- Development & integration of a system – providing SOPs for safety procedures/ policies (No. of developed procedures/policies for safety management system)	HSE Manual In place.	To be updated regularly.						
	No. of safety trainings conducted.	1,812 Trainees (7,206 mandays)	1046 Trainees (4,203 mandays)	5,000 mandays	6,000 mandays	7,000 mandays	8,000 mandays	8,000 mandays	8,000 mandays

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
3.2. Removal of Safety Hazards	No. of safety Hazards Removed	Public: 552 Line Staff: 68	Public: 160 Line Staff: 1	Public: 1078 Line Staff: 747	New hazard will be identified and removed. Reasonable budgetary provision will be provided in the business plan.				
3.3. Earthing/ Grounding of Distribution Transformers, HT/LT structures and poles	No. of Poles earthed	-	60000	80000	80000	100000	100000	100000	100000
		Earthing of structures will be taken on priority, earthing of PC poles will be evaluated and included in the next business plan.							
3.4. Provision of Personal Protective Equipment and proper T&P to all employees		40 Items Rs.476.72 Million	16 Items Rs. 348.06 Million	100% stock of PPEs and T&P will be maintained through operating budgets and issued to employees on timely basis.					
3.5. Safety Walks, seminars, public awareness		3240	7065	6000	6400	7000	7500	8000	9000
3.6. Reporting of Fatal/ Non-Fatal accidents (putlic & employees)	No. of Fatal/ Non-Fatal Accidents	14	8	0	0	0	0	0	0

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
3.7. Reporting of administrative actions initiated and decided.		81 Reports 204 Persons	90 Reports 230 Persons	100% of the safety violation incidents shall be investigated, reported and delinquents punished.					

4.3.1. Development & Strengthening of Safety Management System

Significant strides have been made in this regard, including the institutionalization of the safety function through approval of GEPCO's safety manual and the completion of initial needed staffing.

The institutionalization of the safety function involved the establishment of a dedicated department responsible for overseeing all aspects of safety within GEPCO. This department is staffed with qualified professionals who have remarkable field experience.

In addition to staffing, steps have been taken to strengthen Safety Management System. This includes the development of comprehensive safety policies and procedures, the implementation of regular safety audits (Surprise checking, routine safety checkups, safety parades and inspections) and the provision of ongoing safety training for all employees.

Furthermore, a reporting and investigation process has been implemented for safety incidents to ensure that lessons are learned and corrective actions are taken to prevent recurrence.

HSE manual has been prepared and same is approved by NEPRA. Regular safety trainings to field formations are being ensured. Training centers are working at Regional and each circle level which are providing trainings.

GEPCO is committed for continuously improving Safety Management System to ensure the safety of employees, customers, and the general public.

4.3.2. Removal of Safety Hazards

A comprehensive safety inspection program has been implemented aimed at identifying and addressing safety hazards within the distribution and transmission network. This program includes regular inspections of infrastructure, such as poles, transformers, and Conductor/cables, to identify any potential hazards that could pose a risk to safety.

Upon identifying a safety hazard, immediate action is taken to mitigate the risk. This may involve repairing or replacing damaged equipment, shifting of distribution facility, clearing vegetation that poses a risk to power lines, or implementing additional safety measures to prevent accidents.

In addition to inspection program, a reporting system has also been implemented that allows employees and the public to report safety hazards. Reports are promptly investigated, and appropriate action is taken to address the hazard.

Furthermore, training sessions have been conducted for employees to raise awareness about safety hazards and the importance of reporting them promptly. Clear procedures have been established for responding of safety hazards to ensure that they are addressed in a timely and effective manner.

GEPCO is committed to continuously improving our safety practices and procedures to ensure the safety of our operations.

Identification and removal of safety hazards (Public and line staff) is a regular activity carried out annually. During the year 2024-25 it is envisaged that 1,078 number public safety and 747 number line staff hazards, being already identified, shall be removed. During the business plan period, the hazards shall be identified in advance and mitigation to be carried out in the next coming years.

4.3.3. Earthing/ Grounding of Distribution Transformers, HT/LT structures and poles

As per directions of NEPRA, GEPCO has already started earthing/ grounding of all distribution transformers, HT/LT structures and poles where earthing is already not present or damaged. This project is a major step towards a target of zero fatal/ non-fatal accidents of employees as well as public. Earthing/ Grounding of metallic parts ensures a low resistance path in case the metallic parts are electrified and results in subsequent tripping of that portion of the system to ensure safety of employees and general public. During the business plan period 2024-25 to 2029-30 560,000 structures/ poles will be provided with earthing/ grounding.

4.3.4. Provision of Personal Protective Equipment and proper T&P to all employees

Understanding the importance of ensuring the safety and well-being of workforce, GEPCO is committed to providing the necessary equipment and resources to support their safety, while believing on “proper tool for proper job”.

Provided PPE and T&P to all employees in accordance with the relevant safety regulations and standards has been ensured. This includes items such as helmets, gloves, safety glasses, and insulated tools, among others. We conduct regular training sessions to ensure that employees are aware of the importance of using PPE and T&P correctly and have the necessary skills to do so.

In addition to providing PPE and T&P, Researching and evaluating new protective equipment and technologies is being practiced to further enhance the safety of skilled workforce. This includes exploring innovations in materials and design to improve the effectiveness and comfort of the equipment.

4.3.5. Safety Walks, seminars, public awareness

As part of the commitment to ensure the safety of employees, consumers, and the general public, a series of initiatives aimed at promoting a culture of safety have been started.

Safety Walks: It is being planned to initiate regular safety walks across operational areas (including Sub Divisions, Divisions and Circles). These walks will be conducted by trained safety officers who will inspect infrastructure, equipment, and work practices to identify and rectify potential safety hazards. The findings from these walks will be documented, and corrective actions will be promptly taken to address any issues identified.

Seminars and Training Programs: Seminars and training programs have been developed and started with focus on safety awareness and best practices. These sessions are attended by employees as well as contractors. The topics covered include electrical safety, emergency response procedures, and the importance of personal protective equipment (PPE) etc.

Public Awareness Campaigns: To raise awareness among the general public, a series of public awareness campaigns have been started. These campaigns utilize various media channels, including social media, radio, and print, to educate consumers about electrical safety, energy conservation, and the importance of reporting safety hazards promptly.

Since the implementation of these initiatives, it has been observed that there is significant improvement in safety awareness and practices among employees and the general public. safety bustle reports indicate a reduction in the number of safety hazards identified, reflecting proactive approach to safety management. Additionally, feedback from public awareness campaigns has been overwhelmingly positive, indicating an increased awareness of safety issues among consumers.

4.3.6. Reporting of Fatal/ Non-Fatal accidents (Public & Employees)

In the unfortunate event of a fatal accident, it is ensured that the incident is reported to the relevant authorities promptly and in accordance with regulatory requirements. Internal reporting procedures include notifying to Safety Inspectors who conduct cause analysis of the event, conducting a thorough investigation to determine the cause of the accident, and implementing corrective measures to prevent similar incidents in the future.

Similarly, non-fatal accidents involving the public or employees are reported and investigated thoroughly. It is believed that transparency is the key to improving safety, and employees are encouraged to report any accidents or near misses so that lessons can be learnt from them to prevent future incidents.

To further enhance employee safety, various measures have been implemented, including regular safety training, the provision of personal protective equipment (PPE), and the enforcement of strict safety protocols. Regular safety audits and inspections are conducted to identify and address potential hazards in the workplace.

In addition to internal measures, public safety awareness is also prioritized. Public awareness campaigns are being conducted regularly to educate the community about electrical safety and how to report safety hazards. These campaigns are conducted through various channels, including social media, radio, and community events.

4.3.7. Reporting of Administrative Actions Initiated and Decided

The importance of maintaining a safe working environment and the need for transparency in reporting administrative actions taken against safety violations by employees is well understood.

Whenever a safety violation is identified, appropriate administrative actions are initiated in accordance with internal policies and regulatory requirements. These actions may include verbal or written warnings, retraining, suspension, or other disciplinary measures, depending on the severity of the violation.

All administrative actions initiated against safety violations are documented and reported to the relevant authorities as per regulatory requirements. Detailed records of each case are maintained, including the nature of the violation, the action taken, and any corrective measures implemented to prevent similar incidents in the future. The decision-making process for imposing administrative actions is fair and transparent. It involves a thorough investigation to determine the facts of the case, followed by a review by the safety committee or designated safety officer. The decision is based on the severity of the violation, the employee's past record, and any mitigating circumstances.

4.4. Strategic Focus

Table 4-4 Strategic Area 4: Strategic Focus

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
4.1 Power Acquisition Program	Annual Development / Updation & Submission to NEPRA	Submitted to NEPRA	PAP approved by NEPRA in May-2024.	1st week of Sep or as revised by NEPRA under the regulatory instruments					
4.2 Integrated Distribution and Transmission Plans	Annual Development/Updation & Submission to NEPRA	March 31, 2022	1st week of Apr-2024 or as revised by NEPRA under regulatory instruments	1st week of Sep or as revised by NEPRA under regulatory instruments					
4.3. Electrification Plan	a) Development/Updation of Annual Plan & Submission to PPMC	No Plan	No Plan	Jun-25	Jun-26	Jun-27	Jun-28	Jun-29	Jun-30
	b) Electrified Area (%)	100%	Will be maintained						
4.4. Target for new connections	Number of '000' Connections Installed	239.1	298.8	271.5	279.8	293.1	303.5	316.6	327.1
4.5. Conversion of conventional	> 25 kW	100%	100%	To be maintained					

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
metering (Static and non-static) to AMI protocols.	5 - 25 kW	0%	30%	60%	100%	To be maintained			
	< 5 kW	0%	0%	0%	0%	For Single Phase connections study to be conducted.			
4.6. Preparing for Participation in Capital Market	a. Credit rating completed	Nil	To be completed						
	b. Recovery of bad debts through write offs % of total bad debts claimed from NEPRA	Outstanding Bad debt as on December 2023 = Rs. 3,109 Mln. (P-Disconnected)	30%	80%	95%	Efforts shall be made to reduce outstanding bad debts to 0%.			
	c. Balance Sheets Clean Up Identification of necessary items/activities for cleaning up of balance sheets	c. Balance Sheets Clean Up Identification of necessary items/activities for cleaning up of balance sheets	Identification completed by Sep-2025						

The strategic focus at Gujranwala Electric Power Company (GEPCO) is centered around following key areas:

4.4.1. Power Acquisition Program

The primary objective of Power Acquisition Program is to ensure a adequate, reliable and cost-effective supply of electricity to meet the needs of consumers. GEPCO aims to achieve this by diversifying our power sources and exploring opportunities, including renewable energy options such as solar, wind, and hydroelectric power. This will not only enhance environmental sustainability but also reduce reliance on traditional fossil fuels.

Procurement strategies are continuously reviewed and optimized to ensure obtaining electricity at competitive prices while maintaining high standards of reliability and quality. This includes exploring long-term power purchase agreements (PPAs) and other innovative procurement models.

Significant progress in implementing Power Acquisition Program has been made. GEPCO has successfully added power sources through bilateral contracts (Maralaa Hydropower Project, Chianwaali Power Project) to its portfolio. Additionally, through CTBCM, optimized procurement strategies will help secure competitive electricity prices, benefiting customers and shareholders alike.

NEPRA has recently approved the combined PAP submitted by all XW-DISCOs to the extent of projects already committed and against network constraints.

To the extent of this business plan, the security of supply portion is based upon Power Acquisition Programme, already submitted with and approved by NEPRA. However, the same will be updated based on the approved IGCEP and TSEP recently submitted by NTDC with NEPRA.

4.4.2. Integrated Distribution and Transmission Plans

The primary objective of Integrated Distribution and Transmission Plan is to optimize the operation and development of distribution and transmission networks to meet the growing demand for electricity in a reliable, cost-effective, and sustainable manner.

This business plan, in chapter 6-7 includes the scope and associated investment costs for the integrated distribution and transmission plan for the period 2024-25 to 2029-30.

The summary scope of work for the IDTP is appended as below;

STG Plan

Sr. No.	Description	Total Capacity (MVA)	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.							
1	New 132KV Grids	1360	3	2	2	3	3	3	**16**
2	Augmentation (132KV)	222	11	1	0	0	0	0	**12**
3	Extension (Transformer)								**0**
a	132KV	511	15	5	0	0	0	0	**20**
b	66KV to 132KV	26	2	0	0	0	0	0	**2**

Sr. No.	Description	Total Capacity (MVA)	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.							
4	Extension (Line Bay) 132KV	0	17	4	0	5	0	0	**26**
5	11 kV Capacitors	0	22	20	7	0	0	0	**49**
	Total	**2119**	**70**	**32**	**9**	**8**	**3**	**3**	**125**
	11 kV Capacitors	MVAR	116.4	115.2	44.4	0	0	0	**276**

Description			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
New Transmission Lines	132KV D/C	No.	4	4	10	3	4	3	28
		(Km)	55.993	48	131	38	26	15	314
	132KV SDT	No.	0	0	5	0	3	0	8
		(Km)	0	0	46	0	73.5	0	119.5
	Total	No.	**4**	**4**	**15**	**3**	**7**	**3**	**36**
		(Km)	**56**	**48**	**177**	**38**	**100**	**15**	**433.5**
Transmission Lines Re-Conductoring	132KV D/C	No.	2	6	0	3	0	0	11
		(Km)	20	134.3	0	107	0	0	261.3
	132KV SDT	No.	0	2	0	0	0	0	2
		(Km)	0	82.3	0	0	0	0	82.3
	Total	No.	**2**	**8**	**0**	**3**	**0**	**0**	**13**
		(Km)	**20**	**217**	**0**	**107**	**0**	**0**	**343.6**

Distribution Network Expansion and Rehabilitation Plan

Sr. No.	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
			No.						
1	ELR	HT Works	41	42	42	25	29	24	**203**
2		LT Works	1,455	1,473	1,475	673	755	735	**6,566**
3	DOP	HT Works	3	4	4	1	3	5	**20**
4		LT Works	65	57	36	96	46	44	**344**
		Total	**1,564**	**1,576**	**1,557**	**795**	**833**	**808**	**7,133**

4.4.3. Electrification Plan

The primary objective of the Electrification Plan is to provide a roadmap for expanding and improving the electricity distribution infrastructure in currently scattered unelectrified, mostly rural, areas. The execution under this electrification plan is primarily financed through governmental financing in the Strategic Development Goals (SDGs) under sponsorship from public representatives.

Currently 100% of GEPCO's settled areas are electrified, however, scattered intermittent settlement growths shall be identified through latest artificial intelligence-based software and a comprehensive list indicating the coordinates, municipal jurisdiction and electoral jurisdiction shall be prepared and updated every year of this business plan.

Need Assessment: The process begins by conducting a comprehensive need assessment to identify areas that are currently underserved or lack access to electricity. This includes analyzing demographic data and existing infrastructure to determine the extent of electrification required.

Development/ Updating of Annual Plan: Based on the needs assessment, a plan for expanding and upgrading distribution infrastructure is developed. This may include the installation of new distribution lines, transformers, and substations to reach underserved areas and improve the reliability of the electricity supply.

Timeline and Budget: The Electrification Plan includes a detailed timeline and budget for implementing the proposed infrastructure projects. Projects are prioritized based on their impact and feasibility, taking into account funding availability and regulatory requirements.

Submission to PPMC: The plan will be submitted to PPMC for facilitating approval and progress thereof will be submitted quarterly.

4.4.4. Target for new connections

During the financial year 2023-24, the target has been set to reach 4.7 million connections including 0.085 million industrial and 4.6 million others connections. During the business plan period (2024-30) 1.79 million new customers will be added to the customer base. To achieve these targets, as already explained, comprehensive implementation plan has been developed that includes expanding our distribution infrastructure and streamlining our connection process. Investment in technology and innovation continues to improve the efficiency and reliability of services.

4.4.5. Conversion of conventional metering (Static and non-static) to AMI protocols.

The conversion to AMI protocols offers several benefits, including improved accuracy in metering, enhanced data management capabilities, and increased efficiency in billing and customer service.

AMI Project has been divided in four phases for implementation;

a) >25 kW

b) 5-25 kW (Industrial and Agriculture consumers)

c) 5-25 kW (Other than Industrial and Agriculture consumers)

d) <5 kW

Phase 1; >25 kW: Phase 1 of the AMI project, targeting consumers with a sanctioned load greater than 25 kW, has been successfully completed. This phase involved the installation of advanced meters and the implementation of AMI protocols to enable real-time metering and data management.

Phase 2; 5-25 kW (Industrial and Agriculture consumers): It targets industrial and agriculture consumers with a sanctioned load between 5 kW and 25 kW, and is currently in progress. This phase will be completed by the end of Jun-2025.

Phase 3; 5-25 kW (Other than Industrial and Agriculture consumers): After completion of phase-2, replacement of meters for consumers other than industrial and agriculture category with a sanctioned load of 5-25 kW will be started and completed up-to Jun-2028

Phase 4; <5 KW: The fourth phase of the project, targeting consumers with a sanctioned load less than 5 KW, will commence following the completion of Phase 3 subject to feasibility study.

4.4.6. Preparing for Participation in Capital Market

As a government-owned electricity distribution company, GEPCO is committed to ensuring transparency, accountability, and financial sustainability in all operations. The primary objective of participation in the capital market, besides integrating public private partnership in the power sector, is to raise funds for infrastructure development, modernization, and expansion projects. These projects are essential for improving the reliability and efficiency of electricity distribution network, meeting the growing demand for electricity, and supporting economic growth in the service area.

GEPCO has already been carrying out comprehensive 3rd party (Chartered Accountant Firm) financial audit to ensure that the financial statements are accurate, transparent, and in compliance with regulatory requirements. GEPCO is committed to maintaining high standards of financial reporting to build investor confidence.

4.4.6.1 Credit Rating

To ensure strong presence in the capital market, credit rating for creditworthiness is of paramount importance. GEPCO has already embarked upon seeking services of credit rating consultants with the assistance of USAID. Currently the proposals from two (2) credit rating agencies have been received and technically evaluated. The financial bids of the said bidders are scheduled for opening soon. It is expected that the winning consultant shall complete the assignment well within FY: 2024-25.

4.4.6.2 Recovery of Bad Debts

Currently GEPCO's bad debts are standing at 3,109 million (Permanent Disconnected consumers) which will be recovered or write-off till FY: 2026-27.

4.4.6.3 Balance sheet clean up

Reconciliation with CPPA-G regarding:

1. Supplemental Charges: The issue will be resolved with mutual coordination of CPPA-G and GEPCO under active supervision and guidance of Ministry of Energy (PD).
2. Markup on Loan: The issue will be resolved with CPPA-G under Supervision of MoE(PD).
3. SPPs Payment: SPPs Reconciliation with CPPA-G will be accomplished.
4. Difference due to CPPA-G incorrect invoicing: The issue will be resolved with mutual coordination of CPPA-G and GEPCO, Power Division intervention through PPMC would be required for the resolution of the issue.
5. Reconciliation with Subsidy Cell: Verification of Subsidy Claims by Subsidy Cell will be completed however Power Division: intervention through PPMC would be required.

6. Receivables from WAPDA: The issue will be resolved with mutual coordination of GEPCO & WAPDA, however Power Division intervention through PPMC would be required to resolve the issue.

4.5. Infrastructure Development

Table 4-5 Strategic Area 5: Infrastructure Development

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
5. Infrastructure Development	5.1. SCADA Phase 4 roll-out at 132kV voltage level in coordination with NPCC	SCADA implemented	RFP & Bidding	Award of Pilot Project	Execution & Completion of Pilot Project.	100% deployment of SCADA in line with result of Pilot Project.			to be maintained		GM (Tech)	CE (Dev)
	5.2. Integration of all available IT Infrastructure (ERP, SCADA, AMI, LDIP, APMS, IBS, ENC, CCMS) and customized reporting.		-	-	-	Integration Assessment	Integration as per Assessment				CSD/ CE(O&M)/ CE (T&G)/ M(IT)	CSD/ CE(O&M)/ CE (T&G)/ M(IT)

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
	5.3. Implementation of APMS		0	0	0	3516	7032	7032	0	0	GM (Op.)	CE (O&M)
	5.4. Implementation of GIS Enterprise.	a. GIS Mapping of Network Phase 1 = HT Mapping	100%	To be updated and maintained							GM (Tech)	CE (P&E)
		Phase 2 = LT Mapping	0%	0%	20%	60%	100 %	Update and Maintain				
		b. GIS Mapping of consumers % of consumers mapped	100% consumers are mapped in Mobile Metering App. GIS based consumer mapping will be part of LT Mapping.	0%	20%	60%	100 %	Update and Maintain				

Strategy Area	Strategic Goals	Measurement Mode	GEPCO Targets								Lead Office	Execution Office
			Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30		
		c. GIS Enterprise Solution	-	Award of Project	Implementation of GIS Enterise Solution	to be maintained and updated					GM (Tech)	CE (P&E)

4.5.1. SCADA Phase-IV roll-out at 132kV voltage level in coordination with NPCC

The SCADA Phase-IV roll-out at the 132 kV voltage level is a critical component of efforts to enhance the system control, data acquisition, reliability, efficiency, and safety of electricity transmission/ distribution network. The project involves the installation of SCADA equipment at all substations and the integration of these substations into the NPCC's monitoring and control system.

In consultation with NPCC, GEPCO has already initiated coordinated process for roll-out of SCADA Phase-IV at the 132/11 kV voltage level of GEPCO Network. In this regard M/S NESPAK have been hired as consultant/ project engineer. Currently, after award of Pilot Project at 5 key substations, the initial works with successful bidder M/s Siemens are underway. This pilot project is expected to be completed within FY: 2024-25 at a cost of Rs. 513 Million. It may also be noted that all new grid stations (own source/ deposit work) are to be designed on SCADA enabled basis. After successful implementation of the pilot project, SCADA system will be deployed 100% (62 Grid stations) in line with result of Pilot Project till 2029-30.

4.5.2. Integration of all available IT Infrastructure (ERP, SCADA, AMI, LDIP, APMS, IBS, ENC, CCMS) and customized reporting

As per Strategic Directive 127 of NE plan 2023-27,

> **"**A centralized Power Information System (PIS) shall be progressively developed by PITC with the aim of integration, standardization and dissemination of sectoral data under a single platform. Provided further, for more effective and informed decision making the PIS shall be progressively integrated with cross-sectoral data streams/repositories, inter-alia, Energy Information System (EIS) of Planning Commission, Easy Data of State Bank.**"**

In view of digitization initiatives undertaken/ planned by GEPCO, it shall be necessary to create synergy by integration of all digital information platforms at single convergence point. The primary objective of integrating IT infrastructure is to improve data management, operational efficiency, and customer service. By integrating Enterprise Resource Planning (ERP), SCADA, Advanced Metering Infrastructure (AMI), Load Data Acquisition (LDA) Project, Assets Performance Management System (APMS), Integrated Billing System (IBS), Electricity New Connection, and Customer Complaint Management System (CCMS), streamlined processes, enhanced decision-making, and improved overall service delivery will be achieved. During the year FY: 2025-26 GEPCO plans to undertake assessment of integration of all digital platforms and accordingly undertake such integration during the period FY: 2026-27 to 2029-30 if found so feasible as per assessment.

4.5.3. Implementation of APMS

Asset Performance Management System is designed to monitor the performance of each distribution transformers, report their current load status, and signify instances of overloading and subsequent tripping.

The implementation of the APMS involves the installation of monitoring and protection devices on distribution transformers connected to GEPCO network. These devices are capable of collecting real-time data on various parameters, including load, temperature, and operational status. The data collected is then transmitted to a central monitoring

system for analysis and reporting. Moreover, the devices are capable of disconnection and reconnection of the distribution transformer.

Key Features of the APMS:

Real-time Monitoring: The APMS provides real-time monitoring of distribution transformers, allowing to track their performance and identify potential issues before they escalate.

Load Reporting: The system reports the current load status of each distribution transformer, enabling to optimize their operation and prevent overloading.

Overloading and Tripping Signaling: The APMS is equipped with sensors that can detect instances of overloading and tripping, providing timely alerts to take corrective action.

Benefits of the APMS:

Improved Reliability: By monitoring the performance of distribution transformers in real-time, reliable electricity supply to consumers can be ensured.

Enhanced Efficiency: The APMS will allow in some areas to optimize the operation of distribution transformers, leading to improved efficiency and reduced energy losses.

Proactive Maintenance: With the ability to detect issues early, maintenance activities can be scheduled more efficiently, reducing downtime and costs.

Reduction in ATC Losses: The ability to monitor losses of distribution transformers and disconnection will enable shedding supply of high loss areas to control ATC losses while maintaining the continuity of supply for other consumers on the feeder

GEPCO plans to install 17,580 APMS (TMS) on general duty distribution transformers during 2025-26 to 2029-30 at a total approximate cost of Rs. 9,588 Million.

4.5.4. Implementation of GIS Enterprise

Distribution network mapping is divided into 2 phases with Phase-1 for the High Tension (HT System, 11 kV), Phase-2 for Low Tension Network (LT System, 440/220 Volt) and Phase-3 is mapping of consumer end metering with LT Network.

Phase-1 was completed in FY 2022-23. The HT network mapping has enabled to improve network planning, maintenance, and outage management processes. Preparation to commence Phase-2 for the Low Tension (LT) network mapping has been started as this phase is crucial for enhancing the granularity of network data, enabling better understanding and management of the distribution network at the local level.

This will be followed by Phase-3 for GIS mapping of consumers with the LT network which will provide valuable insights into consumer demographics, load profiles, and consumption patterns, enabling to optimize services and customer satisfaction.

To enable efficient, reliable management and integration of GIS mapping data, GEPCO has successfully completed bidding process for development and implementation of GIS Enterprise solution. This solution will be cloud based and hosted by GEPCO in-house servers. This GIS enterprise will help to integrate GIS data, effective network planning and timely updating of GIS mapping for network changes/ expansion. Deployment of GIS Enterprise will be completed during 2024-25 at an approximate cost of Rs. 200 Million.

4.6. Governance

Table 4-6 Strategic Area 6: Governance

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
6.1. HR Utility Practices through updating of HR Manual in line with NE Plan 2023-27		HR manuals already approved		To be updated in line with NE Plan					
6.2. Capacity building & training of BOD and Employees	Training programs (technical, commercial procedures, regulatory, HSEQ, corporate governance, market, policy & planning) a. Average Man-days of trainings	4.4	2.8	4	5	5	5	5	5
	b- Trainings for BOD Members	0	1	2	2	2	2	2	2
	c- Trainings for Officers (BPS 17 and above)	6.2	5.5	5	5	5	5	5	5
	d. Trainings for officials (BPS 1-16)	3.9	2.5	4	5	5	5	5	5
6.3. Code of conduct for BOD and employees		Approved	To be maintained and Updated						
6.4. Whistle blowing policy		To be Developed		Policy Developed, Approved and Implemented					

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
6.5. Implementation of Technical Services Department			Approved by BOD, Ministry Approval awaited						
6.6. Implementation and Improvisation of AMI Department			AMI Cell established						
6.7. Research and Development Programme				Research and Development Programme to be developed.					
6.8. Establishment of Demand Side Management cell within MIRAD				Organizational design and strength to be developed and approved by BOD. The hiring/ posting as per BOD approval.					

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
6.9. Appointments through promotion / new induction on all cadre through competitive process	a) No. of promotions/ induction: Appointment through internal promotion (BPS 18 and above)	Implemented	To be maintained						
	b) Appointment through direct/new induction (BPS 18 and above)		As per HR Procedures.						

4.6.1. HR Utility Practices through up-dation of HR Manual in line with NE Plan 2023-27

As per Strategic Directive 118 of NE Plan,

> "All power sector state-owned entities, as provided in Performance Indicator SU.IIC.021, shall develop / amend their respective human resource policies and manuals to ensure future induction of all employees on contractual / third party basis only, such that:
>
> a) policies / manuals shall enable provisions and accompanying incentives for the existing employees to adopt contractual terms and conditions;
>
> b) all inductions / promotions at & below BPS 19 or equivalent shall be through internal competition or otherwise, through open market competition;
>
> c) all postings on & above BPS 20 or equivalent shall be through open market competition on a contractual basis."

GEPCO is committed to ensuring that its HR Manual reflects HR Utility Practices and supports goal of being a modern and efficient organization. GEPCO plans to ensure that all HR manuals are reviewed and updated reflecting the directions contained in the National Electricity Plan 2023-27 as mentioned above.

4.6.2. 6.2. Capacity building & training of BOD and Employees

As per Strategic Directive 109 of NE Plan;

> "Dedicated Centers of Excellence (CoEs) shall be established in selected power sector organizations, research institutions and academia across the country. Accordingly, the Designated Entity shall be responsible for selection and accreditation of such organizations / institutions. Further, CoEs shall also facilitate in training and capacity building of power sector entities along with students at academia through dedicated programs, courses and workshops."

In line with the strategic directive above, GEPCO plans to enhance its training, in terms of man-days, from current (average) 3 man-days to 5 man-days by the end of year 2029-30 through gradual enhancement during the plan period. This will be carried out through:

a. **Trainings for BOD Members:** Recognizing the critical role that training plays in enhancing skills, knowledge, and performance, GEPCO is committed to investing in the development of decision making and board proceeding skills of Board of Directors to provide strategic direction and oversight. To enhance the capacity of BOD members, 2 specialized training sessions and workshops each year will be conducted focused on (technical, commercial procedures, regulatory, HSEQ, corporate governance, market, policy & planning). These sessions will be tailored to meet the specific needs and challenges faced by BOD members.

b. **Trainings for Officers (BPS 17 and above):** In addition to the capacity building and training initiatives for the Board of Directors, the importance of providing specialized training programs for implementation arm, i.e., officers (at the BPS 17 and above level), are well recognized. These officers play a crucial role in the management and operations of the company, and it is essential to enhance their skills and knowledge to meet the evolving needs. The primary objective of training program for officers is to enhance their leadership, management, and technical skills, enabling them to effectively perform their duties and contribute to the overall

success of the organization. These trainings are held at WAPDA Engineering Academy (WEA) Faisalabad and WAPDA Administrative Staff College (WASC) Islamabad. The program is designed to align strategic objectives and address the specific challenges and opportunities faced by the officers.

c. **Trainings for officials (BPS 1-16):** A comprehensive training program aimed at enhancing their technical skills, customer service capabilities, safety practices, and overall performance has been developed. This program includes both classroom training and on-job learning opportunities to ensure that the employees are equipped with the knowledge and skills required to excel in their roles. GEPCO Training and Development Center (GTDC) is established at regional level (Nandipur, Gujranwala) and there are also Circle Training Centers in each circle. To keep employees abreast of the latest developments and safe practices, regular updates and refresher courses are conducted.

4.6.3. Code of Conduct for BOD and Employees

The primary objective of code of conduct is to ensure that all members of the BOD and employees uphold the highest standards of integrity, honesty, and ethical behavior in their dealings with each other, customers and the public. The code of conduct serves as a framework for promoting a culture of accountability, transparency, and fairness within GEPCO. Code of Conduct was approved in FY 2022-23 and it will be maintained and updated in coming years.

It is essentially based on the following key principles:

- **Integrity:** Acting honestly and ethically in all business dealings.
- **Respect:** Treat everyone with respect, dignity, and fairness, regardless of their position or background.
- **Accountability:** Every employee takes responsibility for their actions and decisions and is accountable for that.
- **Transparency:** GEPCO is committed to being transparent in operations and communicating openly with consumers.
- **Compliance:** GEPCO complies with all applicable laws, regulations, and company policies.
- **Confidentiality:** Confidentiality of sensitive information is protected and the privacy of individuals is respected.

Scope and Application: The code of conduct is applicable to all members of the BOD and employees of the company, regardless of their position or role. It sets out the expected standards of behavior and conduct in various areas, including but not limited to, conflicts of interest, gifts and entertainment, confidentiality, and compliance with laws and regulations.

4.6.4. Whistle Blowing Policy

The primary objective of any whistleblowing policy is to encourage employees and stakeholders to report concerns or suspected wrongdoing without fear of retaliation. The policy aims to create a culture of transparency and accountability within organization and ensure that all reports are investigated promptly and fairly. This policy is under development by Director General (HR & Admin).

Key Components:

Its key components will be;

Scope: The policy shall apply to all employees, contractors and suppliers of GEPCO.

Reporting Mechanism: A confidential and secure reporting mechanism, such as a dedicated hotline or email address, will be established to receive reports of wrongdoing.

Confidentiality: Reports will be treated with the utmost confidentiality, and the identity of the whistleblower will be protected to the fullest extent possible.

Non-Retaliation: The policy prohibits retaliation against whistleblowers and provides avenues for reporting any such retaliation.

Investigation and Follow-up: Reports will be promptly investigated by an independent and impartial party, and appropriate action will be taken based on the findings of the investigation.

Communication: Regular communication and updates will be provided to whistleblowers regarding the status and outcome of their reports.

Implementation and Awareness: It will be ensured that the whistleblowing policy is effectively communicated to all employees through training programs, employee handbooks, and other communication channels. Guidance will be provided on how to report concerns and the protections available to whistleblowers.

4.6.5. Implementation of Technical Services Department

Technical services department is crucial in enhancing technical capabilities and ensuring reliability and quality of equipment installed in transmission and distribution network of GEPCO. The functions envisioned for TSD are summarized below;

- Vetting/approval of Site and contour plan of new grid stations.
- Vetting /approval of Route/Profile of 132KV transmission line
- Vetting of single line diagram, General Lay Out Plan and Switchyard Layout Plan of 132KV Substation.
- Issuance of Foundation Plan & Equipment Foundation drawings based on Soil Investigation Report.
- Issuance of Switchyard, Control House Building and Trench Layouts.
- Issuance of Earthing Layout on the basis of Earth Resistivity Report.
- Evaluation and vetting of Tender Documents.
- Vetting/Approval of Technical Data.
- Up gradation/revision of distribution material specifications.
- Witnessing of FATs of distribution, 132KV transmission lines and 132KV grid stations material along with one officer from relevant field formation.
- Analysis of trippings especially indiscriminate trippings of 132 KV system.
- Relay setting calculation of 132KV system.
- Devise mechanism to check the quality of material after receiving in the stores.

- To generate proposal/specifications to upgrade distribution system at higher voltage.

This department will be led by a Chief Engineer having 2 no. Managers (Design & Material Inspection) as his team members. Both managers will be supported by Dy. Managers and Assistant Managers for performing functions stated above.

4.6.6. Implementation and Improvisation of AMI Department

Advanced Metering Infrastructure (AMI) Department is important for efficiently implementing and managing the AMI deployment. With advent of AMI functioning in GEPCO, an AMI Cell has already been developed as part of AMI implementation efforts. The AMI Cell serves as the focal point for managing and coordinating all activities related to AMI, including meter installation, data collection, and system monitoring. Considering the expansion in hand as well as planned, it is felt that corresponding expansion in AMI department in essential. GEPCO will review the need for such expansion and implement accordingly.

Key Responsibilities of the AMI Department:

Meter Installation: The department is responsible for overseeing the installation of smart meters across GEPCO's distribution network.

Data Collection and Management: It manages the collection, storage (via PITC), and analysis of metering data to improve billing accuracy and customer service.

Customer Support: It provides support to customers regarding metering issues, billing inquiries, and usage data analysis.

Improvisation Plan: Significant progress achieved in development of AMI Cell and continuous working is in progress on its improvisation to enhance its capabilities and efficiency. This includes:

- Upgrading the AMI infrastructure to support additional functionalities, such as remote connection and disconnection, demand response and outage management.
- Enhancing data analytics capabilities to provide more valuable insights into customer behaviors and network performance.
- Implementing advanced cybersecurity measures to protect the integrity and confidentiality of metering data.

4.6.7. Research and Development Programme

In line with Strategic Directive 108 of NE Plan GEPCO intends to enter into strategic collaboration with national and global research institutions, academia, agencies, multilateral / bilateral forums, and other relevant institutions to enable; knowledge & technology transfer, capacity building and exploring research areas of mutual interest. GEPCO shall also continue with its research and development, capacity building, and collaborations initiatives related to its particular mandates, roles and business needs.

Further, in line with Strategic Directive 109, dedicated Centre of Excellence (CoE) shall be established within GEPCO in coordination with subject matter expert organizations.

4.6.8. Establishment of Demand Side Management cell within MIRAD

In line with Strategic Directive 99 of the NE Plan GEPCO shall establish Demand Side management (DSM) cell within MIRAD subject to and in line with the DSM regulations to be promulgated by NEPRA.

The cell will play a crucial role in implementing various demand-side management programs and initiatives to promote energy conservation and efficiency among the consumers. This cell will act as an interface of GEPCO for energy conservation and energy efficiency and communication with NEECA and PEECA.

Key Responsibilities of the DSM Cell:

Program Development: The DSM Cell will be responsible for developing and implementing demand-side management programs, including energy efficiency, demand response, and load management programs.

Customer Engagement: It will engage with customers to raise awareness about energy conservation and encourage participation in DSM programs.

Data Analysis: The DSM Cell will analyze customer data and energy consumption patterns to identify opportunities for energy savings and efficiency improvements.

Monitoring and Evaluation: The DSM Cell will monitor the effectiveness of DSM programs and initiatives and evaluate their impact on energy consumption and peak demand.

Communication with NEECA and PEECA: This cell will be responsible for communication and reporting with national and provincial energy efficiency and conservation authorities.

4.6.9. Appointments through promotion / new induction on all cadre through competitive process

In line with amended and updated HR manuals of GEPCO, it shall be ensured to instill transparency and fairness in recruitment and promotion processes. Appointments through promotion/ new induction based on merit will not only benefit GEPCO but also motivate employees to perform at their best. While promotion/ induction / appointment through internal promotions of officers (BPS 18 and above) is already being made through competitive process, the same shall be continued in future as well.

4.7. Legal, Regulatory and Policy Compliance

Table 4-7 Strategic Area 7: Legal, Regulatory and Policy Compliance

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
7.1. Legal & regulatory framework of power sector	Annual compliance	100%	100%	100%	100%	100%	100%	100%	100%
7.2. National Electricity Policy & National Electricity Plan	Annual compliance	100%	100%	100%	100%	100%	100%	100%	100%
7.3. Performance Agreement between PMO & MoE(PD)	Annual compliance	100%	100%	100%	100%	100%	100%	100%	100%
7.4 Code of Corporate Governance for Public Sector	Annual compliance	100%	100%	100%	100%	100%	100%	100%	100%

GEPCO as a government-owned electricity distribution company is operating within the framework established by the relevant laws, regulations, and policies governing the power sector.

4.7.1. Legal and Regulatory Framework of Power Sector

GEPCO in its licencee status as an electric power distribution company and Electric Power Supplier is obligated for full compliance to the regulatory framework. The fundamental law governing both businesses of GEPCO is the NEPRA Act 1997. Under the governing law the regulatory framework includes regulations specified by NEPRA, rules prescribed by the federal government, various (Grid, Distribution and Market Commercial) codes, guidelines, licences and directives, collectively applicable documents. GEPCO being the licencee for the service territory pledges itself to be 100% compliant with all the applicable documents at all times and cost.

4.7.2. National Electricity Policy and National Electricity Plan

The National Electricity Policy 2021 and National Electricity Plan 2023-27 are fundamental policy documents issued under Section 14A of the NEPRA Act. Besides being supported by the NEPRA Act, the Policy has the concurrence of Council of Common Interests (CCI) and the Plan is issued with the approval of federal cabinet, accordingly, the said policy and plan have legal binding status for the regulated as well as the Regulator. These documents provide guidance to the power sector entities, including GEPCO, and the Regulator on adherence towards the policy objectives of the sovereign through detailed actions and processes to be put in place. While the policy provides overarching principles; the plan provides details of actions and processes.

As a government-owned electricity distribution company, GEPCO is committed to aligning its operations with the National Electricity Policy and take all applicable actions prescribed in the Plan and contribute towards the development of a robust and sustainable electricity sector. Various actions and sub-plans and timelines thereto included in this business plan are in pursuance of the said Policy and the Plan.

4.7.3. Performance Agreement between PMO & MoE (PD)

The business plan in hand is manifestation of GEPCO's commitment in achieving the targets outlined in the performance agreement contract and contributing to the overall development of and improvement in the energy sector. Monthly and quarterly reports for progress achieved during the period is reported.

4.7.4. Code of Corporate Governance for Public Sector

A high priority is placed on corporate governance practices to ensure transparency, accountability, and efficiency in our operations.

Compliance with the Code of Corporate Governance:

Adoption of Best Practices: Code of Corporate Governance for Public Sector Organizations have been fully adopted and implemented by GEPCO as per the principles and best practices across organization.

Board Oversight: GEPCO's Board of Directors provides effective oversight of operations, ensuring that management follows ethical practices and complies with relevant laws and regulations.

Transparency and Accountability: GEPCO maintains transparency in financial reporting and operations. Effective mechanism has been put in place to ensure accountability at all levels of the organization.

Risk Management: A robust risk management framework has been established to timely and effectively identify, assess, and mitigate risks that may impact operations.

Internal Controls: Strong internal control mechanisms have been put in place to safeguard assets, ensure compliance with laws and regulations, and enhance operational efficiency.

4.8. Strategies and Policies

Table 4-8 Strategic Area 8: Strategies and Policies

Strategic Goals	Measurement Mode	GEPCO Targets							
		Baseline FY- 22-23	Current Year FY- 23-24	FY- 24-25	FY- 25-26	FY- 26-27	FY- 27-28	FY- 28-29	FY- 29-30
8.1 On Bill Financing strategy for distributed generation (net-metering)	Annual Compliance	-	-	Financing Strategy Developed	Strategy Implementation (subject to approval from Government and Regulator)				
8.2 Tariffs and Cross Subsidy determination as per Cost-of-Service Study	Annual Compliance	-	-	Annual Cost of Service Study will be carried out every year.					
8.3 Enterprise Risk Management Policy and Strategy	Annual Compliance	-		To be Developed & Approved	Implemented	Update and maintain			
8.4 IT/OT Security Strategy (Cyber Security)	Annual Compliance	-		To be Developed & Approved	Implemented	Update and maintain			
8.5 Asset Management and Reliability Strategy	Annual Compliance	-		To be Developed & Approved	Implemented	Update and maintain			

4.8.1. On Bill Financing strategy for distributed generation (net-metering)

GEPCO believes that on-bill financing strategy for distributed generation can help make the installation of distributed generation systems more affordable and accessible to customers, while also promoting the use of renewable energy sources and supporting the transition to a more sustainable energy future. Due to this very reason, GEPCO is considering some On-bill financing strategy that can be used to promote distributed generation, such as net-metering, among its customers.

In line with strategic direction 100, GEPCO shall extend full support to National Energy Efficiency and Conservation Authority (NEECA) in devising robust, effective and flexible programs and instruments to meet accelerated energy transition, energy efficiency and conservation and de-carbonization objectives.

4.8.2. Tariffs and Cross Subsidy determination as per Cost-of-Service Study

GEPCO is committed to ensure that tariffs are fair, transparent, and reflective of the cost of providing electricity services.

A comprehensive Cost of Service Study, using robust Fully Allocated Cost of Service (FACOS) model, to accurately determine the cost of providing electricity services to different customer groups have been carried out. This study helps understand the cost drivers and develop a tariff structure that is equitable and cost-reflective. The Cost-of-Service Study enables to fairly allocate costs to different customer groups based on their voltage levels, service requirements, and cost causation factors, based on the fundamentals and principles already concurred upon by NEPRA.

GEPCO is committed to carry out cost of service study every year during the business plan period and beyond. GEPCO also plans that, based on the findings of the Cost-of-Service Study, to submit petition(s) for determination of use of system charges (UOSC), security deposit rates and base tariff duly reflective of the pattern and quantum of cost associated with each class of relevant consumers.

The inter and intra tariff cross subsidy is chronic and inherent part of the current tariff design. Without prejudice to the continuation of unified national tariff, as delineated in the National Electricity Policy, 2021 and National Electricity Plan, 2023-27, GEPCO shall continually support NEPRA in their endeavors for arriving at well informed decisions with regard to transparent, equitable and cost reflective tariff. GEPCO, however, is well cognizant of the importance of cross subsidy in ensuring affordability of electricity services for all customer groups, as policy objective of the federal government. The Cost-of-Service Study will help determine the appropriate level of cross subsidy needed to support customers who are unable to pay the full cost of service.

4.8.3. Enterprise Risk Management Policy and Strategy

In terms of prudent business/ utility practices as well as the requirements of State Owned Enterprises (Governance and Operations) Act, 2023 and SOEs (Ownership and Management) Policy, 2023, developing an Enterprise Risk Management (ERM) policy and strategy is crucial for GEPCO, as a commercial state owned enterprise, to identify, assess, and mitigate risks that may impact its operations and realization of its objectives.

GEPCO is currently in process of developing a comprehensive ERM policy and strategy. The policy and strategy under review shall be finalized as soon as possible for immediate implementation. The policy/ strategy shall, however, remain subject to revisions, amendments and/ or changes in response to the evolving business ambiance in future.

4.8.4. IT/OT Security Strategy (Cyber Security)

In line with NEPRA (Security of Information Technology and Operational Technology) Regulations, 2022, National Cyber Security Policy and National Electricity Plan (SD-61), GEPCO is fully committed to ensuring the highest levels of cybersecurity across its IT and OT environments. A robust IT/OT Security Strategy will help protect critical infrastructure, safeguard sensitive data, and ensure the continuous and secure delivery of electricity services to the consumers. The strategy, currently under review, shall be finalized and issued during 2024-25 for implementation.

4.8.5. Asset Management and Reliability Strategy

GEPCO, being a vigilant service provider of electric power, has always adhered to the international best utility practices for efficient management and assured reliability of its assets, particularly the transmission and distribution network assets. GEPCO, during the horizon of the business plan in hand, shall compile and document its practices and processes regarding asset management and reliability for implementation during and beyond the business plan period.

5. SECURITY OF SUPPLY

5.1. Introduction

Whereas, the Gujranwala Electric Power Company Limited ("GEPCO") is an Electric Power Supply Licensee in terms of Section 23E of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "Act") and has acquired Electric Power Supply Licence No. SOLR/04/2023 to act as Supplier of Last Resort in service territory of GEPCO.

As per Regulation 4 (1) of the NEPRA (Electric Power Procurement) Regulations 2023 (EPP Regulations), each Electric Power Supplier shall be responsible for protecting the security of supply at economic prices for its consumers, by planning in advance power procurement in adequate quantity and conditions, with consideration and requirements:

i. Procure adequate electric power to meet its capacity obligation with prudent spatial demand forecasts while using the best of available information, to avoid under or over contracting;

ii. Adopt efficient and effective power procurement strategy and risk mitigation mechanism; and

iii. Maintain the financial strength and sufficient payment capacity to be considered credit worthy, and timely comply with its power procurement and use of system charges payment obligations.

The Regulation 5 of the "EPP Regulations" requires the electric power supply licensee to submit to the Authority an updated business plan demonstrating that the licensee continues to comply with the requirements of prescribed eligibility criteria, the requirements in other applicable documents. The Regulation 5 also prescribes the least ingredients of the business plan.

Regulation 6 of the said "EPP Regulations" requires the "supplier of last resort" to provide Power Acquisition Program and new power procurement.

Strategic Directive 5 (a) and (b) of the "National Electricity Plan 2023-27"

This part of overall Business Plan of GEPCO for the period 2024-25 to 2029-30 deals with its obligations under the above mentioned legal / regulatory requirements. As guiding principle for security of supply, Strategic Director 5 (a) and (b) are also reproduced as below:

> During the currency of this NE-Plan, IGCEP shall be developed and approved on annual basis. Accordingly, each iteration of IGCEP shall account for the following:
>
> a) served demand shall be used as basis for the purpose of demand forecast;
>
> b) Government, at any time, may decide to incorporate commercial load management quantum in demand forecast based on:
>
> i. position and incremental impact on circular debt;
>
> ii. adjustment in AT&C losses;
>
> iii. XW-DISCOs' preparedness in accordance with Strategic Roadmap as detailed in Strategic Directive 026.

(Note: The Strategic Directive 026 deals with broad contours of the Strategic Roadmap agreed with the Government of Pakistan, Ministry of Energy (Power Division).

5.1.1. Actual & estimated number of consumers

Table 5-1 Historical number of consumers

						Nos in Millions
Description	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Domestic	3.02	3.19	3.39	3.59	3.82	4.10
Commercial	0.37	0.38	0.39	0.41	0.43	0.44
Industrial	0.07	0.07	0.08	0.08	0.08	0.085
Agricultural	0.05	0.05	0.05	0.05	0.06	0.06
Other	0.021	0.022	0.022	0.023	0.024	0.025
TOTAL	**3.5**	**3.7**	**3.9**	**4.2**	**4.4**	**4.7**
Growth%		5.4%	5.8%	5.8%	5.9%	6.9%

5.1.2. Projected number of consumers

Projected number of consumers over the Business Plan (2024-30) horizon of the Supply of Electric Power business of GEPCO;

Table 5-2 Projected number of consumers

						Nos in Millions
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Domestic	4.36	4.62	4.89	5.17	5.46	5.76
Commercial	0.45	0.47	0.48	0.50	0.52	0.54
Industrial	0.09	0.09	0.09	0.10	0.10	0.10
Agricultural	0.06	0.06	0.06	0.06	0.07	0.07
Other	0.025	0.026	0.027	0.027	0.028	0.029
TOTAL	**4.98**	**5.26**	**5.55**	**5.86**	**6.18**	**6.50**
Growth%	5.77%	5.62%	5.58%	5.47%	5.41%	5.30%

5.2. Power Acquisition Programme

GEPCO submitted its Power Acquisition Programme (PAP) for future procurement of Electric Power as Supplier of Last Resort to NEPRA vide letter# GEPCO/MIRAD/DF/PAP/982 dated 22-03-2023. This was a combined Power Acquisition Programme (PAP) of all XW-DISCOs pursuant to Section 32 of NEPRA, Regulations 6(2) and 7(3) of NEPRA (Electric Power Procurement) Regulations, 2022 read with Regulation 12 of NEPRA Licensing (Electric Power Supplier) Regulations. This combined PAP of XW-DISCOs has been approved by NEPRA on 20th, May 2024 only to the extent of committed projects and 500 MW KAPCO under system constraint.

Annex 7: Approved PAP of XW-DISCOs

GEPCO comments on the approved PAP are reiterated at section **17.3**.

This combined power acquisition plan was based upon IGCEP 2022-31, Capacity Obligation 2022-27 determined by MO under test-run of CTBCM, Demand forecasts of all XW-DISCOs 2022-32 base year 2021-22. GEPCO's position of security of supply under the approved PAP is as follows;

Table 5-3 Capacity Obligation and Compliance of GEPCO as per PAP

GEPCO							
Sr.	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	**Capacity Obligations (MW)**	2,198	3,106	3,235	3,393	2,840	2,230
2	**Contracted Commissioned (MW)**	2,496	2,787	2,679	2,678	2,677	2,675
3	**Committed/ Contracted (MW)**	0	368	313	602	681	895
4	**Uncontracted (MW) ((2+3)-1)**	**298**	**49**	**-243**	**-113**	**519**	**1,340**
5	**Future Procurement (MW)**	0	5	51	66	75	83
6	**Cost Reduction Projects (MW)**	0	0	49	49	49	49
7	**Constraints Removal (MW)**	0	49	89	49	49	0
8	**Total Credited Capacity (MW) (2+3+5+6+7)**	2,496	3,209	3,180	3,444	3,531	3,702
9	**Net Uncontracted (MW) (8-1)**	**298**	**103**	**-54**	**51**	**691**	**1,471**
10	**CO Compliance**	**14%**	**3%**	**-2%**	**2%**	**24%**	**66%**

Note: Capacity Obligation of year-3 and year-4 is taken as 80% and 60% respectively as per Market Commercial Code (MCC).

Subsequently GEPCO submitted its updated demand forecast 2023-33 base year 2022-23. Recently, GEPCO has prepared demand forecast 2024-34 base year 2023-24 which is being submitted along with this business plan. In the absence of updated IGCEP approval as per updated demand forecasts and updated Capacity Obligation, the position of security of supply as per latest demand forecast is prepared on the same basis, i.e., IGCEP 2022-31 and Capacity Obligation 2022-27.

5.3. Demand Forecast 2025 – 2030

Demand Forecast for the period 2024-34, being submitted with honorable Authority, has been developed under two (2) scenarios, viz:

i. Low Forecast (Recorded); and

ii. Base Forecast (Computed)

Where the Base Forecast represents, the total expected sale, had the load shedding not been implemented, i.e., the computed loads; whereas the Low Forecast represents only loads served, i.e., the recorded loads. Base Forecast is primarily used for Network planning, while Low Forecast is used for Supply Planning. Impact of expected net-metering growth on the system demand of GEPCO has been incorporated in both the scenarios.

Accordingly, in line Strategic Directive 5(a) of NE Plan, the demand forecast for the plan horizon 2025-30 has been adopted under low forecast scenarios.

As per latest Demand Forecast following is the expected demand (GWh and MW) under low case (Recorded) scenario over the plan horizon 2024-25 to 2029-30.

Table 5-4 category wise energy sales forecast (Low case)

Consumer Category	GEPCO Category-Wise Sales Forecast (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	GWh					
Domestic	6,825	6,880	6,914	6,986	7,079	7,184
Commercial	718	698	680	664	646	618
Public Light	15	15	16	16	17	17
Small Industries	477	466	452	438	424	410
Medium & Large Industries	1,945	1,912	1,850	1,772	1,693	1,619
Tube Wells	481	489	495	499	502	506
Bulk	157	158	159	159	160	161
TOTAL	**10,618**	**10,619**	**10,566**	**10,533**	**10,521**	**10,515**
Above Total Includes:						
Eligible BPC Served	927	968	979	989	998	1,005
Eligible BPC Under 1 Yr. Notice	-	-	-	-		-

Note: No Eligible BPC has served 1-year prior notice to GEPCO as required under Section 22 of the NEPRA Act.

Table 5-5 category wise sales demand forecast (Low Case)

Consumer Category	GEPCO Category-Wise Load Forecast (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATTS					
Domestic	1,787	1,822	1,864	1,906	1,970	2,030
Commercial	216	221	229	238	249	258
Public Light	4	4	5	5	5	5
Small Industries	148	150	153	155	160	164
Medium & Large Industries	462	471	479	485	497	509
Tube Wells	131	134	137	139	141	144
Bulk	34	34	34	34	35	35
TOTAL	**2,782**	**2,836**	**2,901**	**2,962**	**3,057**	**3,144**
Above Total Includes:						
Eligible BPC Served	358	398	415	433	452	472
Eligible BPC Under 1 Yr. Notice	-	-	-	-		-

The TOTAL above represents simple sum of individual category loads and NOT the System Peak Demand.

Based on the consumer end demand as mentioned above, the expected demand (GWh and MW) under the low case scenario at 132KV level is expected as below.

Table 5-6 category wise purchased energy forecast (Low Case)

Consumer Category	GEPCO Energy Purchase (132 kV) Forecast (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	GWh					
Domestic	7,387	7,331	7,251	7,206	7,174	7,138
Commercial	756	697	636	571	500	413
Public Light	17	17	17	18	18	18
Small Industries	509	479	443	403	362	318
Medium & Large Industries	2,067	1,949	1,785	1,591	1,384	1,174
Tube Wells	525	530	532	529	526	523
Bulk	172	173	173	174	174	175
TOTAL	**11,432**	**11,177**	**10,837**	**10,492**	**10,139**	**9,760**
Above Total Includes:						
Eligible BPC Served	1,018	1,062	1,074	1,084	1,093	1,100
Eligible BPC Under 1 Yr. Notice	-	-	-	-	-	-

Table 5-7 category wise purchased demand forecast (Low Case)

Consumer Category	GEPCO Peak Demand (132 kV) Forecast (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATTS					
Domestic	1,961	1,998	2,044	2,089	2,158	2,222
Commercial	237	242	251	261	273	282
Public Light	5	5	5	5	5	5
Small Industries	163	165	168	170	175	179
Medium & Large Industries	507	517	526	532	545	557
Tube Wells	144	147	150	152	155	158
Bulk	37	38	38	38	38	38
TOTAL	**2,444**	**2,490**	**2,546**	**2,598**	**2,681**	**2,755**
Above Total Includes:						
Eligible BPC Served	361	401	419	437	456	476
Eligible BPC Under 1 Yr. Notice	-	-	-	-	-	-

The figures above represent approximate share of each category to the System Peak Demand (132 kV) by applying co-incidence factor for each category.

5.4. Assessment of Demand

For the purpose of assessing Security of Supply, the Peak Demand(s) has further been extrapolated to arrive at estimate of Peak Demand at Generation Level. This has been done by adding **3.05%** energy losses (As per latest NEPRA determination of Power

Purchase Price for the year 2024-25) for Transmission and Transformation at National Grid level. Additionally, **10%** reserve margin is added as per approved Market Commercial Code. Accordingly, the below estimate represents Capacity Obligation (CO) of GEPCO for the period 2024-30.

Table 5-8 capacity obligation of GEPCO

Case Description	GEPCO Estimated Peak Demand at Generation Level					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATTS					
Demand (Low Case)	2,444	2,490	2,546	2,598	2,681	2,755
+T&T (500 kV, 220kV) Losses at 3.05%	2,521	2,569	2,627	2,680	2,765	2,842
Reserve Margin @ 10%	252	257	263	268	276	284
Total Capacity Obligation of GEPCO	**2,773**	**2,826**	**2,889**	**2,948**	**3,041**	**3,126**

5.5. Assessment of Supply

For the purposes of Supply (power procurement) arrangement, the Indicative Generation Capacity Expansion Plan (IGCEP) 2022-31 being the latest approved by the honorable Authority vide letter No. NEPRA / R/ DG (Lic.) / LAT-01 / 1550-90 dated February 01, 2023 is considered as National Power Acquisition Plan (PAP).

System Operator has recently submitted updated IGCEP 2024 to the Authority and it is under the process of approval. In the absence of updated IGCEP approval, IGCEP 2022-31 is being considered for supply arrangement.

For the purpose of assessing and establishing share for GEPCO in the said National PAP, we are further guided by the Strategic Directives as contained in the already mentioned "National Electricity Plan 2023-27"; where the Strategic Directive # 45 and 46 states as follows:

SD# 45: The electric power from the power pool of legacy contracts, i.e., contracts executed prior to the CMOD, shall be allocated to each Supplier of Last Resort, except K-Electric, based on their share in the coincidental system peak demand, provided that for such computations:

a. fifty hours in which the demand served at overall system level was highest shall be taken into consideration;

b. no more than 5 hours of the same day shall be included;

c. company wise share shall be determined as an average of last three (3) years or as deemed appropriate.

MoE (Power Division) shall determine the allocation factors of each XW-DISCO, expressed in percentage, as per the above principle subject to availability of data from the secured metering system. The determined allocation factors shall accordingly be made part of Market Commercial Code. Such determined allocation factors shall remain applicable until revised by the MoE (Power Division) in consultation with relevant stakeholders. Provided further, the power allocation for K-Electric shall

be in accordance with the quantum under contractual or other arrangements in place.

SD# 46: Till the time that such evaluation is carried out, the allocation factors for each DISCO shall be determined as per the provisions of Market Commercial Code.

As per Market Commercial Code (MCC) the allocation factor for GEPCO is taken at 9.82% at Table 8, Chapter 18 (Section 18.2.5.2). The same factor is utilized for allocation of capacities while preparing this security of supply.

The capacities as considered and approved by the honorable Authority as part of mentioned IGCEP 2022-31 are separately stated as below:

5.5.1. Existing Contracted Capacities

Table 5-9 Existing contracted capacities and firm capacity

Generation Fuel	Existing Contracted Power Generation Projects					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS (Installed Capacity)					
Imported Coal	3,960	3,960	3,960	3,960	3,960	3,960
Local Coal	1,320	1,320	1,320	1,320	1,320	1,320
RLNG	5,694	5,694	5,694	5,694	5,694	5,694
Gas	2,767	2,767	2,767	2,542	2,542	2,767
Nuclear	3,620	3,620	3,620	3,620	3,620	3,620
Bagasse	244	244	244	244	244	244
Solar	530	530	530	530	530	530
Hydro	10,779	10,779	10,779	10,779	10,779	10,779
Cross Border	-	-	-	-	-	-
SPP	117	84	65	65	65	65
Wind	1,845	1,845	1,845	1,845	1,845	1,845
RFO	3,505	3,505	3,505	2,083	2,083	1,356
TOTAL	**34,380**	**34,347**	**34,328**	**32,681**	**32,681**	**32,179**
Total Firm Capacity	**28,473**	**28,440**	**28,317**	**26,840**	**26,840**	**26,234**
K.E Share	2,050	2,050	2,050	2,050	2,050	2,050
Net-Firm Capacity	**26,423**	**26,390**	**26,267**	**24,790**	**24,790**	**24,184**

5.5.2. Committed/ Contracted Capacities

Table 5-10 committed/ contracted capacities and firm capacity

Generation Fuel	Committed/Contracted Power Generation Projects					
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	MEGA WATS					
Imported Coal	660	-	-	-	-	-
Local Coal	1,980	-	300	-	-	-
RLNG	1,263	-	-	-	-	-
Gas	-	-	-	-	-	-
Nuclear	-	-	-	-	-	-
Bagasse	-	32	-	-	-	-
Solar	182	-	-	-	-	-
Hydro	465	2,271	630	2,558	545	525

Generation Fuel	Committed/Contracted Power Generation Projects					
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	MEGA WATS					
Cross Border	-	1,000	-	-	-	-
SPP	-	-	-	-	-	-
Wind	50	-	-	-	-	-
RFO	-	-	-	-	-	-
TOTAL	**4,600**	**3,303**	**930**	**2,558**	**545**	**525**
Total Firm Capacity	**4,041**	**2,945**	**812**	**2,174**	**463**	**446**

5.5.3. Future Procurement against Committed/ Un-contracted Capacities

Table 5-11 committed/ uncontracted capacities and firm capacity

Generation Fuel	Procurement Against Committed/ Un-Contracted Power Generation Projects					
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
	MEGA WATS					
Imported Coal	-	-	-	-	-	-
Local Coal	-	-	-	-	-	-
RLNG	-	-	-	-	-	-
Gas	-	-	-	-	-	-
Nuclear	-	-	-	-	-	-
Bagasse	-	-	-	-	-	-
Solar	250	-	-	-	-	-
Hydro	116	84	11	-	-	-
Cross Border	-	-	-	-	-	-
SPP	-	-	-	-	-	-
Wind	50	-	-	-	-	-
RFO	-	-	-	-	-	-
TOTAL	**416**	**84**	**11**	**-**	**-**	**-**
Total Firm Capacity	**168**	**71**	**9**	**-**	**-**	**-**

5.5.4. Total IGCEP's capacities (Installed and Firm)

Table 5-12 Total generation capacities as per IGCEP with firm capacity less K.E. share

Generation Fuel	Power Generation Projects IGCEP Total (Installed)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS					
Imported Coal	4,620	4,620	4,620	4,620	4,620	4,620
Local Coal	3,300	3,300	3,600	3,600	3,600	3,600
RLNG	6,957	6,957	6,957	6,957	6,957	6,957
Gas	2,767	2,767	2,767	2,542	2,542	2,767
Nuclear	3,620	3,620	3,620	3,620	3,620	3,620

Generation Fuel	Power Generation Projects IGCEP Total (Installed)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS					
Bagasse	244	276	276	276	276	276
Solar	962	962	962	962	962	962
Hydro	11,360	13,715	14,355	16,913	17,458	17,983
Cross Border	-	1,000	1,000	1,000	1,000	1,000
SPP	117	84	65	65	65	65
Wind	1,945	1,945	1,945	1,945	1,945	1,945
RFO	3,505	3,505	3,505	2,083	2,083	1,356
TOTAL	**39,396**	**42,750**	**43,671**	**44,582**	**45,127**	**45,150**
Total Firm Capacities (Less K.E. Share)	**30,632**	**33,616**	**34,313**	**35,011**	**35,474**	**35,314**

5.5.5. GEPCO's tentative share in Existing Contracted Capacity

Table 5-13 tentative share of GEPCO in existing installed capacity

Generation Fuel	Tentative GEPCO Share in IGCEP Capacities (Existing) @ 9.82%					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS					
Imported Coal	389	389	389	389	389	389
Local Coal	130	130	130	130	130	130
RLNG	559	559	559	559	559	559
Gas	272	272	272	250	250	272
Nuclear	355	355	355	355	355	355
Bagasse	24	24	24	24	24	24
Solar	52	52	52	52	52	52
Hydro	1,058	1,058	1,058	1,058	1,058	1,058
Cross Border	-	-	-	-	-	-
SPP	11	8	6	6	6	6
Wind	181	181	181	181	181	181
RFO	344	344	344	205	205	133
TOTAL	**3,376**	**3,373**	**3,371**	**3,209**	**3,209**	**3,160**
Total Firm Capacity	**2,595**	**2,592**	**2,579**	**2,434**	**2,434**	**2,375**

5.5.6. GEPCO's tentative share in Committed/ Contracted Capacity

Table 5-14 tentative share of GEPCO in committed capacity

Generation Fuel	Tentative GEPCO Share in IGCEP Capacities (Committed) @ 9.82%					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS					
Imported Coal	65	-	-	-	-	-
Local Coal	194	-	29	-	-	-
RLNG	124	-	-	-	-	-
Gas	-	-	-	-	-	-
Nuclear	-	-	-	-	-	-
Bagasse	-	3	-	-	-	-
Solar	18	-	-	-	-	-
Hydro	46	223	62	251	54	52
Cross Border	-	98	-	-	-	-
SPP	-	-	-	-	-	-
Wind	5	-	-	-	-	-
RFO	-	-	-	-	-	-
TOTAL	**452**	**324**	**91**	**251**	**54**	**52**
Firm Capacity	**397**	**289**	**80**	**214**	**45**	**44**

5.5.7. GEPCO's tentative share in Committed/ Un-contracted Capacity

Table 5-15 tentative share of GEPCO in optimized capacity for future procurement

Generation Fuel	Tentative GEPCO Share in IGCEP Capacities (Committed/ Un-Contracted) @ 9.82%					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS					
Imported Coal	-	-	-	-	-	-
Local Coal	-	-	-	-	-	-
RLNG	-	-	-	-	-	-
Gas	-	-	-	-	-	-
Nuclear	-	-	-	-	-	-
Bagasse	-	-	-	-	-	-
Solar	25	-	-	-	-	-
Hydro	11	8	1	-	-	-
Cross Border	-	-	-	-	-	-
SPP	-	-	-	-	-	-
Wind	5	-	-	-	-	-
RFO	-	-	-	-	-	-
TOTAL	**41**	**8**	**1**	**-**	**-**	**-**
Total Firm Capacity	**16**	**7**	**1**	**-**	**-**	**-**

5.5.8. GEPCO's plan for 11 kV Solarization on distribution feeders

In-line with GoP's framework guidelines for fast track solarization, GEPCO initiated the process of solarization on 11 kV Distribution feeders with solar plant up-to 4 MWp on distribution feeders. GEPCO identified 100 no. 11 kV feeders with cumulative capacity of 221 MWp and submitted the feasibility report to NEPRA along with draft RFP for approval. However, since current PAP has been approved only to extent of committed projects, procurement against 11 kV Solarization is not approved. Procurement from 11 kV Solarization will be included in next iteration of PAP for approval of the authority.

5.5.9. GEPCO's tentative share in IGCEP total (Installed and Firm) Capacity

Table 5-16 Tentative share of GEPCO in optimized capacity for future procurement

Generation Fuel	Tentative GEPCO Share in IGCEP Capacities (Installed/ Firm)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATS					
Imported Coal	454	454	454	454	454	454
Local Coal	324	324	354	354	354	354
RLNG	683	683	683	683	683	683
Gas	272	272	272	250	250	272
Nuclear	355	355	355	355	355	355
Bagasse	24	27	27	27	27	27
Solar	94	94	94	94	94	94
Hydro	1,116	1,347	1,410	1,661	1,714	1,766
Cross Border	-	98	98	98	98	98
SPP	11	8	6	6	6	6
Wind	191	191	191	191	191	191
RFO	344	344	344	205	205	133
System Constraint	49	49	-	-	-	-
TOTAL	**3,918**	**4,247**	**4,289**	**4,378**	**4,432**	**4,434**
Total Firm Capacity	**3,057**	**3,350**	**3,370**	**3,438**	**3,484**	**3,468**

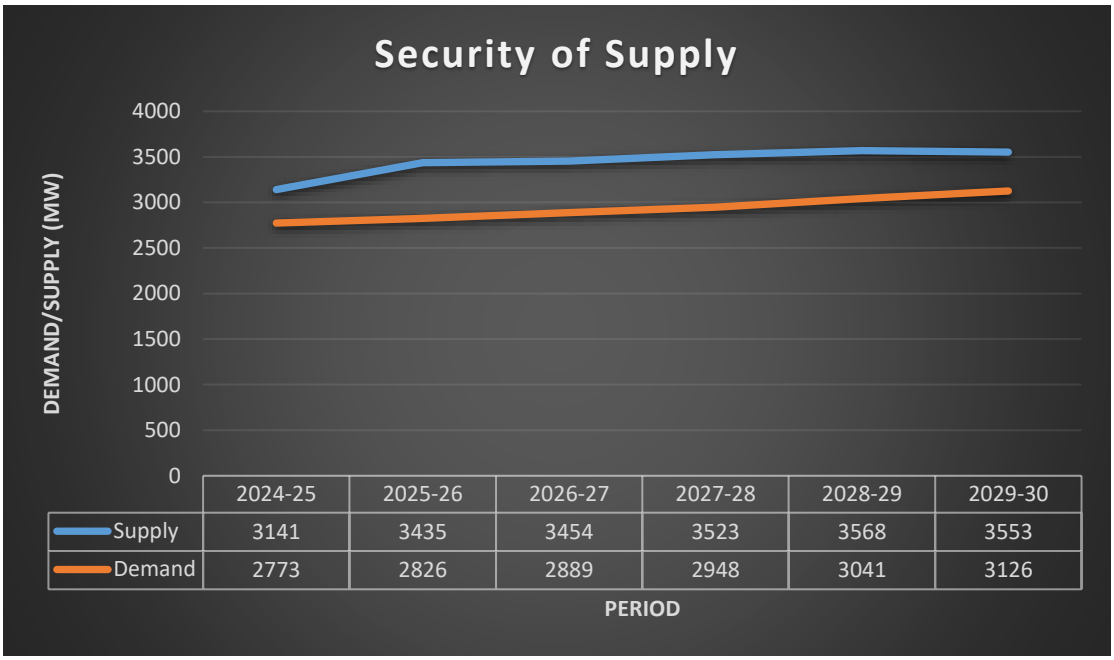
5.6. Security of Supply

Table 5-17 GEPCO security of supply

Case Description	Assessment of Security of Supply (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATTS (Firm Capacity)					
Tentative GEPCO Share in Generation:						
Existing Installed	2,595	2,592	2,579	2,434	2,434	2,375
Committed/ Contracted Projects	397	686	766	979	1,025	1,069
Committed/ Un-Contracted Projects	16	24	25	25	25	25
System Constraint	49	49	-	-	-	-

Case Description	Assessment of Security of Supply (Low Case)					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	MEGA WATTS (Firm Capacity)					
Total Firm Capacity	**3,057**	**3,350**	**3,370**	**3,438**	**3,484**	**3,468**
Capacity Obligation	**2,773**	**2,826**	**2,889**	**2,948**	**3,041**	**3,126**
Demand as %age of Total Firm Capacity	90.7%	84.3%	85.7%	85.7%	87.3%	90.1%
Compliance Status	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant

Note: capacity obligation in years 4-6 have been taken as 100% as opposed to 80% in year-4 and 60% in year-5 in order to ascertain the security of supply position for these years.



6. SECONDARY TRANSMISSION PLAN

6.1. Scope of STG Projects

The secondary transmission plan (STP) of GEPCO, in line with overall business plan timelines, has been prepared for the period of 6 (1+5) years. The STP is based on the broader structure of 8th STG plan already approved by the board of directors and partially incorporated in the existing Multi-Year Tariff (MYT) approved by NEPRA. Noting that the 8th STG plan covering the five-year period from 2022-23 to 2026-27, with the period from 2022-23 to 2024-25 already included in NEPRA determined MYT, has to be reviewed every year with a view to realign the same according to load growth experienced in the recent past and expectations for the future. The STP has also to be aligned with Transmission System Expansion Plan (TSEP) of NTDC so as to ensure back-to-back aligned system expansion so far as it relates to GEPCO service territory.

The execution of projects under 8th STG during the period 2022-23 and 2023-24 has remained behind the targets due to overall economic situation, restrictions on import of required materials, rapid increase in material prices and general decline in demand vis-à-vis the estimates for the demand growth. This has necessitated to review and reschedule projects for alignment as mentioned above. In order to provide clarity for the execution departments of GEPCO, transition of scope and cost (i.e., projects to be started/ completed in a year and spill over thereof to the next year) is also required to be provided. Accordingly, the scope of work for the Grid Stations (New Grids, Augmentation of Power transformers, Addition of new power transformers and addition of line bays), addition of capacitors, Transmission Lines (New transmission lines and re-conductoring of existing transmission lines) and SCADA implementation along with associated expected project cost is detailed as below.

Annex 8: Detailed Scope of STG Plan

6.1.1. Grid Stations (New, Augmentation, Addition/Expansion, Line Bays)

6.1.1.1 Summary of Projects

Table 6-1 Summary of Secondary Grid station plan (Scope)

Sr. No.	Description	Total Capacity (MVA)	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.							
1	New 132KV Grids	1360	3	2	2	3	3	3	**16**
2	Augmentation (132KV)	292	11	1	0	0	0	0	**12**
3	Extension (Transformer)								**0**
a	132KV	656	15	5	0	0	0	0	**20**
b	66KV to 132KV	26	2	0	0	0	0	0	**2**
4	Extension (Line Bay) 132KV	0	17	4	0	5	0	0	**26**
Total		**2334**	**48**	**12**	**2**	**8**	**3**	**3**	**76**
Capacity Addition (MVA)			798	306	305	240	240	240	**2129**

6.1.1.2 Year-Wise Plan

Table 6-2 Secondary Grid station plan Year-Wise (Scope)

2024-25						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2023-24**	**New Works Started 2024-25**	**Works to be Completed in 2024-25**	**Spill over to 2025-26**
1	New 132KV Grids	240	3	6	3	6
2	Augmentation (132KV)	153	5	6	11	0
3	Extension (Transformer)					
a	132/11.5 kV	379	11	4	15	0
b	66/11.5 kV	26	2	0	2	0
4	Extension (Line Bay) 132KV	0	11	6	17	0
	Total	**798**	**32**	**22**	**48**	**6**

2025-26						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2024-25**	**New Works Started 2025-26**	**Works to be Completed in 2025-26**	**Spill over to 2026-27**
1	New 132KV Grids	160	6	5	2	9
2	Augmentation (132KV)	14	0	1	1	0
3	Extension (Transformer)					
a	132/11.5 kV	132	0	5	5	0
b	66/11.5 kV	0	0	0	0	0
4	Extension (Line Bay) 132KV	0	0	4	4	0
	Total	**306**	**6**	**15**	**12**	**9**

2026-27						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
1	New 132KV Grids	160	9	3	2	10
2	Augmentation (132KV)	0	0	0	0	0
3	Extension (Transformer)					

2026-27						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
a	132/11.5 kV	145	0	0	0	0
b	66/11.5 kV	0	0	0	0	0
4	Extension (Line Bay) 132KV	0	0	0	0	0
	Total	**305**	**9**	**3**	**2**	**10**

2027-28						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2026-27**	**New Works Started 2027-28**	**Works to be Completed in 2027-28**	**Spill over to 2028-29**
1	New 132KV Grids	240	10	0	3	7
2	Augmentation (132KV)	0	0	0	0	0
3	Extension (Transformer)					
a	132/11.5 kV	0	0	0	0	0
b	66/11.5 kV	0	0	0	0	0
4	Extension (Line Bay) 132KV	0	0	5	5	0
	Total	**240**	**10**	**5**	**8**	**7**

2028-29						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2027-28**	**New Works Started 2028-29**	**Works to be Completed in 2028-29**	**Spill over to 2029-30**
1	New 132KV Grids	240	7	1	3	5
2	Augmentation (132KV)	0	0	0	0	0
3	Extension (Transformer)					
a	132/11.5 kV	0	0	0	0	0
b	66/11.5 kV	0	0	0	0	0
4	Extension (Line Bay) 132KV	0	0	0	0	0
	Total	**240**	**7**	**1**	**3**	**5**

2029-30						
Sr. No.	**Description**	**Total Capacity (MVA)**	**Spill Over 2028-29**	**New Works Started 2029-30**	**Works to be Completed in 2029-30**	**Spill over to 2030-31**
1	New 132KV Grids	240	5	2	3	4
2	Augmentation (132KV)	0	0	0	0	0
3	Extension (Transformer)					
a	132/11.5 kV	0	0	0	0	0
b	66/11.5 kV	0	0	0	0	0
4	Extension (Line Bay) 132KV	0	0	0	0	0
	Total	**240**	**5**	**2**	**3**	**4**

6.1.2. Capacitors

6.1.2.1 Summary of Projects

Table 6-3 Summary of Secondary Grid capacitors plan (Scope)

Sr. No.	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
1	11KV Fixed Capacitors	No.	22	20	7	0	0	0	49
		MVAR	116.4	115.2	44.4	0	0	0	276

6.1.2.2 Year-Wise Plan

Table 6-4 Secondary Grid capacitors plan Year-wise (Scope)

2024-25						
Sr. No.	**Description**		**Spill Over 2023-24**	**New Works Started 2024-25**	**Works to be Completed in 2024-25**	**Spill over to 2025-26**
1	11 kV Capacitors	No.	13	9	22	0
		MVAR	75.6	40.8	116.4	0

2025-26						
Sr. No.	**Description**		**Spill Over 2024-25**	**New Works Started 2025-26**	**Works to be Completed in 2025-26**	**Spill over to 2026-27**
1	11 kV Capacitors	No.	0	20	20	0
		MVAR	0	115.2	115.2	0

2026-27						
Sr. No.	Description		Spill Over 2025-26	New Works Started 2026-27	Works to be Completed in 2026-27	Spill over to 2027-28
1	11 kV Capacitors	No.	0	7	7	0
		MVAR	0	44.4	44.4	0

2027-28						
Sr. No.	Description		Spill Over 2026-27	New Works Started 2027-28	Works to be Completed in 2027-28	Spill over to 2028-29
1	11 kV Capacitors	No.	0	0	0	0
		MVAR	0	0	0	0

2028-29						
Sr. No.	Description		Spill Over 2027-28	New Works Started 2028-29	Works to be Completed in 2028-29	Spill over to 2029-30
1	11 kV Capacitors	No.	0	0	0	0
		MVAR	0	0	0	0

2029-30						
Sr. No.	Description		Spill Over 2028-29	New Works Started 2029-30	Works to be Completed in 2029-30	Spill over to 2030-31
1	11 kV Capacitors	No.	0	0	0	0
		MVAR	0	0	0	0

6.1.3. Transmission Lines (New)

6.1.3.1 Summary of Projects

Table 6-5 Summary Secondary Transmission lines (new) plan (Scope)

Sr#	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
1	132KV D/C	No.	4	4	10	3	4	3	28
		(Km)	55.99	48	131	38	26	15	314
2	132KV SDT	No.	0	0	5	0	3	0	8
		(Km)	0	0	46	0	73.5	0	120
Total		No.	**4**	**4**	**15**	**3**	**7**	**3**	**36**
		(Km)	**56**	**48**	**177**	**38**	**100**	**15**	**433**

6.1.3.2 Year-Wise Plan

Table 6-6 Secondary Transmission lines (new) plan year-wise (Scope)

2024-25						
Sr. No.	**Description**		**Spill Over 2023-24**	**New Works Started 2024-25**	**Works to be Completed in 2024-25**	**Spill over to 2025-26**
1	132 kV D/C	No.	2	9	4	7
		km	52	136.993	55.993	133
2	132 kV SDT	No.	0	0	0	0
		km	0	0	0	0
Total		No.	**2**	**9**	**4**	**7**
		km	**52**	**136.993**	**55.993**	**133**

2025-26						
Sr. No.	**Description**		**Spill Over 2024-25**	**New Works Started 2025-26**	**Works to be Completed in 2025-26**	**Spill over to 2026-27**
1	132 kV D/C	No.	7	7	4	10
		km	133	46	48	131
2	132 kV SDT	No.	0	5	0	5
		km	0	46	0	46
Total		No.	**7**	**12**	**4**	**15**
		km	**133**	**92**	**48**	**177**

2026-27						
Sr. No.	**Description**		**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
1	132 kV D/C	No.	10	4	10	4
		km	131	41	131	41
2	132 kV SDT	No.	5	0	5	0
		km	46	0	46	0
Total		No.	**15**	**4**	**15**	**4**
		km	**177**	**41**	**177**	**41**

2027-28						
Sr. No.	**Description**		**Spill Over 2026-27**	**New Works Started 2027-28**	**Works to be Completed in 2027-28**	**Spill over to 2028-29**
1	132 kV D/C	No.	4	4	3	5
		km	41	28	38	31
2	132 kV SDT	No.	0	3	0	3
		km	0	73.5	0	73.5
Total		No.	**4**	**7**	**3**	**8**
		km	**41**	**101.5**	**38**	**104.5**

2028-29						
Sr. No.	**Description**		**Spill Over 2027-28**	**New Works Started 2028-29**	**Works to be Completed in 2028-29**	**Spill over to 2029-30**
1	132 kV D/C	No.	5	2	4	3
		km	31	10	26	15
2	132 kV SDT	No.	3	0	3	0
		km	73.5	0	73.5	0
Total		No.	**8**	**2**	**7**	**3**
		km	**104.5**	**10**	**99.5**	**15**

2029-30						
Sr. No.	**Description**		**Spill Over 2028-29**	**New Works Started 2029-30**	**Works to be Completed in 2029-30**	**Spill over to 2030-31**
1	132 kV D/C	No.	3	4	3	4
		km	15	36	15	36
2	132 kV SDT	No.	0	0	0	0
		km	0	0	0	0
Total		No.	**3**	**4**	**3**	**4**
		km	**15**	**36**	**15**	**36**

6.1.4. Transmission Lines (Re-Conductoring)

6.1.4.1 Summary of Projects

Table 6-7 Summary Secondary Transmission lines plan (Re-conductoring) (Scope)

Sr#	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
1	132KV D/C	No.	2	6	0	3	0	0	11
		(Km)	20	134	0	107	0	0	261
2	132KV SDT	No.	0	2	0	0	0	0	2
		(Km)	0	82.3	0	0	0	0	82.3
Total		No.	**2**	**8**	**0**	**3**	**0**	**0**	**13**
		(Km)	**20**	**217**	**0**	**107**	**0**	**0**	**344**

6.1.4.2 Year-Wise Plan

Table 6-8 Summary Secondary Transmission lines plan (Re-conductoring) year-wise (Scope)

2024-25						
Sr. No.	**Description**		**Spill Over 2023-24**	**New Works Started 2024-25**	**Works to be Completed in 2024-25**	**Spill over to 2025-26**
1	132 kV D/C	No.	8	0	2	6
		km	154.3	0	20	134.3
2	132 kV SDT	No.	2	0	0	2
		km	82.3	0	0	82.3
Total		No.	**10**	**0**	**2**	**8**
		km	**236.6**	**0**	**20**	**216.6**

2025-26						
Sr. No.	**Description**		**Spill Over 2024-25**	**New Works Started 2025-26**	**Works to be Completed in 2025-26**	**Spill over to 2026-27**
1	132 kV D/C	No.	6	0	6	0
		km	134.3	0	134.3	0
2	132 kV SDT	No.	2	0	2	0
		km	82.3	0	82.3	0
Total		No.	**8**	**0**	**8**	**0**
		km	**216.6**	**0**	**216.6**	**0**

2026-27						
Sr. No.	**Description**		**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
1	132 kV D/C	No.	0	3	0	3
		km	0	107	0	107
2	132 kV SDT	No.	0	0	0	0
		km	0	0	0	0
Total		No.	**0**	**3**	**0**	**3**
		km	**0**	**107**	**0**	**107**

2027-28						
Sr. No.	**Description**		**Spill Over 2026-27**	**New Works Started 2027-28**	**Works to be Completed in 2027-28**	**Spill over to 2028-29**
1	132 kV D/C	No.	3	0	3	0
		km	107	0	107	0
2	132 kV SDT	No.	0	0	0	0
		km	0	0	0	0
Total		No.	**3**	**0**	**3**	**0**
		km	**107**	**0**	**107**	**0**

2028-29						
Sr. No.	**Description**		**Spill Over 2027-28**	**New Works Started 2028-29**	**Works to be Completed in 2028-29**	**Spill over to 2029-30**
1	132 kV D/C	No.	0	0	0	0
		km	0	0	0	0
2	132 kV SDT	No.	0	0	0	0
		km	0	0	0	0
Total		No.	**0**	**0**	**0**	**0**
		km	**0**	**0**	**0**	**0**

2029-30						
Sr. No.	**Description**		**Spill Over 2028-29**	**New Works Started 2029-30**	**Works to be Completed in 2029-30**	**Spill over to 2030-31**
1	132 kV D/C	No.	0	0	0	0
		km	0	0	0	0
2	132 kV SDT	No.	0	0	0	0
		km	0	0	0	0
Total		No.	**0**	**0**	**0**	**0**
		km	**0**	**0**	**0**	**0**

6.2. STG Capital Cost

The costs of the projects are estimated based on average costs of recent projects executed with a 10% per annum escalation factor for future years. The costs of land have been estimated based on average cost of recent land procurements. Detailed project wise costs are provided at Annex-9.

Annex 9: Project wise costs of STG Plan

6.2.1. STG Total Capital Cost Summary

Table 6-9 Summary Secondary Transmission plan (Grid and Lines) (Cost)

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		Million Rs.						
1	Grids	11,026	5,892	4,099	4,245	4,403	4,269	33,933
2	Transmission	3,960	6,205	2,946	7,799	2,554	1,100	24,563
Total W/O SCADA		**14,985**	**12,097**	**7,045**	**12,044**	**6,956**	**5,369**	**58,496**
3	SCADA	513	1,360	1,496	1,720	247	271	5,606
Grand Total		**15,498**	**13,457**	**8,540**	**13,764**	**7,203**	**5,640**	**64,102**

The total project cost outlay of Rs. 64.1 Billion includes Rs. 15.5 Billion expected during operating year i.e., 2024-25 and Rs. 48.6 Billion during the period 2025-26 to 2029-30 i.e., the next MYT control period.

6.2.2. Grids (New, Augmentation, Addition, Line Bays, Capacitor)

6.2.2.1 Cost Summary:

Table 6-10 Summary of Secondary Grids plan (Cost)

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		Million Rs.						
1	New 132KV Grids	3,421	3,768	3,991	4,054	4,403	4,269	23,906
2	Augmentation (132KV)	4,038	363	0	0	0	0	4,401
3	Extension (Transformer)							0
a	132KV	2,841	1,379	0	0	0	0	4,220
b	66KV to 132KV	220	0	0	0	0	0	220
4	Extension (Line Bay) 132KV	266	126	0	190	0	0	582
5	Capacitors	240	256	108	0	0	0	604
	Total	**11,026**	**5,892**	**4,099**	**4,245**	**4,403**	**4,269**	**33,933**

6.2.2.2 Year Wise-Costs:

Table 6-11 Secondary Grids plan year-wise (Cost)

2024-25					
Sr. No.	**Description**	**Spill Over 2023-24**	**New Works Started 2024-25**	**Works to be Completed in 2024-25**	**Spill over to 2025-26**
1	New 132KV Grids	46.00	11,584.44	3,421.34	8,209.10
2	Augmentation (132KV)	1,855.31	2,182.77	4,038.08	0.00
3	Extension (Transformer)				
a	132/11.5 kV	2,151.57	689.15	2,840.72	0.00
b	66/11.5 kV	219.99	0.00	219.99	0.00
4	Extension (Line Bay) 132KV	108.70	156.96	265.66	0.00
5	Capacitors	146.83	93.27	240.11	0.00
	Total	**4,528.39**	**14,706.60**	**11,025.89**	**8,209.10**

2025-26					
Sr. No.	**Description**	**Spill Over 2024-25**	**New Works Started 2025-26**	**Works to be Completed in 2025-26**	**Spill over to 2026-27**
1	New 132KV Grids	8,209.10	10,085.78	3,767.96	14,526.93
2	Augmentation (132KV)	0.00	363.00	363.00	0.00
3	Extension (Transformer)				
a	132/11.5 kV	0.00	1,379.40	1,379.40	0.00
b	66/11.5 kV	0.00	0.00	0.00	0.00
4	Extension (Line Bay) 132KV	0.00	125.84	125.84	0.00
5	Capacitors	0.00	255.55	255.55	0.00
	Total	**8,209.10**	**12,209.57**	**5,891.75**	**14,526.93**

2026-27					
Sr. No.	**Description**	**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
1	New 132KV Grids	14,526.93	3,574.69	3,990.54	14,111.08
2	Augmentation (132KV)	0.00	0.00	0.00	0.00
3	Extension (Transformer)				
a	132/11.5 kV	0.00	0.00	0.00	0.00
b	66/11.5 kV	0.00	0.00	0.00	0.00

2026-27					
Sr. No.	**Description**	**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
4	Extension (Line Bay) 132KV	0.00	0.00	0.00	0.00
5	Capacitors	0.00	108.34	108.34	0.00
	Total	**14,526.93**	**3,683.03**	**4,098.88**	**14,111.08**

2027-28					
Sr. No.	**Description**	**Spill Over 2026-27**	**New Works Started 2027-28**	**Works to be Completed in 2027-28**	**Spill over to 2028-29**
1	New 132KV Grids	14,111.08	0.00	4,054.48	10,056.59
2	Augmentation (132KV)	0.00	0.00	0.00	0.00
3	Extension (Transformer)				
a	132/11.5 kV	0.00	0.00	0.00	0.00
b	66/11.5 kV	0.00	0.00	0.00	0.00
4	Extension (Line Bay) 132KV	0.00	190.33	190.33	0.00
5	Capacitors	0.00	0.00	0.00	0.00
	Total	**14,111.08**	**190.33**	**4,244.82**	**10,056.59**

2028-29					
Sr. No.	**Description**	**Spill Over 2027-28**	**New Works Started 2028-29**	**Works to be Completed in 2028-29**	**Spill over to 2029-30**
1	New 132KV Grids	10,056.59	1,610.70	4,402.50	7,264.80
2	Augmentation (132KV)	0.00	0.00	0.00	0.00
3	Extension (Transformer)				
a	132/11.5 kV	0.00	0.00	0.00	0.00
b	66/11.5 kV	0.00	0.00	0.00	0.00
4	Extension (Line Bay) 132KV	0.00	0.00	0.00	0.00
5	Capacitors	0.00	0.00	0.00	0.00
	Total	**10,056.59**	**1,610.70**	**4,402.50**	**7,264.80**

2029-30

Sr. No.	Description	Spill Over 2028-29	New Works Started 2029-30	Works to be Completed in 2029-30	Spill over to 2030-31
1	New 132KV Grids	7,264.80	2,408.26	4,269.31	5,403.74
2	Augmentation (132KV)	0.00	0.00	0.00	0.00
3	Extension (Transformer)				
a	132/11.5 kV	0.00	0.00	0.00	0.00
b	66/11.5 kV	0.00	0.00	0.00	0.00
4	Extension (Line Bay) 132KV	0.00	0.00	0.00	0.00
5	Capacitors	0.00	0.00	0.00	0.00
	Total	**7,264.80**	**2,408.26**	**4,269.31**	**5,403.74**

6.2.3. Transmission Lines (New, Re-Conductoring)

6.2.3.1 Cost Summary

Table 6-12 Summary Secondary Transmission Lines plan (Cost)

Sr. No.	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
			Million Rs.						
1	New Line	132 kV D/C	1,997	3,137	1,845	2,781	1,926	1,100	12,787
		132 kV SDT	0	97	552	83	627	0	1,360
2	Recond-uctoring	132 kV D/C	1,373	1,792	548	4,935	0	0	8,648
		132 kV SDT	590	1,179	0	0	0	0	1,769
Total			**3,960**	**6,205**	**2,946**	**7,799**	**2,554**	**1,100**	**24,563**

6.2.3.2 Year-Wise Costs

Table 6-13 Summary Secondary Transmission Lines plan year-wise (Cost)

2024-25						
Sr. No.	**Description**		**Spill Over 2023-24**	**New Works Started 2024-25**	**Works to be Completed in 2024-25**	**Spill over to 2025-26**
1	New Line	132 kV D/C	638.10	5,062.81	1,996.76	3,704.14
		132 kV SDT	0.00	0.00	0.00	0.00
2	Recond-uctoring	132 kV D/C	3,165.16	0.00	1,373.33	1,791.83
		132 kV SDT	1,768.50	0.00	589.50	1,179.00
Total			**5,571.76**	**5,062.81**	**3,959.59**	**6,674.97**

2025-26						
Sr. No.	**Description**		**Spill Over 2024-25**	**New Works Started 2025-26**	**Works to be Completed in 2025-26**	**Spill over to 2026-27**
1	New Line	132 kV D/C	3,704.14	824.86	3,137.17	1,391.83
		132 kV SDT	0.00	649.53	97.43	552.10
2	Recond-uctoring	132 kV D/C	1,791.83	0.00	1,791.83	0.00
		132 kV SDT	1,179.00	0.00	1,179.00	0.00
Total			**6,674.97**	**1,474.39**	**6,205.43**	**1,943.93**

2026-27						
Sr. No.	**Description**		**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
1	New Line	132 kV D/C	1,391.83	3,023.37	1,845.33	2,569.86
		132 kV SDT	552.10	0.00	552.10	0.00

2026-27						
Sr. No.	**Description**		**Spill Over 2025-26**	**New Works Started 2026-27**	**Works to be Completed in 2026-27**	**Spill over to 2027-28**
2	Recond-uctoring	132 kV D/C	0.00	5,483.05	548.31	4,934.75
		132 kV SDT	0.00	0.00	0.00	0.00
Total			**1,943.93**	**8,506.42**	**2,945.74**	**7,504.61**

2027-28						
Sr. No.	**Description**		**Spill Over 2026-27**	**New Works Started 2027-28**	**Works to be Completed in 2027-28**	**Spill over to 2028-29**
1	New Line	132 kV D/C	2,569.86	2,294.98	2,781.24	2,083.60
		132 kV SDT	0.00	710.23	83.10	627.13
2	Recond-uctoring	132 kV D/C	4,934.75	0.00	4,934.75	0.00
		132 kV SDT	0.00	0.00	0.00	0.00
Total			**7,504.61**	**3,005.21**	**7,799.09**	**2,710.73**

2028-29						
Sr. No.	**Description**		**Spill Over 2027-28**	**New Works Started 2028-29**	**Works to be Completed in 2028-29**	**Spill over to 2029-30**
1	New Line	132 kV D/C	2,083.60	575.76	1,926.37	732.98
		132 kV SDT	627.13	0.00	627.13	0.00
2	Recond-uctoring	132 kV D/C	0.00	0.00	0.00	0.00
		132 kV SDT	0.00	0.00	0.00	0.00
Total			**2,710.73**	**575.76**	**2,553.50**	**732.98**

2029-30						
Sr. No.	**Description**		**Spill Over 2028-29**	**New Works Started 2029-30**	**Works to be Completed in 2029-30**	**Spill over to 2030-31**
1	New Line	132 kV D/C	732.98	2,444.75	1,099.70	2,078.04
		132 kV SDT	0.00	0.00	0.00	0.00
2	Recond-uctoring	132 kV D/C	0.00	0.00	0.00	0.00
		132 kV SDT	0.00	0.00	0.00	0.00
Total			**732.98**	**2,444.75**	**1,099.70**	**2,078.04**

6.3. SCADA Implementation Plan

SCADA Implementation in GEPCO includes a dedicated data center for SCADA along with integration of all grid stations (existing and future) of GEPCO through Remote Terminal Units (RTUs) installed on all grid stations. SCADA implementation will enable reliable control and data collection for various nodes on the GEPCO network.

6.3.1. SCADA: Scope

Table 6-14 Scope of SCADA Project Plan

Sr. No.	**Description**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
		No.						
1	Data Centre	1	-	-	-	-	-	**1**
2	Data Centre Building	1	-	-	-	-	-	**1**
3	RTUs (No. of Grids)	5	22	22	23	3	3	**78**

6.3.2. SCADA: Cost

Table 6-15 Cost of SCADA Project Plan

Sr. No.	**Description**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
		Million Rs.						
1	Data Centre	216.8	-	-	-	-	-	**216.8**
2	Data Centre Building	15.0	-	-	-	-	-	**15.0**
3	RTUs (No. of Grids)	280.9	1,359.6	1,495.6	1,719.9	246.8	271.4	**5,374.1**
Total Cost		**513**	**1,360**	**1,496**	**1,720**	**247**	**271**	**5,606**

The SCADA implementation plan may have to be expedited to complete SCADA implementation on all existing and new grid stations within 2 years. Afterwards the company is also considering deployment of Optical Fiber Ground Wire (OPGW) to enhance connectivity, control, data acquisition and integration with other digital interventions within GEPCO.

In case of expedited plan, following will be the investment estimates with SCADA including OPGW.

6.3.3. Optional SCADA Scope with OPGW:

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
1	Data Centre	1	-	-	-	-	-	**1**
2	Data Centre Building	1	-	-	-	-	-	**1**
3	RTUs (No. of Grids)	5	32	32	3	3	3	**78**
4	OPGW (km)	0	0	500	1,150	1,100	808	**3,558**

6.3.4. Optional SCADA Cost with OPGW:

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		Million Rs.						
1	Data Centre	216.8	-	-	-	-	-	**217**
2	Data Centre Building	15.0	-	-	-	-	-	**15**
3	RTUs	280.9	1,854.0	2,107.4	224.3	246.8	271.4	**4,985**
4	OPGW	0.0	0.0	465.9	1,178.6	1,240.1	1,002.0	**3,887**
Total Cost		**513**	**1,854**	**2,573**	**1,403**	**1,487**	**1,273**	**9,103**

In case of such expedited plan, GEPCO may need extra Rs. 3.5 billion funding and investment approval from NEPRA.

6.4. STG Plan: Operating Cost

The operating cost for the projects to be completed during the business plan period has been estimated for carrying out financial analysis of the STG Plan, however, the operating costs shall be met from annual O&M budget of the company. The annual estimated O&M cost as presumed for the project financial analysis is provided as below;

Table 6-16 STG Plan additional O&M Cost

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
STG Additional O&M Cost	77.5	67.3	42.7	68.8	36.0	28.2	**320.5**

6.5. STG Plan: Benefits and Financial Analysis

The benefits associated with the proposed project include:

6.5.1. STG Projects' Benefits

- Reduction in technical losses of GEPCO
- Improvement in reliability of GEPCO network
- Avoiding forced load shedding in GEPCO area
- Improvement in power supply position of GEPCO
- Increase in the available system capacity to meet future load growth
- Improvement in voltage profile of the areas under jurisdiction of GEPCO
- Elimination of the existing/ future transmission system constraints of GEPCO network in its vicinity

Table 6-17 STG Project's benefits

	Increase in Number of Customers in Millions					
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Domestic	0.25	0.26	0.27	0.28	0.29	0.30
Commercial	0.01	0.02	0.02	0.02	0.02	0.02
Industrial	0.0025	0.0028	0.0029	0.0032	0.0035	0.0038
Agricultural	0.0012	0.0016	0.0019	0.0021	0.0024	0.0024
Other	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007
TOTAL	0.3	0.3	0.3	0.3	0.3	0.3
Growth%	5.77%	5.62%	5.58%	5.47%	5.41%	5.30%

Additional Sales – GWh						
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Domestic	82	55	34	72	93	105
Commercial	-14	-20	-18	-16	-18	-28
Industrial	-45	-43	-76	-93	-93	-88
Agricultural	20	8	6	3	3	4
Other	2	2	1	1	1	1
Total	**45**	**1**	**-53**	**-33**	**-13**	**-6**

Energy Saved through Loss Reduction – GWh							
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
STG	9	22	19	15	7	5	77

Year	**G.R (%)**	**Targets**		**Increased Losses due to Growth Rate (GWh)**	**Saving due to STG Projects (GWh)**
		Transmission Losses (GWh)	**%age Loss**		
2025-26	1.88%	101.4	0.87%	123	21.7
2026-27	2.25%	99.6	0.86%	119	19.1
2027-28	2.04%	98.1	0.85%	113	14.7
2028-29	3.16%	96.8	0.84%	104	7.4
2029-30	2.78%	95.5	0.83%	100	4.8
Total		491		559	68

6.5.2. Financial Analysis

The Economic Rate of Return (ERR), and Internal Rate of Return (IRR) for the STG projects above has been calculated at 23% and 19% respectively.

7. DISTRIBUTION NETWORK EXPANSION AND REHABILITATION PLAN

7.1. Summary of Distribution Network Expansion and Rehabilitation Plan

Table 7-1 Summary Scope of DNEP

Sr. No.	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
			No.						
1	ELR	HT Works	41	42	42	25	29	24	**203**
2		LT Works	1,455	1,473	1,475	673	755	735	**6,566**
3	DOP	HT Works	3	4	4	1	3	5	**20**
4		LT Works	65	57	36	96	46	44	**344**
		Total	**1,564**	**1,576**	**1,557**	**795**	**833**	**808**	**7,133**

Table 7-2 Summary Cost of DNEP

Sr. No.	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
			No.						
1	ELR	HT Works	1,325	1,425	1,571	993	1,270	1,175	**7,759**
2		LT Works	2,791	3,549	3,928	1,935	2,422	2,624	**17,248**
3	DOP	HT Works	204	266	291	81	265	495	**1,602**
4		LT Works	103	89	57	157	83	92	**580**
		Total	**4,422**	**5,329**	**5,847**	**3,166**	**4,039**	**4,385**	**27,189**

7.2. ELR Plan

7.2.1. ELR Plan Scope

7.2.1.1 Summary of ELR Plan

Table 7-3 Summary Scope of Distribution ELR Plan

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
1	HT Works	41	42	42	25	29	24	**203**
2	LT Works	1455	1473	1475	673	755	735	**6566**
	Total	**1496**	**1515**	**1517**	**698**	**784**	**759**	**6769**

7.2.1.2 Year-Wise Plan

Table 7-4 Year-wise scope of Distribution ELR Plan

2024-25					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	30	40	41	29
2	LT Works	1326	710	1455	581
	Total	**1356**	**750**	**1496**	**610**

2025-26					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	29	40	42	27
2	LT Works	581	1375	1473	483
	Total	**610**	**1415**	**1515**	**510**

2026-27					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	27	44	42	29
2	LT Works	483	1375	1475	383
	Total	**510**	**1419**	**1517**	**412**

2027-28					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	29	18	25	22
2	LT Works	383	535	673	245
	Total	**412**	**553**	**698**	**267**

2028-29					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	22	22	29	15
2	LT Works	245	670	755	160
	Total	**267**	**692**	**784**	**175**

2029-30					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	15	21	24	12
2	LT Works	160	625	735	50
	Total	**175**	**646**	**759**	**62**

7.2.2. Capital Cost of ELR Plan

7.2.2.1 Summary of ELR Plan Cost

Table 7-5 Cost summary of Distribution ELR Plan

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
1	HT Works	1,325	1,425	1,571	993	1,270	1,175	**7,759**
2	LT Works	2,791	3,549	3,928	1,935	2,422	2,624	**17,248**
	Total	**4,116**	**4,974**	**5,499**	**2,928**	**3,692**	**3,799**	**25,007**

7.2.2.2 Year-Wise detail of ELR Plan cost

Table 7-6 Year-wise Cost of Distribution ELR Plan

2024-25					
Sr. No.	Description	Spill Over 2022-23	New Works Started 2023-24	Works to be Completed in 2023-24	Spill over to 2024-25
1	HT Works	986.52	1,276.15	1,325.28	937.39
2	LT Works	2,215.84	1,689.08	2,790.60	1,114.32
	Total	**3,202.36**	**2,965.22**	**4,115.87**	**2,051.71**

2025-26					
Sr. No.	Description	Spill Over 2022-23	New Works Started 2023-24	Works to be Completed in 2023-24	Spill over to 2024-25
1	HT Works	937.39	1,403.76	1,425.05	916.10
2	LT Works	1,114.32	3,598.21	3,548.85	1,163.68
	Total	**2,051.71**	**5,001.97**	**4,973.90**	**2,079.78**

2026-27					
Sr. No.	Description	Spill Over 2022-23	New Works Started 2023-24	Works to be Completed in 2023-24	Spill over to 2024-25
1	HT Works	916.10	1,739.49	1,570.91	1,084.68
2	LT Works	1,163.68	3,783.97	3,927.76	1,019.89
	Total	**2,079.78**	**5,523.46**	**5,498.67**	**2,104.56**

2027-28					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	1,084.68	782.77	993.32	874.12
2	LT Works	1,019.89	1,619.54	1,935.00	704.42
	Total	**2,104.56**	**2,402.31**	**2,928.33**	**1,578.55**

2028-29					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	874.12	1,052.39	1,269.75	656.77
2	LT Works	704.42	2,231.03	2,422.15	513.30
	Total	**1,578.55**	**3,283.42**	**3,691.90**	**1,170.07**

2029-30					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	656.77	1,105.01	1,174.52	587.26
2	LT Works	513.30	2,289.30	2,624.09	178.51
	Total	**1,170.07**	**3,394.31**	**3,798.61**	**765.77**

7.3. DOP Plan

7.3.1. DOP Plan: Scope

7.3.1.1 Summary of DOP Plan

Table 7-7 Scope summary of Distribution DOP Plan

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
1	HT Works	3	4	4	1	3	5	**20**
2	LT Works	65	57	36	96	46	44	**344**
	Total	**68**	**61**	**40**	**97**	**49**	**49**	**364**

7.3.1.2 Year-Wise DOP Plan

Table 7-8 Year-wise Scope of Distribution DOP Plan

2024-25					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	2	3	3	2
2	LT Works	290	20	65	245
	Total	**292**	**23**	**68**	**247**

2025-26					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	2	4	4	2
2	LT Works	245	15	57	203
	Total	**247**	**19**	**61**	**205**

2026-27					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	2	3	4	1
2	LT Works	203	13	36	180
	Total	**205**	**16**	**40**	**181**

2027-28					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	1	2	1	2
2	LT Works	180	16	96	100
	Total	**181**	**18**	**97**	**102**

2028-29					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	2	3	3	2
2	LT Works	100	23	46	77
	Total	**102**	**26**	**49**	**79**

2029-30					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	2	6	5	3
2	LT Works	77	36	44	69
	Total	**79**	**42**	**49**	**72**

7.3.2. Capital Cost of DOP Plan

7.3.2.1 Summary of DOP Plan Cost

Table 7-9 Cost summary of Distribution DOP Plan

Sr. No.	**Description**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
		No.						
1	HT Works	204	266	291	81	265	495	**1,602**
2	LT Works	103	89	57	157	83	92	**580**
	Total	**306**	**355**	**348**	**238**	**347**	**587**	**2,181**

7.3.2.2 Year-wise DOP Plan Cost

Table 7-10 Year-Wise Cost of Distribution DOP Plan

2024-25					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	159.71	179.79	203.70	135.80
2	LT Works	468.07	21.08	102.56	386.59
	Total	**627.78**	**200.87**	**306.27**	**522.39**

2025-26					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	135.80	263.70	266.33	133.17
2	LT Works	386.59	17.39	88.56	315.41
	Total	**522.39**	**281.08**	**354.89**	**448.58**

2026-27					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	133.17	231.06	291.38	72.84
2	LT Works	315.41	26.58	57.00	285.00
	Total	**448.58**	**257.64**	**348.38**	**357.84**

2027-28					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	72.84	169.44	80.76	161.52
2	LT Works	285.00	35.99	157.22	163.77
	Total	**357.84**	**205.43**	**237.98**	**325.29**

2028-29					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	161.52	279.58	264.66	176.44
2	LT Works	163.77	56.91	82.53	138.15
	Total	**325.29**	**336.49**	**347.19**	**314.59**

2029-30					
Sr. No.	**Description**	**Spill Over 2022-23**	**New Works Started 2023-24**	**Works to be Completed in 2023-24**	**Spill over to 2024-25**
1	HT Works	176.44	615.07	494.70	296.82
2	LT Works	138.15	97.98	91.94	144.18
	Total	**314.59**	**713.05**	**586.64**	**441.00**

7.4. Operating Cost of SAP (ELR & DOP) Projects

The operating cost for the distribution network projects to be completed during the business plan period has been estimated for carrying out financial analysis of the SAP (ELR & DOP) plan, however, the operating costs shall be met from annual O&M budget of the company. The annual estimated O&M cost as presumed for the project financial analysis is provided as below;

Table 7-11 DNEP Additional O&M Cost

Description	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total**
	Million Rs.						
DNEP Additional O&M Cost	35.9	42.6	44.9	26.5	35.8	48.3	**234.1**

7.5. Benefit and Financial Analysis of SAP (ELR & DOP) Plan

Table 7-12 Tangible benefits of DNEP

	Increase in Number of Customers in Millions					
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Domestic	0.25	0.26	0.27	0.28	0.29	0.30
Commercial	0.01	0.01	0.02	0.02	0.02	0.02
Industrial	0.0025	0.0028	0.0029	0.0032	0.0035	0.0038
Agricultural	0.0012	0.0016	0.0019	0.0021	0.0024	0.0024
Other	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007
TOTAL	0.3	0.3	0.3	0.3	0.3	0.3
Growth%	5.77%	5.62%	5.58%	5.47%	5.41%	5.30%

	Additional Sales – GWh					
Description	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Domestic	82	55	34	72	93	105
Commercial	-14	-20	-18	-16	-18	-28
Industrial	-45	-43	-76	-93	-93	-88
Agricultural	20	8	6	3	3	4
Other	2	2	1	1	1	1
Total	**45**	**1**	**-53**	**-33**	**-13**	**-6**

7.6. Consumer Deposit/ Sponsored Projects and New Connections

At present there is no un-electrified villages/ areas in GEPCO, however, due to extension of villages and creation of new settlements in the vicinity of villages, village electrification is carried out with financing from the PSDP of the Government. In line with strategic action 4.3 of the Statement of Corporate Intent (SCI), detailed electrification plan will be developed by GEPCO and the execution of the plan will be carried out as per recommendation and financing provided by the relevant authorities. Scope of the village electrification plan will be based on these recommendations and financing.

In line with strategic action 4.4 of the Statement of Corporate Intent (SCI), the estimated number of new connections to be installed are as detailed below;

Table 7-13 Estimated number of connections to be installed

Sr. No.	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
1	S/Phase New Connections	4.27	4.51	4.77	5.04	5.33	5.63	**29.54**
2	3/Phase New Connections	0.70	0.74	0.79	0.83	0.88	0.93	**4.88**
	Total	**4.97**	**5.26**	**5.56**	**5.87**	**6.21**	**6.56**	**34.42**

The total cost to be incurred on consumer deposit/ sponsored projects and new connections estimated from historical trend is as detailed below;

Table 7-14 Estimated total cost of consumer deposit/ sponsored projects

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Rs. Million						
Total	**7,022**	**7,725**	**8,497**	**9,347**	**10,281**	**11,310**	**54,182**

The investment against deposit/ sponsored/ new connections will be financed through consumers/ sponsoring agency.

8. INFRASTRUCTURE DEVELOPMENT

8.1. Civil Works Plan

GEPCO's civil assets consist of official buildings (Grid Stations, Offices, Stores, Workshops, Training Center Etc.) and Residential buildings. This civil works plan includes development of new official and residential buildings as well renovation/ repairing of existing buildings of GEPCO. However, new buildings to be constructed at new grid stations (planned) are included in the scope and cost of STG plan and is not included in this civil works plan. Moreover, this Civil works plan does not include any land procurement as all new buildings are to be constructed on already available land of GEPCO.

Annex 10: Detail of Civil Works Plan

8.1.1. Civil Works: Scope

Table 8-1 Scope of Civil Works Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	No.					
Construction of Office Buildings	9	4	7	0	1	2
Construction of Residencies (Flats) (No. of Flat Sets)	2	6	1	3	4	4
Renovation of Office Buildings	As per needs					
Renovation of Residential Colonies	As per needs					
Emergency Nature Work/ Limited Enquiry basis	As per needs					

8.1.2. Civil Works: Cost

Table 8-2 Cost of Civil Works Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Construction of Office Buildings	585	240	200	200	50	60
Construction of Residencies (Flats)	150	260	214	170	240	220
Renovation of Office Buildings	70	120	120	120	120	120
Renovation of Residential Colonies	5	5	5	5	10	10
Emergency Nature Work/ Limited Enquiry basis	25	25	25	35	40	40
Total	**835**	**650**	**564**	**530**	**460**	**450**

8.2. GIS Implementation Plan

GEPCO has already completed GIS Mapping of 11 kV Network of GEPCO which will be updated and maintained throughout the business plan period. GEPCO has recently initiated GIS enterprise implementation project, to be implemented by 3rd party contractor, which will enable reliable management and usage of GIS mapping data. After development of GIS mapping mobile app, Mapping of LT network of GEPCO including consumer mapping will be initiated through own sources and will be completed till 2026-27.

8.2.1. GIS Plan: Scope

Table 8-3 Scope of GIS Plan

Sr. No.	Description	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
		(%)						
1	GIS Enterprise Solution	Bidding and Contract Award	100%	Will be maintained				
2	HT Network Mapping	100%	Will be updated and maintained					
3	LT Network Mapping	0%	20%	60%	100%	Will be updated and maintained		
4	Consumer Mapping	0%	20%	60%	100%	Will be updated and maintained		

8.2.2. GIS Plan: Cost

Table 8-4 Cost of GIS Plan

Sr. No.	Description	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
		Rs. Million						
1	GIS Enterprise Solution	-	200.0	-	-	-	-	-
2	HT Network Mapping	-	20.0	20.0	-	-	-	-
3	LT Network Mapping	-	-	50.0	60.0	-	-	-
4	Consumer Mapping	-	-	-	-	-	-	-
Total		**-**	**220.0**	**70.0**	**60.0**	**-**	**-**	**-**

8.3. Asset Performance Management System

Asset Performance Management System (APMS) plan is aimed at implementation of APMS on general duty distribution transformers of the capacity of 200 kVA and 100 kVA. The APMS will result in ensured asset safety (transformer burnt ratio), improved operational efficiency and reliability, reduced ATC losses and improved planning and management of distribution assets of GEPCO. Equipped with disconnection/ reconnection facility, APMS will enable ensured continuity of supply and improved management of ATC losses without interrupting the supply of consumers where ATC losses are low. Installation of Circuit Breakers on distribution transformers will minimize damaging of distribution transformers due to overload and faults.

Currently a total of 95,555 distribution transformers of different capacities are installed within GEPCO net-work. Out of the said transformers, 33,399 No. are general duty and remaining 62,156 are independent. The independent distribution transformers are metered and mostly installed with AMI meters.

Out of said 33,399 general duty transformers, 10,832 and 11,066 are of the capacity of 100 kVA and 200 kVA, respectively, covering over 86% of the total capacity of all general duty transformers. Recently, in line with umbrella PC-1 prepared / submitted by PPMC for all DISCOs, GEPCO has already prepared and submitted individual PC-1 covering 17,579 distribution transformers of (9,720) 100 kVA and (7,859) 200 kVA capacity in three (3) years starting from FY 2024-25 with a total investment outlay of Rs.9,588 million. The said individual PC-1 of GEPCO has already been submitted to Planning Commission through Ministry of Energy (Power Division) with the approval of GEPCO BOD.

8.3.1. APMS: Scope

Table 8-5 Scope of APMS Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
No. of APMS to be installed	0	3,516	7,032	7,032	0	0	17,580

8.3.2. APMS: Cost

Table 8-6 Cost of APMS Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
APMS Cost (Rs. Million)	-	**1,817**	**3,773**	**3,999**	-	-	**9,588**

It is expected that the Asian Development Bank (ADB) and the Federal Government (through PSDP) shall partially (approximately 71.6%) finance the project. In case, however, the said expected financing is not available, the GEPCO will undertake the project from own sources.

Above APMS plan is based on current numbers of 200 kVA and 100 kVA general duty transformers installed in GEPCO. To cover new transformers and those of capacity 50 kVA and below, based on lessons learned from initial phase as mentioned above, GEPCO may need extra funding and investment approval from NEPRA.

GEPCO may also undertake deploying APMS to all remaining 100 kVA (1,112) and 200 kVA (3,207) distribution transformers through own sources during the period from FY 2025-26 to 2027-28 (3 years), with prior approval of the Authority.

8.3.3. Optional APMS Plan; Scope

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
No. of APMS to be installed	0	2,300	1,400	619	0	0	4,319

8.3.4. Optional APMS Plan; Cost

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
APMS Cost (Rs. Million)	-	**1,250**	**786**	**345**	-	-	**2,381**

8.4. Sectionalizers

GEPCO has initiated the implantation of Sectionalizers (Automated Load Break Switches) on 11 kV feeders for improved operational efficiency and reliability as well as enhanced safety of workers. These Sectionalizers will enable disconnecting portions of feeders during fault and scheduled maintenance instead of de-energizing whole feeder.

8.4.1. Sectionalizers: Scope

Table 8-7 Scope of plan to install 11 kV Sectionalizers

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
11 kV Sectionalizer	Pilot Project: 14 No. Auto Sectionalizers on 5 feeders	-	-	-	-	-

8.4.2. Sectionalizers: Cost

Table 8-8 Cost of 11 kV Sectionalizers Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
11 kV Sectionalizer cost (Rs. Million)	**75**	-	-	-	-	-

This Sectionalizers pilot implementation plan is prepared for better understanding and capacity building within GEPCO. After successful implementation of this pilot project and based upon its results, detailed implementation plan for installation of Sectionalizers on all feeders of GEPCO will be prepared and included in next iteration of business plan. GEPCO may need additional funding and investment approval from NEPRA for detailed Sectionalizers implementation plan.

9. FUNCTIONAL IMPROVEMENT PLAN

9.1. HSE Plan

9.1.1. Scope of HSE Plan

Table 9-1 Scope of HSE Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	No.						
No. of Hazard Removals	1,825	400	400	400	400	400	3,825
No. of structures earthed	80,000	80,000	100,000	100,000	100,000	100,000	560,000

9.1.2. Cost of HSE Plan

Table 9-2 Cost of HSE Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Rs. Million						
No. of Hazard Removals	**334.0**	**103.1**	**113.4**	**124.7**	**137.2**	**150.9**	**963.4**
No. of structures earthed	**1,117.7**	**1,126.4**	**1,548.8**	**1,703.7**	**1,874.1**	**2,061.5**	**9,432.3**
Total	**1,451.7**	**1,229.5**	**1,662.2**	**1,828.5**	**2,011.3**	**2,212.4**	**10,395.7**

9.2. Transport Plan

9.2.1. Scope of Transport Plan

Table 9-3 Scope of Transport Plan

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
Operational Vehicles		46	7	7	6	5	4	**75**
Transport Policy Vehicles	Officers	72	20	20	85	138	60	**395**
	Officials	3,000	3,000	3,000	250	225	200	**9,675**
Total		**3,118**	**3,027**	**3,027**	**341**	**368**	**264**	**10,145**

9.2.2. Cost of Transport Plan

Table 9-4 Cost of Transport Plan

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
Operational Vehicles		985	150	150	150	150	150	**1,735**
Transport Policy Vehicles	Officers	350	100	100	400	600	300	**1,850**
	Officials	500	550	600	50	50	50	**1,800**
Total		**1,835**	**800**	**850**	**600**	**800**	**500**	**5,385**

9.3. ERP Implementation Plan

Table 9-5 ERP Implementation Plan

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
ERP Implementation Plan	Scope	Operation and Maintenance of ERP Data centre						
	Cost	50	50	30	30	30	30	**220**

9.4. Software, System Studies, Licenses

Table 9-6 ERP Implementation Plan

Description			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Software, System Studies, Licences	Scope	Credit Rating of GEPCO	✓						
		Study of technical losses of distribution and transmission network	✓						
		Net-Metering Portal	✓						
		Development of MTLF Tool		✓					
		Development of STLF Tool			✓				
		PSS/E Licence for Dynamic Load Flow			✓				
		Assessment study for integration of all IT Tools and integration as per assessment		✓					
		GIS Portal for Rural Electrification					✓		
		Synergee Electric licence for DER Integration, Short circuit			✓				
	Cost		40	50	50	50	50	50	**290**

10. COMMERCIAL IMPROVEMENT PLAN

10.1. Advanced Metering Infrastructure (AMI) Plan

10.1.1. Scope of AMI Plan

Table 10-1 Scope of AMI Implementation Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	No.						
AMI Meters to be Installed	111,177	62,240	0	0	0	0	173,417

10.1.2. Cost of AMI Plan

Table 10-2 Cost of AMI Implementation Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Rs. Million						
Cost of AMI Meters	**5,149**	**3,171**	-	-	-	-	**8,319**

10.2. IT-MIS Improvement Plan

Table 10-3 IT-MIS Improvement Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Rs. Million						
IBS	400.0	-	-	-	-	-	**400**
Computers, Laptops, Printers, Mobile Phones for Meter Reading	100.0	50.0	50.0	50.0	50.0	50.0	**350**
Total	**500.0**	**50.0**	**50.0**	**50.0**	**50.0**	**50.0**	**750.0**

10.3. Installation of ABC Cable

10.3.1. Scope of ABC Cable Installation

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	No.						
ABC Cable (km)	0	0	100	100	100	100	400

10.3.2. Cost of ABC Cable Installation

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	No.						
Cost of ABC Cable (Rs. Million)	0	0	115	127	139	153	535

10.4. Demand Side Management

In line with SCI strategic goal 6.8, a Demand Side Management (DSM) department/ section will be developed in GEPCO, preferably within MIRAD, after approval of organizational structure from the BOD GEPCO. Once DSM department is established, detailed DSM implementation plans will be prepared in coordination with national and/ or provincial energy efficiency and conservation agencies (NEECA, PEECA).

11. SCOPE AND FINANCIAL SUMMARIES OF DIIP

11.1. Summary of Investment Plan Scope

11.1.1. STP

Table 11-1 Summary of STP Plan

Sr. No.	Description	Total Capacity (MVA)	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.							
1	New 132KV Grids	1360	3	2	2	3	3	3	**16**
2	Augmentation (132KV)	222	11	1	0	0	0	0	**12**
3	Extension (Transformer)								
a	132KV	511	15	5	0	0	0	0	**20**
b	66KV to 132KV	26	2	0	0	0	0	0	**2**
4	Extension (Line Bay) 132KV	0	17	4	0	5	0	0	**26**
5	11 kV Capacitors	0	22	20	7	0	0	0	**49**
Total		**2119**	**70**	**32**	**9**	**8**	**3**	**3**	**125**
Capacity Addition (MVA)			728	306	160	240	240	240	**1914**
11 kV Capacitors MVAR Addition		MVAR	116.4	115.2	44.4	0	0	0	**276**

Sr#	Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
New Transmission Lines									
1	132KV D/C	No.	4	4	10	3	4	3	28
		(Km)	55.993	48	131	38	26	15	314
2	132KV SDT	No.	0	0	5	0	3	0	8
		(Km)	0	0	46	0	73.5	0	119.5
Total		No.	**4**	**4**	**15**	**3**	**7**	**3**	**36**
		(Km)	**56**	**48**	**177**	**38**	**100**	**15**	**433**
Transmission Lines Re-conductoring									
1	132KV D/C	No.	2	6	0	3	0	0	11
		(Km)	20	134.3	0	107	0	0	261.3
2	132KV SDT	No.	0	2	0	0	0	0	2
		(Km)	0	82.3	0	0	0	0	82.3
Total		No.	**2**	**8**	**0**	**3**	**0**	**0**	**13**
		(Km)	**20**	**217**	**0**	**107**	**0**	**0**	**344**

11.1.2. DNEP: ELR and DOP

Table 11-2 Summary of Distribution Network Expansion and Rehabilitation Plan

Sr. No.	Description		2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
			No.							
1	ELR	HT Works	28	41	42	42	25	29	24	**231**
2		LT Works	1,088	1,455	1,473	1,475	673	755	735	**7,654**
3	DOP	HT Works	4	3	4	4	1	3	5	**24**
4		LT Works	73	65	57	36	96	46	44	**417**
		Total	**1,193**	**1,564**	**1,576**	**1,557**	**795**	**833**	**808**	**8,326**

11.1.3. Infrastructure Development

Table 11-3 Summary of Infrastructure Development Plan

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
		No.					
Civil Works Plan	Construction of Office Buildings	9	4	7	0	1	2
	Construction of Residencies (Flats)	2	6	1	3	4	4
	Renovation of Office Buildings	As per needs					
	Renovation of Residential Colonies	As per needs					
	Emergency Nature Work/ Limited Enquiry basis	As per needs					
GIS Mapping	GIS Enterprise Solution	100%	Will be maintained				
	HT Network Mapping	Will be updated and maintained					
	LT Network Mapping	20%	60%	100%	Will be updated and maintained		
	Consumer Mapping	20%	60%	100%	Will be updated and maintained		
APMS	No. of APMS to be installed	0	3,516	7,032	7,032	0	0

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
		No.					
Sectionalizers	11 kV Sectionalizer	Pilot Project: 14 No. Auto Sectionalizers on 5 feeders	-	-	-	-	-

11.1.4. Functional Improvement Plan

Table 11-4 Summary of Functional Improvement Plan

Description			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
			No.						
HSE	No. of Hazard Removals		1825	400	400	400	400	400	**3,825**
	No. of structures earthed		80,000	80,000	100,000	100,000	100,000	100,000	**560,000**
Transport	Operational Vehicles		46	7	7	6	5	4	**75**
	Transport Policy Vehicles	Officers	72	20	20	85	138	60	**395**
		Officials	3,000	3,000	3,000	250	225	200	**9,675**
ERP			Operation and Maintenance of ERP Data centre						
Software, Studies and Licences			Credit Rating of GEPCO, Study of Technical losses of Distribution and Transmission network, Net-Metering Portal, Development of MTLF tool, Development of STLF Tool, PSS/E Licence for Dynamic Load Flow Analysis, Assessment study for integration of all IT tool and integration as per assessment, GIS portal for rural electrification, Synergee Electric licence for DER integration & short-circuit analysis						

11.1.5. Commercial Improvement Plan

Table 11-5 Summary of Commercial Improvement Plan

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
AMI	AMI Meters to be Installed	111,177	62,240	0	0	0	0	**173,417**
ABC Cable	Length of cable (km)	0	0	100	100	100	100	**400**

11.2. Customer Facilitation Programme

11.2.1. Customer Facilitation Programme (Scope)

Table 11-6 Customer Facilitation Programme (Scope)

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		No.						
No. of Hazard Removals		1,825	400	400	400	400	400	**3,825**
No. of structures earthed		80,000	80,000	100,000	100,000	100,000	100,000	**560,000**
Operational Vehicles		46	7	7	6	5	4	**75**
Transport Policy Vehicles	Officers	72	20	20	85	138	60	**395**
	Officials	3,000	3,000	3,000	250	225	200	**9,675**
11 kV Sectionalizers		Pilot Project: 14 No. Auto Sectionalizers on 5 feeders	-	-	-	-	-	-
AMI	AMI Meters to be Installed	111,177	62,240	0	0	0	0	**173,417**

11.2.2. Customer Facilitation Programme (Cost)

Table 11-7 Customer Facilitation Programme (Scope)

Description		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
		Million Rs.						
Hazard Removals		334	103	113	125	137	151	**963**
Structure earthing		1,118	1,126	1,549	1,704	1,874	2,061	**9,432**
Operational Vehicles		985	150	150	150	150	150	**1,735**
Transport Policy Vehicles	Officers	350	100	100	400	600	300	**1,850**
	Officials	500	550	600	50	50	50	**1,800**
11 kV Sectionalizers		75	0	0	0	0	0	**75**
AMI		5,149	3,171	0	0	0	0	**8,319**
Total		**8,510**	**5,200**	**2,512**	**2,428**	**2,811**	**2,712**	**24,175**

11.3. Integrated Investment Plan

Table 11-8 Integrated Investment Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	[Million Rs.]						
Investment Plan							
STG	14,985	12,097	7,045	12,044	6,956	5,369	**58,496**
ELR	4,116	4,974	5,499	2,928	3,692	3,799	**25,007**
DOP	306	355	348	238	347	587	**2,181**
APMS	-	1,817	3,773	3,999	-	-	**9,588**
Safety Hazard Removal & Earthing	1,452	1,230	1,662	1,828	2,011	2,212	**10,396**
AMR/AMI	5,149	3,171	-	-	-	-	**8,319**
SCADA	513	1,360	1,496	1,720	247	271	**5,606**
Transport	1,835	800	850	600	800	500	**5,385**
Civil Works	835	650	564	530	460	450	**3,489**
ABC Cable	-	-	115	127	139	153	**535**
ERP	50	50	30	30	30	30	**220**
GIS Enterprise/ Mapping	220	70	60	-	-	-	**350**
Sectionalizers	75	-	-	-	-	-	**75**
IBS and Allied Equipment	500	50	50	50	50	50	**750**
Software, Studies, Licences	40	50	50	50	50	50	**290**
Others (Consumer Contribution/Deposit Works)	7,022	7,725	8,497	9,347	10,281	11,310	**54,182**
Total	**37,098**	**34,397**	**30,038**	**33,491**	**25,064**	**24,781**	**184,870**
Financing Arrangement							
Debt Financing	-	1,302	2,703	2,865	-	-	**6,869**
Own Resources	30,076	25,371	18,839	21,279	14,783	13,472	**123,819**
STG Deposit Works	909	1,000	1,100	1,210	1,331	1,464	**7,013**
Deposit Works (PD Construction)	1,495	1,644	1,808	1,989	2,188	2,407	**11,531**
HT&LT Deposit Works - Capital Receipt	4,222	4,645	5,109	5,620	6,182	6,800	**32,579**
Village Electrifications - SDGs (SAP)	396	436	480	528	580	638	**3,058**
Total	**37,098**	**34,397**	**30,038**	**33,491**	**25,064**	**24,781**	**184,870**

Debt financing mentioned above is as per expected financing from Asian Development Bank (ADB) and Government of Pakistan (through PSDP). In case, however, the said financing does not mature, GEPCO shall undertake the project from own sources.

12. INTEGRATED HUMAN RESOURCE PLAN

12.1. Baseline

GEPCO HR department overlooks all the HR matters of the company including hiring of new workforce against vacant positions. At present GEPCO is facing acute shortage of staff which poses a challenge in reliable and efficient operation of the company.

Table 12-1 Existing position of Workforce in GEPCO

Description	Officers		Officials		Total		Grand Total
	Tech	Non-Tech	Tech	Non-Tech	Tech	Non-Tech	
Sanctioned	358	123	13,186	4,544	13,544	4,667	18,211
Working	285	82	9181	1795	9,466	1,877	11,343
Vacant	73	41	4,005	2,749	4,078	2,790	6,868
	114		6,754		6,868		
	23.70%		38.09%		37.71%		

12.2. Impact of Automation and Functional Improvement on HR Requirements

In order to prepare future workforce requirements, impact of automation and functional improvements in coming years has been taken into account. The existing workforce yardsticks prepared against number of consumers to be managed by an office is being reviewed in view of functional improvements like ERP, AMI, SCADA and GIS etc. However, in order to operate these new projects additional workforce is also required which has also been taken into account.

12.3. Additional HR Requirements

Based on the current workforce position, anticipated consumer growth and future expansion plans in GEPCO, following expansion in sectioned posts is proposed to ensure smooth, reliable and efficient operations across departments of GEPCO.

Table 12-2 Planned expansion in sanctioned posts

Sr#	Offices	No. of offices	Manpower requirement (Tentative)
Fundamental Requirements:			
1	Division	5	120
2	Sub Divisions*	39	4,017
3	Revenue office	5	165
4	Construction Sub Divisions	2	98
Total (Fundamental) - A			**4,400**
* (including 2049 staff of 21 Nos already approved Sub Divisions)			
Optional Requirements:			
1	Circle	1	45
2	Computer Centre	1	51
3	Construction Division	1	18
4	M&T Division	1	26
Total (Optional) – B			140

Sr#	Offices	No. of offices	Manpower requirement (Tentative)
Grand Total (A + B)			4,540

12.4. Updated Position of HR workforce requirement

Based on the current workforce position and proposed expansion in workforce of GEPCO, updated workforce position will be as tabulated below;

Table 12-3 Updated position of workforce in GEPCO

Description	Officers		Officials		Total		Grand Total
	Tech	Non-Tech	Tech	Non-Tech	Tech	Non-Tech	
Sanctioned	410	129	16651	5561	17,061	5,690	22,751

Above sanctioned strength is based on current fundamentals, however, with gradual expansion in network outreach, customer base and advent of CTBCM related interventions, GEPCO may need to have more manpower.

Hiring against vacant posts arising due to the mismatch between sanctioned strength and actual working manpower GEPCO shall take all possible measures to recruit suitable incumbents. However, such recruitment will be subject to approvals of BOD and fiscal space approved by NEPRA in GEPCO tariff.

13. INTEGRATED O&M PLAN

13.1. O&M Cost of STG Plan

Table 13-1 Additional O&M Cost of STG Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
STG Additional O&M Cost	77.5	67.3	42.7	68.8	36.0	28.2	**320.5**

13.2. O&M Cost of DNEP

Table 13-2 Additional O&M Cost of DNEP

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
DNEP Additional O&M Cost	35.9	42.6	44.9	26.5	35.8	48.3	**254.5**

13.3. O&M Cost of Infrastructure Development Plan

Table 13-3 Additional O&M Cost of Infrastructure Development Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
Additional O&M Cost of Infrastructure Development Plan	11.3	25.4	44.0	45.3	4.6	4.5	**135**

13.4. O&M Cost of Functional Improvement Plan

Table 13-4 Additional O&M Cost of Functional Improvement Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
Additional O&M Cost of Functional Improvement Plan	33.8	21.3	25.9	25.1	28.9	27.9	**162.9**

13.5. O&M Cost of Commercial Improvement Plan

Table 13-5 Additional O&M Cost of Commercial Improvement Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
Additional O&M Cost of Functional Improvement Plan	56.5	21.3	25.9	25.1	28.9	27.9	**185.6**

13.6. Integrated O&M Plan

Estimated O&M cost of GEPCO for the business plan period, including the additional costs to be incurred against different plans, is prepared according to assumptions stated in **14.2.3**.

Table 13-6 Integrated O&M Plan

Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
	Million Rs.						
Salaries, wages(without Post Retirement Benefits)	14,697	15,784	16,977	18,286	19,726	21,312	**106,782**
Post Retirement Benefits	13,177	12,215	12,624	13,119	13,711	14,416	**79,261**
Repair and maintenance	1,226	1,262	1,300	1,339	1,379	1,421	**7,928**
Rent, rates and taxes	11	11	12	12	12	13	**71**
Power, light and water	61	67	73	81	89	97	**467**
Postage and telephone	42	47	51	56	62	68	**327**
Office supplies and other expenses	391	430	473	520	572	629	**3,015**
Traveling and conveyance	580	638	702	772	849	934	**4,475**
Insurance - Grid System	410	410	410	410	410	410	**2,462**
Vehicle running and maintenance	569	626	688	757	833	916	**4,390**
Professional fees	391	430	473	520	572	629	**3,015**
Electricity bills collection charges	526	578	636	700	770	847	**4,057**
Advertisement and publicity	22	24	27	29	32	35	**170**
Auditors' remuneration	4.3	4.7	5.2	5.7	6.2	6.9	**33**
Other charges	3	3.2	3.3	3.5	3.6	3.8	**20**
Total O&M Cost	**32,110**	**32,530**	**34,455**	**36,611**	**39,028**	**41,739**	**216,474**

14. FINANCIAL PROJECTIONS

14.1. Fundamental Assumptions

i. Financial Projections are developed in line with the Demand Forecast.

ii. Financial Projections for separate businesses (i.e., Supply Business and Distribution Business) are based on allocation of costs to each case as per allocation factors concurred by the Authority in the matter of determination of Consumer End Tariff of Gujranwala Electric Power Company Limited vide No. NEPRA/R/ADG(Trf)/TRF-526/GEPCO-2019/46498-46500 dated 24-12-2020 and even in MYT FY 2020-21 to 2024-25 determinations.

iii. Financial Projections for each separate business are provided as Income Statements up-to Earnings Before Interest and Taxes (EBIT). However, for aggregated GEPCO projections for all standard financial statements, vis-à-vis income statement, statement of financial position (balance sheet) and statement of cash flows are provided.

14.2. Assumptions and Inputs to the Financial Projections

14.2.1. Revenue Calculations

Annual Revenue Requirements for each separate business (Supplier & Distribution) have been adopted as Revenue for each year of Business Plan horizon.

14.2.2. Cost of Electricity

Each element of Power Purchase Price (Energy Charges, Capacity Charges, transmission use of system charges, MO fee) is taken as per Annual Tariff Adjustment Petition for FY 2024-25 and 3% annual rate increase assumed for each next year of Business Plan.

14.2.3. O&M Cost

O&M Expenses taken as per Annual Tariff Adjustment Petition for FY 2024-25 and increased during each next Business Plan year as per past trends for each component of O&M expenses.

Component wise assumptions for O &M Expenses have been shown as under:

Table 14-1 O&M Cost assumptions for financial projections

Sr#		Description	Assumptions/Remarks
1	**Salaries and Wages**		
	i	Basic Pay	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **7%** annual increase for Next Projected Years.
	ii	Cash Medical Allowance	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
	iii	Conveyance Allowance	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.

Sr#		Description	Assumptions/Remarks
	iv	House Rent Allowance	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **5%** annual increase for Next Projected Years.
	v	Job Allowance	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **5%** annual increase for Next Projected Years.
	vi	Over Time & Off Day Wages	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **13.15%** (Five Year's CAGR) annual increase for Next Projected Years.
	vii	Special Adhoc Relief	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25. Rs.1,447 M (DRA) frozen in 2021-22 and on remaining amount **5%** annual increase for Next Projected Years.
	viii	Power, Light & Water	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **18.39%** (Five Year's CAGR) annual increase for Next Projected Years.
	ix	Gratuity / Bonus	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **7%** annual increase for Next Projected Years.
	x	Medical & Hospitalization	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **4.02%** (Five Year's CAGR) annual increase for Next Projected Years.
	xi	Misc. Allowances	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
2	**Repair and maintenance**		As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **3%** annual increase for Next Projected Years.
3	**Rent, rates and taxes**		As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **3%** annual increase for Next Projected Years.
4	**Power, light and water**		As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
5	**Postage and telephone**		As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
6	**Office supplies and other expenses**		As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.

Sr#	Description	Assumptions/Remarks
7	**Traveling and conveyance**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
8	**Insurance - Grid System**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and for onward period **no change** is projected.
9	**Vehicle running and maintenance**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
10	**Professional fees**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
11	**Electricity bills collection charges**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
12	**Advertisement and publicity**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
13	**Auditors' remuneration**	As per Annual Tariff Adjustment Petition 2024-25 for FY 2024-25 and **10%** annual increase for Next Projected Years.
14	**Employees' Post Retirement Benefits**	Expenses for Employees' Post Retirement Benefits includes current service cost, interest cost and remeasurement of loss/(gain) minus expected return on plan assets. Current service cost and remeasurement loss/(gain) for FY 2022-23 is taken for all Next Financial Years from FY 2023-24 to 2029-30. Interest Cost: **10%** annual increase from FY 2023-24. Expected return on plan assets is taken as **10%** on opening plan assets for each financial year from FY 2023-24.

14.2.4. Depreciation

Depreciation as per applicable depreciation policy for each category of assets.

14.2.5. WACC

Weighted Average Cost of Capital (WACC) for calculation of Return on Rate Base (RORB) taken @ 20.76% as per Annual Tariff Adjustment Petition for FY 2024-25 and same rate continued for Business Plan years.

14.2.6. Asset Capitalization

- 50% of Opening Capital Work in Progress (CWIP), i.e., projects under construction
- Buildings & Distribution / Transmission Assets 60% of Capex for the year
- All other Capex 100% of the Capex for the year.

14.2.7. Criteria for bifurcation of Revenue Requirements into Supply and Distribution Businesses

According to the Determination of the Authority in the matter of Distribution Tariff of Gujranwala Electric Power Company Limited No. NEPRA/R/ADG(Trf)/TRF-526/GEPCO-2019/46498-46500 dated 24-12-2020 and even in the determination of MYT for FY 2020-21 to 2024-25, the criteria accepted/ adopted by The Authority in attributing the costs to Power Supply Business and Distribution Business is as under:

Table 14-2 Bifurcation of RR into Supply and Distribution Businesses

Sr#	Cost Component (Description)	Supply	Distribution
1	Power Purchase Price	100%	-
2	Salaries, wages and other benefits	25%	75%
3	Repair & Maintenance	2%	98%
4	Transportation Expense	5%	95%
5	Power, Light and Water	10%	90%
6	Office Supplies & Others	70%	30%
7	Professional Fee	70%	30%
8	Injuries & Damages	15%	85%
9	Misc. Expenses	10%	90%
10	Depreciation	2%	98%
11	Bill Collection Charges	100%	-
12	Provision for Bad Debts	100%	-
13	Late Payment Surcharges	100%	-
14	Rent, Rates and taxes	-	100%
15	Advertisement expenses	-	100%
16	Other Income	70%	30%
17	RORB	2%	98%

14.3. Quantitative data of units purchased and sold

Table 14-3 Projection of sale, purchase and peak demand

Sr#	Description	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
1	Peak Demand (MW)	2,444	2,490	2,546	2,598	2,681	2,755
	Units Received/Purchased (MkWh)						
i	From CPPA-G	11,601	11,143	10,803	10,457	10,104	9,725
ii	From SPP Marala	19	19	19	19	19	19
iii	From SPP Chianwali	14	14	14	14	14	14
iv	From Net Metering	224	474	749	1,052	1,385	1,751
2	Total MkWh Purchased	**11,858**	**11,650**	**11,585**	**11,543**	**11,522**	**11,509**
3	Units Sold (MkWh)	10,802	10,619	10,566	10,533	10,520	10,514
4	Losses %age	8.90%	8.85%	8.80%	8.75%	8.70%	8.65%

* Losses Figure of 2024-25 (8.90%) is as per MYT 2020-21 to 2024-25.

14.4. Return on Rate Base

Table 14-4 Projection of Return on rate base

Description	2025	2026	2027	2028	2029	2030
Gross Fixed Assets in Operation - Opening Bal	116,041	149,561	183,382	214,613	247,732	275,180
Addition in Fixed Assets	33,520	33,821	31,231	33,119	27,448	25,398
Gross Fixed Assets in Operation - Closing Bal	149,561	183,382	214,613	247,732	275,180	300,578
Less: Accumulated Depreciation	37,835	43,854	51,015	59,319	68,710	79,049
Net Fixed Assets in Operation	**111,726**	**139,529**	**163,599**	**188,413**	**206,470**	**221,528**
Add: Capital Work In Progress - Closing Bal	13,149	13,701	12,816	13,959	11,443	10,693
Investment in Fixed Assets	**124,875**	**153,229**	**176,415**	**202,372**	**217,913**	**232,222**
Less: Deferred Credits	40,505	45,942	51,744	58,032	64,879	72,349
Regulatory Assets Base	**84,370**	**107,287**	**124,671**	**144,340**	**153,034**	**159,872**
Average Regulatory Assets Base	**70,128**	**95,829**	**115,979**	**134,506**	**148,687**	**156,453**
Rate of Return	20.76%	20.76%	20.76%	20.76%	20.76%	20.76%
Return on Rate Base	**10,501**	**19,894**	**24,077**	**27,923**	**30,867**	**32,480**

14.5. Revenue Requirements

Table 14-5 Projection of revenue requirements

Description	2025	2026	2027	2028	2029	2030
Power Purchase Price	324,134	340,413	357,654	375,932	395,330	415,940
O & M Cost	32,110	32,530	34,455	36,611	39,028	41,739
Depreciation	3,176	6,073	7,216	8,359	9,445	10,395
RORB	10,501	19,894	24,077	27,923	30,867	32,480
Other Income	(3,961)	(4,260)	(4,578)	(4,924)	(5,301)	(5,713)
Prior Year Adjustment	2,593					
Total	**368,553**	**394,651**	**418,823**	**443,902**	**469,371**	**494,841**

14.6. Statement of Comprehensive Income

14.6.1. Aggregate Business

Table 14-6 Projection of Comprehensive Income of aggregated business of GEPCO

Particulars	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Units Sales (kwh)	10,802	10,619	10,566	10,533	10,520	10,514
Unit Rate Rs./kwh	**34.12**	**37.16**	**39.64**	**42.15**	**44.62**	**47.07**
Total sales GEPCO	**368,553**	**394,651**	**418,823**	**443,902**	**469,371**	**494,841**
Cost of electricity						
Energy Charges	114,769	124,767	135,539	147,153	159,688	173,229
Capacity Charges	193,135	198,929	204,897	211,044	217,375	223,896
Transmission (TUoSC)	16,230	16,717	17,218	17,735	18,267	18,815

Particulars	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Supplimentary Charges	-	-	-	-	-	-
Market operations fee	-	-	-	-	-	-
	324,134	**340,413**	**357,654**	**375,932**	**395,330**	**415,940**
Gross profit	**44,419**	**54,238**	**61,170**	**67,970**	**74,041**	**78,901**
Amortization of deferred credit	1,884	2,144	2,420	2,722	3,053	3,416
	46,303	**56,382**	**63,590**	**70,692**	**77,093**	**82,317**
Operating costs						
O & M Expenses	32,110	32,530	34,455	36,611	39,028	41,739
Depreciation	3,176	6,073	7,216	8,359	9,445	10,395
Total Operating cost GEPCO	**35,286**	**38,604**	**41,670**	**44,970**	**48,474**	**52,134**
Operating Cost/unit sold	**3.27**	**3.64**	**3.94**	**4.27**	**4.61**	**4.96**
Operating Profit/(loss)	**11,018**	**17,778**	**21,919**	**25,721**	**28,619**	**30,183**
Other income	2,076	2,116	2,158	2,202	2,248	2,296
EBIT	**13,094**	**19,894**	**24,077**	**27,923**	**30,867**	**32,480**
Profit (Loss)/unit sold	1.21	1.87	2.28	2.65	2.93	3.09
Finance costs	(1,741)	(1,753)	(1,781)	(1,825)	(3,019)	(3,059)
Profit/ (loss) before taxation	11,353	18,141	22,297	26,098	27,848	29,421
Taxation	(937)	(937)	(937)	(937)	(937)	(937)
Profit / (loss) for the year	**10,416**	**17,204**	**21,360**	**25,161**	**26,911**	**28,484**

14.6.2. Supply Business

Table 14-7 Projection of Comprehensive Income of Supply business of GEPCO

Particulars		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Revenue/Sales							
Total Variable Charges		358,968	384,361	407,944	432,501	457,421	482,320
Fixed Charges		9,586	10,290	10,879	11,401	11,950	12,520
Total Sales		**368,553**	**394,651**	**418,823**	**443,902**	**469,371**	**494,841**
		34.12	37.16	39.64	42.15	44.62	47.07
Cost of electricity							
1	Energy Charges	114,769	124,767	135,539	147,153	159,688	173,229
2	Capacity Charges	193,135	198,929	204,897	211,044	217,375	223,896
3	Transmission (TUoSC)	16,230	16,717	17,218	17,735	18,267	18,815
4	Suplimentry Charges	-	-	-	-	-	-
5	Market operations fee	-	-	-	-	-	-
6	Distribution (DUoSC)	35,692	48,251	54,760	61,099	66,676	71,016
		359,826	**388,665**	**412,414**	**437,030**	**462,006**	**486,956**
Gross Profit/(Loss)		**8,727**	**5,987**	**6,410**	**6,872**	**7,365**	**7,885**
Amortization of deferred credit		1,319	1,501	1,694	1,905	2,137	2,391
		10,046	**7,487**	**8,104**	**8,777**	**9,501**	**10,276**
Operating costs Supply Business							
1	O & M Expenses	8,633	8,449	8,989	9,592	10,269	11,026
2	Depreciation	64	121	144	167	189	208
		8,697	**8,571**	**9,133**	**9,760**	**10,458**	**11,234**

Particulars		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Operating Profit/(loss)		**1,349**	**(1,084)**	**(1,029)**	**(983)**	**(956)**	**(958)**
Other income		1,454	1,481	1,511	1,541	1,574	1,607
EBIT		**2,803**	**398**	**482**	**558**	**617**	**650**

14.6.3. Distribution Business

Table 14-8 Projection of Comprehensive Income of Distribution business of GEPCO

Particulars	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Units Sales (kwh)	10,802	10,619	10,566	10,533	10,520	10,514
Unit Rate Rs./kwh	3.30	4.54	5.18	5.80	6.34	6.75
Peak Demand (MW)	2,444	2,490	2,546	2,598	2,681	2,755
Sales	35,692	48,251	54,760	61,099	66,676	71,016
Cost of electricity	-	-	-	-	-	-
Gross profit	**35,692**	**48,251**	**54,760**	**61,099**	**66,676**	**71,016**
Amortization of deferred credit	565	643	726	817	916	1,025
	36,258	**48,895**	**55,486**	**61,915**	**67,592**	**72,041**
Operating costs Dist. Business						
O & M Expenses	23,477	24,081	25,466	27,019	28,760	30,713
Depreciation	3,113	5,952	7,071	8,192	9,256	10,187
	26,590	**30,033**	**32,538**	**35,211**	**38,016**	**40,900**
Operating Profit/(loss)	9,668	18,861	22,948	26,704	29,576	31,141
Other income	623	635	647	661	674	689
EBIT	**10,291**	**19,496**	**23,596**	**27,365**	**30,250**	**31,830**

14.7. Statement of Financial Position

Table 14-9 Projection of Financial Position of GEPCO

Description	2025	2026	2027	2028	2029	2030
ASSETS						
Non-current assets						
Property, plant and equipment	124,875	153,229	176,415	202,372	217,913	232,222
Long term loans/advances	801	961	1,121	1,281	1,441	1,601
	125,676	**154,190**	**177,536**	**203,653**	**219,354**	**233,822**
Current assets						
Stores and spares	7,241	7,386	7,534	7,684	7,838	7,995
Trade debts	91,579	91,579	91,579	91,579	91,579	91,579
Loans and advances	138	138	138	138	138	138
Interest receivable-accrued						
Tax Refunds Due from Govt.	13,034	13,034	13,034	13,034	13,034	13,034
Receivable from GoP	23,614	23,614	23,614	23,614	23,614	23,614
Other receivables	6,663	6,796	6,932	7,071	7,212	7,356
Short term investments	11,925	12,958	14,094	15,344	16,718	18,230
Cash & Bank balances	5,285	5,782	6,298	7,859	6,201	5,079
	159,479	**161,287**	**163,223**	**166,322**	**166,334**	**167,026**
TOTAL ASSETS	**285,156**	**315,477**	**340,758**	**369,975**	**385,688**	**400,848**
EQUITY AND LIABILITIES						
Authorized share capital						

Description	2025	2026	2027	2028	2029	2030
5,000,000,000 (2020: 5,000,000,000)						
ordinary shares of Rupees 10/- each	50,000	50,000	50,000	50,000	50,000	50,000
Issued, subscribed and paid-up share capital						
	0.010	0.010	0.010	0.010	0.010	0.010
Accumulated Profit/(Loss)	(8,150)	5,772	23,849	45,728	69,357	94,559
	(8,150)	**5,772**	**23,849**	**45,728**	**69,357**	**94,559**
Deposit for issuance of shares	**23,349**	**23,349**	**23,349**	**23,349**	**23,349**	**23,349**
Non-current liabilities						
Deferred credit	40,505	45,942	51,744	58,032	64,879	72,349
Long term financing	14,796	16,198	19,437	23,134	24,351	25,328
Deferred liabilities	95,614	99,507	103,400	107,292	111,185	115,078
Long term security deposits	10,857	11,890	13,026	14,275	15,650	17,162
	161,772	**173,537**	**187,607**	**202,734**	**216,065**	**229,917**
Current liabilities						
Trade and other payables	101,814	106,449	99,583	91,504	70,205	45,919
Current portion of long term financing (Current Year)	6,370	6,370	6,370	6,659	6,711	7,103
	108,184	**112,819**	**105,953**	**98,164**	**76,916**	**53,022**
TOTAL EQUITY AND LIABILITIES	**285,155**	**315,477**	**340,758**	**369,974**	**385,687**	**400,848**

14.8. Statement of Cash Flows

Table 14-10 Projection of statement of cash flows of GEPCO

Description	2025	2026	2027	2028	2029	2030
CASH FLOWS FROM OPERATING ACTIVITIES						
Cash generated from operations	**42,347**	**39,401**	**33,336**	**37,284**	**28,332**	**28,222**
Security deposits received - net	939	1,033	1,136	1,250	1,375	1,512
Receipts against deposit works - net	(3)	(4)	(4)	(4)	(4)	(4)
Payment of staff retirement benefits	(5,244)	(5,992)	(6,847)	(7,825)	(8,943)	(10,221)
Finance cost paid	(1,585)	(1,199)	(1,091)	(1,010)	(930)	(847)
Taxes paid	(937)	(937)	(937)	(937)	(937)	(937)
Net cash flows from operating activities	**35,516**	**32,302**	**25,593**	**28,758**	**18,893**	**17,725**
Cash flows from investing activities						
Addition to property, plant and equipment - net	(37,098)	(34,505)	(30,479)	(34,394)	(25,064)	(24,781)
Addition in plan asset	(7,933)	(6,223)	(5,777)	(5,294)	(4,769)	(4,195)
Proceeds from disposal of property, plant and equipment	78	78	78	78	78	78
Long term loans - net	(160)	(160)	(160)	(160)	(160)	(160)
Capital contribution received against deposit works	7,244	7,581	8,222	9,009	9,900	10,887
Short term investments - net	(939)	(1,033)	(1,136)	(1,250)	(1,375)	(1,512)
Interest income received	1,590	1,605	1,621	1,638	1,656	1,675
Interest Capitalized during Construction of Assets	-	108	441	903	-	-
Net cash used in investing activities	**(37,218)**	**(32,549)**	**(27,190)**	**(29,469)**	**(19,733)**	**(18,008)**
Cash flows from financing activities						
Proceeds from long term financing - net	-	1,272	2,641	2,799	-	-
Repayment of Long Term loans	(528)	(528)	(528)	(528)	(818)	(838)
Proceeds from Equity Injection						

Description	2025	2026	2027	2028	2029	2030
Net cash from financing activities	**(528)**	**743**	**2,113**	**2,271**	**(818)**	**(838)**
Net increase / (decrease) in cash and cash equivalents	**(2,230)**	**497**	**516**	**1,560**	**(1,658)**	**(1,122)**
Cash and cash equivalents at the beginning of the year	7,515	5,285	5,782	6,298	7,859	6,201
Cash and cash equivalents at the end of the year	**5,285**	**5,782**	**6,298**	**7,859**	**6,201**	**5,079**

15. IMPLEMENTATION, MONITORING AND REPORTING

While this business plan shall serve as a medium-term future outlook guide and reference, the first year, i.e., the operating year in terms of business planning and monitoring scheme, shall remain in the focus for assessment, review and reporting of outcome versus the planned strategic actions as per following format.

Table 15-1 Format for progress against Strategic Actions

Sr. No.	Strategic Action	Lead office	Execution Office	Annual Target	Status (Achieved/ Delayed/ Deferred/ Dropped)				Reasons for Delay/ Deferred/ Dropped
					Q1	Q2	Q3	Q4	
1									
2									
.....									

15.1. Monitoring of Outcomes, Physical and Financial Progress

In addition to the above overarching compliance monitoring, the outcome of the implementing planned strategic actions shall also be monitored in terms of operational (losses, project completion, meter reading accuracy, new connections, complaint redressal, fatal/ non-fatal accidents etc.) and financial (recoveries, receivables, remittance etc.) shall also be monitored against the physical targets provided in the Statement of Corporate Intent (SCI)/ Strategic Road Map (SRM) as per the format below;

Table 15-2 Progress Monitoring Matrix

Sr No	Action #		Action Description	Responsible	Indicator	Frequency	
						Assessment	Reporting
1	A	a	Line Losses	CSD	%age	Monthly	Quarterly
2	A	b	Recovery	CSD	%age	Monthly	Quarterly
3	A	c	AT&C Losses	CSD	%age	Monthly	Quarterly
4	A	d	Receivables	CSD	Mln. Rs.	Monthly	Quarterly
5	A		**Reducing Technical Losses by improving technical parameters**				
		e (i)	**Execution of HT & LT Proposals and ABC cables**	CE P&E			
			HT Proposals		No.	Quarterly	Quarterly
					MW	Quarterly	Quarterly
			LT Proposals		No.	Quarterly	Quarterly
					MW	Quarterly	Quarterly
			Installation of ABC (km)		km	Quarterly	Quarterly
6	A	e(ii)	**Grid System Construction**	CE Dev.			
			Number of Capacitors Installed		MVar	Quarterly	Quarterly
			Number of Grid Stations (New/Addition/Augmentation/Extension)		No.	Quarterly	Quarterly
			Transmission Lines		km	Quarterly	Quarterly
		e(iii)	HT/LT Ratio	CE O&M Dist	Ratio	Monthly	Quarterly
7	A	f (i)	**MMR %age accuracy**	CSD			
			General		%age	Monthly	Quarterly
			Industrial		%age	Monthly	Quarterly
			Tube-wells		%age	Monthly	Quarterly

Sr No	Action #		Action Description	Responsible	Indicator	Frequency	
						Assessment	Reporting
		f(ii)	100% Replacement of non-static meters	CSD	No. / %age	Monthly	Quarterly
		f(iii)	100% Installation of LDIP Meters	CE (GSO)	No. / %age	Monthly	Quarterly
8	A	g	Number of Illegal Connections Removed	CSD	No.	Monthly	Quarterly
			Number of Illegal Connections FIRs		No.	Monthly	Quarterly
9	A	h	**New Industrial & Other Connections and AMR Meters**	CE P&E			
			Industrial Connections (Nos)		No.	Monthly	Quarterly
			Industrial Connections (MW)		MW	Monthly	Quarterly
			Other Connections (Nos)		No.	Monthly	Quarterly
			Other Connections (MW)		MW	Monthly	Quarterly
			Number of AMR Meters installed	GM (Tech)	No.	Monthly	Quarterly
10	A	i	Reduction in number of feeders Category based on AT&C Losses	CSD	No.	Monthly	Quarterly
11	A	j	Credit Bill Adjustments	CSD	%age	Monthly	Quarterly
12	B		Operational & Commercial Performance - Remittance	CFO	%age	Monthly	Quarterly
13	C		**CRM Performance (PMDU, FCC, CCMS)**	CSD			
			FCC		%age	Monthly	Quarterly
			CCMS		%age	Monthly	Quarterly
			PMDU		%age	Monthly	Quarterly
14	D		Human Resources Performance - Number of employees trained	DG HRA	No.	Monthly	Quarterly

Sr No	Action #	Action Description	Responsible	Indicator	Frequency	
					Assessment	Reporting
15	E	**Safety Management Performance**	CE HSE			
		Fatal Accidents (Employees)		No.	Monthly	Quarterly
		Non-Fatal Accidents (Employees)		No.	Monthly	Quarterly
		Fatal Accidents (Public)		No.	Monthly	Quarterly
		Non-Fatal Accidents (Public)		No.	Monthly	Quarterly

16. CORPORATE SOCIAL RESPONSIBILITY

16.1. Background

GEPCO, since its inception, seen itself as a responsible corporate entity dedicated to societal well-being and has been contributing in activities, which promote various social and charitable objectives. GEPCO have an ethical and social responsibility through its core value i.e., being ethically and socially responsive to support communities ostensibly impacted by its business in any manner.

16.2. Preamble

Corporate Social Responsibility is a company's commitment to operate in an economically, socially and environmentally sustainable manner, while recognizing the interests of its stakeholders. Corporate Social Responsibility is, therefore, closely linked with the practice of Sustainable Development and extends beyond philanthropic activities by reaching out the integration of social and business goals. These activities need to be seen as those which would, in the long term, help secure a sustainable competitive advantage.

In accordance with its role as a Distribution and SoLR (Supplier of Last Resort) Licensee under National Electric Power Regulatory Authority (NEPRA), GEPCO is encouraged to demonstrate its dedication to social investment. The Companies Act 2017 under clause 227 subclause 3(c) also encourages to submit the activities undertaken by the company in respect of Corporate Social Responsibility during the year.

16.3. The Policy

In line with aforementioned facts, GEPCO has embarked upon preparing a comprehensive policy titled “GEPCO - Corporate Social Responsibility (CSR) Policy-2024” with following summarized attributes;

16.3.1. CSR Vision:

To remain committed to a sustainable future where our operations not only provide reliable electricity but also actively contribute to the well-being of the communities we serve.

16.3.2. CSR Mission:

At GEPCO, we are committed to provide reliable, sustainable, and affordable electricity while actively engaging in initiatives that promote environmental stewardship, community development, and social equity. Through our CSR programs, we aim to empower communities, reduce our environmental footprint, and enhance the well-being of society.

16.3.3. Scope

The said Policy establishes a governance structure for implementation of GEPCO’s CSR Vision and Mission, outlining the roles of the CSR Committee and its reporting mechanisms to the Board of Directors, while emphasizing compliance with regulatory standards and periodic review to ensure alignment with evolving societal needs and organizational priorities.

16.3.4. Areas of activities to be undertaken

The Company shall be undertaking one or more of the following activities as prescribed in the Rules as modified from time to time:

1. Alleviating hunger, poverty and malnutrition, promoting health care including preventive health care and sanitation and making available safe drinking water.
2. Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly and the differently abled and livelihood enhancement projects.
3. Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centers and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups.
4. Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conversation of natural resources and maintaining quality of soil, air and water.
5. Protection of national heritage, art and culture including restoration of building and sites of historical importance and works of art and setting up of public libraries.
6. Measures for the benefit of armed forces veterans, war widows and their dependents.
7. Training to promote rural sports, nationally recognized sports, Paralympic sports and Olympic sports.
8. Rural Development projects.
9. Such other matters as may be prescribed time to time by Government of Pakistan.

17. TARIFF AND REGULATORY REVIEW

17.1. Regulatory Review

With the approval of detailed design of CTBCM during 2020 by NEPRA and therefore creation of dedicated department within DISCOs to act as an interface of DISCOs with CTBCM and facilitating catalyst for the change driven by wholesale market-based reforms in Pakistan Power Sector (PPS); namely Market Implementation and Regulatory Affairs Department (MIRAD), GEPCO took lead on early formation, staffing and placing MIRAD within the company. Since creation GEPCO's MIRAD has been leading all DISCOs for unanimous positioning on emerging regulatory matters/ issues.

Over the last two years GEPCO has made multiple positive contributions to the development/ implementation of wholesale market and transitioning monopolistic mindset to competition supportive market participant. Some of the GEPCO contributions are as under;

1. Distribution Licence
2. Electric Power Supply Licence
3. Review petitions on Distribution and Electric Power Supply Licences
4. Power Acquisition Programme (PAP)
5. Submitted draft Use of System Agreement (UoSA)
6. Cost of Service Study and petition(s) for determination of Use of System Charges (UoSC)
7. Submission of draft Connection Agreement (CA) between DISCO and BPC
8. Distribution Integrated Investment Plan (DIIP) 2020-21 to 2024-25 for determination of Multi-year Tariff (MYT)
9. Business Plan 2022-23 to 2026-27
10. MYT 2020-21 to 2024-25
11. MYT Indexation petitions for 2023-24 and 2024-25
12. Energy Purchase Agreements (EPA) with Marala HPP and Chianwali HPP of Punjab Power Development Company Limited (PPDCL)
13. Interconnection for Shahtaj Power Plant
14. Enrollment with MO as a Service Provider and Market Participant (Supplier of Last Resort)
15. Submission of RFP for 11 kV Solarization Project and preparation of its feasibility
16. Submission of petitions for determination of Security Deposit Rates and tariffs for temporary connections
17. Approval of Safety Manual from NEPRA

17.2. Tariff Review

The Pakistan Power Sector (PPS) and, therefore, the GEPCO are faced with multidimensional challenges emerging from advent of disruptive technologies, e.g., Solar PV, DGs, EVs etc. and general overcapacity situation.

The inter and intra-tariff cross subsidization in the determined (by NEPRA) as well as notified (by GoP) tariff is also a major reason for adoption of relatively less costly alternatives of grid energy and resultant mass exodus. The power distribution segment of power sector is faced with expanding quantum of customers in contrast with shrinking, or largely stagnant, volumetric demand of electricity.

Historically the peak of national electric power network remained in the evening hours of summer season. In a situation of supply shortage, a tariff action resulting in peak/ off-peak time of use (TOU) tariff was taken marking four evening hours (5 pm to 11 pm, moving depending upon seasons) as high tariff peak hours and remaining 20 hours as off-peak. The said tariff action effectively helped in terms of demand side management, however, the peak hours shifted to the day time hours. With tariff hikes over the period compelled consumers to resort to the other less costly resources of electricity, thus moving the system peak hours to night time.

The above-mentioned challenges and inherent legacy issues, have in-turn emerged from mismatch of tariff structure to the cost structure creating economy for departure from the grid energy and opting for other energy alternatives by keeping the grid largely as a backup. GEPCO is of the considered opinion that for the sustainable service provision to the consumers at affordable, predictable and stable prices (tariff), bringing tariff structure in alignment with the cost structure and realities in terms of peak shifting etc., is of paramount importance. Evolving market structure also requires the tariff structure to be adjusted according to the market direction.

During the business plan period GEPCO aims at working with NEPRA and other market stakeholders so as to review and restructure the tariffs for mutual benefit of DISCOs and the consumers, including the Open Access users. The envisioned areas of mutual focus are as under;

- Improvement in tariff structure so as to enhance proportion of fixed tariff and reduce variable tariff
- Minimization of inter and intra-tariff cross subsidies
- Developing tariff strategies which allows limited authorization to DISCOs for reaching negotiated tariff with select classes of consumers while maintaining the fundamental principles of transparency, equality and non-discrimination
- Review of peak/ off-peak hours for the purpose of tariffs
- Equitable and affordable use of system charges for Open Access users without additional undue burden on regulated consumers

17.3. GEPCO Comments on Approved PAP:

The content of GEPCO's submission with regard to the decision of the Authority while approving the combined PAP as submitted through letter# 4121-35 dated 28-06-2024 is reproduced as under.

On the very onset, we are thankful to the honorable Authority for supportively considering the first ever effort of XWDISCOs on the Combined Power Acquisition

Programme for FY 2022-23 to FY 2026-27 (CPAP) and graciously issuing determination for approval on the said CPAP.

At section (G) – Decision of the Authority - while the honorable Authority has approved the CPAP to the extent of committed projects and 500 MW KAPCO which is required in lieu of the system constraints, certain directions has also been made. We in GEPCO, being the lead office of XWDISCOs in the matter of CPAP, take this opportunity to make following submissions and clarification for each of the given directions in the following lines:

Directions of the Authority		GEPCO Submission
a)	The tariff for the approved projects/procurements, if not already determined, shall be subject to separate tariff proceedings in accordance with the regulatory framework and subsequent proceedings.	No comments.
b)	XW-DISCOs to ensure compliance of the next iteration of the PAP with the NEPRA (Electric Power Procurement) Regulations, 2022 including, but not limited to, alignment with the approved IGCEP, TSEP, Investment Plans, and Capacity Obligations Report. XW-DISCOs to submit status of evacuation arrangements for the projects proposed in the PAP on the performa attached (Annex-I) with the determination and clearly identify the mode of procurement for firm as well as indicative projects along with justifications thereof.	The CPAP submitted and, very kindly, approved by the honorable Authority was based on best efforts of XWDISCOs primarily to comply with the Capacity Obligation determined by the Market Operator. We, very humbly, submit that the IGCEP, considering its indicative nature should be taken only as guiding document for securing alignment of future Power Acquisitions to comply with the Capacity Obligation determined by the MO. It may be noted that Power Acquisition Programme is the only binding legal [Section 32 of NEPRA Act] document; which should not be subservient to the IGCEP.
c)	XW-DISCOs to submit financial analysis/impact of the projects proposed in the PAP on consumer end tariff including the power purchase price, capacity purchase price and energy purchase price within next iteration of the PAP.	It is submitted that for a period of 5 years from promulgation of Power Procurement Regulations, combined PAP of all SoLRs is to be submitted. Noting further that the data / EPAs / PPAs pertaining to the Legacy power procurement are not available with XWDISCOs and, accordingly, for estimation of PPP, the DISCOs are reliant upon the CPPA-G (SPA) estimates.

Directions of the Authority		GEPCO Submission
		In case of committed power generation projects, the determined tariffs are the fundamental requirement for estimating PPP. The projects included in the IGCEP as committed and/or optimized, no confirmation with regard to the applicable expected tariffs is provided, thus making is impossible for XWDISCOs to estimate the overall PPP and its impact on consumer end tariffs. Foregoing in view, following is requested: • For estimation of PPP with regard to existing and EPA/PPA signed committed projects, the CPPA-G should be directed to assist XWDISCOs and provide PPP estimates for the PAP horizon. [Paragraph F(3)(xi) at page 21 of 23 of subject determination referred] • For estimation of PPP with regard to committed (without EPA/PPA and Financial Close), the IGCEP should include the estimate of PPP for such projects during the IGCEP horizon.
d)	XW-DISCOs to submit status of evacuation arrangements for the projects proposed in the PAP on the performa attached (Annex-I) with the determination and clearly identify the mode of procurement for firm as well as indicative projects along with justifications thereof.	The status as desired is being complied and will be submitted in due course.
e)	XW-DISCOs to consider the impact of rooftop solar and captive generation in the next iteration of the PAP.	The XWDISCOs have already adopted impact of rooftop solar (net metering and off-grid) and captive generation. It may, however, be apprised that such estimates of XWDISCOs, being more recent as compared to IGCEP data,

Directions of the Authority		GEPCO Submission
		may deviate from the fundamentals contained in the IGCEP.
f)	XW-DISCOs to ensure consultation with the IAA prior to submission of the PAP to the Authority especially with respect to timelines for conducting competitive auctions, where applicable, for proposed project in the PAP.	Before commencement of processing of the approved CPAP, the XWDISCOs approached the PPIB, as IAA, however, the IAA not being legally registered at that time, the meaningful consultation was dispensed with as per PPIB response. For next iteration of the PAP, we are soon approaching the PPIB (IAA) for consultation and advising the XWDISCOs on a standardized format / structure of the PAP.
g)	XW-DISCOs to coordinate with KEL for reflection of the capacity quantum to be supplied to KEL from National Grid in the PAP so that no misalignment with respect to the quantum of supply is observed between the two PAPs.	It is submitted that, as per the Power Procurement Regulations, no central coordination and leading obligation has been assigned to any single stakeholder. It is requested that, through necessary amendment to the Procurement Regulations or otherwise through a Authority directive, central coordination and lead role, during the 5 years of Combined PAP and thereafter, should be assigned to single entity

In addition to the above submission, we would draw kind attention of the honorable Authority towards the "Conclusions" submitted at Pages 79-80 / 89 CPAP document (pages 113-114 / 123 of Determination document). It is reiterated that the said conclusions contain fundamental issues requiring unequivocal decision / directions of the Authority to ensure preparation and submission of compliant, reliable, accurate, transparent, reflective, implementable and aligned (combined) Power Acquisition Programme(s) in true compliance to the above-mentioned directives of the honorable Authority.

17.4. Other Regulatory Interactions

The future regulatory interactions as envisaged during the period of this business plan are as under;

- Submission of Power Acquisition Programmes annually within the time stipulated as per regulation, currently September, 30th every year.
- Submission of Investment Plan for the five-year period 2025-26 to 2029-30 i.e., next MYT control period.
- Submission of MYT for the period 2025-26 to 2029-30.
- To evaluate the different proposals of tariff design so as to make it more efficient and cost reflective with the objective to maximize the utilization of available capacity.

- Continued review of regulations including NEPRA Consumer Eligibility Criteria (CEC) Regulations for electric power supplier, and NEPRA Open Access (Interconnection and Wheeling of electric power) Regulations.
- Adjustment and alignment of interconnected/ interdependent integrated planning documents, i.e., IGCEP, TSEP, Determination of Capacity Obligation, PAP, Investment Plan, MYT.
- Interaction with NEPRA on Investment Planning regulations, as and when placed by NEPRA for review and comments
- Review of NEPRA (Alternative & Renewable Energy) Distributed Generation and Net-Metering Regulations, 2015 and buyback price options. Detailed narrative provided in the next chapter **18**.

18. INTEGRATION OF DISTRIBUTED GENERATION IN DISTRIBUTION NETWORK

18.1. Background

Use of sunlight as source of energy on earth dates back to the advent of solar planetary system itself. Humans first directly harnessed the solar power in 7th century B.C., when concentrated solar rays were used to light fires. The first solar device to produce electricity from sunlight was installed on a rooftop in New York in 1883 by American inventor Charles Fritts. However, creation of silicon photovoltaic (PV) cell in 1954 marks the true advent of modern time solar power technology. The disruptive technological interventions over the period have tremendously reduced the cost of solar from roughly at $300 per watt in 1956 to as little as $0.18 per watt now and yet reducing.

Besides being cherished and supported as environment friendly source of energy, the massive reduction in associated costs has triggered tremendous deployment of solar PV technology from small house hold rooftops to gigantic utility level plants.

In case of Pakistan, till 2015, the adoption of solar PV for household, commercial, industrial and/or agricultural purposes remained negligible and limited to the extent of off-net utilization thereof. Promulgation of **NEPRA (Alternative and Renewable) Distributed Generation and Net-Metering Regulations, 2015 ("NM Regulations")**, was the first ever framework intervention for systematic adoption of solar PV at the level of masses. Currently the said NM Regulations (as amended from time to time) are the only regulatory framework governing the alternative and renewable distributed generation and net-metering in Pakistan. Since promulgation, the NM Regulations have undergone several amendments. The individual specific amendments, as required, will be referred and discussed later in this document, as applicable. The elimination of NEPRA licensing (now concurrence) requirements for DG Net-Metering facilities up to 25 kW in April 2022, massive reduction in prices SPV Panels, increase in electricity tariffs and low-cost financing options have triggered hyper adoption of DG Solar PV net-metering solutions.

18.2. Policy, Legal and Regulatory Framework

18.2.1. Net-Metering Regulations, 2015 (as amended)

Salient points regarding applicability, eligibility of categories of consumers, meter readings and billing are summarized as below:

i. Consumers of domestic, commercial, industrial, agricultural, general services and single point bulk supply tariff (3 Phase 400V or 11kV) categories are eligible to apply for DG Net Metering arrangements (Regulation 2(1)(e)).

ii. A DG Facility up to 1 MW is eligible. (Regulation 2(1)(i))

iii. The capacity of DG Facility is allowable up to One and a Half of the sanctioned load of the applicant's premises. (Regulation 3(2))

iv. The Authority may revise the One and a Half capacity of proposed Distributed Generation Facilities after one year from the date of its notification, i.e. 13th September, 2019. (Proviso to Regulation 3(2))

v. A DG facility of 25kW or below capacity does not require licence / concurrence of the Authority. (Proviso to Regulation 4(1))

vi. The arrangement under the NM Regulations is of net-metering nature, i.e. for the purpose of billing, the units supplied by consumer shall be deducted from united consumed by the consumer and billing, if applicable, shall be based on such net consumption. (Regulation 14(1) and 14(3))

vii. The kWh supplied by a Distributed Generator during peak and/or off-peak hours shall be net off against the kWh supplied by a DISCO during peak and/or off-peak hours, respectively. (Regulations 14(2))

viii. During a Billing Cycle, the kWh exported by the DG in excess of the kWh imported by the DG shall be credited to DG for future compensation, or shall be paid to the DG quarterly. (Regulation 14(4)).

ix. The price payable by a Distribution Company for net kWh shall be the national average power purchase price of the Distribution Company as determined by the Authority and notified by the Federal Government. (Regulation 14(5)).

18.2.2. Alternate and Renewable Energy Policy, 2019

The Alternate and Renewable Energy Policy 2019 of the Government of Pakistan, as a component of the overall plan, provided a vision of the development of an efficient, sustainable, secure, affordable, competitive and environment friendly power system while promoting indigenization of energy resources and development of local manufacturing capabilities in such technologies. However, being not directly relevant to the Distributed Generation Net-Metering framework, the said ARE Policy 2019 has not been referred for the purpose of this document.

18.2.3. NEPRA Act.

The Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997 ("The NEPRA Act"), through amendment of 2018, added **"to make special provisions for the development of renewable electricity markets in accordance with the international commitments of Pakistan as well as the responsibility of Pakistan to support and encourage measures to effectively mitigate adverse climate change"** as one of the items of expediency for enactment of the NEPRA Act.

No specific provision regarding Distributed Generation and Net Metering are provided in the Act.

18.2.4. National Electricity Policy, 2021

Extracts from the National Electricity Policy 2021, relevant to the matter, are reproduced as below:

"4.4.1. Sustainability of the entire power sector pivots around the financial and commercial viability of its individual sub-sectors. This will be done by:

a. promoting investments on least cost basis balanced with development in the underserved areas;

b. having cost-reflective tariffs in transmission and distribution, to the extent feasible;

c. timely passing of costs to the consumers, while netting off any subsidies funded by the Government; and

d. recovery of costs arising on account of open access, distributed generation, etc."

"**5.1.7** Distributed generation, including net-metering additions, shall conform to the integrated planning for the sector. Steps will be taken to integrate distributed generation in sector-level planning to ensure its sustainability."

"**5.3.1.** The distribution segment is the interface of the entire sector with the consumers of electricity. The financial viability of the entire sector is premised on the efficient operations of the distribution system and timely recoveries from consumers. The existing operations have resulted in non-recovery of costs determined by the Regulator (in addition to operational costs over and above the revenue requirement determined by the Regulator), leading to accumulation of circular debt, thus threatening the sustainability of the entire sector."

"**5.6.1.** Financial sustainability of the sector is premised on the recovery of full cost of service, to the extent feasible, through an efficient tariff structure, which ensures sufficient liquidity in the sector."

"**5.6.6.** Distributed generation is a growing and recognized phenomenon in electricity markets worldwide. The Regulator will devise facilitative guidelines for registration of distributed generation (i.e., consumers connected to the grid) with distribution companies. Such registration process shall enable incorporation of distributed generation in integrated planning and demand projections by the concerned entities. Further, the Regulator shall devise roadmap for the progressive elimination of licensing requirements for distributed generation."

"**5.6.7.** The Regulator will provide for recovery of costs arising on account of distributed generation and open access in the consumer-end tariff, as decided by the Government. Further, the Government may announce, from time to time, various concessional packages to incentivize additional consumption to minimize such costs."

18.2.5. National Electricity Plan, 2023-27

Extracts (of Strategic Directives (SD) and Performance Indicators & Targets) from the National Electricity Plan 2023-27, relevant to the matter, are reproduced as below:

"**SD-14.** The existing distributed generation and net metering regulations shall be amended taking into account new global innovations, best practices & technological interventions and facilitating steering an enabling environment for energy transition on a sustainable basis. Accordingly, the Regulator shall amend the said regulations, latest by Mar 2023."

(The target date March 2023 indicated in SD 14 above is corrected to March 31, 2024 as per DI.DER.010 reproduced below)

DI.DER.010	Amendment of DER Regulations	Timeline
	Regulations amended	Mar 31st, 2024

"**SD-90.** Stranded costs, arising on account of distributed generation (including self-consumption & net metering) for consumers utilizing grid connection, shall be recovered pursuant to the mechanism provided in Strategic Directive 074. The same shall be provided for in the distributed generation and net metering regulations, to be amended pursuant to the Strategic Directive 014."

"**SD-74.** Fixed charges shall be progressively incorporated in the tariffs of all consumer segments except consumers of protected category. Such fixed charges

shall duly account for, inter alia, share of capacity cost in cost of service, market interventions, consumption behaviors and affordability of consumers. It is aimed that by FY-2027, the fixed charges shall account for at least 20% of the fixed cost of the respective categories evaluated through a cost-of-service study."

18.3. Penetration of Distributed Generation (Solar PV) Net-Metering

As already mentioned, till 2015, the adoption of solar PV in Pakistan for household, commercial, industrial and/or agricultural purposes remained negligible and limited to the extent of off-net utilization thereof. Promulgation of NM Regulations of 2015 marked opportunity for the consumers to cut-down on their energy bills without compromising the desired continuity and reliability of electricity supply. Initially, till end of FY 2020-21, the adoption of PV Solar net-metering remained at slow pace. After relaxation on licensing / concurrence requirements for DG facilities up to 25kW capacity, the trend for conversion to net-metering has increased among the masses.

Historical data of GEPCO regarding net-metering progression is provided as below:

Sr. #	Description	UOM	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 (YTD Apr)
1	Net-Metering Connections - Opening	No.	17	57	168	488	1,578	4,871
2	Net-Metering Connections - Ending	No.	57	168	488	1,578	4,871	13,690
3	Net-Metering Capacity – Opening	MW	1.22	1.97	5.53	15.38	38.76	85.59
4	Net-Metering Capacity - Ending	MW	1.97	5.53	15.38	38.76	85.59	180.71
5	Energy Exported	GWh	0.64	2.05	5.47	14.88	37.94	66.81

As can be observed from the above data, withdrawal of licensing (or concurrence) requirement has accelerated the pace of rooftop DG PV solarization. During the month of April 2024 alone, 2,144 (22.790 MWp) new applications for DG PV Solar net-metering conversions were received and 1,985 (21.132 MWp) new DG PV Solar facilities were commissioned. Accordingly, as of April 30, 2024, a total of 180.7 MWp DG PV Solar capacity stood commissioned and integrated with the GEPCO's distribution system. The mentioned commissioned and integrated solar PV capacity compared with the average and peak (11kV) load of GEPCO is given in the below table:

Demand Description	Demand	Solar PV Capacity Apr-24
	MW	%age
Peak Demand (Recorded) 2022-23	2376	7.6
Peak Demand (Computed) 2022-23	2796	6.5
Average Demand 2022-23	1496	12.1

Demand Description	Demand	Solar PV Capacity Apr-24
	MW	%age
Peak Demand (Recorded) 2023-24 - YTD Apr-24	2425	7.5
Peak Demand (Computed) 2023-24 - YTD Apr-24	2625	6.9
Average Demand 2023-24 - YTD Apr-24	1205	15.0

The said accelerated pace of solarization and current, yet increasing, proportion to the overall demand parameters, desires serious, honest and objective assessment of the impacts on Suppliers of Last Resort (SoLRs) and continuity of business thereof. The said assessment is also imperative due to the fact that the successful, meaningful, resilient and sustainable integration of Distributed Generation entirely depends upon technical, commercial and financial reliability and integrity of power distribution system. **Accordingly, the following assessment should not, in any way, be construed as against the renewables, rather the same is an honest attempt to drill down on impacts and, accordingly, come up with workable and durable solution set for planned integration of Distributed Generation resources of renewable energy.**

18.4. Impact Assessment

For the purpose of this impact assessment section, the DG Solar PV net-metering consumers are referred to as "prosumer" and non-net-metering consumers as "consumer"

18.4.1. Positive Impacts

i. From life cycle Greenhouse Gases (GHG) emission perspective, solarization provides comparatively clean and environment friendly source of energy.

ii. Due to legal and regulatory provisions and, therefore, pricing mechanism in vogue, the DG Solar PV net-metering arrangements provide substantial financial benefits to the consumers who shift to the net-metering arrangements.

iii. Due to localize generation, and resultant lesser generation from remotely located contemporary traditional sources (Thermal Generation Plants), the system energy losses are reduced.

iv. In addition to the mentioned reduction in energy losses, the localized generation is claimed to displace and reduce the imported fuel-based generation and, therefore, help in saving foreign exchange and provides relief to national Current Account situation.

v. Distributed Generation Solar PV net-metering is providing support towards development of renewable electricity markets in accordance with the international commitments of Pakistan as well as the responsibility of Pakistan to support and encourage measures to effectively mitigate adverse climate change.

18.4.2. Adverse Impacts

i. While the solarization of power system is at its inception, the main challenge of disposal of solar panel / equipment waste is apparently not being considered. The disposal of solar panels will become a pressing issue as the number of decommissioned panels grows down the road. Although the solar energy is rightly considered a clean and renewable source of energy, the disposal of solar panels can have a negative environmental impact if not handled properly. The cost of properly recycling solar panels is often higher than the cost of creating new panels. This means that many solar panels could be simply discarded rather than being recycled. This also means that the solar panels may end up in landfills; which is least desirable as it would not only take up valuable space but may also release harmful chemicals in the environment during the process of decomposition. There is lack of awareness among consumers about the proper disposal of solar panels. Many people are not aware that solar panels contain hazardous materials and should not be disposed of in landfills. This lack of awareness can lead to improper disposal of solar panels, which can have negative environmental impacts. This outlook demands most immediate and more comprehensive recycling programs, increased awareness of the importance of proper disposal, and investment in research to develop more cost-effective recycling methods being necessary to address this issue. Overall, the challenges in solar panel disposal are significant and require action from governments, manufacturers, and consumers alike.

ii. Being largely based on imported items (panels, invertors, breakers), the forex saving on account of imported fuels is being off-set by import of solar panels, invertors etc.

iii. Occasional tendency of unauthorized addition in generation capacity by the DG prosumers, after energization, has been observed.

iv. While the solarization is undoubtedly displacing fuel based power generation, it is adding the capacity cost, which largely, if not totally, off-set the savings through energy displacement cost reduction.

v. Noting that the system peak demand occurs in the evening hours, the continuity of supply requires equal amount of firm capacity during peak hours. As such, the DISCOs and consumers are exposed to higher Capacity Charges, whereas prosumers are insulated, rather benefited, from the increased capacity charges.

vi. Cross-subsidy is normally referred to as payment by the rich consumers for poor consumers. The net-metering regime has created, yet expanding, situation of cross subsidy by the poor for the rich.

vii. g. While the electricity tariffs are largely volumetric (Rs./kWh), the decline in consumption (kWh) without commensurate decrease in capacity (MW) is causing double-jeopardy for DISCOs and the consumers, i.e. decrease in revenues, increase in per unit cost and increased tariffs (Base Tariff, FCA, AQTA).

viii. Without prejudice to being denoted as “net-metering”, the arrangement in essence is a sale of electricity and purchase of electricity at any one point in time. However, due to net-metering based billing regime, the arrangement has

effectively become positive (+) sales and negative (-) sales. Current net-metering regulations allow the netting of the kWh imported with the kWh exported by prosumers during peak and off-peak band of hours. Accordingly, the units exported by the prosumer are being sold to the SoLR DISCOs at the applicable tariffs and/or the National Average Power Price rate.

ix. Through amendment to the NM Regulations, made through SRO No. 1135(I)/2018 dated September 13, 2018, among other changes, the "single point bulk supply" tariff consumers were also allowed for net-metering under the regulations. Noting that the "single point bulk supply" tariff category "C" is also made applicable for housing colonies, where indiscriminate solarization is being allowed without any consultation with the DISCO and without any apparent compliance to the regulations.

x. Through amendment to the NM Regulations, made through SRO No. 1135(I)/2018 dated September 13, 2018, the capacity of proposed DG Facility was also enhanced to 1.5 times of sanction load. In line with proviso to the sub-regulation (2) of Regulation 3, the said enhancement was for a period of one year from the date of amendment. No revision, however, has so far been made. A number of consumers are misusing this provision by unneeded enhancement of sanctioned load.

xi. The net surplus units credited to the net-metering consumers and monetized at the end of each quarter are being valued at National Average Power Purchase Price (NAPP) determined by the Authority. This effectively means that the "capacity cost" applicable to a firm, committed and available capacity is being paid for an otherwise uncommitted / unfirmed, intermittent / variable capacity.

xii. Reiterating that the net-metering arrangements, in essence, are purchase and sale of electricity in any one point of time, however, the prosumers, to the extent of kWh exported to grid, are not subjected to following tariff items:

   a. Fuel Cost Adjustment (FCA)
   b. Quarterly Tariff Adjustment (QTA)
   c. Inter-Disco Tariff Rationalization Surcharge (ITDRS)

xiii. In addition to the above-mentioned tariff items, the prosumers are also not subjected to applicable taxes (including GST), which are otherwise applicable for consumers.

xiv. In the absence of a common on-line application portal, for use of the vendors duly registered with PPIB (AEBD), DISCOs have no reliable source to check the authenticity of the vendor. This is allowing unauthorized delegation of installation by sub-standard local sub-vendors.

xv. Absence of common on-line portal is also resulting in tax evasion by the vendors / sub-vendors.

xvi. It is observed that the extent of solarization in any area is related to the social class of residents. Huge quantum of solarization is observed in posh areas resulting into flow of reverse energy from the feeder during low demand hours / season.

xvii. If not checked and balanced at this early stage, the hyper solarization shall create an uncontrollable snowball effect on consumers.

18.5. Conclusions

i. All DG Solar PV arrangements made are based on the current legal, policy, and regulatory framework, accordingly, any change in the said frameworks should not be made to the disinterest of existing investments already made by DG Solar PV prosumers.

ii. The Rooftop DG Solar PV arrangements, in essence, are sale and purchase of power transactions. However, through net-metering regime, the same has been converted to net purchase of power.

iii. Despite environmental benefits, the current unchecked and rampant Rooftop Solar PV DG net-metering is not balancing out with social and economic ingredients of sustainability.

iv. In the medium term, disposal of decommissioned solar panels shall become environmental, social and economic challenge, if not proactively dealt with.

v. While resourceful prosumers are benefiting financially through avoidance of various tariff elements and tax charges, the general consumers are being overburdened.

vi. While consumer end tariffs are more effected by capacity charges, the DISCOs and general consumers are facing the dent of the decline in volumetrically chargeable revenues.

vii. The investments made by prosumers, primarily for own benefit, is being paid (cost + return) at par with the investments made at utility level firm and committed capacities.

viii. There is no control on un-authorized sub-letting by principal / registered vendor to sub-standard / unqualified sub-vendors.

ix. The Net-Metering arrangements, essentially allowed for promoting clean energy and reduction in energy bills of the prosumers; have now become source of profit taking at the cost of general consumers.

x. Reverse flow of energy on 11 kV feeders suppresses the benefits otherwise envisaged from localized distributed generation as energy generated first flows back to grid and then flows to other feeders.

xi. Unrestrained solarization is creating a gap between different classes of society. Due to intermittent nature of solar power, it has to be restrained at some level to ensure security and stability of the system and rationalizing impact for the low-income consumers.

18.6. Recommendations/ Proposed Measures

18.6.1. Review and Amendment in Regulations

a. The existing distributed generation and net metering regulations may be amended taking into account new global innovations, best practices & technological interventions and facilitating for steering an enabling environment for energy transition on a sustainable basis. [Strategic Directive 14 of National Electric Plan 2023-27 referred].

b. The capacity of Distributed Generation Facility may be revised to be lower of the sanctioned load or maximum MDI during last 12 months, so as to provide entry space for other prospective prosumers without compromising on targets for solarization.

c. A limit (for example; not more than 20% of energy imported from the system) may be set for spill energy eligible for monetary compensation.

d. The housing colonies may be excluded from the eligibility as "Single point bulk supply" till regularization of their status as Distribution / Supply licensee or conversion of individual consumers of such housing colonies to normal DISCO consumers.

e. The maximum limit for Distributed Generation Facilities connected to one Distribution Transformer should be specified as %age of the rated capacity of the relevant Distribution Transformer.

f. The power quality standards, including the Reactive Power Compensation, specific to the DG Facilities (excluding small DG facilities less than 25 kV) need to be promulgated.

g. A reasonable limit may be set at distribution transformer and feeder level to ensure dispersal of the energy generated by DG within the vicinity besides providing equal opportunity for all segments of the society.

h. The DG Facility Solar PV Net-Metering arrangements may be converted Net-Billing arrangement in conjunction with one or combination of the tariff measures suggested below.

18.6.2. Tariff Measures

a. A Feed-In Tariff (FIT), equivalent to the tariff of utility level solar plant, may be introduced for all units exported by the DG Facility.

b. Fixed Charges, in terms of Rs./kW sanctioned load, may be introduced [Strategic Directives 90 and 74 of National Electricity Plan 2023-27 referred].

c. The price payable by Distribution Company for net kWh as per sub-regulation (5) of Regulation 14 of the NM Regulations should be changed to national average energy purchase price instead of national average power purchase price.

d. The general regulated tariffs should also be restructured so as to systematically increase the proportion of revenue through fixed charges [Strategic Directive 74 of National Electricity Plan referred].

18.6.3. Administrative Measures

a. The PPIB (AEDB Wing) should establish a common portal for facilitating on-line applications for net-metering by the authorized vendors, so that only bona-fide vendors and their duly authorized representatives could create net-metering applications through encrypted access to the portal. This shall ensure that only legally imported / procured primary equipment / material is installed. Additionally, the sale and services so documented shall also provide additional tax revenues for the exchequer.

18.6.4. Technical Measures

a. NEPRA may sponsor and commission a national level detailed study for assessment of technical impact (power quality) of rooftop net-metering on the distribution net-work.

b. The net-metering arrangements, from existing pure on-grid, may be mandated to be hybrid, i.e., battery support should be made mandatory. This will help in mitigating demand differential of solar and non-solar hours of the day.

19. ENVIRONMENTAL AND SOCIAL ASSESSMENT AND MITIGATION PLANS

19.1. Environmental and Social Assessment and Mitigation Plans

There are environmental and social impacts of implementing the projects. A detailed environmental and social assessment is required to be carried out to successfully complete the projects.

Environmental, Social Impacts and Their Mitigating Measures

Table 19-1 Environmental, Social Impacts and Their Mitigating Measures

Environmental impacts	Mitigating measures
Noise	1. Project proponent to ensure compliance of National Environmental Quality Standards (NEQS) i.e. less than 85 Db (A) Noise for 08 hours of working 2. Provision of silencer or muffler for construction work equipment which generates excessive noise. 3. Adopt acoustic methods/ mitigation plan. 4. Transformers should not be overloaded and power factor should be maintained. 5. Hammer type percussive piling to be conducted in day light hours. 6. Use of well-maintained trucks/ machinery with proper alignment/ lubrication to be ensured.
Waste Water/ Drainage	1. Proper installation of temporary drainage and erosion control before works (like septic tank and soak pits) No direct waste water to be discharged into water bodies and ensure compliance of National Environmental Quality Standards (NEQS) 2. Cover the construction material/ chemicals to reduce material loss/ spillage into water bodies. 3. Storage of lubricants, fuels and chemicals in self-contained dedicated enclosures to avoid spillage/ leakage into water bodies.
Air Pollution	1. Spraying of bare areas with water/ sprinkling. 2. Stockpiled soil and sand shall be slightly wetted before loading, particularly in windy conditions. 3. Well maintained trucks/ machinery with proper alignment/ lubrication. 4. Vehicle transporting soil, sand and construction material shall be covered. 5. Transport through densely populated areas should be avoided. 6. At completion, all debris and waste shall be removed and not burned. Landscaping, trees plantation and road verges to be re-installed upon completion.

Environmental impacts	Mitigating measures
Waste Disposal	1. Create waste management plan to identify sufficient locations for storage and reuse of transformers and recycling of breaker oils and disposal of transformer oil residually contaminated soils, scrap metal "Cradle to Grave." 2. Designate disposal sites in the contract and cost unit disposal rates accordingly. 3. Regular monitoring of transformer seal and transformer oil, gravel base should be provided in Switchyard and transformer may be repaired in situ in or sent to workshop. 4. Proper operation and maintenance of transformer (O&M).
Safety Control Measures	1. Provide induction safety training/ capacity building of all staff (GSC/GSO) including contractor labour on health and safety matters, adequate warning signs, PTW (Permit to Work System) for HT Lines 11kV and above especially use of personal protective equipment (PPEs) like hard hat, hard toe shoes, protective rubber/ ladder gloves, safety belt and safety ladder and ear plug/muff to be ensured. 2. Potential for spread of vector borne and communicable diseases like AIDS, HEPATITIS, TUBERCULOSIS, SMALL POX and INFLUENZA from labour camps to local community shall be avoided. Medical screening/ vaccination to be ensured by the contractor prior to project commencement. 3. Prevent any illegal encroachments/ entries of irrelevant personnel especially children, beggar etc. 4. Transportation Routes used in the vicinity of subject project sites like schools/ hospitals/college to be avoided. 5. Local community complaints on construction nuisance/ agriculture land damages, access to agriculture land, hospitals/schools close to ROW, air/ noise pollution and high-speed transportation activities must be considered and responded promptly.
FIRE HAZARD	1. Continuous running of transformers over long period of time to be avoided. It renders the seal weak. Proper operation & maintenance of transformer (O&M) to avoid oil spillage/ leakage. Transformer should not be overloaded and power factor should be maintained. 2. Short circuiting of system. 3. Each sub-project site is provided with firefighting equipment including CO2, foam type and sand containers as well as land line/ power line carrier telephone to call the nearby fire brigade/ Rescue 1122
LARP Implementation & Disclosure	1. Implementation of Land Acquisition and Resettlement Plan (LARP) during all three stages acquiring permanent land for grid stations and temporary basis for transmissions Lines. LARPs reports disclosed at all projects sites for public consultation and implementation.
Public Complaints	1. Public complaints regarding delays in civil works, ROW issues, late compensation on account of Kharaba of seasonal crops and tree cutting etc. Grievance Redressal committee constituted to solve these issues on projects sites.

19.2. Institutional Arrangement's

The institutional arrangements to comply and meet with the environmental & social safeguard compliance;

- Development of Environment & Social Impact Cell (ESIC) in Project Management Unit (PMU) GEPCO.

a. Good Practice's in Environmental & Social Safeguard Management

At present the Environment and Social Impact Cell (ESIC) is working with a total strength of 2 people (Assist. Manager Environment & Social Safeguard). The job description, roles and responsibilities of ESIC are as follows:

- Provides Social/Environmental safeguard review and technical support to project implementation teams to enhance project quality and compliance on Social/Environmental safeguards.
- Advise executing agency, project sponsors, consultants and non-governmental organizations on Donor Agencies Social/Environmental safeguard policies (resettlement and indigenous peoples), guidelines, procedures and best practices and assists them in preparing appropriate frameworks, plans and actions to address these issues during project development and implementation.
- Participates in project/safeguard review/supervision missions and administration of the loans and TA projects to assess compliance on Social/Environmental safeguard policies, guidelines, recommendations in safeguard planning documents, and related loan covenants and address implementation issues identified during project implementation.
- Undertakes reviews on progress/monitoring reports on Social/Environmental safeguards for ongoing projects in the country.
- Interacts with government, civil society, other national/local organizations, and other project stakeholders.
- Supervise the performance of reporting staff, providing clear direction and regular monitoring and feedback on performance.
- Ensure the on-going learning and development of reporting staff.
- Reviews Social/Environmental safeguards monitoring and evaluation reports and project progress reports and assesses the quality of compliance with Donor Agencies Social/Environmental safeguard policies.
- Prepares recommendations for follow-up actions. Provides technical assistance to EA/IAs and external monitors to improve their monitoring, evaluation, supervision and reporting of resettlement progress.
- Participates in Project Completion Review missions and assists in evaluating the project resettlement and indigenous peoples work, and writing the relevant parts of the Project Completion Report.
- Provides review and technical support to PMU, including review of papers, feasibility studies, appraisal reports and other relevant documents from the perspective of land acquisition and resettlement management, on assignment basis.

b. The Specific Tasks Undertaken are:

The specific activities undertaken for implementation of environmental & social safeguard compliance included;

- Monitoring/inspection visits
- Capacity building of contractors on environment & safeguard
- Orientation of workers on health, safety & environment issues
- Use of PPEs and availability of properly quipped first aid boxes
- Segregation of waste materials
- Water sprinkling
- Assessment/ verification of Kharaba compensation payments through random sampling
- Checking of oil leakages and spillage

Annexures

GEPCO Business Plan 2024-25 to 2029-30

Annex-01

GEPCO Corporate SWOT Analysis

Strengths		
Sr. #	**Factor**	**Relevant Business**
1	Status as Natural Monopoly	Distribution Business
2	Equipped and active Power Dispatch Center (PDC)	Distribution Business
3	Diversified Customer Base	Supply Business, Distribution Business
4	Reasonable energy losses	Supply Business, Distribution Business
5	Reliable billing system	Supply Business
6	Valid Regulatory License	Supply Business, Distribution Business
7	Qualified workforce	Supply Business, Distribution Business
8	Customer Complaint Management System	Supply Business, Distribution Business
9	Transformer Reclamation Workshops	Distribution Business
10	Adequate STG Infrastructure	Distribution Business

Weaknesses		
Sr. #	**Factor**	**Relevant Business**
1	Over and underload transformers	Distribution Business
2	Aged and eroded distribution network.	Distribution Business
3	Financial position and Tariffs Structure	Supply Business, Distribution Business
4	Staff Shortage	Supply Business, Distribution Business
5	Inadequate training	Supply Business, Distribution Business
6	Meter reading inaccuracies	Supply Business, Distribution Business
7	Inaccurate Demand Forecast	Supply Business, Distribution Business
8	Very high level of customers per division.	Supply Business, Distribution Business
9	No ISO Certification and IMS documentation (procedures, work instructions etc.)	Supply Business, Distribution Business
10	No proper and documented risk profiling and assessment. (Enterprise Risk Mgmt)	Supply Business, Distribution Business

Weaknesses		
Sr. #	**Factor**	**Relevant Business**
11	Old Incomplete GIS mapping of system & GIS Application	Supply Business, Distribution Business
12	Absense of SCADA For Secondary Transmission Network	Distribution Business
13	No recent assessment of segment-wise technical energy losses.	Distribution Business
14	Fatal / Non-Fatal Accidents	Distribution Business
15	Absense of Asset Performance Management System	Distribution Business
16	No authentic Customer Satisfaction assessment	Supply Business, Distribution Business

Threats		
Sr. #	**Factor**	**Relevant Business**
1	BPC defection to Competitive Suppliers	Supply Business
2	Subsidized Retail Customers	Supply Business
3	Distributed power generation (net metering)	Supply Business
4	Government Subsidy and payment delay	Supply Business
5	Regulatory delays	Supply Business, Distribution Business
6	Inflation and Currency Exchange Rate	Supply Business, Distribution Business
7	Licensing of Competitive Suppliers	Supply Business
8	Licensing of Housing Colonies, Economic Zones and Industrial Estates as SOLR and Distributor	Supply Business, Distribution Business
9	Low share of Industry and lower load factor	Supply Business

Opportunities		
Sr. #	**Factor**	**Relevant Business**
1	Effective Deployment of Technology & Automation (ERP, AMR, GIS, SCADA)	Supply Business, Distribution Business
2	Power Sector Regulatory Reforms	Supply Business, Distribution Business
3	Pending and New connection	Supply Business, Distribution Business
4	Household Gas Loadshedding	Supply Business, Distribution Business
5	EVs (2-Wheeler, 4-Wheeler)	Supply Business, Distribution Business
6	CPPs Repatriation	Supply Business, Distribution Business
7	Economic growth	Supply Business, Distribution Business
8	Special Economic Zones	Supply Business, Distribution Business

Annex-02

Grid Wise MVA Capacity of Power Transformers

Sr. No.	NAME OF GRID STATION	P/T	MAKE	TRANSFORMERS	
				KV	MVA
1	132KV SHAHEEN ABAD, GRW	T - 1	PEL	132/11.5	31.5/40
		T - 2	HEC	132/11.5	31.5/40
		T - 3	PEL	132/11.5	31.5/40
		T - 4	PEL	132/11.5	31.5/40
2	132KV COLLEGE ROAD, GRW	T - 1	PEL	132/11.5	31.5/40
		T - 2	SIEMENS	132/11.5	31.5/40
		T - 3	SIEMENS	132/11.5	31.5/40
		T - 4	PEL	132/11.5	31.5/40
		T - 5	PEL	132/11.5	31.5/40
3	132KV HAFIZ ABAD ROAD GRW	T - 1	HEC	132/11.5	20/26
		T - 2	CHINT	132/11.5	31.5/40
		T - 3	SIEMENS	132/11.5	20/26
		T - 4	HYUNDAI	132/11.5	20/26
4	132KV CANTT GUJRANWALA	T - 1	SIEMENS	132/11.5	20/26
		T - 2	SIEMENS	132/11.5	20/26
		T - 3	CHINT	132/11.5	31.5/40
5	132KV LAHORE ROAD GRW	T - 1	PEL	132/11.5	31.5/40
		T - 2	HEC	132/11.5	31.5/40
		T - 3	SIEMENS	132/11.5	31.5/40
6	132KV PASRUR ROAD GRW	T - 1	SIEMENS	132/11.5	31.5/40
		T - 2	ELSEWEDY	132/11.5	31.5/40
		T - 3	SIEMENS	132/11.5	31.5/40
		T - 4	PEL	132/11.5	31.5/40
7	132KV THERI SANSI	T - 1	A/LEPPER	132/11.5	20/26
		T - 2	CHINT	132/11.5	31.5/40
		T - 3	HEC	132/11.5	20/26
8	132KV AROOP	T - 1	SIEMENS	132/11.5	20/26
		T - 2	SIEMENS	132/11.5	20/26
		T - 3	SIEMENS	132/11.5	20/26
		T - 4	ELPROM	132/11.5	20/26
		T - 5	PAUWELS	132/66	30/37.5
9	132KV S/WALA BAGH	T - 1	JIANGSU SUNEL	132/11.5	31.5/40
		T - 2	JIANGSU SUNEL	132/11.5	31.5/40
10	132KV KHIALI	T - 1	JIANGSU SUNEL	132/11.5	31.5/40
		T - 2	JIANGSU SUNEL	132/11.5	31.5/40
11	132KV CHIANWALI	T - 1	HYOSUING	132/11.5	20/26
		T - 2	HYOSUING	132/11.5	20/26
		T - 3	HYOSUING	132/11.5	20/26
		T - 4	SIEMENS	132/11.5	10/13
12	132KV HAFIZABAD OLD	T - 1	SIEMENS	132/11.5	31.5/40
		T - 2	SIEMENS	132/11.5	31.5/40
		T - 3	ELPROM ENERGO	132/11.5	10/13
		T - 4	MEIDEN SHA	132/11.5	20/26

Sr. No.	NAME OF GRID STATION	P/T	MAKE	TRANSFORMERS	
				KV	MVA
13	132KV DASKA INDUSTRIAL	T - 1	SIEMENS	132/11.5	31.5/40
		T - 2	SIEMENS	132/11.5	31.5/40
		T - 3	PEL	132/11.5	31.5/40
14	132KV EMINABAD	T - 1	ELTA	132/11.5	20/26
		T - 2	ELSEWEDY	132/11.5	31.5/40
		T - 3	SIEMENS	132/11.5	31.5/40
		T - 4	CHINT	132/11.5	31.5/40
15	132KV KAMOKE	T - 1	PEL	132/11.5	31.5/40
		T - 2	MEIDEN SHA	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
16	132KV NAROWAL	T - 1	IRAN TRANSFO	132/11.5	20/26
		T - 2	HEC	132/11.5	31.5/40
		T - 3	SIEMENS	132/11.5	20/26
17	132KV PASRUR	T - 1	ELECTRO PUTERE	132/11.5	20/26
		T - 2	PEL	132/11.5	31.5/40
		T - 3	MEIDEN SHA	132/11.5	20/26
18	132KV QILLA DEEDAR SINGH	T - 1	IRAN TRANSFO	132/11.5	20/26
		T - 3	HEC	132/11.5	20/26
		T - 4	HEC	132/11.5	20/26
		T - 5	ELECTRO PUTERE	132/11.5	20/26
19	132KV SHAKAR GARH	T - 1	SIEMENS	132/11.5	20/26
		T - 2	PEL	132/11.5	31.5/40
		T - 3	ELPROM ENERGO	132/11.5	20/26
		T - 4	HEC	132/11.5	20/26
20	132KV SUKHEKI	T - 1	IRAN TRANSFO	132/11.5	20/26
		T - 2	ELPROM TRAFFOO	132/11.5	10/14.8
		T - 3	HYUNDAI	132/11.5	20/26
21	132KV KOT AGHA	T - 1	MINEL	132/11.5	20/26
		T - 2	HEC	132/11.5	10/13
22	132KV BADDO MALHI	T - 1	ELPROM TRAFFOO	132/11.5	10/13
		T - 2	ELPROM ENERGO	132/11.5	10/13
23	132KV FATEH PUR	T - 1	SIEMENS	132/11.5	20/26
		T - 2	SIEMENS	132/11.5	20/26
		T - 3	MINEL	132/11.5	20/26
		T - 4	HYOSUING	132/11.5	20/26
24	132KV WAZIR ABAD	T - 1	HEC	132/11.5	20/26
		T - 2	PEL	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
25	132KV PINDI BHATTIAN	T - 3	HYOSUING	132/11.5	20/26
		T - 4	HYOSUING	132/11.5	20/26
		T - 5	ASEA LEPPER	132/11.5	20/26
26	132KV HAFIZABAD NEW	T - 1	HYOSUING	132/11.5	20/26
		T - 2	HYOSUING	132/11.5	20/26
		T - 3	SIEMENS	132/11.5	10/13

Sr. No.	NAME OF GRID STATION	P/T	MAKE	TRANSFORMERS	
				KV	MVA
27	132KV KOLO TARAR	T - 3	SIEMENS	132/11.5	20/26
		T - 4	SIEMENS	132/11.5	20/26
28	132KV JALAL PUR BHATTIAN	T - 1	SIEMENS	132/11.5	20/26
		T - 2	SIEMENS	132/11.5	20/26
		T - 3	MEIDEN SHA	132/11.5	20/26
29	132KV N/VIRKAN	T - 1	HEC	132/11.5	20/26
		T - 2	HYUNDAI	132/11.5	20/26
		T - 3	ELECTRO PUTERE	132/11.5	20/26
30	132KV NEW DASKA	T - 1	CHINT	132/11.5	31.5/40
		T - 2	CHINT	132/11.5	31.5/40
31	132KV DASKA CITY	T - 3	SHANDONG DACHI	132/11.5	20/26
		T - 4	SHANDONG DACHI	132/11.5	20/26
		T - 5	SHANDONG DACHI	132/11.5	20/26
32	132KV SIRANWALI	T - 3	SHANDONG DACHI	132/11.5	20/26
		T - 4	SHANDONG DACHI	132/11.5	20/26
33	132KV ZAFARWAL	T - 1	ELPROM ENERGO	132/11.5	20/26
		T - 2	GANZ	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
34	132KV CITI HOUSING	T - 1	ELSEWEDY	132/11.5	31.5/40
		T - 2	ELSEWEDY	132/11.5	31.5/40
35	132KV AWAN SHARIF	T - 1	HYOSUNG	132/11.5	20/26
		T - 2	HYOSUNG	132/11.5	20/26
36	132KV BHIMBER	T - 1	HEC	132/11.5	20/26
		T - 2	HEC	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
37	132KV DAULAT NAGAR	T - 1	PEL	132/11.5	31.5/40
		T - 2	PEL	132/11.5	31.5/40
38	132KV DINGA	T - 1	GANZ	132/11.5	20/26
		T - 2	ELPROM-TRAFO	132/11.5	10/13
		T - 3	MEIDENSHAH	132/11.5	10/13
39	132KV GHUINKI	T - 1	PEL	132/11.5	20/26
		T - 2	PEL	132/11.5	20/26
		T - 3	HEC	132/11.5	20/26
40	132KV GUJRAT-1	T - 1	CHINT	132/11.5	31.5/40
		T - 2	PEL	132/11.5	31.5/40
		T - 3	LEPPER DOMINIT	132/11.5	20/26
41	132KV GUJRAT-2	T - 1	TOSHIBA	132/11.5	20/26
		T - 2	ELSEWEDY	132/11.5	31.5/40
		T - 3	PEL	132/11.5	31.5/40
42	132KV GOHAD PUR	T - 1	CHINT	132/11.5	31.5/40
		T - 2	CHINT	132/11.5	31.5/40
43	132KV HEAD MARALA	T - 3	DACHI	132/11.5	20/26
		T - 4	DACHI	132/11.5	20/26

Sr. No.	NAME OF GRID STATION	P/T	MAKE	TRANSFORMERS	
				KV	MVA
44	132KV HELLAN	T - 1	ELTA POLAND	132/11.5	20/26
		T - 2	TRAFOUNION	132/11.5	10/13
		T - 3	ELTA	132/11.5	10/13
45	132KV J. P. JATTAN	T - 1	PEL	132/11.5	31.5/40
		T - 2	HEC	132/11.5	20/26
		T - 3	HEC	132/11.5	20/26
46	132KV KHARIAN	T - 1	Iran-Transfo	132/11.5	20/26
		T - 2	PEL	132/11.5	31.5/40
		T - 3	PEL	132/11.5	31.5/40
47	132KV K/ LOHARAN	T - 1	REDE KONCAR	132/11.5	10/13
		T - 2	ELPROM ENERGO	132/11.5	10/13
48	132KV K/SHEIKHAN	T - 1	SAVIAGALINO	132/11.5	20/26
		T - 2	SIEMENS	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
49	132KV LALAMUSA	T - 1	ANSALDO	132/11.5	20/26
		T - 2	HEC	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
		T - 4	HEC	132/11.5	20/26
50	132KV LALAPUR	T - 1	HEC	132/11.5	20/26
		T - 2	ELTA	132/11.5	20/26
		T - 3	CGE	132/11.5	15
51	132KV MALIKWAL	T - 1	DACHI	132/11.5	20/26
		T - 2	DACHI	132/11.5	20/26
52	132KV M.B.DIN	T - 1	PEL	132/11.5	31.5/40
		T - 2	IRAN-TRANSFO	132/11.5	20/26
		T - 3	PEL	132/11.5	31.5/40
53	132KV MANGOWAL	T - 1	E/ENERGO	132/11.5	20/26
		T - 2	TRAFOUNION	132/11.5	10/13
		T - 3	MEIDEN	132/11.5	20/26
54	132KV OLD POWER HOUSE (SIALKOT)	T - 1	HYOSUNG	132/11.5	20/26
		T - 2	HYOSUNG	132/11.5	20/26
		T - 3	HYOSUNG	132/11.5	20/26
55	132KV P.Rd SKT	T - 1	PEL	132/11.5	31.5/40
		T - 2	SIEMENS	132/11.5	31.5/40
		T - 3	ELSEWEDY	132/11.5	31.5/40
56	132KV PHALIA	T - 1	HYOSUNG	132/11.5	20/26
		T - 2	HYOSUNG	132/11.5	20/26
57	132KV RATTI	T - 1	HYOSUNG	132/11.5	20/26
		T - 2	HYOSUNG	132/11.5	20/26
		T - 3	HYOSUNG	132/11.5	20/26
58	132KV SAMBERIAL	T - 1	ELTA	132/11.5	20/26
		T - 2	HEC	132/11.5	20/26
		T - 3	GANZ	132/11.5	10/13

Sr. No.	NAME OF GRID STATION	P/T	MAKE	TRANSFORMERS	
				KV	MVA
59	132KV CANTT SKT	T - 1	PEL	132/11.5	31.5/40
		T - 2	PEL	132/11.5	31.5/40
		T - 3	CHINT	132/11.5	31.5/40
60	132KV CITY SKT	T - 1	SIEMENS	132/11.5	31.5/40
		T - 2	E/PUTOR	132/11.5	20/26
61	132KV NEW SKT	T - 2	SIEMENS	132/11.5	20/26
		T - 3	SIEMENS	132/11.5	31.5/40
		T - 4	HEC	132/11.5	20/26
62	66KV RASOOL	T - 1	ELECTROPUTER	66/11.5	10/13
63	220/132KV SAHOWALA	T - 4	SIEMENS	132/11.5	20/26
		T - 5	ELECTRO PUTER	132/11.5	20/26
64	220KV GHAKHAR	T - 5	PEL	132/11.5	31.5/40
		T - 6	PEL	132/11.5	31.5/40

Annex-03

Maximum Recorded Load of Power Transformers

Sr. No.	NAME OF GRID STATION	P/T	TRANSFORME		MAXIMUM LOAD OF			%AGE
			KV	MVA	LOAD (A)	DATE	TIME	
1	132KV SHAHEEN ABAD, GRW	T - 1	132/11.5	31.5/40	1500	23-Aug-2023	11:00	75%
		T - 2	132/11.5	31.5/40	1350	22-Aug-2023	16:00	67%
		T - 3	132/11.5	31.5/40	1550	02-Aug-2023	16:00	77%
		T - 4	132/11.5	31.5/40	1210	22-Aug-2023	15:00	60%
2	132KV COLLEGE ROAD, GRW	T - 1	132/11.5	31.5/40	1940	26-Aug-2023	13:30	97%
		T - 2	132/11.5	31.5/40	1550	15-Aug-2023	16:00	77%
		T - 3	132/11.5	31.5/40	1290	06-Aug-2023	15:00	64%
		T - 4	132/11.5	31.5/40	1340	02-May-2023	12:00	67%
		T - 5	132/11.5	31.5/40	1310	30-May-2024	12:00	65%
3	132KV HAFIZ ABAD ROAD GRW	T - 1	132/11.5	20/26	780	17-Aug-2023	10:00	60%
		T - 2	132/11.5	31.5/40	1380	08-Aug-2023	11:00	69%
		T - 3	132/11.5	20/26	670	07-Aug-2023	09:00	51%
		T - 4	132/11.5	20/26	540	29-Aug-2023	11:00	41%
4	132KV CANTT GUJRANWALA	T - 1	132/11.5	20/26	660	26-May-2024	18:00	51%
		T - 2	132/11.5	20/26	860	20-May-2024	18:00	66%
		T - 3	132/11.5	31.5/40	1500	19-Aug-2023	11:30	75%
5	132KV LAHORE ROAD GRW	T - 1	132/11.5	31.5/40	1360	21-Aug-2023	16:00	68%
		T - 2	132/11.5	31.5/40	1390	24-Aug-2023	14:00	69%
		T - 3	132/11.5	31.5/40	1710	24-Aug-2023	11:00	85%
6	132KV PASRUR ROAD GRW	T - 1	132/11.5	31.5/40	1620	22-Aug-2023	23:00	81%
		T - 2	132/11.5	31.5/40	1170	22-May-2024	23:00	58%
		T - 3	132/11.5	31.5/40	1650	21-Aug-2023	14:00	82%
		T - 4	132/11.5	31.5/40	1420	20-Aug-2023	23:00	71%
7	132KV THERI SANSI	T - 1	132/11.5	20/26	870	22-Aug-2023	11:00	67%
		T - 2	132/11.5	31.5/40	1180	10-Aug-2023	10:00	59%
		T - 3	132/11.5	20/26	970	03-Aug-2023	12:00	74%
8	132KV AROOP	T - 1	132/11.5	20/26	980	18-Aug-2023	01:00	75%
		T - 2	132/11.5	20/26	1010	22-Aug-2023	07:00	77%
		T - 3	132/11.5	20/26	890	31-May-2024	04:00	68%
		T - 4	132/11.5	20/26	800	02-Aug-2023	12:00	61%
		T - 5	132/66	30/37.5	36	01-Aug-2023	09:00	11%
9	132KV S/WALA BAGH	T - 1	132/11.5	31.5/40	1130	23-May-2024	14:00	56%
		T - 2	132/11.5	31.5/40	1150	03-Aug-2023	16:00	57%
10	132KV KHIALI	T - 1	132/11.5	31.5/40	1020	02-Aug-2023	14:00	51%
		T - 2	132/11.5	31.5/40	1070	17-Aug-2023	10:00	53%
11	132KV CHIANWALI	T - 1	132/11.5	20/26	870	09-Aug-2023	12:00	67%
		T - 2	132/11.5	20/26	500	01-Aug-2023	14:00	38%
		T - 3	132/11.5	20/26	610	29-May-2024	09:00	47%
		T - 4	132/11.5	10/13	290	20-Aug-2023	18:00	44%
12	132KV HAFIZABAD OLD	T - 1	132/11.5	31.5/40	1440	16-Aug-2023	12:00	72%
		T - 2	132/11.5	31.5/40	1430	21-Aug-2023	22:00	71%
		T - 3	132/11.5	10/13	220	03-Aug-2023	15:00	34%
		T - 4	132/11.5	20/26	710	16-Aug-2023	22:00	54%

Sr. No.	NAME OF GRID STATION	P/T	TRANSFORME		MAXIMUM LOAD OF			%AGE
			KV	MVA	LOAD (A)	DATE	TIME	
13	132KV DASKA INDUSTRIAL	T - 1	132/11.5	31.5/40	860	13-Aug-2003	10:00	43%
		T - 2	132/11.5	31.5/40	1670	25-Aug-2023	02:00	83%
		T - 3	132/11.5	31.5/40	1900	20-Aug-2023	05:00	95%
14	132KV EMINABAD	T - 1	132/11.5	20/26	1050	19-Aug-2023	15:00	80%
		T - 2	132/11.5	31.5/40	630	13-Aug-2023	16:00	31%
		T - 3	132/11.5	31.5/40	1210	17-Aug-2023	10:00	60%
		T - 4	132/11.5	31.5/40	830	01-Aug-2023	11:00	41%
15	132KV KAMOKE	T - 1	132/11.5	31.5/40	1600	23-Aug-2023	01:00	80%
		T - 2	132/11.5	20/26	1090	23-Aug-2023	12:00	84%
		T - 3	132/11.5	31.5/40	1480	24-Aug-2023	16:00	74%
16	132KV NAROWAL	T - 1	132/11.5	20/26	1110	22-Aug-2023	11:00	85%
		T - 2	132/11.5	31.5/40	1580	01-Aug-2023	16:00	79%
		T - 3	132/11.5	20/26	916	04-Aug-2023	12:00	70%
17	132KV PASRUR	T - 1	132/11.5	20/26	960	11-Aug-2023	20:00	74%
		T - 2	132/11.5	31.5/40	1770	03-Aug-2023	13:00	88%
		T - 3	132/11.5	20/26	950	02-Aug-2023	16:00	73%
18	132KV QILLA DEEDAR SINGH	T - 1	132/11.5	20/26	870	22-Aug-2023	12:30	67%
		T - 3	132/11.5	20/26	1010	11-Aug-2023	09:00	77%
		T - 4	132/11.5	20/26	520	06-Aug-2023	17:00	40%
		T - 5	132/11.5	20/26	720	18-Aug-2023	16:00	55%
19	132KV SHAKAR GARH	T - 1	132/11.5	20/26	1000	22-Aug-2023	20:00	77%
		T - 2	132/11.5	31.5/40	1100	22-Aug-2023	20:00	55%
		T - 3	132/11.5	20/26	1100	02-Aug-2023	05:00	84%
		T - 4	132/11.5	20/26	890	22-Aug-2023	18:00	68%
20	132KV SUKHEKI	T - 1	132/11.5	20/26	870	18-Aug-2023	19:00	67%
		T - 2	132/11.5	10/14.8	530	12-Aug-2023	11:00	70%
		T - 3	132/11.5	20/26	620	09-Aug-2023	10:00	48%
21	132KV KOT AGHA	T - 1	132/11.5	20/26	650	29-May-2024	22:00	50%
		T - 2	132/11.5	10/13	563	22-Aug-2023	20:00	86%
22	132KV BADDO MALHI	T - 1	132/11.5	10/13	300	13-Aug-2023	14:00	46%
		T - 2	132/11.5	10/13	350	02-Aug-2023	14:00	54%
23	132KV FATEH PUR	T - 1	132/11.5	20/26	780	02-Aug-2023	01:00	60%
		T - 2	132/11.5	20/26	760	19-Aug-2023	07:00	58%
		T - 3	132/11.5	20/26	670	22-Aug-2023	13:00	51%
		T - 4	132/11.5	20/26	650	03-Aug-2023	23:00	50%
24	132KV WAZIR ABAD	T - 1	132/11.5	20/26	1040	02-Aug-2023	16:00	80%
		T - 2	132/11.5	20/26	1020	22-Aug-2023	14:00	78%
		T - 3	132/11.5	31.5/40	1380	02-Aug-2023	16:00	69%
25	132KV PINDI BHATTIAN	T - 3	132/11.5	20/26	810	10-Aug-2023	16:00	62%
		T - 4	132/11.5	20/26	620	13-Aug-2023	14:00	48%
		T - 5	132/11.5	20/26	620	16-Aug-2023	18:00	48%

Sr. No.	NAME OF GRID STATION	P/T	TRANSFORME		MAXIMUM LOAD OF			%AGE
			KV	MVA	LOAD (A)	DATE	TIME	
26	132KV HAFIZABAD NEW	T - 1	132/11.5	20/26	530	22-Aug-2023	22:00	41%
		T - 2	132/11.5	20/26	670	31-May-2024	22:00	51%
		T - 3	132/11.5	10/13	400	06-Aug-2023	12:00	61%
27	132KV KOLO TARAR	T - 3	132/11.5	20/26	800	19-Aug-2023	12:00	61%
		T - 4	132/11.5	20/26	760	10-Aug-2023	15:00	58%
28	132KV JALAL PUR BHATTIAN	T - 1	132/11.5	20/26	1000	13-Aug-2023	11:00	77%
		T - 2	132/11.5	20/26	730	16-Aug-2023	13:00	56%
		T - 3	132/11.5	20/26	705	19-Aug-2023	09:00	54%
29	132KV N/VIRKAN	T - 1	132/11.5	20/26	1040	10-Aug-2023	14:00	80%
		T - 2	132/11.5	20/26	790	19-Aug-2023	07:30	61%
		T - 3	132/11.5	20/26	920	10-Aug-2023	12:00	70%
30	132KV NEW DASKA	T - 1	132/11.5	31.5/40	1120	22-Aug-2023	23:00	56%
		T - 2	132/11.5	31.5/40	970	08-Aug-2023	22:00	48%
31	132KV DASKA CITY	T - 3	132/11.5	20/26	400	25-Aug-2023	15:00	31%
		T - 4	132/11.5	20/26	650	12-Aug-2023	11:00	50%
		T - 5	132/11.5	20/26	480	13-Aug-2023	11:00	37%
32	132KV SIRANWALI	T - 3	132/11.5	20/26	670	23-Aug-2023	14:00	51%
		T - 4	132/11.5	20/26	620	22-Aug-2023	08:00	48%
33	132KV ZAFARWAL	T - 1	132/11.5	20/26	1070	04-Aug-2023	09:00	82%
		T - 2	132/11.5	20/26	985	04-Aug-2023	11:00	75%
		T - 3	132/11.5	31.5/40	1305	04-Aug-2023	09:00	65%
34	132KV CITY	T - 1	132/11.5	31.5/40	730	23-May-2024	00:00	36%
35	132KV AWAN SHARIF	T - 1	132/11.5	20/26	920	28-May-2024	17:00	70%
		T - 2	132/11.5	20/26	780	02-Aug-2023	14:00	60%
36	132KV BHIMBER	T - 1	132/11.5	20/26	820	19-Aug-2023	18:00	63%
		T - 2	132/11.5	20/26	1070	22-Aug-2023	18:00	82%
		T - 3	132/11.5	31.5/40	1360	13-Aug-2023	22:00	68%
37	132KV DAULAT NAGAR	T - 1	132/11.5	31.5/40	240	07-May-2024	20:00	12%
		T - 2	132/11.5	31.5/40	530	02-Aug-2023	14:00	26%
38	132KV DINGA	T - 1	132/11	20/26	890	04-Aug-2023	1:00	68%
		T - 2	132/11.5	10/13	440	09-Aug-2023	23:00	67%
		T - 3	132/11.5	10/13	350	07-Aug-2023	17:00	54%
39	132KV GHUINKI	T - 1	132/11.5	20/26	940	02-Aug-2023	12:00	72%
		T - 2	132/11.5	20/26	980	21-Aug-2023	23:00	75%
		T - 3	132/11.5	20/26	790	23-Aug-2023	14:00	61%
40	132KV GUJRAT-1	T - 1	132/11.5	31.5/40	1355	03-Aug-2023	22:00	67%
		T - 2	132/11.5	31.5/40	1115	11-May-2024	9:00	56%
		T - 3	132/11.5	20/26	1150	03-Aug-2023	21:00	88%
41	132KV GUJRAT-2	T - 1	132/11.5	20/26	1150	21-Aug-2023	23:00	88%
		T - 2	132/11.5	31.5/40	1180	12-Aug-2023	19:00	59%
		T - 3	132/11.5	31.5/40	1320	21-Aug-2023	0:00	66%
42	132KV GOHAD PUR	T - 1	132/11.5	31.5/40	770	21-Aug-2023	21:00	38%
		T - 2	132/11.5	31.5/40	750	22-Aug-2023	0:00	37%
43	132KV HEAD MARALA	T - 3	132/11.5	20/26	570	21-Aug-2023	22:00	44%
		T - 4	132/11.5	20/26	565	03-Aug-2023	21:00	43%

Sr. No.	NAME OF GRID STATION	P/T	TRANSFORME		MAXIMUM LOAD OF			%AGE
			KV	MVA	LOAD (A)	DATE	TIME	
44	132KV HELLAN	T - 1	132/11.5	20/26	810	21-Aug-2023	20:00	62%
		T - 2	132/11.5	10/13	370	21-Aug-2023	21:00	57%
		T - 3	132/11.5	10/13	470	02-Aug-2023	12:00	72%
45	132KV J. P. JATTAN	T - 1	132/11.5	31.5/40	1480	02-Aug-2023	8:00	74%
		T - 2	132/11.5	20/26	910	22-Aug-2023	20:00	70%
		T - 3	132/11.5	20/26	870	13-Aug-2023	23:00	67%
46	132KV KHARIAN	T - 1	132/11.5	20/26	860	23-Aug-2023	9:00	66%
		T - 2	132/11.5	31.5/40	1060	13-Aug-2023	23:00	53%
		T - 3	132/11.5	31.5/40	1005	12-Aug-2023	21:00	50%
47	132KV K/ LOHARAN	T - 1	132/11.5	10/13	430	08-Aug-2023	24:00	66%
		T - 2	132/11.5	10/13	470	22-Aug-2023	23:00	72%
48	132KV K/SHEIKHAN	T - 1	132/11.5	20/26	870	22-Aug-2023	21:00	67%
		T - 2	132/11.5	20/26	820	13-Aug-2023	10:00	63%
		T - 3	132/11.5	31.5/40	1660	03-Aug-2023	21:30	83%
49	132KV LALAMUSA	T - 1	132/11.5	20/26	825	02-Aug-2023	15:00	63%
		T - 2	132/11.5	20/26	910	03-Aug-2023	22:00	70%
		T - 3	132/11.5	31.5/40	1165	01-Aug-2023	22:00	58%
		T - 4	132/11.5	20/26	520	16-Aug-2023	20:00	40%
50	132KV LALAPUR	T - 1	132/11.5	20/26	700	22-Aug-2023	19:00	54%
		T - 2	132/11.5	20/26	970	12-Aug-2023	9:00	74%
		T - 3	132/11	15	570	10-Aug-2023	13:00	72%
51	132KV MALIKWAL	T - 1	132/11.5	20/26	730	04-Aug-2023	10:00	56%
		T - 2	132/11.5	20/26	630	09-Aug-2023	24:00	48%
52	132KV M.B.DIN	T - 1	132/11.5	31.5/40	1065	27-May-2024	23:00	53%
		T - 2	132/11.5	20/26	1125	22-Aug-2023	15:00	86%
		T - 3	132/11.5	31.5/40	1510	09-Aug-2023	22:00	75%
53	132KV MANGOWAL	T - 1	132/11.5	20/26	910	14-Aug-2023	11:00	70%
		T - 2	132/11.5	10/13	490	12-Aug-2023	11:00	75%
		T - 3	132/11.5	20/26	960	14-Aug-2023	11:00	74%
54	132KV OLD POWER HOUSE (SIALKOT)	T - 1	132/11.5	20/26	580	02-Aug-2023	16:00	44%
		T - 2	132/11.5	20/26	380	22-Aug-2023	16:00	29%
		T - 3	132/11.5	20/26	440	22-Aug-2023	16:00	34%
55	132KV P.Rd SKT	T - 1	132/11.5	31.5/40	1730	02-Aug-2023	1:00	86%
		T - 2	132/11.5	31.5/40	1510	01-Aug-2023	20:30	75%
		T - 3	132/11.5	31.5/40	1050	01-Aug-2023	14:00	52%
56	132KV PHALIA	T - 1	132/11.5	20/26	1090	03-Aug-2023	22:00	84%
		T - 2	132/11.5	20/26	870	21-Aug-2023	21:00	67%
57	132KV RATTI	T - 1	132/11.5	20/26	425	22-Aug-2023	12;00	33%
		T - 2	132/11.5	20/26	530	02-Aug-2023	9:00	41%
		T - 3	132/11.5	20/26	720	23-Aug-2023	15:00	55%
58	132KV SAMBERIAL	T - 1	132/11.5	20/26	875	22-Aug-2023	21:00	67%
		T - 2	132/11.5	20/26	970	22-Aug-2023	21:00	74%
		T - 3	132/11.5	10/13	505	22-Aug-2023	14:00	77%

Sr. No.	NAME OF GRID STATION	P/T	TRANSFORME		MAXIMUM LOAD OF			%AGE
			KV	MVA	LOAD (A)	DATE	TIME	
59	132KV CANTT SKT	T - 1	132/11.5	31.5/40	1640	21-Aug-2023	22:00	82%
		T - 2	132/11.5	31.5/40	1520	21-Aug-2023	16:00	76%
		T - 3	132/11.5	31.5/40	1710	22-Aug-2023	22:00	85%
60	132KV CITY SKT	T - 1	132/11.5	31.5/40	1320	22-Aug-2023	14:00	66%
		T - 2	132/11.5	20/26	1010	23-Aug-2023	11:00	77%
61	132KV NEW SKT	T - 2	132/11.5	20/26	1010	03-Aug-2023	17:00	77%
		T - 3	132/11.5	31.5/40	1670	27-May-2024	15:00	83%
		T - 4	132/11.5	20/26	790	18-Aug-2023	11:00	61%
62	66KV RASOOL	T - 1	66/11.5	10/13	530	12-Aug-2023	14:00	81%
63	220/132KV SAHOWALA	T - 4	132/11.5	20/26	820	22/8/2023	15:00	63%
		T - 5	132/11.5	20/26	925	04-Aug-2023	15:00	71%
64	220KV GHAKHAR	T - 5	132/11.5	31.5/40	1650	21-Aug-2023	22:00	82%
		T - 6	132/11.5	31.5/40	1550	22-Aug-2023	10:00	77%

Annex-04

Maximum Recorded Load of Transmission Lines

Sr. No.	Name of T-Line	Voltage	Length (KM)	Conductor		Max	Date	Time	%AGE
				Type	Cap (A)	Load (A)			
1	GUJRANWALA - COLLEGE ROAD GRW	132KV	5.3	RAIL	870	320	15/05/2024	19:00	37%
2	GUJRANWALA - COLLEGE ROAD GRW	132KV	5.3	RAIL	398	ON	-	-	-
3	GHAKHAR - GUJRANWALA CCT-1	132KV	13	RAIL	870	360	20/08/2023	16:00	41%
4	GHAKHAR - GUJRANWALA CCT-2	132KV	13	RAIL	870	270	15/05/2024	20:00	31%
5	COLLEGE ROAD GRW - NOKHAR	132KV	28.52	GREELY	791	690	23/05/2024	12:00	87%
6	HAFIZ ABAD ROAD GRW - NOKHAR	132kV	25.78	RAIL	870	256	20/08/2023	12:00	29%
7	HAFIZ ABAD ROAD GRW - GHAKHAR	132KV	20	LYNX	488	279	28/08/2023	09:30	57%
8	GHAKHAR - CANTT. GUJRANWALA	132KV	8	GREELY	791	240	30/05/2024	18:00	30%
9	CANTT. GRW - COLLEGE ROAD GRW	132KV	9	LYNX	488	255	24/05/2024	23:00	52%
10	PASRUR ROAD GRW - LAHORE ROAD GRW	132KV	8	GREELY	791	264	16/05/2024	16:00	33%
11	PASRUR ROAD GRW - SHERANWALA BAGH	132KV	12.5	GREELY	791	200	22/05/2024	14:00	25%
12	PASRUR ROAD GRW - NANDI PUR CCT-1	132KV	11	GREELY	791	400	02/08/2023	20:00	51%
13	PASRUR ROAD GRW - NANDI PUR CCT-2	132KV	11	GREELY	791	380	30/05/2024	15:00	48%
14	THERISANSI - NOWSHEHRA VIRKAN	132KV	41.4	GREELY	791	400	10/05/2024	16:00	51%
15	THERISANSI - EMINABAD	132KV	26	RAIL	870	280	05/08/2023	15:00	32%
16	THERISANSI - CITY HOUSING GUJRANWALA	132KV	7.2	RAIL	870	180	29/05/2024	01:00	21%
17	THERISANSI - LAHORE ROAD GRW	132KV	4	GREELY	791	360	29/05/2024	01:00	46%
18	THERISANSI - SHERANWALA BAGH	132KV	6.5	GREELY	791	230	11/05/2024	11:00	29%
19	KHIALI - THERI SANSI	132KV	4.2	GREELY	791	650	29/08/2023	15:00	82%
20	NOKHAR - KHIALI	132KV	26.2	GREELY	791	755	01/08/2023	09:00	95%
21	ARROOP - NANDI PUR CCT-1	132KV	9	GREELY	791	370	13/05/2024	21:00	47%
22	ARROOP - NANDI PUR CCT-2	132KV	9	GREELY	791	370	13/05/2024	21:00	47%
23	GHAKHAR - AROOP CCT-1	132KV	14	GREELY	791	420	06/05/2024	15:00	53%
24	GHAKHAR - AROOP CCT-2	132KV	14	GREELY	791	420	06/05/2024	15:00	53%
25	AROOP - NANDI PUR - SIRANWALI	66KV	24	DOG	346	73	01/08/2023	09:00	21%
26	NOKHAR - HAFIZ ABAD OLD	132KV	18.6	LYNX	488	297	21/08/2023	14:00	61%
27	HAFIZ ABAD NEW - HAFIZ ABAD OLD	132KV	16.47	LYNX	488	2	29/05/2024	04:00	0%
28	NOKHAR - HAFIZ ABAD NEW CCT-1	132KV	32.47	LYNX	488	140	08/05/2024	22:00	29%
29	HAFIZ ABAD NEW - J P BHATTIAN	132KV	24.68	RAIL	870	240	08/05/2024	22:00	28%
30	NOKHAR - HAFIZ ABAD NEW CCT-2	132KV	28.4	RAIL	870	182	08/05/2024	22:00	21%

Sr. No.	Name of T-Line	Voltage	Length (KM)	Conductor		Max	Date	Time	%AGE
				Type	Cap (A)	Load (A)			
31	GHAKHAR - DASKA INDUSTRIAL	132KV	23	LYNX	488	324	29/05/2024	07:00	66%
32	SAHOWALA - DASKA INDUSTRIAL	132KV	38	LYNX	488	331	17/08/2023	10:00	68%
33	KAMOKI - KALA SHAH KAKU	132KV	26	RAIL	870	466	01/08/2023	01:00	54%
34	NAROWAL - HUBCO	132KV	11.2	LYNX	488	270	02/08/2023	09:00	55%
35	NAROWAL - HUBCO-2	132KV	10.5	RAIL	870	370	03/08/2023	22:00	43%
36	NAROWAL - SHAKHAR GARH	132KV	49.8	LYNX	488	310	04/05/2023	14:00	64%
37	NAROWAL- PASRUR (D/C)	132KV	25	RAIL	870	280	19/08/2023	06:00	32%
38	NAROWAL- PASRUR	132KV	25.47	LYNX	488	280	19/08/2023	06:00	57%
39	NAROWAL - NARANG	132KV	48.28	LYNX	498	240	25/08/2023	22:00	48%
40	NAROWAL - HUBCO-1	132KV	10.5	RAIL	870	370	03/08/2023	22:00	43%
41	NAROWAL- PASRUR (D/C)	132KV	25	RAIL	870	280	19/08/2023	06:00	32%
42	PASRUR - KOT AGHA CCT-2	132KV	16.98	LYNX	488	90	22/08/2023	20:00	18%
43	PASRUR - SAHOWALA	132KV	44	RAIL	870	530	18/08/2023	06:30	61%
44	PASRUR - SAHOWALA	132KV	44	RAIL	870	530	18/08/2023	06:30	61%
45	PASRUR - ZAFARWAL	132KV	23.98	LYNX	488	260	02/08/2023	09:00	53%
46	PASRUR - KOT AGHA CCT-1	132KV	16.98	LYNX	488	90	22/08/2023	20:00	18%
47	NOKHAR - Q D SINGH	132KV	10	LYNX	488	230	13/08/2023	09:00	47%
48	GHAKHAR - Q D SINGH (S/C)	132KV	29	LYNX	488	230	18/08/2023	13:00	47%
49	GHAKHAR - Q D SINGH (D/C)	132KV	31	LYNX	488	242	22/08/2023	15:00	50%
50	SUKHEKI - PINDI BHATTIAN	132KV	27.4	LYNX	488	220	24/08/2023	00:00	45%
51	NOKHAR - FATEH PUR	132KV	41.43	LYNX	488	215	17/08/2023	13:00	44%
52	GHAKHAR - FATEH PUR	132KV	36	LYNX	488	225	03/08/2023	23:00	46%
53	BADDO MALHI - HUBCO	132KV	15.3	LYNX	488	278	16/05/2024	17:00	57%
54	BADDO MALHI - KALA SHA KAKU	132KV	21.68 /	LYNX	488	307	16/05/2024	17:00	63%
55	GHAKHAR - WAZIR ABAD	132KV	20	GREELY	791	ON	-	-	-
56	CHIANWALI - CITY HOUSING GUJRANWALA	132KV	5.65	RAIL	870	ON	-	-	-
57	CHIANWALI - EMINABAD	132KV	11.5	RAIL	870	290	11/08/2023	10:00	33%
58	CHIANWALI - MURID KAY	132KV	32.6	RAIL	870	301	23/08/2023	09:00	35%
59	CHIANWALI - KAMOKE	132KV	11	RAIL	870	208	01/08/2003	04:00	24%
60	DASKA - NANDI PUR	66KV	15	DOG	346	ON	-	-	-

Sr. No.	Name of T-Line	Voltage	Length (KM)	Conductor		Max	Date	Time	%AGE
				Type	Cap (A)	Load (A)			
61	NOKHAR - NOWSHEHRA VIRKAN	132KV	21.8	RAIL	870	577	24/05/2024	07:00	66%
62	GHAKHAR - NEW DASKA	132KV	29	GREELY	791	330	22/05/2024	19:00	42%
63	NEW DASKA - SAHOWALA	132KV	25	LYNX	488	234	24/08/2023	11:00	48%
64	NEW DASKA - DASKA CITY	132KV	6	LYNX	488	107	12/08/2023	13:00	22%
65	KOT AGHA - SIRANWALI	132KV	18	LYNX	488	57	02/08/2023	14:00	12%
66	KOT AGHA - SIRANWALI	132KV	18	LYNX	488	57	02/08/2023	14:00	12%
67	NOKHAR - KOLO TARAR	132KV	37.4	RAIL	870	530	18/08/2023	01:00	61%
68	KOLO TARAR - PINDI BHATTIAN	132KV	44	RAIL	870	410	18/08/2023	01:00	47%
69	PINDI BHATTIAN - JALAL PUR BHATTIAN	132KV	28.32	RAIL	870	162	08/05/2024	21:00	19%
70	DINGA - MANGLA	132KV	72	CUCKOO	781	530	01/08/2023	22:00	68%
71	DINGA- HELLAN	132KV	20	CUCKOO	781	433	01/08/2023	22:00	55%
72	SAHOWALA - GHUINKI	132KV	11.7	LYNX	488	290	01/08/2023	01:00	59%
73	GHUINKI - PASRUR	132KV	43.7	LYNX	488	218	10/05/2024	3:30	45%
74	220/132KV GUJRAT - GUJRAT 1 (OLD)	132KV	14	GREELY	791	365	28/05/2024	23:00	46%
75	220/132KV GUJRAT - RATTI	132KV	10.6	GREELY	791	565	15/08/2023	09:00	71%
76	220/132KV GUJRAT -WAZIRABAD	132KV	17.159	GREELY	791	470	22/08/2023	21:00	59%
77	220/132KV GUJRAT -220/132KV GAKHAR (UP TO WAZIRABAD)	132KV	17.159	GREELY	791	370	12/08/2023	16:00	47%
78	220/132KV GUJRAT - MANGOWAL	132KV	18.07	RAIL+LYNX	488	180	03/08/2023	21:00	37%
79	220/132KV GUJRAT - GUJRAT 1 (NEW)	132KV	8.55	RAIL	869	390	28/05/2024	23:00	45%
80	GUJRAT - LALAMUSA	132KV	16	TIGER	398	136	28/05/2024	22:00	34%
81	GUJRAT - LALAMUSA	132KV	16	TIGER	398	145	28/05/2024	23:00	36%
82	GUJRAT-SHADIWAL P/H	132KV	8	WOLF	446	27	13/05/2024	16:00	6%
83	GUJRAT-I - GUJRAT-2	132KV	16	GREELY	791	320	08/08/2023	24:00	40%
84	GUJRAT-2 - RATTI	132KV	6.04	GREELY	791	ON	-	-	-
85	HELLAN - M.B DIN	132KV	40	CUCKOO+ GREELY	781	360	23/05/2024	15:00	46%
86	GRT - RATTI - T-OFF JP JATTAN	132KV	16.67	LYNX	488	430	13/08/2023	21:00	88%
87	JP JATTAN - AWAN SHARIF	132KV	21.02	LYNX	488	130	29/05/2024	21:00	27%
88	KHARIAN- RAJJAR (CCT-1)	132KV	14	TIGER	398	175	30/05/2024	15:00	44%

Sr. No.	Name of T-Line	Voltage	Length (KM)	Conductor		Max	Date	Time	%AGE
				Type	Cap (A)	Load (A)			
89	MANGLA - NBE (CCT-2)	132KV	10	ZIGALO	498	300	03/08/2023	21:00	60%
90	NBE - KHARIAN (CCT-2)	132KV	46	ZIGALO	498				
91	MANGLA - NBE (CCT-3)	132KV	10	ZIGALO	498	300	03/08/2023	21:00	60%
92	NBE - KHARIAN (CCT-3)	132KV	46	ZIGALO	498				
93	KHARIAN - LALAMUSA	132KV	24	TIGER	398	180	12/08/2023	16:00	45%
94	KHARIAN - LALAMUSA	132KV	24	TIGER	398	180	12/08/2023	16:00	45%
95	KHARIAN - RASOOL(CCT-1)	132KV	52	TIGER	398	50	05/08/2023	8:00	13%
	KHARIAN - RASOOL(CCT-2 BUNDLED WITH CCT-1) AT TOWER NO.112	132KV	38.6	TIGER	398				
96	KHARIAN - BHIMBER	132KV	35	WOLF	446	270	22/08/2023	14:00	61%
97	K/ LOHARAN - CANTT SKT-1	132KV	11	LYNX	488	347	10/08/2023	22:00	71%
98	K/ LOHARAN - CANTT SKT-2	132KV	10	LYNX	488	347	10/08/2023	22:00	71%
99	K/ LOHARAN - HEAD MARALA	132KV	5.8	LYNX	488	85	22/08/2023	21:00	17%
100	MANGLA - K/SHEIKHAN	132KV	110	CUCKOO	781	514	10/08/2023	20:00	66%
101	K/SHEIKHAN - MALIKWAL	132KV	23	CUCKOO+ RAIL	781	325	08/08/2023	21:00	42%
102	MALIKWAL - BHALWAL	132KV	69.123	CUCKOO+ RAIL	781	243	09/08/2023	21:00	31%
103	LALAPUR - PASRUR	329	30	LYNX	488	340	12/08/2023	7:00	70%
104	LALAMUSA - DAULAT NAGAR	132KV	28	WOLF+RAIL	446	60	04/08/2023	1:00	13%
105	DAULAT NAGAR - J.P. JATTAN	132KV	20	WOLF+RAIL	446	60	22/08/2023	21:00	13%
106	M.B.DIN - PHALIA	132KV	21.23	GREELY	791	337	23/08/2023	15:00	43%
107	OLD POWER HOUSE - NEW SKT	132KV	4.8	LYNX	488	116	23/08/2023	16:00	24%
108	OLD POWER HOUSE - CITY SKT	132KV	1.8	LYNX	488	112	12/07/2023	15:00	23%
109	PHALIA-H/FAQIRIAN	132KV	46.23	CUCKOO+ GREELY	781	433	09/08/2023	09:00	55%
110	MALIKWAL - RASOOL 1	66KV	38	DOG	346	20	08/05/2024	10:00	6%
111	MALIKWAL - RASOOL 2	66KV	38	DOG	346	13	08/05/2024	13:00	4%
112	MALIKWAL - P.WAL / G.WAL	66KV	-	DOG	346	1	01/05/2024	1:00	0%
113	SAHOWALA-GOHAD PUR	132KV	6	RAIL	869	95	09/08/2023	10:00	11%

Sr. No.	Name of T-Line	Voltage	Length (KM)	Conductor		Max	Date	Time	%AGE
				Type	Cap (A)	Load (A)			
114	SAHOWALA-GOHAD PUR	132KV	6	RAIL	869	85	10/08/2023	11:00	10%
115	SAHOWALA-SAMBRIAL	132KV	8	LYNX	488	285	09/05/2024	15:00	58%
116	WAZIRABAD-SAMBRIAL	132KV	24	LYNX	488	206	22/08/2023	12:30	42%
117	SAHOWALA - NEW SIALKOT	132KV	13	RAIL	869	570	22/08/2023	15:00	66%
118	SAHOWALA-K/LOHARAN CCT-1	132KV	20	LYNX	488	410	12/08/2023	23:00	84%
119	SAHOWALA-K/LOHARAN CCT-2	132KV	20	LYNX	488	410	12/08/2023	23:00	84%
120	SAHOWALA- P. RD. SIALKOT	132KV	25	LYNX	488	420	22/08/2023	16:00	86%
121	PSR ROAD SKT-CITY SKT	132KV	7	LYNX	488	220	17/08/2023	19:00	45%
122	PSR ROAD SKT-LALAPUR	132KV	32	LYNX	488	160	20/05/2024	10:00	33%
123	PSR ROAD SKT-CANTT SKT	132KV	19	LYNX	488	170	12/08/2023	00:00	35%
124	PSR ROAD SKT-CANTT SKT	132KV	19	LYNX	488	170	12/08/2023	00:00	35%
125	NEW SKT - CITY SKT.	132KV	3	LYNX	488	315	22/08/2023	14:00	65%
126	NEW SKT - CITY SKT.	132KV	16	LYNX	488	ON	-	-	-
127	NEW SKT - P.RD SKT	132KV	13	LYNX	488	225	17/08/2023	19:00	46%

Annex-05

Maximum Load Recorded on 11 kV Feeders

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
1			KASHMIR ROAD	5033	220	22/08/2023	13.00
2			AHMED PURA	5035	170	06/08/2023	15.00
3			SUI GAS ROAD	5010	200	26/05/2024	15.00
4			BILAL TOWN	5046	360	20/08/2023	22.00
5			PEPSI COLA	5028	100	03/08/2023	02.00
6			FURNACE NO. 4	5026	PTW	-	-
7			SHAMA COLONY	5032	140	22/05/2024	15.00
8			DHULLAY NEW	5036	400	23/05/2024	15.00
9			CIVIC CENTER	5045	8	17/08/2023	16.00
10			S.I.E. NO. 1	5014	210	27/05/2024	13.00
11			MODEL TOWN	5011	220	20/08/2023	22.00
12			HOSPITAL ROAD	5016	230	20/08/2023	22.00
13			CLIMAX ABAD	5027	230	20/08/2023	22.00
14			GEPCO	5041	180	16/08/2023	13.00
15			BISMILLAH STEEL	5042	60	01/05/2024	18.00
16		132KV	SHAHEEN ABAD	5017	340	02/08/2023	14.00
17	50	SHAHEEN ABAD	SUPRA STEEL	5038	40	26/05/2024	18.00
18		GRW	DAL BAZAR	5034	170	02/08/2023	16.00
19			FURNACE NO. 3	5025	290	30/05/2024	07.00
20			CIVIL LINE	5012	250	02/08/2023	16.00
21			D C ROAD	5018	380	20/08/2023	22.00
22			MOHALLAH FAISAL	5007	260	23/08/2023	16.00
23			INDUSTRIAL	5002	PTW	-	-
24			FURNACE NO. 1	5021	30	30/05/2024	15.00
25			BOSS PLASTIC	5043	30	30/05/2024	08.00
26			GULSHAN IQBAL	5023	230	30/08/2023	13.00
27			ARSAL COLONY	5013	290	08/08/2023	12.00
28			SERVICE ROAD	5008	100	23/05/2024	15.00
29			L D STEEL	5030	PTW	-	-
30			SAMAN ABAD	5044	200	20/05/2024	13.00
31			GONDLANWALA ROAD	5019	210	02/08/2023	13.00
32			SESSION COURT	5040	280	21/08/2023	15.00
33			MADINA COLONY	5039	360	20/08/2023	23.00
34			SHALIMAR TOWN	3219	110	30/05/2024	01.00
35			HAFIZABAD ROAD	3204	300	15/08/2023	15.00
36			NEW JINNAH ROAD	3227	330	15/08/2023	16.00
37			M S MILL	3216	OFF	-	-
38			GHAZI	3218	OFF	-	-
39			FAROOQ GUNJ	3203	250	23/08/2023	15.00
40	32	132KV COLLEGE ROAD GRW	PRINCE ROAD	3237	260	02/08/2023	16.00
41			B B PURA	3201	170	22/08/2023	17.00
42			KOT QAZI	3206	280	15/08/2023	16.00
43			BY PASS	3202	210	02/08/2023	11.00
44			CLOCK TOWER	3212	220	15/08/2023	16.00
45			ISHAQ STEEL	3222	240	05/08/2023	10.00
46			G. M. C	3226	OFF	-	-

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
47	32	132KV COLLEGE ROAD GRW	SYED PAK BAZAR	3221	310	22/05/2024	12.00
48			REHMAN PURA	3209	300	06/08/2023	14.00
49			GULSHAN ABAD	3220	230	15/08/2023	16.00
50			GONDLANWALA	3205	290	12/08/2023	14.00
51			MUSLIM TOWN	3207	290	23/05/2024	14.00
52			RAUF STEEL	3225	OFF	-	-
53			JAMIA ASHRAFIA	3224	240	25/05/2024	16.00
54			LAHORE ROAD	3228	260	02/08/2023	11.00
55			ALAM CHOWK	3231	320	06/08/2023	12.00
56			I S S M	3233	30	16/05/2024	16.00
57			SHAHEEN GATTA MILL	3232	70	20/08/2023	12.00
58			K. M. P. S. R.	3234	50	01/05/2024	18.00
59			MAKKAH ROAD	3223	220	01/08/2023	09.00
60			NEW LADHAY WALA	3236	300	22/08/2023	17.00
61			FAZAIA-1	3241	ON	13/05/2024	01.00
62			MOHALLAH	3238	300	15/08/2023	16.00
63			RAJ KOT	3235	320	10/08/2023	11.00
64			HAIDER COLONY	3240	180	03/08/2023	12.00
65			ISLAMIA COLLEGE	3239	170	22/05/2024	23.00
66			QAZAFAI ROAD	3230	220	10/08/2023	11.00
67			BILAL ROAD	3217	340	10/08/2023	11.00
68			FAZAIA-2	3242	8	24/05/2024	18.00
69	814	132KV HAFIZ ABAD ROAD GRW	QILLA MIAN SINGH	81406	230	08/08/2023	11.00
70			FRUIT MANDI	81401	140	16/05/2024	08.00
71			KOT SHERA	81405	380	22/08/2023	21.00
72			MADINA STEEL MILL	81410	PTW	-	-
73			HAQ BAHU STEEL	81417	PTW	-	-
74			GULBERG COLONY	81424	300	08/08/2023	11.00
75			DARBAR QADRIA	81404	300	15/08/2023	12.00
76			NOWSHEHRA ROAD	81415	210	29/08/2023	12.00
77			MUHAMMAD NAGAR	81403	250	08/08/2023	11.00
78			MAKKAH STEEL	81411	160	08/08/2023	06.00
79			ABADI MEHAR WAZIR	81419	220	08/08/2023	11.00
80			FRIENDS	81421	40	08/08/2023	22.00
81			MUBARIK SHAH ROAD	81412	170	08/08/2023	12.00
82			CHAH CHOHANA WALA	81420	110	13/08/2023	24.00
83			WARRIACH	81407	20	24/05/2024	06.00
84			I.M.S MILLS	81422	280	24/05/2024	03.00
85			HAMEED STEEL	81418	PTW	-	-
86			USMAN-E-GHANI COLONY	81414	220	08/08/2023	11.00
87			AWAN CHOWK	81402	50	30/05/2024	12.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
88	814	132KV HAFIZ ABAD ROAD GRW	UMAIR STEEL FURNACE	81425	160	08/08/2023	12.00
89			AMIR MEHBOOB METAL CASTING	81426	180	30/08/2023	21.00
90	954	132KV CANTT GRW	SHARIF FARM	95401	220	19/05/2024	23.00
91			ASHRAF STEEL	95415	PTW	-	-
92			INCOME TAX COLONY	95404	200	20/05/2024	16.00
93			GARDEN TOWN	95414	200	21/05/2024	24.00
94			F - 2	95407	40	20/05/2024	19.00
95			DC KABUL	95411	30	07/08/2023	02.00
96			DC RACHNA	95410	140	23/05/2024	24.00
97			DC RAVI	95402	120	21/05/2024	24.00
98			M L R S	95418	140	23/08/2023	04.00
99			MANDIALA	95405	310	24/08/2023	24.00
100			F - 8	95408	130	20/05/2024	15.00
101			DC NEELAM	95409	50	29/08/2023	01.00
102			SHAHZAD STEEL	95417	ON	-	-
103			ALLAMA IQBAL TOWN	95412	220	21/05/2024	24.00
104			FOREST COLONY	95406	180	20/05/2024	16.00
105			DEFENCE	95416	210	21/05/2024	24.00
106			NEW LOHIANWALA	95426	370	19/08/2023	13.00
107			RAH WALI	95403	210	31/05/2024	16.00
108			KHALID ASHRAF & SONS	95419	140	23/05/2024	18.00
109			IRFAN SIDDIQUE RE-ROL	95420	PTW	-	-
110			SONICA	95421	30	22/05/2024	24.00
111			AZIZ CROSS GUJRANWALA	95429	230	16/08/2023	14.00
112			MEDICAL COLLEGE	95423	40	25/05/2024	23.00
113			DOGRAN WALA	95422	230	11/08/2023	15.00
114			D C COLONY 5	95427	25	15/05/2024	23.00
115			D C COLONY 4	95428	20	20/05/2024	24.00
116			RAWAH STEEL	95425	40	19/08/2023	17.00
117			FAZAL CENTER	95424	60	23/05/2024	22.00
118			AL-MANSOORA	95432	50	21/05/2024	24.00
119			D H Q	95431	120	11/05/2024	11.00
120	725	132KV LAHORE ROAD GRW	S.I.E. NO. 2	72505	PTW	-	-
121			EAST WAPDA TOWN	72501	270	21/08/2023	23.00
122			KHOLOWALA	72506	290	22/08/2023	21.00
123			INDUSTRIAL - 2	72507	300	19/08/2023	15.00
124			ISLAMABAD RE-ROLLING MILLS	72527	PTW	-	-
125			MURALI WALA	72520	280	13/08/2023	16.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
126	725	132KV LAHORE ROAD GRW	SONEX	72518	110	27/05/2024	12.00
127			CANAL VIEW - 1	72515	90	19/08/2023	01.00
128			WAFFY CITY	72529	PTW	-	-
129			KASHMIR COLONY	72504	160	23/05/2024	14.00
130			MUKHTAR COLONY	72510	300	17/08/2023	12.00
131			SAHI TOWN	72502	270	21/08/2023	23.00
132			SULTAN ESTATE	72524	200	16/05/2024	01.00
133			SUPER ASIA	72521	120	19/05/2024	12.00
134			JALIL TOWN	72509	340	17/08/2023	13.00
135			ILYAS KHALID STEEL	72512	160	05/05/2024	23.00
136			NAFFEH TOWER	72525	80	26/05/2024	11.00
137			NAZIR INDUSTRY	72530	290	30/05/2024	21.00
138			NANGRA ESTATE	72519	220	24/08/2023	11.00
139			CERAMICS-2	72522	290	10/08/2023	14.00
140			REGAL CHINA	72503	310	09/08/2023	13.00
141			KHIALAI NO. 2	72508	300	20/05/2024	15.00
142			ISLAMABAD STEEL	72511	280	17/08/2023	12.00
143			HAFIZ STEEL	72526	PTW	-	-
144			AL KARAM STEEL	72513	150	27/08/2023	10.00
145			E P Z - I	72517	90	16/05/2024	14.00
146			PEPSI COLA	72514	210	22/05/2024	23.00
147			OUJLA TOWN	72516	100	22/05/2024	01.00
148			GUJRANWALA FOOD IND.	72528	90	25/05/2024	16.00
149	157	132KV PASRUR ROAD GRW	T. M. KHAN	15718	260	22/08/2023	15.00
150			KHOKHAR KEE	15728	180	23/05/2024	14.00
151			FAREED TOWN	15705	250	22/08/2023	23.00
152			UPPER CHENAB	15734	250	13/08/2023	10.00
153			MASTER CITY - II	15736	70	29/05/2024	01.00
154			CHUCK NIZAM	15709	280	22/08/2023	15.00
155			TOHAR	15732	300	21/08/2023	14.00
156			PROFESSOR TOWN	15720	120	11/08/2023	22.00
157			QABRASTAN ROAD	15712	240	22/08/2023	15.00
158			MASTER CITY - I	15737	50	19/05/2024	01.00
159			GULZAR COLONY	15733	220	11/08/2023	23.00
160			POPULAR NURSERY	15727	310	22/08/2023	23.00
161			BHEKO PUR	15726	300	22/08/2023	23.00
162			CHAMAN SHAH	15707	340	22/08/2023	23.00
163			DASTGIR ROAD		OFF	-	-
164			CHAMRA MANDI	15730	180	13/08/2023	10.00
165			COLONEY	15725	240	13/08/2023	10.00
166			SALEEM COLONY	15710	390	02/08/2023	14.00
167			SIALKOT ROAD	15711	350	13/08/2023	10.00
168			WANIA	15722	120	30/05/2024	14.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
169	157	132KV PASRUR ROAD GRW	TAKBEER ROAD	15735	190	07/08/2023	14.00
170			DINA NAGAR ROAD	15701	310	12/08/2023	22.00
171			NEW SATELLITE TOWN	15717	240	12/08/2023	20.00
172			WAHDAT COLONEY	15704	240	27/08/2023	02.00
173			CANAL	15719	220	07/08/2023	23.00
174			FEROZWALA ROAD	15716	240	27/08/2023	13.00
175			MADNI ROAD	15723	320	15/08/2023	02.00
176			RACE COURSE ROAD	15731	280	06/08/2023	23.00
177			J. B. WALA	15703	290	16/08/2023	12.00
178	214	132KV THERI SANSI	G.T ROAD NO. 1	21403	140	22/08/2023	11.00
179			ALLAMA IQBAL ROAD	21424	230	22/08/2023	11.00
180			FURNACE	21412	120	30/05/2024	15.00
181			CAMPING GROUND	21410	20	11/05/2024	15.00
182			GALA THREE STAR WALA	21416	170	22/08/2023	11.00
183			BUKHARI COLONY	21415	240	22/08/2023	11.00
184			GALA KAUSAR FAN WALA	21423	110	23/08/2023	11.00
185			SHEIKHUPURA ROAD	21407	160	10/08/2023	10.00
186			INDUSTRIAL	21409	410	10/08/2023	10.00
187			KASHMIR ROAD	21417	310	21/08/2023	11.00
188			BAJWA ROAD NO. 2	21420	170	26/05/2024	16.00
189			KACHA EMINABAD ROAD	21419	280	12/08/2023	11.00
190			KHURSHID ALAM ESTATE	21421	240	03/08/2023	12.00
191			SANAT ROAD	21418	250	03/08/2023	12.00
192			JAMIA MUHAMMADIA	21408	240	02/08/2023	11.00
193			FAISAL COLONY	21404	240	24/08/2023	11.00
194			CITIZEN PLASTIC	21422	60	14/05/2024	11.00
195			G MANGOLIA		140	19/05/2024	11.00
196	974	132KV AROOP	AYUB HAROON	97404	390	06/08/2023	01.00
197			POWER HOUSE	97410	30	08/08/2023	21.00
198			SARDAR TOWN	97405	380	06/08/2023	01.00
199			N M C	97403	10	13/05/2024	14.00
200			PRIME CITY	97412	110	09/08/2023	19.00
201			WAQAS STEEL	97415	190	02/05/2024	109.00
202			NAGRI AHMED SHAH	97420	240	22/08/2023	13.00
203			BHATTI BANGO	97416	180	21/08/2023	17.00
204			USMAN STEEL	97417	ON	-	-
205			MALIK FURNACES	97407	310	22/08/2023	07.00
206			ZAHOOR SANGAM	97406	320	22/08/2023	07.00
207			NADEEM STEEL	97414	240	22/05/2024	07.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
208	974	132KV AROOP	FAROOQ STEEL	97408	260	31/05/2024	04.00
209			TRIGRI	97419	110	29/05/2024	23.00
210			JOHAR TOWN	97413	90	31/05/2024	21.00
211			WAQAR YOUNAS RE-ROLLING MILL	97421	270	23/08/2023	08.00
212			TAJ STEEL	97409	PTW	-	-
213			NDP - 5	97401	170	09/08/2023	09.00
214			ARROOP	97402	320	21/08/2023	16.00
215			NIZAM PUR	97418	240	22/08/2023	07.00
216			ASIF STEEL	97411	240	15/05/2024	12.00
217	1119	132KV GIS SHERANWALA BAGH	HIGHWAY COLONY	111908	20	26/05/2024	14.00
218			SIALKOTI GATE	111909	200	08/08/2023	14.00
219			SHERANWALA BAGH	111901	180	08/08/2023	13.00
220			NOOR BAWA	111911	250	23/05/2024	14.00
221			POUNDA WALA	111915	OFF	-	-
222			TEHSIL ROAD	111914	OFF	-	-
223			INDUSTRIAL EAST	111907	160	10/08/2023	13.00
224			SIDDIQUE COLONY	111916	150	23/05/2024	14.00
225			BAJWA ROAD	111906	200	08/08/2023	11.00
226			MUSLIM ROAD	111902	110	12/08/2023	13.00
227			UMER-E-FAROOQ ROAD	111910	200	09/08/2023	14.00
228			MEHAR NOOR WALA	111912	110	23/05/2024	13.00
229			MUJAJID PURA	111913	200	23/08/2023	13.00
230			BAKAR MANDI	111903	80	23/05/2024	11.00
231			BAKHTAY WALA	111904	90	04/08/2023	24.00
232			MIAN SANSI ROAD	111905	340	07/08/2023	10.00
233	1122	132KV KHIALI	EAGLE BOARD MILLS		50	02/05/2024	21.00
234			MANDIALA MEER SHIKARAN	112211	160	02/08/2023	09.00
235			NEW DATA GUNJ BUKSH	112204	160	17/08/2023	14.00
236			SIALVI TOWN	112205	280	23/05/2024	10.00
237			COCA COLA	112207	280	19/08/2023	21.00
238			NEW FRUIT MANDI	112203	70	22/08/2023	19.00
239			NEW FAISAL COLONY	112209	220	02/08/2023	12.00
240			GULSHAN-E-REHMAN	112210	170	17/08/2023	10.00
241			GULZAR COLONY	112201	180	22/08/2023	20.00
242			IFTIKHAR COLONY	112202	220	02/08/2023	16.00
243			KACHA KHIALI ROAD	112212	250	02/08/2023	10.00
244			ADIL STEEL MILL	112206	PTW	-	-
245			NOWSHEHRA SANSI	112208	320	02/08/2023	11.00
246	1082	132KV CHIANWALI	DEEWAN ROAD	108209	80	13/05/2024	17.00
247			SHABBIR SHAHEED	108216	140	18/08/2023	14.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
248	1082	132KV CHIANWALI	ASIM STEEL	108220	200	02/08/2023	07.00
249			AL HARAM TEXTILE	108207	50	16/05/2024	16.00
250			A K STEEL FURNACE	108206	PTW	-	-
251			UPPER CHENAB	108203	80	18/08/2023	15.00
252			MASTER TILE UNIT NO. 03	108215	PTW	-	-
253			INDUSTRIAL EAST	108201	220	01/08/2023	13.00
254			TARIQ SPINNING MILL	108217	140	19/08/2023	14.00
255			BAY NAZIR ROAD	108204	80	01/08/2023	12.00
256			TILES INDUSTRY	108208	PTW	-	-
257			A R STEEL	108214	PTW	-	-
258			H.K.S	108210	PTW	-	-
259			CEREMICS-5	108211	150	01/08/2023	12.00
260			S.K.S INDUSTRIES	108212	PTW	-	-
261			EAST CHIANWALI	108218	50	24/05/2024	04.00
262			POWER STEEL FURNACE	108205	PTW	-	-
263			MEERAB ENTERPRISES	108219	280	01/08/2023	01.00
264			CHADYIALA	108213	180	19/08/2023	11.00
265			TOLL PLAZA	108202	150	18/08/2023	18.00
266	55	132KV HAFIZABAD OLD	DAHRANWALI	5507	160	16/08/2023	21.00
267			GHARI AWAN	5504	200	29/05/2024	19.00
268			AHMED PUR	5501	130	16/08/2023	18.00
269			KOT HASSAN KHAN	5511	260	16/08/2023	16.00
270			SHAH JAMAL	5510	130	16/08/2023	14.00
271			BHOON	5503	250	16/08/2023	15.00
272			SAGGAR	5512	120	16/08/2023	15.00
273			BUEKI	5506	180	16/08/2023	14.00
274			AIR FORCE	5502	5	29/05/2024	15.00
275			HUSSAIN PURA	5516	120	21/08/2023	22.00
276			PEER KOT	5513	200	21/08/2023	15.00
277			KASSO KI	5525	110	29/05/2024	07.00
278			GUJRANWALA ROAD	5505	180	21/08/2023	22.00
279			CHABBA	5521	230	21/08/2023	22.00
280			KHAN PURA	5517	240	29/05/2024	22.00
281			AL PUR ROAD	5519	180	21/08/2023	22.00
282			MAKKAH TOWN	5520	140	21/08/2023	22.00
283			CHUCK GHAZI	5514	100	29/05/2024	22.00
284			MUJAHID	5524	5	29/05/2024	22.00
285			SOIANWALA	5526	120	03/08/2023	15.00
286			JAID KAY	5523	200	16/08/2023	12.00
287			DISTRICT COMPLEX	5522	230	30/05/2024	21.00
288			LAWERY	5515	200	16/08/2023	12.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
289	55	132KV HAFIZABAD OLD	JALHAN	5527	190	16/08/2023	12.00
290	600	132KV DASKA INDUSTRIAL	GLOTIAN	60001	220	22/08/2023	21.00
291			DASKA STEEL	60012	220	23/05/2024	16.00
292			SIAN	60007	230	02/08/2023	09.00
293			RANJHAI	60004	240	13/08/2023	10.00
294			NAZIR STEEL	60014	PTW	-	-
295			ALLAH DIN STEEL	60015	PTW	-	-
296			CRESCENT STEEL INDUSTRY	60032	80	29/05/2024	16.00
297			AL MADINA SURGICAL	60019	60	29/05/2024	16.00
298			JANDU ROAD	60003	120	30/05/2024	24.00
299			M N STEEL	60016	20	05/08/2023	16.00
300			SUPER WHITE GOLD	60031	180	29/05/2024	09.00
301			AL - BASHIR STEEL	60024	290	22/08/2023	02.00
302			M.M STEEL	60009	280	10/08/2023	18.00
303			ROYAL STEEL	60008	280	01/05/2024	17.00
304			ASGHAR SHAHEED	60006	380	24/08/2023	24.00
305			S. I. E. NO. 2	60002	230	30/08/2023	09.00
306			SARDAR STEEL	60018	PTW	-	-
307			ISLAM STEEL	60017	300	19/05/2024	15.00
308			BURJ ARAIAN	60005	160	01/08/2023	18.00
309			BHAROKEY	60022	170	23/08/2023	15.00
310			M B S STEEL	60025	170	02/05/2024	08.00
311			USMAN STEEL	60011	220	25/08/2023	01.00
312			JEEWAY MADINA	60023	170	01/05/2024	15.00
313			ABDUL MAJID STEEL	60020	290	20/08/2023	03.00
314			HAMEED FOUNDARY	60021	ON	-	-
315			TAJ DIN RE-ROLLING MILL	60027	120	22/08/2023	02.00
316			ROOTS STEEL MILL	60030	90	21/05/2024	19.00
317			TAJ DIN STEEL INDUSTRY	60026	280	02/05/2024	05.00
318			F S STEEL	60028	170	09/05/2024	05.00
319			SUPREME STEEL INDUSTRY	60029	270	13/05/2024	15.00
320	509	132KV EMINABAD	M D RICE MILL	50937	20	29/08/2023	09.00
321			EMINABAD	50901	230	22/08/2023	23.00
322			KHAN PIARA	50908	110	16/08/2023	09.00
323			ROYAL PALM CITY	50935	50	22/08/2023	23.00
324			G. T. ROAD	50910	180	30/08/2023	19.00
325			ATTAVA	50903	80	24/08/2023	19.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
326			KHAWJA STEEL MILL	50913	260	21/08/2023	01.00
327			RAJPUT STEEL	50917	PTW	-	-
328			CEREMICS	50905	190	16/08/2023	01.00
329			IKRAM STEEL INDUSTRY	50927	PTW	-	-
330			KHAWAJA SPINNING MILLS	50912	ON	-	-
331			SANSRA	50907	210	24/08/2023	19.00
332			MADINA STEEL MILL	50916	PTW	-	-
333			MIGHTY STEEL	50915	PTW	-	-
334			IBRAHIM STEEL	50914	PTW	-	-
335			MANDIALA TEGA	50904	290	24/08/2023	19.00
336			ASLAM STEEL	50939	170	09/05/2024	01.00
337			RIZWAN STEEL	50918	PTW	-	-
338			EJAZ STEEL	50919	290	05/05/2024	01.00
339			AL HAMAD STEEL	50920	PTW	-	-
340	509	132KV EMINABAD	PRIME STEEL	50922	260	18/05/2024	11.00
341			NEW HAFIZ STEEL	50921	160	18/05/2024	07.00
342			M. R. STEEL	50923	PTW	-	-
343			FIVE STAR	50924	40	07/05/2024	14.00
344			MILLINIUM STEEL	50938	PTW	-	-
345			AL - MARWA FEED	50926	PTW	-	-
346			BISMILLAH STEEL	50928	280	02/08/2023	11.00
347			AL-BARKA STEEL	50930	PTW	-	-
348			SOHAWA	50929	170	03/08/2023	15.00
349			LALU PUR	50925	110	14/08/2023	16.00
350			PAK GULF RICE MILL	50933	50	22/05/2024	01.00
351			HAMID PUR	50911	250	14/08/2023	12.00
352			RAJAWALA	50902	320	03/08/2023	12.00
353			G M STEEL	50931	PTW	-	-
354			TOHEED STEEL	50934	PTW	-	-
355			S S STEEL	50932	PTW	-	-
356			Z. B. STEEL	50936	PTW	-	-
357			KAMOKE CITY-1	9404	150	22/08/2023	13.00
358			KHAN TOWN	9409	380	13/08/2023	10.00
359			MODEL TOWN	9411	100	16/08/2023	11.00
360			TAMBOLI	9425	250	23/08/2023	13.00
361			H H PAPER MILL	9426	260	05/08/2023	09.00
362	94	132KV KAMOKE	SALAMIT PURA	9416	380	02/08/2023	14.00
363			PEELO	9407	290	25/05/2024	08.00
364			SHER GARH	9417	160	06/08/2023	09.00
365			KASSO KEE	9406	220	30/08/2023	14.00
366			A.P.L	9420	30	08/05/2024	11.00
367			MAIN BAZAR	9402	180	22/08/2023	15.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
368	94	132KV KAMOKE	KAHALID NAZIR	9414	30	05/08/2023	21.00
369			SALAR	9415	290	19/08/2023	21.00
370			K.P.B.M	9421	140	26/08/2023	11.00
371			RAZA ABAD	9418	250	02/08/2023	14.00
372			SONEX TILES	9419	PTW	-	-
373			MUSLIM GUNJ	9429	190	27/05/2024	02.00
374			A M S PLASTIC INDUSTRY	9430	70	29/05/2024	21.00
375			SADHO KEE	9408	340	20/08/2023	09.00
376			WAKEEL KHAN ROAD	9412	70	22/05/2024	14.00
377			DURGHA PUR	9401	230	19/08/2023	10.00
378			HABIB PURA	9423	340	22/08/2023	13.00
379			CHOWK GHOSIA	9422	260	23/08/2023	16.00
380			MASTER POLY PLASTIC	9428	140	25/05/2024	22.00
381			G T ROAD KMK	9427	300	21/05/2024	01.00
382	142	132KV NAROWAL	DOMALA	14212	340	22/08/2023	17.00
383			PEJO WALI	14207	280	18/08/2023	11.00
384			INDUSTRIAL	14208	160	23/08/2023	14.00
385			CHAHAL	14224	80	25/05/2024	13.00
386			NAROWAL	14204	250	23/08/2023	15.00
387			PHATA	14219	10	29/05/2024	22.00
388			BUDHA DHOLA	14222	210	04/08/2023	08.00
389			CIVIL LINE	14209	320	24/08/2023	15.30
390			GHAZI WAL	14211	340	01/08/2023	16.00
391			GHOUSIA	14210	340	22/08/2023	21.00
392			KANDHALA	14225	90	29/05/2024	06.00
393			BOLA BAJWA	14226	100	22/05/2024	17.00
394			GINUM-II	14223	5	28/05/2024	09.00
395			CHANDARY KAY	14217	380	22/08/2023	17.00
396			SADIQ ABAD	14206	380	01/08/2023	16.00
397			UET		OFF	-	156.00
398			JASSAR	14202	280	24/08/2023	16.00
399			KHAN KHASA	14216	250	04/08/2023	12.00
400			CHANDOWAL	14221	250	22/05/2024	15.00
401			MONGIAN	14203	240	22/08/2023	08.00
402			JAIL	14218	10	29/05/2024	12.00
403			SPORTS COMPLEX	14220	5	10/08/2023	19.00
404			MUSALMANYAN		100	29/05/2024	12.00
405	343	132KV PASRUR	MUSLIM COLONY	34303	250	02/08/2023	16.00
406			AHMED ABAD	34310	380	11/08/2023	10.00
407			KHALAS WALA	34302	220	02/08/2023	16.00
408			RACHARA	34312	230	04/08/2023	08.00
409			QILLA SOBA SINGH	34304	310	30/05/2024	08.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
410	343	132KV PASRUR	MOOSA PUR	34306	360	02/08/2023	15.00
411			CHAWINDA	34305	310	18/08/2023	10.30
412			PASRUR CITY	34307	320	22/08/2023	13.00
413			GODHA	34308	200	02/08/2023	08.00
414			NOOR PURA	34314	200	02/08/2023	15.30
415			BADYIANA	34301	380	02/08/2023	16.00
416			BUN BAJWA	34311	350	02/08/2023	16.00
417			ARMY CANTT.	34313	30	18/05/2024	18.00
418			JUDHALA	34315	190	02/08/2023	16.00
419			CHICHAR WALI BAJWA	34316	130	06/05/2024	15.00
420	163	132KV QILA DIDAR SINGH	NEW KOT QAZI	16309	240	18/08/2023	13.00
421			ISLAM PURA	16312	160	22/08/2023	12.00
422			Q D SINGH	16304	270	22/08/2023	22.00
423			GUJRAT STEEL MILL	16311	PTW	-	-
424			AULAKH BHAI KAY	16320	140	19/08/2023	08.00
425			YASEEN STEEL MILLS	16314	PTW	-	-
426			KOT SHAH MUHAMMAD	16316	210	19/08/2023	11.00
427			KAMO MALHI	16308	80	17/08/2023	08.00
428			BAIG CHUCK	16303	150	14/08/2023	11.00
429			BOTALA JHANDA SINGH	16306	170	22/08/2023	14.00
430			AJWA STEEL MILL	16319	PTW	-	-
431			KHABBAY KEE	16318	220	16/08/2023	07.00
432			MAIN BAZAR QDS	16310	270	08/08/2023	22.00
433			LADHE WALA	16302	310	11/08/2023	12.00
434			BAKHSHISH PURA	16317	230	22/08/2023	16.00
435			PHILLO KEE	16313	180	30/05/2024	09.00
436			THABIL	16305	130	23/08/2023	09.00
437			NOKHAR	16301	150	21/08/2023	16.00
438			AHMED BOARD MILLS	16315	40	15/05/2024	17.00
439	802	132KV SHAKHAR GARH	CITY	80204	240	03/08/2023	12.00
440			ANTOWALI	80201	200	02/08/2023	14.00
441			NANGLE	80208	280	07/08/2023	19.00
442			BARA MANGA	80207	300	03/08/2023	20.00
443			CHUCK AMRU	80206	300	11/08/2023	13.00
444			DIN PUR	80216	180	02/08/2023	13.00
445			QASIM PUR	80203	220	05/08/2023	21.00
446			FAIZ AHMED FAIZ	80209	250	08/08/2023	21.00
447			BARRA BHAI	80218	160	22/08/2023	20.00
448			DIYAL PUR		OFF	-	-
449			MIR PUR	80212	300	02/08/2023	05.00
450			AKHLAS PUR	80210	130	14/08/2023	16.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
451	802	132KV SHAKHAR GARH	NOOR KOT	80211	330	02/08/2023	13.00
452			BUSTAN	80205	220	17/08/2023	20.00
453			PHULWARI	80213	260	22/08/2023	20.00
454			KHAN PUR	80214	220	04/08/2023	14.00
455			AMARIAL	80217	90	24/05/2024	16.00
456			GUMTALA	80202	200	02/08/2023	14.00
457			KURTAR PUR	80215	200	11/08/2023	13.00
458	379	132KV SUKHEKI	UDDO KEY	37911	125	19/08/2023	10.00
459			NEW DHABAN (To LESCO)	37908	55	11/08/2023	10.00
460			DHABAN SINGH (To LESCO)	37902	40	06/08/2023	23.00
461			CRESCENT BAHUMAN	37912	120	16/08/2023	07.00
462			JHANG BRANCH	37905	320	21/08/2023	21.00
463			RUKH BRANCH	37910	250	16/08/2023	21.00
464			NISHAT DAIRY	37913	70	21/05/2024	23.00
465			KOT SARWAR	37914	220	06/08/2023	11.00
466			K - 106 (JHANDO KEE)	37906	165	12/08/2023	11.00
467			H - 106 (SABIT SHAH)	37904	160	12/08/2023	12.00
468			G - AREA	37903	200	18/08/2023	12.00
469			L - 106 (KASSISE)	37907	170	11/08/2023	11.00
470			NANO ANA	37909	260	09/08/2023	14.00
471			BURRAQ MAIZE PRODUCT	37915	30	01/05/2024	09.00
472	698	132KV KOT AGHA	MANGHA	69801	365	22/08/2023	20.00
473			TULWINDI	69806	240	21/08/2023	21.00
474			JEOWALI	69803	140	22/08/2023	20.00
475			CHANGHA	69804	60	19/05/2024	10.00
476			SAUKIN WIND	69802	200	22/08/2023	20.00
477	917	132KV BADDOMALHI	HALLOWAL	91703	60	29/05/2024	15.00
478			BURG	91702	120	13/08/2023	11.00
479			CITY	91705	140	09/08/2023	14.00
480			RAYA KHAS	91701	260	02/08/2023	14.00
481			BILLOWALI	91704	110	03/08/2023	21.00
482	273	132KV FATEH PUR	LADHE WALA	27309	200	23/08/2023	22.00
483			ALI PUR	27301	330	03/08/2023	22.00
484			SAHARAN	27312	145	02/08/2023	15.00
485			CHENAB BOARD	27311	110	26/05/2024	10.00
486			JHAM WALA	27318	95	22/08/2023	16.00
487			KOT RASUL PURIAN	27319	110	02/08/2023	11.00
488			MANCHER NEW	27310	220	02/08/2023	15.00
489			CHANAWAN	27303	150	20/08/2023	14.00
490			CITY ALI PUR	27308	240	28/05/2024	22.00
491			KOT HARA	27320	160	16/08/2023	22.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
492	273	132KV FATEH PUR	MADAN CHUCK	27314	210	03/08/2023	12.00
493			DILAWAR	27317	170	02/08/2023	11.00
494			BHOOMA BATH	27316	180	02/08/2023	10.00
495			CANAL VIEW		20	30/08/2023	12.00
496			RASUL NAGAR	27315	200	03/08/2023	23.00
497			VERPAL	27305	200	03/08/2023	21.00
498			KALIAN WALA	27313	140	03/08/2023	21.00
499			BUCHA CHATHA	27321	110	26/05/2024	20.00
500	222	132KV WAZIR ABAD	CARDIOLOGY	22219	10	16/05/2024	16.00
501			PIPLI WALA	22214	120	02/08/2023	16.00
502			DHONKAL	22215	330	02/08/2023	16.00
503			SANDA WALA	22208	190	02/08/2023	16.00
504			JANDIALA	22222	160	02/08/2023	16.00
505			ALLAH ABAD	22218	280	02/08/2023	16.00
506			MUHAMMAD NAGAR	22224	180	22/08/2023	14.00
507			PHALLO KEE	22207	200	02/08/2023	13.00
508			COLLEGE ROAD WAZIR ABAD	22205	340	22/08/2023	14.00
509			BARRAJE KHANKI	22221	52	16/05/2024	14.00
510			MZA KHAN	22213	440	02/08/2023	16.00
511			HAJI PURA	22216	310	02/08/2023	16.00
512			WAZIR ABAD	22210	240	13/08/2023	13.00
513			PNP	22206	160	23/08/2023	12.00
514			KOLAR	22212	190	02/08/2023	14.00
515			FATEH GARH	22201	115	22/08/2023	12.00
516			MURDAY KEE	22204	190	01/08/2023	16.00
517			DARSON	22220	30	30/05/2024	23.00
518			HEAD KHANKI	22203	200	22/08/2023	21.00
519			KAKKA KOLO	22223	180	22/08/2023	16.00
520	446	132KV PINDI BHATTIAN	MUSTAFA ABAD	44605	260	18/08/2023	17.00
521			KOT NAKKA	44603	270	18/08/2023	21.00
522			SHORI MANIKA	44606	350	06/08/2023	12.00
523			LAHORE ROAD	44608	345	03/08/2023	23.00
524			OLD JALAL PUR	44604	200	17/08/2023	17.00
525			KOT NIZAM	44602	155	08/08/2023	10.00
526			MIRZA BHATTIAN	44609	180	21/08/2023	21.00
527			PINDI BHATTIAN	44601	280	17/08/2023	09.00
528			BEHLOL PUR	44610	195	06/08/2023	18.00
529	1086	132KV HAFIZABAD NEW	MUGHAL PURA	108603	285	19/08/2023	16.00
530			RAJA CHOWK	108608	260	22/08/2023	22.00
531			KOT MUBARIK	108602	80	06/08/2023	19.00
532			JAGGAN WALA	108604	250	22/08/2023	20.00
533			DISTRICT JAIL	108609	12	17/08/2023	22.00
534			D.H.Q	108610	17	18/08/2023	12.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
535	1086	132KV HAFIZABAD NEW	HASSAN TOWN	108601	300	22/08/2023	17.00
536			KOT MIAN	108605	100	04/08/2023	08.00
537			SAKHI	108606	135	17/08/2023	12.00
538			FAROOQ-E-AZAM ROAD	108607	160	02/08/2023	14.00
539	299	132KV KOLO TARAR	RAGO SAYEDAN	29905	160	19/08/2023	12.00
540			BALLO NAU	29904	160	18/08/2023	09.00
541			KOT CHIAN	29902	310	17/08/2023	16.00
542			ALAODDINKAY CHATTHA	29907	250	17/05/2024	01.00
543			KOLO TARAR	29901	300	10/08/2023	15.00
544			VANIAKAY TARAR	29903	160	13/08/2023	11.00
545			BERI WALA	29906	200	17/08/2023	10.00
546			BEHK AHMED YAR	29908	200	19/08/2023	08.00
547	738	132KV J P BHATTIAN	GHARI GONDAL	73813	180	04/08/2023	14.00
548			KHAN PUR	73802	200	13/08/2023	11.00
549			PINDI BHATTIAN ROAD	73807	160	16/08/2023	10.00
550			KHIDAY	73816	160	06/08/2023	16.00
551			SADHOKI	73812	180	13/08/2023	11.00
552			KOT MUHABBAT	73805	180	17/08/2023	10.00
553			INDUSTTIAL	73804	100	28/08/2023	11.00
554			JALAL PUR CITY	73803	260	30/05/2024	23.00
555			RASUL PUR	73806	130	11/08/2023	09.00
556			KHURRAM CHURERA	73808	140	16/08/2023	12.00
557			MEHMOOD PUR	73809	160	18/08/2023	10.00
558			MAZCO	73810	40	20/08/2023	13.00
559			KASSASAY	73811	360	02/08/2023	09.00
560			CHUCK BHATTI	73801	190	16/08/2023	11.00
561			KHANA BHATTIAN	73814	160	13/08/2023	10.00
562			HASSAN CORPORATION	73815	65	15/05/2024	23.00
563			HAZAARI		40	18/05/2024	11.00
564	280	132KV NOWSHEHRA VIRKAN	SAGO BAGO	28004	290	17/08/2023	16.00
565			NOWSHERA VIRKAN	28002	300	02/08/2023	17.00
566			THANA ROAD	28012	300	11/08/2023	20.00
567			MATTA	28011	240	07/08/2023	15.00
568			BOOPRA	28010	190	12/08/2023	15.00
569			MARRI	28007	210	21/08/2023	14.00
570			KARYAL KALAN	28006	240	11/08/2023	09.00
571			BABBAR	28009	200	17/08/2023	09.00
572			KOT SHERA	28001	270	12/08/2023	15.00
573			TATLAY AALI	28005	290	12/08/2023	15.00
574			MANGO KEE	28008	230	09/08/2023	14.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
575	280	132KV NOWSHEHRA VIRKAN	MASANDA	28013	200	13/08/2023	14.00
576	1102	132KV NEW DASKA	GOJRA	110202	220	22/08/2023	20.00
577			ADAM KAY	110205	150	21/08/2023	22.00
578			WAZIR ABAD ROAD	110203	300	15/08/2023	15.00
579			MODEL TOWN	110210	140	03/08/2023	16.00
580			BANK ROAD	110208	200	11/08/2023	24.00
581			CIVIL COURT DASKA	110212	300	30/08/2023	04.00
582			STADIUM ROAD	110201	80	19/08/2023	13.00
583			GHANI PURA	110204	250	22/08/2023	22.00
584			MALIAN WALA	110207	200	22/08/2023	13.00
585			SUKHAR NEHAR	110206	130	03/08/2023	22.00
586			COLLEGE ROAD	110209	170	15/08/2023	15.00
587			GULISTAN COLONY	110211	220	01/08/2023	22.00
588			TAJO KEE	110213	120	27/05/2024	10.00
589	263	132KV DASKA CITY	SAMBRIAL ROAD	26304	280	23/08/2023	16.00
590			REFINE STEEL	26317	PTW	-	
591			YOUNUS STEEL	26315	70	30/08/2023	15.00
592			JAMIL STEEL	26316	70	30/08/2023	15.00
593			DHEIDO WALI	26307	270	01/08/2023	08.00
594			HAJI PURA	26314	350	16/08/2023	14.00
595			SOHAWA	26303	210	02/08/2023	12.00
596			MALO MAHAY	26306	300	24/08/2023	20.00
597			CIVIL HOSPITAL	26318	20	12/05/2024	22.00
598	377	132KV SIRANWALI	SATRAH	37701	290	22/08/2023	15.00
599			BAIGAY WALI	37705	90	22/08/2023	15.00
600			BASI WALA	37706	50	23/08/2023	14.00
601			MACHI KAY	37707	270	22/08/2023	09.00
602			WADALA	37702	210	22/08/2023	21.00
603			MOHAN PUR	37703	220	02/08/2023	12.00
604			TALHARA	37704	120	23/08/2023	14.00
605			MARHANA	37708	120	04/08/2023	10.00
606	405	132KV ZAFARWAL	SADWAL	40510	150	04/08/2023	09.00
607			FEROZ PUR	40512	170	04/08/2023	09.00
608			NONAR	40505	265	04/08/2023	09.00
609			SANGIAL	40509	220	03/08/2023	17.00
610			SANKHTRA	40511	105	04/08/2023	09.00
611			JAMMU GATE	40516	200	18/05/2024	16.00
612			KINGRA	40508	320	02/08/2023	11.00
613			THORO MANDI	40502	320	04/08/2023	11.00
614			RAHEEM ABAD	40515	235	04/08/2023	11.00
615			ZAFARWAL	40503	140	22/05/2024	17.00
616			GAGIAN	40514	260	22/08/2023	20.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
617	405	132KV ZAFARWAL	DHAMTHAL	40506	295	04/08/2023	09.00
618			JABAL	40504	245	04/08/2023	09.00
619			FAKHAR UD DIN	40501	240	04/08/2023	09.00
620			DARMAN	40513	320	06/08/2023	14.00
621	1302	132KV CITY HOUSING, GRW	WAFI CITY-FF	130201	50	30/05/2024	24.00
622			PHASE 2-D	130202	110	27/05/2024	23.00
623			MEGMA CERAMICS		220	27/05/2024	12.00
624			RESCUE		120	16/05/2024	11.00
625			WAFI CITY-EE	130203	110	28/05/2024	01.00
626			PHASE-1 BB	130204	160	23/05/2024	01.00
627	1088	132KV AWAN SHARIF	PEER NASEEB SHAH	108801	200	02/08/2023	00.38
628			BUTTER	108803	170	02/08/2023	00.33
629			BARNALA-1	108805	200	25/05/2024	17:00
630			KOT JAMEEL	108809	270	28/05/2024	9:00
631			NAJAN	108810	140	19/05/2024	9:00
632			QAZI SULTAN MEHMOOD	108802	110	02/08/2023	00.58
633			MARJAN	108804	150	02/08/2023	00.50
634			JALAL PUR SOBTIAN	108806	150	02/08/2023	00.42
635			PEER GOHAR UD DIN	108808	150	02/08/2023	00.38
636			BARNALA-2	108807	260	28/05/2024	17:00
637	467	132KV BHIMBER	BANDALA	46716	140	23/05/2024	17:00
638			KASCHANTAR	46717	300	27/05/2024	22:00
639			KOTLA - 1	46701	140	13/08/2023	00.83
640			SAMANI EXPRESS	46713	280	22/05/2024	20:00
641			R 2 KHJ. T. MILL	46704	100	20/08/2023	00.88
642			BHIMBER - 1	46702	310	22/05/2024	20:00
643			BHIMBER - 2	46707	300	27/05/2024	19:00
644			IND - 2	46710	200	23/05/2024	21:00
645			MARARIAN	46708	180	21/08/2023	00.58
646			R - 3 (SAMANI-I)	46705	10	23/05/2024	9:00
647			BARNALA	46706	340	20/05/2024	21:00
648			SADWAL	46712	140	19/08/2023	00.79
649			LANGRIAL	46714	140	24/05/2024	18:00
650			R 1 IFTIKHAR ABAD	46703	310	19/08/2023	00.71
651			SAMANI-2	46711	200	27/05/2024	20:00
652			IND - I	46709	180	27/05/2024	21:00
653			SABOUR	46715	80	27/05/2024	17:00
654	1275	132KV DAULAT NAGAR	DOGA	127501	80	02/08/2023	00.50
655			SHER GARH	127503	100	30/05/2024	15:00
656			LAMBHRA	127504	115	07/05/2024	22:00
657	1275	132KV DAULAT NAGAR	KAKRALI	127507	150	22/08/2023	00.00
658			LAHORIAN	127506	180	02/08/2023	00.58

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
659	1275	132KV DAULAT NAGAR	UMER WAL	127502	90	02/08/2023	00.58
660			BANIAN	127505	130	05/08/2023	00.00
661	644	132KV DINGA	DINGA CITY	64401	280	28/05/2024	0:00
662			THANA ROAD	64405	290	28/05/2024	0:00
663			NEW JINNAH	64408	150	04/08/2023	00.92
664			NOOR JAMAL	64403	150	04/08/2023	00.92
665			CHANNAN	64406	200	09/08/2023	00.96
666			NEW SAGGER	64407	200	28/05/2024	0:00
667			AMRA	64404	170	07/08/2023	00.71
668			JOURA	64402	180	07/08/2023	00.71
669	969	132KV GHUINKI	PEERO CHACK	96910	180	04/08/2023	00.54
670			IMAM BUKHARI	96908	200	04/08/2023	00.42
671			ADHA	96904	300	04/08/2023	00.92
672			LADHAR	96902	280	22/08/2023	00.29
673			QSA	96915	60	31/05/2024	12:00
674			FAIZUL HASSAN	96901	200	21/08/2023	00.88
675			BHALLOWALI	96909	200	21/08/2023	00.88
676			TRIGGRI SHARIF	96907	210	12/08/2023	00.96
677			CITY HOUSING SKT	96911	210	23/05/2024	22:00
678			JAMKAY CHEEMA	96912	280	21/08/2023	00.88
679			GHUINKI (IND-EXP-2)	96903	330	29/05/2024	16:00
680			KOT MANA (AKBARABAD)	96905	180	11/08/2023	01.00
681			IND-EXP-3	96906	220	24/08/2023	00.50
682			AWAN SPORTS	96913	90	29/05/2024	15:00
683			SILVER STAR	96914	80	17/08/2023	01.00
684	51	132KV GUJRAT NO. 1	GEPCO COMPLEX	5118	300	03/08/2023	00.00
685			SERVICE	5111	160	26/05/2024	11:00
686			SARGODHA ROAD	5101	190	29/05/2024	23:00
687			SABOWAL	5110	290	21/05/2024	16:00
688			KATHALA	5104	180	13/08/2023	00.75
689			RAILWAY ROAD	5113	205	06/08/2023	00.71
690			CHENAB	5115	205	22/08/2023	00.54
691			11KV FURNITURE MARKET	5116	220	08/08/2023	00.67
692			PLASCO	5120	45	25/05/2024	8:00
693			11KV EID GAH	5117	180	22/08/2023	00.96
694			SHEIKH PUR	5109	320	01/08/2023	00.96
695			11KV HAYAT PURA	5108	125	26/05/2024	16:00
696			TARIKHA	5119	255	23/05/2024	15:00
697			SHADIWAL	5114	330	03/08/2023	00.88
698			DHOOL	5102	330	22/05/2024	18:00
699			NANGRIAN WALA	5107	260	22/08/2023	00.63
700			SHAH DAULA	5112	150	13/08/2023	00.67

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
701	469	132KV GUJRAT NO. 2	STATE LIFE	46911	90	16/08/2023	00.50
702			FAIZAN - E - MADINA	46919	130	20/05/2024	21:00
703			SHADMAN	46920	320	05/08/2023	00.00
704			11KV CHAK KALA	46918	160	18/08/2023	00.96
705			CIRCULAR ROAD	46915	190	06/08/2023	00.00
706			JAHANGIR	46910	240	21/08/2023	00.92
707			MUSLIM BAZAR	46903	240	21/08/2023	00.67
708			COURT ROAD	46905	290	12/08/2023	00.83
709			BOKEN SHARIF	46917	290	06/08/2023	00.75
710			JINNAH ROAD	46904	270	24/08/2023	00.92
711			NEW SERVICE	46907	330	24/08/2023	00.00
712			JINNAH PUBLIC	46908	170	24/08/2023	00.96
713			GUJRAT UNIVERSITY	46913	85	04/08/2023	00.50
714			DAULAT NAGAR	46909	200	23/05/2024	14:00
715			GAGIAN	46902	260	03/08/2023	00.92
716			MARGHAZAR	46906	310	31/08/2023	00.88
717			MADINA	46916	240	23/05/2024	0:00
718			BIOWALI	46901	160	21/08/2023	00.54
719			JAIL ROAD	46914	330	03/08/2023	00.00
720	1159	132KV GOHAD PUR	KAPOOR WALI	115902	150	21/08/2023	00.88
721			KHAMBRANWALA	115906	200	13/08/2023	00.58
722			BAGHWAL AWAN	115910	155	21/08/2023	00.88
723			BOUNKAN	115908	190	04/08/2023	00.50
724			MUGHAL PURA	115907	130	02/08/2023	00.54
725			TANNERY ZONE	115909	-	-	-
726			NANGAL	115905	160	04/08/2023	00.58
727			CHITTI SHIEKHAN	115901	200	22/08/2023	00.88
728			MACHI KHOKHAR	115904	240	22/08/2023	01.00
729			GOHAD PUR	115903	200	02/08/2023	00.63
730	323	132KV HEAD MARALA	UPPER STREAM	32305	235	21/08/2023	00.92
731			SEERH	32306	165	20/05/2024	21:00
732			BAJWAT-1	32308	200	21/08/2023	00.88
733			COLONEY	32302	12	10/05/2024	12:00
734			CHAPRAR	32307	330	03/08/2023	00.88
735			DOWN STREAM	32303	225	01/08/2023	00.92
736			BARRAGE	32301	7	22/05/2024	20:00
737	62	132KV HELLAN	DINGA	6208	210	21/08/2023	00.83
738			PINDI KALU	6215	160	21/08/2023	00.79
739			PAHRIAN WALI	6210	330	21/08/2023	00.83
740			JANO CHACK	6214	130	29/05/2024	22:00
741			HELLAN	6211	220	21/08/2023	00.88
742			RLY. ST: C/WALA	6213	150	21/08/2023	00.88
743			CHHIMMAN	6209	310	02/08/2023	00.50
744			MURALA	6212	160	28/05/2024	22:00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
745	67	132KV J.P JATTAN	SHAHBAZ PUR	6705	160	19/05/2024	22:00
746			SAGGER JPJ	6708	270	04/08/2023	00.33
747			KURRY JPJ	6707	190	12/08/2023	00.38
748			PERO SHAH	6709	170	08/08/2023	00.83
749			EXPRESS BARNALA	6711	360	21/08/2023	00.83
750			FATEH PUR	6701	180	09/08/2023	00.88
751			KHANOWAL	6717	170	22/08/2023	00.96
752			NEW NOSHERA	6718	160	28/05/2024	23:00
753			SURAKH PUR	6716	140	03/08/2023	00.38
754			BARILA SHARIF	6712	270	02/08/2023	00.38
755			TANDA	6706	150	13/08/2023	00.42
756			MAIN BAZAR	6704	130	02/08/2023	00.50
757			SHABIR SHARIF SHAHEED	6710	240	12/08/2023	00.88
758			BHAGOWAL	6713	210	08/08/2023	00.92
759			RAMKAY	6715	130	08/08/2023	00.83
760			ISLAM GARH	6702	240	08/08/2023	00.96
761			KARIANWALA	6703	150	08/08/2023	00.54
762			ABDUL SATTAR EDHI	6714	190	03/08/2023	00.88
763	107	132KV KHARIAN	NEW KHARIAN CANTT	10705	240	23/05/2024	18:00
764			DHORIA	10707	300	03/08/2023	00.96
765			KHARIAN CITY	10701	280	10/08/2023	00.58
766			THQ KHARIAN	10716	35	30/05/2024	13:00
767			SAEED SHAHEED	10713	180	19/05/2024	23:00
768			A.R. SHAHHED	10715	210	09/08/2023	00.79
769			M.E.S	10703	180	23/05/2024	14:00
770			I. J CANTT	10709	130	21/08/2023	00.96
771			KARYIALA	10706	170	02/08/2023	00.46
772			MAIN BAZAR	10711	230	02/08/2023	00.08
773			RANDHEER	10712	215	27/05/2024	23:00
774			MALKAH	10708	250	09/08/2023	00.08
775			NOONAN WALI	10704	230	21/05/2024	21:00
776			CENTRAL COMMAND	10714	240	20/05/2024	22:00
777			DHUNNI	10710	170	24/08/2023	00.67
778			JANDA WALA	10702	345	12/08/2023	00.88
779	510	132KV KOTLI LOHARAN	KOTLI EAST	51003	280	22/08/2023	00.96
780			KULLOWAL	51004	190	08/08/2023	01.00
781			KHAROTTA SAIDAN-1	51002	200	22/08/2023	00.96
782			ASHRAF PURA	51001	270	22/08/2023	00.96
783	85	132KV K.SHEIKHAN	MAKEWAL	8504	180	12/08/2023	00.79
784			KUTHIALA SHEIKHAN	8511	300	22/08/2023	00.88
785			RUKKAN	8501	220	12/08/2023	00.92

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
786	85	132KV K.SHEIKHAN	MALIKWAL T. MILLS	8508	-	-	-
787			NAIN	8505	250	04/08/2023	00.38
788			DERA MIAN SAHIB	8509	60	29/05/2024	22:00
789			BOSAL		140	31/05/2024	22:00
790			SAIDA	8506	320	03/08/2023	00.33
791			MANGAT	8503	190	03/08/2023	00.46
792			QADIRABAD	8513	160	21/05/2024	22:00
793			COLLEGE RD. PHALIA	8512	50	05/08/2023	00.38
794			SAHNA	8502	320	11/08/2023	00.88
795			MIANWAL	8507	300	10/08/2023	00.75
796			GOJRA	8514	380	03/08/2023	00.90
797			GHOAR	8510	270	22/08/2023	00.88
798			FARUKH PUR	8515	240	05/08/2023	00.54
799			BHEKHEWAL	8516	310	10/08/2023	00.38
800	116	132KV LALA MUSA	MAIN BAZAR	11613	200	01/08/2023	00.75
801			DHAMA ROAD	11614	225	23/08/2023	00.67
802			GULIANA	11602	170	03/08/2023	00.79
803			DEENA CHAK	11610	300	23/08/2023	00.54
804			KHAWAS PUR	11617	-	-	-
805			UMER CHACK	11615	280	30/08/2023	00.58
806			LALA MUSA	11603	220	03/08/2023	00.92
807			MACHIWAL	11612	250	22/08/2023	00.92
808			PAK PUR	11604	260	13/08/2023	00.46
809			ALI CHACK	11607	350	01/08/2023	00.92
810			BASCO	11601	280	02/08/2023	00.50
811			KAKA SAHIB	11606	260	03/08/2023	00.96
812			BHAGWAL	11616	185	04/08/2023	00.58
813			COMMITTEE ROAD	11618	160	04/08/2023	00.92
814			BHADDAR	11619	110	03/08/2023	00.92
815			REHMANI	11609	350	02/08/2023	00.71
816			PASWAL	11605	230	31/08/2023	00.67
817			CHAKORI SHARIF	11620	170	25/05/2024	13:00
818	823	132KV LALA PUR	CHOBARA	82304	160	22/08/2023	20:00
819			BAJRA GARHI	82308	180	01/08/2023	17:00
820			BAGHOWAL	82307	220	12/08/2023	9:00
821			SABAZ PEER	82310	170	22/08/2023	19:00
822			KHANA WALI	82301	250	12/08/2023	00.38
823			CHAWINDA CITY	82303	240	05/08/2023	01.00
824			NEW KHANIWALI	82306	250	12/08/2023	00.38
825			PINDI BHAGO	82305	280	02/08/2023	00.29
826			KHOKHAR HAIDER	82311	160	01/08/2023	00.42
827			MIRAJ KEY	82302	190	22/08/2023	00.83
828			MANIALA	82309	170	20/08/2023	00.71

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
829	321	132KV NEW MALAKWAL	DHUP SARRI	32105	105	04/08/2023	00.42
830			ALA	32101	265	04/08/2023	00.42
831			CHOT	32102	195	04/08/2023	00.42
832			SHAMHARI	32106	230	04/08/2023	00.42
833			MIANI	32104	305	09/08/2023	01.00
834			MALAK WAL	32103	150	09/08/2023	01.00
835			ISLAM PURA	32107	215	09/08/2023	01.00
836			ANYAT		195	29/05/2024	23:00
837	632	132KV M.B.DIN	COMPLEX	63215	320	06/08/2023	00.92
838			GURRAH	63204	300	22/08/2023	00.96
839			SHAH TAJ	63207	250	19/08/2023	01.00
840			SOHAWA	63216	190	18/05/2024	10:00
841			MONG	63205	180	25/05/2024	22:00
842			KHEWA	63203	230	22/08/2023	00.83
843			GULSHEN-E-IQBAL	63202	175	22/08/2023	00.63
844			KOT BALOCH	63201	190	26/05/2024	22:00
845			CRYSTAL	63214	370	22/08/2023	00.96
846			KACHEHRI ROAD	63211	240	22/08/2023	00.63
847			PHALIA ROAD	63208	280	22/08/2023	00.04
848			M.B. DIN CITY	63212	330	22/08/2023	00.63
849			JHOLANA	63210	380	22/08/2023	00.96
850			SUFI CITY	63213	50	29/05/2024	14:00
851			WASU	63209	350	22/08/2023	01.00
852			CANAL	63206	270	22/08/2023	00.04
853	623	132KV MANGOWAL	KANG	62311	160	14/08/2023	00.46
854			PAK WIGAH	62309	330	04/08/2023	00.38
855			KUNJAH T/MILL	62303	-	-	-
856			JOKALIAN	62305	190	19/08/2023	00.79
857			MANGOWAL	62302	310	19/08/2023	00.46
858			RANSEEKAY	62307	240	14/08/2023	00.46
859			JHUEORWALI	62308	190	21/08/2023	00.88
860			FARUKI PULP	62310	-	-	-
861			NOSHO PAK	62312	190	14/08/2023	00.46
862			GHAZI	62313	210	20/08/2023	00.50
863			JASSOKI	62314	50	21/05/2024	20:00
864			MACHIANA	62304	260	20/08/2023	00.58
865			KUNJAH	62306	140	14/08/2023	00.71
866			LANGAY	62301	300	14/08/2023	00.46
867	1094	132KV OLD POWER HOUSE SKT	ISLAM PURA	109408	220	08/08/2023	00.67
868			FORT	109402	200	23/08/2023	00.67
869			HAJI PURA	109404	230	22/08/2023	00.96
870			TEHSIL BAZAAR	109401	90	01/08/2023	00.79
871			CIRCULAR ROAD 1	109407	85	29/05/2024	17:00
872			BOGRAH	109405	250	23/08/2023	00.63

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
873	1094	132KV OLD POWER HOUSE SKT	GREEN WOOD STREET	109403	235	22/08/2023	00.67
874			IMAM SAHIB 1	109406	225	21/08/2023	01.00
875	201	132KV P.Rd. SIALKOT	HUNDAL	20103	300	03/08/2023	00.79
876			GUNNA	20107	180	03/08/2023	00.96
877			CIRCULIR ROAD	20101	235	01/08/2023	01.00
878			AIMANABAD ROAD	20120	280	01/08/2023	00.54
879			PAKKI KOTLI	20106	250	01/08/2023	01.00
880			RASOOL PUR	20110	250	09/08/2023	00.88
881			RANG PURA	20109	380	22/08/2023	01.00
882			ISLAMABAD	20117	360	22/08/2023	01.00
883			WALLENY	20123	80	24/05/2024	8:00
884			OORA	20119	250	30/05/2024	23:00
885			VARIO	20116	270	13/08/2023	00.42
886			BUDIANA EXP.	20111	320	10/08/2023	00.42
887			LANGRI WALI	20112	270	01/08/2023	00.88
888			PURA HEERAN	20114	300	04/08/2023	00.25
889			BHADAL	20104	180	29/05/2024	16:00
890			NEIKA PURA	20115	290	13/08/2023	01.00
891			GOPAL PUR	20118	220	02/08/2023	00.58
892			IMAM SAHIB	20108	260	01/08/2023	00.79
893			HABIB PURA	20105	270	01/08/2023	00.54
894			ANWAR KHAWAJA	20121	31	12/08/2023	00.42
895			VISION TECHNOLOGIES INDUSTRY	20122	110	04/05/2024	11:00
896	1080	132KV PHALIA	PHALIA CITY	108001	215	20/08/2023	00.92
897			BOHAT	108003	270	01/08/2023	00.92
898			DHAL	108005	335	11/08/2023	00.67
899			GUJRAT ROAD	108008	230	21/08/2023	00.88
900			IQBAL TOWN	108009	140	20/05/2024	22:00
901			MANDI ROAD	108002	210	05/08/2023	00.88
902			MAIN BAZAAR	108004	300	03/08/2023	00.96
903			LUK	108006	245	22/08/2023	00.42
904			DHAREIKAN	108007	235	20/08/2023	00.83
905	1081	132KV RATTI	GFC	108111	65	11/05/2024	10:00
906			G T ROAD	108105	130	03/08/2023	00.63
907			SHAHEEN	108107	90	28/05/2024	5:00
908			KALRA	108101	190	31/05/2024	4:00
909			AHMED ABAD	108104	220	22/08/2023	00.92
910			GHAURI	108102	180	03/08/2023	00.67
911			WAHID INDUSTRY	108110	70	12/05/2024	12:00
912			DAUD PUR	108112	180	04/08/2023	00.29
913			MIAN M. PANAH	108103	240	19/08/2023	00.33

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
914	1081	132KV RATTI	S I E	108106	150	29/05/2024	12:00
915			NAYYAER	108109	100	08/08/2023	00.75
916			GULZAR-E-MADINA	108108	200	22/08/2023	00.63
917			NOOR UL DIN	108113	158	21/05/2024	16:00
918	187	132KV SAMBRIAL	AIR PORT	18711	70	23/05/2024	20:00
919			MANDI	18707	330	23/05/2024	3:00
920			MALKHANWALA	18702	250	22/08/2023	00.58
921			BADDOKAY	18713	180	22/08/2023	00.29
922			KOT DINA	18703	150	13/08/2023	00.58
923			TRANGO TEK INDUSTRY	18717	35	05/05/2024	11:00
924			MAJRA	18704	280	22/08/2023	00.88
925			KOPRA	18716	230	22/08/2023	00.58
926			E.P.Z - 3	18710	75	22/08/2023	00.96
927			DAR UL ISLAM	18712	305	08/08/2023	00.96
928			BEGO WALA	18701	150	03/08/2023	00.96
929			DHANA WALI	18714	165	22/08/2023	00.63
930			SAMBRIAL	18705	220	23/08/2023	00.63
931			RANDHEER BAGRIAN	18715	165	22/08/2023	00.83
932	511	132KV SIALKOT CANTT	MOHAMMAD PURA	51102	300	21/08/2023	00.83
933			SADAR BAZAR	51106	240	26/05/2024	21:00
934			CLOCK TOWER	51112	300	21/08/2023	00.83
935			DALLO WALI	51109	320	21/08/2023	00.71
936			MARKIWAL	51111	200	21/08/2023	00.83
937			SAID PUR	51114	300	21/08/2023	00.92
938			BALLANWALA	51108	120	22/08/2023	00.92
939			SHADIWAL	51110	230	22/08/2023	00.79
940			COURT ROAD	51118	240	22/08/2023	00.96
941			GULBAHAR	51120	300	22/08/2023	00.67
942			PARIS ROAD	51103	220	21/08/2023	00.67
943			KUNDAN PUR	51107	300	21/08/2023	00.67
944			MES	51105	250	21/08/2023	00.67
945			BRANDS VILLAGE	51121	20	28/05/2024	15:00
946			ASKARI COLONEY	51113	100	28/05/2024	1:00
947			GHAZI PUR	51117	320	22/08/2023	00.88
948			KALMA CHOWK	51123	180	22/08/2023	00.92
949			KAMAN WALA	51104	320	22/08/2023	01.00
950			RAILWAY ROAD	51101	240	22/08/2023	00.71
951			CHRISTIAN TOWN	51115	300	22/08/2023	00.92
952			BHIRTH	51119	160	22/08/2023	00.92
953			GARISON	51116	170	21/08/2023	00.83
954			JINAH ROAD	51122	110	22/08/2023	00.92
955	375	132KV SIALKOT CITY	ROVAIL PURA	37531	250	22/08/2023	00.96
956			GHOUS PURA	37525	290	23/05/2024	13:00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
957	375	132KV SIALKOT CITY	MULK SHAH WALI	37529	200	22/08/2023	00.67
958			FACTORY AREA	37519	240	23/08/2023	00.46
959			JINNAH TOWN	37520	140	22/08/2023	00.58
960			MUBARIK PURA	37503	150	22/08/2023	00.96
961			FATEH GARH	37530	240	22/08/2023	00.71
962			INDUSTRIAL -1	37524	340	23/08/2023	00.42
963			MAIN BAZAR	37516	70	22/08/2023	00.04
964			SHAHAB ROAD	37518	240	22/08/2023	00.79
965			S.I.E. NO. 1	37523	240	23/08/2023	00.46
966			CHAND CHOWK	37527	200	03/08/2023	00.67
967	444	132KV SIALKOT NEW	RORAS ROAD	44425	180	22/08/2023	00.67
968			ABBOT ROAD	44402	285	03/08/2023	00.71
969			MODEL TOWN	44423	260	22/08/2023	01.00
970			MURAD PUR	44413	135	24/05/2024	12:00
971			IQBAL TOWN	44415	255	03/08/2023	00.71
972			MURALA ROAD	44406	275	04/08/2023	00.50
973			KHOKHAR TOWN	44422	190	23/08/2023	00.63
974			MUSLIM TOWN	44420	275	03/08/2023	00.71
975			MUZZAFAR PUR	44410	255	09/08/2023	00.63
976			IMTIAZ SUPER STORE	44424	45	22/05/2024	17:00
977			MIANA PURA	44416	230	19/08/2023	00.04
978			BUTTER	44405	325	23/08/2023	00.63
979			RAJCO INDUSTRY	44426	35	09/05/2024	12:00
980			CITY VILLAS	44427	10	21/05/2024	0:00
981			ADALAT GARAH	44417	245	17/08/2023	00.63
982			KASHMIR ROAD	44419	250	22/08/2023	00.67
983			MALKEY KALAN	44412	365	03/08/2023	00.71
984	1155	66KV RASOOL	DARA PUR	115501	205	04/08/2023	00.38
985			NEW RASOOL	115502	150	22/08/2023	00.83
986			GULZAR	115503	190	02/08/2023	00.46
987	44	220KV NTDC GHAKHAR	GHAKHAR	4414	360	03/08/2023	24.00
988			S S BOARD	4409	280	22/08/2023	22.00
989			KOT NOORA	4405	150	21/08/2023	18.00
990			BADDO KE	4401	255	22/08/2023	19.00
991			CHAONI	4404	315	15/08/2023	14.00
992			T K WALI	4411	245	22/08/2023	15.00
993			NEW FATEH GARH	4415	215	23/08/2023	14.00
994			N L C	4406	20	23/08/2023	19.00
995			RAILWAY STATION	4402	275	10/08/2023	24.00
996			GUJRANWALA CANTT.-1	4417	300	10/08/2023	14.00
997			GILL WALA	4403	110	18/08/2023	09.00
998			ASKARI	4419	60	18/08/2023	02.00
999			NAT KALAN	4407	170	02/08/2023	08.00

SR#	Grid Code	NAME OF GRID STATION	FEEDERS NAME	Feeder Code	LOAD	DATE	TIME
1000	44	220KV NTDC GHAKHAR	AHMED NAGAR	4418	220	18/08/2023	10.00
1001			JALAL	4412	230	20/08/2023	11.00
1002			SUGHAR MILL	4420	190	16/08/2023	12.00
1003			MAIZ	4413	100	27/05/2024	16.00
1004			OUJLA	4421	170	27/05/2024	17.00
1005	902	132KV SHEIKHU PURA INDUSTRIAL (LESCO)	BAIG PUR	90203	120	09/08/2023	13.00
1006			DEEPAY PUR	90204	145	15/08/2023	22.00
1007			MALLAH VIRKAN	90206	205	11/08/2023	12.00
1008			SHAMSHA	90208	150	21/08/2023	12.00
1009	445	NANDI PUR HYDEL POWER STATION	NDP-4 (Colony)	44504	10	9/05/2024	13.00
1010	813	220/132 KV SAHOWALA	UGGOKI	81305	350	04/08/2023	00.63
1011			BOPALWALA	81302	340	06/08/2023	00.42
1012			SAHOWALA	81301	225	01/08/2023	01.00
1013			QAZI CHACK	81304	370	08/08/2023	00.92
1014			JOURIAN	81306	340	04/08/2023	00.63
1015			HMZ	81303	190	22/08/2023	00.63
1016			AIR PORT	81307	80	16/08/2023	00.25
1017			FORWARD SPORTS	81308	180	05/08/2023	00.33
1018	242	BHABHRA (FESCO)	BHEROWAL	24205	330	06/08/2023	00.46
1019			HUMBER	24207	210	06/08/2023	00.42
1020			KOT HASSE KHAN	24210	170	13/08/2023	00.38
1021			JASSOWAL	24202	215	06/08/2023	00.38
1022			WARYAM		80	26/05/2024	20:00
1023	585	132 KV HEAD FAQIRIAN (FESCO)	MONA	58511	75	04/08/2023	00.54
1024			DAFFAR	58510	150	30/05/2024	22:00
1025			BARMUSA	58515	160	03/08/2023	00.96
1026			MIANA GONDAL	58504	160	28/05/2024	12:00
1027			SANDA	58512	210	03/08/2023	00.92

Annex-06

GEPCO Demand Forecast Report 2024

GUJRANWALA ELECTRIC POWER COMPANY LIMITED

Ph.#055-9200507
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OFFICE OF CHIEF EXECUTIVE OFFICER, GEPCO LTD.
565-A, MODEL TOWN GEPCO HEADQUARTERS G.T. ROAD
GUJRANWALA

No. 3535-41 /MIRAD/MTLF Dated: 04 / 10 /2024

The Registrar,
National Electric Power Regulatory Authority (NEPRA),
NEPRA Tower, Attaturk Avenue (East),
Sector G-5/1, Islamabad.

Subject: - **MEDIUM TERM LOAD FORECAST (MTLF) IN RESPECT OF GEPCO REGARDING ENERGY (MWH) AND POWER (MW) DEMAND FORECAST WITH BASE YEAR 2023-24, CURRENT YEAR 2024-25 AND FORECAST PERIOD 2025-26 TO 2033-34**

GEPCO has developed its Medium-Term Load/ Demand Forecast (MTLF) using PMS methodology with 2023-24 as base year, 2024-25 as current year and 2025-26 to 2033-34 as forecast period.

GEPCO prefers to submit MTLF based upon PMS for the above subjected period for kind consideration of the honorable Authority in compliance with NEPRA Distribution Code and NEPRA Market Commercial Code. It may kindly be noted that mentioned Demand Forecast forms the basis for development of Business Plan 2024-25 to 2029-30 and Power Acquisition Program 2024-25 to 2029-30; to be submitted in due course of time, subject to approval of IGCEP 2024.

For any further clarifications, GEPCO may be reached as per below;
1. Engr. Malik Muhammad Junaid, Manager (DF & TP) MIRAD, GEPCO. 0318-3990311
2. Engr. Farhan Hussan Javed. Dy. Manager (DF) MIRAD, GEPCO, 0318-3991829

~~Chief Executive Officer~~
GEPCO GUJRANWALA

Copy to: -

i. Director General (MIRAD) GEPCO, Gujranwala
ii. DMD (SO). NPCC NTDC, Sector H-8/1, Islamabad
iii. Head Market (O&D) CPPA-G, Shaheen Plaza, 73-West. AK Fazl-e-Haq Road, Blue Area, Islamabad
iv. GM (PSP) NTOC, 4th floor, PIA Tower, Egerton Road, Lahore
v. GM (Technical) GEPCO Headquarters, Gujranwala
vi. Chief Engineer (P&E) GEPCO Headquarters. Gujranwala
vii. Master File

2024

MEDIUM TERM LOAD FORECAST

2024-25 TO 2033-34

GUJRANWALA ELECTRIC POWER COMPANY, LIMITED

ACKNOWLEDGEMENT

The input data for the Power Market Survey (PMS) has been sourced from various departments of GEPCO, including the Management Information System (MIS), Customer Services Directorate, Operation Directorate, Planning & Engineering Directorate, Development / PMU Directorate, and M&T Department. Additionally, we reached out to Punjab Small Industrial Corporation (PSIC), Gujranwala Development Authority (GDA), and the Chamber of Commerce in Gujranwala, Sialkot, and Gujrat to gather data on planned industrial estates and housing societies.

The following Officers/Engineers from the Market Implementation & Regulatory Affairs Department (MIRAD) at GEPCO developed this Medium-Term Load Forecast (MTLF) report based on historic data, under the supervision of Mr. Irfan Rafique, Director General of MIARD GEPCO:

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Demand / Load Forecast TEAM
MIARD, GEPCO

Dated: 03-10-2024

EXECUTIVE SUMMARY

Gujranwala Electric Power Company (GEPCO), incorporated as a Public Limited Company on 25th April 1998, is responsible for the delivery of electricity to over 4.7 million consumers (population of around 18.5 million) of all civil districts of Gujranwala Division in the province of Punjab, Pakistan as set out in GEPCO's Distribution License No. 04/DL/2023 and Supplier of Last Resort License No. SOLR/04/2023, granted by NEPRA under the NEPRA Act on May 09, 2023 and December 27, 2023 respectively.

As a result of the restructuring of WAPDA's Power Wing, GEPCO assumed its official operations and is since then being headed by a Chief Executive Officer (CEO). GEPCO pays a power purchase price (in Rs/kWh energy charge & Rs. /MW capacity charge) for the electricity it procures through the Central Power Purchasing Agency (CPPA), which would include the generation and transmission charges regulated by NEPRA. In line with the Vision and Mission statements of the Company, the major objectives of the company include ensuring adequate, quality, 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.

This load forecast is developed by conducting Power Market Survey (PMS), where the bottom-up approach is applied considering the best international practices for the development of ten-years forecast which is called Medium-term Load Forecast (MTLF) in facilitation with Power System Planning, National Transmission and Dispatch Company (NTDC).

It has been noted that energy sales have increased slightly from 10,455 to 10,573 GWh in the year 2023-24, marking 1% rise compared to the previous year. Despite this increase, the business has not achieved its normal growth attributed to various factors, including the economic challenges in Pakistan, elevated electricity prices, exponential growth of net-metering and seasonal variations, notably cooler temperatures compared to the preceding year.

The year 2023-24 has been taken as the base year and the forecast horizon is ten-years up to 2033-34 which includes 2024-25 as current year and forecast period is 2025-26 to 2033-34. The base year sale data (consumer-category wise energy sale of each feeder) and the expected spot loads data at the locations of different sub-stations have been collected by GEPCO Demand Forecast team besides Transmission & Distribution losses along with the loss reduction plans, historical category-wise sale and number of consumers. Data for the base year has also been adjusted for the estimated amount of un-served energy (load shedding) in order to have realistic figures of energy consumption. Furthermore, this report is updated on yearly basis, in order to capture any potential drastic change in consumer consumption pattern.

In the year 2023-24, the recorded peak demand of GEPCO was 2,425 MW, energy sale was 10,573 GWh, energy purchased was 11,844 GWh and total energy supplied (surplus / export) by net-metering customers was 99.76 GWh. In the total energy sale for the year 2023-24, the shares of domestic sector (including General Services and AJK), industrial sector, tube well and commercial sectors were 59.6%, 23.3%, 4.4% and 6.9% respectively. The total number of consumers in 2023-24 were 4.709 million, and number of consumers in various categories were 4.103 million in domestic

(including General Services and AJK), 0.439 million in commercial, 0.085 million in industrial sector and 0.057 million in agricultural sector.

The Low (Recorded) Forecast results show that in the years 2029-30 and 2033-34 energy sale will be 10,515 GWh and 10,203 GWh, peak demand will be 2,755 MW and 3,118 MW, and energy purchased from national system will be 9,760 GWh and 7,524 GWh respectively. For the period 2023-24 to 2033-34, annual average compound growth rate of energy sale, peak demand and energy purchased will be -0.36%, 2.46% and -4.44% respectively.

The Base (Computed) Forecast results show that in the years 2029-30 and 2033-34 energy sale will be 10,882 GWh and 10,570 GWh, peak demand will be 2,969 MW and 3,350 MW, and energy purchased from national system will be 10,161 GWh and 7,924 GWh respectively. For the period 2023-24 to 2033-34, annual average compound growth rate of energy sale, peak demand and energy purchased will be -0.34%, 2.39% and -4.27% respectively.

GEPCO's 8th STG Plan has already been approved by BOD GEPCO which has been revised and duly approved by BOD based on latest demand trends and change of timelines of projects. New Grids, projects of Addition / Augmentation of Power Transformers are incorporated in this report for preparing the status of overloaded grids and resultantly, the overload grid stations result show that **Zero** (0) grid stations will be overloaded on 100% loading criteria up-to year 2033-34. This report also indicates that there will be one (1) grid station overloaded on 80% loading criteria in the year 2031-32, two (02) girds will be overload on same criteria till 2033-34. Till the year 2033-34 a total of only 3 no. grid stations will be overloaded.

The report also discusses the impacts of emerging technologies like Net Metering and Electric Vehicles (EVs) etc. on the conventional demand forecast. Net Metering has been exponentially increasing in GEPCO service territory since Government's Alternative & Renewable Policy, 2019. GEPCO stands at 234.5MW installed capacity of Net Metering in base year 2023-24. It has been projected that there will be addition of 5,184 MW Net Metering capacity till 2033-34 reaching total installed Net Metering capacity to 5,418.7 MW subject to the continuation of current net-metering regulations/ policy. This additional capacity of Net metering will reduce the projected sale from 14,276 GWh to 10,203 GWh in year 2033-34. This additional Net Metering will also reduce system level purchase (CDPs) from 11,844 GWh to 7,524 GWh in year 2033-34. Considering the availability timing of embedded DG (Solar PV) Net Metering facilities vis-à-vis the usual system peak timing of GEPCO, no impact on relevant demand (MW) levels is expected. This projection of net-metering, is based on the assumption of continuation of existing net-metering policies and does not constitute commitment/ confirmation from GEPCO regarding ability of Distribution and Transmission Network to host this distributed generation.

While considering impact of Electric Vehicles (EVs) on demand forecast, it has been understood that EVs will not have immediate effect on the conventional demand forecast of the GEPCO, as there is only one charging stations installed in the GEPCO service territory till date and apparently adoption of EVs in Gujranwala division is paced slowly.

The report also includes separate forecast for the Bulk Power Consumers (BPCs) in GEPCO. GEPCO has 127 no. eligible Bulk Power Consumers with sanctioned load of 391.5 MW in the base year 2023-24. As per the forecast in hand, the volume of eligible

BPCs is expected to grow 229 No. of consumers with sanctioned load up to 694 MW by the year 2033-34. Till date, GEPCO did not receive notice of cessation of supply, under section 22 of NEPRA Act from any BPC.

There are 13 no. consumers having captive power plants in GEPCO, and as per recent correspondence, none of them is willing to shift extra demand on GEPCO's network.

There are 2 no. SPPs/ Embedded generators connected with distribution network of GEPCO. Impact of SPPs on GEPCO demand has been incorporated in demand forecast.

It is evident from above discussion that, the growth trend in peak demand of GEPCO is very nominal, owing to current economic challenges in the country, increased price of electricity and climate change. Moreover, the growth in sales trend is expected to be negative due to exponential growth in net-metering/ solarization. Till revival of economy of the country and review of net-metering/ solarization regulations and policies, the reasonable growth is not expected in demand/ sales.

Table of Contents

List of Figures

List of Tables

List of MTLF Result Tables

1. INTRODUCTION

This report is the 3rd issue of Medium-Term Load Forecast (MTLF) based upon Power Market Survey (PMS) prepared by GEPCO's Demand Forecast (DF) Team after inception of Whole Sale Market (CTBCM) in Pakistan. The period of said report is 2023-24 to 2033-34 i.e., 10-years. Previously Power System Planning, NTDC kept publishing PMS report for all DISCOs but now with establishment of MIRAD department, GEPCO has started preparing and publishing its own MTLF report in compliance with regulatory requirements.

The report consists of year wise detailed forecast of energy sale and power demand for the whole company and each sub-station within the company's distribution network. In addition, forecast for Civil Administrative areas such as Divisions and Districts served by the company's distribution network is also computed and depicted in different tables. The forecasted recorded and computed peak demand of GEPCO has been graphically presented in **Figure 1-1**.

Long term planning requires a system level forecast of total generation requirement and peak demand. On the other hand, transmission and distribution network planning requires more load level and geographic details to assess location, timing and loading of individual lines, substations and transformation facilities. The following figure shows the recorded and computed peak demand of GEPCO for the current forecast period:

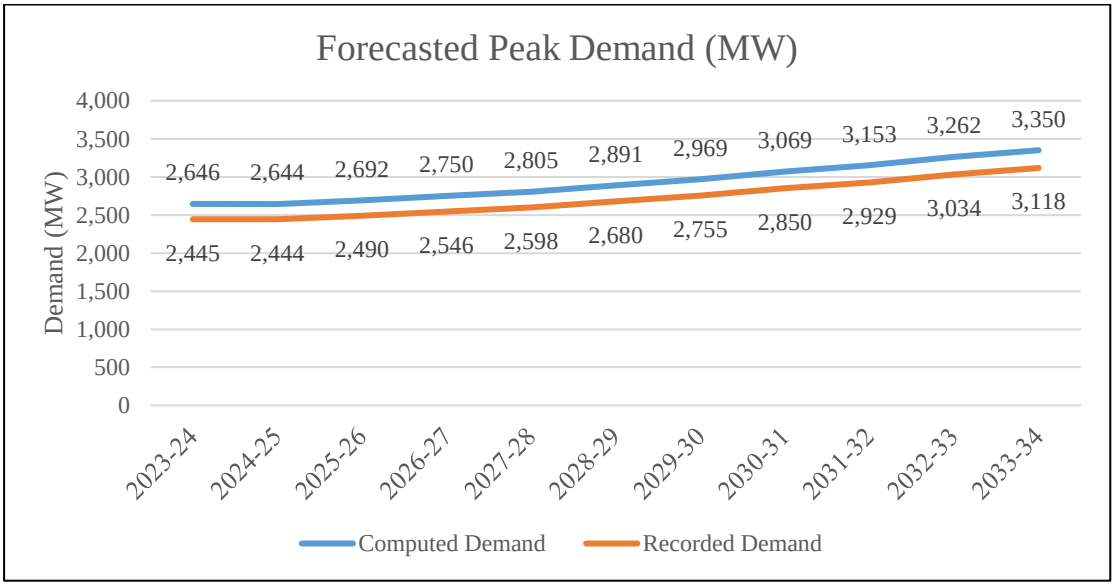


Figure 1-1: Recorded Peak Demand Forecast

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 the level of details required depends upon different planning applications and operations for which the forecast will be used.

1.1. Regulatory Compliance

1.1.1. The Distribution Code

The Distribution Code, 2005 approved by NEPRA ensures that Distribution Licensee's (GEPCO) network is planned, developed, operated and maintained in an efficient, safe, reliable, coordinated and economical manner from technical stand point. **The Distribution Planning Code (DPC)** of The Distribution Code contains distribution and sub-transmission system planning, methodology and procedures, and specifies criteria and principles to be followed by Distribution Licensee in the planning and development of its Distribution and Sub-Transmission System. **DPC-5** of This Distribution Planning Code specifies Load Demand Assessment and Forecasting Techniques. DPC-5.1 states as follows:

"The Licensee shall prepare each year a short to medium term load forecast for a period of 5 (five) years (the planning period shall be 5 years. The load forecast used for operating purposes can be for one year only) for its Service Territory as well Concessional Territory Area of Supply taking into account historic and the probable load growth and consumption pattern of the consumers. The Licensee shall adopt appropriate and established load forecasting methodology using reliable data and relevant indices. The methods may include one or more of the following.

a. Historical population and load growth analysis
b. Land use and zoning methods
c. End-use energy methods
d. Any other reasonable and justifiable method**"**

DPC-5.2 states as follows:

"The load forecast shall define a specific load area and type of consumers and for a specific time frame. The specific load area shall be identified such as residential, commercial, light industrial and heavy industrial. The time period shall be identified as short to medium term (1-5 years).

The Licensee shall work out the annual energy requirement and Peak Demand for each of the coming five years relating to each point of interconnection on the basis of its load forecast.

The Licensee shall install metering at each substation to provide kVA demand per substation and kVA demand on each 11kV feeder. The diversity factor can be calculated as follows:

$$Diversity\ Factor = \frac{Sum\ of\ all\ feeders\ MW\ demands}{Substation\ MW\ demand}$$

If this value is less than 1, it is an indication that the metering or readings are in error.

This information can be used for Load Demand forecasting to determine kVA/substation or substation served area and kVA feeder demand/feeder and kVA demand per feeder area served.

Energy sales can be used to determine the required generation forecasts. Therefore, the Licensee shall provide kWh meters at the substations. The energy meters will provide sales information and can be used to determine the system load factor as follows;

$$Load\ Factor = \frac{kWh\ in\ period}{Peak\ kW\ demadn\ x\ hours\ in\ period}$$

Load can be used to calculate kW demand for substation or a particular feeder and with a given power factor can calculate the kVA demand of the respective sub-station or feeder.**"**

1.1.2. The Grid Code

The Grid Code, 2023 approved by NEPRA covers day-to-day and long-term principles, standards, procedures and guidelines for Planning, Operation, Dispatch, and Connection purposes for normal and abnormal NTDC transmission system conditions.

The Planning Code (PC) of the Grid Code provides requirements for the planning process by which the objectives of system security, adequacy, reliability, and performance shall be satisfied. PC-4.1 of this Planning Code specified planning data to be provided by all users of National Grid to NTDC and System Operator. PC-4.1 requires following data to be provided by users of National Grid;

"PC 4.1.1: The DNOs shall produce, and send to the SO, a Spatial Demand Forecast for the facilities or territory they control or operate covering a horizon of, at least, 10 years. The SO shall prepare, and include in the GCOP for Planning, templates indicating how this information shall be provided.

PC 4.1.2: The Spatial Demand Forecast shall be based on the most recent available

information, and shall have geographical or Voltage level discrimination, as

considered appropriate by the SO for the required planning purposes. PC A2.5.

details the information that should be submitted.

PC 4.1.3: In preparation of Spatial Demand Forecasts for the respective areas they control, the DNOs shall take into consideration any other potential aspect that may affect the overall Demand growth, which may include, inter alia:

(a) Impact of net-metering and embedded generation;

(b) Energy efficiency programs or measures;

(c) Development of any new technology e.g., Electric Vehicles (EVs), etc.;

(d) Impacts produced by the development of the competitive market under CTBCM.

PC 4.1.4: The SO shall review and consolidate the information provided by the Users and produce an aggregated Spatial Demand Forecast, covering a period of at least, 10 years.**"**

1.1.3. The Market Commercial Code

The Market Commercial Code approved by NEPRA establishes efficient, non-discriminatory, and transparent market mechanisms centrally administered by the **Market Operator** including the associated settlement, payment arrangements, procedures and Security Cover. Section 10.3 of this commercial code requires all Market Participants to submit their demand forecast every year. Section 10.3.2 **"Demand Forecast of Supplier of Last Resort"** states as follows;

"10.3.2.1: The Demand Forecast submitted by the Supplier of Last Resort shall be prepared using appropriate models or algorithms and by taking into account the latest available information, particularly, the following:

a) the demand of its current consumers;

b) the expected growth in the number of consumers and their demand;

c) notices received from BPCs informing to end the contracted supply and their intention to contract such supply from Competitive Electric Power Suppliers;

d) estimations regarding the number of BPCs, and the associated demand, which may end the contracted supply with the Supplier of Last Resort to receive such supply from Competitive Electric Power Suppliers;

e) estimations regarding the number of BPCs, and the associated demand, which may end the contracted supply with Competitive Electric Power Suppliers or other Market Participants, which may return to receive such supply from the Supplier of Last Resort;

f) the effect of loss reduction plans implemented by the relevant Distribution Licensee;

g) the effect of plans, prepared either by the Supplier of Last Resort or the relevant Distribution Licensee, aimed at reducing consumption at the peaks;

h) the effect of distributed generation;

i) any other important factor affecting the forecast**"**

1.1.4. The NEPRA (Electric Power Procurement) Regulations, 2022

The NEPRA (Electric Power Procurement) Regulations, 2022 approved by NEPRA regulate procurement of power by electric power suppliers. Regulation 2(1) (ee) of these regulations defines spatial demand forecast as;

""**spatial load forecast**" means the load forecast prepared by the distribution companies and electric power suppliers for their network expansion plan(s) and power acquisition programme(s), as the case may be, in accordance with the Distribution Code and other applicable documents.**"**

Regulation 3 (6) of these regulations states as follows;

"While preparing the global demand forecast for IGCEP, the system operator shall also collect the individual spatial load forecasts of distribution companies for the first five years of the planning horizon and ensure that the difference between the global demand forecast and consolidated spatial load forecast of the distribution companies is minimized to the extent possible, to achieve demand-supply balance.**"**

Regulation 4(1) of this regulation requires **Supplier of Last Resort (SOLR)** to ensure security of supply for its consumers by planning, in advance, power procurement in adequate quantity. Regulation 4 (2)(a) of these regulations states;

"4 (2) An electric power supplier shall ensure that it:

(a) procures adequate electric power to meet its capacity obligations with prudent spatial load forecasts while using the best available information, to avoid under or over contracting.**"**

Regulation 6 of these regulations requires **Supplier of Last Resort (SOLR)** to submit to authority its Power Acquisition Plan (PAP). Regulation 6 (1) (a) requires following information to be included in PAP.

"Its requirements in terms of energy and peak demands, in accordance with the Distribution Code and other applicable documents, during the preceding twelve months on actual basis and projections for the subsequent five years.**"**

1.2. Forecasting Methodology

Forecasting models fall into the following three general categories:

- Trend models
- Econometric based models
- End-use models

Trend forecasts graphically or mathematically extrapolate past electricity demand trends into the future. They may be inadequate for short time periods where demographic changes in the underlying causal factors of load growth are not anticipated. Econometric models represent a more complex 'top-down' approach to forecasting and these models rely on the observed or the implied relationship between past energy consumption and other variables defining past economic output (likewise GDP data), demographics and price or income variables. 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 load forecast report has been prepared on the basis of Power Market Survey Methodology and the model used is called Power Market Survey (PMS) model. It uses bottom-up approach. This model is a form of end use model which provides energy and power projections for whole system and all grid stations within a company's distribution network.

The PMS model relies on an extensive data base of historical sales. 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. Actual consumption data is adjusted for un-served demands attributed to load shedding.

Energy forecasts are computed for each consumption category at the sub-station level on the basis of a trend analysis of recent sales growth plus new consumer connection applications. Industrial forecasts are based on interviews with existing consumers, trend projections and a review of the applications for request of new and increased service. These analyses are repeated for each sub-station 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 coincidence factors developed for each consumer category. Forecasts are then aggregated to system level.

Because the load forecast, based upon PMS, is based on a mix of end-use, trend projection and known consumer expansion plans, it cannot be used reliably to predict demand over the longer term. This model had not been created to predict impacts of changes in growth of different economic sectors or consumers categories over time, or changes in both the absolute and relative prices of electricity, and of changes in the relationships between income growth and electricity growth over time as a result of market saturation and technological change. Contrarily, Regression model is used for long term forecasting as the changes in growth are occurred due to change in technology, life style over a longer time period.

The Power Market Survey forecast model most closely approaches the requirements of power system planning. It provides the level of detail required for siting studies and transmission and substation planning as well as the sectoral details necessary to assess different sectors' growth rates and their impacts on load shapes for GEPCO and its sub-stations. In addition, it also provides a reasonable approximation of unconstrained load growth because it makes specific provision for load shedding i.e., suppressed demand.

1.3. New Scenarios under CTBCM:

Introduction and Implementation of Whole Sale electricity market in Pakistan (CTBCM) has unfolded new scenarios / requirements for load forecasting. GEPCO is now being envisaged as a company with two distinct functions i.e., Wire Business and Supply Business, therefore, Load Forecast will be prepared in order to full fill the requirement for both functions.

Under CTBCM / Whole Sale Market scenario, Bulk Power Consumers (BPC, having sanctioned load above 1000 kW) can opt to purchase from Competitive Electric Power Supplier instead of Supplier of Last Resort (GEPCO), therefore, demand forecast of those BPCs who have served one-year notices to GEPCO and all other BPCs is required to be separately included in demand forecast results. Similarly, allowing Captive Power Plants (CPPs) to participate in the market as a Marchant and installation of Distributed Generation (DGs/ SPPs), will also affect the demand forecast, therefore, this concern is also required to be considered in load forecast.

2. HISTORICAL ANALYSIS

2.1. Number of Consumers:

Historical figures of number of consumers within service territory of GEPCO for the last five years are given in **Table 2-1**. 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 2-1:** shows a regular increase in the number of customers each year.

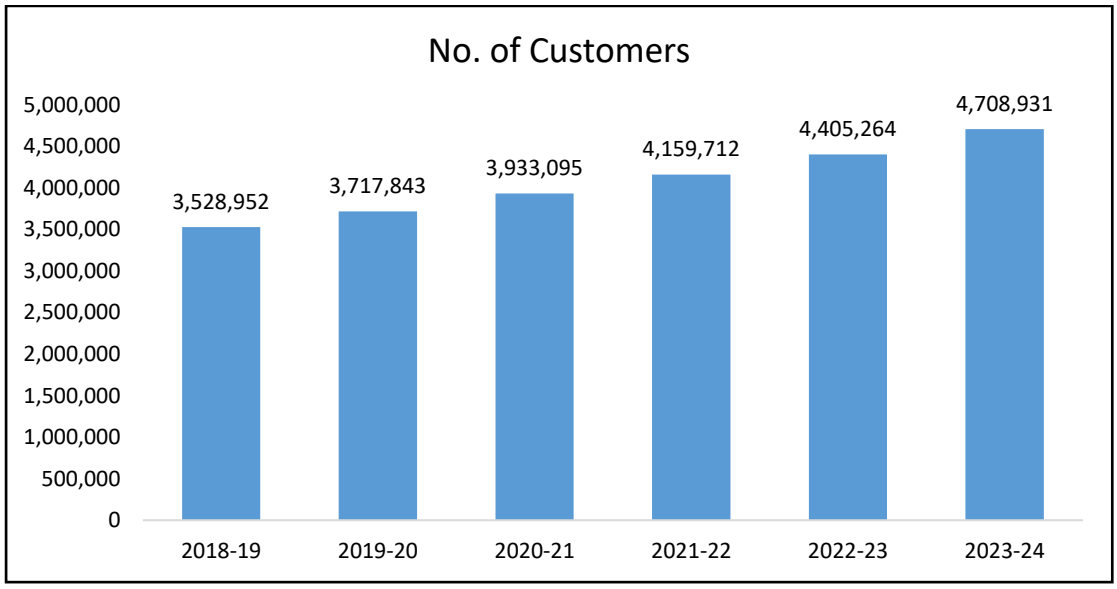


Figure 2-1: Number of Customers

Category-wise number of consumers for the last six years i.e., 2018-19 to 2023-24 is shown in the following table.

Table 2-1: Historical Number of Consumers in GEPCO

Year	Domestic	Comm-ercial	Public Light	Small Industries	M&L Industries	Tube Well	Bulk	Total
2018-19	3,042,153	366,047	580	63,141	9,992	46,887	152	3,528,952
2019-20	3,213,129	379,270	590	63,943	10,301	50,460	150	3,717,843
2020-21	3,408,782	394,248	620	65,493	10,844	52,960	148	3,933,095
2021-22	3,613,013	410,372	673	69,204	11,320	54,982	148	4,159,712
2022-23	3,839,777	425,043	703	71,848	11,464	56,291	138	4,405,264
2023-24	4,126,162	439,338	747	73,817	11,575	57,153	139	4,708,931
CAGR	6.29%	3.72%	5.19%	3.17%	2.98%	4.04%	-1.77%	5.94%

2.2. Category-wise Sale:

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

The category-wise sale (GWh) along with percentage for the years 2013-14, 2018-19, and 2023-24 are given in **Figure 2-2**.

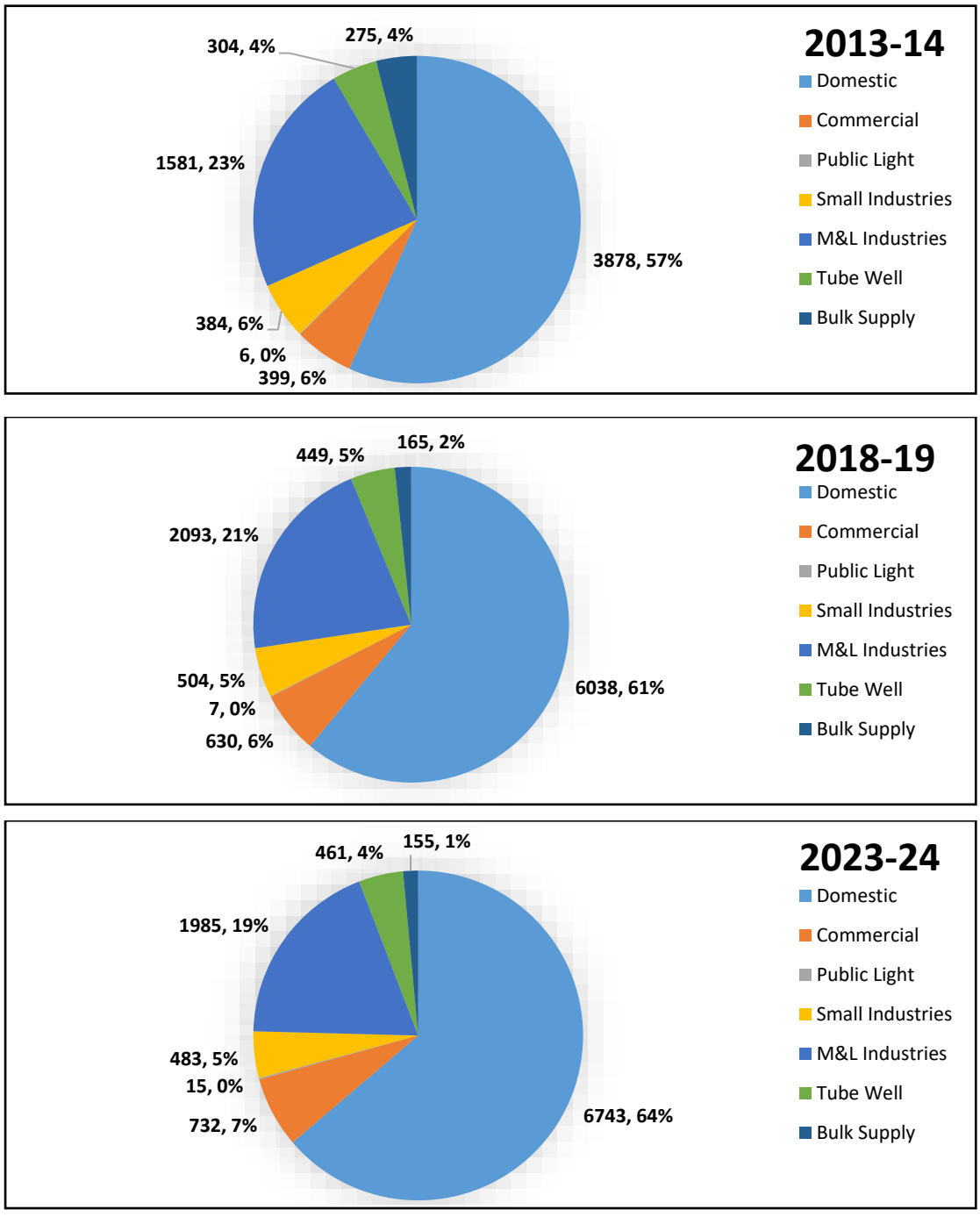


Figure 2-2: Historical Category-wise Sale

Figures of category-wise sale for the last five years i.e., 2018-19 to 2023-24 are given in the table below.

Table 2-2: Historical Sale (GWh) of GEPCO

Year	Domestic	Commercial	Public Light	Small Industries	M&L Industries	Tube Well	Bulk	Total
2018-19	6,038	630	7	504	2,093	449	165	9,886
2019-20	6,316	594	7	456	1,941	475	157	9,947
2020-21	6,763	672	10	549	2,227	542	160	10,923
2021-22	7,248	758	13	526	2,272	535	177	11,529
2022-23	6,527	699	16	473	2,059	522	160	10,455
2023-24	6,743	732	15	483	1,985	461	155	10,573
CAGR (2019-23)	2.23%	3.05%	15.96%	-0.87%	-1.06%	0.53%	-1.28%	1.35%

2.3. Transmission and Distribution Losses:

In GEPCO system, Line Losses are divided into two types;

- Transmission Losses
- Distribution Losses

The losses of 132 kV transmission lines and power transformers are considered as Transmission Losses whereas the losses of 11 kV and 0.4 kV lines and distribution transformers supplying the consumers are called Distribution Losses. In a system, generally the high losses are due to lack of proper maintenance and element of theft. Reduction in losses can be achieved through installation of properly sized conductors in 11kV feeders and low-tension lines. Installation of capacitor banks to reduce reactive power and thereby improving power factor is also an effective method to reduce line losses. Historical analysis of percentage distribution and transmission losses are shown in **Figure 2-3** for the year 2019-20 to 2023-24.

Figure 2-3: Historical Distribution and Transmission Losses

2.4. 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 2-4** shows the recorded and computed peak demands (MW) from the year 2019-20 to 2023-24.

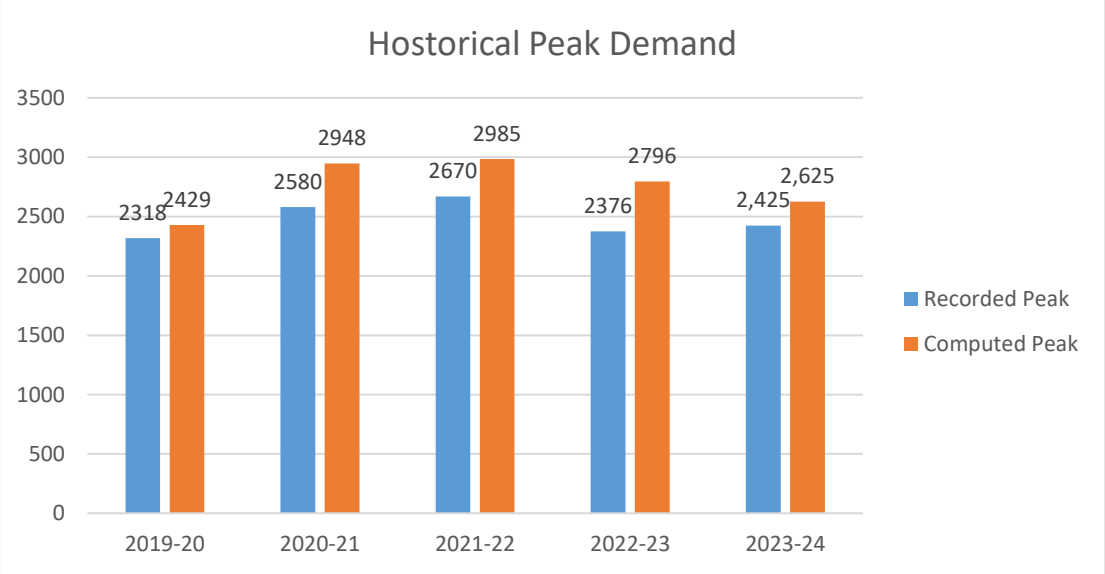


Figure 2-4: Historical Recorded and Computed Peak Demands

Historical figures of recorded and computed peak, energy sale and purchase, losses and growth rates for GEPCO are given in the following table.

Table 2-3: Historical Peak Demand, Energy Sale & Purchase and Losses

Year	Energy Sale (GWh)	Energy Purchase (GWh)	Losses 11KV (GWh)	Losses 132KV (GWh)	Recorded Peak (MW)	Computed Peak (MW)
2020	9,946	10,991	925	121	2,318	2,429
2021	10,922	12,032	995	115	2,580	2,948
2022	11,529	12,678	1,034	116	2,670	2,985
2023	10,455	11,478	920	104	2,376	2,796
2024	10,573	11,944	1,275	96	2,425	2,625
CAGR	1.11%	1.48%	5.88%	-6.99%	2.39%	2.60%

2.5. Comparative Analysis of Previous Forecast with Actual Energy and Power Demand in 2023:

In the following section, a comparative analysis of GEPCO's energy and power demand forecast for the previous year against the actual figures observed in 2023-24 is presented. This analysis highlights a discrepancy, with a -13% error in energy sales and a 15% error in demand, attributed to a decline in actual energy and demand compared to the preceding year.

Table 2-4: Comparative analysis Sale and Demand:

Category	Forecast	Actual	Error
Domestic (Sale)	6,689	6,743	0.8%
Commercial (Sale)	735	732	-0.5%
Small Industry (Sale)	490	483	-1.4%
Medium & Large Industry (Sale)	2,166	1,985	-9.1%
Tube Well (Sale)	556	461	-20.5%
Total (Sale)	10,816	10,573	-2.3%
Total (@132kV)	11,888	11,944	0.5%
GEPCO Demand (MW)	2,463	2,425	-1.6%

Key Takeaways from Actual Data in 2023-24:

The actual data for 2023-24 indicates a slight increase in total energy demand, rising from 10,455 GWh to 10,573 GWh. Despite this slight rise in sales, it has not captured the actual pace and it can be attributed to several key factors:

Economic Meltdown: Challenging economic conditions in Pakistan played a significant role in reducing power consumption. Issues such as problems with Letters of Credit (LCs) and inflation compelled individuals and businesses to minimize their power consumption.

High Tariff: A higher tariff for electricity was another contributing factor. The determined national average tariff for XWDISCOs increased from 24.82 Rs/kWh to 29.78 Rs/kWh for the year 2023-24, which discouraged general electricity consumption among the public.

Seasonal Impact: Temperature variations also influenced energy demand, with lower temperatures recorded in 2023 compared to 2022, particularly during the months of March to June. A comparison in this regard is shown below.

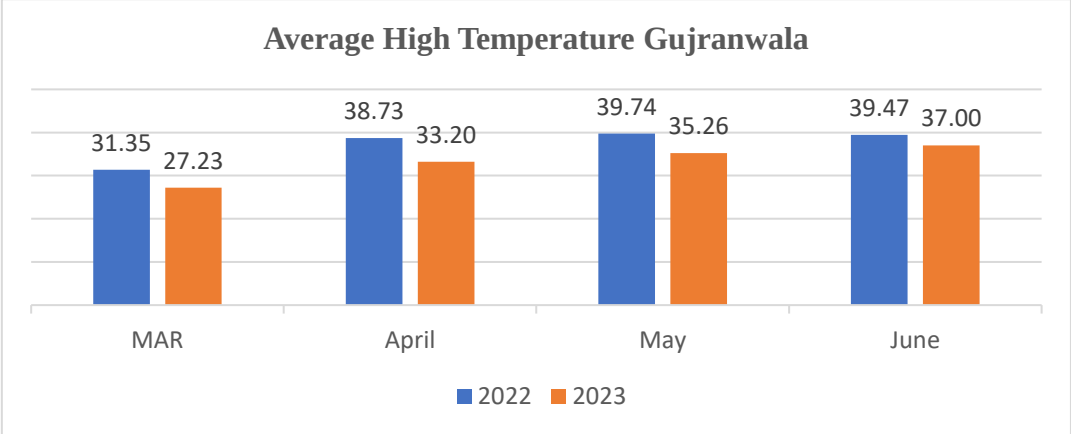


Figure 2-5: Temperature Variation in 2023

Net Metering Trend: The growing trend of Net Metering consumers in GEPCO, totaling 18,262 with an installed capacity of 234.56 MW, contributed to the failure to catch up the actual increase in energy sales. Unaccounted consumers turned to off-grid solar facilities due to elevated electricity prices, further impacting energy sales.

2.6. Transmission and Distribution Network

Statistics of sub-transmission and distribution network of GEPCO are given below;

Table 2-5: Transmission and Distribution Network Statistics

Transmission Network	Distribution Network
➢ No. of Grid Stations = **62 No.** o 132-kV Grid Stations = **61 No.** o 66-kV Grid Stations = **1 No.** ➢ Length of Transmission Line = **2,866 km** ➢ No. of Power Transformers = **186 No** ➢ Installed Capacity of Power Transformers = **5,633 MVA**	➢ No. of 11 kV Feeders = **1,027 No.** ➢ No. of Distribution Transformers = **95,447 No.** ➢ Total Installed Capacity of Distribution Transformers = **6,653 MVA** ➢ Length of 11 kV (HT) Line = **25,460 km** ➢ Length of 0.4 kV (LT) Line = **18,673 km**

Existing Transmission Network Map of GEPCO including future expansion plans is shown below in **Figure 2-6**.

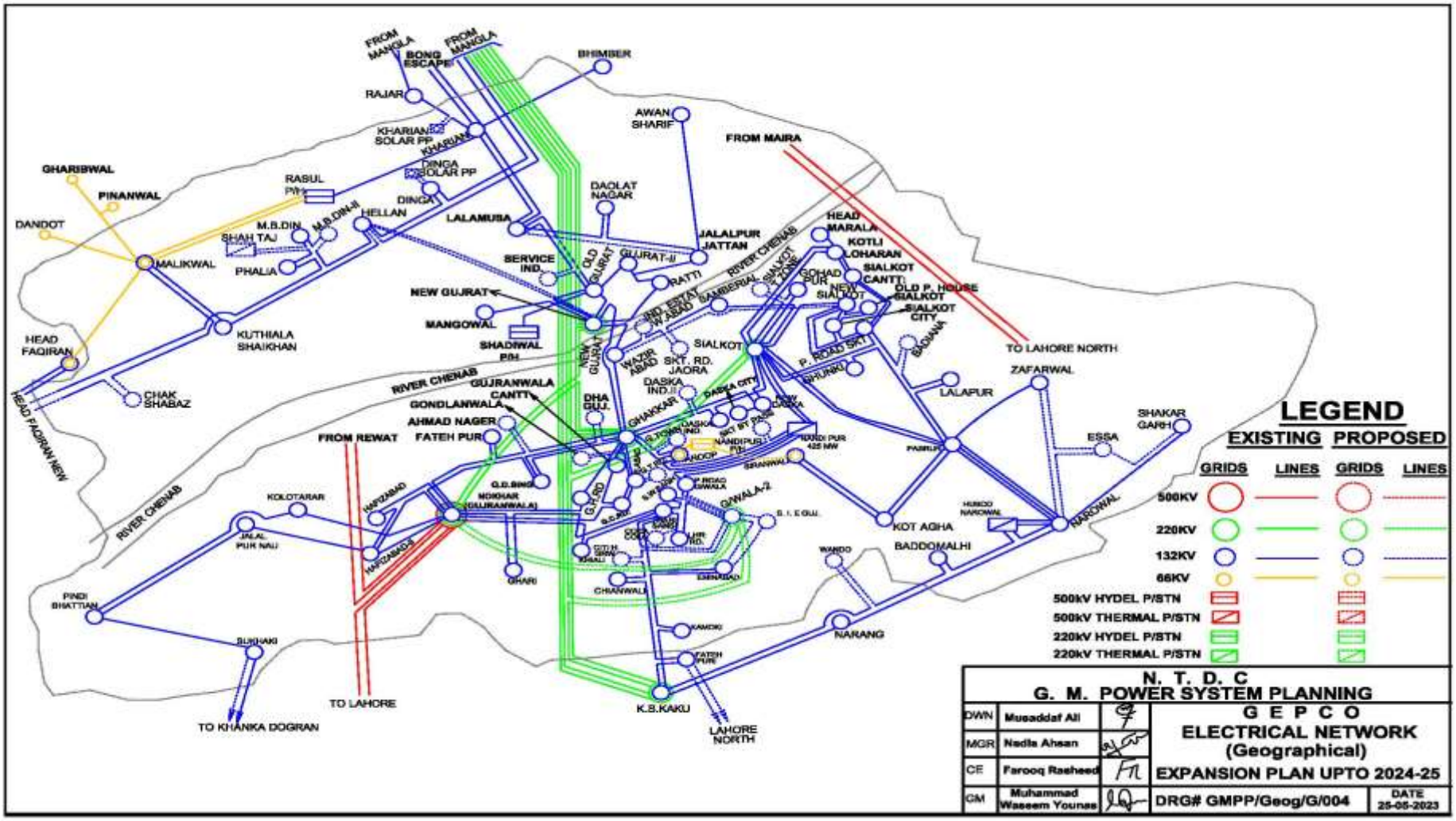
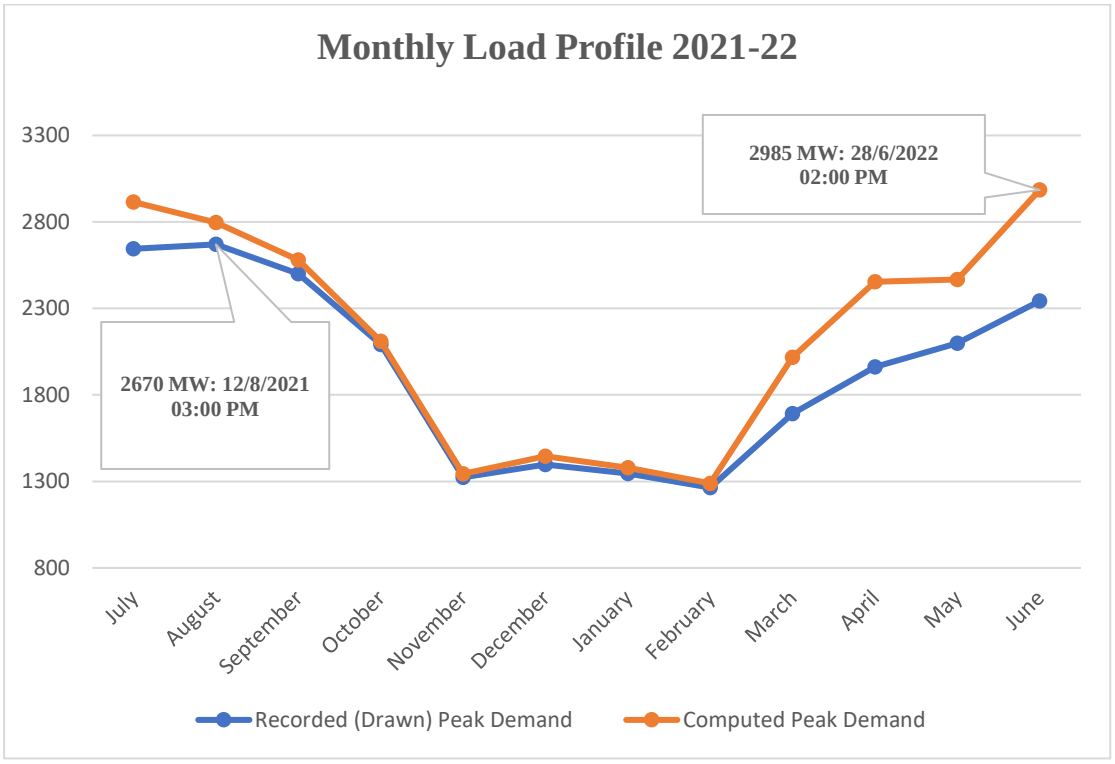
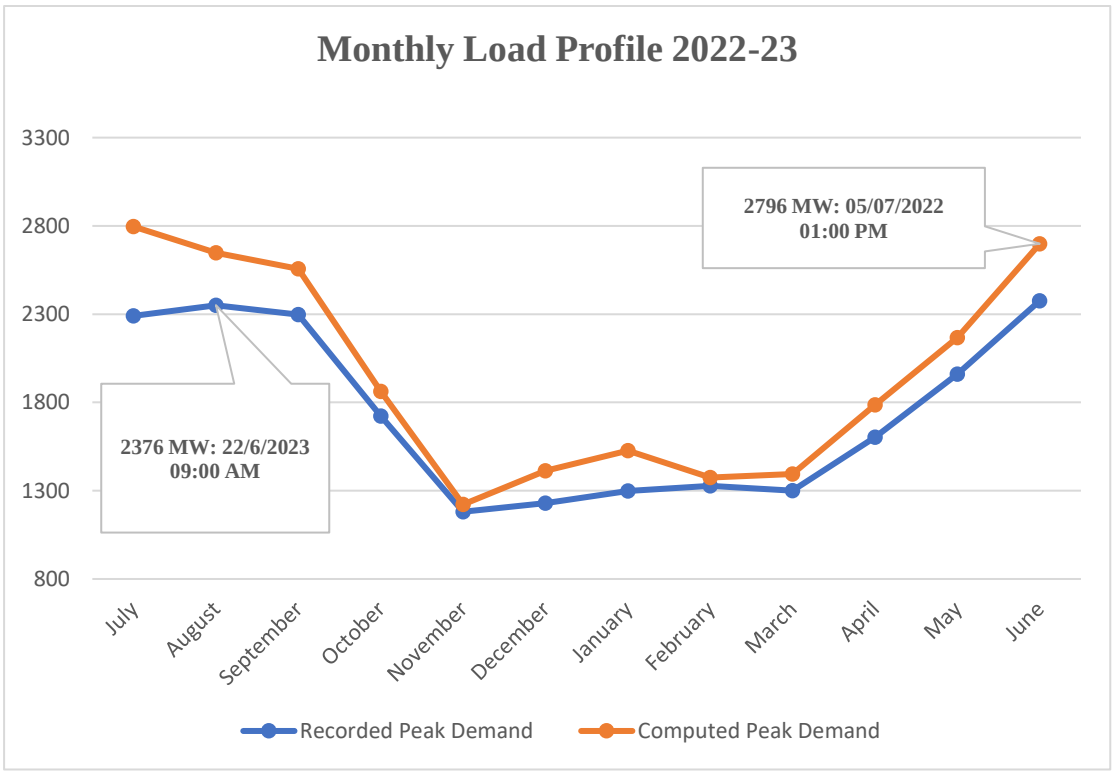


Figure 2-6: Transmission Network Map including future expansion plans

2.7. Load Profile and Load Duration Curves

GEPCO's monthly load profile for the years 2021-22, 2022-23 and 2023-24 is presented below;





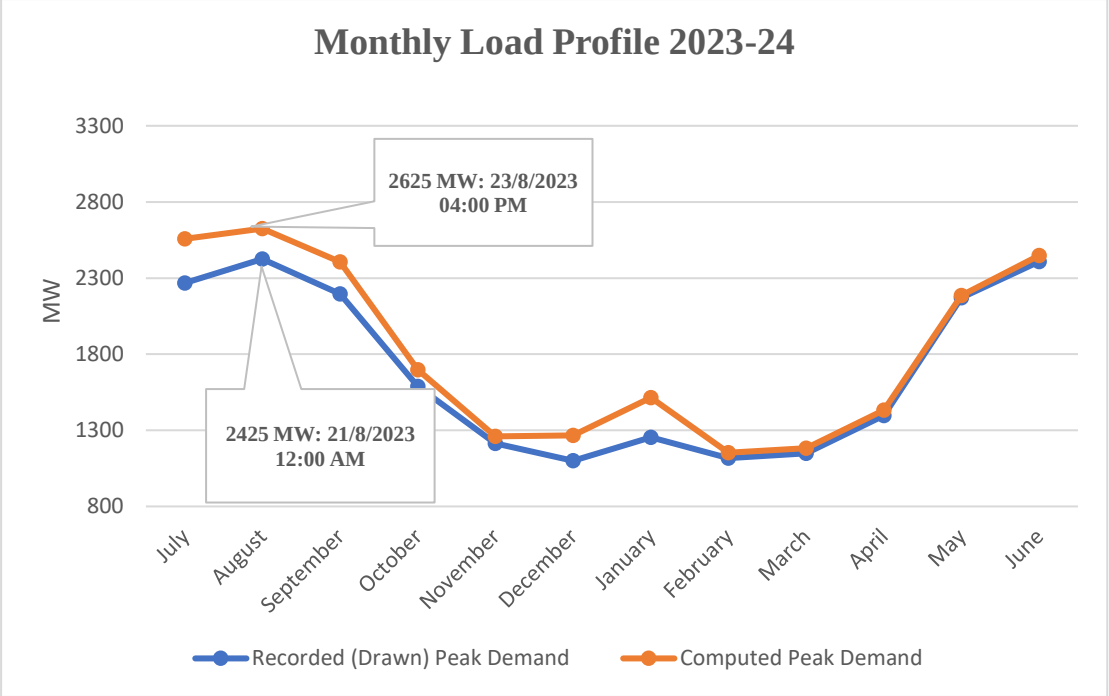


Figure 2-7: Monthly Load Profile from 2021-22 to 2023-24

It can be seen from **Figure 2-7** that maximum demand occurs in summer season and minimum demand occurs in winter season. It is also evident that the trend of monthly demands is similar for past three years with a dip during winter season and peak demand in summer season.

GEPCO's Load Duration curve for the 2023-24 is displayed in **Figure 2-8** below:

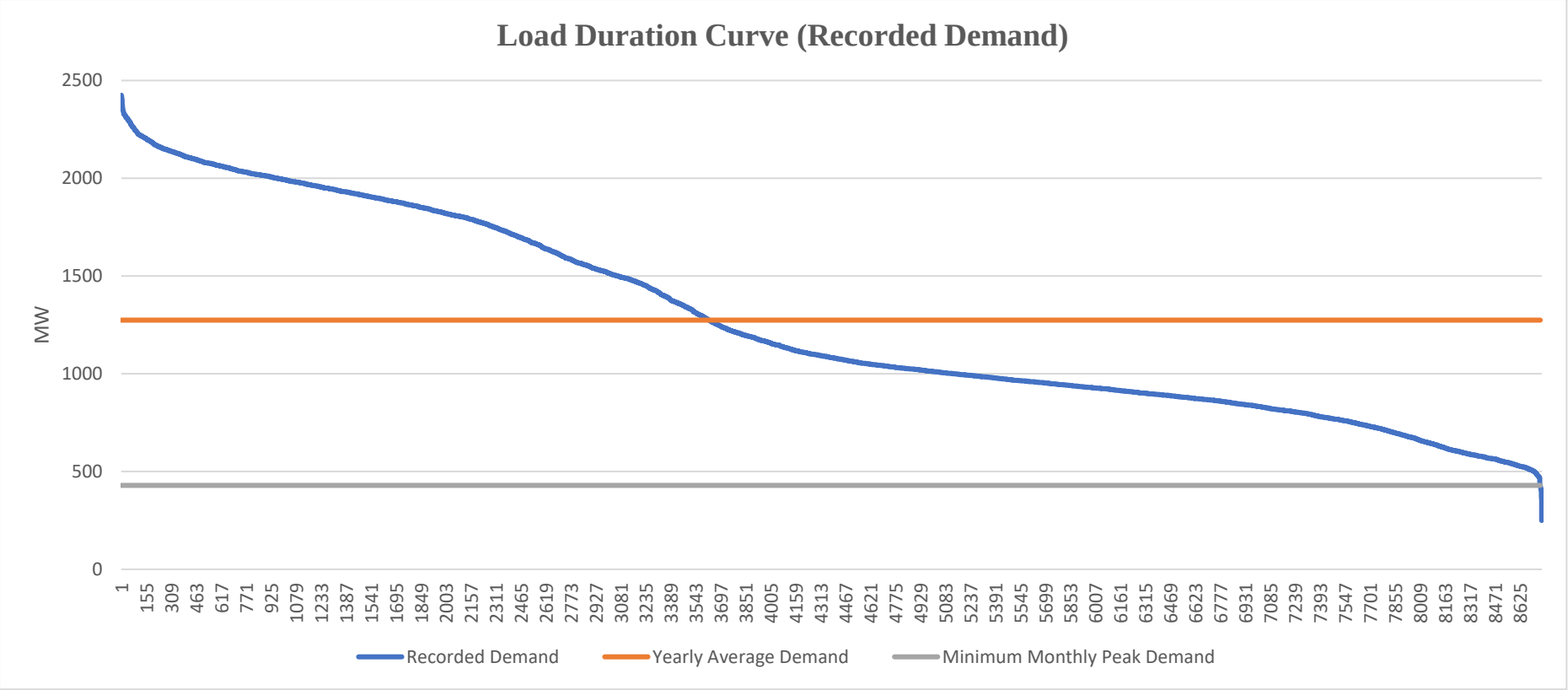


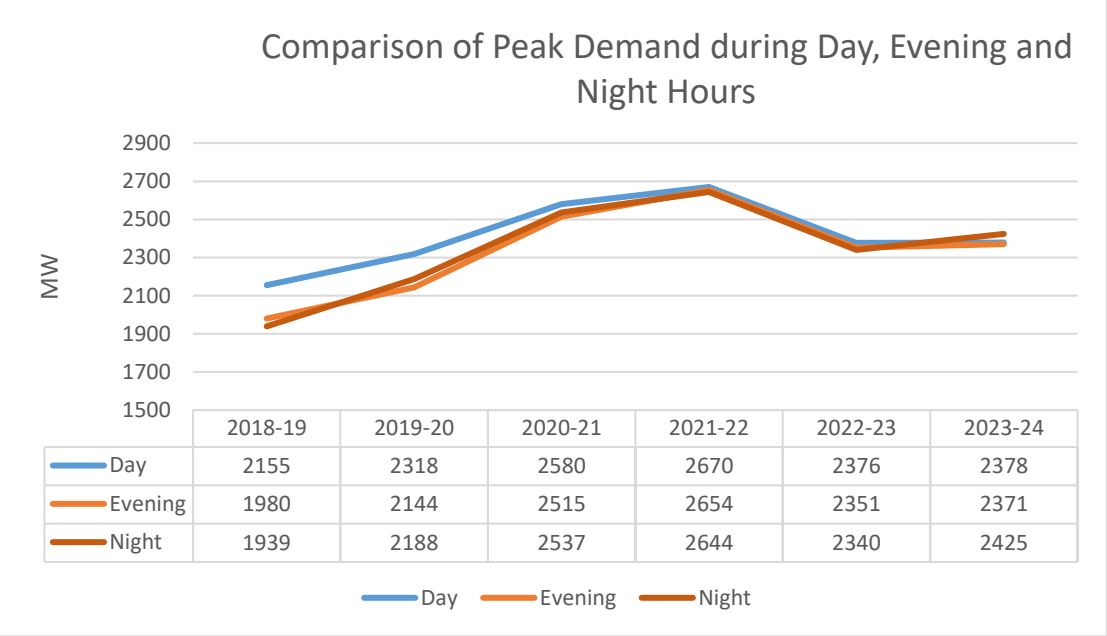
Figure 2-8: Load Duration Curve for the year 2023-24

It is evident from load duration curve that GEPCO's peak demand above 2200 MW occurred for just 157 hours out of 8760 hours in the year.

2.8. Time of Peak Demand Analysis

2.8.1. Comparison of Peak Demand during Day, Evening and Night Hours

Following is the comparison of peak demand during day, evening and night hours. Day, evening and night hours are taken as 08:00 to 17:00, 17:00 to 22:00 and 22:00 to 07:00 respectively. It is evident from **Figure 2-9** that the difference of peak demand during day, evening and night hours is very small.



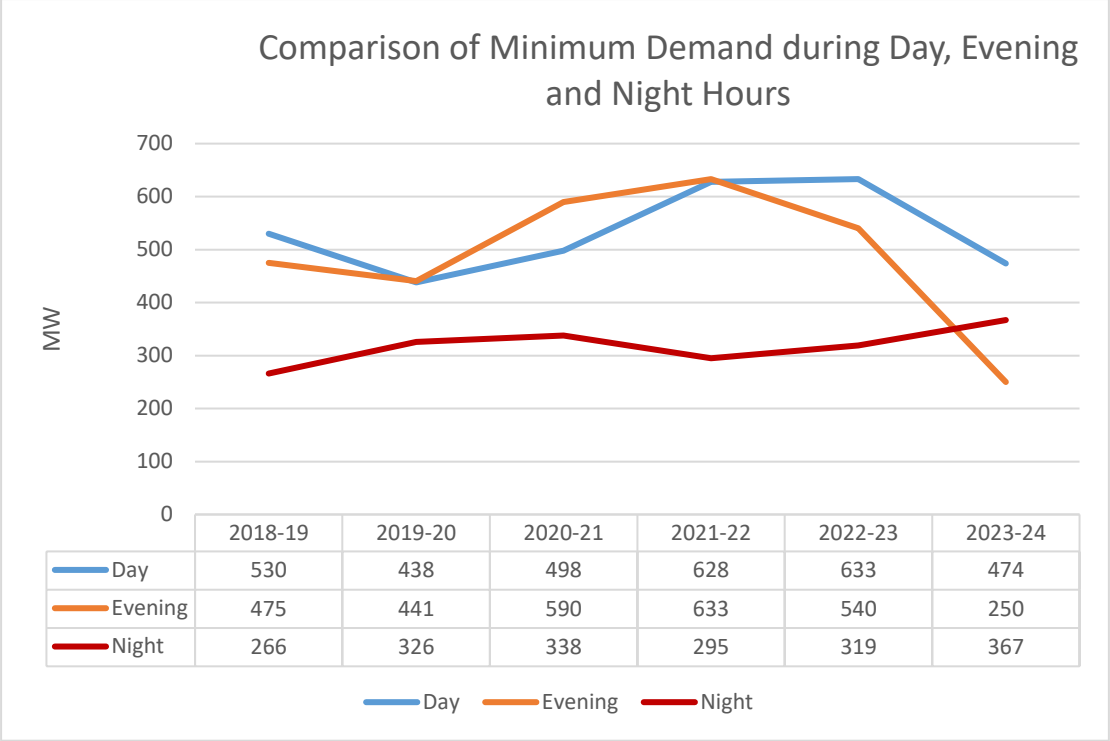
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Day	2155	2318	2580	2670	2376	2378
Evening	1980	2144	2515	2654	2351	2371
Night	1939	2188	2537	2644	2340	2425

Figure 2-9: Comparison of Peak Demand During Day, Evening and Night

This comparison of peaks during different hours of the day reveals that GEPCO's peak demand is distributed over day, evening and night hours. As distributed solar PV generation increases, peak demand on day hours may be reduced but peak demand on evening and night hours will not be affected. Resultantly, overall peak demand of the company will remain the same and added solar PV generation will not result in reduced capacity obligation. Peak Demand of GEPCO has already shifted to night hours.

2.8.2. Comparison of Minimum Demand during Day, Evening and Night hours

Following is the comparison of minimum demand of GEPCO during day, evening and night hours. **Figure 2-10** reveals that GEPCO's minimum demand occurs during night hours, while there is very little difference between minimum demands of day and evening hours. Moreover, minimum demand during day hours is decreasing due to increasing solarization, which is expected to be main concern of network operators in future.

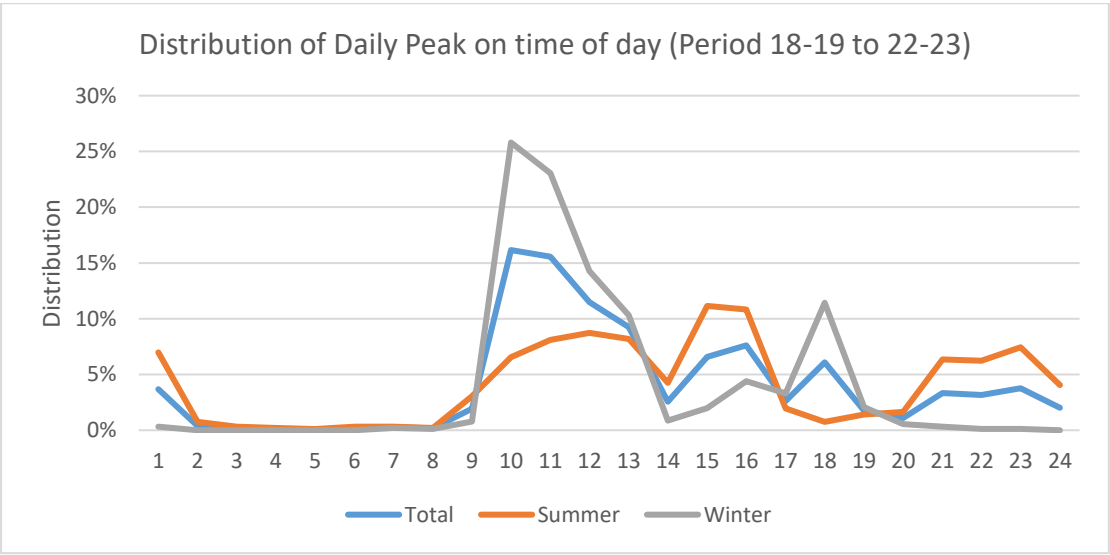


	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Day	530	438	498	628	633	474
Evening	475	441	590	633	540	250
Night	266	326	338	295	319	367

Figure 2-10: Comparison of Minimum Demand During Day, Evening and Night

2.8.3. Time of day for Peak Demand

The distribution of daily peak demand among 24 hours of a day is depicted in **Figure 2-11** for summer, winter and whole year time horizons. This distribution data is based upon hourly demand data for last 5 years.



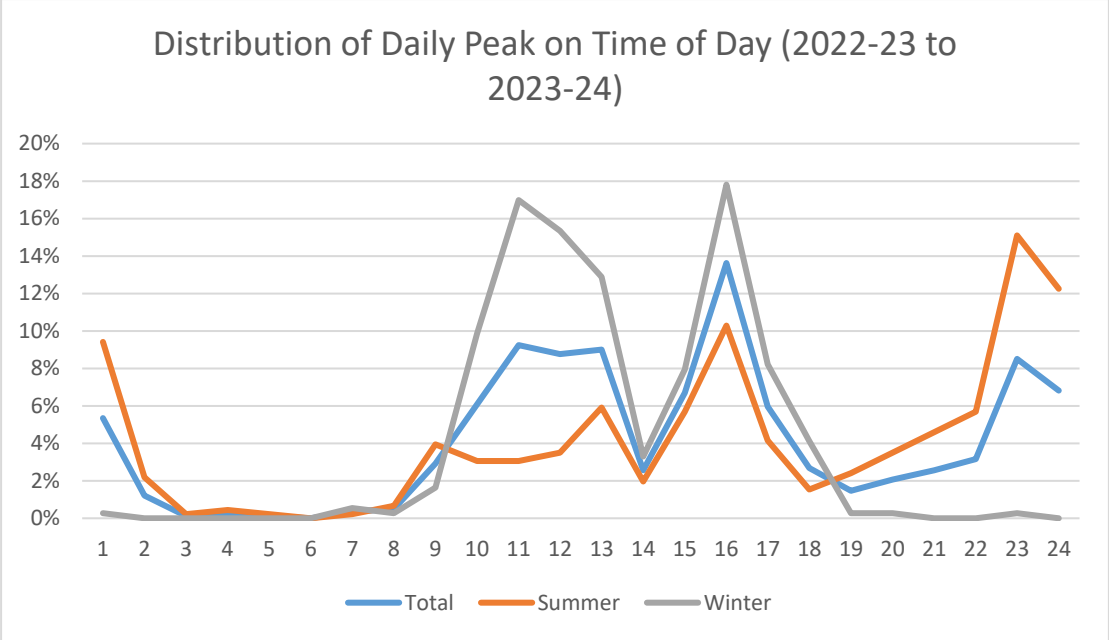
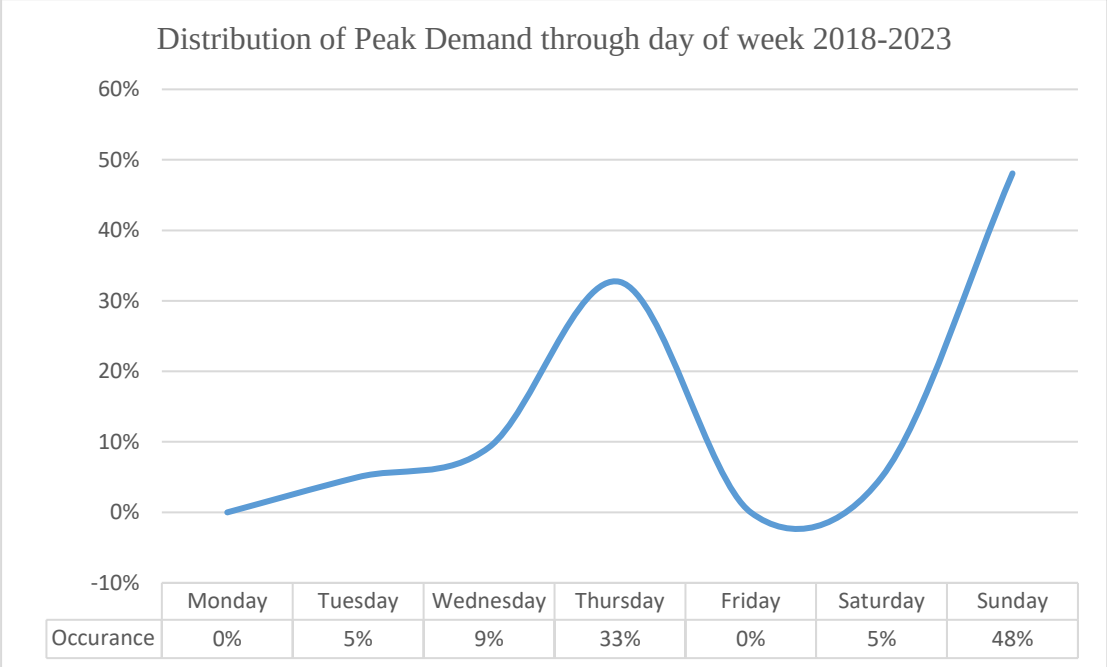


Figure 2-11: Distribution of Peak Demand through Time of Day

2.8.4. Day of Week for Peak Demand:

Following is the distribution of weekly peak demand among days of week.



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Occurance	0%	5%	9%	33%	0%	5%	48%

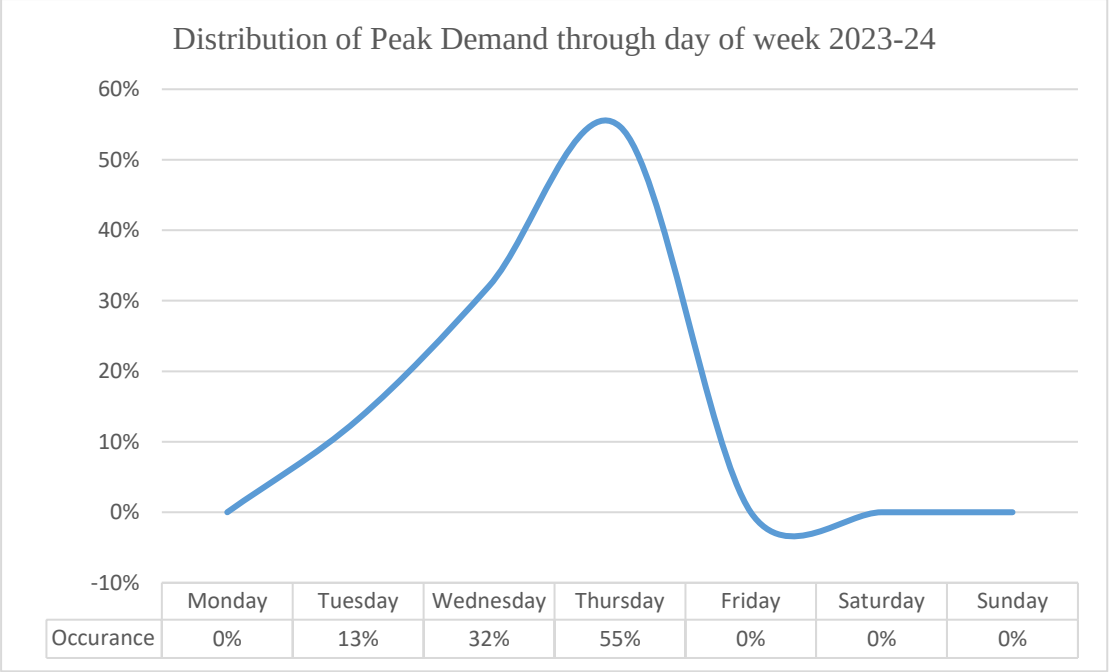


Figure 2-12: Distribution of Peak Demand through Day of Week

It is evident that maximum peak demand occurs on Sunday for most of the weeks due to public holiday on Sunday.

3. DEMAND FORECAST METHODOLOGY

3.1. Overview:

The Power Market Survey Model forms the basis of the Medium-Term Load Forecast. It produces energy and peak demand forecast for each consumer category and grid station for the entire service territory over a period of ten years. The model has three inter-related components: the main database, the basic input parameters and the calculations.

A huge energy consumption database has been developed through the Power Market Survey. The database contains base year consumption data for existing consumers and ten years' forecast data for new consumers for each consumer category within the company. In addition, there is separate information for peak demand in medium & large industries and bulk supply consumers. Because of its huge volume, this data is not listed as part of the report.

In addition to the database, a number of basic input parameters are separately prepared which forms an integral part of the forecast model. These include:

- **Growth Rates:** The annual increase in consumption by consumer-category
- **Loss Rates:** Transmission and Distribution Losses for future years based upon loss reduction plans.
- **Load Factors:** It expresses the ratio of the amount of energy actually consumed to the amount that would have been consumed, had the peak demand been continued over the entire period.
- **Coincidence Factors:** Describing the load diversity within the system. It is the ration of system peak to the sum of individual peaks of sub-systems.

The forecast calculations within the model combine the energy consumption data and the input parameters to compute the energy and peak demand requirements within each sub-station for each year to be forecasted. The basic data unit is a sub-station. The data is accumulated from sub-stations to GEPCO level.

A detailed discussion of each of the three model components is given below.

3.2. Survey Base Data:

An extensive database has been developed on gross consumption by consumer category such as household (domestic), commercial, small industrial, large industrial, tube wells (agriculture) and public lighting. Energy consumption figures are originated from consumer service meter readings. Maximum demand readings and load factors for large industrial consumers and other demand-metered consumers are based on service meter readings. The consumption data is collected from MIS Department of GEPCO (It is category-wise consumption data of each feeder). The database also contains data regarding un-served demands attributed to load shedding.

The basic geographic unit represented within the database is substation. Each substation is assigned a series of codes which identify the technical boundaries associated with the area.

The technical boundaries, which are emphasized in this report, start at the grid station. These are distribution grid stations supplying power at 11 kV after transformation from a 132 kV or 66 kV source. Grid stations are combined to form GEPCO System.

There can be up to eleven records in the data base for each grid station, one record for each year of forecast. The first year is typically year zero and records the base year level of consumption for each consumer category. The remaining records for the area list the incremental consumption associated with new consumers to be added to the area within the specified year.

This incremental consumption is based on applications for new or extended service which are filed at each revenue office and discussions with the relevant industrial bodies and government agencies. Incremental industrial consumption is based on a combination of interviews, trend projections, and reviews of applications for new and/or increased service. Interviews are held with major industrial consumers to identify their current capacity utilization and any long-term plans they have for future expansion or changes in their electricity consumption. In addition, the various branches of the Ministry of Industries are consulted to determine the number of applications received for new developments or plant expansions and the anticipated electrical load associated with each development or expansion. These anticipated new demands are added to the basic forecast of industrial consumption.

Extension of electricity to new areas over the forecast period is dealt with separately. The number of new communities to be electrified is also obtained. Initial loads and load growths are calculated based on past experience in terms of market penetration and consumption per consumer in newly electrified communities. This analysis includes new Housing schemes and new villages.

3.3. Input Parameters:

A number of input parameters are defined in order to use in the Power Market Survey model. These parameters are:

- Pending/ Planned Load
- Transmission and Distribution Loss Rates
- The Growth Rates in consumption per consumer for each category
- Load Factors for each consumer category
- Coincidence or Diversity Factors
- Load Shedding or Unserved Energy

The definition and basic derivation of each parameter is discussed below.

3.3.1. Pending/ Planned Load

The Pending/Planned load data is fundamental for the Power market survey-based demand forecast. Pending applications for each consumer category, with a load less than 500 kW, were gathered from each Operation Circle within GEPCO. For pending applications with a load greater than 500 kW, the data was obtained from the Planning Directorate. **Figure 3-1** gives an overview of the pending applications collected from each circle.

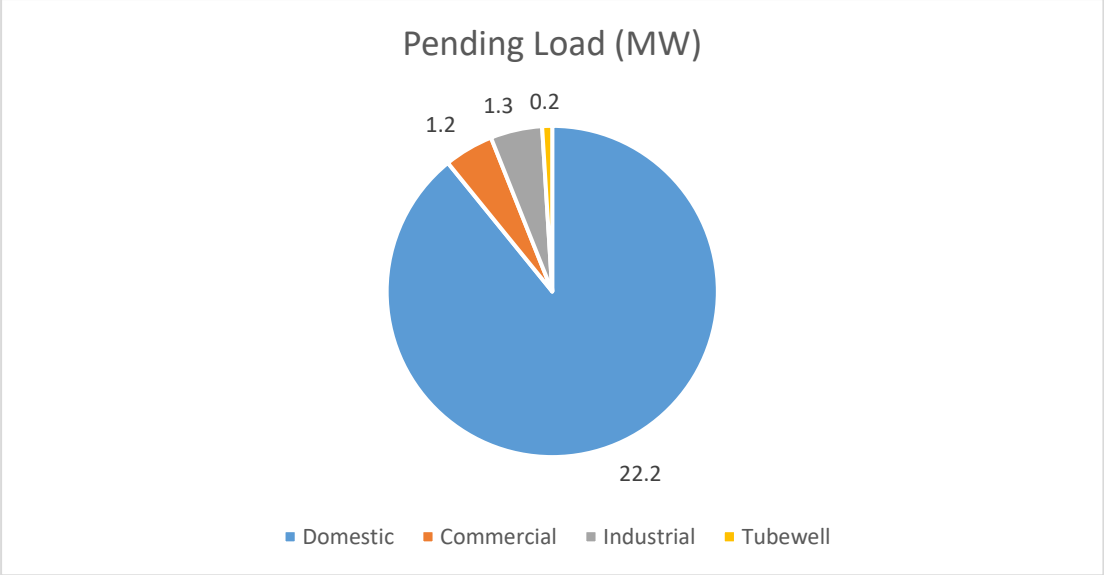


Figure 3-1: Operational Circles Pending Load

The pending applications for each grid and category were provided by each circle, along with their applied load. This pending load was then converted into energy using appropriate load factors derived from historical data. The pending load for Domestic, Commercial, Tube well and small industries were taken for next 10 years. However, pending applications related to industrial connections were calculated and included in both year 1 and year 2 of the forecast. **Figure 3-2** represents the detailed data regarding pending load at the Planning Directorate office.

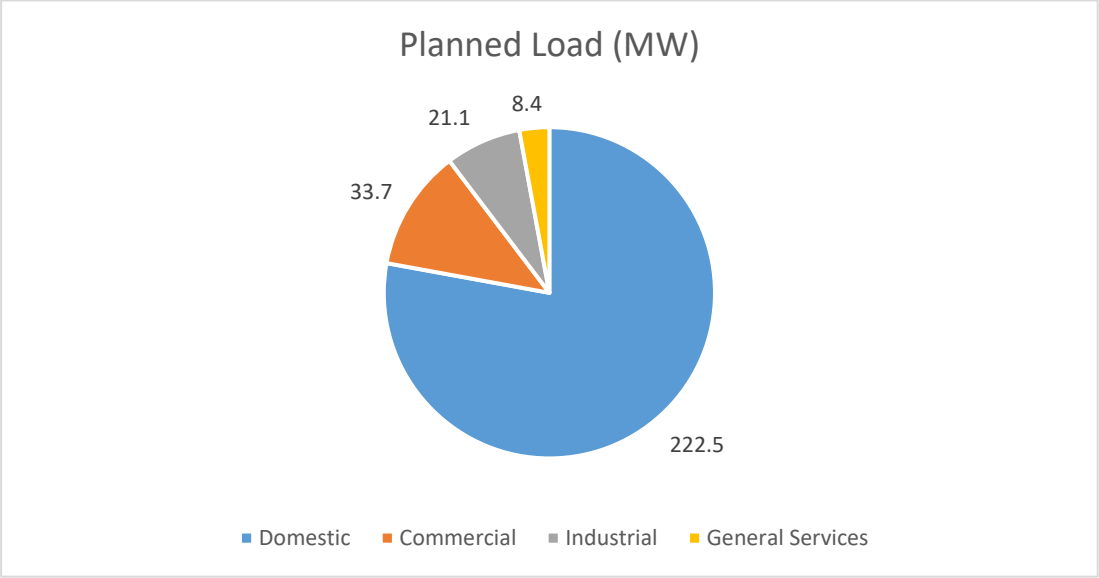


Figure 3-2: Planning Directorate Pending load

Whereas, abstract of major pending applications of housing societies within GEPCO's service territory are tabulated below in **Table 3-1**.

Table 3-1: List of Big Housing Projects in GEPCO service territory

Name of Society	Applied Load (KW)
DHA, GUJRANWALA	102,210
ROYAL PALM CITY HOUSING SCHEME, GUJRANWALA.	57,100
CITI HOUSING SCHEME SIALKOT (EXTENSION), SIALKOT	14,657
CITI HOUSING SCHEME MODIFICATION IN PHASE-1 EXTENSION AND EXTENTION-II, GUJRANWALA	12,728
GARDEN TOWN HOUSING SCHEME (PHASE-III), GUJRANWALA	14,267
MASTER CITY HOUSING SCHEME GUJRANWALA	14,871
G-MAGNOLIA HOUSING SCHEME GUJRANWALA	12,860

The planned load for Housing Societies and commercial plazas for the projected years was determined by analyzing historical growth patterns in nearby societies and plazas.

DHA Gujranwala has supplied their load demand forecast, which anticipates a demand of 141 MW up to the year 2033-34. This forecast has been integrated into the overall demand projection.

Planned Load data of Economic/ Industrial zones obtained from Punjab small industries corporation (PSIC) of Punjab Government has been considered. **Table 3-2** depicts the detail of economic zones planned in the GEPCO's service territory.

Table 3-2: List of Economic Zones in the service territory of GEPCO with estimated load

Name of Economic Zone	Total Load (kW)
SIE-IV Gujranwala	32,000
SIE Wazirabad	10,100
SIE Sialkot	12,000
SIE Gujrat	25,000
Tannery Zone Sialkot	21,000

This load was rationalized with year wise break up for next ten years and converted into year wise energy by getting information from the developers as well as on site status of this project.

The final Panned/ pending energy is shown in **Figure 3-3** below.

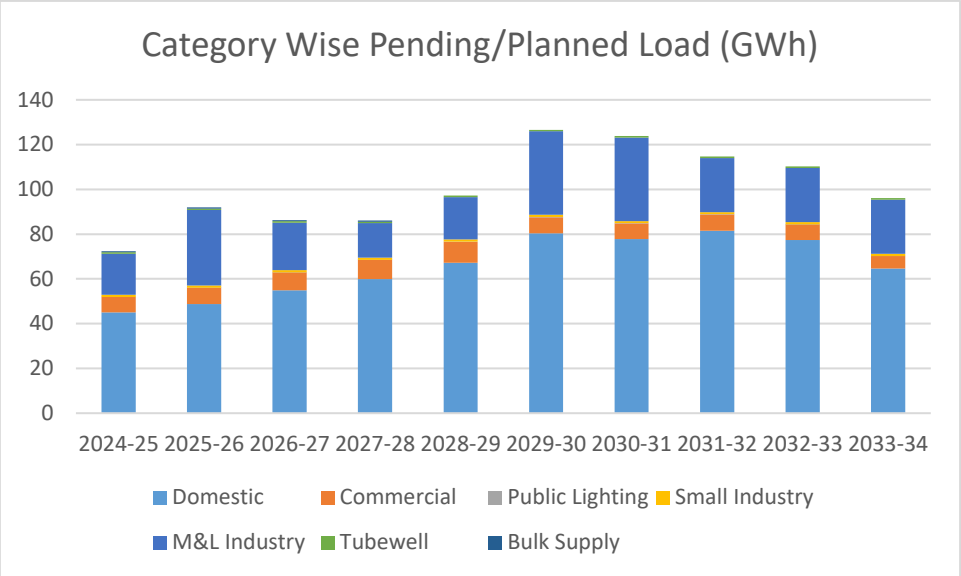


Figure 3-3: Category wise breakup of pending and planned load

3.3.2. Growth Rates:

The forecast calculations, as will be discussed below, use sales growth rates to update the previous year's consumption before adding the incremental consumption estimate for the current year. The Power Market Survey model requires growth rates to be specified by for each consumer category (domestic, commercial, etc.). The rates selected for the forecast are based on average annual compound growth rates, calculated from the last five years data of each consumer category in GEPCO as tabulated below in **Table 3-3**.

As the year 2023-24 observed abnormal growth trends, so human expert analysis is being utilized by considering GDP growth, economic revival in country along with actual growths occurred in year 2023-24.

Table 3-3: Analysis of category wise growth rates

Type of G.R	Criteria	Domestic + AJK + A3	Commercial	Small Industry	Medium & Large Industry	Agriculture	Bulk Supply	Public Lighting
CAGR	Last 2/Y GR	1.5	4.8	2.3	-3.6	-11.6	-3.1	-6.3
	Last 3/Y GR	-4.4	-1.7	-4.1	-6.5	-7.2	-6.5	6.0
	Last 4/Y GR	-0.7	2.9	-4.1	-3.8	-5.3	-1.1	15.6
	Last 5/Y GR	1.2	5.4	1.4	0.6	-0.7	-0.3	21.0
Average of CAGR	4Y & 5Y	0.3	4.1	-1.3	-1.6	-3.0	-0.7	18.3
	3Y, 4Y & 5Y	-1.3	2.2	-2.3	-3.2	-4.4	-2.6	14.2
	2Y,3Y, 4Y & 5Y	-0.6	2.8	-1.1	-3.3	-6.2	-2.7	9.1
	3Y & 4Y	-2.5	0.6	-4.1	-5.1	-6.2	-3.8	10.8
	2Y ,3Y & 4Y	-1.2	2.0	-2.0	-4.6	-8.0	-3.5	5.1
	2 Y & 3 Y	-1.5	1.5	-0.9	-5.1	-9.4	-4.8	-0.2
YoY G. Rs	2018-19	2.5	2.5	-2.1	-4.1	12.2	1.1	-6.7
	2019-20	2.6	-5.7	-9.4	-7.3	5.8	-5.2	-5.1
	2020-21	7.1	13.1	20.2	14.8	14.1	2.1	38.7
	2021-22	7.2	12.8	-4.1	2.0	-1.3	10.8	37.5
	2022-23	-9.9	-7.8	-10.1	-9.4	-2.5	-9.8	19.9
	Average of YoY G. Rs 5 yrs	1.9	3.0	-1.1	-0.8	5.7	-0.2	16.8

Table 3-4 represents the rationale for adopting the Growth Rates derived by taking into account the historical consumption pattern of consumers in each category and impact of economic conditions, thereby, eliminating the outliers through expert opinion. These growth rates represent growth of consumer demand, but network demand/ sales will be impacted due to net-metering/ solarization

Table 3-4: Detail of Category wise Growth rates selected as input

Category	Average G.R used in MTLF
Domestic	2.3
Commercial	3.4
Small industry	2.7
M&L Industry	1.8
Agriculture	2.5
Bulk Supply	0.8

3.3.3. Losses:

For every 100 units of electricity purchased from a power station only 90% to 91% units are actually sold to the ultimate end-user. The remaining units are consumed by the power system itself during transmission and distribution of the energy. The transmission and distribution losses must be added to the sales forecast in order to determine the total generation requirement for the system. An additional source of "loss" is the consumption in auxiliaries (also called station service) used by the power plants in the process of generating/converting electricity. Auxiliary consumption cannot be avoided and is totally dependent on the type of plants/substations.

The Power Market Survey model handles Distribution and Transmission losses in such a manner that Distribution losses are expressed as a percentage of Sales and Transmission losses are expressed as a percentage of the energy sent out at 11KV. The model is capable of handling different loss rates for each year. The Distribution and Transmission losses used in the Power Market Survey Model are based on the review of current loss rates and an evaluation of existing loss reduction initiatives coinciding with NEPRA targets as per Multiyear tariff determination within the Distribution Network of GEPCO. The proposed loss reduction plan as given in **Table 3-5** for Distribution losses at 11kV and Transmission losses at 132 kV used in load forecast is tabulated below.

Table 3-5: Loss reduction plan for next 10 years

Year	LT. Loss (%)	HT Loss (%)	Distr. Loss (%)	Trans. Loss (%)	Total loss (%)
2023-24	5.32%	5.75%	10.76%	0.80%	11.48%
2024-25	3.82%	4.44%	8.09%	0.88%	8.90%
2025-26	3.80%	4.42%	8.05%	0.87%	8.85%
2026-27	3.77%	4.40%	8.01%	0.86%	8.80%
2027-28	3.75%	4.38%	7.97%	0.85%	8.75%
2028-29	3.73%	4.36%	7.93%	0.84%	8.70%

Year	LT. Loss (%)	HT Loss (%)	Distr. Loss (%)	Trans. Loss (%)	Total loss (%)
2029-30	3.71%	4.34%	7.89%	0.83%	8.65%
2030-31	3.68%	4.32%	7.84%	0.82%	8.60%
2031-32	3.66%	4.30%	7.80%	0.81%	8.55%
2032-33	3.64%	4.28%	7.76%	0.80%	8.50%
2033-24	3.61%	4.26%	7.72%	0.79%	8.45%

3.3.4. Load Factors:

Energy sale in each consumer category is converted to peak power demand through the use of a load factor. It expresses the ratio of the amount of energy actually consumed to the amount that would have been consumed, had the peak demand been continued over the entire period. Load factors can be calculated over any time period but the most common are daily, monthly and annual.

The load factors utilized in the Power Market Survey Model relate annual energy sales to peak demand for each consumer category (domestic, commercial, public lighting, small industries and private tube wells). Input load factors are not required for medium/large industry and bulk supply sales as consumption for these sectors is provided through the survey in both energy and power terms.

Maximum demand readings are available directly for large industrial and other demand metered consumers such as bulk supply consumers. Load factors for non-demand metered consumers are determined on a sample basis. For example, peak demand is based on maximum demand readings from substation feeders which are identified as serving predominantly one sector.

Domestic and commercial load factors are differentiated by community size (village, town or city). Whereas a single load factor is used for small industrial, private tube wells, public lighting and bulk supply because of the similar nature in the operation of these loads.

3.3.5. Coincidence Factors:

The total energy demand of a number of individual consumers is determined as the simple sum of their individual energy consumption values. The total peak load, however, is calculated as the diversified sum of their individual peak load levels. The coincidence factor, as its name implies, is a general term which measures the coincidence between the peak loads of any number of individual consumers or consumer groups over a specified time period in order to compute a combined peak. Mathematically, it is the inverse of the diversity factor.

The daily coincidence factor is determined by comparing the daily load patterns of each consumer or group under consideration. In this case, the sum of the individual hourly (or 15 minute) peaks would determine the overall daily load pattern and the overall peak load. Suppose one consumer (or group) consumes energy only in the morning and a second consumer (or group) consumes energy only in the evening, the coincidence factor between these two consumers would be zero and the peak load of the combined group would be the peak of the larger consumer. Conversely, if both groups consumed all energy at the same hour, the coincidence factor would be one and the combined peak

would be the sum of the two peaks. In practice, the coincidence factor is found between these two extremes.

Coincidence factors can be determined between any group and sub group of consumers whether it is domestic versus commercial or Lahore versus Islamabad, provided that reasonable estimates of the appropriate load patterns are available. Typically, these patterns are not readily available and must be synthesized from incomplete or estimated data. In addition, all coincidence factors calculated from these load patterns are approximations of the corresponding instantaneous peak faced by the system. In fact, a common practice is to define this instantaneous peak as the bench mark and specify all coincidence factors in relation to this peak and time. The advantage of this approach is that all peak can be easily converted into their contribution to the overall system peak, the disadvantage is that the relationship between any two groups cannot be so clearly specified and will likely be incorrectly specified.

The Power Market Survey Model depends upon specified coincidence factors between consumption categories and between consumption areas in the aggregation of peak loads from consumers to the peaks at grid stations and at GEPCO level. The coincidence factors estimated for the medium-term model have been based on the limited available System records of the peak loads at various points in their respective systems. **Table 3-6** represents the category wise coincidence factors used in MTLF:

Table 3-6: Detail of category wise input Co-incidence factors (%)

Domestic CF	Commercial CF	S. Ind. CF	Agr CF	Inter-Category CF	District CF	Division CF	GEPCO Computed CF	GEPCO Recorded CF
100	100	70	80	80	95	92	79.54	76.02
100	100	70	80	80	95	92	79.53	76.02
100	100	70	80	80	95	92	79.03	75.52
100	100	70	80	80	95	92	79.03	75.52
100	100	70	80	80	95	92	78.53	75.02
100	100	70	80	80	95	92	78.53	75.01
100	100	70	80	80	95	92	78.02	74.51
100	100	70	80	80	95	92	78.02	74.51
100	100	70	80	80	95	92	77.52	74.01
100	100	70	80	80	95	92	77.52	74.01
100	100	70	80	80	95	92	77.02	73.51

3.3.6. Un-Served Demand:

The actual consumption data is also adjusted to account for un-served demands resulting from factors like load shedding and voluntary restraint by consumers (e.g., an industrial consumer choosing to temporarily close their plant or switch to captive generation during peak hours). The data related to load shedding is collected from the Power Dispatch Center of GEPCO.

To calculate the yearly shed in GWh, the load shed in GW during each hour is considered. However, it's assumed that a feeder does not remain at the same load level for the entire hour during shedding. Therefore, a factor of 70% is applied to estimate the reduction in shedding in GWh.

For the base year, the calculated shedding at the 11kV level is 367 GWh. For the upcoming years, this shedding figure is kept constant to estimate the computed forecast.

3.4. Forecast Calculations:

The forecast calculations involve three basic steps. First, an energy forecast is determined at the area (or subarea) level using per consumer growth rates and incremental consumption estimates from the data base. This is then converted to a peak demand forecast, again at the area (or subarea) level using the input load and diversity factors. Then transmission and distribution losses are added and final step is to accumulate the areas into their corresponding grid stations, and grid stations into system.

3.5. Energy Calculations:

The basic calculation unit is the area or subarea where applicable. The database provides the base year energy consumption level for each of the seven consumption categories (Domestic, Commercial, Public Lighting, Small Industry, Private Tube Wells, Bulk Supply and Medium & Large Industry). The database also includes the peak demand associated with the medium & large industry and bulk supply category. The domestic energy forecast for year 1 (the base year is indicated as year 0) is calculated by multiplying the base year consumption by the domestic growth rate to account for growth in the intensity of use in the sector, and then incremental consumption listed in the database is added to account for new use in the sector. This process is repeated for the remaining six energy sectors (plus the medium and large industrial demand) for the entire forecast period (remaining 10 years). The total energy consumed in the subarea for each year of the forecast period is then computed.

3.6. Peak Demand Calculations:

The annual energy sale values for each of the consumer category (domestic, commercial, public lighting, small industry and private tube well) are converted to peak demand using the load factors listed in the appropriate input parameter file and then adjusted to account for coincidence within the category. The annual peak demand for the substation is computed as the sum of the individual category peaks multiplied by coincidence factors within the sub-station. The sub-station peak demands are accumulated to the system by applying proper coincidence factors.

4. ADDITIONAL FORECAST PARAMETERS

4.1. Bulk Power Consumers (BPC)

Bulk power consumers are defined in NEPRA Act 1997 (amended 2018) as follow:

"Bulk -power consumer means a consumer who purchases or receives electric power, at one premises, in an amount of one megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may specify and the Authority may specify different amounts and voltage levels and with such other characteristics for different areas."

4.1.1. BPCs in GEPCO

Currently, there are 127 no. Bulk Power Consumers in GEPCO. The sanctioned load of Bulk Power Consumers is 392 MW and energy sale of Bulk Power Consumers for the year 2023-24 is 893.7 GWh while **Figure 4-1** gives the category wise MDI share (%) of BPCs.

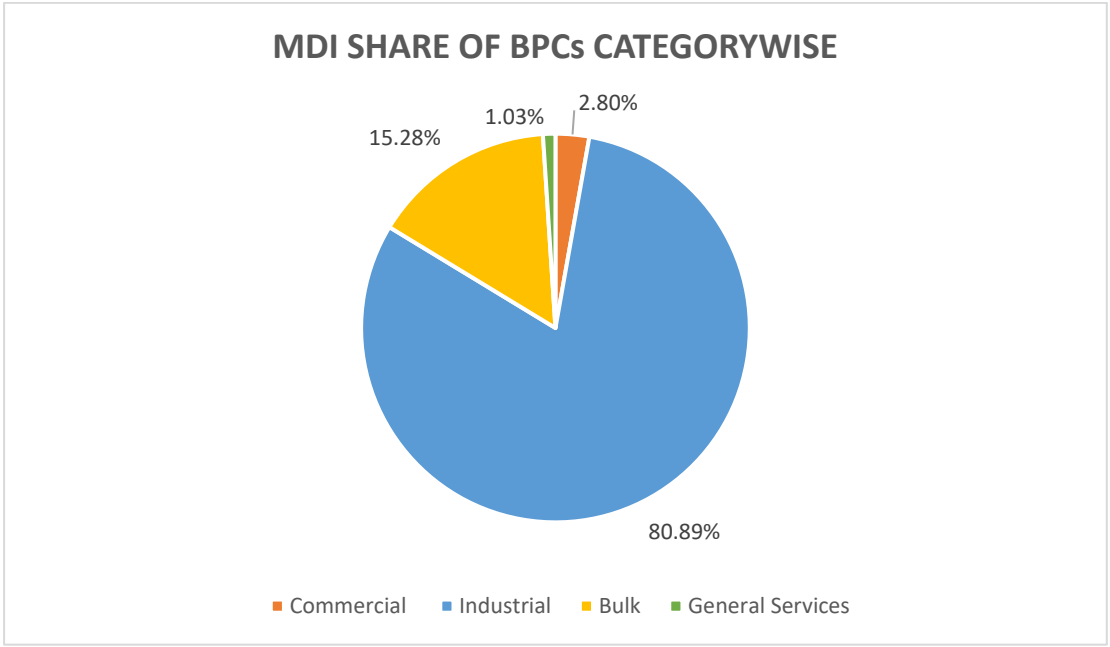


Figure 4-1: MDI Share of Category wise BPCs

Break up of category wise Bulk Power Consumers in GEPCO and the energy sale for the year 2023-24 is given in **Table 4-1**.

Table 4-1: BPCs Sale and Demand for base year

Description	No.	Sanctioned load (MW)	Sum of MDI (MW)	Energy Sale (GWh)
Commercial	9	17.6	8.9	10.6
Industrial	96	303.3	256.1	884.1
Bulk	15	56.8	48.4	133.8
General Services	7	13.7	3.3	8.2
Total	127	391.5	316.6	893.7

Bulk Power consumers consumed 8.5% of GEPCO's sale in 2023-24.

4.1.2. Bulk Power Consumers Forecast

The Bulk Power Consumers Forecast was prepared by using historical growth, planned / pending applications and expert analysis to have realistic future projections. Bulk Power Consumers in industrial category have major impact in historical data and so will be the case in future. It is expected that BPCs of industrial category will have sanctioned load up to 470 MW in year 2027-28 compared to 342 MW in the base year. Sanctioned load of industrial category of BPCs will jump to 600 MW in year 2033-34. Energy consumed by Industrial BPC will jump from 994.4 GWh in base year to 1109 GWh and 1416 GWh in year 2027-28 and 2033-34 respectively.

Forecast of BPCs reveal that No. of consumers will be increasing from 138 no. to 183 and 231 in year 2027-28 and 2033-34, respectively. While sanctioned load will increase from 428 MW in base year to 567 MW and 708 MW in year 2027-28 and 2033-34, respectively. Finally, expected energy consumed will be 1305 GWh and 1666 GWh in year 2027-28 and 2033-34, respectively. Base year Total Energy consumed by BPCs is 994.4 GWh.

Figure 4-2: BPCs Projection

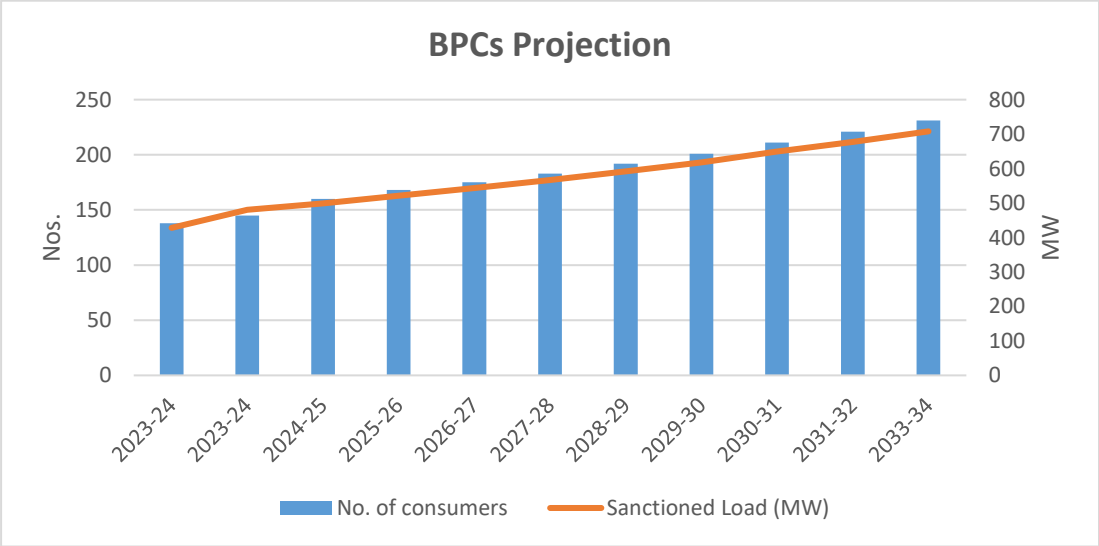


Table 4-2: BPCs Number of customer and sanctioned load Forecast

Year	Commercial		Industrial		Bulk Supply		General Services		Total	
	No. of consumers	Sanctioned Load (MW)	No. of consumers	Sanctioned Load (MW)	No. of consumers	Sanctioned Load (MW)	No. of consumers	Sanctioned Load (MW)	No. of consumers	Sanctioned Load (MW)
2023-24	9	18	96	303	15	57	7	14	127	391
2023-24	10	19	111	350	15	57	8	17	144	443
2024-25	11	20	126	398	15	57	8	17	160	491
2025-26	11	21	132	417	15	57	8	17	167	511
2026-27	12	21	139	438	15	57	9	18	174	534
2027-28	12	22	146	460	15	57	9	18	182	557
2028-29	13	23	153	483	15	57	10	19	191	582
2029-30	13	24	161	507	15	57	10	19	199	607
2030-31	14	25	169	532	16	58	11	20	209	636
2031-32	15	26	177	559	16	58	11	20	219	663
2033-34	16	27	186	586	16	58	12	21	229	694
CAGR	5.60%	4.52%	6.85%	6.81%	0.65%	0.26%	5.38%	4.61%	6.10%	5.89%

Table 4-3: BPCs Sale and Demand Forecast

Year	Commercial		Industrial		Bulk Supply		General Services		Total	
	Sale (GWh)	Demand (MW)	Sale (GWh)	Demand (MW)	Sale (GWh)	Demand (MW)	Sale (GWh)	Demand (MW)	Sale (GWh)	Demand (MW)
2023-24	11	9	741	256	134	48	894	3	1779	317
2023-24	11	10	767	296	140	48	927	4	1846	358
2024-25	11	10	801	336	147	48	968	4	1928	398
2025-26	11	10	804	352	155	48	979	4	1950	415
2026-27	12	11	806	370	163	48	989	4	1969	433
2027-28	12	11	806	388	171	48	998	4	1986	452
2028-29	12	12	804	408	179	48	1005	4	2000	472
2029-30	13	12	799	428	188	48	1010	4	2010	493
2030-31	13	13	839	449	198	50	1060	5	2109	516
2031-32	13	13	881	472	207	50	1112	5	2214	539
2033-34	14	14	925	495	218	50	1167	5	2323	564
CAGR	2.53%	4.52%	2.24%	6.81%	5.00%	0.26%	2.71%	4.61%	2.70%	5.94%

4.1.3. Bulk Power Consumers opting supply from competitive Supplier

With the introduction of CTBCM whole sale market in Pakistan, Bulk Power Consumers can end supply contract with supplier of the last resort by serving one-year advance notice and can opt to get supply from competitive suppliers. However, it has been observed that no notice in this regard has been served by any BPC in GEPCO. Furthermore, GEPCO did not receive any new BPC interconnection application to opt for supply form the competitive supplier.

Table 4-4: Sale and Demand of those BPCs who served notice to GEPCO

Year	No.	Sanctioned load	Expected Energy
2023-24	Nil	Nil	Nil

4.2. Consumers with Captive Power Plants:

There are 23 (twenty-three) consumers of GEPCO, having electric generation plants and generating electricity for self-utilization using Gas/ Bagasse/ RFO etc. as a fuel. These consumers are also connected to GEPCO network for supply of electric power and fall under the category of Captive Power Plants.

Keeping in view the fact that National Grid has sufficient installed generation capacity and gas resources are declining perpetually, Authority has decided to disconnect gas supply of all those consumers which have captive power plants.

This decision of Authority would urge these consumers to get their power needs from national grid thus increasing demand and energy requirement from national grid.

As a result of this decision, some consumers applied extension of load, some lodged legal suits & obtained stay orders and using gas fuel for generation. This issue of demand forecast report covers the scope of extended load applied by these captive power plants. However, consumers opting for legal suits and using gas as generation have not been considered in the demand forecast.

The trend has been observed that most of the captive power consumers on gas fuel are opting for partial solarization to full fill their power needs. Hence these captive power consumers won't have effect on GEPCO demand forecast.

4.3. Small Power Producers

SPPs are power plants connected to the distribution company at an 11 KV voltage level. These power plants are not subject to central economic dispatch. Currently, GEPCO has two such power plant named Head Marala HPP with a capacity of 7.64 MW and Chianwali HPP with a capacity of 5.38 MW. Below is an analysis of the energy generated and the demand supplied by this power plant.

Table 4-5: Energy Generation Statistics of HPP Head Marala

2020-21		2021-22		2022-23		2023-24	
Energy Generated (GWh)	Maximum demand out (MW)	Energy Generated (GWh)	Maximum demand out (MW)	Energy Generated (GWh)	Maximum demand out (MW)	Energy Generated (GWh)	Maximum demand out (MW)
36.51	7.84	24.92	7.75	22.77	6.34	31.11	11.3

GEPCO can potentially meet a future demand of approximately 13.02 MW during peak hours through contributions from small power producers. Together, these two power plants have the potential to generate approximately 65 GWh of energy annually.

4.4. Demand Side Management

Demand Side Management (DSM) is a strategy used by electricity utilities to control demand by encouraging consumers to modify their level and pattern of electricity usage. A Demand Side Management program typically takes place on the user's premises and includes monetary incentives to encourage consumers to buy energy-efficient equipment, or lower prices if they agree to reduce usage during peak times of demand. It's a win-win situation: when customers agree to reduce their energy use at times when demand (and therefore prices) are highest and shift their consumption to moment.

NEPRA has introduced national level two-part tariffs for industrial, tube wells, large commercial and domestic consumers to encourage use electricity during off Peak hours. However, these time domains of peak and off-peak hours needed to be reviewed as the peaks of each DISCO has different timings. This act can reduce DISCOs peak demand.

Strategic directive # 99 under priority area 17: Energy Efficiency & Conservation of Draft National Electricity Plan 2023-2027 describes about Demand Side Management which is reproduced as under:

"*In order to effectively deploy the DSM strategies to complement the supply side intervention for meeting the consumers' demand, the Regulator shall formulate DSM regulations for the DISCOs, which shall provide for, inter alia, guidelines, roles & responsibilities, incentives, development of individual DSM plans & programs and implementation. Provided further, each DISCO shall establish a DSM cell in MIRAD, that shall be responsible for the functions related to DSM and other initiatives under EE&C.*"

In alignment with this policy, GEPCO will establish a DSM cell in MIRAD to initiate DSM measures aimed at controlling the peak demand of GEPCO.

5. Forecast Results

5.1. Recorded Forecast & Computed Forecast:

The term 'Recorded Forecast' means the energy sale figures used in the forecast which has not been adjusted for un-served energy (load shedding). Forecasted sale, growth rates, transmission and distribution losses, generation requirement and peak demand without incorporating load shedding has been shown in **Table MTLF 1**, this forecast is also called the Low Forecast.

The term 'Computed Forecast' means the energy sale figures used in forecast which have been adjusted for un-served energy (load shedding). Forecasted energy sale, growth rates, transmission and distribution losses, generation requirement and peak demand with incorporating load shedding has been shown in **Table MTLF 2**. Peak demand of this table has been demonstrated graphically **Figure 5-1**. Similarly, energy sale and energy purchased also have been shown in **Figure 5-2**. The difference between energy purchased and energy sale shows losses of GEPCO. This forecast is also called the Base Forecast. If there had not been the load shedding, the recorded forecast (Low Forecast) would have been the actual forecast i.e., the Base Forecast.

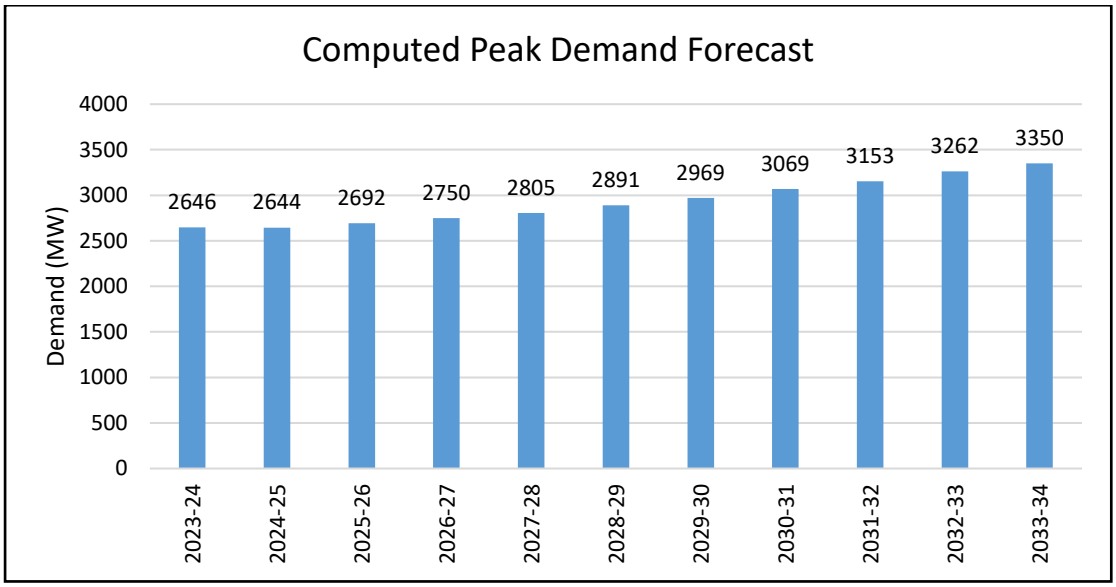


Figure 5-1: Computed Peak Demand

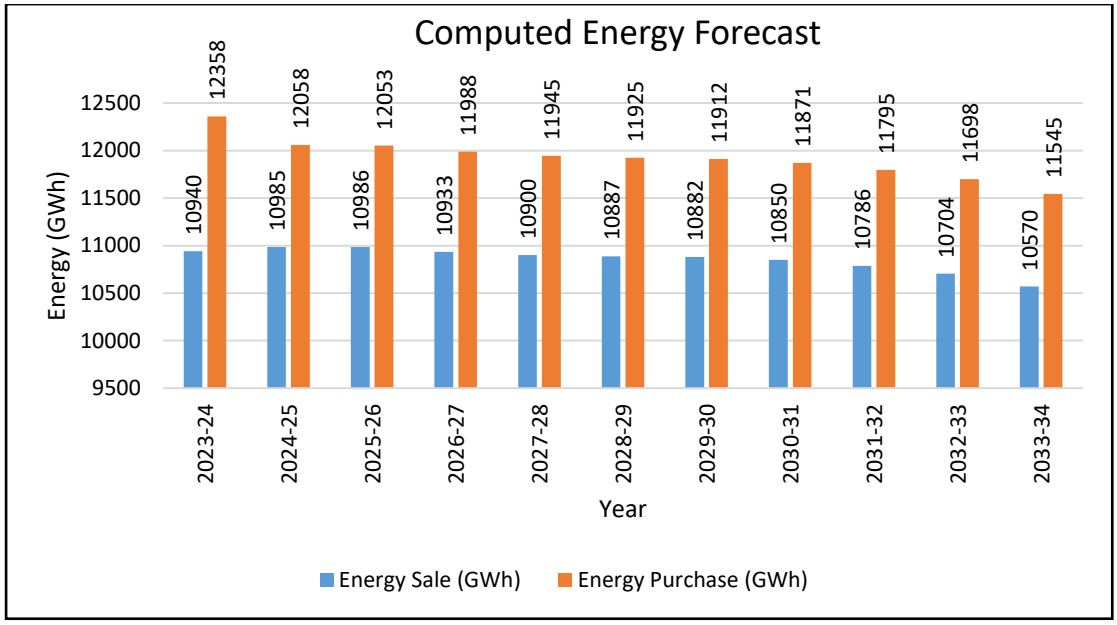
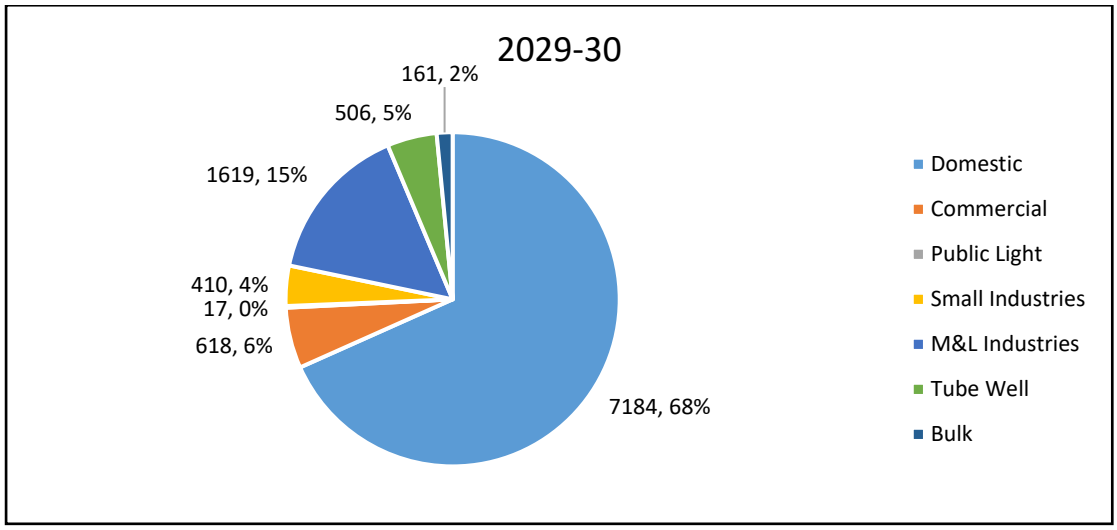


Figure 5-2: Energy Purchased Vs Energy Sale

5.2. Category-wise Forecasted Energy Sale (GWh):

Amount and percentage share of each consumer category in the total consumption for the year 2029-30 and year 2033-34 have been depicted in **Figure** 5-3. If we critically analyze **Figure 2-2** and **Figure 5-3**, it is evident that domestic sector has increased from 54% to 59% from year 2014-15 up to year 2023-24 and will further increase to 68% during the forecast years till 2029-30 and at 72% in 2033-34. Industrial sector has shown a decrease from 29% to 23% form year 2014-15 to year 2023-24. During 2029-30 the industrial share is projected 19% and the forecast result shows that it decreases to 16 % up to year 2033-34.



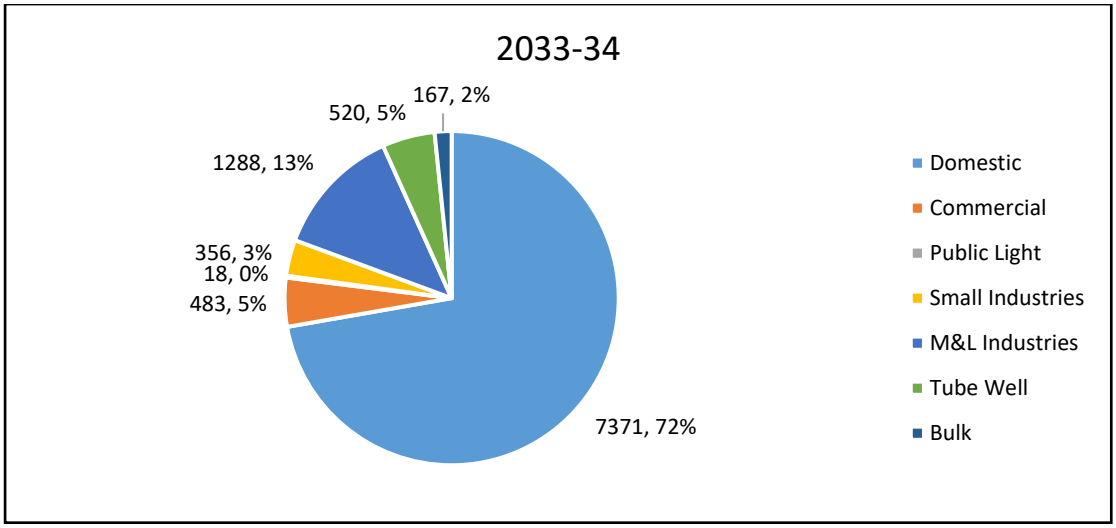


Figure 5-3: Forecasted Category Wise Sale

The category-wise forecasted sale without incorporating load shedding effect (Low Forecast) is shown in **Table MTLF 3**. The category-wise forecasted sale with incorporating load shedding effect (Base Forecast) is shown in **Table MTLF 4**.

5.3. Category wise Forecasted Demand (MW):

The forecast of consumption (Demand) in MW without and with incorporating load shedding impact is shown in **Table MTLF 5** and **Table MTLF 6** respectively.

5.4. Civil Administrative Area Forecast:

The GEPCO service territory comprises of one civil administrative division i.e., Gujranwala, which comprises of six districts, Gujranwala, Gujrat, Hafiz Abad, M.B. Din, Narowal and Sialkot. The civil administrative Division-wise and District-wise energy and demand projections have been presented in **Tables MTLF 8** to **MTLF 14**. The last column of these tables contains peak demand of respective area.

5.5. Monthly Demand (MW) and Energy (GWh) Purchase Projections:

The Month–wise demand (MW) and energy (GWh) purchase projections without incorporating load shedding (low forecast) have been presented in **Table MTLF 15** and **MTLF 17** respectively. The Month–wise demand (MW) and energy (GWh) purchase projections with incorporating load shedding (base forecast) have been presented in **Table MTLF 16** and **MTLF 18**, respectively. To develop the projection, monthly demand and energy factors are computed for last five years and then its average is taken as a base factor for monthly demand and Energy projection. For this, each month peak is calculated from the ratio of the historical peak of that particular month to the annual historical peak of that year. Whereas each month Energy purchase is calculated from the ratio of historical monthly energy purchase of that particular month to annual energy purchase of that year. In this manner, historical ratios are calculated for each month of the last five years. The average of these values is taken as the monthly factor and multiplied with the peak demand of the year to obtain monthly peak demand and energy purchase.

5.6. List of Overloaded Substations:

The list of overloaded substations will inform about that particular year in which a substation will be overloaded. The overloading criterion of a substation has been

considered as 80% and 100% i.e., when any substation is either 80% or 100% loaded, the remedial measures should be taken in the form of new substation or augmentation of the existing transformers. **Table MTLF 19** & **MTLF 20** show the lists of overloaded substations based on overloading criterion of 80% and 100% respectively. Based on the loading criterion of 80% the number of overloaded substations in the year 2029-30 is zero. Three (03) grids will be overloaded up-to year 2033-34.

5.7. List of Grids with their Codes and MVA Capacities:

The list of substations in GEPCO mentioning number of transformers with MVA capacities at each substation is provided in the **Table MTLF 21**.

5.8. Peak Demand of Substations:

A projection of peak demand at a substation is the most peculiar feature of this report. It is indeed a very useful forecast as it provides the basis for transmission system expansion planning. It also provides a very solid ground for proposing a new substation or augmentation, extension and conversion of a sub-station. Only distribution losses have been considered in preparing the grid station peak demand forecast. The peak demand of each substation, existing as well as proposed, situated in the service territory of GEPCO has been shown in the **Table MTLF 23**.

The proposed substations during the present period have also been incorporated in this table. The demand of the proposed substations is shown on the existing grids before the commissioning of proposed substation, and it is shifted to the proposed substation after its commissioning year.

5.9. Peak Demands of existing, transit and proposed grids (Family of Grids):

This report also presents the projection of peak demands of existing substations as well as the demands that will be transferred to the proposed substations, when commissioned. This is also a very important forecast to accurately plan the capacity of the proposed substations as well as the status of the existing substation after the load is transferred to the proposed substation. It accurately forecast the demand in MW that will be transferred from one existing grid to the proposed grid and as well as the total load that will be transferred to the proposed grid. The peak demands of existing, transit and proposed grids are shown in **Table MTLF 24**. Transit grid is a new term introduced in the current issue of the report. It is a virtual or temporary substation with a particular name and number on which the necessary load from one overloaded substation is shifted temporarily during base year. The proposed grids are shown with zero loads and the transit grid shows the estimated load that will be shifted from one existing substation to the proposed grid when it is commissioned. This table helps in finding out the amount of load in the future that will be shifted to the proposed grid from the existing grid when it is commissioned.

5.10. Per Capita Consumption:

Per capita consumption is a very vivid indicator of development in a country. Usually developed countries have very high per capita consumption. Per capita consumption (kWh/person) for the year 2016-17, 2022-23, 2023-24, 2029-30, and 2033-34 is given in **Figure 5-4**. (The consumption for the years 2029-30 and 2033-34 are forecasted data, historical population data is obtained from Pakistan census 2023.)

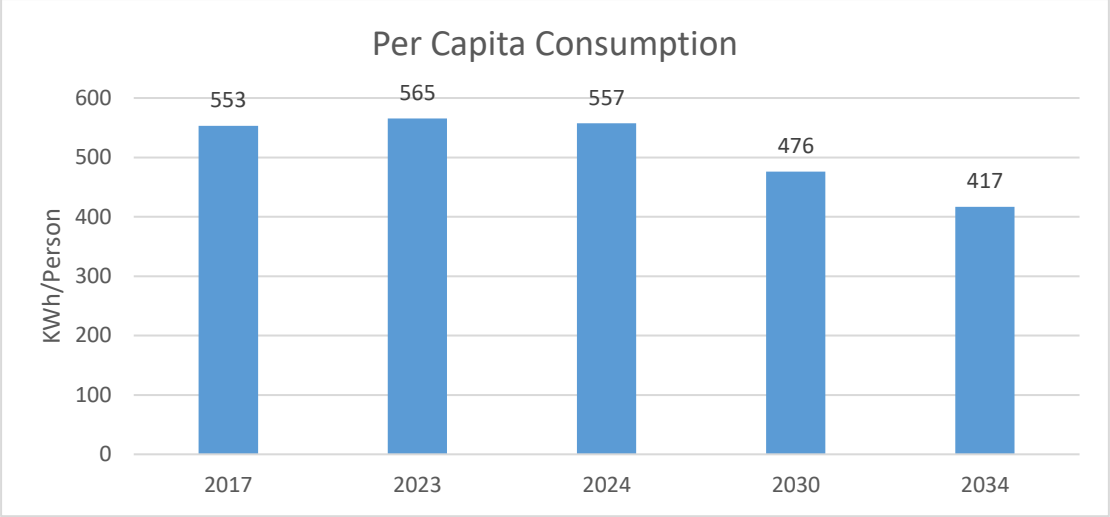


Figure 5-4: Per Capita Consumption

MTLF 1: Recorded Forecast without incorporating Load Shedding effect (Low Forecast)

Year	Energy Sale (GWh)	G.R (%)	Dist. Loss (GWh)	Dist. Loss (%)	Energy Received at 11 kV (GWH)	Peak Demand at 11 kV (MW)	Trans. Losses (GWh)	Tr. Loss (%)	Energy Sent out at 132 kV (GWh)	Total loss (%)	Energy Purchase from System (GWh)	Load Factor (%)	Peak Demand at 132 kV (MW)
2023-24	10573		1275	10.76%	11848	2425	96.03	0.80%	11944	11.48%	11844	55%	2445
2024-25	10618	0.4%	935	8.09%	11553	2423	102.57	0.88%	11655	8.90%	11432	53%	2444
2025-26	10619	0.0%	930	8.05%	11549	2469	101.36	0.87%	11650	8.85%	11177	51%	2490
2026-27	10566	-0.5%	920	8.01%	11486	2524	99.64	0.86%	11586	8.80%	10837	49%	2546
2027-28	10533	-0.3%	912	7.97%	11445	2576	98.12	0.85%	11543	8.75%	10492	46%	2598
2028-29	10521	-0.1%	906	7.93%	11426	2658	96.79	0.84%	11523	8.70%	10139	43%	2680
2029-30	10515	-0.1%	900	7.89%	11415	2732	95.54	0.83%	11511	8.65%	9760	40%	2755
	-0.09%				-0.62%	2.01%			-0.61%		-3.18%		2.01%
2030-31	10484	-0.3%	892	7.84%	11376	2827	94.05	0.82%	11470	8.60%	9316	37%	2850
2031-32	10420	-0.6%	882	7.80%	11302	2906	92.29	0.81%	11394	8.55%	8797	34%	2929
2032-33	10337	-0.8%	870	7.76%	11207	3009	90.38	0.80%	11297	8.50%	8213	31%	3034
2033-34	10203	-1.3%	854	7.72%	11056	3093	88.04	0.79%	11144	8.45%	7524	28%	3118
CAGR (2022-23)	-0.36%				-0.69%	2.46%			-0.69%		-4.44%		2.46%

MTLF 2: Computed Forecast with incorporating Load Shedding effect (Base Forecast)

Year	Energy Sale (GWh)	G.R (%)	Dist. Loss (GWh)	Dist. Loss (%)	Energy Received at 11 kV (GWH)	Peak Demand at 11 kV (MW)	Trans. Losses (GWh)	Tr. Loss (%)	Energy Sent out at 132 kV (GWh)	Total loss (%)	Energy Purchase from System (GWh)	Load Factor (%)	Peak Demand at 132 kV (MW)
2023-24	10940		1319	10.76%	12259	2625	99	0.80%	12358	11.48%	12259	53%	2646
2024-25	10985	0.4%	967	8.09%	11952	2620	106	0.88%	12058	8.90%	11834	51%	2644
2025-26	10986	0.0%	962	8.05%	11948	2668	105	0.87%	12053	8.85%	11579	49%	2692
2026-27	10933	-0.5%	952	8.01%	11885	2727	103	0.86%	11988	8.80%	11239	47%	2750
2027-28	10900	-0.3%	944	7.97%	11844	2781	101	0.85%	11945	8.75%	10894	44%	2805
2028-29	10887	-0.1%	938	7.93%	11825	2867	100	0.84%	11925	8.70%	10540	42%	2891
2029-30	10882	-0.1%	932	7.89%	11814	2945	98	0.83%	11912	8.65%	10161	39%	2969
	-0.09%				-0.61%	1.93%			-0.61%		-3.08%		1.94%
2030-31	10850	-0.3%	923	7.84%	11773	3044	98	0.82%	11871	8.60%	9717	36%	3069
2031-32	10786	-0.6%	913	7.80%	11699	3127	96	0.81%	11795	8.55%	9198	33%	3153
2032-33	10704	-0.8%	901	7.76%	11604	3236	94	0.80%	11698	8.50%	8614	30%	3262
2033-34	10570	-1.3%	884	7.72%	11454	3324	91	0.79%	11545	8.45%	7924	27%	3350
CAGR (2022-23)	-0.34%				-0.68%	2.39%			-0.68%		-4.27%		2.39%

MTLF 3: Category Wise Sale – (GWh) without Load Shedding effect (Low Forecast)

Year	Domestic (GWh)	G.R (%)	Commercial (GWh)	G.R (%)	Public Light (GWh)	G.R (%)	Small Industries (GWh)	G.R (%)	M&L Industries (GWh)	G.R (%)	Tube Well (GWh)	G.R (%)	Bulk (GWh)	G.R (%)	Total	G.R (%)
2023-24	6,743		732		15		483		1,985		461		155		10,573	
2024-25	6,825	1.2%	718	-1.9%	15	2.8%	477	-1.2%	1,945	-2.0%	481	4.4%	157	1.2%	10,618	0.4%
2025-26	6,880	0.8%	698	-2.8%	15	2.2%	466	-2.2%	1,912	-1.7%	489	1.7%	158	0.8%	10,619	0.0%
2026-27	6,914	0.5%	680	-2.6%	16	3.3%	452	-3.0%	1,850	-3.3%	495	1.2%	159	0.3%	10,566	-0.5%
2027-28	6,986	1.0%	664	-2.4%	16	2.5%	438	-3.2%	1,772	-4.2%	499	0.7%	159	0.5%	10,533	-0.3%
2028-29	7,079	1.3%	646	-2.7%	17	2.0%	424	-3.2%	1,693	-4.4%	502	0.7%	160	0.5%	10,521	-0.1%
2029-30	7,184	1.5%	618	-4.3%	17	1.4%	410	-3.4%	1,619	-4.4%	506	0.8%	161	0.7%	10,515	-0.1%
2030-31	7,260	1.1%	591	-4.3%	17	2.1%	395	-3.6%	1,550	-4.3%	508	0.3%	163	0.9%	10,484	-0.3%
2031-32	7,327	0.9%	562	-5.0%	18	1.8%	381	-3.4%	1,456	-6.0%	511	0.7%	164	1.1%	10,420	-0.6%
2032-33	7,370	0.6%	528	-6.0%	18	1.7%	368	-3.6%	1,372	-5.7%	516	0.9%	166	0.7%	10,337	-0.8%
2033-34	7,371	0.0%	483	-8.6%	18	1.4%	356	-3.3%	1,288	-6.1%	520	0.8%	167	0.9%	10,203	-1.3%
CAGR (2023-33)	0.89%		-4.09%		2.12%		-3.01%		-4.23%		1.21%		0.75%		-0.36%	

MTLF 4: Category Wise Sale (GWh) with Load Shedding effect - Base Forecast

Year	Domestic (GWh)	G.R (%)	Commercial (GWh)	G.R (%)	Public Light (GWh)	G.R (%)	Small Industries (GWh)	G.R (%)	M&L Industries (GWh)	G.R (%)	Tube Well (GWh)	G.R (%)	Bulk (GWh)	G.R (%)	Total	G.R (%)
2023-24	6,977		758		15		499		2,053		477		160		10,940	
2024-25	7,059	1.2%	743	-1.9%	16	2.4%	493	-1.2%	2,013	-1.9%	498	4.3%	162	1.1%	10,985	0.4%
2025-26	7,114	0.8%	723	-2.7%	16	2.1%	483	-2.1%	1,981	-1.6%	506	1.6%	163	0.8%	10,986	0.0%
2026-27	7,148	0.5%	706	-2.4%	16	3.2%	469	-2.9%	1,918	-3.2%	512	1.1%	164	0.2%	10,933	-0.5%
2027-28	7,220	1.0%	690	-2.3%	17	2.4%	454	-3.1%	1,840	-4.1%	515	0.6%	164	0.4%	10,900	-0.3%
2028-29	7,314	1.3%	672	-2.5%	17	1.9%	440	-3.1%	1,760	-4.3%	518	0.6%	165	0.4%	10,887	-0.1%
2029-30	7,419	1.4%	645	-4.1%	17	1.4%	426	-3.3%	1,687	-4.2%	522	0.8%	166	0.6%	10,882	-0.1%
2030-31	7,495	1.0%	619	-4.1%	18	2.0%	411	-3.4%	1,617	-4.1%	523	0.2%	167	0.8%	10,850	-0.3%
2031-32	7,563	0.9%	589	-4.7%	18	1.7%	398	-3.3%	1,523	-5.8%	527	0.7%	169	1.0%	10,786	-0.6%
2032-33	7,605	0.6%	556	-5.7%	18	1.6%	384	-3.5%	1,439	-5.5%	531	0.9%	170	0.6%	10,704	-0.8%
2033-34	7,606	0.0%	511	-8.1%	19	1.3%	372	-3.1%	1,356	-5.8%	535	0.7%	171	0.8%	10,570	-1.3%
CAGR (2023-33)	0.87%		-3.87%		2.00%		-2.90%		-4.07%		1.16%		0.67%		-0.34%	

MTLF 5: Consumer Category Wise Demand (MW) without Load Shedding effect - Low Forecast

Year	Domestic (MW)	G.R. (%)	Commercial (MW)	G.R. (%)	Public Light (MW)	G.R. (%)	Small Industries (MW)	G.R. (%)	M&L Industries (MW)	G.R. (%)	Tube Well (MW)	G.R. (%)	Bulk (MW)	G.R. (%)	Total (MW)	G.R. (%)
2023-24	1,735		209		4		145		453		125		32.4		2,164	
2024-25	1,787	3.0%	216	3.0%	4	2.5%	148	2.2%	462	2.0%	131	5.1%	33.5	3.4%	2,227	2.9%
2025-26	1,822	2.0%	220	2.1%	4	1.5%	150	1.2%	471	2.0%	134	1.9%	34.3	2.3%	2,270	1.9%
2026-27	1,864	2.4%	229	3.8%	5	3.3%	153	1.9%	480	1.8%	137	2.2%	34.4	0.2%	2,322	2.3%
2027-28	1,906	2.2%	237	3.9%	5	1.8%	156	1.7%	486	1.3%	139	1.3%	34.3	-0.3%	2,371	2.1%
2028-29	1,970	3.4%	249	4.9%	5	2.0%	160	2.9%	498	2.5%	142	2.1%	34.5	0.7%	2,447	3.2%
2029-30	2,030	3.0%	258	3.5%	5	0.8%	164	2.4%	509	2.3%	144	1.7%	34.6	0.1%	2,517	2.8%
2030-31	2,102	3.5%	270	4.8%	5	2.1%	169	3.3%	526	3.4%	147	2.0%	34.9	0.9%	2,605	3.5%
2031-32	2,164	3.0%	282	4.3%	5	1.2%	174	2.9%	536	2.0%	150	1.8%	35.0	0.4%	2,679	2.8%
2032-33	2,242	3.6%	296	5.1%	5	1.7%	180	3.5%	554	3.4%	154	2.8%	35.2	0.7%	2,776	3.6%
2033-34	2,304	2.8%	308	3.9%	5	0.7%	186	3.0%	570	2.9%	157	2.0%	35.3	0.2%	2,854	2.8%
CAGR (2023-33)	2.88%		3.92%		1.74%		2.50%		2.34%		2.30%		0.85%		2.81%	

MTLF 6: Consumer Category Wise Demand (MW) - Base Forecast

Year	Domestic (MW)	G.R. (%)	Commercial (MW)	G.R. (%)	Public Light (MW)	G.R. (%)	Small Industries (MW)	G.R. (%)	M&L Industries (MW)	G.R. (%)	Tube Well (MW)	G.R. (%)	Bulk (MW)	G.R. (%)	Total (MW)	G.R. (%)
2023-24	1,878		227		5		157		490		135		35.1		2,343	
2024-25	1,932	2.9%	233	2.9%	5	2.4%	160	2.1%	500	2.0%	142	5.0%	36.3	3.3%	2,409	2.8%
2025-26	1,969	1.9%	238	2.1%	5	1.5%	162	1.2%	509	2.0%	145	1.8%	37.1	2.3%	2,454	1.9%
2026-27	2,014	2.3%	247	3.7%	5	3.2%	165	1.8%	518	1.7%	148	2.2%	37.1	0.1%	2,509	2.2%
2027-28	2,058	2.2%	256	3.8%	5	1.7%	168	1.7%	524	1.2%	150	1.2%	37.0	-0.3%	2,560	2.0%
2028-29	2,125	3.3%	268	4.8%	5	1.9%	173	2.8%	537	2.4%	153	2.0%	37.2	0.6%	2,640	3.1%
2029-30	2,188	3.0%	278	3.4%	5	0.7%	177	2.3%	548	2.2%	155	1.7%	37.2	0.1%	2,713	2.8%
2030-31	2,263	3.4%	291	4.7%	5	2.1%	182	3.2%	566	3.3%	158	1.9%	37.5	0.8%	2,806	3.4%
2031-32	2,329	2.9%	303	4.3%	5	1.1%	188	2.8%	577	2.0%	161	1.8%	37.7	0.4%	2,883	2.8%
2032-33	2,410	3.5%	318	5.0%	5	1.6%	194	3.4%	596	3.3%	165	2.7%	37.9	0.6%	2,985	3.5%
2033-34	2,476	2.7%	331	3.8%	5	0.6%	200	2.9%	613	2.8%	169	2.0%	37.9	0.1%	3,067	2.8%
CAGR (2023-33)	2.8%		3.8%		1.7%		2.4%		2.3%		2.2%		0.8%		2.7%	

MTLF 7: Forecast of Category-wise number of customers

Year	Domestic	Commercial	Small Industry	Medium & Large Industry	Tube Well	Bulk Supply	Public Light	Others	Total
2023-24 (Base)	4,102,505	439,338	73,817	11,575	57,153	139	747	23,657	4,708,931
2024-25	4,355,630	453,704	75,980	11,880	58,365	140	759	24,286	4,980,744
2025-26	4,615,661	468,722	78,404	12,215	59,976	140	765	24,972	5,260,855
2026-27	4,887,523	484,752	81,046	12,500	61,865	140	775	25,696	5,554,297
2027-28	5,168,067	502,058	83,980	12,756	63,950	141	779	26,392	5,858,123
2028-29	5,460,063	520,333	87,129	13,128	66,341	141	786	27,129	6,175,050
2029-30	5,760,912	540,001	90,492	13,534	68,776	141	794	27,810	6,502,460

MTLF 8: Division-wise Sale (GWh), Generation (GWh) and Demand (MW) Forecast – Gujranwala

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Purchase (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	10,573		1,275	10.76%	96	0.80%	11,944	55.8%	2445
2024-25	10,870	2.8%	957	8.09%	105	0.88%	11,931	55.7%	2,444
2025-26	11,152	2.6%	976	8.05%	106	0.87%	12,235	56.1%	2,490
2026-27	11,409	2.3%	993	8.01%	108	0.86%	12,510	56.1%	2,546
2027-28	11,716	2.7%	1,014	7.97%	109	0.85%	12,840	56.4%	2,598
2028-29	12,078	3.1%	1,040	7.93%	111	0.84%	13,229	56.3%	2,680
2029-30	12,485	3.4%	1,069	7.89%	113	0.83%	13,667	56.6%	2,755
2030-31	12,907	3.4%	1,099	7.84%	116	0.82%	14,121	56.6%	2,850
2031-32	13,341	3.4%	1,129	7.80%	118	0.81%	14,589	56.9%	2,929
2032-33	13,807	3.5%	1,162	7.76%	121	0.80%	15,090	56.8%	3,034
2033-34	14,276	3.4%	1,194	7.72%	123	0.79%	15,594	57.1%	3,118
CAGR (2023-33)	3.05%						2.70%		2.46%

MTLF 9: GEPCO District-wise Energy (GWh) and Demand (MW) Forecast – Gujranwala

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Generation (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	4,190		506	10.77%	38	0.80%	4,733	46.6%	1,159
2024-25	4,200	0.2%	371	8.11%	41	0.88%	4,522	44.5%	1,159
2025-26	4,209	0.2%	369	8.07%	40	0.87%	4,428	42.4%	1,192
2026-27	4,192	-0.4%	366	8.03%	40	0.86%	4,296	40.1%	1,222
2027-28	4,182	-0.2%	363	7.98%	39	0.85%	4,158	37.7%	1,259
2028-29	4,184	0.0%	361	7.94%	38	0.84%	4,022	35.2%	1,304
2029-30	4,187	0.1%	360	7.91%	38	0.83%	3,874	32.6%	1,357
2030-31	4,183	-0.1%	357	7.87%	38	0.82%	3,705	30.0%	1,411
2031-32	4,171	-0.3%	354	7.83%	37	0.81%	3,512	27.3%	1,468
2032-33	4,154	-0.4%	351	7.79%	36	0.80%	3,296	24.6%	1,528
2033-34	4,121	-0.8%	346	7.75%	36	0.79%	3,045	21.9%	1,589
CAGR (2023-33)	-0.16%						-4.32%		3.20%

MTLF 10: GEPCO District-wise Energy (GWh) and Demand (MW) Forecast – Gujrat

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Generation (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	1,809		217	10.7%	16	0.80%	2,042	47.4%	492
2024-25	1,835	1.4%	160	8.0%	18	0.88%	1,984	45.9%	493
2025-26	1,844	0.5%	160	8.0%	18	0.87%	1,963	44.4%	504
2026-27	1,844	0.0%	159	7.9%	17	0.86%	1,930	42.9%	514
2027-28	1,852	0.4%	159	7.9%	17	0.85%	1,901	41.2%	526
2028-29	1,862	0.6%	159	7.9%	17	0.84%	1,873	39.6%	540
2029-30	1,889	1.4%	159	7.8%	17	0.83%	1,856	37.9%	559
2030-31	1,911	1.2%	159	7.7%	17	0.82%	1,830	36.1%	578
2031-32	1,918	0.4%	159	7.7%	17	0.81%	1,782	34.1%	596
2032-33	1,921	0.2%	159	7.6%	17	0.80%	1,724	32.0%	615
2033-34	1,917	-0.2%	157	7.6%	17	0.79%	1,650	29.7%	633
CAGR (2023-33)	0.58%						-2.11%		2.55%

MTLF 11: GEPCO District-wise Energy (GWh) and Demand (MW) Forecast - Hafiz Abad

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Generation (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	702		85	10.8%	6	0.80%	793	39.0%	232
2024-25	716	1.9%	63	8.1%	7	0.88%	778	38.2%	233
2025-26	723	1.0%	63	8.1%	7	0.87%	776	37.3%	238
2026-27	727	0.6%	63	8.0%	7	0.86%	770	36.2%	243
2027-28	732	0.7%	63	8.0%	7	0.85%	764	35.2%	248
2028-29	738	0.9%	64	7.9%	7	0.84%	758	34.0%	255
2029-30	745	0.9%	64	7.9%	7	0.83%	752	32.8%	261
2030-31	750	0.7%	64	7.9%	7	0.82%	742	31.6%	268
2031-32	756	0.8%	64	7.8%	7	0.81%	732	30.3%	276
2032-33	763	0.9%	64	7.8%	7	0.80%	722	29.0%	284
2033-34	768	0.7%	65	7.8%	7	0.79%	708	27.6%	293
CAGR (2023-33)	0.91%						-1.13%		2.35%

MTLF 12: GEPCO District-wise Energy (GWh) and Demand (MW) Forecast - M. B. Din

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Generation (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	784		95	10.8%	7	0.80%	886	41.8%	242
2024-25	791	0.9%	70	8.1%	8	0.88%	855	40.4%	242
2025-26	794	0.3%	70	8.1%	8	0.87%	842	38.8%	247
2026-27	792	-0.2%	69	8.0%	7	0.86%	823	37.2%	253
2027-28	793	0.1%	69	8.0%	7	0.85%	805	35.5%	259
2028-29	796	0.3%	69	7.9%	7	0.84%	786	33.7%	266
2029-30	797	0.2%	68	7.9%	7	0.83%	765	31.8%	274
2030-31	795	-0.2%	68	7.9%	7	0.82%	738	29.9%	282
2031-32	793	-0.3%	67	7.8%	7	0.81%	707	27.8%	290
2032-33	790	-0.4%	67	7.8%	7	0.80%	673	25.7%	299
2033-34	783	-0.9%	66	7.8%	7	0.79%	631	23.4%	308
CAGR (2023-33)	-0.02%						-3.34%		2.45%

MTLF 13: GEPCO District-wise Energy (GWh) and Demand (MW) Forecast – Narowal

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Generation (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	607		73	10.8%	5	0.80%	686	38.5%	203
2024-25	622	2.5%	55	8.1%	6	0.88%	680	38.1%	204
2025-26	635	2.0%	56	8.1%	6	0.87%	690	37.6%	210
2026-27	646	1.7%	56	8.0%	6	0.86%	698	37.2%	214
2027-28	659	2.1%	57	8.0%	6	0.85%	708	36.7%	220
2028-29	674	2.3%	58	7.9%	6	0.84%	719	36.3%	226
2029-30	690	2.3%	59	7.9%	6	0.83%	731	35.8%	233
2030-31	705	2.2%	60	7.9%	6	0.82%	742	35.3%	240
2031-32	722	2.3%	61	7.8%	6	0.81%	754	34.8%	247
2032-33	739	2.3%	62	7.8%	6	0.80%	765	34.2%	255
2033-34	755	2.2%	63	7.8%	7	0.79%	774	33.6%	263
CAGR (2023-33)	2.20%						1.22%		2.62%

MTLF 14: GEPCO District-wise Energy (GWh) and Demand (MW) Forecast – Sialkot

Year	Energy Sale (GWh)	G.R. (%)	Distribution Losses (GWh)	D. Loss (%)	Transmission Losses (GWh)	Trans. Loss (%)	Generation (GWh)	Load Factor (%)	Peak Demand (MW)
2023-24	2,481		299	10.8%	22	0.80%	2,803	44.1%	726
2024-25	2,454	-1.1%	217	8.1%	24	0.88%	2,613	41.2%	724
2025-26	2,415	-1.6%	212	8.1%	23	0.87%	2,478	38.1%	742
2026-27	2,365	-2.1%	206	8.0%	22	0.86%	2,321	34.9%	758
2027-28	2,315	-2.1%	201	8.0%	22	0.85%	2,155	31.6%	779
2028-29	2,266	-2.1%	195	7.9%	21	0.84%	1,979	28.2%	803
2029-30	2,208	-2.6%	190	7.9%	20	0.83%	1,781	24.6%	828
2030-31	2,139	-3.1%	183	7.9%	19	0.82%	1,558	20.8%	854
2031-32	2,060	-3.7%	175	7.8%	18	0.81%	1,309	16.9%	882
2032-33	1,970	-4.3%	166	7.8%	17	0.80%	1,033	12.9%	913
2033-34	1,859	-5.7%	156	7.8%	16	0.79%	716	8.7%	943
CAGR (2023-33)	-2.84%						-12.76%		2.65%

MTLF 15: Monthly Peak Demand Forecast 132-kV (Low Forecast) (MW)

Year	July	August	September	October	November	December	January	February	March	April	May	June
2023-24	2,285	2,445	2,214	1,601	1,225	1,109	1,263	1,127	1,158	1,408	2,189	2,429
2024-25	2,354	2,410	2,288	1,692	1,226	1,218	1,257	1,213	1,239	1,545	2,108	2,444
2025-26	2,398	2,456	2,332	1,723	1,249	1,241	1,281	1,236	1,262	1,574	2,148	2,490
2026-27	2,452	2,511	2,384	1,762	1,277	1,268	1,310	1,264	1,291	1,610	2,196	2,546
2027-28	2,503	2,562	2,433	1,798	1,304	1,294	1,336	1,289	1,317	1,643	2,241	2,598
2028-29	2,582	2,643	2,509	1,855	1,345	1,335	1,378	1,330	1,358	1,695	2,312	2,680
2029-30	2,653	2,717	2,579	1,907	1,382	1,372	1,417	1,367	1,396	1,742	2,376	2,755
2030-31	2,745	2,811	2,668	1,972	1,430	1,420	1,466	1,414	1,445	1,802	2,458	2,850
2031-32	2,821	2,889	2,743	2,027	1,470	1,459	1,506	1,454	1,485	1,852	2,527	2,929
2032-33	2,922	2,991	2,840	2,099	1,522	1,511	1,560	1,505	1,537	1,918	2,616	3,034
2033-34	3,003	3,074	2,919	2,157	1,564	1,553	1,603	1,547	1,580	1,971	2,689	3,118

MTLF 16: Monthly Peak Demand Forecast 132-kV (Base Forecast) (MW)

Year	July	August	September	October	November	December	January	February	March	April	May	June
2023-24	2,579	2,646	2,426	1,711	1,270	1,276	1,526	1,162	1,193	1,445	2,203	2,469
2024-25	2,555	2,529	2,346	1,813	1,204	1,276	1,442	1,189	1,298	1,627	2,145	2,644
2025-26	2,602	2,575	2,388	1,847	1,226	1,299	1,468	1,211	1,321	1,657	2,184	2,692
2026-27	2,658	2,631	2,440	1,887	1,252	1,327	1,500	1,238	1,350	1,693	2,231	2,750
2027-28	2,711	2,683	2,489	1,924	1,277	1,353	1,530	1,262	1,377	1,726	2,276	2,805
2028-29	2,794	2,766	2,565	1,983	1,317	1,395	1,577	1,301	1,419	1,779	2,346	2,891
2029-30	2,870	2,841	2,635	2,037	1,352	1,433	1,619	1,336	1,458	1,828	2,409	2,969
2030-31	2,966	2,936	2,723	2,106	1,398	1,481	1,674	1,381	1,507	1,889	2,490	3,069
2031-32	3,047	3,016	2,797	2,163	1,436	1,521	1,719	1,418	1,548	1,940	2,558	3,153
2032-33	3,152	3,120	2,894	2,238	1,485	1,574	1,779	1,468	1,601	2,008	2,646	3,262
2033-34	3,238	3,205	2,973	2,298	1,526	1,617	1,827	1,507	1,645	2,062	2,718	3,350

MTLF 17: Monthly Energy Purchased Forecast (Low Forecast) (GWh)

Year	July	August	September	October	November	December	January	February	March	April	May	June	Total
2023-24	1,405	1,576	1,303	815	640	646	744	602	693	771	1,246	1,404	11,844
2024-25	1,375	1,538	1,288	886	622	645	668	568	716	757	1,118	1,252	11,432
2025-26	1,385	1,548	1,291	873	605	638	671	549	676	694	1,061	1,188	11,179
2026-27	1,388	1,550	1,287	852	584	627	670	523	630	619	994	1,111	10,836
2027-28	1,396	1,559	1,286	833	561	616	673	497	580	539	923	1,030	10,492
2028-29	1,406	1,570	1,288	813	538	606	676	470	528	453	847	943	10,138
2029-30	1,420	1,584	1,291	791	514	595	681	441	471	359	765	849	9,761
2030-31	1,432	1,597	1,292	765	485	583	685	406	406	253	671	742	9,316
2031-32	1,441	1,606	1,288	734	453	567	687	367	333	136	565	621	8,797
2032-33	1,449	1,614	1,284	700	415	548	688	324	252	5	447	486	8,213
2033-34	1,453	1,617	1,273	659	372	525	687	274	160	-142	314	334	7,526

MTLF 18: Monthly Energy Purchased Forecast (Base Forecast) (GWh)

Year	July	August	September	October	November	December	January	February	March	April	May	June	Total
2023-24	1,448	1,636	1,346	863	655	677	800	616	709	786	1,274	1,447	12,256
2024-25	1,449	1,606	1,332	913	635	660	700	580	725	764	1,136	1,335	11,834
2025-26	1,459	1,616	1,335	900	619	652	704	561	685	699	1,079	1,272	11,581
2026-27	1,463	1,619	1,331	879	598	642	704	535	638	624	1,011	1,195	11,240
2027-28	1,471	1,628	1,330	859	574	631	707	509	588	544	939	1,115	10,894
2028-29	1,483	1,640	1,332	839	551	620	710	481	535	457	862	1,029	10,539
2029-30	1,497	1,654	1,334	817	527	609	715	452	477	362	779	937	10,160
2030-31	1,510	1,667	1,335	791	497	597	720	417	411	256	685	831	9,716
2031-32	1,520	1,677	1,332	760	465	580	722	377	338	138	578	712	9,198
2032-33	1,529	1,686	1,327	726	427	561	724	334	256	6	459	579	8,615
2033-34	1,534	1,689	1,317	684	383	538	723	283	163	-142	325	428	7,925

MTLF 19: List of Overloaded Substations during Period 2023-24 to 2033-34 Criterion= 80%

List of Overloaded Grids considering (Updated) 8th STG Plan of GEPCO which is approved by BoD GEPCO and under execution.

S. No.	Name	Rating KV	Grid#	Total Capacity (MVA)	Total Capacity (MW)	Overloading Criterion (MW)	Year of Overloading	Overloading Status (MW)	Power Factor
1	AWAN SHARIF	132	1088	52	50.7	40.6	2031-32	41	0.98
2	JALALPUR JATTAN	132	67	92	89.5	71.6	2033-34	73.4	0.97
3	BHIMBER	132	467	92	88.2	70.6	2033-34	71.4	0.96

MTLF 20: List of Overloaded Substations during Period 2023-24 to 2033-34 Criterion=100%

List of Overloaded Grids considering (Updated)8th STG Plan of GEPCO which is approved by BoD GEPCO and under execution.

Sr. No.	Name	Rating KV	Grid#	Total Capacity (MVA)	Total Capacity (MW)	Overloading Criterion (MW)	Year of Overloading	Overloading Status (MW)	Power Factor
*** None ***									

MTLF 21: List of Grids with their Codes and MVA Capacities

				Transformer (MVA)										Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)	Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
1	32	132	COLLEGE ROAD GUJRANWALA	40	40	40	40	40	200	2	44	220	220 KV GHAKHAR	0	0	0	40	40	80
3	50	132	GUJRANWALA SHAHEEN ABAD	40	40	40	40	0	160	4	51	132	GUJRAT-1	40	40	26	0	0	106
5	55	132	HAFIZABAD	40	40	13	26	0	119	6	62	132	HELLAN	26	13	13	0	0	52
7	67	132	JALALPUR JATTAN	40	26	26	0	0	92	8	85	132	KUTHIALA SHEIKHAN	26	26	40	0	0	92
9	94	132	KAMOKE	40	26	40	0	0	106	10	107	132	KHARIAN	26	40	40	0	0	106
11	116	132	LALAMUSA	26	26	40	26	0	118	12	142	132	NAROWAL	26	40	26	0	0	92
13	157	132	PASRUR ROAD GRW	40	40	40	40	0	160	14	163	132	QILA DIDAR SINGH	26	0	26	26	26	104
15	187	132	SAMBRIAL	26	26	13	0	0	65	16	201	132	SIALKOT PASRUR ROAD	40	40	40	0	0	120
17	214	132	THERI SANSI	26	40	26	0	0	92	18	222	132	WAZIR ABAD	26	26	40	0	0	92
19	263	132	DASKA CITY	0	0	26	26	26	78	20	273	132	FATEH PUR	26	26	26	26	0	104
21	280	132	NOWSHEHRA VIRKAN	26	26	26	0	0	78	22	299	132	KOLO TARAR	0	0	26	26	0	52
23	321	132	MALAKWAL	26	26	0	0	0	52	24	323	132	HEAD MARALA	0	0	26	26	0	52
25	343	132	PASRUR	26	40	26	0	0	92	26	375	132	SIALKOT CITY	40	26	0	0	0	66
27	377	132	SIRANWALI	0	0	26	26	0	52	28	379	132	SUKHEKI	26	15	26	0	0	67
29	405	132	ZAFARWAL	26	26	40	0	0	92	30	444	132	SIALKOT NEW	0	26	40	26	0	92
31	446	132	PINDI BHATTIAN	0	0	26	26	26	78	32	467	132	BHIMBER	26	26	40	0	0	92
33	469	132	GUJRAT-2	26	40	40	0	0	106	34	509	132	EMINABAD	26	40	40	40	0	146
35	510	132	KOTLI LOHARAN	13	13	0	0	0	26	36	511	132	SIALKOT CANTT	40	40	40	0	0	120

				Transformer (MVA)										Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)	Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
37	600	132	DASKA INDUSTRIAL	40	40	40	0	0	120	38	623	132	MANGOWAL	26	13	26	0	0	65
39	632	132	MANDI BAHAUDDIN	40	26	40	0	0	106	40	644	132	DINGA	26	13	13	0	0	52
41	698	132	KOT AGHA	26	13	0	0	0	39	42	725	132	GUJRANWALA LAHORE ROAD	40	40	40	0	0	120
43	738	132	JALAL PUR BHATTIAN	26	26	26	0	0	78	44	802	132	SHAKHAR GARH	26	40	26	26	0	118
45	813	220	220 KV SAHOWALA	0	0	0	26	26	52	46	814	132	HAFIZ ABAD ROAD GRW	26	40	26	26	0	118
47	823	132	LALAPUR	26	26	15	0	0	67	48	902	132	SHEIKHUPURA INDUSTRIAL (LESCO)	26	26	0	0	0	52
49	917	132	BADDOMALHI	13	13	0	0	0	26	50	954	132	GUJRANWALA CANTT	26	26	40	0	0	92
51	969	132	GHUINKI	26	26	26	0	0	78	52	974	132	AROOP	26	26	26	26	0	104
53	1080	132	PHALIA	26	26	0	0	0	52	54	1081	132	RATTI GUJRAT	26	26	26	0	0	78
55	1082	132	CHIANWALI	26	26	26	13	0	91	56	1086	132	HAFIZABAD-2	26	26	13	0	0	65
57	1088	132	AWAN SHARIF	26	26	0	0	0	52	58	1094	132	OLD POWER HOUSE SKT	26	26	26	0	0	78
59	1102	132	NEW DASKA	40	40	0	0	0	80	60	1119	132	SHERANWALA BAGH	40	40	0	0	0	80
61	1122	132	KHIALI	40	40	0	0	0	80	62	1155	132	66 KV RASOOL	13	0	0	0	0	13
63	1159	132	GOHAD PUR	40	40	0	0	0	80	64	1275	132	DAULAT NAGAR	40	40	0	0	0	80

				Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
65	1302	132	CITI HOUSING GUJRAWNALA	80	0	0	0	0	40

				Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
66	1315	132	SERVICE INDUSTRIES (B4)	26	0	0	0	0	26

MTLF 22: List of Grids with their Codes and MVA Capacities in the year 2023-34 incorporating (Updated) 8th STG Plan

				Transformer (MVA)										Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)	Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
1	32	132	COLLEGE ROAD GUJRANWALA	40	40	40	40	40	200	2	44	220	220 KV GHAKHAR	0	0	0	40	40	200
3	50	132	GUJRANWALA SHAHEEN ABAD	40	40	40	40	26	186	4	51	132	GUJRAT-1	40	40	26	0	0	186
5	55	132	HAFIZABAD	40	40	40	26	0	146	6	62	132	HELLAN	26	13	13	13	0	146
7	67	132	JALALPUR JATTAN	40	26	26	0	0	92	8	85	132	KUTHIALA SHEIKHAN	26	26	40	0	0	92
9	94	132	KAMOKE	40	26	40	26	0	132	10	107	132	KHARIAN	26	40	40	0	0	132
11	116	132	LALAMUSA	26	26	40	26	0	118	12	142	132	NAROWAL	26	40	26	26	0	118
13	157	132	PASRUR ROAD GRW	40	40	40	40	0	160	14	163	132	QILA DIDAR SINGH	26	0	26	26	26	160
15	187	132	SAMBRIAL	26	26	13	26	0	91	16	201	132	SIALKOT PASRUR ROAD	40	40	40	40	0	91
17	214	132	THERI SANSI	26	40	40	0	0	106	18	222	132	WAZIR ABAD	40	26	40	0	0	106
19	263	132	DASKA CITY	0	0	26	26	26	78	20	273	132	FATEH PUR	40	26	26	26	0	78
21	280	132	NOWSHEHRA VIRKAN	26	26	26	26	0	104	22	299	132	KOLO TARAR	0	13	26	26	0	104
23	321	132	MALAKWAL	26	26	0	0	0	52	24	323	132	HEAD MARALA	0	0	26	26	0	52
25	343	132	PASRUR	26	40	26	40	0	132	26	375	132	SIALKOT CITY	40	40	0	0	0	132
27	377	132	SIRANWALI	0	13	26	26	0	65	28	379	132	SUKHEKI	26	15	26	0	0	65
29	405	132	ZAFARWAL	26	26	40	26	0	118	30	444	132	SIALKOT NEW	0	26	40	40	0	118
31	446	132	PINDI BHATTIAN	0	0	26	26	26	78	32	467	132	BHIMBER	26	26	40	0	0	78
33	469	132	GUJRAT-2	26	40	40	0	0	106	34	509	132	EMINABAD	40	40	40	40	0	106
35	510	132	KOTLI LOHARAN	13	13	13	0	0	39	36	511	132	SIALKOT CANTT	40	40	40	26	0	39

				Transformer (MVA)										Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)	Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
37	600	132	DASKA INDUSTRIAL	40	40	40	40	0	160	38	623	132	MANGOWAL	26	26	26	0	0	160
39	632	132	MANDI BAHAUDDIN	40	26	40	0	0	106	40	644	132	DINGA	26	13	13	0	0	106
41	698	132	KOT AGHA	26	13	13	0	0	52	42	725	132	GUJRANWALA LAHORE ROAD	40	40	40	0	0	52
43	738	132	JALAL PUR BHATTIAN	26	26	26	26	0	104	44	802	132	SHAKHAR GARH	26	40	26	26	0	104
45	813	220	220 KV SAHOWALA	0	0	0	26	26	52	46	814	132	HAFIZ ABAD ROAD GRW	26	40	26	40	0	52
47	823	132	LALAPUR	26	26	15	0	0	67	48	902	132	SHEIKHUPURA INDUSTRIAL (LESCO)	26	26	0	0	0	67
49	917	132	BADDOMALHI	13	13	0	0	0	26	50	954	132	GUJRANWALA CANTT	26	26	40	0	0	26
51	969	132	GHUINKI	26	26	26	26	0	104	52	974	132	AROOP	40	26	26	40	0	104
53	1080	132	PHALIA	26	26	13	0	0	65	54	1081	132	RATTI GUJRAT	26	26	26	0	0	65
55	1082	132	CHIANWALI	26	26	26	13	0	91	56	1086	132	HAFIZABAD-2	26	26	13	0	0	91
57	1088	132	AWAN SHARIF	26	26	0	0	0	52	58	1094	132	OLD POWER HOUSE SKT	26	26	26	0	0	52
59	1102	132	NEW DASKA	40	40	0	0	0	80	60	1119	132	SHERANWALA BAGH	40	40	0	0	0	80
61	1122	132	KHIALI	40	40	26	0	0	106	62	1155	132	66 KV RASOOL	13	13	0	0	0	106
63	1159	132	GOHAD PUR	40	40	0	0	0	80	64	1275	132	DAULAT NAGAR	40	40	0	0	0	80
65	1302	132	CITI HOUSING GUJRAWNALA	40	40	0	0	0	80	66	1315	132	SERVICE INDUSTRIES (B4)	26	0	0	0	0	80

				Transformer (MVA)										Transformer (MVA)					
Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)	Sr. No.	Grid No.	KV	Grid Name	T1	T2	T3	T4	T5	Total (MVA)
67	7001	132	GONDLANWALA	40	40	0	0	0	80	68	7002	132	WAHNDO	40	40	0	0	0	80
69	7003	132	AHMAD NAGAR	40	40	0	0	0	80	70	7004	132	ESSA	40	40	0	0	0	80
71	7005	132	CHAK SHAHBAZ	40	40	0	0	0	80	72	7006	132	OUJLA PUL WAZIRABAD	40	40	0	0	0	80
73	7007	132	MANDI BAHAUDIN 2	40	40	0	0	0	80	74	7008	132	KAMOKE 2	40	40	0	0	0	80
75	7009	132	BADIANA	40	40	0	0	0	80	76	7010	132	CITI HOUSING SIALKOT	40	40	0	0	0	80
77	7011	132	DALOWALI	40	40	0	0	0	80	78	7012	132	G. MAGNOLIA	40	40	0	0	0	80
79	7013	132	GARDEN TOWN	40	40	0	0	0	80	80	7014	132	GT ROAD GUJRANWALA	40	40	0	0	0	80
81	7015	132	KALAYKI MANDI	40	40	0	0	0	80	82	7016	132	GUJRAT 3	40	40	0	0	0	80
83	7017	132	SIALKOT BYPASS GRW	40	40	0	0	0	80	84	7018	132	UGGOKI	40	40	0	0	0	80
85	7019	132	VANIKAY TARRAR	26	0	0	0	0	26	86	7020	132	ROYAL PALM	40	26	0	0	0	26
87	7021	132	DASKA INDUSTRIAL 2	40	40	0	0	0	80	88	7022	132	DHA 1	40	26	0	0	0	80
89	7025	132	SIE-4 Gujranwala	80	0	0	0	0	80	90	7026	132	SIE WZD	66	0	0	0	0	80
91	7027	132	TANNERY ZONE SKT	40	0	0	0	0	40	92	7028	132	SIE SKT	40	0	0	0	0	40
93	7029	132	SIE GUJRAT	40	0	0	0	0	40	94	7030	132	DHA 2	66	0	0	0	0	40
95	7031	132	DHA 3	40	0	0	0	0	40										

MTLF 23: Maximum Demand (MW) of Substations (Low Forecast)

					Year										
Sr. No	PSSE Code	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
1	3120	32	COLLEGE ROAD GUJRANWALA	132	130.6	133.8	137.2	112.4	115.5	119	122.3	125.8	129.5	133.5	137.7
2	3000	44	220 KV GHAKHAR	220	53.12	52.94	54.1	55.12	56.38	52.54	41.88	43	44.19	45.48	46.82
3	3110	50	GUJRANWALA SHAHEEN ABAD	132	100.9	100.2	100.5	101.3	88.84	91.2	93.62	96.27	99.07	102.1	105.3
4	3013	51	GUJRAT-1	132	64.39	64.06	64.77	66.01	67.59	69.4	71.3	55.69	57.31	59.06	60.85
5	3030	55	HAFIZABAD	132	68.21	68.26	69.81	71.24	72.94	74.89	76.98	79.1	78.16	80.55	82.98
6	3037	62	HELLAN	132	29.41	29.37	30.03	30.61	31.33	32.15	33.03	33.92	34.87	35.89	36.94
7	3011	67	JALALPUR JATTAN	132	58.14	57.97	59.27	60.43	61.91	63.6	65.41	67.25	69.22	71.29	73.42
8	3034	85	KUTHIALA SHEIKHAN	132	59.73	59.67	61.07	62.33	63.89	65.68	67.59	69.53	55.98	57.72	59.46
9	3170	94	KAMOKE	132	73.72	73.28	74.81	76.21	77.9	78.91	80.92	58.43	60.01	61.83	63.74
10	3004	107	KHARIAN	132	50.85	50.92	52.3	53.57	55.12	56.87	58.39	59.97	61.67	63.44	65.23
11	3009	116	LALAMUSA	132	60.55	60.38	61.73	62.95	64.5	66.28	68.16	59.57	61.33	63.2	65.1
12	3520	142	NAROWAL	132	63.14	63.26	58.71	60.23	61.98	63.91	65.99	68.12	70.43	72.89	75.2
13	3140	157	PASRUR ROAD GRW	132	104.5	104.2	92.52	72.69	66.73	68.63	70.63	72.73	74.96	77.34	79.81
14	3020	163	QILA DIDAR SINGH	132	54.96	54.92	56.17	48.71	49.87	51.2	52.61	54.06	55.62	57.33	59.07
15	3100	187	SAMBRIAL	132	42.24	42.16	43.19	44.14	45.33	46.68	48.1	49.59	51.18	52.87	54.54
16	3050	201	SIALKOT PASRUR ROAD	132	78.51	78.36	80.28	82.06	78.35	80.68	75.29	67.73	69.88	72.18	74.46
17	3130	214	THERI SANSI	132	53.05	53.27	48.21	49.71	51.76	50.13	51.42	52.84	54.33	55.99	57.73

					Year										
Sr. No	PSSE Code	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
18	3010	222	WAZIR ABAD	132	60.18	60.15	61.66	63.06	64.82	63.48	60.71	62.69	64.84	67.14	69.26
19		242	BHABHRA (FESCO)	66	16.33	16.37	16.75	17.09	17.49	17.95	18.45	18.94	11.68	12.03	12.38
20	3041	263	DASKA CITY	132	27.2	27.09	27.69	28.26	28.97	28.66	29.49	30.37	31.3	32.31	33.33
21	3280	273	FATEH PUR	132	50.94	51.12	52.42	53.49	54.75	42.58	43.75	44.94	46.24	47.64	49.06
22	3261	280	NOWSHEHRA VIRKAN	132	48.7	48.75	49.88	50.9	52.11	53.5	54.99	56.49	58.12	59.88	61.68
23	3291	299	KOLO TARAR	132	29.02	29.14	29.82	30.42	31.1	31.88	32.73	33.56	28.11	28.92	29.75
24	3039	321	MALAKWAL	132	26.89	26.82	27.43	27.97	28.67	29.46	30.31	31.18	32.11	33.09	34.07
25	3250	323	HEAD MARALA	132	20.49	20.44	20.91	21.32	21.85	22.46	23.1	23.75	24.45	25.18	25.93
26	3180	343	PASRUR	132	65.26	65.15	66.78	68.23	70.08	70.74	58.48	60.31	62.26	64.31	66.25
27	3090	375	SIALKOT CITY	132	41.66	41.39	42.24	43.05	44.06	45.23	43.94	45.18	46.48	47.91	49.41
28	3243	377	SIRANWALI	132	25.59	25.55	26.14	26.66	27.32	26.1	26.84	27.6	28.4	29.26	30.15
29	3029	379	SUKHEKI	132	34.6	34.64	35.4	36.09	36.9	37.83	38.83	39.83	29.47	30.33	31.21
30	3027	405	ZAFARWAL	132	60.65	60.6	52.54	53.63	55	56.55	58.22	59.9	61.7	63.59	65.53
31	3080	444	SIALKOT NEW	132	62.41	61.98	63.26	64.47	65.96	67.71	65.07	66.8	68.58	70.61	72.74
32		445	66 KV NANDI PUR PH	11	0.182	0.181	0.183	0.186	0.19	0.194	0.198	0.203	0.207	0.212	0.218
33	3310	446	PINDI BHATTIAN	132	36.97	37.09	37.93	38.69	39.55	40.54	41.61	42.67	43.84	45.12	46.43
34	3007	467	BHIMBER	132	58.6	58.25	59.38	60.31	61.55	63	64.57	66.13	67.81	69.56	71.37
35	3016	469	GUJRAT-2	132	64.7	61.71	63.05	64.28	65.85	67.66	69.56	66.52	68.49	70.57	72.68
36	3150	509	EMINABAD	132	72.09	69.73	72.4	73.69	75.24	66.37	67.98	69.74	71.55	73.64	75.86
37	3070	510	KOTLI LOHARAN	132	16.96	16.95	17.37	17.74	18.2	18.73	19.29	19.86	20.48	21.12	21.79
38	3060	511	SIALKOT CANTT	132	87.58	87.22	89.19	91.05	76.06	78.25	80.51	82.9	85.49	88.21	90.82

					Year										
Sr. No	PSSE Code	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
39		585	HEAD FAQIRIAN (FESCO)	132	11.98	11.95	12.22	12.47	12.77	13.12	13.49	13.87	14.28	14.7	15.14
40		591	RASOOL PH	132	0.147	0.146	0.148	0.15	0.153	0.156	0.16	0.164	0.167	0.172	0.176
41	3040	600	DASKA INDUSTRIAL	132	77.96	77.07	79.13	80.34	81.82	72.76	74.32	76.11	77.91	80.07	82.39
42	3015	623	MANGOWAL	132	42.6	42.53	43.49	44.36	45.44	46.68	48	49.35	50.8	52.37	53.93
43	3019	632	MANDI BAHAUDDIN	132	64.21	64.16	65.75	67.23	69.11	71.22	73.4	75.66	57.79	59.7	61.52
44	3002	644	DINGA	132	30.05	30	30.71	31.35	32.18	33.12	34.11	35.14	36.24	37.4	38.55
45		670	SHADIWAL PH	66	0.075	0.074	0.076	0.077	0.078	0.08	0.082	0.084	0.086	0.088	0.09
46	3053	698	KOT AGHA	132	21.48	21.4	21.87	22.3	22.85	23.13	23.78	24.46	25.17	25.93	26.73
47	3146	725	GUJRANWALA LAHORE ROAD	132	79.39	65.09	64.55	65.49	66.66	68.08	69.48	71.12	72.78	74.73	76.81
48	3296	738	JALAL PUR BHATTIAN	132	45.08	45.14	46.14	47.03	48.04	49.2	50.44	51.7	50.46	51.93	53.44
49	3522	802	SHAKHAR GARH	132	72.27	72.91	70.02	71.43	73.23	75.28	77.47	79.69	82.06	84.55	87.11
50	3105	813	220 KV SAHOWALA	220	36.83	36.7	37.58	38.41	39.46	40.65	27.9	28.79	29.74	30.77	31.75
51	3125	814	HAFIZ ABAD ROAD GRW	132	60.35	59.86	61	62.07	63.4	65.01	66.68	68.52	70.47	72.62	74.91
52	3055	823	LALAPUR	132	40.28	40.23	41.18	42.02	43.07	44.28	42.32	43.53	44.82	46.17	47.57
53		902	SHEIKHUPURA INDUSTRIAL (LESCO)	132	10.15	10.2	10.44	10.66	10.91	11.19	11.5	11.8	12.13	12.49	12.85
54	3025	917	BADDOMALHI	132	16.03	15.99	16.35	16.66	17.05	17.5	17.98	18.47	18.99	19.55	20.14

					Year										
Sr. No	PSSE Code	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
55	3065	954	GUJRANWALA CANTT	132	54.3	54.39	46.42	47.31	46.83	49.57	47.27	48.46	49.69	51.07	52.52
56	3108	969	GHUINKI	132	48.07	48.15	49.57	51.21	53.03	53.96	55.26	41.44	43.3	45.29	46.71
57	3005	974	AROOP	132	60.47	60.29	56.13	46.72	48.2	49.87	51.73	53.74	55.96	58.4	60.15
58	3036	1080	PHALIA	132	34.55	34.47	35.26	35.98	36.84	37.82	38.87	39.94	34.56	35.61	36.68
59	3018	1081	RATTI GUJRAT	132	29.7	29.54	31.31	31.93	32.74	33.66	34.65	35.72	36.87	38.14	39.28
60	3151	1082	CHIANWALI	132	34.19	33.07	37.21	37.78	38.49	39.34	40.19	41.17	42.14	43.31	44.57
61	3045	1086	HAFIZABAD-2	132	28.41	28.42	29.1	29.73	30.51	31.41	32.38	33.38	27.71	28.65	29.53
62	3012	1088	AWAN SHARIF	132	35.23	35.07	35.8	36.41	37.21	38.14	39.14	40.14	41.21	42.33	43.49
63	3093	1094	OLD POWER HOUSE SKT	132	24.89	24.78	25.33	25.86	26.53	27.29	28.08	28.93	29.83	30.8	31.78
64	3107	1102	NEW DASKA	132	37.52	37.44	38.34	39.19	40.27	38.57	39.78	41.04	42.41	43.86	45.23
65	3135	1119	SHERANWALA BAGH	132	42.83	42.52	43.35	44.15	39.7	40.74	41.82	42.99	44.24	45.6	47.01
66	3129	1122	KHIALI	132	37.64	37.39	38.16	38.88	39.78	40.84	41.93	43.12	44.37	45.74	47.18
67	3038	1155	66 KV RASOOL	132	9.336	9.314	9.518	9.737	10.04	10.42	10.82	11.11	11.41	11.74	12.08
68	3109	1159	GOHAD PUR	132	28.7	28.64	29.88	31.56	31.31	32.22	33.17	34.17	35.23	36.37	37.54
69	3531	1275	DAULAT NAGAR	132	13.81	13.81	14.16	14.47	14.88	15.34	15.83	16.34	16.88	17.46	17.99
70		1302	CITI HOUSING GUJRAWNALA	132	2.889	18.87	19.39	19.68	20.04	20.48	20.93	21.43	21.94	22.53	23.16
71		1315	SERVICE INDUSTRIES (B4)	132	5.366	10.22	10.22	10.22	10.22	10.22	13.22	16.22	16.22	16.22	16.22
72		7001	GONDLANWALA	132	0	0	0	39.8	40.85	42.05	43.2	44.41	45.7	47.11	48.57
73		7002	WAHNDO	132	0	0	0	0	0	14	14.35	14.73	15.12	15.56	16.03
74		7003	AHMAD NAGAR	132	0	0	0	0	0	22.25	22.88	23.51	24.21	24.95	25.7

					Year										
Sr. No	PSSE Code	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
75		7004	ESSA	132	0	0	21.21	21.68	22.26	22.9	23.6	24.3	25.06	25.85	26.65
76		7005	CHAK SHAHBAZ	132	0	0	0	0	0	0	0	0	22.58	23.27	23.96
77		7006	OUJLA PUL WAZIRABAD	132	0	0	0	0	0	0	16.89	17.37	17.88	18.44	18.99
78		7007	MANDI BAHAUDIN 2	132	0	0	0	0	0	0	0	0	27.68	28.58	29.45
79		7008	KAMOKE 2	132	0	0	0	0	0	0	0	24.69	25.36	26.13	26.93
80		7009	BADIANA	132	0	0	0	0	0	0	26.49	27.31	28.19	29.13	30.02
81		7010	CITI HOUSING SIALKOT	132	0	0	0	0	0	0	0	25.99	27.03	28.14	29.02
82		7011	DALOWALI	132	0	0	0	0	23.26	23.94	24.64	25.38	26.17	27.01	27.82
83		7012	G. MAGNOLIA	132	0	0	22.78	23.23	23.78	24.43	25.1	25.81	26.57	27.39	28.25
84		7013	GARDEN TOWN	132	0	0	17.06	17.39	17.82	18.31	18.83	19.4	20.01	20.69	21.3
85		7014	GT ROAD GUJRANWALA	132	0	0	0	0	28.1	28.87	29.65	30.5	31.4	32.38	33.4
86		7015	KALAYKI MANDI	132	0	0	0	0	0	0	0	0	24.77	25.53	26.29
87		7016	GUJRAT 3	132	0	0	0	0	0	0	0	33.14	34.11	35.15	36.21
88		7017	SIALKOT BYPASS GRW	132	0	0	0	32.55	33.45	34.47	35.57	36.74	37.99	39.36	40.59
89		7018	UGGOKI	132	0	0	0	0	0	0	20.81	21.44	22.11	22.85	23.56
90		7019	VANIKAY TARRAR	132	0	0	0	0	0	0	0	0	5.677	5.841	6.009
91		7020	ROYAL PALM	132	0	0	0	0	0	3.896	5.243	6.623	8.356	10.14	10.41
92		7021	DASKA INDUSTRIAL 2	132	0	0	0	0	0	17.47	17.91	18.41	18.92	19.5	20.08
93		7022	DHA 1	132	0	0	1.072	2.951	6.221	9.949	15.12	19.39	23.07	27.86	33.11
94		7025	SIE-4 Gujranwala	132	0	0	0	1.305	2.625	3.972	5.333	6.741	8.161	9.662	11.22
95		7026	SIE WZD	132	0	0	0	0.87	1.75	2.648	3.556	4.494	5.44	6.441	7.482
96		7027	TANNERY ZONE SKT	132	0	0	0	0	2.1	3.178	4.267	5.392	6.529	7.73	8.979

					Year										
Sr. No	PSSE Code	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
97		7028	SIE SKT	132	0	0	0	0	0	0.869	1.75	2.653	3.568	4.523	5.512
98		7029	SIE GUJRAT	132	0	0	0	0	0	0	1.303	2.631	3.979	5.378	6.824
99		7030	DHA 2	132	0	0	0	0	4	8	14	20	27	31	37
100		7031	DHA 3	132	0	0	0	0	0	0	7.464	11.61	15.97	20.22	25.84
			Total		**3190**	**3187**	**3269**	**3343**	**3434**	**3543**	**3667**	**3794**	**3926**	**4066**	**4208**

MTLF 24: Family of Grids (Existing, Proposed & Transit Grid)

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
1	1	1081	RATTI GUJRAT	132	29.7	29.54	30.67	31.28	32.06	32.97	33.94	34.99	36.11	37.37	38.48
2	1	51	GUJRAT-1	132	48.44	48.19	49.21	50.15	51.35	52.73	54.17	55.69	57.31	59.06	60.85
3	1	4013	GUJRAT-1_RATTI GUJRAT	132	0.63	0.63	0.64	0.65	0.67	0.69	0.71	0.73	0.75	0.78	0.8
4	2	1302	CITI HOUSING GUJRAWNALA	132	2.89	2.87	2.92	2.97	3.03	3.1	3.17	3.25	3.33	3.42	3.51
5	2	509	EMINABAD	132	60.42	60.04	62.34	63.45	64.79	66.37	67.98	69.74	71.55	73.64	75.86
6	2	4002	EMINABAD _CITI HOUSING GUJRAWNALA	132	1.92	1.91	1.98	2.01	2.06	2.11	2.16	2.21	2.27	2.34	2.41
7	3	1302	CITI HOUSING GUJRAWNALA	132	2.89	2.87	2.92	2.97	3.03	3.1	3.17	3.25	3.33	3.42	3.51
8	3	725	GUJRANWALA LAHORE ROAD	132	63.94	63.17	64.55	65.49	66.66	68.08	69.48	71.12	72.78	74.73	76.8
9	3	3364	GUJRANWALA LAHORE ROAD_CITI HOUSING GUJRAWNALA	132	13.5	13.33	13.62	13.82	14.07	14.37	14.66	15.01	15.36	15.77	16.21
10	4	1302	CITI HOUSING GUJRAWNALA	132	2.89	2.87	2.92	2.97	3.03	3.1	3.17	3.25	3.33	3.42	3.51

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
11	4	1082	CHIANWALI	132	33.41	33.07	37.21	37.78	38.49	39.34	40.19	41.17	42.14	43.31	44.57
12	4	4001	CHIANWALI_CITI HOUSING GUJRAWNALA	132	0.77	0.77	0.86	0.87	0.89	0.91	0.93	0.95	0.98	1	1.03
13	5	1315	SERVICE INDUSTRIES (B4)	132	5.37	7.47	7.47	7.47	7.47	7.47	10.47	13.47	13.47	13.47	13.47
14	5	469	GUJRAT-2	132	57.61	57.39	58.63	59.78	61.24	62.92	64.69	66.52	68.49	70.57	72.68
15	5	3389	GUJRAT-2_SERVICE INDUSTRIES (B4)	132	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
16	6	7001	GONDLANWALA	132	0	0	0	0	0	0	0	0	0	0	0
17	6	32	COLLEGE ROAD GUJRANWALA	132	104.53	107.09	109.81	112.37	115.47	119.04	122.31	125.8	129.5	133.5	137.68
18	6	3336	COLLEGE ROAD GUJRANWALA_GONDLANWALA	132	26.03	26.67	27.35	27.98	28.76	29.64	30.46	31.33	32.25	33.25	34.29
19	7	7001	GONDLANWALA	132	0	0	0	0	0	0	0	0	0	0	0
20	7	50	GUJRANWALA SHAHEEN ABAD	132	83.81	83.22	85.2	86.81	88.84	91.2	93.62	96.27	99.07	102.15	105.34
21	7	3338	GUJRANWALA SHAHEEN ABAD_GONDLANWALA	132	1.09	1.08	1.11	1.13	1.16	1.19	1.22	1.25	1.29	1.33	1.37

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
22	8	7001	GONDLANWALA	132	0	0	0	0	0	0	0	0	0	0	0
23	8	163	QILA DIDAR SINGH	132	46.71	46.68	47.74	48.71	49.87	51.2	52.61	54.06	55.62	57.33	59.07
24	8	3339	QILA DIDAR SINGH_GONDLANWALA	132	8.24	8.24	8.42	8.59	8.8	9.03	9.28	9.54	9.81	10.11	10.42
25	9	7001	GONDLANWALA	132	0	0	0	0	0	0	0	0	0	0	0
26	9	954	GUJRANWALA CANTT	132	43.13	42.76	43.54	44.25	45.14	46.19	47.27	48.46	49.69	51.07	52.52
27	9	3337	GUJRANWALA CANTT_GONDLANWALA	132	2.04	2.03	2.06	2.1	2.14	2.19	2.24	2.3	2.35	2.42	2.49
28	10	7002	WAHNDO	132	0	0	0	0	0	0	0	0	0	0	0
29	10	94	KAMOKE	132	51.22	50.91	51.96	52.93	54.1	55.48	56.89	58.43	60.01	61.83	63.74
30	10	3341	KAMOKE_WAHNDO	132	0.91	0.9	0.92	0.94	0.96	0.98	1.01	1.03	1.06	1.09	1.13
31	11	7002	WAHNDO	132	0	0	0	0	0	0	0	0	0	0	0
32	11	377	SIRANWALI	132	23.8	23.76	24.31	24.8	25.4	26.1	26.84	27.6	28.4	29.26	30.15
33	11	3342	SIRANWALI_WAHNDO	132	1.79	1.79	1.83	1.87	1.91	1.96	2.02	2.08	2.14	2.2	2.27
34	12	7002	WAHNDO	132	0	0	0	0	0	0	0	0	0	0	0
35	12	509	EMINABAD	132	60.42	60.04	62.34	63.45	64.79	66.37	67.98	69.74	71.55	73.64	75.86
36	12	3340	EMINABAD _WAHNDO	132	9.75	9.69	10.06	10.24	10.45	10.71	10.97	11.25	11.55	11.88	12.24
37	13	7002	WAHNDO	132	0	0	0	0	0	0	0	0	0	0	0
38	13	698	KOT AGHA	132	21.16	21.08	21.56	21.98	22.52	23.13	23.78	24.46	25.17	25.93	26.73

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
39	13	3343	KOT AGHA_WAHNDO	132	0.31	0.31	0.32	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39
40	14	7003	AHMAD NAGAR	132	0	0	0	0	0	0	0	0	0	0	0
41	14	44	220 KV GHAKHAR	220	37.48	37.35	38.16	38.89	39.77	40.8	41.88	43	44.19	45.48	46.82
42	14	3344	220 KV GHAKHAR_AHMAD NAGAR	132	4.86	4.84	4.95	5.04	5.15	5.29	5.43	5.57	5.72	5.89	6.06
43	15	7003	AHMAD NAGAR	132	0	0	0	0	0	0	0	0	0	0	0
44	15	222	WAZIR ABAD	132	52.96	52.93	54.26	55.49	57.04	58.8	60.71	62.69	64.84	67.14	69.26
45	15	3345	WAZIR ABAD_AHMAD NAGAR	132	3.01	3.01	3.08	3.15	3.24	3.34	3.45	3.56	3.69	3.82	3.94
46	16	7003	AHMAD NAGAR	132	0	0	0	0	0	0	0	0	0	0	0
47	16	273	FATEH PUR	132	38.59	38.73	39.71	40.52	41.48	42.58	43.75	44.94	46.24	47.64	49.06
48	16	3346	FATEH PUR_AHMAD NAGAR	132	12.35	12.39	12.71	12.97	13.27	13.62	14	14.38	14.8	15.24	15.7
49	17	7004	ESSA	132	0	0	0	0	0	0	0	0	0	0	0
50	17	142	NAROWAL	132	57.01	57.11	58.71	60.23	61.98	63.91	65.99	68.12	70.43	72.89	75.2
51	17	3351	NAROWAL_ESSA	132	6.14	6.15	6.32	6.48	6.67	6.88	7.1	7.33	7.58	7.85	8.09
52	18	7004	ESSA	132	0	0	0	0	0	0	0	0	0	0	0
53	18	405	ZAFARWAL	132	51.34	51.3	52.54	53.63	55	56.55	58.22	59.9	61.7	63.59	65.53
54	18	3349	ZAFARWAL_ESSA	132	9.31	9.3	9.53	9.72	9.97	10.25	10.56	10.86	11.19	11.53	11.88
55	19	7004	ESSA	132	0	0	0	0	0	0	0	0	0	0	0
56	19	802	SHAKHAR GARH	132	67.15	67.73	70.02	71.43	73.23	75.28	77.47	79.69	82.06	84.55	87.11

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
57	19	3350	SHAKHAR GARH_ESSA	132	5.12	5.18	5.37	5.47	5.61	5.77	5.93	6.1	6.29	6.48	6.67
58	20	7005	CHAK SHAHBAZ	132	0	0	0	0	0	0	0	0	0	0	0
59	20	85	KUTHIALA SHEIKHAN	132	46.69	46.64	47.74	48.72	49.94	51.34	52.83	54.35	55.98	57.72	59.46
60	20	3354	KUTHIALA SHEIKHAN_CHAK SHAHBAZ	132	11.07	11.06	11.32	11.55	11.84	12.17	12.52	12.88	13.27	13.68	14.09
61	21	7005	CHAK SHAHBAZ	132	0	0	0	0	0	0	0	0	0	0	0
62	21	242	BHABHRA (FESCO)	66	9.8	9.82	10.05	10.25	10.49	10.77	11.07	11.36	11.68	12.03	12.38
63	21	3352	BHABHRA (FESCO)_CHAK SHAHBAZ	132	6.53	6.55	6.7	6.83	7	7.18	7.38	7.57	7.79	8.02	8.25
64	22	7005	CHAK SHAHBAZ	132	0	0	0	0	0	0	0	0	0	0	0
65	22	1080	PHALIA	132	29.06	28.99	29.65	30.26	30.98	31.81	32.69	33.59	34.56	35.61	36.68
66	22	3353	PHALIA_CHAK SHAHBAZ	132	1.28	1.28	1.31	1.33	1.37	1.4	1.44	1.48	1.52	1.57	1.62
67	23	7006	OUJLA PUL WAZIRABAD	132	0	0	0	0	0	0	0	0	0	0	0
68	23	44	220 KV GHAKHAR	220	37.48	37.35	38.16	38.89	39.77	40.8	41.88	43	44.19	45.48	46.82
69	23	3356	220 KV GHAKHAR_OUJLA PUL WAZIRABAD	132	10.79	10.75	10.99	11.2	11.45	11.75	12.06	12.38	12.72	13.09	13.48

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
70	24	7006	OUJLA PUL WAZIRABAD	132	0	0	0	0	0	0	0	0	0	0	0
71	24	222	WAZIR ABAD	132	52.96	52.93	54.26	55.49	57.04	58.8	60.71	62.69	64.84	67.14	69.26
72	24	3355	WAZIR ABAD_OUJLA PUL WAZIRABAD	132	4.21	4.21	4.32	4.41	4.54	4.68	4.83	4.99	5.16	5.34	5.51
73	25	7007	MANDI BAHAUDIN 2	132	0	0	0	0	0	0	0	0	0	0	0
74	25	85	KUTHIALA SHEIKHAN	132	46.69	46.64	47.74	48.72	49.94	51.34	52.83	54.35	55.98	57.72	59.46
75	25	3359	KUTHIALA SHEIKHAN_MANDI BAHAUDIN 2	132	1.98	1.97	2.02	2.06	2.11	2.17	2.24	2.3	2.37	2.44	2.52
76	26	7007	MANDI BAHAUDIN 2	132	0	0	0	0	0	0	0	0	0	0	0
77	26	632	MANDI BAHAUDDIN	132	47.51	47.47	48.65	49.75	51.14	52.7	54.31	55.98	57.79	59.7	61.52
78	26	3358	MANDI BAHAUDDIN_MANDI BAHAUDIN 2	132	16.7	16.68	17.1	17.48	17.97	18.52	19.09	19.67	20.31	20.98	21.62
79	27	7007	MANDI BAHAUDIN 2	132	0	0	0	0	0	0	0	0	0	0	0
80	27	1080	PHALIA	132	29.06	28.99	29.65	30.26	30.98	31.81	32.69	33.59	34.56	35.61	36.68
81	27	3360	PHALIA_MANDI BAHAUDIN 2	132	4.21	4.2	4.3	4.38	4.49	4.61	4.74	4.87	5.01	5.16	5.31
82	28	7008	KAMOKE 2	132	0	0	0	0	0	0	0	0	0	0	0
83	28	94	KAMOKE	132	51.22	50.91	51.96	52.93	54.1	55.48	56.89	58.43	60.01	61.83	63.74
84	28	4014	KAMOKE_KAMOKE 2	132	21.59	21.47	21.93	22.34	22.84	23.43	24.03	24.69	25.36	26.13	26.93

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
85	29	7009	BADIANA	132	0	0	0	0	0	0	0	0	0	0	0
86	29	201	SIALKOT PASRUR ROAD	132	57.74	57.63	59.04	60.35	61.96	63.8	65.72	67.73	69.88	72.18	74.46
87	29	3362	SIALKOT PASRUR ROAD_BADIANA	132	6.87	6.86	7.02	7.18	7.37	7.59	7.82	8.05	8.31	8.58	8.85
88	30	7009	BADIANA	132	0	0	0	0	0	0	0	0	0	0	0
89	30	343	PASRUR	132	51.25	51.16	52.44	53.58	55.03	56.69	58.48	60.31	62.26	64.31	66.25
90	30	3363	PASRUR_BADIANA	132	12.71	12.69	13	13.28	13.65	14.06	14.5	14.95	15.44	15.95	16.43
91	31	7009	BADIANA	132	0	0	0	0	0	0	0	0	0	0	0
92	31	823	LALAPUR	132	37.41	37.36	38.25	39.02	40	41.12	42.32	43.53	44.82	46.17	47.57
93	31	3361	LALAPUR_BADIANA	132	2.87	2.87	2.93	2.99	3.07	3.16	3.25	3.34	3.44	3.54	3.65
94	32	7009	BADIANA	132	0	0	0	0	0	0	0	0	0	0	0
95	32	969	GHUINKI	132	33.35	33.41	34.39	35.53	36.79	38.2	39.78	41.44	43.3	45.29	46.71
96	32	4000	GHUINKI_BADIANA	132	0.78	0.78	0.8	0.83	0.86	0.89	0.93	0.97	1.01	1.05	1.09
97	33	7010	CITI HOUSING SIALKOT	132	0	0	0	0	0	0	0	0	0	0	0
98	33	201	SIALKOT PASRUR ROAD	132	57.74	57.63	59.04	60.35	61.96	63.8	65.72	67.73	69.88	72.18	74.46
99	33	4016	SIALKOT PASRUR ROAD_CITI HOUSING SIALKOT	132	8.41	8.39	8.6	8.79	9.02	9.29	9.57	9.87	10.18	10.51	10.84

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
100	34	7010	CITI HOUSING SIALKOT	132	0	0	0	0	0	0	0	0	0	0	0
101	34	969	GHUINKI	132	33.35	33.41	34.39	35.53	36.79	38.2	39.78	41.44	43.3	45.29	46.71
102	34	4015	GHUINKI_CITI HOUSING SIALKOT	132	12.98	13	13.38	13.83	14.32	14.87	15.48	16.13	16.85	17.63	18.18
103	35	7011	DALOWALI	132	0	0	0	0	0	0	0	0	0	0	0
104	35	201	SIALKOT PASRUR ROAD	132	57.74	57.63	59.04	60.35	61.96	63.8	65.72	67.73	69.88	72.18	74.46
105	35	4003	SIALKOT PASRUR ROAD_DALOWALI	132	5.5	5.49	5.62	5.74	5.9	6.07	6.25	6.44	6.65	6.87	7.08
106	36	7011	DALOWALI	132	0	0	0	0	0	0	0	0	0	0	0
107	36	511	SIALKOT CANTT	132	71.3	71.01	72.61	74.13	76.06	78.25	80.51	82.9	85.49	88.21	90.82
108	36	3365	SIALKOT CANTT_DALOWALI	132	16.28	16.21	16.58	16.93	17.37	17.87	18.38	18.93	19.52	20.14	20.74
109	37	7012	G. MAGNOLIA	132	0	0	0	0	0	0	0	0	0	0	0
110	37	157	PASRUR ROAD GRW	132	62.47	62.3	63.74	65.07	66.73	68.63	70.63	72.73	74.96	77.34	79.81
111	37	4004	PASRUR ROAD GRW_G. MAGNOLIA	132	13.8	13.76	14.08	14.38	14.74	15.16	15.61	16.07	16.56	17.09	17.63
112	38	7012	G. MAGNOLIA	132	0	0	0	0	0	0	0	0	0	0	0
113	38	214	THERI SANSI	132	46.4	46.04	46.95	47.8	48.87	50.13	51.42	52.84	54.33	55.98	57.73
114	38	3367	THERI SANSI_G. MAGNOLIA	132	6.65	6.6	6.73	6.86	7.01	7.19	7.38	7.58	7.79	8.03	8.28

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
115	39	7012	G. MAGNOLIA	132	0	0	0	0	0	0	0	0	0	0	0
116	39	725	GUJRANWALA LAHORE ROAD	132	63.94	63.17	64.55	65.49	66.66	68.08	69.48	71.12	72.78	74.73	76.8
117	39	3366	GUJRANWALA LAHORE ROAD_G. MAGNOLIA	132	1.95	1.92	1.97	1.99	2.03	2.07	2.12	2.16	2.21	2.27	2.34
118	40	7013	GARDEN TOWN	132	0	0	0	0	0	0	0	0	0	0	0
119	40	50	GUJRANWALA SHAHEEN ABAD	132	83.81	83.22	85.2	86.81	88.84	91.2	93.62	96.27	99.07	102.15	105.34
120	40	4005	GUJRANWALA SHAHEEN ABAD_GARDEN TOWN	132	2.02	2	2.05	2.09	2.14	2.2	2.25	2.32	2.39	2.46	2.54
121	41	7013	GARDEN TOWN	132	0	0	0	0	0	0	0	0	0	0	0
122	41	954	GUJRANWALA CANTT	132	43.13	42.76	43.54	44.25	45.14	46.19	47.27	48.46	49.69	51.07	52.52
123	41	3369	GUJRANWALA CANTT_GARDEN TOWN	132	9.12	9.05	9.21	9.36	9.55	9.77	10	10.25	10.51	10.81	11.12
124	42	7013	GARDEN TOWN	132	0	0	0	0	0	0	0	0	0	0	0
125	42	974	AROOP	132	44.53	44.39	45.6	46.72	48.2	49.87	51.73	53.74	55.96	58.4	60.15
126	42	3368	AROOP_GARDEN TOWN	132	5.66	5.65	5.8	5.94	6.13	6.34	6.58	6.83	7.11	7.42	7.65

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
127	43	7014	GT ROAD GUJRANWALA	132	0	0	0	0	0	0	0	0	0	0	0
128	43	50	GUJRANWALA SHAHEEN ABAD	132	83.81	83.22	85.2	86.81	88.84	91.2	93.62	96.27	99.07	102.15	105.34
129	43	3371	GUJRANWALA SHAHEEN ABAD_GT ROAD GUJRANWALA	132	13.98	13.88	14.21	14.48	14.82	15.21	15.62	16.06	16.53	17.04	17.57
130	44	7014	GT ROAD GUJRANWALA	132	0	0	0	0	0	0	0	0	0	0	0
131	44	157	PASRUR ROAD GRW	132	62.47	62.3	63.74	65.07	66.73	68.63	70.63	72.73	74.96	77.34	79.81
132	44	4006	PASRUR ROAD GRW_GT ROAD GUJRANWALA	132	7.31	7.29	7.46	7.62	7.81	8.04	8.27	8.52	8.78	9.06	9.35
133	45	7014	GT ROAD GUJRANWALA	132	0	0	0	0	0	0	0	0	0	0	0
134	45	1119	SHERANWALA BAGH	132	37.65	37.37	38.09	38.8	39.7	40.74	41.82	42.99	44.24	45.6	47.01
135	45	3372	SHERANWALA BAGH_GT ROAD GUJRANWALA	132	5.19	5.15	5.25	5.35	5.47	5.62	5.76	5.93	6.1	6.29	6.48
136	46	7015	KALAYKI MANDI	132	0	0	0	0	0	0	0	0	0	0	0
137	46	55	HAFIZABAD	132	65.49	65.53	67.02	68.39	70.02	71.89	73.9	75.94	78.16	80.55	82.98

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
138	46	3373	HAFIZABAD_KALAYKI MANDI	132	2.73	2.73	2.79	2.85	2.92	2.99	3.08	3.16	3.25	3.35	3.46
139	47	7015	KALAYKI MANDI	132	0	0	0	0	0	0	0	0	0	0	0
140	47	299	KOLO TARAR	132	23.66	23.76	24.31	24.8	25.35	25.99	26.69	27.36	28.11	28.92	29.75
141	47	4007	KOLO TARAR_KALAYKI MANDI	132	0.58	0.58	0.6	0.61	0.62	0.64	0.65	0.67	0.69	0.71	0.73
142	48	7015	KALAYKI MANDI	132	0	0	0	0	0	0	0	0	0	0	0
143	48	379	SUKHEKI	132	24.92	24.94	25.49	25.99	26.57	27.24	27.96	28.68	29.47	30.33	31.21
144	48	3375	SUKHEKI_KALAYKI MANDI	132	9.68	9.69	9.91	10.1	10.33	10.59	10.87	11.15	11.46	11.79	12.13
145	49	7015	KALAYKI MANDI	132	0	0	0	0	0	0	0	0	0	0	0
146	49	738	JALAL PUR BHATTIAN	132	42.87	42.93	43.88	44.73	45.68	46.79	47.97	49.16	50.46	51.93	53.44
147	49	4008	JALAL PUR BHATTIAN_KALAYKI MANDI	132	2.21	2.21	2.26	2.31	2.35	2.41	2.47	2.53	2.6	2.67	2.75
148	50	7015	KALAYKI MANDI	132	0	0	0	0	0	0	0	0	0	0	0
149	50	1086	HAFIZABAD-2	132	22.83	22.84	23.39	23.89	24.52	25.24	26.02	26.82	27.71	28.65	29.53
150	50	3374	HAFIZABAD-2_KALAYKI MANDI	132	5.58	5.58	5.71	5.84	5.99	6.17	6.36	6.55	6.77	7	7.22
151	51	7016	GUJRAT 3	132	0	0	0	0	0	0	0	0	0	0	0
152	51	51	GUJRAT-1	132	48.44	48.19	49.21	50.15	51.35	52.73	54.17	55.69	57.31	59.06	60.85

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
153	51	3376	GUJRAT-1_GUJRAT 3	132	15.32	15.24	15.56	15.86	16.24	16.68	17.13	17.62	18.13	18.68	19.25
154	52	7016	GUJRAT 3	132	0	0	0	0	0	0	0	0	0	0	0
155	52	116	LALAMUSA	132	51.47	51.32	52.47	53.51	54.83	56.34	57.93	59.57	61.33	63.2	65.1
156	52	3378	LALAMUSA_GUJRAT 3	132	9.08	9.06	9.26	9.44	9.68	9.94	10.22	10.51	10.82	11.15	11.49
157	53	7016	GUJRAT 3	132	0	0	0	0	0	0	0	0	0	0	0
158	53	469	GUJRAT-2	132	57.61	57.39	58.63	59.78	61.24	62.92	64.69	66.52	68.49	70.57	72.68
159	53	3377	GUJRAT-2_GUJRAT 3	132	4.34	4.32	4.41	4.5	4.61	4.74	4.87	5.01	5.16	5.31	5.47
160	54	7017	SIALKOT BYPASS GRW	132	0	0	0	0	0	0	0	0	0	0	0
161	54	157	PASRUR ROAD GRW	132	62.47	62.3	63.74	65.07	66.73	68.63	70.63	72.73	74.96	77.34	79.81
162	54	3380	PASRUR ROAD GRW_SIALKOT BYPASS GRW	132	20.9	20.84	21.32	21.77	22.32	22.96	23.62	24.33	25.07	25.87	26.69
163	55	7017	SIALKOT BYPASS GRW	132	0	0	0	0	0	0	0	0	0	0	0
164	55	974	AROOP	132	44.53	44.39	45.6	46.72	48.2	49.87	51.73	53.74	55.96	58.4	60.15
165	55	3379	AROOP_SIALKOT BYPASS GRW	132	10.28	10.25	10.53	10.79	11.13	11.52	11.95	12.41	12.92	13.49	13.89
166	56	7018	UGGOKI	132	0	0	0	0	0	0	0	0	0	0	0
167	56	375	SIALKOT CITY	132	39.42	39.17	39.98	40.74	41.7	42.8	43.94	45.18	46.48	47.91	49.41
168	56	3381	SIALKOT CITY_UGGOKI	132	2.23	2.22	2.27	2.31	2.36	2.42	2.49	2.56	2.63	2.71	2.8

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
169	57	7018	UGGOKI	132	0	0	0	0	0	0	0	0	0	0	0
170	57	444	SIALKOT NEW	132	58.55	58.14	59.34	60.48	61.88	63.51	65.07	66.8	68.58	70.61	72.74
171	57	3382	SIALKOT NEW_UGGOKI	132	3.87	3.84	3.92	4	4.09	4.2	4.3	4.41	4.53	4.67	4.81
172	58	7018	UGGOKI	132	0	0	0	0	0	0	0	0	0	0	0
173	58	813	220 KV SAHOWALA	220	24.51	24.42	25.01	25.56	26.26	27.05	27.9	28.79	29.74	30.77	31.75
174	58	3383	220 KV SAHOWALA_UGGOKI	132	12.32	12.27	12.57	12.85	13.2	13.6	14.02	14.47	14.95	15.47	15.96
175	59	7019	VANIKAY TARRAR	132	0	0	0	0	0	0	0	0	0	0	0
176	59	299	KOLO TARAR	132	23.66	23.76	24.31	24.8	25.35	25.99	26.69	27.36	28.11	28.92	29.75
177	59	3384	KOLO TARAR_VANIKAY TARRAR	132	4.78	4.8	4.91	5.01	5.12	5.25	5.39	5.53	5.68	5.84	6.01
178	60	7020	ROYAL PALM	132	0	0	0	0	0	0	0	0	0	0	0
179	60	214	THERI SANSI	132	46.4	46.04	46.95	47.8	48.87	50.13	51.42	52.84	54.33	55.98	57.73
180	60	3385	THEIR SANSI_ROYAL PALM	132	0	0.63	1.26	1.91	2.89	3.9	5.24	6.62	8.36	10.14	10.41
181	61	7021	DASKA INDUSTRIAL 2	132	0	0	0	0	0	0	0	0	0	0	0
182	61	263	DASKA CITY	132	26.17	26.06	26.64	27.19	27.87	28.66	29.49	30.37	31.3	32.31	33.33
183	61	4010	DASKA CITY_DASKA INDUSTRIAL 2	132	1.03	1.03	1.05	1.07	1.1	1.13	1.16	1.2	1.24	1.28	1.32
184	62	7021	DASKA INDUSTRIAL 2	132	0	0	0	0	0	0	0	0	0	0	0

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
185	62	343	PASRUR	132	51.25	51.16	52.44	53.58	55.03	56.69	58.48	60.31	62.26	64.31	66.25
186	62	4012	PASRUR_DASKA INDUSTRIAL 2	132	1.31	1.3	1.34	1.36	1.4	1.44	1.49	1.54	1.59	1.64	1.69
187	63	7021	DASKA INDUSTRIAL 2	132	0	0	0	0	0	0	0	0	0	0	0
188	63	600	DASKA INDUSTRIAL	132	67.82	67.05	68.84	69.89	71.19	72.76	74.32	76.11	77.91	80.07	82.39
189	63	3386	DASKA INDUSTRIAL_DASKA INDUSTRIAL 2	132	10.13	10.02	10.29	10.44	10.64	10.87	11.1	11.37	11.64	11.96	12.31
190	64	7021	DASKA INDUSTRIAL 2	132	0	0	0	0	0	0	0	0	0	0	0
191	64	969	GHUINKI	132	33.35	33.41	34.39	35.53	36.79	38.2	39.78	41.44	43.3	45.29	46.71
192	64	4011	GHUINKI_DASKA INDUSTRIAL 2	132	0.96	0.96	0.99	1.02	1.06	1.1	1.14	1.19	1.25	1.3	1.34
193	65	7021	DASKA INDUSTRIAL 2	132	0	0	0	0	0	0	0	0	0	0	0
194	65	1102	NEW DASKA	132	34.88	34.8	35.64	36.43	37.43	38.57	39.78	41.04	42.41	43.86	45.23
195	65	4009	NEW DASKA_DASKA INDUSTRIAL 2	132	2.64	2.64	2.7	2.76	2.83	2.92	3.01	3.11	3.21	3.32	3.43
196	66	7022	DHA 1	132	0	0	0	0	0	0	0	0	0	0	0
197	66	954	GUJRANWALA CANTT	132	43.13	42.76	43.54	44.25	45.14	46.19	47.27	48.46	49.69	51.07	52.52
198	66	3387	GUJRANWALA CANTT_DHA 1	132	0	0.57	1.07	2.95	6.22	9.95	15.12	19.39	23.07	27.86	33.11
199	67	7025	SIE-4 Gujranwala	132	0	0	0	0	0	0	0	0	0	0	0
200	67	509	EMINABAD	132	60.42	60.04	62.34	63.45	64.79	66.37	67.98	69.74	71.55	73.64	75.86

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
201	67	3390	EMINABAD _SIE-4 Gujranwala	132	0	0	0	1.3	2.63	3.97	5.33	6.74	8.16	9.66	11.22
202	68	7026	SIE WZD	132	0	0	0	0	0	0	0	0	0	0	0
203	68	222	WAZIR ABAD	132	52.96	52.93	54.26	55.49	57.04	58.8	60.71	62.69	64.84	67.14	69.26
204	68	3391	WAZIR ABAD_SIE WZD	132	0	0	0	0.87	1.75	2.65	3.56	4.49	5.44	6.44	7.48
205	69	7027	TANNERY ZONE SKT	132	0	0	0	0	0	0	0	0	0	0	0
206	69	1159	GOHAD PUR	132	28.7	28.64	29.88	30.52	31.31	32.22	33.17	34.17	35.23	36.37	37.54
207	69	3392	GOHAD PUR_TANNERY ZONE SKT	132	0	0	0	1.04	2.1	3.18	4.27	5.39	6.53	7.73	8.98
208	70	7028	SIE SKT	132	0	0	0	0	0	0	0	0	0	0	0
209	70	201	SIALKOT PASRUR ROAD	132	57.74	57.63	59.04	60.35	61.96	63.8	65.72	67.73	69.88	72.18	74.46
210	70	3393	SIALKOT PASRUR ROAD_SIE SKT	132	0	0	0	0	0	0.87	1.75	2.65	3.57	4.52	5.51
211	71	7029	SIE GUJRAT	132	0	0	0	0	0	0	0	0	0	0	0
212	71	51	GUJRAT-1	132	48.44	48.19	49.21	50.15	51.35	52.73	54.17	55.69	57.31	59.06	60.85
213	71	3394	GUJRAT-1_SIE GUJRAT	132	0	0	0	0	0	0	1.3	2.63	3.98	5.38	6.82
214	72	7030	DHA 2	132	0	0	0	0	0	0	0	0	0	0	0
215	72	954	GUJRANWALA CANTT	132	43.13	42.76	43.54	44.25	45.14	46.19	47.27	48.46	49.69	51.07	52.52

					Year										
Sr. No	Group No	Grid No	Name of Grid Station	KV	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
216	72	3396	GUJRANWALA CANTT_DHA 2	132	0	0	0.82	2.36	3.7	8.05	14.13	20.27	27.26	31.48	36.88
217	73	7031	DHA 3	132	0	0	0	0	0	0	0	0	0	0	0
218	73	954	GUJRANWALA CANTT	132	43.13	42.76	43.54	44.25	45.14	46.19	47.27	48.46	49.69	51.07	52.52
219	73	3397	GUJRANWALA CANTT_DHA 3	132	0	0	0	0.7	1.69	3.38	7.46	11.61	15.97	20.22	25.84

6. EMERGING TECHNOLGIES IMPACT ON FORECAST

6.1. Net Metering

Net Metering is an incentive scheme for consumers of an electric grid related to Distributed Generation, typically through renewable energy sources. Net Metering aims at maximizing the utilization of a renewable system installed at the consumer's premises through off-taking power through the electric grid at hours when the production of the system exceeds the consumer's own consumption. A consumer who installs an on-site renewable energy generator, primarily for reducing his own grid consumption, is now allowed to supply any surplus energy units from his installation to the electricity grid. These units are recorded and are later on "Net-off" (i.e., subtracted) against the units consumed from the grid. In this way, a Net Metering scheme provides an incentive to consumers to install decentralized renewable energy systems as it gives them the certainty that they will benefit from any electricity produced through the system, either through own consumption or through feeding it into the grid.

The Government of Pakistan promotes investment in the generation of small scale distributed renewable energy, through the Alternative Energy Development Board (AEDB), based on Net Metering concept. The National Electric Regulatory Authority (NEPRA) announced the official Distributed Generation and Net Metering Regulations on 1ST September 2015. As per these regulations, any customer of the electric grid can avail the possibility of Net Metering for small-scale renewable energy installations of up to 1 MW.

6.1.1. Net Metering in GEPCO

There has been a continuous increase in the number of Net Metering consumers within GEPCO. The figure has surged from 17 consumers in 2018 to 1,8262 consumers in 2023-24, with the installed load also rising significantly from 1.2 MW to 234.56 MW during the same period. The most remarkable growth has occurred in the past year, with the number of Net Metering prosumers escalating from 4,458 to 18,262.

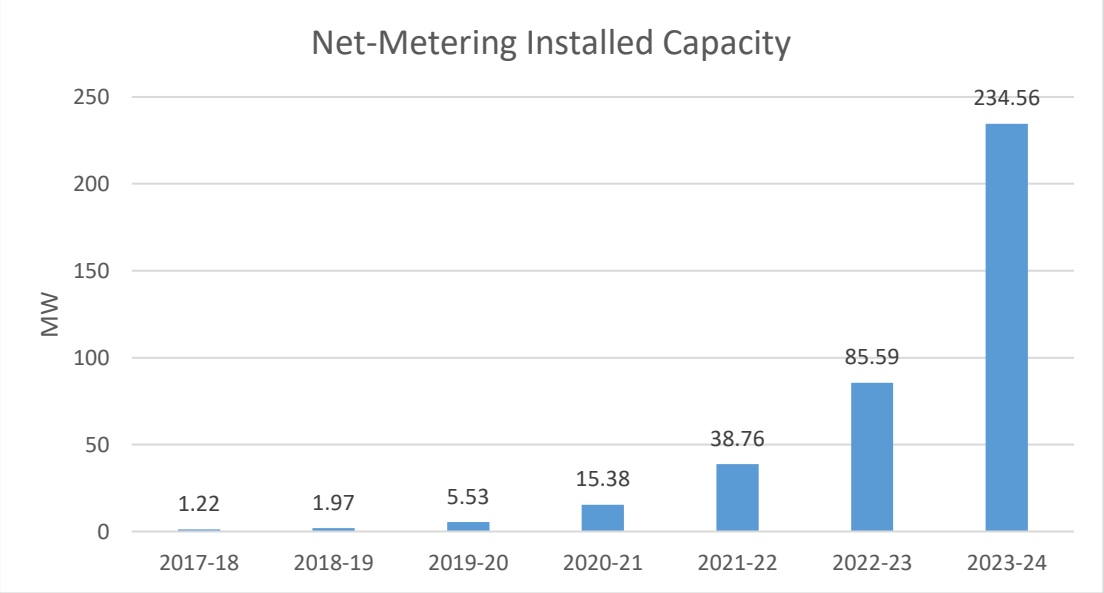


Figure 6-1: Generation Capacity Forecast of Net Metering Consumers

The energy exported by Net Metering consumers has increased from 14.91 GWh to 37.96 GWh from period 2021-22 to 2023-24.

Table 6-1: Historical statistics of Net Metering connections

	Connections Installed	Installed Load	Energy Exported
Year	No.	MW	GWh
2017-18	17	1.22	1.03
2018-19	57	1.97	0.64
2019-20	168	5.53	2.05
2020-21	488	15.38	5.47
2021-22	1,578	38.76	14.91
2022-23	4,485	85.59	37.96
2023-24	18,262	234.56	99.76

6.1.2. Net Metering Forecast Methodology

As per regulatory requirements, the demand forecast should incorporate the anticipated impact of Net Metering in the coming years. With the increasing number of Net Metering consumers, there is a corresponding decrease in energy demand from the national grid. However, it's important to note that the timing of GEPCO's peak demand, as illustrated in Figure 2-9, indicates that Net Metering will have a minimal impact on GEPCO's peak demand. This is because GEPCO's peak demand not only occurs during the daytime but also at night, and Net Metering cannot compensate for this nighttime load since solar PVs generate zero power during nighttime hours. Therefore, we assume that Net Metering will primarily impact energy projections rather than peak demand.

Our strategy for projecting the impact of Net Metering on the demand forecast is as follows: Only the additional Net Metering energy will affect the forecasted energy figures since the base year data already includes existing Net Metering consumers and will continue to do so in the coming years. However, additional Net Metering will have an impact on forecasted sales and purchases from the system. The methodology we are adopting to assess the impact of Net Metering on the demand forecast comprises the following steps.

6.1.3. Assessment of additional new consumers and generation facility

In this step, we have analyzed historical data pertaining to Net Metering, specifically focusing on the increasing number of Net Metering connections, sanctioned load, and energy exported by Net Metering consumers. Notably, there has been an exponential surge in customers, sanctioned load, and energy exports. This remarkable growth can be attributed primarily to rising tariffs and the growing awareness among the general public regarding the advantages of Net Metering.

Furthermore, it's important to note that the pace of Net Metering expansion is expected to persist unless there is a drastic shift in government policy concerning Net Metering. However, due to the relatively limited maturity of Net Metering data, making precise future assessments based solely on historical data presents challenges.

For the purpose of forecasting, we have established a benchmark using the number of new consumers and their load in the base year. It's worth highlighting that the number of consumers has witnessed substantial growth, increasing from 4,485 to 18,262 in the

past year. This upward trend continues in the early months of 2024-25. As a result, we predict that Net Metering connections will continue to grow exponentially in the coming years.

To quantify this prediction, we have projected the increase in new connections 1.1 times, respectively, compared to the previous year. Following this initial phase, we anticipate the number of new connections to remain constant for the subsequent five years.

6.1.4. Energy Production Forecast

In the calculation of energy production from Net Metering, a yearly plant factor of 17% for PV systems has been adopted, aligning with the IGCEP 2022 report. New consumers projected in step-1 are assumed to gradually connect throughout the year, with their energy production divided into monthly increments to determine the annual total. The full energy impact from these additional consumers is expected in the following year, and this cycle repeats for each subsequent year.

For PV systems in Net Metering, energy generation is divided into two segments:

1. self-utilization
2. Export to the National grid

To calculate the split between these segments, data was collected from Net Metering consumers with sanctioned DG capacity as of June 2023. GEPCO possesses information on the exported units from these consumers during 2023-24. Export plant factors were calculated based on the installed generation capacity of each consumer. Analysis of the export plant factor histogram revealed that most Net Metering consumers have an export plant factor clustered around 8%.

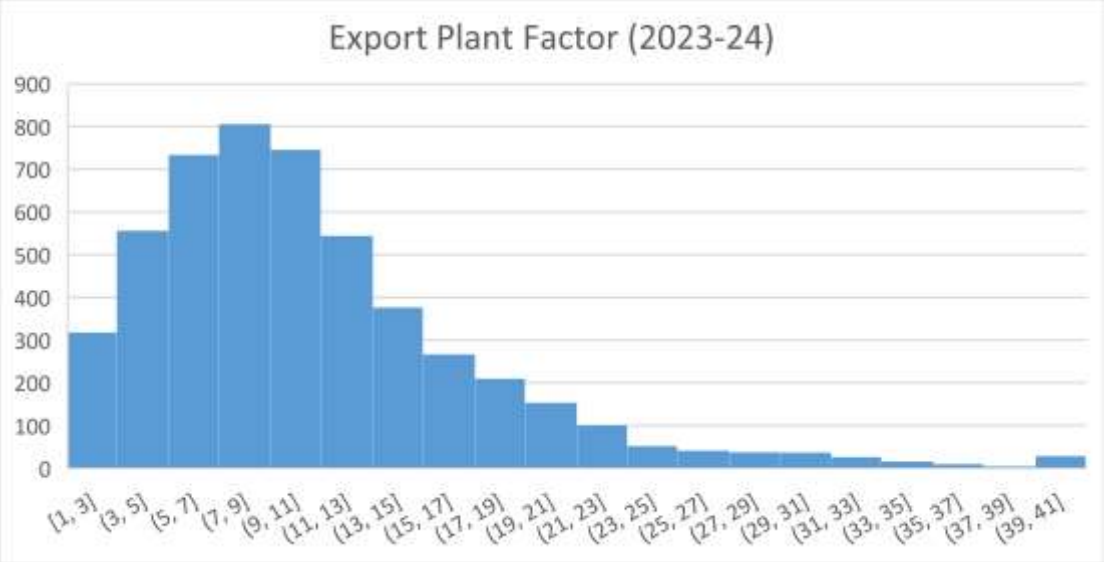


Figure 6-2: Histogram of plat factor against export units of Net Metering consumers

The export to the national grid plant factor has been calculated at 8%, representing 47% of the total energy generated by PV systems in Net Metering. The remaining 9% of the plant factor, which accounts for 53% of the energy produced, is assumed to be self-utilized by Net Metering consumers. Consequently, this assumption leads to a reduction in energy sales, as 53% of the total energy produced is considered self-utilized by consumers. Conversely, the purchase of energy from the system will decrease by the

total energy to be generated (at a 17% plant factor) by PV systems of Net Metering consumers, taking into account transmission losses. This approach effectively divides the energy production into segments for self-use by consumers and export to the national grid, influencing both the sale and purchase of energy from the system accordingly.

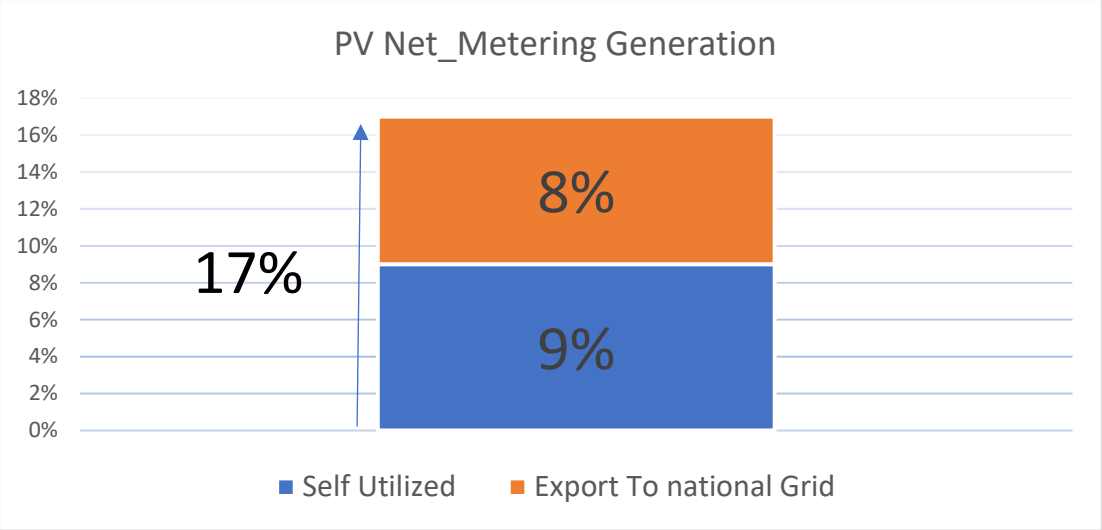


Figure 6-3: Net Metering Generation Plant Factor

6.1.5. Impact of Net Metering on demand forecast

The results of impact of Net Metering on the forecast is such that there will be 37030 no. of consumers with approximate installed capacity of 609 MW in year 2027-28 which will increase to 78184 no. of customers, having Net Metering load of approximately 1272 MW in the year 2033-34. Due to additional Net Metering, there will be reduction in sale of 398 GWh in 2027-28 and 921 GWh in 2033-34. There would be reduction in energy purchase from system. Reduction in purchase from the system will be 816 GWh in year 2027-28 and 1880 GWh in year 2033-34.

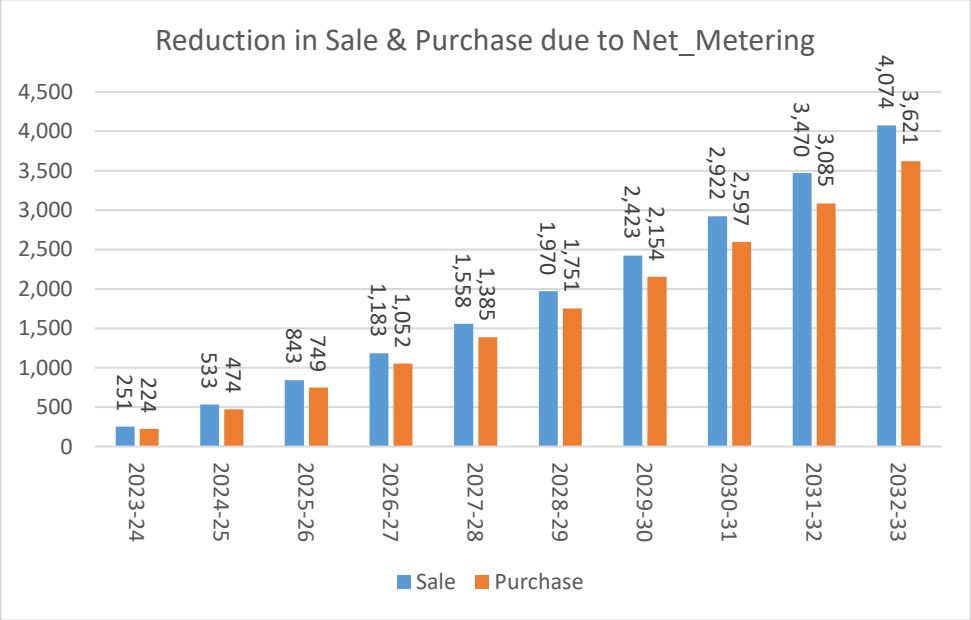


Figure 6-4: Reduction in sale due to Net Metering

Table 6-2: Forecasted Energy generation and spillover of Net Metering consumers

Year	Annual Addition		Cumulative		Annual Expected Energy Addition	Cumulative Expected Energy Addition	Cumulative purchase from net-metering
	No.	KW	No.	KW	GWh	GWh	GWh
2023-24	13,777	148,969	18,262	234,559	212		100
2024-25	26,154	340,002	44,416	574,561	253	475	224
2025-26	28,769	373,997	73,185	948,558	278	1,007	474
2026-27	31,646	411,398	104,831	1,359,956	306	1,591	749
2027-28	34,811	452,543	139,642	1,812,499	337	2,235	1,052
2028-29	38,292	497,796	177,934	2,310,295	371	2,942	1,385
2029-30	42,121	547,573	220,055	2,857,868	408	3,721	1,751
2030-31	46,333	602,329	266,388	3,460,197	448	4,577	2,154
2031-32	50,966	662,558	317,354	4,122,755	493	5,519	2,597
2032-33	56,063	728,819	373,417	4,851,574	543	6,555	3,085
2033-34	61,669	801,697	435,086	5,653,271	597	7,694	3,621

6.2. Impact of off-grid PV on demand forecast

Some consumers choose to meet their electricity needs by installing PV solar panels but do not opt for Net Metering. The decreasing cost of solar panels has led to a growing number of consumers adopting off-grid solar solutions. However, it is currently challenging to assess the impact of off-grid solar on the demand forecast due to limitations in conducting surveys to determine the number of off-grid solar installations and their respective capacities. Nonetheless, GEPCO plans to undertake a comprehensive survey in the future to collect data on off-grid solar systems, enabling a more accurate assessment of their influence on the demand.

6.3. Impact of Electric Vehicles (EV) on demand forecast

With advocacy from climate change activists and highly increasing prices of Fuels, Government and Corporates are moving away from conventional Fossil Fuel Vehicles (FVV). This paradigm shift has been observed in developed countries like USA, China, Germany who are making encouraging electric vehicles through their polices.

Sales of electric vehicles (EVs) grew 55% in 2022 from the previous year to a new record of 10.5 million. Nearly 13% of global car sales were electric in 2022, The rapid rise in EV adoption has also been confirmed by the International Energy Agency (IEA). It says that one in every seven passenger cars bought worldwide was an EV in 2022. This compares to one in every 70 just five years earlier. This brought the total number of electric cars on the world's roads to about 27 Million. The success of EVs is being driven by multiple factors. Sustained policy support is the main pillar. Public spending on subsidies and incentives for EVs nearly doubled in 2021 to nearly USD 30 billion. A growing number of countries have pledged to phase out internal combustion engines or have ambitious vehicle electrification targets for the coming decades. Meanwhile, Pakistan govt has also introduced its Electric vehicle policy in 2019 to promote EVs in the country and move away from FFV. This policy has optimistic target of 30% sales of EVs of all vehicles in 2030.

This EVs introduction will have drastic impact in overall demand requirement of power sector. However, at moment, large No. of vehicles are being registered and majority of those are from big cities like Karachi, Lahore and Islamabad. There is only one EV charging station installed in service territory of GEPCO. The sanctioned load of this EV Charging Station is 160 kW with tariff code of 68 located at Pindi Bhattian Interchange bearing reference number 28122520092101. Therefor impact of EVs on demand of GEPCO is considered to be negligible. But GEPCO demand forecast section is well versed and vigilant with the development in EVs in GEPCO and will take immediate action to incorporate its effect in future forecast when it gets any hint of EVs development in GEPCO service territory.

Conclusions

This Medium-Term Load Forecast (MTLF), 2023 provides a forecast of demand (energy and peak demand/power) for GEPCO and covers a horizon of 10 years from 2023-24 to 2033-34. A brief summary of forecast results is tabulated below;

Description			Domestic	Commercial	Small Industry	Medium & Large Industry	Tube Well	Total (Sale)	Total (@132kV)
Recorded Forecast	Energy (GWh)	2023-24	6,743	732	483	1,985	461	10,573	11,844
		2029-30	7,184	618	410	1,619	506	10,515	9,760
		2033-34	7,371	483	356	1,288	520	10,203	7,524
		CAGR(%)	0.89%	-4.09%	-3.01%	-4.23%	1.21%	-0.36%	-4.44%
	Peak Demand (MW)	2023-24	1,734.9	209.5	145.1	452.7	125.0	2,164	2,445
		2029-30	2,029.9	257.6	164.0	508.7	144.0	2,517	2,755
		2033-34	2,303.9	307.5	185.7	570.4	156.9	2,854	3,118
		CAGR(%)	2.88%	3.92%	2.50%	2.34%	2.30%	2.81%	2.46%
Computed Demand	Energy (GWh)	2023-24	6,977	758	499	2,053	477	10,940	12,259
		2029-30	7,419	645	426	1,687	522	10,882	10,161
		2033-34	7,606	511	372	1,356	535	10,570	7,924
		CAGR(%)	0.87%	-3.87%	-2.90%	-4.07%	1.16%	-0.34%	-4.27%
	Peak Demand (MW)	2023-24	1,878.0	226.7	157.1	490.1	135.3	2,343	2,646
		2029-30	2,187.9	277.7	176.7	548.3	155.2	2,713	2,969
		2033-34	2,475.9	330.5	199.6	613.0	168.6	3,067	3,350
		CAGR(%)	2.80%	3.84%	2.42%	2.26%	2.23%	2.73%	2.39%

A summary of forecast of BPCs is tabulated below;

Description			Industrial	Commercial	General Services	Bulk Supply	Total
BPCs Staying with GEPCO	Energy (GWh)	2023-24	741	11	894	134	1,779
		2029-30	804	12	1,005	179	2,000
		2033-34	925	14	1,167	218	2,323
		CAGR(%)	2.2%	2.5%	2.7%	5.0%	2.7%
	Peak Demand (MW)	2023-24	256.1	8.86	893.7	133.8	1,779.2
		2029-30	407.5	11.71	1,004.8	179.2	1,999.8
		2033-34	495	13.78	1,167.2	217.9	2,323.4
		CAGR(%)	6.8%	4.5%	0.0	5.0%	2.7%
BPCs opting for Competitive Supplier by giving 1 year priod notice	Energy (GWh)	2023-24	0	0	0	0	0
		2029-30	0	0	0	0	0
		2033-34	0	0	0	0	0
		CAGR(%)					
	Peak Demand (MW)	2023-24	0	0	0	0	0
		2029-30	0	0	0	0	0
		2033-34	0	0	0	0	0
		CAGR(%)					

The current iteration / version of Medium-Term Load Forecast (MTLF), 2024 for the period 2024-25 to 2033-34 results into lesser demand and sales forecast(s) in comparison with previous year's version due to change in fundamental assumption regarding pending load, world-wide recession, current economic condition of the country, flood and increase in electricity prices etc.

The current iteration of MTLF is based upon PMS Model which does not have the capability to incorporate economic factors, Improvisation of MTLF is required to improve accuracy of forecast.

Disclaimer

1. The data collected on 40 formats from different departments / agencies including MIS, CSD, PMU, P&E, PDC, PD Const., PD GSC, SE GSO, SE Ops, XEN Ops, SDO Ops, civic authorities, industrial estates etc. being the owner of the data are primary responsible. However, MIRAD GEPCO has made every reasonable effort to ensure the quality of the information, however, the accuracy, completeness and/or appropriateness of the information, forecast and assumptions may not be realized as expected.
2. This report does not include all of the information that an investor, participant or potential participant or any department may require and does not amount to recommendation for any investment.
3. Anyone proposing to use the information given in this report should independently verify and check its accuracy, completeness and suitability for the relevant purpose and obtain independent and specific advice from the concerned departments/ subject matter expert(s).
4. This report does not constitute legal or business advice and should not be relied upon as a substitute for obtaining detailed advice on Law, Rules, Regulations, Codes, Guidelines, Policies and procedure of Federal, Provincial Govts or Regulator.
5. Pending / Planned Load of housing societies and economic / industrial zones is based upon available data provided by the concerned civic authorities as well as other Federal and Provincial agencies. Volume and timeline of this planned load largely depends upon development progress of similar nature schemes.
6. This forecast is prepared mainly for Transmission and Distribution Network planning to be incorporated with TSEP (Transmission System Expansion Plan) of NTDC and is also used for estimate of Capacity Obligation of GEPCO as required by NEPRA and Market Commercial Code (MCC) to ensure security of supply for its consumers. However, this forecast is not designed to meet short-term operational needs i.e., day-ahead, week-ahead, month-ahead requirements etc. Monthly peak demand forecast provided in this report is indicative in nature due to limitation of PMS model. The actual monthly demand may vary vis-à-vis this forecast mainly due to economic factors, religious/ cultural festivities and climate change.
7. Existing PMS Model is sale based, whereby, forecast of demand (MW) is derived from sale (GWh) by applying load and co-incidence factors. Accuracy of forecast of peak demand is dependent upon these load and co-incidence factors. Accurate calculation of these factors is only possible with availability of hourly demand data. With availability of this hourly demand data, peak demand calculations will be more accurate.
8. PMS model is a combination of end-use and trend model and is not based upon regression / economic factors. This model does not have the capability to incorporate economic factors such as GDP, Electricity Prices, CPI, Recession etc., for forecast of electricity demand. If any drastic change occurs in economic factors, accuracy of Load Forecast will be affected.
9. Although, current economic situation has resulted in minimal growth in demand at the start of this fiscal year, incorporating these observations in the demand

forecast will drastically effect accuracy of forecast for future years, due to limitations of PMS model.

10. Initiative of Net-Metering has emerged recently and no reliable data is available for actual generation of distributed solar PV generation / off-grid solar roof tops. Only available data is spill-over (excess) generation of net-metering consumers. Forecast of Net-Metering cannot be performed accurately due to non-availability of extensive data set.
11. The forecasted growth of different categories including domestic, commercial, industry and tube well may not be treated as economic growths in the said sectors.
12. Any delay in execution of STG projects/ ELR, DOP (i.e., New Grids, Add/ Aug. of Power Transformers) may lead to overloading of existing grids/ distribution network during the forecasted period.
13. The ultimate load demand as provided by the largest upcoming housing society namely M/s DHA Gujranwala is included in this iteration of MTLF. However, the forecasted growth in the said locality is arrived at based upon the historic trends of the similar schemes as per their physical development.
14. Improvisation plan for medium-term load forecast (MTLF) is included in Business Plan 2024.

Measures and Acronyms

kV:	Kilo Volt
kW:	Kilo Watt
kWh:	Kilo Watt Hour
GWh:	Giga Watt Hour
MW:	Mega Watt
GW:	Giga Watt
MVA:	Mega Volt Ampere
km:	Kilo Meter
CAGR:	Compound Annual Growth Rate

NEPRA:	National Electric Power Regulatory Authority
NTDC:	National Transmission and Dispatch Company
CPPA-G:	Central Power Purchasing Agency
PITC:	Power Information Technology Company
GEPCO:	Gujranwala Electric Power Company, Limited
CTBCM:	Competitive Trading Bilateral Contract Market
MIRAD:	Market Implementation and Regulatory Affairs Department
PDC:	Power Dispatch Center
XWDISCO	Ex-WAPDA Distribution Company
MTLF:	Medium Term Load Forecast
PMS:	Power Market Survey
BPC:	Bulk Power Consumer
CDP:	Common Delivery Point
EV:	Electric Vehicle
SPP:	Small Power Plants
CPP:	Captive Power Plant
STG:	Secondary Transmission and Grids
BOD:	Board of Directors
IGCEP:	Indicative Generation Capacity Expansion Plan

TSEP:	Transmission System Expansion Plan
SOLR:	Supplier of Last Resort
S.I.E.:	Small Industrial Estate
DSM:	Demand Side Management
MIS:	Management Information System
DG:	Distributed Generation
PV:	Photovoltaic
GDA:	Gujranwala Development Authority
WAPDA:	Water and Power Development Authority
AJK:	Azad Jammu and Kashmir
AEDB:	Alternative Energy Development Board
HPP:	Hydro Power Project
PAP:	Power Acquisition Programme
GDP:	Gross Domestic Product
DHA:	Defense Housing Authority
YoY:	Year on Year
M&L Industry:	Medium and Large industry
S. Ind.:	Small Industry
M&L Ind.:	Medium and Large Industry
MDI:	Maximum Demand Indicator
RFO:	Residual Furnace Oil
D. Loss	Distribution Loss
Trans. Loss:	Transmission Loss

Glossary

I. **"Act":** means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, as amended from time to time.

II. **"Authority":** means the National Electric Power Regulatory Authority established under the Act.

III. **"Consumer":** means a person or his successor-in-interest who purchases or receives electric power for consumption and not for delivery or re-sale to others, including a person who owns or occupies a premises where electric power is supplied

IV. **"Bulk Power Consumer":** means a consumer who purchases or receives electric power, at one premises, in an amount of one megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may specify and the Authority may specify different amounts and voltage levels and with such other characteristics for different areas, as defined in Act.

V. **"Captive Generating Plant":** means a power plant setup by any person to generate electricity primarily for his own use and includes a power plant setup by any cooperative society or association of persons for generating electricity primarily for use of members of such co-operative society or association

VI. **"Competitive Trading Bilateral Contract Market or CTBCM"** means electric power market established in accordance with the high-level and detailed designs approved by the Authority vide its determinations dated 5th day of December, 2019 and 12th day of November, 2020 as may be amended by the Authority from time to time.

VII. **"Competitive Supplier"** means a person licensed under Section 23E of the Act to supply electric power to only those consumers who are located in the territory specified in its license and meet the eligibility criteria laid down by the Authority.

VIII. **"Supplier of Last Resort"** means a person who holds an electric power supply license for the service territory specified in its license and is obligated to supply electric power to all consumers located in that service territory at the rates determined by the Authority and is also obligated to provide electric power supply to the consumers, located within its service territory, of any competitive supplier who defaults on its obligation of electric power supply.

IX. **"Distribution Company" or "DISCO"** means a distribution company licensed by the Authority to engage in the distribution of electric power

X. **"Distribution Code"** means the distribution code prepared by the Distribution licensees and approved by the Authority.

XI. **"Grid Code"** means the grid code prepared and maintained by the System Operator pursuant to section 23G and 23H of the Act and approved by the Authority or till time the same is prepared by the Authority, the Grid Code 2005

XII. **"Market Commercial Code"** means the commercial code prepared and maintained by the market operator pursuant to sections 23A and 23B of the Act and approved by the Authority

XIII. **"Market Operator"** means a person licensed under the section 23A of the Act to perform the functions of the market operator

XIV. **"Power Acquisition Programme"** means the electric power procurement needs and plan of an electric power supplier as specified NEPRA Electric Power Procurement Regulations, 2022.

XV. **"Spatial Load Forecast"** means the load forecast prepared by the distribution companies and electric power suppliers for their network expansion plan(s) and power acquisition programme(s), as the case may be, in accordance with the Distribution Code and other applicable documents

XVI. **"System Operator"** means a person licensed under the section 23G of the Act to administer system operations, dispatch and power system planning

XVII. **"Transmission System Expansion Plan" or "TSEP"** means the system plan for expansion of transmission capacity prepared in accordance with the Grid Code and approved by the Authority

XVIII. **"Energy"** means electrical energy produced by Generation Plants or Generation units, flowing through or supplied by Transmission Network or Distribution Network, measured in units of watt-hours, its standard integers or multiples thereof

XIX. **"Compound Annual Growth Rate"** means the annualized average growth rate assuming growth rate takes place at an exponentially compound rate

Annex-07

Approved Power Acquisition Programme (PAP) of XW-DISCOs

National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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Registrar

No. NEPRA/R/Advisor (CTBCM)/LAD/CPAP/ 7640-54 May 20, 2024

1.	Chief Executive Officer, Faisalabad Electric Supply Company Ltd. (FESCO), Abdullahpur, Canal Bank Road Faisalabad	2.	Chief Executive Officer, Gujranwala Electric Power Company Ltd. (GEPCO), 565/A, Model Town, G.T. Road, Gujranwala
3.	Chief Executive Officer, Hyderabad Electric Supply Co. Ltd. (HESCO), WAPDA Offices Complex, Hussainabad, Hyderabad	4.	Chief Executive Officer Islamabad Electric Supply Co. Ltd. (IESCO), Street # 40, Sector G-7/4, Islamabad.
5.	Chief Executive Officer, Lahore Electric Supply Company Ltd. (LESCO), 22-A, Queens Road, Lahore	6.	Chief Executive Officer, Multan Electric Power Company Ltd. (MEPCO), MEPCO Headquarter, Khanewal Road, Multan
7.	Chief Executive Officer, Peshawar Electric Supply Company Ltd. (PESCO), WAPDA House, Shami Road, Sakhi Chashma, Peshawar	8.	Chief Executive Officer, Quetta Electric Supply Company Ltd. (QESCO), Zarghoon Road, Quetta
9.	Chief Executive Officer, Sukkur Electric Power Company Ltd. (SEPCO), Administration Block, Thermal Power Station, Old Sukkur	10.	Chief Executive Officer, Tribal Areas Electricity Supply Company Ltd. (TESCO), Room No. 213, 1st Floor, WAPDA House, Shami Road, Sakhi Chashma, Peshawar

Subject: **Determination of the Authority in the matter of Combined Power Acquisition Programme for FY 2022-23 to FY 2026-27 Submitted by the XWDISCOs**

Enclosed please find herewith the Subject Determination of the Authority along with **Annex-I** (total 123 pages) in the matter of Combined Power Acquisition Programme for FY 2022-23 to FY 2026-27 Submitted by the XWDISCOs.

Enclosure: **As above**

(Engr. Mazhar Iqbal Ranjha)

Copy to:

1. Secretary, Ministry of Energy (Power Division), 'A' Block, Pak Secretariat, Islamabad
2. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad
3. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.
4. Chief Executive Officer, Central Power Purchasing Agency Guarantee Limited (CPPA-G), Shaheen Plaza, 73-West, Fazl-e-Haq Road, Islamabad.
5. Managing Director, National Transmission & Despatch Co. Ltd. (NTDC), 414 WAPDA House, Shaharah-e-Qauid-e-Azam, Lahore

National Electric Power Regulatory Authority

Determination of the Authority in the matter of Combined Power Acquisition Programme for FY 2022-23 – FY 2026-27 Submitted by the XW-DISCOs

May 20th, 2024

(A). Background

In compliance with section 32 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997) (the "NEPRA Act") read with regulation 12 of the NEPRA (Electric Power Supplier) Regulations, 2022 (the "Supplier Regulations"), and regulation 6 & 7(3) of the NEPRA (Electric Power Procurement) Regulations, 2022, (the "Procurement Regulations"), the XW-DISCOs in their role as Suppliers of Last Resort (SoLRs) submitted an application on March 22, 2023 for the approval of their combined Power Acquisition Programme (PAP) for the period FY 2022-23 - FY 2026-27 before the Authority.

(B). Admission by the Authority

The Authority considered the PAP in its regulatory meeting and admitted the same on April 26, 2023, and further decided to seek comments from the general public and stakeholders. In this regard, notices were published in one (01) English and one (01) Urdu newspapers on May 18, 2023. Further, individual letters were also sent to relevant stakeholders seeking comments on the matter for the assistance of the Authority.

(C). Comments of Stakeholders

In this regard, comments were received from eight (08) stakeholders i.e., Uch Power (Private) Limited (UPPL), Uch-II Power (Private) Limited (UPPL-II), Revenue Division, Federal Board of Revenue (FBR), JDW Sugar Mills Ltd., Unit-II (JDW-II), JDW Sugar Mills Ltd., Unit-III (JDW-III), Private Power Infrastructure Board (PPIB), Ministry of Planning, Development & Special Initiatives (MoPD&SI) and Pakhtunkhwa Energy Development Organization (PEDO).

(2). The comments of the said stakeholders are summarized below:

(i). **UPPL and UPPL-II** submitted that the Authority has consistently maintained that implementation of the CTBCM shall not affect any rights, liabilities, terms and conditions set forth in existing (or legacy) Power Purchase Agreements (PPAs) and Implementation Agreements (IAs). Therefore, PAP should be approved keeping intact the said protections afforded to existing (or legacy) power producers. Further, since they currently supply power to WAPDA/Central Power Purchasing Agency (Guarantee) Limited (CPPA-G) under a power purchase agreement and have no agreements with any XW-

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA AUTHORITY

1/123

DISCOs, the PAP, which focuses on power acquisition by DISCOs, is irrelevant to their operations. It was highlighted in the comments that the Market Commercial Code (MCC) exempts "Legacy Contract" holders from being Market Participants, and this exemption should extend to the PAP provisions until the expiration of such contracts. The companies also raised concerns about implementation of the "commercial allocation" concept in the PAP and suggested that it should only be applied to the demand side (between CPPA-G/National Transmission & Despatch Company Limited (NTDC) and XW-DISCOs) rather than the supply side (between generators and CPPA-G/NTDC). They proposed maintaining the current framework for payments under legacy PPAs, while reforming the collection, recovery, and disbursement framework between XW-DISCOs and CPPA-G. It was pointed out that any assignment or amendment to a PPA requires the written consent of the generation company and that the "Change in Law" protections safeguard PPAs from such changes. Thus, the government is restricted from making any assignments, novation, or amendments through the MCC or the PAP. Additionally, UPPL & UPPL-II proposed that PAP should prioritize optimal utilization of indigenous low BTU gas in line with the National Electricity Policy 2021 (NE Policy 2021).

(ii). **FBR** commented that since no issue of taxation has been discussed in the PAP, therefore, its comments may be considered as nil.

(iii). **JDW-II** submitted that it has reviewed the PAP and agrees to the installed capacity of its power plant. It further stated that internal consumption of sugar mills is currently estimated to be 5.8 MW during the season and 1.0 MW during the off-season. The net capacity after taking the internal consumption is estimated to be 17.5 MW during the season and 23.35 MW during the off-season depending on bagasse availability. It was submitted that the said figures are estimated and may vary depending on the crushing and power requirements of its sugar mills.

(iv). **JDW-III** submitted that it has reviewed the PAP and agrees to the installed capacity of its power plant. It further stated that the internal consumption of sugar mills is currently estimated to be 1.5 MW during the season and 1.0 MW during the off-season. The net capacity after taking the internal consumption is estimated to be 21.8 MW during the season and 23.35 MW during the off-season depending on bagasse availability. Furthermore, the said figures are estimated and may vary depending on the crushing and power requirements of sugar mills.

(v). **PPIB** submitted that the PAP has been prepared considering upcoming requirements of SoLRs and to harmonize them with the IGCEP. As no specific format has been specified, it is suggested that the same may be devised in due time. PPIB commented that to ensure an effective procurement process, clear project identification and a framework with specific parameters such as site,

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

2/123

size, technology, and timeline should be established, rather than block identification of capacity requirements. The PAP should include project details in consultation with the System Operator and set timelines for project processing, including competitive bidding, project awards, licensing and tariff approval, issuance of Letters of Acceptance (LOA), and contract signing. PPIB highlighted that considering the time required for project initiation, development, and other activities, it is important to factor in the duration of 18-24 months for renewable energy projects and 7-10 years for hydropower projects during the planning phase. Additionally, PPIB suggested that the assessment for capacity obligations in the PAP for years 4 and 5 should be carried out at 90% or even 100%, rather than 80% and 60% respectively to ensure prudence in the process.

(vi). In addition to the above, PPIB commented that the PAP should provide a clearer picture of future projections to facilitate the Independent Auction Administrator (IAA) in conducting bidding. In case of delays in the commissioning of committed projects, an analysis or contingency plan should be included to meet the capacity obligations outlined in the PAP. Furthermore, the PAP should consider variable factors such as electricity supply variations from renewable and hydropower projects, as well as seasonal and monthly fluctuations in electricity demand/consumption. Additionally, the impact of factors like Distributed Generation (DG) and net metering should be considered in load forecasting and planning. PPIB stated that power procurement planning should rationalize the capacity in the system taking into account idle capacity to avoid excessive procurement. Further, the allocation of future generation capacity among XW-DISCOs should be based on forecasted projections rather than historic commercial allocation factors. PPIB submitted that clarity is needed regarding the future status of KAPCO, as it is retained at 500 MW in the PAP to address transmission constraints but is considered retired in the Capacity Obligations Report. Moreover, in order to maintain compliance with the combined capacity obligations of all DISCOs, re-allocation of commercial allocation factors of non-compliant DISCOs by the Market Operator may be considered.

(vii). Furthermore, PPIB submitted that the PAP should clarify whether demand-side management is considered in load forecasting by SoLRs. Factors such as lower growth rates and higher electricity tariffs should also be considered for their impact on demand projections. Sensitivity analysis regarding tariff impact on load projections may be conducted. PPIB highlighted that it is unclear whether projects such as Captive and Small Power Plants and upcoming initiatives like Solar PV systems on 11 kV feeders are included in the PAP. The PAP should clarify whether it considers projects for which procurement processes have not been initiated and includes Strategic Projects such as large hydro and nuclear projects. A framework should be developed to address such projects within the PAP. In addition, the PAP should consider

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

3/123

synchronizing the transmission system for newly inducted projects with their implementation timelines to avoid delays in evacuation arrangements that could impact power procurement. PPIB submitted that the mechanism for compiling, ensuring compliance with the Capacity Obligations Report, and submitting a combined PAP to NEPRA should be clarified, considering the involvement of ten (10) XW-DISCOs and K-Electric Limited (KEL) and it is expected that the SoLRs will involve the IAA in the finalization of the PAP.

(viii). **MoPD&SI** commented that IAA holds a pivotal role in the CTBCM because it will carry out competitive auctions for new electric power procurement. Therefore, the current status of IAA registration needs to be apprised as without its legal existence, the PAP does not hold significance. Further, in terms of the Procurement Regulations, the expansion in generation capacity is through competitive and least-cost basis. However, except for the year 2023-24, no new procurement is based on competitive bidding which reflects the preparedness of DISCOs for the CTBCM. MoPD&SI further stated that the PAP is not aligned with the IGCEP 2022-31 from the year 2026. It is crucial that PAP is in line with the guidelines set forth in IGCEP 2022-31. In addition, the proposed PAP spans from 2024 to 2027, while IGCEP 2023 will be in place within a few months. This misalignment between PAP and IGCEP creates inconsistency and therefore it is necessary to synchronize the timing of the said two documents. MoPD&SI also highlighted that the projection of capacity obligations for year 3 and year 4 at 80% and 60% needs to be reviewed considering the gestation time at supply side ranges up to 10 years. It was further commented that as per IGCEP 2022-31, a sensitivity analysis will be carried out to assess the requirement of KAPCO beyond its expiry in 2022-23 in the Transmission System Expansion Plan (TSEP). Therefore, XW-DISCOs may apprise if they have a fallback plan for 500 MW capacity procurement, if KAPCO is considered retired in TSEP. In addition to the said, MoPD&SI commented that during the planning cycle FESCO, LESCO, GEPCO, MEPCO and TESCO are facing non-compliance while other five DISCOs are drastically above their capacity obligations. However, the system as a whole is compliant with the capacity obligations. Therefore, the regulator may treat all DISCOs as one system in light of the CTBCM regime. Lastly, the timelines for generation, transmission, and distribution plans are generally disjointed which can lead to confusion, therefore, consistency needs to be ensured in overall planning timelines from generation to distribution.

(ix). **PEDO** submitted that the PAP has been prepared by the XW-DISCOs in compliance with the requirements of the Procurement Regulations which mandate the said entities to present their capacity procurement plans to NEPRA in order to ensure least-cost generation mix in the country. In addition, PEDO submitted the revised CODs for consideration in the PAP for six of its projects namely Lawi, Karora, Koto, Gorkin Matiltan, Chapri Charkhel, Daral Khawar-II which range between six to eight months. Further, PEDO submitted

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

4/123

that as per Table 3-8 of PAP, the total expected installed capacity is 2,558 MW, and PESCO's contracted capacity allocation is 280 MW based on a 12.89% allocation factor. PEDO opined that more hydel projects should be considered in the capacity obligations instead of local or imported coal. Although various PEDO projects, such as Karora HPP (11.8 MW) and Koto HPP (40.8 MW), which are scheduled for completion in 2023, are already included in future procurement, they should be shifted to the Capacity Obligations Report in the said PAP. The expected Commercial Operation Date (COD) for Karora is September 2023, and for Koto, it is August 2023.

(D). Rejoinder of XW-DISCOs on the Stakeholders Comments

The above comments were examined, and it was considered appropriate seeking perspective of XW-DISCOs on the same. Accordingly, the consolidated rejoinder submitted by the XW-DISCOs is summarized in the following paragraphs:

(i). **In response to the comments of UPPL and UPPL-II**, it was submitted that the PAP has been developed in line with the regulatory framework and CTBCM. Since the PAP, from the available capacity point of view, is based on the approved IGCEP, therefore, the protections available to the existing (legacy) generator through their respective PPAs and IAs are maintained intact. Further, the power procurement arrangements with legacy power generators, including UPPL and UPPL-II are already covered and protected as per their PPAs with CPPA-G (the designated Special Purpose Agent - SPA) as buying agency of XW-DISCOs. The PAP under review considers the legacy arrangements on a business-as-usual basis. In addition, the understanding of UPPL and UPPL-II regarding exemption of legacy contracts from enrollment as market participant was agreed with. Regarding comment on commercial allocation, the XW-DISCOs submitted that the referred commercial allocation is an arrangement between the CPPA-G (the SPA) and the XW-DISCOs. The PPAs with generators shall have no change or impact on account of capacity obligations, commercial allocations and/or PAP, as the case may be. On the observations pertaining to "change in law", the XW-DISCOs agreed with the understanding of the UPPL and UPPL-II. With regards to comment on optimization and utilization of indigenous gas, XW-DISCOs replied that the optimization of projects under IGCEP is already based on a least-cost basis. Further the security constrained economic dispatch is also based on the optimization of short run marginal cost.

(ii). **On the comments of JDW-II and JDW-III**, XW-DISCOs responded that the firm capacity adopted by the Market Operator is after due consideration of the facts / agreements available with CPPA-G (the SPA). Any different capacity figures (MW) would require an update in the Capacity Obligations Report of the Market Operator.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

5/123

(iii). **In response to the comments of PPIB,** XW-DISCOs agreed with the suggestion that a uniform/standardized format for the PAP should be prepared in consultation of CPPA-G, PPIB and DISCOs duly approved by NEPRA. On comment suggesting ensuring an effective procurement process, it was replied that the rationale and resultant recommendations are agreed in principle. However, the PAP, being predominantly influenced by the approved IGCEP can include the projects in the given details only to the extent of "committed" projects. The SoLRs being new in the process chain require support from the IAA. It was further responded that optimized project blocks of IGCEP can be expanded into the details of size, location, technology, timelines, and COD etc. upon approval of the PAP and due consultation with the IAA in its overall advisory role. On the comment of PPIB regarding considering gestation period required for various projects, it was submitted that the observation is valid and agreed in principle. It may, however, be noted that pursuant to the Procurement Regulations the PAP is prepared for a period of five (5) years, of which the first three (3) years are definitive and the remaining two (2) years are indicative. Considering the instant observations, the control period (or time horizon coverage) for the PAP will have to be suitably expanded through appropriate amendments in the governing regulations. Regarding the assessment of capacity obligations at 90% or 100% for years 4 and 5, it was responded that the suggestion is agreed with and the submitted PAP also recommends the same.

(iv). On the comment of PPIB pertaining to the provision of a clear picture to the IAA for conducting competitive auctions and inclusion of contingency plan in case of delay in commissioning of projects, it was responded that the observation and resultant recommendation are logical and, therefore, agreed in principle, to add value to the whole of PAP process. Although regulation 4(2)(b) of the Procurement Regulations do implicitly provide for risk mitigation through adopting efficient and effective power procurement strategy and risk mitigation mechanisms, however, such strategy and/or mechanism has to be kept in view of the approved IGCEP, TSEP, network expansion plan(s) etc. However, as already discussed above, enhanced time horizon for PAP and increased assessment percentage vis-à-vis the capacity obligation, may provide enabling space for carrying out the mentioned sensitivity analysis without compromising the compliance to the capacity obligations determined as per the MCC. In response to the comment that the PAP should also consider variable factors such as variation in electricity supply from renewable / hydropower projects, seasonal / monthly variations in electricity demand, and impact of factors such as DG, net metering etc., it was submitted that the mentioned factors are already covered through optimization of the approved IGCEP, achieved through latest digital solutions. Further the impact of disruptive technological advancements (DG, net-metering, Variable Renewable Energy (VRE), Electric Vehicle, etc.) is also broadly covered

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

6/123

through realistic load/demand forecasting by the SoLRs. On comments related to considering the idle capacity during the planning process, it was submitted that the conclusion portion of the PAP already includes recommendations so as to avoid excessive capacity situation. Regarding allocation of capacity based on forecasted projections, it was submitted that the allocation of future generation capacity among XW-DISCOs has been made, at the first level, to mitigate individual non-compliance vis-à-vis the capacity obligations of relevant XW-DISCOs, however, after mitigation of non-compliance the allocation has been made on the commercial allocation factors. Regulation 6(4) of the Procurement Regulations, however, requires that the project selected to meet SOLRs' combined capacity obligations shall be allocated on pro rata basis keeping in view their respective capacity obligations. The suggestion of PPIB with respect to clarity on future status of KAPCO and re-allocation of commercial allocation factors among non-compliant XW-DISCOs was agreed with.

(v). In response to comments pertaining to demand side management and sensitivity analysis of tariff impact on load projections, it was submitted that being regulated entities, the SoLRs have very limited options to make a strategy on Demand Side Management, the variability of the tariff offering on a situational basis, being the major DSM tool. So far, the demand side management efforts of XW-DISCOs are limited to the ATC loss-based load management. However, with maturity of market and regulatory flexibility by allowing limit based situational tariff offering, such assessments shall surely enhance accuracy of planning documents, including the PAP. On comment requiring clarity with regards to inclusion of captive and small power projects in the PAP, it was replied that small hydel and renewable power plants are already included in the PAP Further the projects titled "cost reduction projects" include envisaged solarization of 11 kV feeders project, with a total expected installed capacity of 1,224 MWp (with initial firm capacity of 269 MWp). Regarding clarification sought with respect to procurement from strategic projects such as large hydro, and nuclear projects, etc., and suggestion to devise a framework in this regard, it was responded that IGCEP is overarching document for procurement of capacity needed in future. The need for the framework to deal with the mentioned categories of projects is, however, agreed. On comment regarding synchronization with transmission projects to avoid delays in evacuation arrangement, it was responded that the observations are agreed in principle. The power evacuation to the extent falling with the territory of host Distribution Network Operator of the relevant SoLR has to be ensured by the said network operator. However, such interconnection readiness should be assessed at the time of preparation and approval of IGCEP.

(vi). On suggestion regarding mechanism for compiling, ensuring compliance with capacity obligations report and submitting a combined PAP, it was responded that conclusion portion of PAP has already made suitable recommendations to

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

7/123

the Authority. Regarding keeping the IAA on board with respect to preparation of PAP, it was submitted that the XW-DISCOs duly made an attempt to engage with PPIB, as designated IAA, for coordination, support and advice on the preparation of the PAP. However, through a belated response vide No. C(C02)/PPIB/2023/Law/ 5476/ O-58651 dated April 03, 2023, it was responded that, being not registered as IAA with NEPRA till that date, the PPIB was not legally competent to perform / exercise any function allocated to the IAA pursuant to the Procurement Regulations or otherwise. Notwithstanding the above response, it is assured that once the PPIB is legally competent to perform / exercise any function allocated to the IAA pursuant to the Procurement Regulations or other applicable documents, XW-DISCOs as SoLRs shall surely keep the IAA on-board during finalization of next iterations of PAP and/or after approval of the current PAP.

(vii). **In response to the comments of MoPD&SI**, it was submitted that the comments are aligned with the Procurement Regulations. The registration of the IAA and its role in the preparation and effective implementation of a sound PAP are critical, as per the approved design of the CTBCM and its implementation roadmap. The present form of the PAP considers committed, optimized, and system constraint removal projects. The solarization of 11 kV feeders is included as an optimized project, subject to competitive bidding. Since the other projects are either committed or aimed at constraint removal, the procurement method is predetermined. Future iterations of the PAP will include necessary procurements based on the ground situation. It was responded that the current PAP has already considered committed, optimized, and constraint removal projects during the control period to ensure compliance with the capacity obligations determined by the Market Operator. The solarization of 11 kV feeder lines represents VRE projects. However, projects not required to meet the capacity obligations have not been included in the PAP. The PAP for the period from 2022-23 to 2026-27 has been prepared and submitted in accordance with regulation 6 of the Procurement Regulations, which mandates annual submission of a rolling five-year PAP. The most recently approved IGCEP has been considered for the current PAP. However, the next iteration of the PAP will use the most recently approved IGCEP available. The initial inconsistency arose due to the obligation to submit the first PAP within three months of the notification of the Procurement Regulations. In the future, the most recently approved IGCEP will serve as the guiding document for the relevant PAP iteration. Regarding review of capacity obligations requirements for year 4 and year 5 at 80% and 60% respectively, the XW-DISCOs responded that the comment is agreed; however, proposed review will require amendments to the MCC and the governing Electric Power Procurement Regulations. The Capacity Obligations Report issued by the Market Operator and the existing PAP also provide suggestions and recommendations in line with these comments. The consideration of 500 MW

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

8/23

firm capacity for KAPCO aligns with the base case of the approved IGCEP. If the sensitivity analysis for the TSEP results in the complete retirement of KAPCO before 2025-26, the TSEP will need to propose an alternate mitigation plan, such as constructing Grid Stations in the area by the NTDC, to address relevant transmission constraints. Since the overall system is already compliant with the capacity obligations even without extended KAPCO, no fallback plan is necessary in this case. Regarding the comment on non-coincidental peak, it was responded that the same is agreed with. The comments related to considering all XW-DISCOs as one system to address capacity obligation non-compliance have been detailed in the PAP. While treating all DISCOs as one system is recommended, the compliance with capacity obligations for all DISCOs should be assessed as a whole until the submission of the PAP continues. In case of overall compliance, a judicious adjustment in inter-DISCO capacity allocation factors should be considered. Regarding ensuring consistency in integrated planning for the entire sector, the suggestions were agreed upon.

(viii). **In response to the comments of PEDO**, it was submitted the procurement year as proposed in PAP is aligned with the submissions of PEDO except Lawi for which best estimate is made in PAP being it a legacy contract. Regarding the timeline of Daral Khawar-II, it was responded that the IGCEP optimized projects, which are not mentioned in Capacity Obligations Report, are not taken in PAP. Further, it was commented that it appears PEDO is suggesting the inclusion of PEDO projects located in the vicinity of PESCO as a part of PESCO's Procurement Plan. Regarding this matter, it needs to be clarified that during the five-year planning period of the PAP, a factor-based capacity allocation process must be formulated. However, if the Authority so desires and determines the necessity for individual XW-DISCOs to develop purely bilateral contracts-based PAP, the same can only be accomplished through individual PAPs for each respective DISCO.

(2). The Authority has reviewed the above comments of the stakeholders and the rejoinder of XW-DISCOs in the matter. In this regard, it is considered that XW-DISCOs have addressed the observations/comments of the stakeholders, and no further debate is required on the individual comments of the stakeholders. However, on specific issues pertaining to PAP as also highlighted in stakeholders' comments and rejoinder of the DISCOs, the analysis of the Authority is in the following paragraphs.

(E). Consultative Session on the PAP with XW-DISCOs

The Authority examined the PAP in detail and identified several issues that required discussion/deliberation. In this regard, a professional level discussion session was arranged with the XW-DISCOs, PPIB as IAA, CPPA-G as Market Operator and NTDC as System Operator on May 22 – 23, 2023 to deliberate the forty (40) plus discussion issues covering all major aspects of the proposed PAP. The discussion issues included compliance of the PAP with the Procurement Regulations and the MCC, alignment of the PAP's output with the

9/123

approved IGCEP 2022-31, energy requirements considering seasonal variations and intermittency, consideration of demand-side management measures, impact of projects such as 11kV feeder solarization on the overall basket price, extension of projects with expired PPAs versus proposing new replacements, evaluation of transmission and evacuation arrangements, and the need to incorporate long-gestation projects like large hydro and nuclear in the PAP. Additionally, the issues pertaining to the evaluation of project costs, tariff impact, and the need for revisions or approval of the PAP by the Authority were discussed. Based on the said consultative session and in view of the comments received from stakeholders, the Issues of Public Hearing were framed.

(F). Proceedings of Public Hearing:

The notice of Public Hearing was published in the press on October 12, 2023, as well as on the official website of NEPRA. Further, letters were also sent to various government ministries, attached departments and other relevant stakeholders soliciting their comments on the Issues of the Public Hearing.

(2). The Public Hearing in the matter was held on October 24, 2023, at the head office of NEPRA in Islamabad as well as through video link wherein representatives of XW-DISCOs, CPPA-G, National Power Control Centre (NPCC) of NTDC, Private Power Infrastructure Board (PPIB), interested stakeholders, and the general public participated and presented their point of view in the matter.

(3). The following paragraphs contain the issue-wise discussions covering the response of XW-DISCOs, comments of stakeholders, followed by an analysis thereon by the Authority.

(i) Whether the PAP has been prepared in accordance with the NEPRA (Electric Power Procurement) Regulations, 2022 (the "Procurement Regulations") and market commercial code (the MCC)?

XW-DISCOs submitted that the PAP has been prepared as required under section 32 of the NEPRA Act, regulation 12 of the Supplier Regulations and in line with regulation 6 and 7 (3) of the Procurement Regulations. The IGCEP 2022-31 is also considered as major input for PAP. Further, the Capacity Obligations Report issued by the Market Operator as part of the test run plan is another major input of this PAP and the same is prepared as per procedure laid down in the MCC. The demand forecasts provided by XW-DISCOs to the Market Operator are also in line with the MCC and Distribution Code.

CPPA-G as Market Operator submitted that the PAP has to be prepared as required under section 32 of the Act and regulation 12 of the Supplier Regulations and in line with regulation 6 of the Procurement Regulations which stipulate that the PAP shall be prepared by the SOLR in line with the IGCEP, TSEP, network expansion plan(s) and approved investment programme of the concerned distribution licensee, demonstrating compliance with its capacity obligations determined in accordance with the MCC.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

10/123

In addition, it was commented that the current PAP has been submitted in the absence of the TSEP and investment plans of the XW-DISCOs. The evacuation of power from upcoming generation projects is of paramount importance. It is considered that prior to approval of any future generation project, its power evacuation should be guaranteed, and system constraints should be removed so that the existing generation fleet is economically dispatched. Furthermore, clause 5.8.4 of the NE Policy 2021 states that "*Future procurement of electricity will be in accordance with the IGCEP and TSEP, pursuant to applicable policy / framework and regulatory stipulations*". Furthermore, in the overall scheme PAP is primarily prepared for 3 reasons: (i). fulfillment of capacity obligations under MCC, (ii). cost reduction through induction of lower variable cost plants, and (iii). to ensure system stability and reliability. Therefore, it is understood that PAP can procure over and above the requirements of CO. However, DISCOs PAP has not been prepared in accordance with IGCEP as required by the NE Policy 2021, as they have only taken committed projects and not considered projects required for cost reduction, stability and reliability of the overall system as given in approved IGCEP 2022-31.

Observations/Findings of the Authority:

The PAP is a rolling five year plan which is to be prepared and submitted by an SoLR for approval of the Authority and includes, *inter-alia*, (a) its energy and peak demand requirements for the previous year and projections for the next five years, (b) existing contracted capacity and energy, (c) capacity obligations determined by the market operator, (d) plans for new and firm power procurement over the next three years, with indicative procurement for the following two years, (e) procurement mode and timelines for each project, (f) details of contracted energy and capacity expected to become available within the next five years, including potential delays. Further, in terms of regulation 6(2) of the Procurement Regulations, "*the power acquisition programme shall be prepared by the supplier of last resort in line with the IGCEP, TSEP, network expansion plan(s) and approved investment programme of the concerned distribution licensee, demonstrating compliance with its capacity obligations determined in accordance with the Market Commercial Code.*". In addition, for the initial five years a combined PAP is to be submitted by the SoLRs and accordingly this combined PAP was submitted for approval of the Authority.

The Authority has observed that the PAP submitted by XW-DISCOs is not in line with the approved IGCEP 2022-31 and a significant difference to the tune of 8411 MW as explained in detail in issue no. (ii) below has been observed. Further, as stated during the Public Hearing by the NTDC, there is no confirmation with respect to the timely evacuation of the proposed projects to be connected at the transmission voltage level due to non-availability of the TSEP that can be firmed up through upcoming TSEP. Further to the said, the Authority has observed that since the PAP has been prepared based on the capacity obligations calculated during the test-run period, therefore, variance is expected based on the proposed amendments in the

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

11/23

MCC and methodology for calculation of COs as also confirmed by the Market Operator in its submission. In addition, it has also been observed that the demand forecast of XW-DISCOs submitted in the PAP differs from that submitted in their investment plans. Given the said, the Authority is of the considered opinion that largely the PAP does not meet the requirements of the Procurement Regulations.

(ii) **Whether the output of the PAP i.e., the firm and indicative procurement for the control period (FYs 2022-27) is in line with the generation capacity addition in the latest approved Indicative Generation Capacity Expansion Plan (IGCEP 2022-31) on year-on-year basis? In case of any deviations, what are the justifications and which document should take precedence to ensure least-cost procurement by the SOLRs?**

XW-DISCOs submitted that output of the PAP is in line with IGCEP 2022-31 except following deviations, (i). Solar DG (11 kV feeder line solarization project) is planned to be procured during the FY 2023-24 as per policy guidelines of the government as opposed to the three (03) years span taken in the IGCEP 2022-31. Further, the total quantum of Solar DG procurement (1224 MWp) is less than that optimized in the IGCEP 2022-31 i.e., 2000 MWp. In addition, optimized hydel, utility solar and wind projects are not part of PAP due to compliance with the capacity obligations of the XW-DISCOs as a whole. In addition, it was submitted that assurance of the least-cost procurement should take place at the IGCEP level. However, the final selection of optimized projects should be based on PAP. Once a capacity approved in the PAP reaches contract stage, the next IGCEP should take the same as committed.

NTDC as System Operator submitted that the PAP presented by the XW-DISCOs for FY 2022-23 to FY 2026-27 is not synchronized with IGCEP 2022-31 for two reasons. Firstly, the IGCEP was developed in the summer of 2022 when international fuel prices were very high. On the demand side an optimistic growth rate was considered based on higher GDP forecasts than was actually realized in the base year of 2022/23. The PAP was developed later and independently using bottom-up demand growth estimates from Power Market Surveys (PMS). The upcoming IGCEP 2024-33 will be submitted by the System Operator after Board approval by January 2024. The demand forecast for the first five years would be the recently updated PMS forecast, same as the PAP. Therefore, for the first five years of the IGCEP, there will be no difference in demand forecasts for IGCEP and PAP.

Market Operator submitted that clause 5.8.4 of the NE Policy 2021 states that "Future procurement of electricity will be in accordance with the IGCEP and TSEP, pursuant to applicable policy / framework and regulatory stipulations." However, DISCOs PAP is not prepared in accordance with IGCEP as required by the NE Policy 2021, as they have only taken committed projects and not considered projects required for cost reduction, stability and reliability of the overall system as given in approved IGCEP.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

12/23

Observations/Findings of the Authority

The Authority has observed that there is a significant difference between the proposed PAP and the generation capacity additions as approved in IGCEP 2022-31. It is important to note that the PAP only proposes procurement from committed projects of the IGCEP with a minor share of procurement from the optimized projects i.e., through 11 kV feeder solarization project. However, in comparison with the base case scenario approved in the IGCEP, it has been observed that around 8440 MW of optimized projects in the base case scenario of IGCEP 2022-31 have not been included in the PAP (please refer below image) which is expected to have significant impact on the overall basket price as well as least-cost addition of generation capacity in the system. The Authority is of the opinion that the pivotal document for planning least-cost generation mix for the country is IGCEP and accordingly PAP must be prepared in line with the IGCEP as also required in clause 5.8.4 of the NE Policy 2021 and Regulation 6(2) of the Procurement Regulations, such deviation should have been objectively and quantitively substantiated by the DISCOs. Therefore, it is concluded that the submitted PAP is not in line with the IGCEP.

IGCEP 2022-31			PAP FY 2023 – 2027		Difference	
FY	Committed (MW)	Optimized (MW)	Committed (MW)	Optimized (MW)	Committed (I-P)	Optimized (I-P)
2022-23	4640	0	4659	0	(19)	0
2023-24	1094	500	1094	1224	0	(724)
2024-25	3757	4380	3767	0	(10)	4380
2025-26	1311	2713	1311	13		2700
2026-27	2928	2084	2928	0		2084
Total	13730	9677	13759	1237	(29)	8440
	23407		14996		8411	

(iii) Whether the demand forecast used in the combined PAP is aligned with the demand forecast used in the IGCEP 2022-31 as well as network investment programmes of XW-DISCOs? Also explain the basis for choosing the base case scenario of the IGCEP 2022-31 for preparation of PAP.

XW-DISCOs submitted that the IGCEP 2022-31 forming basis for the submitted PAP is based on the global demand forecast aligned with MTLF for base year 2020-21 of the XW-DISCOs. The Capacity Obligations Report for the purposes of the submitted PAP is based on MTLF for base year 2021-22 of XW-DISCOs. In view of the fact that there was no major difference in the demand forecasts used for IGCEP 2022-31 and the submitted PAP, the base case scenario of IGCEP 2022-31 was adopted being the normal case scenario. Further, subject to the timelines of existing Investment Plans, the projects considered in PAP have been taken into account.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY NEPRA AUTHORITY

13/23

Those projects falling after the period of existing investment plans will be appropriately included in the investment plans of XW-DISCOs.

System Operator submitted that the PAP is not synchronized with IGCEP 2022-31 as an optimistic growth rate was considered in the said IGCEP based on higher GDP forecasts than was actually realized in the base year of 2022-23. The PAP was developed later and independently using bottom-up demand growth estimates from Power Market Surveys (PMS).

Punjab Power Development Board (PPDB) submitted that the electricity consumption for the FY 2023-24 is envisaged at 143,820 GWh as indicated by the XW-DISCOs in the PAP, whereas NEPRA has forecasted the consumption to the tune of 124, 861 GWh in the determined Power Purchase Price (PPP) projections for the said fiscal year. Since, the numbers estimated by the XW-DISCOs are on the higher side as compared to those determined by NEPRA, therefore, the resultant decrease in tariff may be timely passed on to the consumers.

Observations/Findings of the Authority

The Authority has observed that the demand forecast of the IGCEP and PAP are almost similar as shown below:

Demand Forecast DISCOs (MW) vs IGCEP						
	2021-22	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
IESCO	2481	2508	2616	2765	2908	3071
PESCO	2369	2526	2672	2800	2929	3024
FESCO	3292	3512	3761	3944	4126	4342
LESCO	5205	5578	5844	6067	6329	6589
GEPCO	2695	2749	2863	3003	3142	3290
MEPCO	4501	4808	5110	5410	5709	6739
HESCO	1136	1180	1223	1267	1312	1358
QESCO	1070	1129	1166	1206	1247	1299
TESCO	508	522	544	569	596	625
SEPCO	961	1003	1018	1033	1048	1063
DISCOs Total	**24218**	**25515**	**26817**	**28064**	**29346**	**31400**
IGCEP	**23544**	**24755**	**26202**	**27625**	**29177**	**30703**
DISCO/IGCEP	**97%**	**97%**	**98%**	**98%**	**99%**	**98%**

However, the Authority observes that the demand forecasts used for preparation of the approved IGCEP 2022-31 and the submitted PAP respectively were prepared using FY 2021-22 as a base year. Recent observations indicate a substantial reduction in demand and energy consumption (*10.25 % YoY decrease in electricity generation in the CPPA-G system from 143,316.6 GWh in FY 2021-22 to 128,623.87*

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

14/23

GWh in FY 2022-23) during the preceding fiscal year i.e., FY 2022-23, a fact also corroborated by XW-DISCOs and NTDC during the Public Hearing. Given this notable decline, it is imperative to align the PAP and IGCEP with the most current demand forecasts, significantly lower than the previous projections, is evident. The Authority deems it prudent that PAP and IGCEP are realigned with the updated demand forecasts, ensuring reflection of recent developments and considering the decreasing trend of the demand forecast.

The Authority has further observed that the demand forecasts submitted in the XW-DISCOs' investment programs differ from those considered in the PAP. Therefore, alignment of these forecasts is also considered necessary in the next PAP.

Regarding the comments raised by the PPDB, the Authority considers that the short term demand forecast is primarily used for PPP forecast for determination of reference/base tariff .Any change in generation mix based on DISCOs actual demand and available generation resources and its associated financial impact on the end consumer tariff which occurs as a result of actual increase/decrease in the consumption from the projected/determined numbers are duly passed and adjusted through the monthly fuel charge and quarterly adjustments through separate regulatory proceedings. However, the observation is worth considering and DISCOs are directed to ensure minimal difference between the short to medium terms forecasts for the predicable tariff, optimal investment and capacity procurements.

(iv) Whether the capacity obligations prepared by the CPPAG as market operator during the test-run period should be considered for approval of the PAP or otherwise?

XW-DISCOs submitted that Regulation 6(2) of the Procurement Regulations, 2022 inter-alia, requires the PAP to demonstrate compliance with the capacity obligations determined in accordance with the MCC. Further, the Capacity Obligations Report prepared by the Market Operator during the test-run period may be considered for approval of this PAP. This shall help in a smooth and expeditious transition to the market environment.

Market Operator submitted that keeping in view that CTBCM is under trial run and the decision of Authority is awaited on the recommendations in the final test run report which proposes some changes in the MCC which will affect the determination of capacity obligations. Further, the comment of the Market Operator in issue no.1 above regarding the quantum to be included in PAP may also be considered here.

PPDB commented that projected allocation factors among XW-DISCOs for the fiscal years till FY 2026-27 have been envisaged with 1.74% for TESCO being lowest and 21.10% for LESCO being highest. Accordingly, NEPRA may propose a mechanism to address any variance during the horizon of the PAP due to enhanced load of any DISCO or otherwise.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

15/23

Observations/Findings of the Authority

The Authority observed that the Market Operator has identified, during the test-run period, a number of amendments in the MCC including in the mechanism for the preparation of Capacity Obligations Report as well as allocation factors for allocation of legacy and new generation amongst the XW-DISCOs, which are two of the main inputs of the proposed PAP. Therefore, the proposed amendments in the MCC as submitted by the Market Operator with the final test-run report of the CTBCM, if approved by the Authority, may have an impact on the proposed PAP. Therefore, the Authority is considering the capacity obligations prepared during the test-run period as an indicative input for approval of this PAP.

Regarding the comments of the PPDB, it is considered that since the PAP is a rolling document therefore any increase/decrease in the demand of XW-DISCOs shall be duly taken care of in the upcoming iterations of the PAP as stipulated in the Procurement Regulations.

(v) **Whether it is prudent to allow the extension in contracts of legacy projects due to constraints in the NTDC system as indicated in IGCEP 2022-31? Has there been any system technical assessment study conducted to justify the same?**

XW-DISCOs commented that in particular case of the PAP in hand, only one project has been considered with extension as same has been considered in approved IGCEP 2022-31. The extended project has been taken only at a minimum level of 500 MW to avoid local constraints for a limited period of time, until such constraints are removed. Replacement of KAPCO with a new project for the purpose of constraint removal is subject to detailed study in TSEP as stated in the IGCEP 2022-31.

Market Operator submitted that as per regulation 33 (2) of the Procurement Regulations, any extension of legacy contracts/PPAs is subject to optimization under IGCEP. Therefore, if IGCEP includes extension of a particular power plant on a least-cost basis, then extension may be granted.

Observations/Findings of the Authority

The Authority considers that the only procurement proposed in the PAP due to constraints in the NTDC system is the extension in the power purchase agreement of KAPCO (to the tune of 500 MW only). In this regard, in the IGCEP 2022-31 a minimum dispatch of 500 MW from existing KAPCO CCPP (Block-I and Block-II) in the months of May to September until year 2025 has been considered and approved, beyond its PPA expiry i.e., October 2022, owing to network requirements/constraints, whereas the remaining capacity (Block-III) has been retired as per PPA expiry. It is pertinent to mention that in the IGCEP 2022-31, NTDC had submitted that the requirement of KAPCO beyond its PPA expiry will be assessed in the TSEP, after which competent forum will be approached, with consensus among concerned stakeholders i.e., NTDC, CPPA-G and KAPCO, for PPA extension or otherwise and the same will be considered in the next iteration of

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

16/23

the IGCEP. Although there is no approved TSEP at this point of time, the Authority has reviewed the draft TSEP submitted by the NTDC for approval of the Authority on November 30, 2022, and it has been observed that 500 MW from KAPCO will be required till FY 2025-26 after which it may not be required owning to, *inter-alia*, upgradation of Vehari 220/132 kV Substation to 500kV and availability of Nagshah 220/132 kV Substation in FY 2025-26.

In view of this, the Authority is of the considered opinion that the inclusion of KAPCO due to transmission constraints is justified and the extension in the existing power purchase agreement of KAPCO as proposed in the PAP is allowed.

(vi) Whether the availability of transmission/evacuation arrangements for the firm projects have been considered during preparation of PAP?

XW-DISCOs submitted that the localized solarization of 11 kV projects are based on ensured evacuation arrangements. However, for the projects specifically approved in the IGCEP 2022-31, it is understood that the System Operator and Transmission Network Operator shall decide for timely evacuation subject to the COD of respective power projects. It was further submitted that subject to the timelines of existing investment plans, the projects considered in PAP have been taken care of. The projects falling after the period of existing investment plans will be appropriately included in the investment plans of XW-DISCOs. In future, evacuation arrangements planned for committed projects will be made part of the PAP, especially for those projects, where evacuation is the responsibility of XW-DISCOs.

Market Operator submitted that the evacuation of power from upcoming generation projects is of paramount importance and prior to the approval of any future generation project, its power evacuation should be guaranteed. Further, system constraints should be removed so that the existing generation fleet is economically dispatched, and no negative impact is transferred because of such plants of ex-WAPDA DISCOs. In addition, Clause 5.8.4 of the NE Policy 2021 states that "*Future procurement of electricity will be in accordance with the IGCEP and TSEP, pursuant to applicable policy / framework and regulatory stipulations*". Therefore, CPPA-G is of view that PAP cannot be developed in absence of TSEP.

Observations/Findings of the Authority

The Authority has observed that evacuation arrangements have been considered for the 11kV feeder solarization project as also confirmed by the XW-DISCOs. However, for the projects approved in the IGCEP 2022-31 and to be connected at the transmission voltage, NTDC was not consulted to ensure/confirm evacuation of projects as per the proposed timelines of the PAP and therefore the PAP is incomplete to this extent.

To avoid this lack of consultation in the future iterations of PAP and to ensure evacuation arrangements for upcoming projects, a performa for submission of

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

17/123

evacuation arrangements for proposed projects in the future iterations of the PAP is being attached with this Determination and the XW-DISCOs shall submit the completely filled performa along with submission of the PAP in the future.

(vii) Whether the PPIB as Independent Auction Administrator (IAA) is on-board and shall have ensured the readiness as per the proposed timelines of competitive auctions given that it is responsible for the conduct of regular competitive auctions through timely published annual power procurement plan based on the approved PAP?

XW-DISCOs submitted that as already detailed in the PAP, in the absence of any registered IAA, the consultation indicated in the proviso to regulation 6(2) of the Procurement Regulations was dispensed with. This was also later confirmed by CEO PPIB through letter No. C(C02)/PPIB/2023/Law/5476/O-58651 dated April 3, 2023.

Observations/Findings of the Authority

The Authority is of the opinion that at the time of submission of PAP, registration as IAA was not granted to any entity, therefore, the XW-DISCOs could not comply with the said requirement. It is important to highlight that the XW-DISCOs have informed that they approached PPIB for consultation on the PAP, however, the latter showed its inability to involve in consultations in the capacity of IAA due to pending status of its registration application. In this regard, the Authority observes that consultation with the IAA is important for timely conduct of competitive auctions through preparation of Power Procurement Plan (PPP) for the proposed generation capacity addition in the PAP. Since, the PPIB has been granted registration as IAA, therefore, the Authority directs the same to ensure participation in consultations with the XW-DISCOs during the next iterations of PAP so that future competitive auctions are planned and conducted in accordance with the scope and timelines of the PAP.

(viii) Whether any project committed or optimized in the IGCEP has not been considered in the PAP? If yes, explain the details and the justification?

XW-DISCOs reiterated their position as submitted in response to issues no. (ii) above i.e., output of the PAP is in line with IGCEP 2022-31 except following deviations, (i). Solar DG (11 kV feeder line solarization project) is planned to be procured during the year 2023-24 as per policy guidelines of the government as opposed to the three (03) years span considered in the IGCEP 2022-31. Further, the total quantum of Solar DG procurement (1224 MWp) is less than that optimized in the IGCEP 2022-31 i.e., 2000 MWp. In addition, optimized hydro, utility solar and wind projects are not part of PAP due to compliance with the capacity obligations of the XW-DISCOs as a whole.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

18/23

Observations/Findings of the Authority

The opinion of the Authority has been explained in detail in issue (ii) above and may be referred. Succinctly put, the PAP does not take into account around 8440 MW of IGCEP optimized generation capacity and therefore there is a major difference between the IGCEP optimized generation mix and PAP proposed generation capacity. Therefore, the Authority directs XW-DISCOs to ensure alignment of the upcoming PAP with the latest approved IGCEP and in case of any difference necessary justifications with financial implications including impact on consumer-end tariff and power purchase price must be submitted for consideration of the Authority.

(ix) **Whether the impact of rooftop solar and captive generation has been considered during preparation of the PAP and what is the expected impact of the same on the proposed PAP?**

XW-DISCOs submitted that the forecasted demand as already submitted to the Authority and Market Operator is based on due consideration of DG net-metering and related impact. Although the forecasted demands of XW-DISCOs already consider the impact of DG, it may be noted that IGCEP also includes net-metering as source of generation. Impact of captive generation and off-grid solarization has not been considered during preparation of demand forecasts due to non-availability of data. XW-DISCOs agreed they will devise a mechanism to collect data of captive power plants and behind the meter solarization projects to include their impact on the demand forecast.

Market Operator submitted that for different approaches have been adopted by K-Electric and DISCOs while considering the impact of net metering. For K-Electric, Net-metering/roof-top quantum has been subtracted from overall demand forecast and the rest of generation is planned on the residual demand. Therefore, no net metering generation has been selected for K-Electric in IGCEP. The IGCEP for XW-DISCOs, however, picks net metering generation differently. The demand forecast of XW-DISCOs is taken as it is, and net metering quantum is added as generation. This is why we see net metering being selected separately for XW-DISCOs in IGCEP 2022-31. It is considered that the same technique be used for K-Electric and preferably use the method as adopted for XW-DISCOs in IGCEP. This is because modelling met metering generation in the IGCEP would capture its generation behavior more accurately and would improve the overall process.

Observations/Findings of the Authority

As confirmed by the XW-DISCOs, the impact of rooftop solar and captive generation has not been considered in the PAP due to non-availability of data. However, net metering has been considered on the generation side as provided in the IGCEP 2022-31. The Authority hereby directs XW-DISCOs to comply with the applicable documents and take into account the impact of rooftop solar as well as captive generation plants into their demand forecasts after collection of the relevant

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

19/123

data so that optimal procurement is made based on the true reflection of the capacity obligations of the respective DISCOs. Further, XW-DISCOs are directed to initiate necessary data collection exercises immediately so that the relevant forecasts/numbers are considered at the time of preparation of the forthcoming PAP.

(x) **Whether it is prudent to procure over and above the capacity obligations compliance rate as calculated by the market operator to ensure security of supply and alignment with the IGCEP for least-cost addition of electric power in the system?**

XW-DISCOs submitted that the prime objective of the power sector reforms is to ensure least-cost procurement. Alignment with the IGCEP is desirable as a guiding indicative document. However, the main drive for procurement should be compliance to the determined capacity obligations. Accordingly, procurement of power within reasonable range can be considered, however, any procurement without demonstration in the capacity obligations will not be effective. In this regard, attention is drawn to regulation 4(2)(a) of the Procurement Regulations. XW-DISCOs pointed out that they are under the capacity traps due to legacy contracts as well as committed projects and are under obligation for procurement of this capacity irrespective of capacity obligations requirements or least-cost principle. However, once the legacy contracts expire, the demand supply gap of DISCOs will be narrowed, and the least-cost criteria will be gradually followed.

Market Operator submitted that in overall scheme, PAP is primarily prepared for three (03) reasons: (i). fulfillment of capacity obligations under MCC, (ii). cost reduction through induction of lower variable cost plants, and (iii). to ensure system stability and reliability. Therefore, it is understood that PAP can procure over and above the requirements of capacity obligations. However, DISCOs PAP was not prepared in accordance with the IGCEP as required by the NE Policy 2021, as they have only taken committed projects and not considered projects required for cost reduction, stability and reliability of the overall system as given in the approved IGCEP 2022-31.

Observations/Findings of the Authority

The Authority considers IGCEP to be the sole applicable document within the current regulatory framework for planning the least-cost generation mix. It is developed based on various optimization criterion, including dispatch scenarios focused on fuel displacement. IGCEP proposes a generation mix capable of meeting real-time system energy demands while adhering to the least-cost principle, as outlined in Strategic Directive 9 of the National Electricity Plan, Clause 5.8.4 of the NE Policy 2021, and Regulation 6(2) of the Procurement Regulations. Therefore, it is crucial that PAP is aligned with the output of the IGCEP as any deviations between the two may have significant implications with respect to ensuring the least-cost generation mix for the system. Therefore, the Authority is of the considered opinion that even if compliance with capacity obligations is ensured, additional procurement,

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

20/123

if approved in the IGCEP, is required to meet the least-cost criteria unless it is established and justified by the XW-DISCOs in the PAP that procurement based on IGCEP will result in a higher a power purchase price than that of the mix proposed in the PAP.

(xi) **If the PAP approved as proposed, what is the forecasted financial analysis and impact of the proposed PAP on the end-consumer tariff as well as basket price of the respective XW-DISCO? Please share graphical illustrations in this regard.**

XW-DISCOs submitted that no forecasting of potential impact of the proposed combined PAP on the end-consumer tariff or on the basket price of XW-DISCOs has been made. Further, XW-DISCOs do not have such a tool to come up with an analysis of impact on consumer end tariff. CPPA-G has such capacity and tool available with them and may extend their cooperation in this regard.

Market Operator submitted that System Operator being the central planner, may be directed to work with XW-DISCOs to evaluate the cost of such generation capacity. It might not be possible to segregate projects selected by tools such as PLEXOS in the categories of projects selected for cost reduction, system stability, security, or maintaining the power balance. However, the System Operator will be in a better position to respond to this direction by the Authority. Moreover, CPPA will assist XW-DISCOs in evaluating the basket price and consumer end tariff based on the final output of IGCEP.

Observations/Findings of the Authority

The Authority has observed that no financial impact whatsoever of the proposed generation capacity additions on the overall basket price or consumer end tariff has been provided in the PAP. In this regard, it is important to highlight that major chunk of the proposed generation capacity additions in the PAP are from committed projects in the IGCEP 2022-31 which are not necessarily optimized based on least-cost principle rather have been included as committed in light of the assumptions approved by the Council of Common Interests (CCI) through its decision No. 2(48)/2021-CCI(48) dated September 13, 2021. Furthermore, the PAP does not include around 8440 MW of solar and wind projects optimized based on least-cost principle in the IGCEP 2022-31 as highlighted in above paragraphs. Therefore, it is concluded that PAP may not have any positive impact on the consumer-end tariff unless it is aligned with the output of the IGCEP or a detailed financial impact analysis of the proposed PAP on basket price/consumer-end tariff vis à vis IGCEP is provided to prove otherwise. Therefore, the Authority directs DISCOs to provide financial impact of the proposed generation additions in the future iterations of the PAP in accordance with the Procurement Regulations.

(4). In view of the aforementioned observations, the Authority is of the opinion that the submitted PAP is not in full compliance with the Procurement Regulations and other applicable documents and does not reflect a complete picture of the procurement needs based on the

criteria of least-cost. Further, the Capacity Obligations Report issued by the Market Operator as part of the test run plan may require revision if the amendments in the MCC by the Market Operator are approved and therefore the same cannot be considered as firm input of the current PAP. Moreover, as highlighted above, the uncertainty w.r.t transmission/evacuation of proposed projects, expected amendments in the commercial allocation methodology of legacy contracts, non-inclusion of the impact of captive generation in the demand forecast, non-submission of financial impact of the proposed procurement on consumer-end tariff are some of the important issues that necessitate revision of the PAP for alignment with the upcoming IGCEP, TSEP and provisions of the Procurement Regulations.

(5). Notwithstanding the above, the Authority is also cognizant of the fact that while PAP is an important procurement document to ensure procurement discipline for efficient and optimal investment in the generation capacity based on systematic demand forecasts and capacity obligations; however, returning the same may have an adverse impact and risk the timely procurement of committed projects and extension of 500 MW KAPCO project resulting in regulatory inconsistency and gap. It is also important to mention that since this PAP is the first initiative under the recently evolved policy and regulatory framework, therefore, certain issues as highlighted in the findings need to be improved/addressed in the subsequent iterations of the PAP.

(G). Decision of the Authority

In consideration of the above, the Authority approves the PAP to the extent of committed projects and 500 MW KAPCO which is required in lieu of the system constraints with the following directions:

a) The tariff for the approved projects/procurements, if not already determined, shall be subject to separate tariff proceedings in accordance with the regulatory framework and subsequent proceedings.

b) XW-DISCOs to ensure compliance of the next iteration of the PAP with the NEPRA (Electric Power Procurement) Regulations, 2022 including, but not limited to, alignment with the approved IGCEP, TSEP, Investment Plans, and Capacity Obligations Report.

c) XW-DISCOs to submit financial analysis/impact of the projects proposed in the PAP on consumer end tariff including the power purchase price, capacity purchase price and energy purchase price within next iteration of the PAP.

d) XW-DISCOs to submit status of evacuation arrangements for the projects proposed in the PAP on the performa attached (Annex-I) with the determination and clearly identify the mode of procurement for firm as well as indicative projects along with justifications thereof.

e) XW-DISCOs to consider the impact of rooftop solar and captive generation in the next iteration of the PAP.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA AUTHORITY

f) XW-DISCOs to ensure consultation with the IAA prior to submission of the PAP to the Authority especially with respect to timelines for conducting competitive auctions, where applicable, for proposed project in the PAP.

g) XW-DISCOs to coordinate with KEL for reflection of the capacity quantum to be supplied to KEL from National Grid in the PAP so that no misalignment with respect to the quantum of supply is observed between the two PAPs.

Engr. Maqsood Anwar
Member

Rafique Ahmed Shaikh
Member

Mathar Niaz Rana (nsc)
Member

Amina Ahmed
Member

Waseem Mukhtar
Chairman

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

20/05/24

2023

COMBINED POWER ACQUISITION PROGRAMME

Of XW-DISCOs (Suppliers of Last Resort)

2022-23 to 2026-27

- Islamabad Electric Supply Company (IESCO)
- Peshawar Electric Supply Company (PESCO)
- Faisalabad Electric Supply Company (FESCO)
- Lahore Electric Supply Company (LESCO)
- Gujranwala Electric Power Company (GEPCO)
- Multan Electric Power Company (MEPCO)
- Hyderabad Electric Supply Company (HESCO)
- Quetta Electric Supply Company (QESCO)
- Tribal Areas Electric Supply Company (TESCO)
- Sukkur Electric Power Company (SEPCO)

Pursuant to the Proviso to Regulations 7(3), 6(1), 6(2) including proviso thereof of NEPRA (Electric Power Procurement) Regulations, 2022 read with Regulation 12(1) and 12(3) of NEPRA Licensing (Electric Power Supplier) Regulations, 2022 and Section 32 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

24/123

EXECUTIVE SUMMARY

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 within eighteen (18) months of the commencement of the Act. The required regulations were promulgated by the Authority as NEPRA (Electric Power Procurement) Regulations, 2022 (Procurement Regulations) notified vide SRO No. 2136(I)/2022 dated December 06, 2022. In line with the amended Act, NEPRA Licensing (Electric Power Supplier) Regulations, 2022 (Licensing Regulations) were also issued by the Authority vide SRO No. 446(I)/2022 dated March 28, 2022.

While the XW-DISCOs, 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 power acquisition programme (PAP) to the Authority on annual basis. While the competitive supplier does not require approval of the Authority to the submitted PAP, the PAP submitted by the suppliers of the last resort (SOLRs), i.e., the XW-DISCOs, is subjected to the approval of the Authority.

The regulations 6 and 7 of the Procurement Regulations, including the provisos to sub-regulations 6(2) and 7(3), provide high level guidance towards development, submission of and timelines for the "combined power acquisition programme" of all SOLRs. In the absence of clarity on responsibility for combining / compiling and submission of said combined power acquisition programme and the existence of a Independent Auction Administrator for consultation required as per mentioned proviso to sub-regulation 6(2) of the Procurement Regulations; this combined power acquisition programme of the XW-DISCOs, i.e. SOLRs except KE, is developed through a joint collaborative effort of MIRADs of the XW-DISCOs (the SOLRs). The clarifications and disclaimers provided at Section 1.3 of the document form integral part of the combined power acquisition programme.

Besides requirements of the Act, the Licensing Regulations, and the Procurement Regulations, this document is based on Medium Term Load Forecasts (MTLFs) of each SOLR as already submitted with the Authority, the IGCEP-2022 as approved by the Authority and 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).

The above-mentioned Capacity Obligation Report 2022-23 provides systematic calculation of Capacity Obligation of each SOLR determined in accordance with the Market Commercial Code and valuation of existing and future contracted firm capacities of supply for assessment of compliance with the said Capacity Obligation. The document also provides details of contracted capacities and allocation thereof to each SOLR.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

25/123

The assessment of security of supply reveals that, without prejudice to the individual SOLR level (minor / serious) reported intermittent non-compliances, the SOLRs collectively have adequately sufficient supply for current as well next 4 years. It may be noted that the reported SOLR-wise compliance status for the Year-3 (FY 2025-26) and Year-4 (FY 2026-27) is based on 80% and 60% required compliance, respectively. The results of Capacity Obligation Report 2022-23, prepared by the Market Operator, in terms of the year-wise / SOLR-wise Capacity Obligation (MW), Credited Firm Capacity (MW), %age compliance to the Capacity Obligation and level of compliance, are summarized as below:

Capacity Obligation (MW):

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	2,256	2,834	2,956	3,124	2,628	2,082
PESCO	2,736	2,854	3,019	3,163	2,647	2,050
FESCO	2,969	3,968	4,249	4,456	3,729	2,943
LESCO	5,210	6,302	6,603	6,855	5,720	4,467
GEPCO	2,198	3,106	3,235	3,393	2,840	2,230
MEPCO	3,510	5,432	5,773	6,112	5,160	4,094
HESCO	848	1,333	1,382	1,431	1,186	921
QESCO	835	1,276	1,317	1,363	1,127	881
TESCO	0	590	615	643	539	424
SEPCO	690	1,133	1,150	1,167	947	721
TOTAL	**21,252**	**28,827**	**30,298**	**31,707**	**26,524**	**20,811**

Note: Capacity Obligation(s) for Year-3 and Year-4 are based 80% and 60%, respectively.

Credited Firm Capacity (MW):

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	2,579	3,261	3,092	3,390	3,471	3,690
PESCO	3,718	4,141	3,927	4,305	4,408	4,686
FESCO	3,326	4,205	3,988	4,372	4,477	4,759
LESCO	5,362	6,778	6,428	7,048	7,216	7,671
GEPCO	2,496	3,155	2,992	3,280	3,358	3,570
MEPCO	4,335	5,480	5,198	5,698	5,835	6,202
HESCO	1,217	1,539	1,459	1,600	1,638	1,741
QESCO	1,428	1,805	1,712	1,877	1,922	2,043
TESCO	0	559	530	581	595	633
SEPCO	948	1,198	1,136	1,246	1,276	1,356
TOTAL	**25,409**	**32,121**	**30,463**	**33,398**	**34,197**	**36,352**

As clarified in the Capacity Obligation Report 2022-23 prepared by the Market Operator, the projects planned to be procured in the future by the EX-WAPDA DISCOs have been considered as those committed projects in the approved IGCEP 2022 for

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

26/123

which procurement process have been initiated at CPPA-G. Those committed projects for which procurement process has not been initiated at CPPA-G and DISCOs have also not provided any information on their procurement on bilateral basis have been excluded from the planned projects.

Compliance Percentage:

The level of compliance, in terms of percentage above / (below), to the determined capacity obligation is as below:

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	14.3%	15.1%	4.6%	8.5%	32.1%	77.3%
PESCO	35.9%	45.1%	30.1%	36.1%	66.5%	128.6%
FESCO	12.0%	6.0%	-6.1%	-1.9%	20.0%	61.7%
LESCO	2.9%	7.6%	-2.6%	2.8%	26.1%	71.7%
GEPCO	13.6%	1.6%	-7.5%	-3.3%	18.3%	60.1%
MEPCO	23.5%	0.9%	-10.0%	-6.8%	13.1%	51.5%
HESCO	43.5%	15.4%	5.6%	11.8%	38.1%	89.2%
QESCO	71.0%	41.5%	30.0%	37.8%	70.5%	132.0%
TESCO	0.0%	-5.2%	-13.7%	-9.6%	10.5%	49.3%
SEPCO	37.4%	5.7%	-1.2%	6.8%	34.7%	88.2%
TOTAL	**19.6%**	**11.4%**	**0.5%**	**5.3%**	**28.9%**	**74.7%**

Compliance Status:

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
PESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
FESCO	Compliance	Compliance	Serious Non-Compliance	Compliance	Compliance	Compliance
LESCO	Compliance	Compliance	Minor Non-Compliance	Compliance	Compliance	Compliance
GEPCO	Compliance	Compliance	Serious Non-Compliance	Minor Non-Compliance	Compliance	Compliance
MEPCO	Compliance	Compliance	Serious Non-Compliance	Serious Non-Compliance	Compliance	Compliance
HESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
QESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
TESCO	Compliance	Serious Non-Compliance	Serious Non-Compliance	Serious Non-Compliance	Compliance	Compliance
SEPCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
Total	**Compliance**	**Compliance**	**Compliance**	**Compliance**	**Compliance**	**Compliance**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

27/123

In view of the fundamental responsibility for ensuring adequate supply for their regulated customers the XW-DISCOs intend to tap in to the committed, not yet contracted, capacities indicated in the approved IGCEP 2022. Further, as per directions of the Government of Pakistan, the SOLRs have already embarked upon projects for solarization of 11 kV feeder through distribution generation solar parks. Additionally, the KAPCO considered as retired in the Capacity Obligation Report 2022-23, has been retained at 500 MW firm capacity (as per approved IGCEP 2022) in the procurement to meet with transmission constraints. Adjusting for 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 / SOLR-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:

Credited/Proposed Firm Capacity (MW):

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	2,579	3,317	3,101	3,465	3,556	3,724
PESCO	3,718	4,211	3,955	4,417	4,532	4,745
FESCO	3,326	4,277	4,193	4,567	4,684	4,900
LESCO	5,362	6,895	6,575	7,286	7,474	7,823
GEPCO	2,496	3,209	3,180	3,444	3,531	3,694
MEPCO	4,335	5,574	5,628	5,995	6,147	6,429
HESCO	1,217	1,565	1,479	1,650	1,693	1,772
QESCO	1,428	1,836	1,716	1,918	1,968	2,061
TESCO	0	600	600	638	653	682
SEPCO	948	1,219	1,150	1,285	1,318	1,379
TOTAL	**25,409**	**32,703**	**31,576**	**34,665**	**35,554**	**37,210**

Compliance Percentage:

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	14.3%	17.1%	4.9%	10.9%	35.3%	79.3%
PESCO	35.9%	47.6%	31.0%	39.6%	71.2%	132.0%
FESCO	12.0%	7.8%	-1.3%	2.5%	25.6%	66.8%
LESCO	2.9%	9.4%	-0.4%	6.3%	30.6%	75.5%
GEPCO	13.6%	3.3%	-1.7%	1.5%	24.3%	66.0%
MEPCO	23.5%	2.6%	-2.5%	-1.9%	19.1%	57.4%
HESCO	43.5%	17.4%	7.0%	15.3%	42.8%	92.9%
QESCO	71.0%	44.0%	30.3%	40.8%	74.6%	134.6%
TESCO	0.0%	1.7%	-2.4%	-0.8%	21.2%	61.3%
SEPCO	0.0%	7.6%	0.0%	10.1%	39.1%	91.9%
TOTAL	**0.0%**	**13.4%**	**4.2%**	**9.3%**	**34.0%**	**79.2%**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

28/12?

DISCO	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
IESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
PESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
FESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
LESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
GEPCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
MEPCO	Compliance	Compliance	Minor Non-Compliance	Compliance	Compliance	Compliance
HESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
QESCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
TESCO	Compliance	Compliance	Minor Non-Compliance	Compliance	Compliance	Compliance
SEPCO	Compliance	Compliance	Compliance	Compliance	Compliance	Compliance
Total	**Compliance**	**Compliance**	**Compliance**	**Compliance**	**Compliance**	**Compliance**

As a result of proposed procurements, as detailed in Section 5 of this document, and without prejudice to the intermittent individual deficiencies at some DISCOs, the combined position of all DISCOs, considering system a whole, stands compliant to the capacity obligation determined under the provisions of Market Commercial Code. With suitable adjustments in inter DISCO adjustment of allocation factors, the said intermittent individual deficiencies at some DISCOs can pragmatically be mitigated with least cost to the system.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

29/123

Table of Contents

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

30/12

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

31/123

List of Tables

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

List of Figures

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

1. INTRODUCTION

This Combined Power Acquisition Programme (PAP) of all XW-DISCOs is prepared pursuant to the requirements of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the Act), NEPRA Licensing (Electric Power Supplier) Regulations, 2022 (the Licensing Regulations) and NEPRA (Electric Power Procurement) Regulations, 2022 (the Procurement Regulations) covering the next 5-year time span from 2022-23 as current year and 2023-24 to 2026-27 as plan years. This PAP takes primary inputs from the Capacity Obligation Report 2022-23 prepared by the Market Operator and aims, at all times, demonstrating compliance with the capacity obligations determined in accordance with the Market Commercial Code. While the Capacity Obligation Report 2022-23 prepared by the Market Operator is annexed separately **(Annex-IV)**, however, for the purpose of continuity of this document and compliance to the requirements of relevant regulations, this document includes detailed workings with regard to the Capacity Obligation, Credited Firm Capacity and status of compliance to the said Capacity Obligation. In line with the regulations and said Capacity Obligation Report 2022-23, this document is based on Medium-Term Load Forecasts (MTLF) based upon Power Market Survey (PMS) Model, recently prepared and submitted by all XW-DISCOs, with 2021-22 as base year and forecast horizon covering 10 plan years from 2022-23 to 2031-32. First 5 years of the said latest MTLF of XW-DISCOs have been adopted for assessment of security of supply to their regulated customers over the said time horizon. As per guidance provided in regulation 6 of the Procurement Regulations, besides energy and peak demand requirements over the plan years, this document is aligned with the stipulations of approved Market Commercial Code and the IGCEP 2022 recently approved by NEPRA. In line with the said Capacity Obligation Report 2022-23, in addition to the existing contracted capacities, the projects planned to be procured in the future by the EX-WAPDA DISCOs have been considered as those committed projects in the approved IGCEP 2022 for which procurement process have been initiated at CPPA-G. Those committed projects for which procurement process has not been initiated at CPPA-G and DISCOs have also not provided any information on their procurement on bilateral basis have been excluded from the planned projects. For calculation of DISCOs' shares in total generation capacity, Commercial Allocation Factors as defined in Market Commercial Code (MCC) are used.

The Capacity Obligation calculated based on forecast peak demands of DISCOs are compared with contracted generation firm capacity for the next 5 years to assess the security of supply for their regulated consumers. Any shortfall in contracted capacity, is to be procured in the light of the said Procurement Regulations, 2022.

1.1. Regulatory Compliance:

Relevant provisions of the Act, the Licensing Regulations and the Procurement Regulations are provided below as a matter of record, source of guidance and touchstone to the compliance thereof.

1.1.1. NEPRA Act:

Section 1(3) of **The Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (Amended)** is reproduced below;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

35/123

"[1(3) It shall come into force at once, except sections 23A, 23B, 23G and 23H which shall come into force within a period of five years of coming into force of the Regulation of Generation, Transmission and Distribution of Electric Power (Amendment) Act, 2018 or on such earlier date as the Federal Government may, by notification in the official Gazette, appoint.]"

Section 32 of **The Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (Amended)** is reproduced below;

"32. **Investment and power acquisition programmes.** — (1) The Authority shall, within eighteen months from the commencement of this Act, [specify] procedures and standards for the Authority's prior approval of the transmission companies' and distribution companies' investment and power acquisition programmes.

(2) Any procedures [specified] by the Authority under this section shall advance the goal of minimizing regulatory oversight of contracts entered into by the national grid company [, the provincial grid companies] and distribution companies.

(3) Any investment programme or power acquisition programme, approved by the Authority under this section shall take into account the national energy plans issued by the Federal Government.

(4) Upon the Authority's approval of an investment programmes or a power acquisition programme, the Authority shall, subject to such terms and conditions, including rates and charges of electric power, permit the distribution company to enter into long term contracts for power purchases."

1.1.2. NEPRA Licensing (Electric Power Supplier) Regulations, 2022:

The regulation 12 of **NEPRA Licensing (Electric Power Supplier) Regulations, 2022** is reproduced as below;

"12. Power acquisition programme. - (1) An electric power supplier shall submit to the Authority its power acquisition programme on annual basis in accordance with the Act, power procurement regulations and other applicable documents.

(2) The competitive supplier's power acquisition programme shall be submitted for information of the Authority and other licensees for relevant power systems planning and may not require approval of the Authority.

(3) The supplier of last resort's power acquisition programme shall require approval of the Authority.

(4) The supplier of last resort shall establish adequate communication and information sharing mechanism with the concerned distribution licensee to periodically obtain information about the prospective consumers who have submitted an application for installation of an electricity connection to develop its power acquisition programmes."

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

36/123

1.1.3. NEPRA Performance Standards (Electric Power Suppliers) Regulations, 2022:

Regulation 3(a) of **NEPRA Performance Standards (Electric Power Suppliers) Regulations, 2022** defines **PS 1** reproduced below;

"3(a) Performance Standard I — Capacity Obligations (PS 1)

(i) An electric power supplier shall ensure that it has adequate arrangements either from its own generation or through contracts with electric power traders or generation licensees or generation companies, as the case may be, to fully meet its capacity obligations associated with supply of electric power to its consumers, in accordance with the applicable documents:

Provided that capacity obligations of an electric power supplier supplying to consumers connected, directly or indirectly, with the National Grid shall be determined in accordance with the Market Commercial Code;

(ii) An electric power supplier shall be considered in compliance with PS 1, if it successfully met its 95% or above capacity obligations in the respective year;"

1.1.4. NEPRA (Electric Power Procurement) Regulations, 2022:

NEPRA (Electric Power Procurement) Regulations, 2022 obligates an electric power supplier to plan in advance and ensure security of supply for its consumers by planning power procurement in adequate quantity.

Regulation 2(1) of these Regulations defines following terms as;

"(h) "bidding documents" means the documents including templates of agreement(s), RFP(s), and any other supporting document prepared and submitted by the Independent Auction Administer or the supplier of last resort conducting the competitive auction, as the case may be, and approved by the Authority;"

"(i) "Commercial Code" or "Market Commercial Code" means the commercial code prepared and maintained by the market operator pursuant to sections 23A and 23B of the Act and approved by the Authority; "

"(j) "competitive auction" means a competitive process of prequalification, obtaining bids and auction award, organized and carried out by the Independent Auction Administrator or a supplier of last resort, as the case may be, in accordance with these regulations;"

"(s) "Independent Auction Administrator" or "IAA" means any entity registered with the Authority to provide the services of organization and administration of competitive auctions for electric power procurement by electric power suppliers;"

"(u) "market operator" means a person licensed under section 23A of the Act to perform the functions of the market operator;"

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

37/123

"(y) "power acquisition programme" means the electric power procurement needs and plan of an electric power supplier as specified in these regulations;"

Regulation 4(2) of the Procurement Regulations is reproduced below;

"4(2) An electric power supplier shall ensure that it:

(a) procures adequate electric power to meet its capacity obligations with prudent spatial load forecasts while using the best available information, to avoid under or over contracting:

Provided that the capacity obligations of an electric power supplier engaged in supply of electric power through the national grid shall be calculated in accordance with the Market Commercial Code;

(b) adopts efficient and effective power procurement strategy and risk mitigation mechanisms keeping in view the approved IGCEP, TSEP, network expansion plan(s) and power acquisition programme;"

Regulation 6 of these Regulations states;

"(6) Power acquisition programme for new electric power procurement. —

(1) A supplier of last resort shall prepare a rolling five-year power acquisition programme on an annual basis which shall include:

(a) its requirements in terms of energy and peak demands, in accordance with the Distribution Code and other applicable documents, during the preceding twelve months on actual basis and projections for the subsequent five years;

(b) existing contracted energy and capacity;

(c) its capacity obligations as determined by the market operator in accordance with the Market Commercial Code;

(d) proposed new and firm power procurement during the next three years and indicative procurement for the subsequent two years in accordance with these regulations;

(2) The power acquisition programme shall be prepared by the supplier of last resort in line with the IGCEP, TSEP, network expansion plan(s) and approved investment programme of the concerned distribution licensee, demonstrating compliance with its capacity obligations determined in accordance with the Market Commercial Code:

Provided that for a period of five years from the date of notification of these regulations or such earlier period as may be directed by the Authority, a combined power acquisition programme shall be developed and submitted by the suppliers of last resort, except KE, in consultation with the Independent Auction Administrator.

(4) The share of respective suppliers of last resort in a project selected to meet their combined capacity obligations shall be allocated on pro rata basis keeping in view their respective capacity obligations."

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

38/123

Regulation 7 of these Regulations stipulates;

"(7) (3) The power acquisition programme shall be submitted by 30th September of every year and approved by the Authority within ninety days from its submission in accordance with these regulations and other applicable documents:

Provided that a supplier of last resort shall submit its power acquisition programme to the Authority within three months from the notification of these regulations and thereafter the power acquisition programme shall be submitted to the Authority along with any proposed changes, on an annual basis i.e., 30th September of every year.

(4) The approved power acquisition programme shall be definitive for the initial three years and indicative for the subsequent two years for new electric power procurement.

(5) A supplier of last resort shall ensure that its tariff petition is prepared and submitted in accordance with the power acquisition programme approved by the Authority under these regulations."

1.2. Input Factors:

1.2.1. Commercial Allocation Factors:

The share of DISCOs in Legacy Generation is calculated based upon commercial allocation factors defined in **Market Commercial Code (MCC)** section 18.2.5.2. Table 8 of this section is reproduced below;

*Table 1-1 Supplier of Last Resort Allocation Factors**

Supplier	Allocation Factor
LESCO	21.10%
GEPCO	9.82%
FESCO	13.09%
IESCO	10.15%
MEPCO	17.06%
PESCO	12.89%
HESCO	4.79%
QESCO	5.62%
TESCO	1.74%
SEPCO	3.73%
KE	As per Bilateral Contract

* These factors may change in future due to surplus supply in national system and basis of these factors may also change to align with co-incidental demand of XW-DISCOs.

1.2.2. Capacity Obligation Percentage:

In line with Capacity Obligation Report 2022-23 prepared by Market Operator the Capacity Obligation Percentage used for preparation of this PAP is **100%** for Current

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY
39/123

Year, Year-1 and Year-2, whereas the same for Year-3 and Year-4 is taken at **80%** and **60%**, respectively, to assess and ensure security of supply for next 5 years and comply with Authority directions to plan in advance the procurement of adequate quantity of electric supply for regulated consumers within the respective Service Territories. However, Procurement Programme for first three years is deterministic while indicative for subsequent two years.

1.2.3. Transmission Losses:

To calculate demand uplifted up to Generation Level, Transmission Losses of **2.639%** are used for next 5 years as per NEPRA's latest determination No. NEPRA/R/ADG(TRF)/TRF-533/NTDC-2020/17537-17539 dated September 16, 2022 of NTDCL tariff for the years 2019-20, 2020-21 and 2021-22.

1.2.4. Firm Capacity Calculation:

For calculation of initial firm capacity of upcoming generation projects, equivalent availability factors listed in Market Commercial Code (MCC) section 8.4.2.1 are used. Table 1 of the said section is reproduced below;

Table 1-2 Equivalent Availability Factors

Sr. No.	Generation Technology	Equivalent Availability Factor
1	**Dispatchable Technologies**	
1.1	Hydro with reservoir	0.92
1.2	Thermal (either liquid fuels, gas or coal fired)	0.92
1.3	Bagasse	0.92
1.4	Thermal Solar	0.87
1.5	Nuclear	0.87
2	**Non-Dispatchable Technologies**	
2.1	Hydro run of river	Based on the feasibility study
2.2	Wind	0.30
2.3	Solar PV	0.22

1.2.5. Reserve Margin:

A reserve margin of **10%** is used as provided in Market Commercial Code (MCC) section 9.2.4.3.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

40/123

1.3. CLARIFICATIONS/ DISCLAIMER:

1. This combined Power Acquisition Programme (PAP) has been prepared in compliance of the Regulations without prejudice to the legal status of various essential enablers, e.g., Market Operator, System Operator, Independent Auction Administrator, and final Market Commercial Code.

2. In the absence of any one designate entity responsible for combining of PAP of DISCOs, the combined PAP in hand has been prepared and finalized through coordinated efforts amongst XW-DISCOs.

3. Although this document is prepared with collective efforts of all XW-DISCOs, submission of the same to the Authority will be by each DISCO individually.

4. In the absence of any registered Independent Auction Administrator, the consultation indicated in the proviso to regulation 6(2) of the NEPRA (Electric Power Procurement) Regulations, 2022 was dispensed with.

5. Firm Capacities of Existing and Planned projects have been considered as per Capacity Obligation Report 2022-23 issued by CPPA-G in their role as designate Market Operation (MO).

6. The capacities (committed, candidate, retirement etc), subject to the contents of Capacity Obligation Report 2023, are based on IGCEP-2022 base case scenario.

7. Allocation of KAPCO (for Constraint Removal) is made each year on pro-rata basis as per capacity requirement of each DISCO in respective year. Whereas, for years where all DISCOs are compliant, allocation is based upon commercial allocation factors as provided in **1.2.1.** above.

8. Timelines of Planned generation projects, for this PAP, are adopted as per IGCEP-2022, and availability thereof, for the purpose of firm capacity, is considered in the year of commissioning.

9. Accuracy of Demand Forecast and, therefore, the Capacity Obligation is dependent upon economic stability of the country. Due to current economic situation in the country, the future demand may vary from demand forecast, with corresponding effect on the Capacity Obligation determined as per MCC.

10. In line with the Capacity Obligation Report 2022-23, the Commercial Allocation Factors of Legacy Generation are considered as per Market Commercial Code (MCC).

11. Reserve Margin is considered as per MCC.

12. In compliance of Ministry of Energy (Power Division)'s directions to undertake solarization of 11 KV feeders, DISCOs have identified a number of 11 KV feeders for solarization through 3rd party Solar Parks ranging from 1 to 4 MW each with an overall aggregate estimated capacity of 1224 MWp. Based on the methodology for calculation of initial firm capacity as per Market Commercial Code clause 8.4.2.1, the initial firm capacity is assessed at 269 MW. Subject to

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY
41/123

realization of the timelines of the project, the said additional Solar PV Distributed Generation capacity will be available by end of September, 2023. Accordingly, the minor non-compliances are expected to be mitigated.

13. The approved IGCEP 2022, at page 57, takes Net-Metering (PV) distributed generation as part of Committed Projects (Table 5-4 of IGCEP 2022). Notwithstanding the position that the Net-Metering arrangements essentially impacts the energy demand, this document, in line with approved IGCEP 2022, takes the Net-Metering (PV) as source of supply in each of the relevant years.

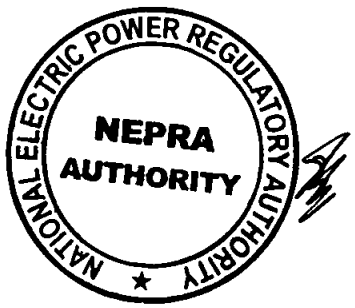
14. As a result of dry-run implementation of approved Market Commercial Code, a number of changes may be required in the said MCC. Major changes are suggested as below:

    a. The capacity allocation factors may be updated in accordance with co-incident demand of XW-DISCOs.

    b. The capacity obligation in this PAP is arrived at as per current methodology provided in the MCC; which adds Reserve Margin to arrive at capacity obligation of each XW-DISCO. Noting that demand forecast of each DISCO provides non-coincident peak load requirements thereof, therefore, the Reserve Margin may have to be dispensed with for the time beings.

15. The available capacity for future solar power generation projects is taken with factors of 0.22. Considering that the peak solar generation coincides with identified critical hours, the factor may have to be adjusted suitably.

16. This activity being exercised by XW-DISCOs for the first time, errors and omissions are expected.



42/123

2. DEMAND FORECAST RESULTS

As already mentioned, that this PAP is based on Medium Term Load Forecasts (MTLFs) for the period 2022-23 to 2031-32 recently prepared and submitted by DISCOs to the NEPRA. These forecasts are based upon Power Market Survey (PMS) model which utilized historical database of sale and demand for each grid station of a DISCO, input factors such as load factors, coincidence factors and loss reduction plan to calculate expected sale and demand for next ten (10) years. This forecast is performed for each grid station level as well as DISCO level. The demand forecasts (energy and capacity) for each XW-DISCO are provided in below:

2.1. Historical Demand and Future Forecasts:

2.1.1. IESCO:

Table 2-1 IESCO's Historical Demand and Forecast

IESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	1,493	-	2,369	-
	Aug	1,499		2,481	
	Sep	1,344	-	2,165	-
	Oct	970	-	1,781	-
	Nov	738	-	1,333	-
	Dec	827	-	1,435	-
	Jan	857	-	1,468	-
	Feb	721	-	1,404	-
	Mar	841	-	1,410	-
	Apr	1,110	-	1,671	-
	May	1,309	-	2,124	-
	Jun	1,318	-	2,404	-
	Total	13,027	-	2,481	-
2022-23	-	-	13,027	-	2,508
2023-24	-	-	13,749	-	2,616
2024-25	-	-	14,556	-	2,765
2025-26	-	-	15,327	-	2,908
2026-27	-	-	16,199	-	3,071
Total			72,858		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

43/123

2.1.2. PESCO:

Table 2-2 PESCO's Historical Demand and Forecast

PESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	1,831	-	2,274	-
	Aug	1,766	-	2,211	-
	Sep	1,643	-	2,117	-
	Oct	1,217	-	1,918	-
	Nov	1,056	-	1,529	-
	Dec	1,236	-	1,936	-
	Jan	1,243	-	1,686	-
	Feb	1,080	-	1,707	-
	Mar	1,110	-	1,555	-
	Apr	1,357	-	2,002	-
	May	1,518	-	2,180	-
	Jun	1,505	-	2,369	-
	Total	16,560	-	2,369	-
2022-23	-	-	17,676	-	2,526
2023-24	-	-	18,808	-	2,672
2024-25	-	-	19,735	-	2,800
2025-26	-	-	20,645	-	2,929
2026-27	-	-	21,302	-	3,024
Total			98,166		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

2.1.3. FESCO:

Table 2-3 FESCO's Historical Demand and Forecast

FESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	1,890	-	3,292	-
	Aug	1,995		3,234	
	Sep	1,729	-	3,158	-
	Oct	1,421	-	2,734	-
	Nov	999	-	1,762	-
	Dec	1,009	-	1,794	-
	Jan	978	-	1,674	-
	Feb	934	-	1,881	-
	Mar	1,341	-	2,274	-
	Apr	1,640	-	2,553	-
	May	1,860	-	3,179	-
	Jun	1,716	-	3,136	-
	Total	17,512	-	3,292	-
2022-23	-	-	18,479	-	3,512
2023-24	-	-	19,597	-	3,761
2024-25	-	-	20,448	-	3,944
2025-26	-	-	21,343	-	4,126
2026-27	-	-	22,362	-	4,342
Total			102,229		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

45/123

2.1.4. LESCO:

Table 2-4 LESCO's Historical Demand and Forecast

LESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	3,012	-	4,499	-
	Aug	3,141		4,571	
	Sep	2,657	-	4,282	-
	Oct	2,238	-	3,758	-
	Nov	1,602	-	2,876	-
	Dec	1,716	-	3,245	-
	Jan	1,819	-	3,110	-
	Feb	1,554	-	2,974	-
	Mar	2,092	-	3,212	-
	Apr	2,618	-	4,497	-
	May	2,949	-	4,435	-
	Jun	2,937	-	5,205	-
	Total	28,334	-	5,205	-
2022-23	-	-	30,268	-	5,578
2023-24	-	-	31,709	-	5,844
2024-25	-	-	32,649	-	6,067
2025-26	-	-	33,994	-	6,329
2026-27	-	-	35,302	-	6,589
Total			163,922		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

2.1.5. GEPCO:

Table 2-5 GEPCO's Historical Demand and Forecast

GEPCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	1,456	-	2,668	-
	Aug	1,602		2,695	
	Sep	1,328	-	2,523	-
	Oct	1,004	-	2,111	-
	Nov	678	-	1,335	-
	Dec	685	-	1,411	-
	Jan	663	-	1,357	-
	Feb	589	-	1,276	-
	Mar	882	-	1,707	-
	Apr	1,148	-	1,979	-
	May	1,332	-	2,117	-
	Jun	1,311	-	2,365	-
	Total	12,678	-	2,695	-
2022-23	-	-	12,951	-	2,749
2023-24	-	-	13,744	-	2,863
2024-25	-	-	14,460	-	3,003
2025-26	-	-	15,172	-	3,142
2026-27	-	-	15,935	-	3,290
Total			72,263		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

2.1.6. MEPCO:

Table 2-6 MEPCO's Historical Demand and Forecast

MEPCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	2,710	-	4,501	-
	Aug	2,802		4,427	
	Sep	2,335	-	4,180	-
	Oct	1,788	-	3,456	-
	Nov	1,157	-	2,102	-
	Dec	1,133	-	2,080	-
	Jan	1,094	-	2,208	-
	Feb	1,113	-	2,323	-
	Mar	1,637	-	2,782	-
	Apr	2,214	-	3,408	-
	May	2,627	-	4,027	-
	Jun	2,123	-	4,313	-
	Total	22,734	-	4,501	-
2022-23	-	-	24,014	-	4,808
2023-24	-	-	25,436	-	5,110
2024-25	-	-	26,762	-	5,410
2025-26	-	-	28,122	-	5,709
2026-27	-	-	29,533	-	6,039
Total			133,867		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

2.1.7. HESCO:

Table 2-7 HESCO's Historical Demand and Forecast

HESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	621	-	1,034	-
	Aug	590	-	1,065	-
	Sep	572	-	1,084	-
	Oct	492	-	954	-
	Nov	336	-	659	-
	Dec	294	-	458	-
	Jan	295	-	479	-
	Feb	269	-	510	-
	Mar	406	-	772	-
	Apr	551	-	1,134	-
	May	618	-	1,136	-
	Jun	567	-	1,018	-
	Total	5,611	-	1,136	-
2022-23	-	-	5,828	-	1,180
2023-24	-	-	6,041	-	1,223
2024-25	-	-	6,277	-	1,267
2025-26	-	-	6,520	-	1,312
2026-27	-	-	6,758	-	1,358
Total			31,424		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

2.1.8. QESCO:

Table 2-8 QESCO's Historical Demand and Forecast

QESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	639	-	1,070	-
	Aug	643		1,049	
	Sep	579	-	1,020	-
	Oct	526	-	921	-
	Nov	513	-	996	-
	Dec	531	-	961	-
	Jan	461	-	940	-
	Feb	472	-	995	-
	Mar	549	-	966	-
	Apr	590	-	979	-
	May	627	-	999	-
	Jun	586	-	967	-
	Total	6,716	-	1,070	-
2022-23	-	-	6,934	-	1,129
2023-24	-	-	7,131	-	1,166
2024-25	-	-	7,327	-	1,206
2025-26	-	-	7,556	-	1,247
2026-27	-	-	7,861	-	1,299
Total			36,809		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY

50/123

2.1.9. TESCO:

Table 2-9 TESCO's Historical Demand and Forecast

TESCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	175	-	382	-
	Aug	187	-	373	-
	Sep	185	-	364	-
	Oct	192	-	403	-
	Nov	207	-	423	-
	Dec	206	-	508	-
	Jan	186	-	415	-
	Feb	195	-	420	-
	Mar	207	-	406	-
	Apr	188	-	476	-
	May	167	-	397	-
	Jun	189	-	429	-
	Total	2,284	-	508	-
2022-23	-	-	2,384	-	522
2023-24	-	-	2,488	-	544
2024-25	-	-	2,595	-	569
2025-26	-	-	2,735	-	596
2026-27	-	-	2,883	-	625
Total			13,085		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

2.1.10. SEPCO:

Table 2-10 SEPCO's Historical Demand and Forecast

SEPCO					
Year		Energy (GWh)		Peak Demand (MW)	
	Months	Actual	Projected	Actual	Projected
2021-22	July	561	-	961	-
	Aug	559		942	
	Sep	505	-	778	-
	Oct	361	-	693	-
	Nov	226	-	391	-
	Dec	209	-	330	-
	Jan	195	-	312	-
	Feb	181	-	294	-
	Mar	268	-	390	-
	Apr	415	-	667	-
	May	527	-	811	-
	Jun	483	-	961	-
	Total	4,490	-	961	-
2022-23	-	-	5,058	-	1,003
2023-24	-	-	5,117	-	1,018
2024-25	-	-	5,282	-	1,033
2025-26	-	-	5,434	-	1,048
2026-27	-	-	5,708	-	1,063
Total			26,599		

2.2. Capacity Obligation of DISCOs:

The individual and combined Capacity Obligation (in terms of MW) of XW-DISCOs, in the light of approved MCC, is tabulated below;

Table 2-11 Capacity Obligation of XW-DISCOs

SoLR	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26 (80%)	Year-4 2026-27 (60%)
IESCO	2,256	2,834	2,956	3,124	2,629	2,082
PESCO	2,736	2,854	3,019	3,163	2,647	2,050
FESCO	2,969	3,968	4,249	4,456	3,730	2,944
LESCO	5,210	6,302	6,603	6,855	5,721	4,466
GEPCO	2,198	3,106	3,235	3,393	2,840	2,230
MEPCO	3,510	5,432	5,773	6,112	5,160	4,094
HESCO	848	1,333	1,382	1,431	1,186	920
QESCO	835	1,276	1,317	1,363	1,127	881
TESCO	0	590	615	643	538	424
SEPCO	690	1,133	1,150	1,167	947	721
Total	21,252	28,828	30,299	31,707	26,525	20,812

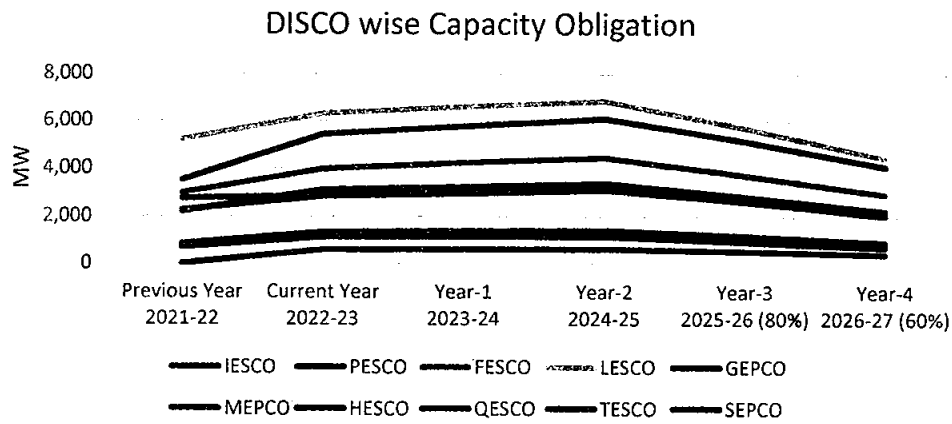


Figure 2-1 Capacity Obligations of XW-DISCOs for next 5 years

Detailed Medium-Term Load Forecast (MTLF) Reports forming basis for this Power Acquisition Programme have already been submitted by DISCOs for consideration of the Authority.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

53/123

3. CONTRACTED FIRM CAPACITY

DISCOs existing contracts for generation capacity consist entirely of Legacy Generation allocated to DISCOs as per commercial allocation factors already discussed in **1.2.1.** Apart from existing installed generation, several generation projects are planned/ committed for future years as provided in IGCEP 2022, approved by the Authority. Similarly, a few generation projects are retiring during next 5 years as provided in IGCEP 2022. Detail of firm capacities of existing/ planned generation has been communicated by CPPA-G (Market Operator) vide CPPA-G/2023/MOD/0126-0128 dated March 14, 2023 (Annex-IV).

3.1. IGCEP 2022:

The Authority has recently approved IGCEP 2022 which enlists committed / contracted projects as well as candidate projects for next 10 years. The IGCEP forms, besides the mentioned MTLFs, another fundamental source for this Power Acquisition Programme (PAP) as, in line with the regulations, future procurement is to be made as per candidate projects enumerated in the IGCEP. Summary of Generation in next 10 years is tabulated below;

Table 3-1 Summary of Generation as per IGCEP

Fiscal Year	Local Coal	Imported Coal	IPP	Solar	Wind	Bagasse	Cross Border	RLNG	Nuclear	Committed Capacity Addition	Candidate Capacity Addition			Cumulative Capacity Addition
											Solar	Hydro	Wind	
2022-23	1,980	660	237	520	0	0	0	1,263	0	4,660	0	0	0	4,660
2023-24	0	0	342	653	100	0	0	0	0	1,095	500	0	0	1,595
2024-25	0	0	2,365	370	0	32	1,000	0	0	3,767	3,870	10	500	8,147
2025-26	300	0	654	370	0	0	0	0	0	1,324	750	13	500	2,587
2026-27	0	0	2,558	370	0	0	0	0	0	2,928	0	0	0	2,928
2027-28	0	0	545	370	0	0	0	0	0	915	0	0	2,403	3,318
Total	2,280	660	6,701	2,653	100	32	1,000	1,263	0	14,689	5,120	23	3,403	23,235

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NEPRA
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54/123

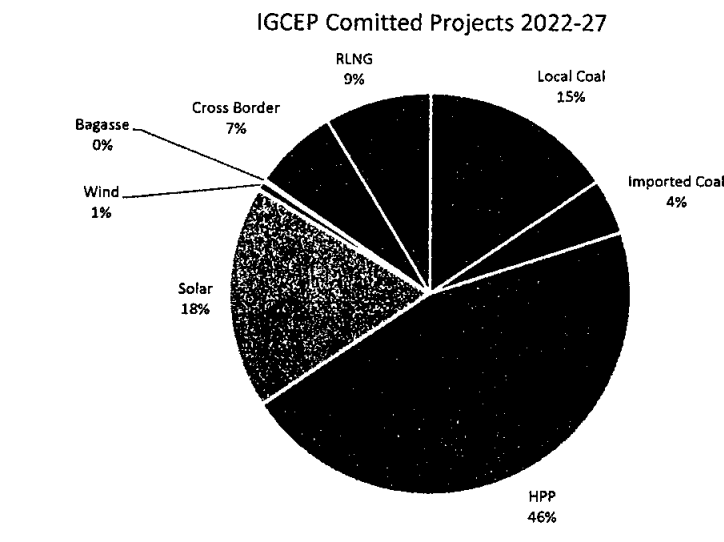

Figure 3-1 Technology Mix of Committed Generation

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55/123

3.2. Existing Installed/ Commissioned Generation Plants:

Summary of Existing Generation Plants and DISCO-wise allocation thereof is tabulated below;

Table 3-2 Detail of Existing Generation and allocation to XW-DISCOs

Contracted Capacity under Legacy Contracts – Commissioned								
1	2	3	4	5	6	7	8	9
SoLR	No. of Total Legacy Contracts	Total Installed Capacity (MW)	Total Net Dependable Capacity (MW)	Total Firm Capacity (MW)	Firm Capacity (MW) for Capacity Obligation of KE	Firm Capacity (MW) for Capacity Obligation of DISCOs	Allocation Factor	Contracted Firm Capacity (MW) (7*8)
IESCO	151	38,010	22,430	31,040	1,200	29,840	10.15%	3,029
PESCO							12.89%	3,846
FESCO							13.09%	3,906
LESCO							21.10%	6,296
GEPCO							9.82%	2,930
MEPCO							17.06%	5,091
HESCO							4.79%	1,429
QESCO							5.62%	1,677
TESCO							1.74%	519
SEPCO							3.73%	1,113

Complete List of Existing Power Plants is provided at Annex-I.

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3.3. Projects to be Retired in Plan Period

Detail of Projects to be retired during plan period (2022-23 to 2026-27) as per IGCEP 2022 is tabulated below;

Table 3-3 Retirement of Projects as per IGCEP

Sr#	Projects	Technology	Installed Capacity (MW)	Initial Firm Capacity (MW)	Retirement
1	KAPCO 3	RLNG	300	273	2022
2	KAPCO 1	RLNG	400	365	2022
3	KAPCO 2	RLNG	900	820	2022
4	Guddu-II U (5-10)	Gas	620	379	2023
5	Jamshoro-I U1	RFO	250	163	2023
6	Jamshoro-II U4	RFO	200	131	2023
7	Muzaffargarh-I U1	RFO	210	94	2023
8	Muzaffargarh-I U2	RFO	210	94	2023
9	Muzaffargarh-I U3	RFO	210	94	2023
10	Muzaffargarh-II U4	RFO	320	143	2023
11	Anoond	SPP	10	10	2024
12	Omni	SPP	13	13	2025
13	Lucky cement	SPP	20	20	2025
14	Thatta Cement	SPP	19	19	2026

* KAPCO 1 &2 are to be retired in 2022-23, however, the relevant PPA is to be extended due to transmission constraints.

57/123

3.4. Summary of Committed Generation projects as per IGCEP:

Year wise total Legacy Generation as per IGCEP-2022 and DISCO-wise allocation thereof is tabulated below;

Table 3-4 Committed Generation for 2022-23 and allocation to DISCOs

Existing Contracted Capacity under Legacy Contracts – Approved/Committed (Not Commissioned) (FY 2022-23)						
1	2	4	5	6	7	8
SoLR Name	Expected Installed Capacity (MW)	Total Firm Capacity (MW)	Firm Capacity (MW) for Capacity Obligation of KE	Firm Capacity (MW) for Capacity Obligation of DISCOs	Allocation Factor	Contracted Firm Capacity (MW) (6*7)
IESCO	4,203	3,743	0	3,743	10.15%	380
PESCO					12.89%	482
FESCO					13.09%	490
LESCO					21.10%	790
GEPCO					9.82%	368
MEPCO					17.06%	639
HESCO					4.79%	179
QESCO					5.62%	210
TESCO					1.74%	65
SEPCO					3.73%	140

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

58/123

Table 3-5 Committed Generation for 2023-24 and allocation to DISCOs

Existing Contracted Capacity under Legacy Contracts – Approved/Committed (Not Commissioned) (FY 2023-24)						
1	2	4	5	6	7	8
SoLR Name	Expected Installed Capacity (MW)	Total Firm Capacity (MW)	Firm Capacity (MW) for Capacity Obligation of KE	Firm Capacity (MW) for Capacity Obligation of DISCOs	Allocation Factor	Contracted Firm Capacity (MW) (6*7)
IESCO	397	290	850	-560	10.15%	-57
PESCO					12.89%	-72
FESCO					13.09%	-73
LESCO					21.10%	-118
GEPCO					9.82%	-55
MEPCO					17.06%	-96
HESCO					4.79%	-27
QESCO					5.62%	-31
TESCO					1.74%	-10
SEPCO					3.73%	-21

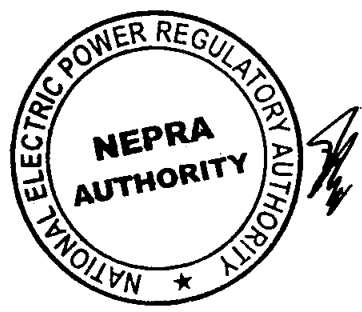

Table 3-6 Committed Generation for 2024-25 and allocation to DISCOs

Existing Contracted Capacity under Legacy Contracts – Approved/Conimitted (Not Commissioned) (FY 2024-25)						
1	2	4	5	6	7	8
SoLR Name	Expected Installed Capacity (MW)	Total Firm Capacity (MW)	Firm Capacity (MW) for Capacity Obligation of KE	Firm Capacity (MW) for Capacity Obligation of DISCOs	Allocation Factor	Contracted Firm Capacity (MW) (6*7)
IESCO	3,303	2,945	0	2,945	10.15%	299
PESCO					12.89%	380
FESCO					13.09%	386
LESCO					21.10%	621
GEPCO					9.82%	289
MEPCO					17.06%	502
HESCO					4.79%	141
QESCO					5.62%	166
TESCO					1.74%	51
SEPCO					3.73%	110

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Table 3-7 Committed Generation for 2025-26 and allocation to DISCOs

Existing Contracted Capacity under Legacy Contracts – Approved/Committed (Not Commissioned) (FY 2025-26)						
1	2	4	5	6	7	8
SoLR Name	Expected Installed Capacity (MW)	Total Firm Capacity (MW)	Firm Capacity (MW) for Capacity Obligation of KE	Firm Capacity (MW) for Capacity Obligation of DISCOs	Allocation Factor	Contracted Firm Capacity (MW) (6*7)
IESCO	930	812	0	812	10.15%	82
PESCO					12.89%	105
FESCO					13.09%	106
LESCO					21.10%	171
GEPCO					9.82%	80
MEPCO					17.06%	138
HESCO					4.79%	39
QESCO					5.62%	46
TESCO					1.74%	14
SEPCO					3.73%	30

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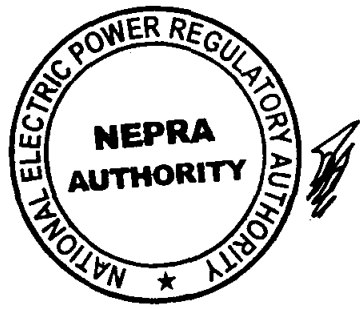
Table 3-8 Committed Generation for 2026-27 and allocation to DISCOs

Existing Contracted Capacity under Legacy Contracts – Approved/Committed (Not Commissioned) (FY 2026-27)						
1	2	4	5	6	7	8
SoLR Name	Expected Installed Capacity (MW)	Total Firm Capacity (MW)	Firm Capacity (MW) for Capacity Obligation of KE	Firm Capacity (MW) for Capacity Obligation of DISCOs	Allocation Factor	Contracted Firm Capacity (MW) (6*7)
IESCO	2,558	2,174	0	2,174	10.15%	221
PESCO					12.89%	280
FESCO					13.09%	285
LESCO					21.10%	459
GEPCO					9.82%	214
MEPCO					17.06%	371
HESCO					4.79%	104
QESCO					5.62%	122
TESCO					1.74%	38
SEPCO					3.73%	81

Complete List of Committed Projects considered for Capacity Obligation Report are given at Annex-II.



4. SECURITY OF SUPPLY

Security of Supply for regulated consumers of XW-DISCOs is assessed on the basis of total capacity obligation of DISCOs as per Section **2.2.** of this PAP and DISCOs allocated firm capacity as per Sections **3.1.** and **3.4.** hereof. This, however, does not include any future candidate project as per IGCEP-2022 or individual procurement initiatives of each XW-DISCO at their own or under directions from the Government of Pakistan. For clarity of understanding it may be mentioned that the positive (+) Uncontracted means the surplus capacity over the determined capacity obligation and that the negative (-) figures mean the deficiency against the determined capacity obligation.

4.1. Security of Supply Position:

DISCO-Wise security of supply position tabulated below through depicted below;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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63/123

4.1.1. IESCO:

Table 4-1 IESCO's security of supply position

	IESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,256	2,834	2,956	3,124	2,628	2,082
2	Contracted Commissioned (MW)	2,579	2,881	2,769	2,768	2,767	2,765
3	Committed/ Contracted (MW)	0	380	323	622	704	925
4	Total Credited Capacity (MW) (2+3)	2,579	3,261	3,092	3,390	3,471	3,690
5	Surplus/ (Shortage) of Supply (MW) (4-1)	323	427	137	266	843	1,608
6	CO Compliance (%) Surplus / (Shortage)	14%	15%	5%	9%	32%	77%

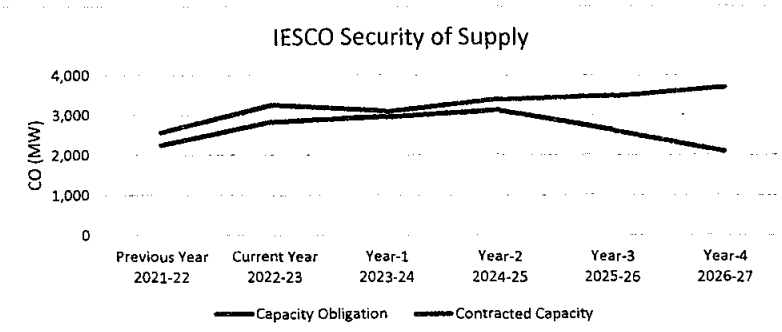

Figure 4-1 IESCO Security of Supply

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64/123

4.1.2. PESCO:

Table 4-2 PESCO's security of supply position

	PESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,736	2,854	3,019	3,163	2,647	2,050
2	Contracted Commissioned (MW)	3,718	3,658	3,517	3,516	3,514	3,512
3	Committed/ Contracted (MW)	0	482	410	790	894	1,175
4	Total Credited Capacity (MW) (2+3)	3,718	4,141	3,927	4,305	4,408	4,686
5	Surplus/ (Shortage) of Supply (MW) (4-1)	982	1,287	908	1,142	1,761	2,636
6	CO Compliance (%) Surplus / (Shortage)	36%	45%	30%	36%	67%	129%

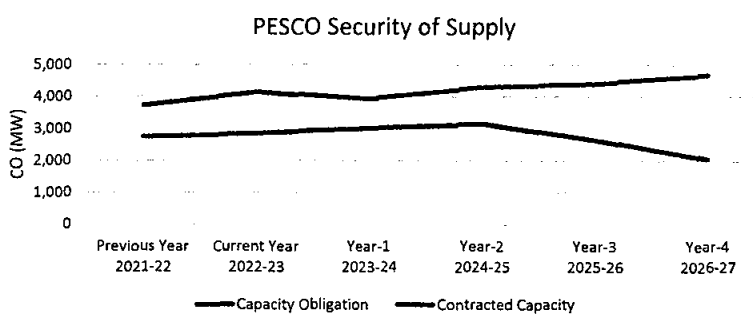

Figure 4-2 PESCO Security of Supply

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4.1.3. FESCO:

Table 4-3 FESCO's security of supply position

	FESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,969	3,968	4,249	4,456	3,729	2,943
2	Contracted Commissioned (MW)	3,326	3,715	3,571	3,570	3,568	3,566
3	Committed/ Contracted (MW)	0	490	417	802	908	1,193
4	Total Credited Capacity (MW) (2+3)	3,326	4,205	3,988	4,372	4,477	4,759
5	Surplus/ (Shortage) of Supply (MW) (4-1)	357	237	-261	-84	748	1,816
6	CO Compliance (%) Surplus / (Shortage)	12%	6%	-6%	-2%	20%	62%

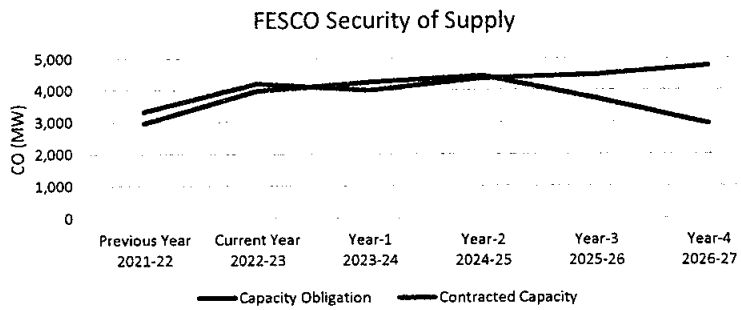

Figure 4-3 FESCO Security of Supply

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4.1.4. LESCO:

Table 4-4 LESCO's security of supply position

	LESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	5,210	6,302	6,603	6,855	5,720	4,467
2	Contracted Commissioned (MW)	5,362	5,989	5,757	5,755	5,752	5,748
3	Committed/ Contracted (MW)	0	790	672	1,293	1,464	1,923
4	Total Credited Capacity (MW) (2+3)	5,362	6,778	6,428	7,048	7,216	7,671
5	Surplus/ (Shortage) of Supply (MW) (4-1)	152	476	-174	193	1,496	3,204
6	CO Compliance (%) Surplus / (Shortage)	3%	8%	-3%	3%	26%	72%

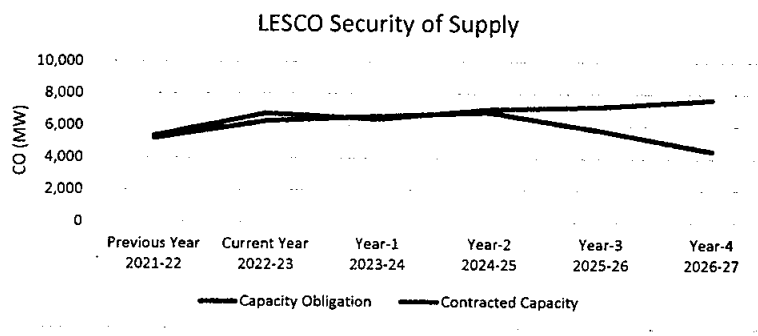

Figure 4-4 LESCO Security of Supply

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4.1.5. GEPCO:

Table 4-5 GEPCO's security of supply position

	GEPCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,198	3,106	3,235	3,393	2,840	2,230
2	Contracted Commissioned (MW)	2,496	2,787	2,679	2,678	2,677	2,675
3	Committed/ Contracted (MW)	0	368	313	602	681	895
4	Total Credited Capacity (MW) (2+3)	2,496	3,155	2,992	3,280	3,358	3,570
5	Surplus/ (Shortage) of Supply (MW) (4-1)	298	49	-243	-113	519	1,340
6	CO Compliance (%) Surplus / (Shortage)	14%	2%	-8%	-3%	18%	60%

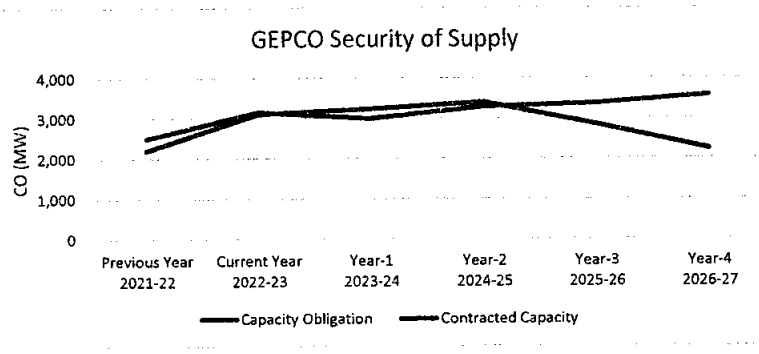

Figure 4-5 GEPCO Security of Supply

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4.1.6. MEPCO:

Table 4-6 MEPCO's security of supply position

	MEPCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	3,510	5,432	5,773	6,112	5,160	4,094
2	Contracted Commissioned (MW)	4,335	4,842	4,655	4,653	4,651	4,648
3	Committed/ Contracted (MW)	0	639	543	1,045	1,184	1,555
4	Total Credited Capacity (MW) (2+3)	4,335	5,480	5,198	5,698	5,835	6,202
5	Surplus/ (Shortage) of Supply (MW) (4-1)	825	48	-576	-414	675	2,109
6	CO Compliance (%) Surplus / (Shortage)	24%	1%	-10%	-7%	13%	52%

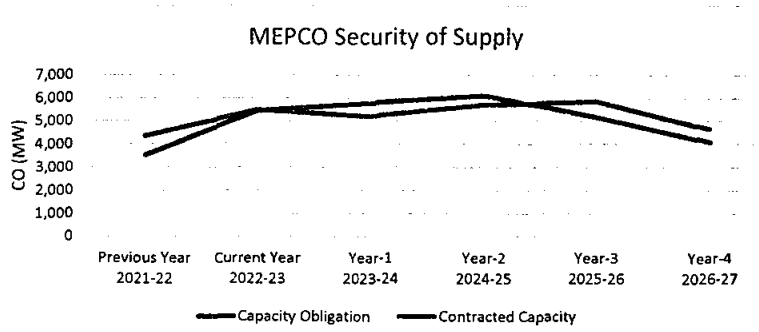

Figure 4-6 MEPCO Security of Supply

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4.1.7. HESCO:

Table 4-7 HESCO's security of supply position

HESCO							
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	848	1,333	1,382	1,431	1,186	921
2	Contracted Commissioned (MW)	1,217	1,359	1,307	1,306	1,306	1,305
3	Committed/ Contracted (MW)	0	179	152	294	332	437
4	Total Credited Capacity (MW) (2+3)	1,217	1,539	1,459	1,600	1,638	1,741
5	Surplus/ (Shortage) of Supply (MW) (4-1)	369	206	78	168	452	821
6	CO Compliance (%) Surplus / (Shortage)	44%	15%	6%	12%	38%	89%

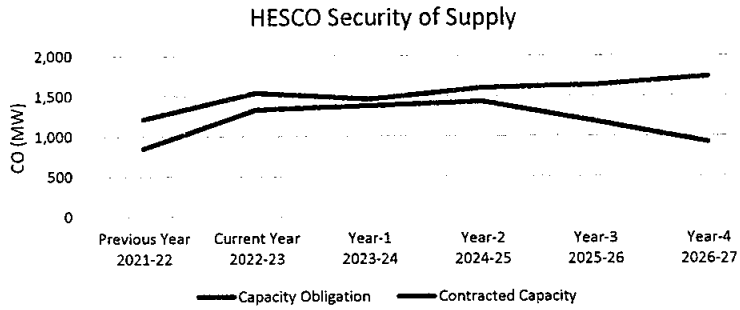

Figure 4-7 HESCO Security of Supply

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4.1.8. QESCO:

Table 4-8 QESCO's security of supply position

	Supply Demand	QESCO					
		Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	835	1,276	1,317	1,363	1,127	881
2	Contracted Commissioned (MW)	1,428	1,595	1,533	1,533	1,532	1,531
3	Committed/ Contracted (MW)	0	210	179	344	390	512
4	Total Credited Capacity (MW) (2+3)	1,428	1,805	1,712	1,877	1,922	2,043
5	Surplus/ (Shortage) of Supply (MW) (4-1)	593	530	395	515	795	1,163
6	CO Compliance (%) Surplus / (Shortage)	71%	42%	30%	38%	71%	132%

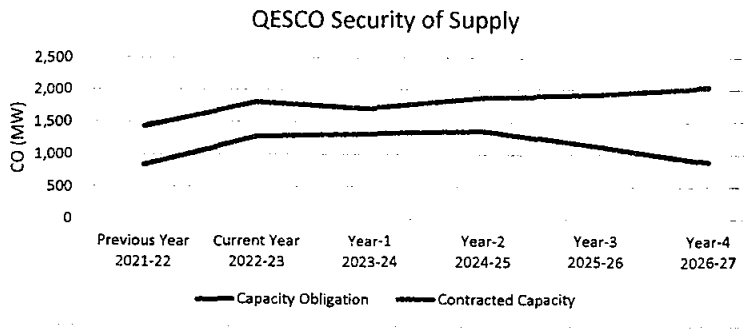

Figure 4-8 QESCO Security of Supply

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4.1.9. TESCO:

Table 4-9 TESCO's security of supply position

TESCO							
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	0	590	615	643	539	424
2	Contracted Commissioned (MW)	0	494	475	475	474	474
3	Committed/ Contracted (MW)	0	65	55	107	121	159
4	Total Credited Capacity (MW) (2+3)	0	559	530	581	595	633
5	Surplus/ (Shortage) of Supply (MW) (4-1)	0	-31	-85	-62	56	209
6	CO Compliance (%) Surplus / (Shortage)	0%	-5%	-14%	-10%	10%	49%

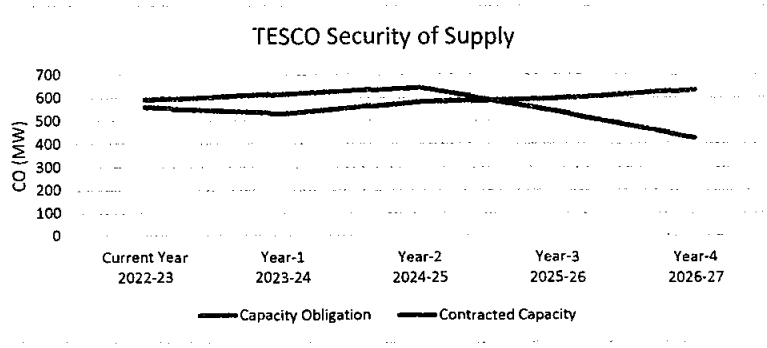

Figure 4-9 TESCO Security of Supply

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4.1.10. SEPCO:

Table 4-10 SESPO's security of supply position

	Supply Demand	SEPCO					
		Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	690	1,133	1,150	1,167	947	721
2	Contracted Commissioned (MW)	948	1,059	1,018	1,017	1,017	1,016
3	Committed/ Contracted (MW)	0	140	119	229	259	340
4	Total Credited Capacity (MW) (2+3)	948	1,198	1,136	1,246	1,276	1,356
5	Surplus/ (Shortage) of Supply (MW) (4-1)	258	65	-14	79	328	635
6	CO Compliance (%) Surplus / (Shortage)	37%	6%	-1%	7%	35%	88%

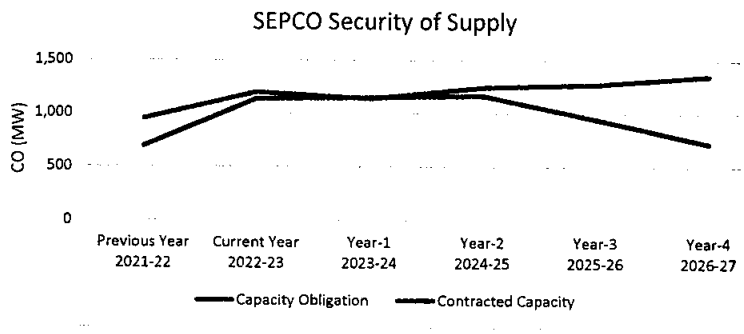

Figure 4-10 SEPCO Security of Supply

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4.1.11. **Total:**

Table 4-11 XW-DISCOs cumulative security of supply position

	Total						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	21,252	28,827	30,298	31,707	26,524	20,811
2	Contracted Commissioned (MW)	25,409	28,379	27,281	27,271	27,258	27,240
3	Committed/ Contracted (MW)	0	3,742	3,182	6,127	6,939	9,113
4	Total Credited Capacity (MW) (2+3)	25,409	32,121	30,463	33,398	34,197	36,352
5	Surplus/ (Shortage) of Supply (MW) (4-1)	4,157	3,294	165	1,691	7,673	15,541
6	CO Compliance (%) Surplus / (Shortage)	20%	11%	1%	5%	29%	75%

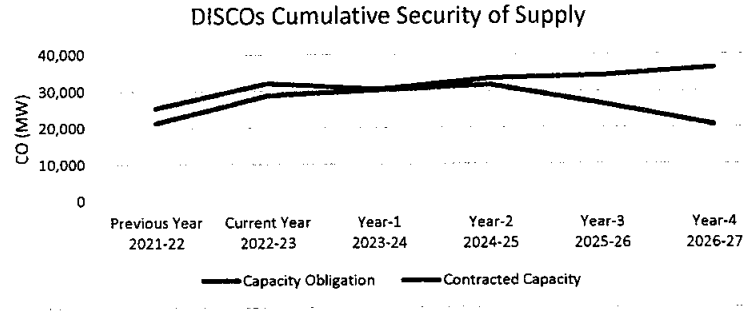

Figure 4-11 XW-DISCOs cumulative Security of Supply

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5. POWER PROCUREMENT

DISCOs, in the role of Supplier of Last Resort (SOLR), are required to ensure security of supply for their regulated consumers by planning in advance and securing adequately sufficient capacity to meet the demand of their consumers. Any future power procurement is strictly planned in accordance with consumer demand and any difference between supply and demand, to ensure economical investment in the best interest of consumers.

5.1. Power Procurement Requirement:

Allocation of Future Capacity Procurement is made on pro-rata basis as per capacity requirements of all DISCOs, whereas, in years where all DISCOs are compliant, committed projects are allocated based on commercial allocation factors as provided in 1.2.1. above. Each XW-DISCO has forecasted occurrence and growth of Net-Metering capacity in respective Service Territories during planned future years, however, the approved IGCEP 2022 takes the net-metering arrangement as committed source of supply at 370 MW during each year. Accordingly, the said 370 MW Net-Metering capacity provided in IGCEP is considered as Solar DGs.

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5.1.1. Power Procurement to meet Capacity Obligation:

Table 5-1 DISCO's power procurement requirement for 2022-23

Year 2022-2023							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar	Committed/ Direct Contracting	370	81	81	IESCO	5
						PESCO	7
						FESCO	7
						LESCO	11
						GEPCO	5
						MEPCO	9
						HESCO	2
						QESCO	3
						TESCO	32
						SEPCO	2

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76/123

Table 5-2 DISCO's power procurement requirement for 2023-24

		Year 2023-2024					
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Hydro	Committed/ Direct Contracting	116	98	259	IESCO	0
						PESCO	0
						FESCO	49
2	Solar	Committed/ Direct Contracting	620	136		LESCO	24
						GEPCO	46
						MEPCO	127
3	Wind	Committed/ Direct Contracting	50	15		HESCO	0
						QESCO	0
4	SPP	Committed/ Direct Contracting	10	9		TESCO	13
						SEPCO	0

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NEPRA AUTHORITY

77/23

Table 5-3 DISCO's power procurement requirement for 2024-25

Year 2024-2025							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Hydel	Committed/ Direct Contracting	84	71	153	IESCO	16
						PESCO	20
						FESCO	20
2	Solar	Committed/ Direct Contracting	370	81		LESCO	32
						GEPCO	15
						MEPCO	26
						HESCO	7
						QESCO	9
						TESCO	3
						SEPCO	6

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78/123

Table 5-4 DISCO's power procurement requirement for 2025-26

		Year 2025-2026					
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Hydel	Committed/ Direct Contracting	11	9	90	IESCO	9
						PESCO	12
						FESCO	12
2	Solar	Committed/ Direct Contracting	370	81		LESCO	19
						GEPCO	9
						MEPCO	15
						HESCO	4
						QESCO	5
						TESCO	2
						SEPCO	3

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79/123

Table 5-5 DISCO's power procurement requirement for 2026-27

Year 2026-2027							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar	Committed/ Direct Contracting	370	81	81	IESCO	8
						PESCO	10
						FESCO	11
						LESCO	17
						GEPCO	8
						MEPCO	14
						HESCO	4
						QESCO	5
						TESCO	1
						SEPCO	3

Complete list of Committed Projects for future Procurement is provided at Annex-III.

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80/123

5.1.2. Power Procurement for Cost Reduction:

Under directions from the Government of Pakistan, Ministry of Energy, the XW-DISCOs have undertaken initiative for Solarization of selected 11 kV feeders. This initiative is aimed at displacement of costly imported fuel-based power generation with the cheap and environment friendly electricity generation based on solar parks of different (1-4 MW) capacities. For this purpose, the XW-DISCOs have already submitted requests for approval of RFP and determination of benchmark tariff with NEPRA.

Table 5-6 DISCO's power procurement requirement (cost reduction) for 2022-23

		Year 2022-2023					
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar DG	Competitive Bidding	0	0	0	IESCO	0
						PESCO	0
						FESCO	0
2	Solar Utility	Competitive Bidding	0	0		LESCO	0
						GEPCO	0
						MEPCO	0
3	Wind	Competitive Bidding	0	0		HESCO	0
						QESCO	0
						TESCO	0
						SEPCO	0

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NEPRA AUTHORITY

81/123

Table 5-7 DISCO's power procurement requirement (cost reduction) for 2023-24

Year 2023-2024							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar DG	Competitive Bidding	1,224	269	275	IESCO	3
						PESCO	21
						FESCO	54
						LESCO	66
						GEPCO	49
						MEPCO	50
2	Bagasse	Committed/ Direct Contracting [HESCO]	6.5	6		HESCO	19
						QESCO	1
						TESCO	0
						SEPCO	12

The additional capacities mentioned against each DISCO are based on the projects at individual XW-DISCO.

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82/123

Table 5-8 DISCO's power procurement requirement (cost reduction) for 2024-25

Sr No.	Generation Technology	Year 2024-2025 Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar DG	Competitive Bidding	0	0	0	IESCO	0
						PESCO	0
						FESCO	0
2	Solar Utility	Competitive Bidding	0	0		LESCO	0
						GEPCO	0
						MEPCO	0
3	Wind	Competitive Bidding	0	0		HESCO	0
						QESCO	0
						TESCO	0
						SEPCO	0

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NEPRA AUTHORITY

83/123

Table 5-9 DISCO's power procurement requirement (cost reduction) for 2025-26

Year 2025-2026							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar DG	Competitive Bidding	0	0	0	IESCO	0
						PESCO	0
						FESCO	0
2	Solar Utility	Competitive Bidding	0	0		LESCO	0
						GEPCO	0
						MEPCO	0
3	Wind	Competitive Bidding	0	0		HESCO	0
						QESCO	0
						TESCO	0
						SEPCO	0

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NEPRA
AUTHORITY

84/123

Table 5-10 DISCO's power procurement requirement (cost reduction) for 2026-27

Year 2026-2027							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar DG	Competitive Bidding	0	0	0	IESCO	0
						PESCO	0
						FESCO	0
2	Solar Utility	Competitive Bidding	0	0		LESCO	0
						GEPCO	0
						MEPCO	0
3	Wind	Competitive Bidding	0	0		HESCO	0
						QESCO	0
						TESCO	0
						SEPCO	0

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5.1.3. Power Procurement for Removal of Constraints:

Table 5-11 DISCO's power procurement requirement (Constraint Removal) for 2022-23

Year 2022-2023							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	RLNG (KAPCO)	Contract Extension	1,300	500	500	IESCO	51
						PESCO	64
						FESCO	65
						LESCO	106
						GEPCO	49
						MEPCO	85
						HESCO	24
						QESCO	28
						TESCO	9
						SEPCO	19

DISCO-wise allocation of firm capacity is based on prorated allocation against the shortage of supply vis-à-vis the determined capacity obligation during the year 2022-23.

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NEPRA AUTHORITY

86/123

Table 5-12 DISCO's power procurement requirement (Constraint Removal) for 2023-24

Year 2023-2024							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	RLNG (KAPCO)	Contract Extension	1,300	500	500	IESCO	0
						PESCO	0
						FESCO	95
						LESCO	46
						GEPCO	89
						MEPCO	245
						HESCO	0
						QESCO	0
						TESCO	25
						SEPCO	0

DISCO-wise allocation of firm capacity is based on prorated allocation against the shortage of supply vis-à-vis the determined capacity obligation during the year 2023-24.

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NEPRA
AUTHORITY

87/123

Table 5-13 DISCO's power procurement requirement (Constraint Removal) for 2024-25

Year 2024-2025							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	RLNG (KAPCO)	Contract Extension	1,300	500	500	IESCO	51
						PESCO	64
						FESCO	65
						LESCO	106
						GEPCO	49
						MEPCO	85
						HESCO	24
						QESCO	28
						TESCO	9
						SEPCO	19

DISCO-wise allocation of firm capacity is based on Commercial Allocation Factors as per MCC during the year 2024-25.

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NEPRA AUTHORITY

88/123

Table 5-14 DISCO's power procurement requirement (Constraint Removal) for 2025-26

		Year 2025-2026					
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	RLNG (KAPCO)	Contract Extension	1,300	500	500	IESCO	51
						PESCO	64
						FESCO	65
						LESCO	106
						GEPCO	49
						MEPCO	85
						HESCO	24
						QESCO	28
						TESCO	9
						SEPCO	19

DISCO-wise allocation of firm capacity is based on Commercial Allocation Factors as per MCC during the year 2025-26.

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NEPRA AUTHORITY

89/123

Table 5-15 DISCO's power procurement requirement (Constraint Removal) for 2026-27

Year 2026-2027							
Sr No.	Generation Technology	Mode of Procurement	Installed Capacity (MW)	Firm Capacity (MW)	Cumulative Firm Capacity (MW)	Allocation to SoLR wrt to Additional Capacity Requirements	
1	Solar DG	Competitive Bidding	0	0	0	IESCO	0
						PESCO	0
						FESCO	0
2	Solar Utility	Competitive Bidding	0	0		LESCO	0
						GEPCO	0
						MEPCO	0
3	RLNG (KAPCO)	Contract Extension	0	0		HESCO	0
						QESCO	0
						TESCO	0
						SEPCO	0

Allocation of KAPCO (for Constraint Removal) is made each year on pro-rata basis as per capacity requirement of each DISCO in respective year. Whereas, for years where all DISCOs are compliant, allocation is based upon commercial allocation factors as provided in **1.2.1.** above.

5.2. Capacity Obligation Compliance Including Proposed Procurements:

5.2.1. IESCO:

Table 5-16 IESCO's compliance with CO including proposed procurement

	IESCO						
		Actual		Forecasted			
	Supply Demand	Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,256	2,834	2,956	3,124	2,628	2,082
2	Contracted Commissioned (MW)	2,579	2,881	2,769	2,768	2,767	2,765
3	Committed/ Contracted (MW)	0	380	323	622	704	925
4	Uncontracted (MW) ((2+3)-1)	323	427	137	266	843	1,608
5	Future Procurement (MW)	0	5	5	21	30	39
6	Cost Reduction Projects (MW)	0	0	3	3	3	3
7	Constraints Removal (MW)	0	51	0	51	51	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	2,579	3,317	3,101	3,465	3,556	3,724
9	Surplus/ (Shortage) of Supply (MW) (8-1)	323	483	145	342	927	1,650
10	CO Compliance (%) – Surplus / (Shortage)	14%	17%	5%	11%	35%	79%

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91/123

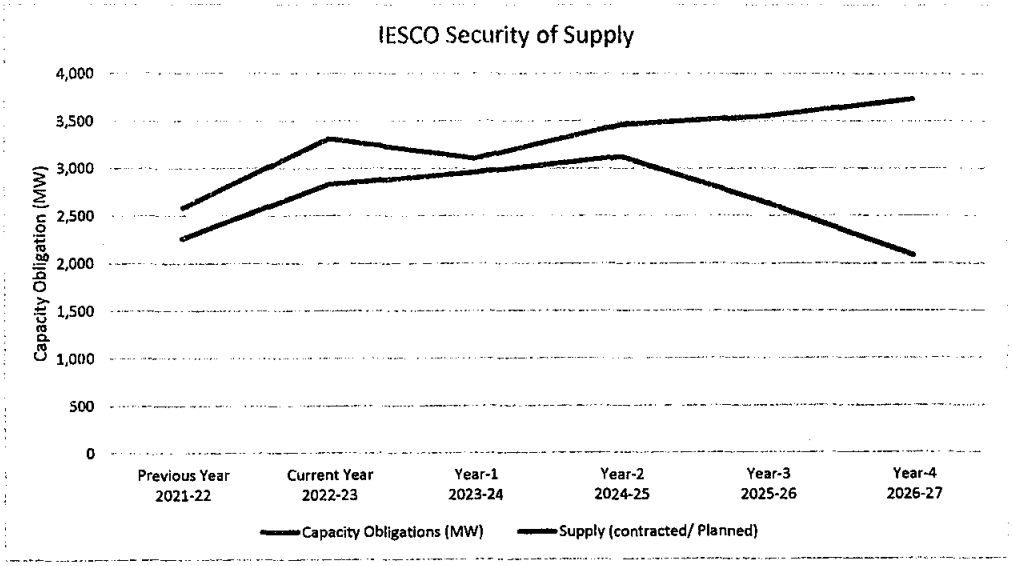

Figure 5-1 IESCOs Security of Supply including Proposed Procurement

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5.2.2. PESCO:

Table 5-17 PESCO's compliance with CO including proposed procurement

	PESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,736	2,854	3,019	3,163	2,647	2,050
2	Contracted Commissioned (MW)	3,718	3,658	3,517	3,516	3,514	3,512
3	Committed/ Contracted (MW)	0	482	410	790	894	1,175
4	Uncontracted (MW) ((2+3)-1)	982	1,287	908	1,142	1,761	2,636
5	Future Procurement (MW)	0	7	7	27	38	49
6	Cost Reduction Projects (MW)	0	0	21	21	21	21
7	Constraints Removal (MW)	0	64	0	64	64	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	3,718	4,211	3,955	4,417	4,532	4,745
9	Surplus/ (Shortage) of Supply (MW) (8-1)	982	1,357	936	1,254	1,885	2,706
10	CO Compliance (%) – Surplus / (Shortage)	36%	48%	31%	40%	71%	132%

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93/23

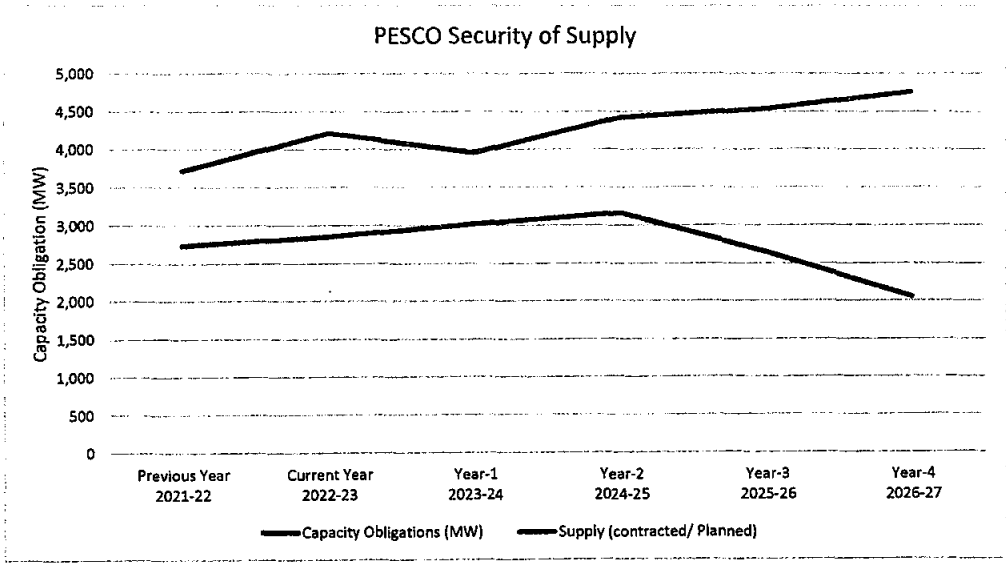

Figure 5-2 PESCOs Security of Supply including Proposed Procurement

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5.2.3. FESCO:

Table 5-18 FESCO's compliance with CO including proposed procurement

	FESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,969	3,968	4,249	4,456	3,729	2,943
2	Contracted Commissioned (MW)	3,326	3,715	3,571	3,570	3,568	3,566
3	Committed/ Contracted (MW)	0	490	417	802	908	1,193
4	Uncontracted (MW) ((2+3)-1)	357	237	-261	-84	748	1,816
5	Future Procurement (MW)	0	7	56	76	87	98
6	Cost Reduction Projects (MW)	0	0	54	54	54	54
7	Constraints Removal (MW)	0	65	95	65	65	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	3,326	4,277	4,193	4,567	4,684	4,900
9	Surplus/ (Shortage) of Supply (MW) (8-1)	357	309	-57	111	954	1,968
10	CO Compliance (%) – Surplus / (Shortage)	12%	8%	-1%	2%	26%	67%

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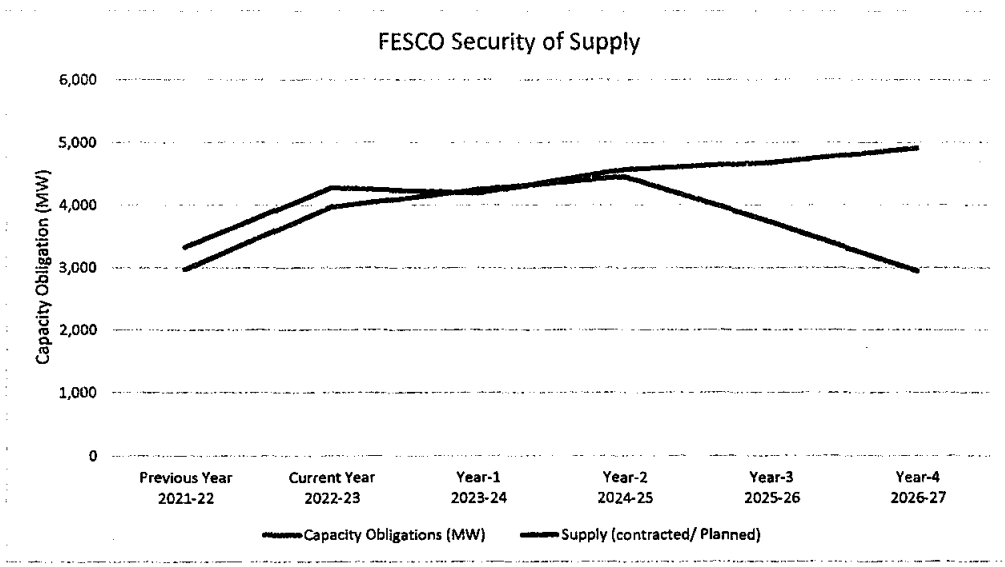

Figure 5-3 FESCOs Security of Supply including Proposed Procurement

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96/123

5.2.4. LESCO:

Table 5-19 LESCO's compliance with CO including proposed procurement

	LESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	5,210	6,302	6,603	6,855	5,720	4,467
2	Contracted Commissioned (MW)	5,362	5,989	5,757	5,755	5,752	5,748
3	Committed/ Contracted (MW)	0	790	672	1,293	1,464	1,923
4	Uncontracted (MW) ((2+3)-1)	152	476	-174	193	1,496	3,204
5	Future Procurement (MW)	0	11	35	67	86	103
6	Cost Reduction Projects (MW)	0	0	66	66	66	66
7	Constraints Removal (MW)	0	106	46	106	106	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	5,362	6,895	6,575	7,286	7,474	7,823
9	Surplus/ (Shortage) of Supply (MW) (8-1)	152	593	-28	431	1,753	3,373
10	CO Compliance (%) – Surplus / (Shortage)	3%	9%	0%	6%	31%	76%

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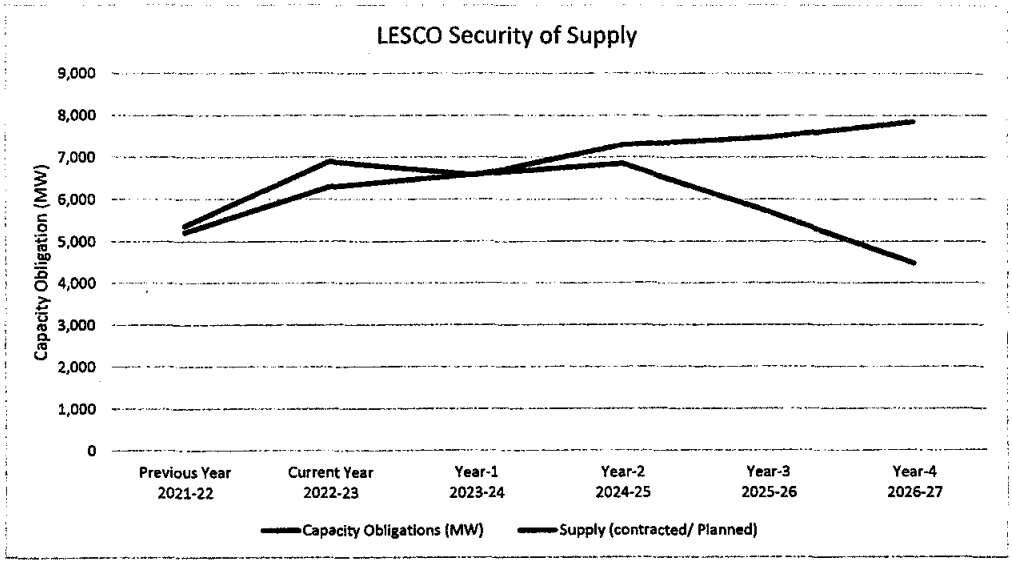

Figure 5-4 LESCOs Security of Supply including Proposed Procurement

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5.2.5. GEPCO:

Table 5-20 GEPCO's compliance with CO including proposed procurement

	GEPCO					
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	2,198	3,106	3,235	3,393	2,840	2,230
2	Contracted Commissioned (MW)	2,496	2,787	2,679	2,678	2,677	2,675
3	Committed/ Contracted (MW)	0	368	313	602	681	895
4	Uncontracted (MW) ((2+3)-1)	298	49	-243	-113	519	1,340
5	Future Procurement (MW)	0	5	51	66	75	83
6	Cost Reduction Projects (MW)	0	0	49	49	49	49
7	Constraints Removal (MW)	0	49	89	49	49	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	2,496	3,209	3,180	3,444	3,531	3,694
9	Surplus/ (Shortage) of Supply (MW) (8-1)	298	103	-54	51	691	1,463
10	CO Compliance (%) – Surplus / (Shortage)	14%	3%	-2%	2%	24%	66%

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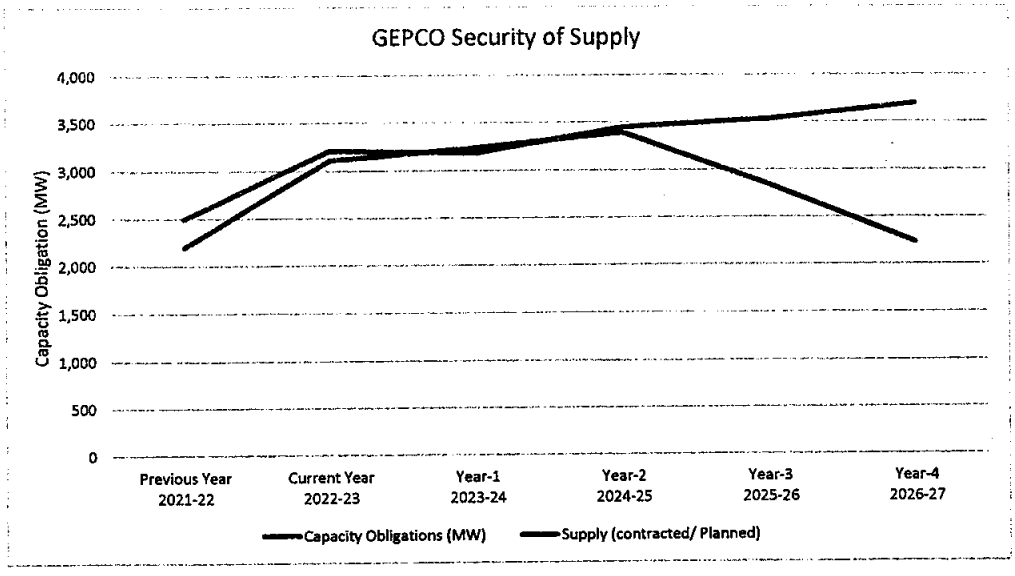

Figure 5-5 GEPCOs Security of Supply including Proposed Procurement

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5.2.6. MEPCO:

Table 5-21 MEPCO's compliance with CO including proposed procurement

	MEPCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	3,510	5,432	5,773	6,112	5,160	4,094
2	Contracted Commissioned (MW)	4,335	4,842	4,655	4,653	4,651	4,648
3	Committed/ Contracted (MW)	0	639	543	1,045	1,184	1,555
4	Uncontracted (MW) ((2+3)-1)	825	48	-576	-414	675	2,109
5	Future Procurement (MW)	0	9	136	162	177	191
6	Cost Reduction Projects (MW)	0	0	50	50	50	50
7	Constraints Removal (MW)	0	85	245	85	85	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	4,335	5,574	5,628	5,995	6,147	6,429
9	Surplus/ (Shortage) of Supply (MW) (8-1)	825	142	-145	-117	987	2,349
10	CO Compliance (%) – Surplus / (Shortage)	24%	3%	-3%	-2%	19%	57%

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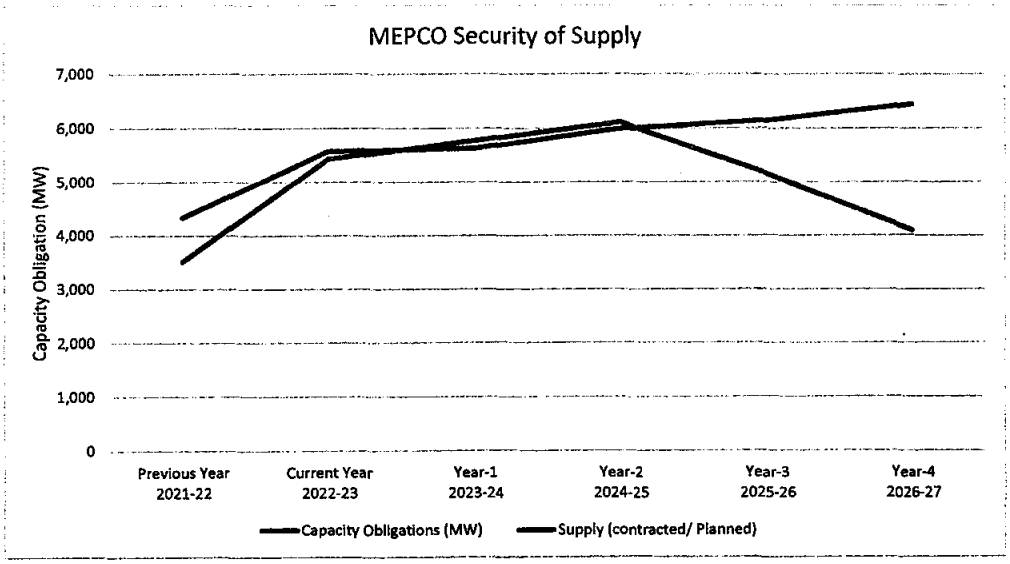

Figure 5-6 MEPCOs Security of Supply including Proposed Procurement

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5.2.7. HESCO:

Table 5-22 HESCO's compliance with CO including proposed procurement

	HESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	848	1,333	1,382	1,431	1,186	921
2	Contracted Commissioned (MW)	1,217	1,359	1,307	1,306	1,306	1,305
3	Committed/ Contracted (MW)	0	179	152	294	332	437
4	Uncontracted (MW) ((2+3)-1)	369	206	78	168	452	821
5	Future Procurement (MW)	0	2	0	7	11	15
6	Cost Reduction Projects (MW)	0	0	19	19	19	19
7	Constraints Removal (MW)	0	24	0	24	24	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	1,217	1,565	1,479	1,650	1,693	1,772
9	Surplus/ (Shortage) of Supply (MW) (8-1)	369	232	97	219	507	856
10	CO Compliance (%) -- Surplus / (Shortage)	44%	17%	7%	15%	43%	93%

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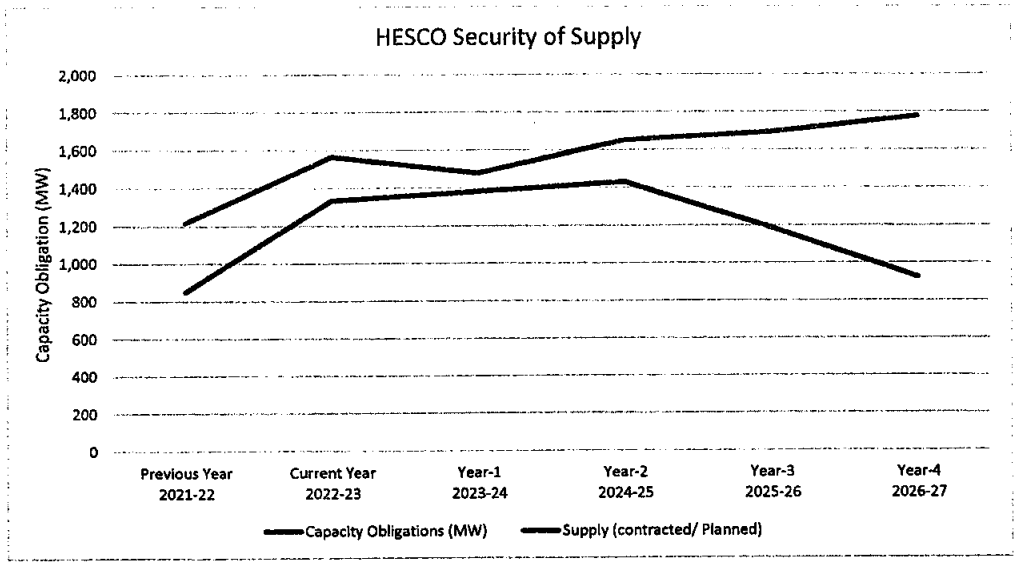

Figure 5-7 HESCOs Security of Supply including Proposed Procurement

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5.2.8. QESCO:

Table 5-23 QESCO's compliance with CO including proposed procurement

	QESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	835	1,276	1,317	1,363	1,127	881
2	Contracted Commissioned (MW)	1,428	1,595	1,533	1,533	1,532	1,531
3	Committed/ Contracted (MW)	0	210	179	344	390	512
4	Uncontracted (MW) ((2+3)-1)	593	530	395	515	795	1,163
5	Future Procurement (MW)	0	3	3	12	17	21
6	Cost Reduction Projects (MW)	0	0	1	1	1	1
7	Constraints Removal (MW)	0	28	0	28	28	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	1,428	1,836	1,716	1,918	1,968	2,061
9	Surplus/ (Shortage) of Supply (MW) (8-1)	593	561	399	556	841	1,185
10	CO Compliance (%) – Surplus / (Shortage)	71%	44%	30%	41%	75%	135%

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105/123

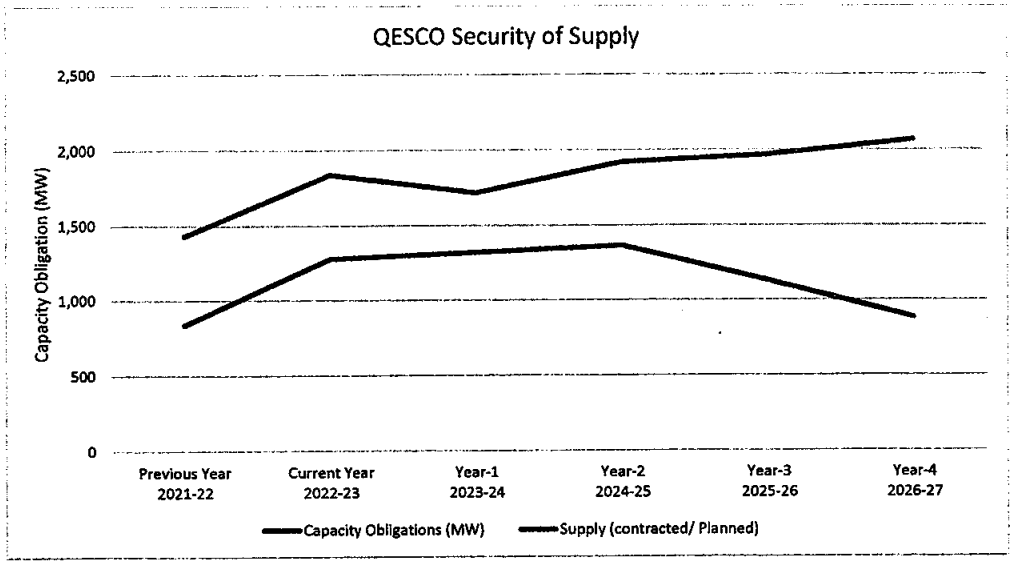

Figure 5-8 QESCOs Security of Supply including Proposed Procurement

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5.2.9. TESCO:

Table 5-24 TESCO's compliance with CO including proposed procurement

	TESCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	0	590	615	643	539	424
2	Contracted Commissioned (MW)	0	494	475	475	474	474
3	Committed/ Contracted (MW)	0	65	55	107	121	159
4	Uncontracted (MW) ((2+3)-1)	0	-31	-85	-62	56	209
5	Future Procurement (MW)	0	32	45	48	49	51
6	Cost Reduction Projects (MW)	0	0	0	0	0	0
7	Constraints Removal (MW)	0	9	25	9	9	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	0	600	600	638	653	682
9	Surplus/ (Shortage) of Supply (MW) (8-1)	0	10	-15	-5	114	260
10	CO Compliance (%) – Surplus / (Shortage)	0%	2%	-2%	-1%	21%	61%

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107/123

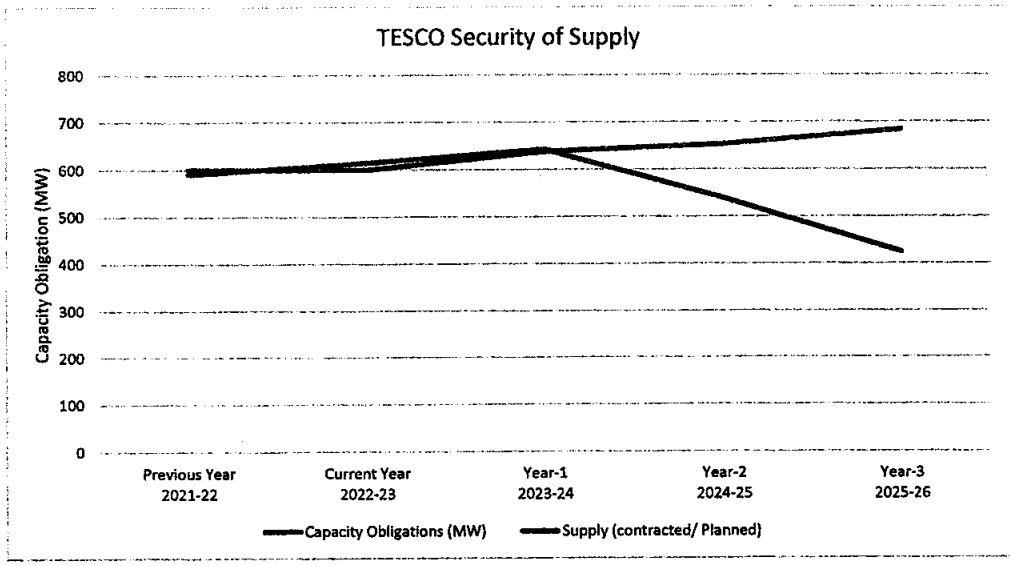

Figure 5-9 TESCOs Security of Supply including Proposed Procurement

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5.2.10. SEPCO:

Table 5-25 SEPCO's compliance with CO including proposed procurement

	SEPCO						
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	690	1,133	1,150	1,167	947	721
2	Contracted Commissioned (MW)	948	1,059	1,018	1,017	1,017	1,016
3	Committed/ Contracted (MW)	0	140	119	229	259	340
4	Uncontracted (MW) ((2+3)-1)	258	65	-14	79	328	635
5	Future Procurement (MW)	0	2	2	8	11	14
6	Cost Reduction Projects (MW)	0	0	12	12	12	12
7	Constraints Removal (MW)	0	19	0	19	19	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	948	1,219	1,150	1,285	1,318	1,379
9	Surplus/ (Shortage) of Supply (MW) (8-1)	258	86	0	117	370	662
10	CO Compliance (%) – Surplus / (Shortage)	0%	8%	0%	10%	39%	92%

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109/123

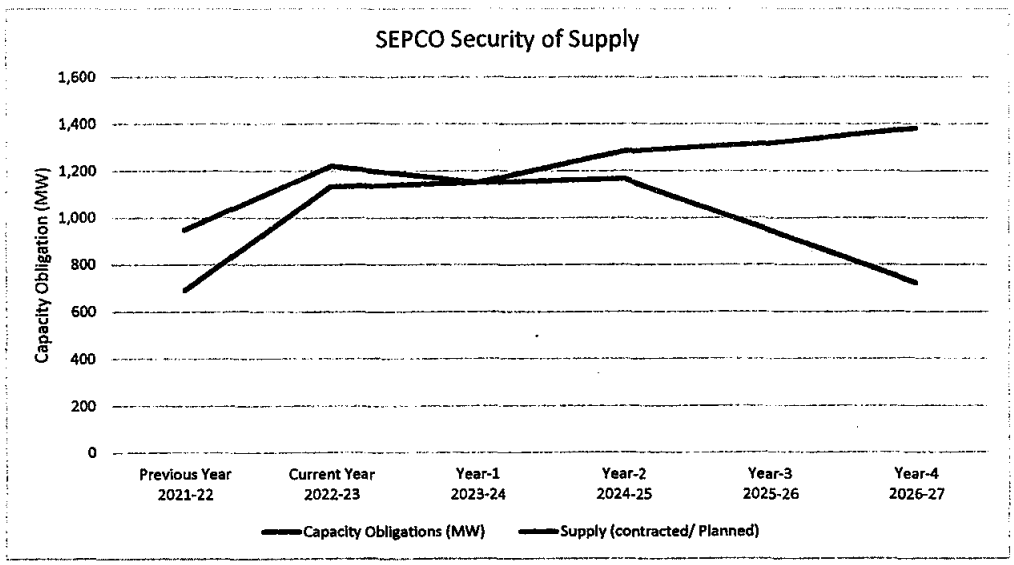

Figure 5-10 SEPCOs Security of Supply including Proposed Procurement

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5.2.11. **Total:**

Table 5-26 XW-DISCOs' cumulative compliance with CO including proposed procurement

	Total					
	Supply Demand	Actual		Forecasted			
		Previous Year 2021-22	Current Year 2022-23	Year-1 2023-24	Year-2 2024-25	Year-3 2025-26	Year-4 2026-27
1	Capacity Obligations (MW)	21,252	28,827	30,298	31,707	26,524	20,811
2	Contracted Commissioned (MW)	25,409	28,379	27,281	27,271	27,258	27,240
3	Committed/ Contracted (MW)	0	3,742	3,182	6,127	6,939	9,113
4	Uncontracted (MW) ((2+3)-1)	4,157	3,294	165	1,691	7,673	15,541
5	Future Procurement (MW)	0	81	338	492	582	664
6	Cost Reduction Projects (MW)	0	0	275	275	275	275
7	Constraints Removal (MW)	0	500	500	500	500	0
8	Total Credited Capacity (MW) (2+3+5+6+7)	25,409	32,703	31,576	34,665	35,554	37,210
9	Surplus/ (Shortage) of Supply (MW) (8-1)	4,157	3,875	1,278	2,958	9,030	16,480
10	CO Compliance (%) – Surplus / (Shortage)	0%	13%	4%	9%	34%	79%

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111/133

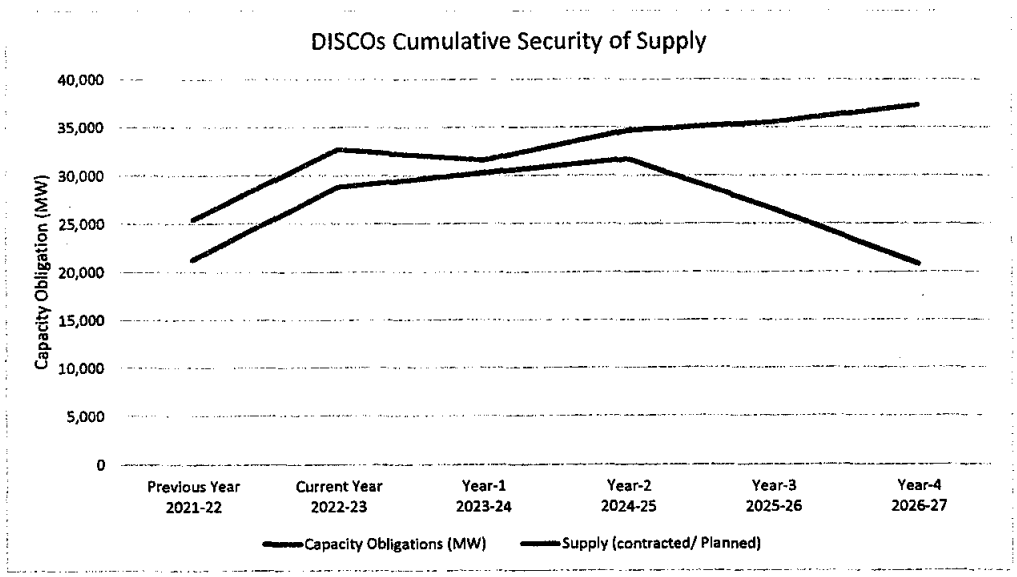

Figure 5-11 XW-DISCOs Cumulative Security of Supply including Proposed Procurement

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CONCLUSIONS

1. As per Capacity Obligation Report 2023 issued by Market Operator, 5 DISCOs (Namely; FESCO, LESCO, GEPCO, MEPCO and TESCO) are faced with non-compliances, ranging from minor to serious, to the respective capacity obligations over the programme horizon (FY 2022-23 to FY 2026-27). The other 5 DISCOs (Namely; IESCO, PESCO, HESCO, QESCO and SEPCO) are sufficiently, in some cases exorbitantly, above in compliance to the respective capacity obligations.

2. Without prejudice to the above individual assessment, the system as a whole is expected to remain compliant to the combined capacity obligation during the programme horizon.

3. The envisaged power procurement plans of DISCOs, comprising of procurement from IGCEP committed uncontracted capacities, localized solarization of 11 kV feeders, and continuation of retiring plants in view of transmission constraints, provides reasonable relief with regard to compliance with respective capacity obligations of individual DISCOs besides improvising system level compliance to the combined capacity obligation of the system.

4. The overall system-based compliance to the combined capacity obligation expected through power procurement envisaged during the programme period can be balanced down to mitigate individual non-compliances expected at relevant DISCOs by suitably adjusting the inter-DISCO commercial allocation factors provided at Section 18.2.5.2 of the Market Commercial Code. This allows best utilization of capacities within system on least-cost basis.

5. Considering that the capacity obligation is a derivative of non-coincident peak-demands of individual DISCOs, applying Reserve Margin of 10% over and above the said non-coincident peaks; compared with firm capacity estimations based on equivalent availability factors, is an apparent mismatch between the two parameters (i.e., the capacity obligation vs. the firm capacity) of the desired equilibrium. Accordingly, till the commercial allocation factors are changed on the basis of coincident demands of DISCOs, it would be pragmatic, for the time beings, to dispense with the application of the Reserve Margin or at-least lowering the %age of Reserve Margin. This will reduce undue pressure on capacity obligation requirements and compliance thereof.

6. While assessing compliance to the determined Capacity Obligation, the Capacity Obligation Report and, therefore, this Power Acquisition Programme is based on 80% an 60% of Capacity Obligation as success / compliance criteria for Year-3 and Year-4, respectively. For an aligned planning of security of supply, it would be prudent to carryout assessment at 100% of Capacity Obligation for all years, however, for years 3 and 4, the compliance criteria could be relaxed, e.g., current 80% and 60% or at an enhanced level of 90% and 80%, as proposed in the Capacity Obligation Report 2022-23 of the Market Operator.

7. While arriving at the firm capacities vis-à-vis the compliance to the capacity obligation(s), a sizeable quantum (2050 MW) pertaining to KE is subtracted from the available capacities thus correspondingly compromising the compliance to the capacity obligation of XW-DISCOs. This needs attention.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY
113/23

8. The proviso to the sub-regulation 6(2) of Procurement Regulations provides that for a period of five years from the date of notification of these regulations or such earlier period as may be directed by the Authority, a combined power acquisition programme shall be developed and submitted by suppliers of last resort (except KE). Clarity on responsible entity for combining of the programme shall provide alignment of actions and compliance to the timelines.

9. The proviso to the sub-regulation 6(2) further stipulates for consultation with Independent Auction Administrator (IAA), in the absence of legal existence of IAA, the said consultation was dispensed with for the purposes of this document. Further, as per provisions of the Procurement Regulations, the very success of any Power Acquisition Programme highly depends on legal existence of IAA. An expeditious registration of IAA, in line with the Act, the Rules, the Regulations and approved CTBCM design is of high priority.

10. The regulatory requirements stipulate submission timelines for multiple documents (MTLF, PAP, DIIPs, IGCEP, TSEP & MYTs etc.). There is need to consider rearrangement and realignment of timelines and time horizons (i.e., the Control Periods) for each related document for a comprehensive and cohesive processing of power sector as a whole.

11. This combined power acquisition programme provides a balanced approach for meeting the demonstrated and expected demand of regulated consumers of XW-DISCOs, therefore, merits consideration and approval of the Authority.

PRAYER

1. The combined Power Acquisition Programme for the period from FY 2022-23 to FY 2026-27, representing the joint and collaborative efforts and collective wisdom of all XW-DISCO, i.e., Suppliers of Last Resort, provides a balanced approach for meeting the demonstrated and expected demand of regulated consumer adequately demonstrating the compliance with the combined capacity obligation of XW-DISCO (as SOLRs); may kindly be considered and approved by the honorable Authority.

2. The processing of other multiple requests of XW-DISCOs, pertaining to Multi-Year Tariffs (MYTs), integrated investment plans, approval of RFPs and benchmark tariffs for solarization of 11 kV feeders, licensing as electric power supplier(s), Use of System Charges and draft Use of System Agreement(s) as per NEPRA Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022, may kindly be continued or, as applicable, reconvened.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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ANNEX-I: EXISTING GENERATION PLANTS

Generators under Legacy Contracts – Commissioned till date				
Sr No	Generator Name	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type
1	Atlas (APL)	219	200	RFO
2	AGL	163	150	RFO
3	China HUBCO (CPH)	1,320	1,038	Imp. Coal
4	Engro (EPQL)	217	194	Gas
5	Engro Thar (EPTL)	660	527	Local Coal
6	Foundation (FPCDL)	184	158	Gas
7	Halmore (HPGCL)	225	162	RLNG
8	Sahiwal Coal (HSR)	1,320	1,158	Imp. Coal
9	Liberty Tech (LPTL)	202	184	RFO
10	HuB N (NEL)	225	197	RFO
11	Balloki	1,223	1,001	RLNG
12	Haveli (HBS)	1,230	1,076	RLNG
13	Nishat C (NCPL)	209	171	RFO
14	Nishat P (NPL)	202	177	RFO
15	Orient (OPCL)	225	188	RLNG
16	Port Qasim (PQEPC)	1,320	1,225	Imp. Coal
17	Bhikki (QATPL)	1,180	1,033	RLNG
18	Saif (SPL)	225	189	RLNG
19	Sapphire (SECL)	225	186	RLNG
20	UCH-II	393	336	Gas
21	KAPCO 1	400	365	RLNG
22	KAPCO 2	900	820	RLNG
23	KAPCO 3	300	273	RLNG
24	Altern (AEL)	0	0	Gas
25	SABA	136	102	RFO
26	HUBCO	1,291	1,158	RFO
27	LIBERTY	225	201	Gas
28	FKPCL	172	114	RLNG
29	ROUSCH	450	411	RLNG
30	Kohinoor (KEL)	131	118	RFO
31	AES Lalpir	362	302	RFO
32	AES Pakgen	365	304	RFO
33	HCPC	0	0	Gas
34	GTPS Block#4	0	0	Gas
35	UCH	586	577	Gas
36	Guddu-I U(11-13)	415	129	Gas
37	Guddu-II U(5-10)	620	379	Gas
38	Guddu 747	747	559	Gas
39	Jamshoro-I U1	250	163	RFO
40	Jamshoro-II U4	200	131	RFO
41	Jamshoro-II U2	0	0	RFO
42	Jamshoro-II U3	0	0	RFO

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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Generators under Legacy Contracts – Commissioned till date				
Sr No	Generator Name	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type
43	Nandipur	525	446	RLNG
44	Muzaffargarh-I U1	210	94	RFO
45	Muzaffargarh-I U2	210	94	RFO
46	Muzaffargarh-I U3	210	94	RFO
47	Muzaffargarh-II U4	320	143	RFO
48	Muzaffargarh-II U5	-	0	RFO
49	Muzaffargarh-II U6	-	0	RFO
50	Davis	14	0	RLNG
51	Lucky Coal	660	607	Local Coal
52	Punjab Thermal	0	0	RLNG
53	Agar textile	12	12	SPP
54	Lucky cement	20	20	SPP
55	Thatta Cement	19	19	SPP
56	Al-noor sugar mill	36	36	SPP
57	Anoond	10	10	SPP
58	Omni	13	13	SPP
59	kumhariwala	3	3	SPP
60	Noon Sugar	14	14	SPP
61	Tarbela 1-14	3,478	3,478	Hydel
62	Tarbela Ext 4	1,410	1,410	Hydel
63	Mangla	1,140	1,000	Hydel
64	Ghazi Brotha	1,450	1,081	Hydel
65	Warsak	243	180	Hydel
66	Chashma	184	98	Hydel
67	Jinnah	96	19	Hydel
68	Allai khwar	121	80	Hydel
69	Khan khwar	130	31	Hydel
70	Dubair Khwar	72	112	Hydel
71	Neelam jehlam	969	802	Hydel
72	Golen Gole	108	14	Hydel
73	Gomal Zam	17	8	Hydel
74	Rasul	22	8	Hydel
75	Dargai	20	15	Hydel
76	Nandipur	14	6	Hydel
77	Shadiwal	14	3	Hydel
78	Chichoki	13	4	Hydel
79	Kuram Garhi	4	3	Hydel
80	Renala	1	1	Hydel
81	Chitral	1	1	Hydel
82	Shishi	2	2	Hydel
83	Jabban	22	20	Hydel
84	Ranolia	18	14	Hydel
85	Jagran-1	30	27	Hydel
86	Malakand III	81	75	Hydel

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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117/123

Generators under Legacy Contracts – Commissioned till date				
Sr No	Generator Name	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type
87	New Bong Escape	84	68	Hydel
88	Patrind	150	129	Hydel
89	Daral khwar	37	2	Hydel
90	Gul pur	103	93	Hydel
91	Karot	720	612	Hydel
92	Jhing	14	12	Hydel
93	Marala HPP	8	6	Hydel
94	Pakpatan HPP	3	2	Hydel
95	ACT/Tapal Wind	30	15	Wind
96	Artistic_Wind	50	25	Wind
97	Artistic_Wind-2	50	15	Wind
98	Din Wind Energy	50	15	Wind
99	FFC(EL)	50	19	Wind
100	FWEL-1	50	20	Wind
101	FWEL-2	50	22	Wind
102	Gul Ahmad	50	18	Wind
103	Gul Ahmad-II	50	15	Wind
104	Hawa	50	26	Wind
105	Indus	50	15	Wind
106	Jhimpir	50	27	Wind
107	Lakeside Wind	50	15	Wind
108	Liberty Wind-I	50	15	Wind
109	Master	50	23	Wind
110	Metro	50	18	Wind
111	Metro Wind-II	60	18	Wind
112	NASDA Green Wind	50	15	Wind
113	Sachal	50	20	Wind
114	Sapphire	50	22	Wind
115	Three Gorges First (TGF)	50	21	Wind
116	Three Gorges Second (TGS)	50	23	Wind
117	Three Gorges Third (TGT)	50	22	Wind
118	Tricon-A	50	28	Wind
119	Tricon-B	50	27	Wind
120	Tricon-C	50	27	Wind
121	UEP	99	41	Wind
122	Yunus	50	21	Wind
123	ZEPL	56	22	Wind
124	Tenaga	50	27	Wind
125	Dawood	50	27	Wind
126	Zephyr	50	27	Wind
127	Tricom	50	15	Wind
128	Master Green	50	15	Wind
129	Liberty Wind-II	50	15	Wind
130	Tapal Wind-II (ACT-2)	50	15	Wind

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Generators under Legacy Contracts – Commissioned till date				
Sr No	Generator Name	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type
131	JDW-II	26	26	Bagasse
132	JDW-III	27	27	Bagasse
133	RYKML	30	30	Bagasse
134	Chiniot Power	63	63	Bagasse
135	Hamza Sugar	15	15	Bagasse
136	Thall Power Layyah	25	25	Bagasse
137	Almoiz Industries	36	36	Bagasse
138	Chanar Energy	22	22	Bagasse
139	Chashnupp-I	325	312	Nuclear
140	Chashnupp-II	325	303	Nuclear
141	Chashnupp-III	340	311	Nuclear
142	Chashnupp-IV	340	305	Nuclear
143	K-2	1,145	996	Nuclear
144	K-3	1,145	996	Nuclear
145	Harappa	18	4	Solar
146	Quaid e Azam	100	29	Solar
147	AJ Power	12	3	Solar
148	Apollo	100	29	Solar
149	Best Green	100	28	Solar
150	Crest Energy	100	29	Solar
151	Zhenfa	100	22	Solar
Total		38,010	31,040	

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119/123

ANNEX-II: COMMITTED GENERATION PLANTS CONSIDERED IN CAPACITY OBLIGATION REPORT

Generators under Legacy Contracts – Not Commissioned					
Sr No	Generator Name	Expected COD	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type
1	Jabori	Jun-2023	10	9	Hydro
2	Thar TEL	Jul-2022	330	304	Local Coal
3	Trimmu	Jul-2022	1,263	1,162	CCGT_RLNG
4	Mangla (U #5-6)	Sep-2022	70	60	Hydro
5	Thar-I (SSRL)	Dec-2022	1,320	1,214	Local Coal
6	Thal Nova	Dec-2022	330	304	Local Coal
7	Jamshoro Coal (Unit I)	Dec-2022	660	607	Imported Coal
8	Helios	Apr-2023	50	11	Solar
9	HNDS	Apr-2023	50	11	Solar
10	Meridian	Apr-2023	50	11	Solar
11	Mangla (U #3-4)	May-2023	70	60	Hydro
2022-23			4,203	3,743	
12	Access_Electric	Sep-2023	10	2	Solar
13	Access_Solar	Sep-2023	12	3	Solar
14	Kurram Tangi	Oct-2023	18	15	Hydro
15	Riali-II	Dec-2023	7	6	Hydro
16	Lawi	Apr-2024	69	59	Hydro
17	Suki Kinari (U #1)	May-2024	221	188	Hydro
18	Safe	Jun-2024	10	2	Solar
19	Western	Jun-2024	50	15	Wind
2023-24			397	290	
20	Suki Kinari (U #2)	Jul-2024	221	188	Hydro
21	Tarbela_Ext_5 (U #1)	Jul-2024	510	434	Hydro
22	Mangla (U #1-2)	Jul-2024	70	60	Hydro
23	Tarbela_Ext_5 (U #2)	Aug-2024	510	434	Hydro
24	CASA	Aug-2024	1,000	1,000	Cross Border Interconnection
25	Suki Kinari (U #3)	Sep-2024	221	188	Hydro
26	Tarbela_Ext_5 (U #3)	Sep-2024	510	434	Hydro
27	Suki Kinari (U #4)	Nov-2024	221	188	Hydro
28	Kathai-II	Dec-2024	8	7	Hydro
29	Shahtaj	Aug-2024	32	15.0	Bagasse
2024-25			3,303	2,945	
30	Gwadar	Aug-2025	300	276	Local Coal
31	Mangla (U #9-10)	Sep-2025	70	60	Hydro
32	Dasu_1 (U #1)	May-2026	360	306	Hydro
33	Mohmand (U #1)	May-2026	200	170	Hydro
2025-26			930	812	
34	Dasu_1 (U #2)	Jul-2026	360	306	Hydro
35	Mohmand (U #2)	Jul-2026	200	170	Hydro
36	Dasu_1 (U #3)	Aug-2026	360	306	Hydro
37	Mohmand (U #3)	Sep-2026	200	170	Hydro

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120/123

Generators under Legacy Contracts – Not Commissioned					
Sr No	Generator Name	Expected COD	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type
38	Mangla (U #7-8)	Nov-2026	30	26	Hydro
39	Mohmand (U #4)	Nov-2026	200	170	Hydro
40	Dasu (U #4)	Nov-2026	360	306	Hydro
41	Dasu (U #5)	Feb-2027	360	306	Hydro
42	Keyal Khwar (U #1)	Feb-2027	64	54	Hydro
43	Dasu (U #6)	May-2027	360	306	Hydro
44	Keyal Khwar (U #2)	May-2027	64	54	Hydro
2026-27			2,558	2,174	
Grand Total			11,391	9,964	

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ANNEX-III: COMMITTED GENERATION PLANTS CONSIDERED FOR FUTURE PROCUREMENT

Generators under Legacy Contracts – Not Commissioned						
Sr No	Generator Name	Expected COD	Installed Capacity (MW)	Firm Capacity (MW)	Fuel Type	Procurement Year
1	Chianwali HPP	Jun-2023	5	5	Hydro	2023-24
2	Deg Outfall	Jun-2023	4	3	Hydro	2023-24
3	Karora	Aug-2022	12	10	Hydro	2023-24
4	Koto	Sep-2022	41	35	Hydro	2023-24
5	Jagran-II (U #1)	Apr-2023	12	10	Hydro	2023-24
6	Jagran-II (U #2)	May-2023	12	10	Hydro	2023-24
7	Machai (PESCO)	Jun-2023	3	2	Hydro	2023-24
8	Faran Sugar Mills (HESCO)	Mar-2023	3	3	SPP	2023-24
9	Bandhi Sugar Mills (HESCO)	Mar-2023	4	4	SPP	2023-24
10	Habib Sugar Mills (HESCO)	Mar-2023	3	3	SPP	2023-24
11	Net-Metering	-	370	81	Solar	2022-23
2022-23			469	166		
12	Jagran-II (U #3-4)	Jul-2023	24	20	Hydro	2023-24
13	Chamfall	Aug-2023	3	3	Hydro	2023-24
14	Trans_Atlantic	Jun-2024	50	15	Wind	2023-24
15	Siachen	Sep-2023	100	22	Solar	2023-24
16	Manjhand	Sep-2023	50	11	Solar	2023-24
17	Zorlu	Dec-2023	100	22	Solar	2023-24
18	Net-Metering	-	370	81	Solar	2023-24
2023-24			697	175		
19	Gorkin Matiltan	Jul-2024	84	71	Hydro	2024-25
20	Daral Khwar-II	Jul-2024	10	9	Hydro	-
21	Kot Addu/ Muzafargarh	2024-25	600	132	Solar	-
22	Net-Metering	-	370	81	Solar	2024-25
2024-25			1,064	293		
23	Chapari Charkhel	Sep-2025	11	9	Hydro	2025-26
24	Balkani	Jul-2025	8	7	Hydro	-
25	Batdara	Jul-2025	5	4	Hydro	-
26	Net-Metering	-	370	81	Solar	2025-26
2025-26			394	101		
27	Net-Metering	-	370	81	Solar	2026-27
2026-27			370	81		
Grand Total			2,993	817		

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122/123

PAP's PROPOSED PROJECTS & EVACUATIONS INFORMATION PERFORMA (ANNEXURE-I)

(1) Generation Type		(2) Generation related information										(2) Transmission related information									(3) Other Comments / Remarks
		Capacity MW	Technology	Fuel	Is part of IGCEP (Committed/Optimized)		Rationale of procurement	Firm Capacity MW	Year of Commissioning as per IGCEP/ Original COD	Year of Commissioning if delayed/ Actual COD	Location	Is GIS Conducted and Aproved	Proposed Grid for Interconnection	Augmentation required in Grid	Augmentation required in Transmission Network	Is Grid & Transmission Network Augmention included in investment plans?	Responsible entity or entities for grid and transmission expansion	Year of Commissioning of Grid & Transmission Network	Year of Commissioning if Grid & Transmission Network is Delayed	Procurment entities concluding remarks on Evacutation	
(a) Firm Project	Generator 1						Capacity needs / Constraint removal / legacy commitment / Fuel displacement														
	Generator 2																				
	.....																				
	Generator n																				
(b) Indicative Project	Generator 1																				
	Generator 2																				
	::::																				
	Generator n																				

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123/123

Annex-08

Detailed Scope of STG Plan

1. STG PLAN SCOPE

1.1. STG Projects 2023-24

1.1.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Citi Housing	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2023-24	Completed
2	Essa	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill-Over to 2024-25	Land has been acquired In FY: 2023-24
3	G-Magnolia	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		Land Available
4	Garden Town	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		Land Available

1.1.2. Augmentation of Power Transformer

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Pasrur Road Gujranwala	T-2 20/26 MVA to 31.5/40 MVA	2023-24	Completed
2	P.Rd Sialkot	T-3 20/26 MVA to 31.5/40 MVA		
3	Gujrat-1	T-3 20/26 MVA to 31.5/40 MVA		
4	Gujrat-2	T-2 20/26 MVA to 31.5/40 MVA		
5	Emin Abad	T-2 20/26 MVA to 31.5/40 MVA		
6	Qilla Deedar Singh	T-4 10/13 MVA to 20/26 MVA		
7	Shakar Garh	T-2 20/26 MVA to 31.5/40 MVA		
8	Kharian	T-2 20/26 MVA to 31.5/40 MVA		
9	MBD	T-1 20/26 MVA to 31.5/40 MVA		
10	Emin Abad	T-1 20/26 MVA to 31.5/40 MVA	Spill Over to Next FY:2024-25	
11	Their Sansi	T-3 20/26 MVA to 31.5/40 MVA		
12	Cantt Gujranwala	T-3 20/26 MVA to 31.5/40 MVA		

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
13	Hafiz Abad Road GRW	T-4 20/26 MVA to 31.5/40 MVA	Spill Over to Next FY:2024-25	
14	Hafiz Abad old	T-3 13 MVA to 31.5/40 MVA		

1.1.3. Addition/ Extension of Power Transformer

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Kamoki	Addition of T-4 20/26 MVA Power Transformer	Spill Over to Next FY:2024-25	Civil Work has been Completed in FY:2023-24
2	Cantt Sialkot	Addition of T-4, 20/26 MVA Power Transformer		
3	Narowal	Addition of T-4, 20/26 MVA Power Transformer		
4	Zafarwal	Addition of T-4, 20/26 MVA Power Transformer		
5	Shaheen Abad	Addition of T-5, 20/26 MVA Power Transformer		
6	Siranwali	Addition of T-3,10/13 MVA Power Transformer (66/11.5 kV)		
7	Ghuinkey	Addition of T-4, 20/26 MVA Power Transformer		
8	Noshehra Virkan	Addition of T-4, 20/26 MVA Power Transformer		
9	Jalal Pur Bhattian	Addition of T-4, 20/26 MVA Power Transformer		
10	Pasrror Road SKT	Addition of T-4,31.5/40 MVA Power Transformer		
11	Kolo Tarar	Addition of T-3 10/13 MVA Power Transformer		
12	Head Rasool	Addition of T-2,10/13 MVA Power Transformer (66/11.5 kV)		Land issue
13	Pasrur	Addition of T-4, 31.5/40 MVA Power Transformer		Civil work is under process

1.1.4. Line Bays

Sr. No.	Grid Name	Circuit Name	Voltage	No. of line bays	Expected COD	Expected Progress
1	Sukheki	Sukheki-Khanqa Dogran	132	1	2023-24	Completed
2	Mangowal	Mangowa-Gujrat-1 and Isolator to line bay	132	2	Spill Over to Next FY:2024-25	Civil Work has been completed
3	Narowal	Narowal-Zafarwal	132	2		
4	Zafarwal	Narowal-Zafarwal and Isolator to line bay	132	3		
5	Shakar Garh	Shakar Garh-Narowal-Zafarwal	132	2		
6	Bhimber	Bhimber-Kharian Isolator bay	132	1		
7	Wazirabad	Isolator Bay	132	1		

1.1.5. 11 kV Capacitors

Sr. No	Name of Grid Station	11kV Capacitors (MVAR)	Expected COD	Expected Status
1	Cantt Sialkot T-2	2.4	Spill Over to Next FY:2024-25	Civil Work has been completed
2	Gujrat-1 T-3	4.8		
3	Gujrat-2 T-2	3.6		
4	Zafarwal T-2	4.8		
5	Fatehpur T-4	7.2		
6	College Road T-5	9.6		
7	Qila Deedar Singh T-5	4.8		
8	Kot Agha T-1	4.8		
9	Kharian T-2	7.2		
10	Cantt Sialkot T-4	7.2		
11	Narowal T-4	7.2		
12	Chian Wali T-4	4.8		
13	Zafarwal T-4	7.2		

1.1.6. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	132kV In/Out T/L for G- Magnolia G/S from Lahore Road Grw - Pasror Road Grw T/L	0.3	Dc	Rail	203-24	Completed
2	132kV In/Out T/L for Shahtaj Power House Phalia - Mandi T/L.	16	DC	Rail	Spill Over to Next FY:2024-25	94 % Work has been Completed
3	DC T/L from 220 kV Gujrat G/S at Hellan & IN-OUT of Mangla-Khutiala Sheikhan TL at Hellan	36	DC	Rail		Civil Work is Under Process

1.1.7. Transmission Lines Re-conductoring

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	Reconductoring of College Road to Shaheen Abad T/L	6	DC	Rail	Spill Over to Next FY:2024-25	01 No Circuit is Energized
2	Reconductoring of 132kV Lala Musa to Gujrat-1 T/L	14	DC	Rail		Civil work and Tower Erection is under process
3	Reconductoring of 132kV Lala Musa to Kharian T/L	24	DC	Rail		Civil Work is under process
4	Reconductoring of 132kV Sahuwala to Pasrur Road SKT with in/out for Ghuinkey	24.48	DC	Rail		Profile has been approved and soil investigation completed
5	Wazirabad-Sambrial-Sahuwala T/Line from Wazirabad upto common point of Sahuwala-New Sialkot & Sahuwala to Sambrial	31.22	DC	Rail		Work Order has been issued
6	132KV Lala Musa-J.P. Jattan T/Line.	24.4	DC	Rail		Tender Approved for Lot-1

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
7	KSK-Narang-Narowal T/Line with In & out at Baddomalhi & HUBCO Power Plant	62.3	SC	Rail		Tendering is under process
8	132KV T/Line from 220KV Sahuwala to 132 KV Kotli Loharan G/S.	20	DC	Rail		
9	T/Line from 220KV Gakhar to 132 KV Hafiz Abad Rd G/S.	20	S/C	Rail		
10	T/Line from 220KV Nokhar to 132 KV Q.D Singh G/S.	10.2	DC	Rail		

1.2. STG Project 2024-25

1.2.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Essa	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2024-25	All works will be completed
2	G-Magnolia	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
3	Garden Town	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
4	SKT Bypass GRW (GIS)	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill Over to Next FY:2025-26	In FY 2024-25 Land will be procured and works will be initiated
5	Gondlanwala	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY 2024-25 Land will be procured and works will be initiated
6	Ahmed Nagar	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2024-25 Land will be procured/Litigation will be resolved
7	Wando	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2024-25 Land will be procured/Litigation will be resolved
9	G.T Road Gujranwala	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2024-25 Land will be procured
10	Daska Industrial-II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2024-25 Land will be procured
7	Gondlanwala	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		Land will be procured

1.2.2. Augmentation of Power Transformer

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Emin Abad	T-1 20/26 MVA to 31.5/40 MVA	2024-25	All works will be completed
2	Their Sansi	T-3 20/26 MVA to 31.5/40 MVA		
3	Cantt Gujranwala	T-3 20/26 MVA to 31.5/40 MVA		
4	Hafiz Abad Road GRW	T-4 20/26 MVA to 31.5/40 MVA		
5	Hafiz Abad old	T-3 13 MVA to 31.5/40 MVA		
6	Aroop	T-1 20/26 MVA to 31.5/40 MVA		
7	Aroop	T-4 20/26 MVA to 31.5/40 MVA		
8	New Silakot	T-4 20/26 MVA to 31.5/40 MVA		
9	Wazir Abad	T-1 20/26 MVA to 31.5/40 MVA		
10	Fatehpur	T-1 20/26 MVA to 31.5/40 MVA		
11	Mangowal	T-2 10/13 MVA to 20/26 MVA		

1.2.3. Addition/ Extension of Power Transformer

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Kamoki	Addition of T-4 20/26 MVA Power Transformer	2024-25	All works will be completed
2	Cantt Sialkot	Addition of T-4, 20/26 MVA Power Transformer		
3	Narowal	Addition of T-4, 20/26 MVA Power Transformer		
4	Zafarwal	Addition of T-4, 20/26 MVA Power Transformer		
5	Shaheen Abad	Addition of T-5, 20/26 MVA Power Transformer		
6	Siranwali	Addition of T-5,10/13 MVA Power Transformer (66/11.5 kV)		
7	Ghuinkey	Addition of T-4, 20/26 MVA Power Transformer		
8	Noshehra Virkan	Addition of T-4, 20/26 MVA Power Transformer		
9	Jalal Pur Bhattian	Addition of T-4, 20/26 MVA Power Transformer		

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
10	Pasrror Road SKT	Addition of T-4,31.5/40 MVA Power Transformer		
11	Kolo Tarar	Addition of T-5 10/13 MVA Power Transformer		
12	Head Rasool	Addition of T-2,10/13 MVA Power Transformer (66/11.5 kV)		
13	Pasrur	Addition of T-4, 31.5/40 MVA Power Transformer		
14	Hellan	Addition of T-4 10/13 MVA Power Transformer		
15	Phalia	Addition of T-3 10/13 MVA Power Transformer		
16	Sambrial	Addition of T-4 20/26 MVA Power Transformer		
17	Wazirabad Industrial	Addition of T-2, 20/26 MVA Power Transformer		

1.2.4. Line Bays

Sr. No.	Grid Name	Circuit Name	Voltage	No. of line bays	Expected COD	Expected Progress
1	Mangowal	Mangowa-Gujrat-1 and Isolator to line bay	132	2	2024-25	All works will be completed
2	Narowal	Narowal-Zafarwal	132	2		
3	Zafarwal	Narowal-Zafarwal and Isolator to line bay	132	3		
4	Shakar Garh	Shakar Garh-Narowal-Zafarwal	132	2		
5	Bhimber	Bhimber-Kharian Isolator bay	132	1		
6	Wazirabad	Wazirabad-Sambrial Isolator Bay	132	1		
7	Hellan	New Grt-Hellan & SCARP-2 In-Out	132	4		
8	Lala Musa	Lala Musa-Jalal Pur Jattan	132	1		
9	Jalal Pur Jattan	Lala Musa-Jalal Pur Jattan	132	1		

1.2.5. 11 kV Capacitors

Sr. No	Name of Grid Station	11kV Capacitors (MVAR)	Expected COD	Expected Status
1	Cantt Sialkot T-2	2.4	2024-25	All works will be completed
2	Gujrat-1 T-3	4.8		
3	Gujrat-2 T-2	3.6		
4	Zafarwal T-2	4.8		
5	Fatehpur T-4	7.2		
6	College Road T-5	9.6		
7	Qila Deedar Singh T-5	4.8		
8	Kot Agha T-1	4.8		
9	Kharian T-2	7.2		
10	Cantt Sialkot T-4	7.2		
11	Narowal T-4	7.2		
12	Chian Wali T-4	4.8		
13	Zafarwal T-4	7.2		
14	MBD T-1	4.8		
15	Aroop T-4	6		
16	Aroop T-1	4.8		
17	Hellan T-4	4.8		
18	Phalia T-3	4.8		
19	New Silakot T-4	2.4		
20	Wazirabad T-1	2.4		
21	Sambrial T-4	7.2		
22	Mangowal T-2	3.6		

1.2.6. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	132kV In/Out T/L for Shahtaj Power House Phalia - Mandi T/L.	16	DC	Rail	2024-25	All works will be completed
2	DC T/L from 220 kV Gujrat G/S at Hellan & IN-OUT of Mangla-Khutiala Sheikhan TL at Hellan	36	DC	Rail		
3	132 kV In/Out TL for Essa from Narowal-Shakar garh Line	0.993	DC	Rail		
4	132 kV In/Out TL for Garden Town from Aroop to Gakhar Line	3	DC	Rail		
5	132kV In/Out T/L from SKT-II G/S at Sahuwala to Pasrur T/L (DC from SKT-II to Pasrur)	17	DC	Rail	Spill Over to Next FY:2025-26	In FY: 2024-25 Route Profile will be Approved
6	132kV In/Out T/L from Sahowala G/S at Cantt SKT to Pasrur Road SKT T/L (Spared from Sahowala-Pasrur DC)	10	DC	Rail		
7	132kV In/Out T/L from SKT-II G/S at New Sialkot-Pasrur Road Sialkot T/L	20	DC	Rail		
8	132kV In/Out T/L from SKT-II G/S at Ghakhar-Daska Ind T/L	12	DC	Rail		
9	132kV In/Out T/L from SKT-II G/S at Lalapur-Pasror T/L	32	DC	Rail		
10	DC line from Narowal to Zafarwall	25	DC	Rail		In FY:2024-25 Civil Work Will be Completed
11	In/Out for Shakar Garh from Norowal-zafarwal TL	17	DC	Rail		

1.2.7. Transmission Lines Re-conductoring

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	Reconductoring of College Road to Shaheen Abad T/L	6	DC	Rail	2024-25	All works will be completed
2	Reconductoring of 132kV Lala Musa to Gujrat-1 T/L	14	DC	Rail		
3	Reconductoring of 132kV Lala Musa to Kharian T/L	24	DC	Rail	Spill Over to Next FY:2025-26	Civil Work will be completed and Tower Erection will be Initiated in FY:2024-25
4	Reconductoring of 132kV Sahuwala to Pasrur Road SKT with in/out for Ghuinkey	24.48	DC	Rail		Civil Work will be completed in FY:2024-25
5	Wazirabad-Sambrial-Sahuwala T/Line from Wazirabad upto common point of Sahuwala-New Sialkot & Sahuwala to Sambrial	31.22	DC	Rail		
6	132KV Lala Musa-J.P. Jattan T/Line.	24.4	DC	Rail		Civil Work will be completed in FY:2024-25
7	KSK-Narang-Narowal T/Line with In & out at Baddomalhi & HUBCO Power Plant	62.3	SC	Rail		
8	132KV T/Line from 220KV Sahuwala to 132 KV Kotli Loharan G/S.	20	DC	Rail		
9	T/Line from 220KV Gakhar to 132 KV Hafiz Abad Rd G/S.	20	S/C	Rail		
10	T/Line from 220KV Nokhar to 132 KV Q.D Singh G/S.	10.2	DC	Rail		

1.3. STG Projects 2025-26

1.3.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	SKT Bypass GRW (GIS)	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2025-26	All works will be completed
2	Gondlanwala	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
3	G.T Road Gujranwala	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill to Next FY:2026-27	In FY:2025-26 Grid work will be initiated
4	Wando	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
5	Ahmed Nagar	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2025-26 Soil Investigation will be carried out
6	Daska Industrial-II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
7	Dallowali	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2025-26 Land will be acquired/procured and grid work will be initated
8	Ojla Pul	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2025-26 Land will be acquired/procured
9	Uggoki	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
10	Gujrat-III	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
11	M.B Din -II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		

1.3.2. Augmentation of Power Transformer

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Sialkot City	T-2 20/26 MVA to 31.5/40 MVA	2025-26	All Work will be Completed

1.3.3. Addition/ Extension of Power Transformer

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Daska Industrial	T-4 Addition of 31.5/40 MVA Power Transformer	2025-26	All Work will be Completed
2	Kotli Loharan	T-3 Addition of 10/13 MVA Power Transformer		
3	Kot Agha	T-3 Addition of 10/13 MVA Power Transformer		
4	Khiali	T-3 Addition of 20/26 MVA Power Transformer		
5	Kamoki Industrial	T-2 Addition of 31.5/40 MVA Power Transformer		

1.3.4. Line Bays

Sr. No.	Grid Name	Circuit Name	Voltage	No. of line bays	Expected COD	Expected Progress
1	Emin Abad	Emin Abd-Kamoki IND	132	1	2025-26	All works will be completed
2	Emin Abad	Emin Abd-Gujranwala-II	132	1		
3	Shakar Garh	Narowal-Shakar Garh Isolator Bay	132	1		
4	New Sialkot	Line bay for Spare New SKT Line	132	1		

1.3.5. 11 kV Capacitors

Sr. No	Name of Grid Station	11kV Capacitors (MVAR)	Expected COD	Expected Status
1	Kamoki T-4	7.2	2025-26	All works will be completed
2	Theri Sansi T-3	2.4		
3	Shaheen Abad T-5	7.2		
4	Cantt Gujranwala T-1	4.8		
5	Hafiz Abad Road GRW T-3	4.8		

Sr. No	Name of Grid Station	11kV Capacitors (MVAR)	Expected COD	Expected Status
6	Hafiz Abad old T-3	2.4		
7	Emin Abad T-1	2.4		
8	Emin Abad T-2	4.8		
9	Ghuinkey T-4	7.2		
10	Noshehra Virkan T-4	7.2		
11	PR SKT T-3	4.8		
12	Fateh Pur T-1	6		
13	Wazirabad Industrial T-2	7.2		
14	Jalal Pur Bhattian T-4	7.2		
15	Smabrial T-3	4.8		
16	Pasrror Road SKT T-4	9.6		
17	Pasrur T-4	9.6		
18	Kolo Tarar T-5	4.8		
19	Head Rasool T-2	4.8		
20	Jalal Pur Bhattian T-3	6		

1.3.6. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	DC line from Narowal to Zafarwall	25	DC	Rail	2025-26	All works will be completed
2	In/Out for Shakar Garh from Norowal-zafarwal TL	17	DC	Rail		
3	132kV In/Out T/L from SKT-II G/S at Sahuwala to Pasrur T/L (DC from SKT-II to Pasrur)	17	DC	Rail	Spill Over to Next FY:2026-27	In FY: 2025-26 Civil work will be Initiated
4	132kV In/Out T/L from Sahowala G/S at Cantt SKT to Pasrur Road SKT T/L (Spared from Sahowala-Pasrur DC)	10	DC	Rail		
5	132kV In/Out T/L from SKT-II G/S at New Sialkot-Pasrur Road Sialkot T/L	20	DC	Rail		

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
6	132kV In/Out T/L from SKT-II G/S at Ghakhar-Daska Ind T/L	12	DC	Rail		
7	132kV In/Out T/L from SKT-II G/S at Lalapur-Pasror T/L	32	DC	Rail		
8	132kV In/Out T/L from SKT Bypass GRW G/S from Nandipur to Aroop T/L	5	DC	Rail	2025-26	All works will be completed
9	132kV In/Out T/L for Gondlanwala from 132 kV Shaheen Abad to College Road T/L	1	DC	Rail		
10	132kV In/Out T/L from 220 kV Head Faqirian G/S at Malikwal to Bhabra T/L	10	SC	Rail	Spill Over to Next FY:2026-27	In FY: 2025-26 Route Profile will be Approved
11	132kV In/Out T/L from 220 kV Head Faqirian G/S at Phalia-old Head Faqirian T/L	10	SC	Rail		
12	132kV In/Out T/L from Gujranwala II to Sheranwala Bagh to Pasrur Road GRW T/L	12	DC	Rail		
13	132kV In/Out T/L from Gujranwala II to Lahore Road Grw to G Magnolia T/L	10	DC	Rail		
14	132kV T/L from Gujranwala II to Emin Abad	8	SC	Rail		
15	132kV T/L from Kamonki Ind. at Gujranwala II G/S	12	SC	Rail		
16	132kV In/Out T/L from Gujranwala II to Their sansi to Citi Housing GRW T/L	10	DC	Rail		
17	132kV SC T/L from Kamoki Ind. at Emin Abad G/S	6	S/C	Rail		

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
18	132kV DC T/L for GT Road GRW from 132 kV Shaheen Abad	4	DC	Rail		In FY: 2025-26 Route Profile will be Approved and work will be initiated
19	132kV In/Out T/L for Dallowali from 132 kV Cantt SKT to Pasroor Road SKT T/L	4	DC	Rail		

1.3.7. Transmission Lines Re-conductoring

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	Reconductoring of 132kV Lala Musa to Kharian T/L	24	DC	Rail	2025-26	All works will be completed
2	Reconductoring of 132kV Sahuwala to Pasrur Road SKT with in/out for Ghuinkey	24.48	DC	Rail		
3	Wazirabad-Sambrial-Sahuwala T/Line from Wazirabad upto common point of Sahuwala-New Sialkot & Sahuwala to Sambrial	31.22	DC	Rail		
4	132KV Lala Musa-J.P. Jattan T/Line.	24.4	DC	Rail		
5	KSK-Narang-Narowal T/Line with In & out at Baddomalhi & HUBCO Power Plant	62.3	SC	Rail		
6	132KV T/Line from 220KV Sahuwala to 132 KV Kotli Loharan G/S.	20	DC	Rail		
7	T/Line from 220KV Gakhar to 132 KV Hafiz Abad Rd G/S.	20	S/C	Rail		
8	T/Line from 220KV Nokhar to 132 KV Q.D Singh G/S.	10.2	DC	Rail		

1.4. STG Projects 2026-27

1.4.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	G.T Road Gujranwala	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2026-27	All works will be completed
2	Dallowali	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
3	Ahmed Nagar	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill to Next FY:2027-28	In FY: 2026-27 grid work will be initiated
4	Daska Industrial-II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
5	Wahndo	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
6	Uggoki	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
7	Ojla Pul	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2026-27 Soil Investigation will be performed
8	Gujrat-III	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
9	M.B Din -II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		Spill to Next FY 2027-28
10	Badiana	3 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2026-27 Land will be acquired/procured
11	Chak Shahbaz	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		

1.4.2. 11 kV Capacitors

Sr. No	Name of Grid Station	11kV Capacitors (MVAR)	Expected COD	Expected Status
1	Sialkot City T-2	3.6	2026-27	All works will be completed
2	Daska Industrial T-4	9.6		
3	Kotli Loharan T-3	4.8		
4	Siranwali T-3	4.8		
5	Kot Agha T-3	4.8		
6	Khiali T-3	7.2		
7	Kamoki Industrial T-2	9.6		

1.4.3. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	132kV In/Out T/L from SKT-II G/S at Sahuwala to Pasrur T/L (DC from SKT-II to Pasrur)	17	DC	Rail	2026-27	All works will be completed
2	132kV In/Out T/L from Sahowala G/S at Cantt SKT to Pasrur Road SKT T/L (Spared from Sahowala-Pasrur DC)	10	DC	Rail		
3	132kV In/Out T/L from SKT-II G/S at New Sialkot-Pasrur Road Sialkot T/L	20	DC	Rail		
4	132kV In/Out T/L from SKT-II G/S at Ghakhar-Daska Ind T/L	12	DC	Rail		
5	132kV In/Out T/L from SKT-II G/S at Lalapur-Pasror T/L	32	DC	Rail		
6	132kV In/Out T/L from 220 kV Head Faqirian G/S at Malikwal to Bhabra T/L	10	SC	Rail		
7	132kV In/Out T/L from 220 kV Head Faqirian G/S at Phalia-old Head Faqirian T/L	10	SC	Rail		
8	132kV In/Out T/L from Gujranwala II to Sheranwala Bagh to Pasrur Road GRW T/L	12	DC	Rail		

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
9	132kV In/Out T/L from Gujranwala II to Lahore Road Grw to G Magnolia T/L	10	DC	Rail		
10	132kV T/L from Gujranwala II to Emin Abad	8	SC	Rail		
11	132kV T/L from Kamonki Ind. at Gujranwala II G/S	12	SC	Rail		
12	132kV In/Out T/L from Gujranwala II to Their sansi to Citi Housing GRW T/L	10	DC	Rail		
13	132kV SC T/L from Kamoki Ind. at Emin Abad G/S	6	S/C	Rail		
14	132kV DC T/L for GT Road GRW from 132 kV Shaheen Abad	4	DC	Rail		
15	132kV In/Out T/L for Dallowali from 132 kV Cantt SKT to Pasroor Road SKT T/L	4	DC	Rail		
16	132kV In/Out T/L for Ahmed Nagar G/S from Fateh Pur to Gakhar T/L	10	DC	Rail	Spill over to Next FY:2027-28	In FY: 2026-27 Route Profile will be Approved
17	132kV In/Out T/L for Daska Ind. II G/S from Sialkot-II- Gakhar T/L (Existing Ghakkhar-Daska Ind)	5	DC	Rail		
18	132kV In/Out T/L for Wando G/S from K.S.K to Badu Malhi TL	23	DC	Rail		
19	132kV In/Out T/L for Uggoki from 132 kV Sahuwala -NEW-SKT T/L	3	DC	Rail		

1.4.4. Transmission Lines Re-conductoring

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	Reconductoring of DC T/L Pasrur Road Skt-Cantt Sialkot	19	DC	Rail	Spill Over To Next FY:2027-28	In FY:2026-27 Profile will be approved and civil work will be initiated
2	Reconductoring of DC T/L from Pasrur Road Sialkot to Lalapur & remaining portion of Ghuinkey-Pasrur	62	DC	Rail		
3	Reconductoring of DC T/L New Skt- Pasrur Road Sialkot & New Sialkot to City Sialkot & to Pasrur Road Sialkot	26	DC	Rail		

1.5. STG Project 2027-28

1.5.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Ahmed Nagar	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2027-28	All works will be completed
2	Daska Industrial-II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
3	Wahndo	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
4	Uggoki	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill to Next FY:2028-29	In FY: 2027-28 grid work will be executed
5	Ojla Pul	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2027-28 grid work will be initiated
6	Gujrat-III	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
7	M.B Din -II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		Spill to Next FY: 2028-29
8	Badiana	3 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2027-28 grid work will be initiated
9	Chak Shahbaz	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		Spill to Next FY: 2028-29

1.5.2. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	132kV In/Out T/L for Ahmed Nagar G/S from Fateh Pur to Gakhar T/L	10	DC	Rail	2027-28	All works will be completed
2	132kV In/Out T/L for Daska Ind. II G/S from Sialkot-II- Gakhar T/L (Existing Ghakkhar-Daska Ind)	5	DC	Rail		
3	132kV In/Out T/L for Wando G/S from K.S.K to Badu Malhi TL	23	DC	Rail		
4	132kV In/Out T/L for Uggoki from 132 kV Sahuwala -NEW-SKT T/L	3	DC	Rail	Spill over to Next FY:2028-29	In FY: 2027-28 Soil investigation will be performed
5	132kV In/Out T/L for Ojla Pul G/S from 220kV Ghakhar-220kV New Gujrat T/L	5	DC	Rail		In FY: 2027-28 Route Profile will be Approved
6	In&Out of DC 132kV DC T/L from SKT-II to Lalapur-Pasrur at Badiana Grid	5	DC	Rail		
7	132kV In/Out T/L for Gujrat-III from 132 kV Lala Musa to Gujrat-1 T/L	5	DC	Rail		
8	132kV SC T/L form Gujrat-1 to Mangowal	13	DC	Rail		
9	132kV SC T/L form JPJ to Awan Sharif	21	S/C	Lynx		
10	132kV SC T/L form Bhimber to Awan Sharif	25	S/C	Lynx		
11	132kV SC T/L form Sukhiki to Pindi Bhattian	27.5	S/C	Lynx		In FY: 2027-28 Route Profile will be Approved

1.5.3. Transmission Lines Re-Conductoring

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	Reconductoring of DC T/L Pasrur Road Skt-Cantt Sialkot	19	DC	Rail	2027-28	All Work will be completed
2	Reconductoring of DC T/L from Pasrur Road Sialkot to Lalapur & remaining portion of Ghuinkey-Pasrur	62	DC	Rail		
3	Reconductoring of DC T/L New Skt- Pasrur Road Sialkot & New Sialkot to City Sialkot & to Pasrur Road Sialkot	26	DC	Rail		

1.6. STG Projects 2028-29

1.6.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Uggoki	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2028-29	All works will be completed
2	Ojla Pul	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
3	Badiana	3 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
4	Gujrat-III	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill to Next FY:2029-30	In FY: 2028-29 grid work will be executed
5	M.B Din -II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2028-29 Soil Investigation will be performed
6	Chak Shahbaz	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
7	Kamoki-II	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		In FY: 2028-29 grid work will be initiated
8	Citi Housing Silakot	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		

1.6.2. Line Bays

Sr. No.	Grid Name	Circuit Name	Voltage	No. of line bays	Expected COD	Expected Progress
1	Both Grids	Sukheki-Pindi Bhattian	132	2	2028-29	All works will be completed
2	Bhimber	Bhimber-Awan sharif	132	1		
3	Both Grids	JPJ-Awan sharif	132	2		

1.6.3. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	132kV In/Out T/L for Uggoki from 132 kV Sahuwala -NEW-SKT T/L	3	DC	Rail	2028-29	All works will be completed
2	132kV In/Out T/L for Ojla Pul G/S from 220kV Ghakhar-220kV New Gujrat T/L	5	DC	Rail		
3	In&Out of DC 132kV DC T/L from SKT-II to Lalapur-Pasrur at Badiana Grid	5	DC	Rail		
4	132kV SC T/L form Gujrat-1 to Mangowal	13	DC	Rail		
5	132kV SC T/L form JPJ to Awan Sharif	21	S/C	Lynx		
6	132kV SC T/L form Bhimber to Awan Sharif	25	S/C	Lynx		
7	132kV SC T/L form Sukhiki to Pindi Bhattian	27.5	S/C	Lynx		
8	132kV In/Out T/L for Gujrat-III from 132 kV Lala Musa to Gujrat-1 T/L	5	DC	Rail	Spill over to Next FY:2029-30	In FY: 2028-29 work is executed
9	132kV In/Out T/L for Kamoki-II from Kala Shah kaku -Kamoki T/L	5	DC	Rail		
10	132kV In/Out T/L for Citi housing Sialkot from Ghuinki-Pasror T/L	5	DC	Rail		

1.7. STG Projects 2029-30

1.7.1. New Grids

Sr. No	Name of Grid Station	Description	Expected COD	Expected Progress
1	Kamoki-II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	2029-30	All works will be completed
2	Citi Housing Silakot	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
3	Gujrat-III	4 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
4	M.B Din -II	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay	Spill over to Next FY:2030-31	In FY: 2029-30 Grid Work is initiated
5	Chak Shahbaz	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
6	Kalay Ki Mandi	2 X 31.5/40 MVA Power Transformer 2 Line Bay,2 TF Bay, 1 PT Bay		
7	Vanikay Tarar	1 X 20/26 MVA Power Transformer 2 Line Bay,1 TF Bay, 1 PT Bay		

1.7.2. New Transmission Lines

Sr. No	Name & Description	Length (km)	Circuit Type	Conductor	Expected COD	Expected Progress
1	132kV In/Out T/L for Gujrat-III from 132 kV Lala Musa to Gujrat-1 T/L	5	DC	Rail	2028-29	All works will be completed
2	132kV In/Out T/L for Kamoki-II from Kala Shah kaku -Kamoki T/L	5	DC	Rail		
3	132kV In/Out T/L for Citi housing Sialkot from Ghuinki-Pasror T/L	5	DC	Rail		
4	132kV In/Out T/L from Chak Shehbaz G/S from Malikwal-Bhabra (New Head Faqeerian-Malikwal)	7	DC	Rail	Spill over to Next FY:2030-31	In FY: 2029-30 work is initiated
5	132kV In/Out T/L for MBD-II G/S fromMBD-Hellan TL	7	DC	Rail		
6	132kV In/Out T/L for Kaley ki Mandi from 132 kV Nokhar to Hafiz Abad-II T/L	10	DC	Rail		
7	132kV In/Out T/L for Vanikey Tarar G/S from Nokhar to Kolo Tarar T/L	12	DC	Rail		

Annex-09

Project wise costs of STG Plan

1. STG PLAN COSTING

1.1. STG Costing 2024-25

1.1.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)	
				31.5/40	20/26	10/13				No.	MVAR		2023-24 (Provisional)	2024-25
1	New Grid	Essa	132	2			2	1	2	2	9.6		0	1117
2	New Grid	Garden Town	132	2			2	1	2	2	9.6		0	1117
3	New Grid	G-Magnolia	132	2			2	1	2	2	9.6		921	46
4	Augmentation	Emin Abad	132	1									5	371.1
5	Augmentation	Their Sansi	132	1									5	371.1
6	Augmentation	Cantt Gujranwala	132	1									5	371.1
7	Augmentation	Hafiz Abad Road GRW	132	1									5	371.1
8	Augmentation	Hafiz Abad old	132	1									5	371.1
9	Augmentation	Aroop	132	1									0	412.3
10	Augmentation	Aroop	132	1									0	412.3
11	Augmentation	New Silakot	132	1									0	412.3
12	Augmentation	Wazir Abad	132	1									0	412.3
13	Augmentation	Fatehpur	132	1									0	412.3
14	Augmentation	Mangowal	132		1								0	121.4
15	Extension	Kamoki	132		1		1						5	145.3
16	Extension	Cantt Sialkot	132		1		1						5	145.3
17	Extension	Narowal	132		1		1						5	145
18	Extension	Zafarwal	132		1		1						5	145.3

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)	
				31.5/40	20/26	10/13				No.	MVAR		2023-24 (Provisional)	2024-25
19	Extension	Shaheen Abad	132		1		1						5	145.3
20	Extension	Ghuinkey	132		1		1						5	145.3
21	Extension	Noshehra Virkan	132		1		1						5	145.3
22	Extension	Jalal Pur Bhattian	132		1		1						5	145.3
23	Extension	Pasrror Road SKT	132	1			1						5	439.5
24	Extension	Kolo Tarar	132			1	1						5	110.0
25	Extension	Pasrur	132	1			1						5	439.5
26	Extension	Hellan	132			1	1						0	150
27	Extension	Phalia	132			1	1						0	150
28	Extension	Sambrial	132		1		1						0	194.3
29	Extension	Wazirabad Industrial	132		1		1						0	194.3
30	Extension	Siranwali	66			1	1						5	110.0
31	Extension	Head Rasool	66			1	1						5	110.0
32	Caps	Cantt Sialkot T-2	132							1	2.4		2	3.5
33	Caps	Gujrat-1 T-3	132							1	4.8		2	9.0
34	Caps	Gujrat-2 T-2	132							1	3.6		2	6.2
35	Caps	Zafarwal T-2	132							1	4.8		2	9.0
36	Caps	Fatehpur T-4	132							1	7.2		2	14.5
37	Caps	College Road T-5	132							1	9.6		2	19.9
38	Caps	Qila Deedar Singh T-5	132							1	4.8		2	9.0
39	Caps	Kot Agha T-1	132							1	4.8		2	9.0
40	Caps	Kharian T-2	132							1	7.2		2	14.5

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)	
				31.5/40	20/26	10/13				No.	MVAR		2023-24 (Provisional)	2024-25
41	Caps	Cantt Sialkot T-4	132							1	7.2		2	14.5
42	Caps	Narowal T-4	132							1	7.2		2	14.5
43	Caps	Chian Wali T-4	132							1	4.8		2	9.0
44	Caps	Zafarwal T-4	132							1	7.2		2	14.5
45	Caps	MBD T-1	132							1	4.8		0	11.0
46	Caps	Aroop T-4	132							1	6		0	13.7
47	Caps	Aroop T-1	132							1	4.8		0	11.0
48	Caps	Hellan T-4	132							1	4.8		0	11.0
49	Caps	Phalia T-3	132							1	4.8		0	11.0
50	Caps	New Silakot T-4	132							1	2.4		0	5.5
51	Caps	Wazirabad T-1	132							1	2.4		0	5.5
52	Caps	Sambrial T-4	132							1	7.2		0	16.5
53	Caps	Mangowal T-2	132							1	3.6		0	8.2
54	Line Bays	Mangowal	132						2				10	21.5
55	Line Bays	Narowal	132						2				10	18
56	Line Bays	Zafarwal	132						3				15	20
57	Line Bays	Shakar Garh	132						2				10	24.2
58	Line Bays	Bhimber	132						1				5	12.2
59	Line Bays	Wazirabad	132						1				5	12.2
60	Line Bays	Hellan	132						4				0	67.4
61	Line Bays	Lala Musa	132						1				0	44.8
62	Line Bays	Jalal Pur Jattan	132						1				0	44.8
Total				**18**	**11**	**5**	**23**	**3**	**23**	**28**	**145.2**	**0.0**	**1,092.0**	**9,884.6**

1.1.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)	
						2023-24	2024-25
1	New Line	132kV In/Out T/L for Shahtaj Power House Phalia - Mandi T/L.	16	DC	Rail	203.7	87.3
2	New Line	DC T/L from 220 kV Gujrat G/S at Hellan & IN-OUT of Mangla-Khutiala Sheikhan TL at Hellan	36	DC	Rail	97.2	550.8
3	New Line	132 kV In/Out TL for Essa from Narowal-Shakar garh Line	0.993	DC	Rail	0.0	37.2
4	New Line	132 kV In/Out TL for Garden Town from Aroop to Gakhar Line	3	DC	Rail	0.0	667.8
5	Reconductoring	Reconductoring of College Road to Shaheen Abad T/L	6	DC	Rail	16.7	150.5
6	Reconductoring	Reconductoring of 132kV Lala Musa to Gujrat-1 T/L	14	DC	Rail	36.3	326.9
Total			**75.993**			**353.9**	**1820.5**

1.2. STG Costing 2025-26

1.2.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)	
				31.5/40	20/26	10/13				No.	MVAR		2024-25	2025-26
1	New Grid	SKT Bypass GRW (GIS)	132	2			2	1	2	2	9.6	220.0	267.2	1481.3
2	New Grid	Gondlanwala	132	2			2	1	2	2	9.6	210.4	257.5	1053
3	Augmentation	Sialkot City	132	1									0	363
4	Extension	Daska Industrial	132	1			1						0	468.3
5	Extension	Kotli Loharan	132			1	1						0	141.6
6	Extension	Kot Agha	132			1	1						0	141.6
7	Extension	Khiali	132		1		1						0	159.7
8	Extension	Kamoki Industrial	132	1			1						0	468.3
9	Caps	Kamoki T-4								1	7.2		0	16
10	Caps	Theri Sansi T-3								1	2.4		0	5.3
11	Caps	Shaheen Abad T-5								1	7.2		0	16
12	Caps	Cantt Gujranwala T-1								1	4.8		0	10.6
13	Caps	Hafiz Abad Road GRW T-3								1	4.8		0	10.6
14	Caps	Hafiz Abad old T-3								1	2.4		0	5.3
15	Caps	Emin Abad T-1								1	2.4		0	5.3
16	Caps	Emin Abad T-2								1	4.8		0	10.6
17	Caps	Ghuinkey T-4								1	7.2		0	16

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)	
				31.5/40	20/26	10/13				No.	MVAR		2024-25	2025-26
18	Caps	Noshehra Virkan T-4								1	7.2		0	16
19	Caps	PR SKT T-3								1	4.8		0	10.6
20	Caps	Fateh Pur T-1								1	6		0	13.3
21	Caps	Wazirabad Industrial T-2								1	7.2		0	16
22	Caps	Jalal Pur Bhattian T-4								1	7.2		0	16
23	Caps	Smabrial T-3								1	4.8		0	10.6
24	Caps	Pasrror Road SKT T-4								1	9.6		0	21.3
25	Caps	Pasrur T-4								1	9.6		0	21.3
26	Caps	Kolo Tarar T-5								1	4.8		0	10.6
27	Caps	Head Rasool T-2								1	4.8		0	10.6
28	Caps	Jalal Pur Bhattian T-3								1	6		0	13.3
29	Line Bay	Emin Abad							1				0	31.5
30	Line Bay	Emin Abad							1				0	31.5
31	Line Bay	Shakar Garh							1				0	31.5
32	Line Bay	New Sialkot							1				0	31.5
Total				**7**	**1**	**2**	**9**	**2**	**8**	**24**	**134.4**	**430.4**	**524.7**	**4,658.1**

1.2.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)		
						2023-24	2024-25	2025-26
1	New Line	DC line from Narowal to Zafarwall	25	DC	Rail	0	226.9	1285.6
2	New Line	In/Out for Shakar Garh from Norowal-zafarwal TL	17	DC	Rail	0	154.3	874.2
3	New Line	132kV In/Out T/L from SKT Bypass GRW G/S from Nandipur to Aroop T/L	5	DC	Rail	0	0	302.5
4	New Line	132kV In/Out T/L for Gondlanwala from 132 kV Shaheen Abad to College Road T/L	1	DC	Rail	0	0	60.5
5	Reconductoring	Reconductoring of 132kV Lala Musa to Kharian T/L	24	DC	Rail	58.9	176.8	353.6
6	Reconductoring	Reconductoring of 132kV Sahuwala to Pasrur Road SKT with in/out for Ghuinkey	24.48	DC	Rail	50.4	151.2	302.4
7	Reconductoring	Wazirabad-Sambrial- Sahuwala T/Line from Wazirabad upto common point of Sahuwala-New Sialkot & Sahuwala to Sambrial	31.22	DC	Rail	45.0	135.0	270.0
8	Reconductoring	132KV Lala Musa-J.P. Jattan T/Line.	24.4	DC	Rail	50.4	151.2	302.4
9	Reconductoring	KSK-Narang-Narowal T/Line with In & out at Baddomalhi & HUBCO Power Plant	62.3	SC	Rail	160.2	480.6	961.2
10	Reconductoring	132KV T/Line from 220KV Sahuwala to 132 KV Kotli Loharan G/S.	20	DC	Rail	73.9	221.7	443.4
11	Reconductoring	T/Line from 220KV Gakhar to 132 KV Hafiz Abad Rd G/S.	20	S/C	Rail	36.3	108.9	217.8
12	Reconductoring	T/Line from 220KV Nokhar to 132 KV Q.D Singh G/S.	10.2	DC	Rail	20.0	60	120.0
Total			**264.6**			**495.1**	**1866.6**	**5493.7**

1.3. STG Costing 2026-27

1.3.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)		
				31.5/40	20/26	10/13				No.	MVAR		2024-25	2025-26	2026-27
1	New Grid	G.T Road Gujranwala	132	2			2	1	2	2	9.6	402	402	49	1632.4
2	New Grid	Dallowali	132	2			2	1	2	2	9.6	176.6	0	225.6	1161.2
3	Caps	Sialkot City T-2	132							1	3.6		0	0	8.8
4	Caps	Daska Industrial T-4	132							1	9.6		0	0	23.4
5	Caps	Kotli Loharan T-3	132							1	4.8		0	0	11.7
6	Caps	Siranwali T-3	132							1	4.8		0	0	11.7
7	Caps	Kot Agha T-3	132							1	4.8		0	0	11.7
8	Caps	Khiali T-3	132							1	7.2		0	0	18
9	Caps	Kamoki Industrial T-2	132							1	9.6		0	0	23.4
Total				**4**	**0**	**0**	**4**	**2**	**4**	**11**	**63.6**	**578.6**	**402.0**	**274.6**	**2,901.9**

1.3.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)		
						2024-25	2025-26	2026-27
1	New Line	132kV In/Out T/L from SKT-II G/S at Sahuwala to Pasrur T/L (DC from SKT-II to Pasrur)	17	DC	Rail	51	102	186.7
2	New Line	132kV In/Out T/L from Sahowala G/S at Cantt SKT to Pasrur Road SKT T/L (Spared from Sahowala-Pasrur DC)	10	DC	Rail	30	60	109.8
3	New Line	132kV In/Out T/L from SKT-II G/S at New Sialkot-Pasrur Road Sialkot T/L	20	DC	Rail	60	120	219.6
4	New Line	132kV In/Out T/L from SKT-II G/S at Ghakhar-Daska Ind T/L	12	DC	Rail	35.9	71.9	131.8
5	New Line	132kV In/Out T/L from SKT-II G/S at Lalapur-Pasror T/L	32	DC	Rail	95.8	191.7	351.4
6	New Line	132kV In/Out T/L from 220 kV Head Faqirian G/S at Malikwal to Bhabra T/L	10	SC	Rail	0	7	39.6
7	New Line	132kV In/Out T/L from 220 kV Head Faqirian G/S at Phalia-old Head Faqirian T/L	10	SC	Rail	0	7	39.6
8	New Line	132kV In/Out T/L from Gujranwala II to Sheranwala Bagh to Pasrur Road GRW T/L	12	DC	Rail	0	8.4	47.5
9	New Line	132kV In/Out T/L from Gujranwala II to Lahore Road Grw to G Magnolia T/L	10	DC	Rail	0	7	39.6
10	New Line	132kV T/L from Gujranwala II to Emin Abad	8	SC	Rail	0	6	31.7
11	New Line	132kV T/L from Kamonki Ind. at Gujranwala II G/S	12	SC	Rail	0	59.9	339.4
12	New Line	132kV In/Out T/L from Gujranwala II to Their sansi to Citi Housing GRW T/L	10	DC	Rail	0	29.9	169.7
13	New Line	132kV SC T/L from Kamoki Ind. at Emin Abad G/S	6	S/C	Rail	0	18	101.8

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)		
						2024-25	2025-26	2026-27
14	New Line	132kV DC T/L for GT Road GRW from 132 kV Shaheen Abad	4	DC	Rail	0	12	67.9
15	New Line	132kV In/Out T/L for Dallowali from 132 kV Cantt SKT to Pasroor Road SKT T/L	4	DC	Rail	0	12	67.9
Total			**177**			**272.5**	**711.8**	**1943.9**

1.4. STG Costing 2027-28

1.4.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)			
				31.5/40	20/26	10/13				No.	MVAR		2024-25	2025-26	2026-27	2027-28
1	New Grid	Wahndo	132	2			2	1	2	2	9.6	16.5	16.5	51	512	768.2
2	New Grid	Ahmed Nagar	132	2			2	1	2	2	9.6	21.5	21.5	0	51	1280.2
3	New Grid	Daska Industrial-II	132	2			2	1	2	2	9.6	176.6	176.6	0	51	1280.2
4	Line Bay	Both Grids							2				0	0	0	76.1
5	Line Bay	Bhimber							1				0	0	0	38.1
6	Line Bay	Both Grids							2				0	0	0	76.1
Total				**6**	**0**	**0**	**6**	**3**	**11**	**6**	**28.8**	**214.7**	**214.7**	**51.0**	**613.9**	**3,518.9**

1.4.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)	
						2026-27	2027-28
1	New Line	132kV In/Out T/L for Ahmed Nagar G/S from Fateh Pur to Gakhar T/L	10	DC	Rail	109.8	622.2
2	New Line	132kV In/Out T/L for Daska Ind. II G/S from Sialkot-II- Gakhar T/L (Existing Ghakkhar-Daska Ind)	5	DC	Rail	54.9	311.1
3	New Line	132kV In/Out T/L for Wando G/S from K.S.K to Badu Malhi TL	23	DC	Rail	252.6	1431.2
4	Reconductoring	Reconductoring of DC T/L Pasrur Road Skt-Cantt Sialkot	19	DC	Rail	97.4	876.3
5	Reconductoring	Reconductoring of DC T/L from Pasrur Road Sialkot to Lalapur & remaining portion of Ghuinkey-Pasrur	62	DC	Rail	317.7	2859.4
6	Reconductoring	Reconductoring of DC T/L New Skt- Pasrur Road Sialkot & New Sialkot to City Sialkot & to Pasrur Road Sialkot	26	DC	Rail	133.2	1199.1
Total			**145**			**965.6**	**7299.3**

1.5. STG Costing 2028-29

1.5.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)			
				31.5/40	20/26	10/13				No.	MVAR		2025-26	2026-27	2027-28	2028-29
1	New Grid	Uggoki	132	2			2	1	2	2	9.6	176.6	177	53.2	564.0	847.1
2	New Grid	Ojla Pul	132	2			2	1	2	2	9.6	176.6	176.6	0	53.2	1411.1
3	New Grid	Badiana	132	2			2	1	2	2	9.6	176.64	0	177	53	1411.1
Total				**6**	**0**	**0**	**6**	**3**	**6**	**6**	**28.8**	**529.9**	**353.3**	**229.8**	**670.3**	**3,669**

1.5.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)		
						2026-27	2027-28	2028-29
1	New Line	132kV In/Out T/L for Uggoki from 132 kV Sahuwala - NEW-SKT T/L	3	DC	Rail	36.2	72.5	132.9
1	New Line	132kV In/Out T/L for Ojla Pul G/S from 220kV Ghakhar-220kV New Gujrat T/L	5	DC	Rail	0	60.4	342.2
2	New Line	In&Out of DC 132kV DC T/L from SKT-II to Lalapur-Pasrur at Badiana Grid	5	DC	Rail	0	60.4	342.2
4	New Line	132kV SC T/L form Gujrat-1 to Mangowal	13	DC	Rail	0	157	889.8
5	Stringing	132kV SC T/L form JPJ to Awan Sharif	21	S/C	Lynx	0	20.3	182.6
6	New Line	132kV SC T/L form Bhimber to Awan Sharif	25	S/C	Lynx	0	36.2	205.3
7	Stringing	132kV SC T/L form Sukhiki to Pindi Bhattian	27.5	S/C	Lynx	0	26.6	239.2
Total			**99.5**			**36.2**	**433.4**	**2334.3**

1.6. STG Costing 2029-30

1.6.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)				
				31.5/40	20/26	10/13				No.	MVAR		2025-26	2026-27	2027-28	2028-29	2029-30
1	New Grid	Kamoki-II	132	2			2	1	2	2	9.6	176.6	0	176.6	0	55.6	1555.1
2	New Grid	Citi Housing Silakot	132	2			2	1	2	2	9.6	0.0	0	0	0	55.6	1555.1
3	New Grid	Gujrat-III	132	2			2	1	2	2	9.6	378.2	378.2	0	55.6	622	933.1
Total				**6**	**0**	**0**	**6**	**3**	**6**	**6**	**28.8**	**554.8**	**378.2**	**176.6**	**55.6**	**733.1**	**4,043.4**

1.6.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)		
						2027-28	2028-29	2029-30
1	New Line	132kV In/Out T/L for Gujrat-III from 132 kV Lala Musa to Gujrat-1 T/L	5	DC	Rail	66.4	132.9	243.6
2	New Line	132kV In/Out T/L for Kamoki-II from Kala Shah kaku - Kamoki T/L	5	DC	Rail	0	66.4	376.5
3	New Line	132kV In/Out T/L for Citi housing Sialkot from Ghuinki-Pasror T/L	5	DC	Rail	0	19.9	112.9
Total			**15**			**66.4**	**219.2**	**733.0**

1.7. STG Costing 2030-31

1.7.1. STG Grids Plan Costing

Sr. No	Type	Name & Description	Voltage (kV)	Power Transformer			TF Bay	PT Bay	Line Bay	11 kV Capacitors		Cost of Land (MRs)	Investment (Million)			
				31.5/40	20/26	10/13				No.	MVAR		2025-26	2026-27	2029-30	2030-31
1	New Grid	M.B Din -II	132	2			2	1	2	2	9.6	176.6	176.6	0	58.2	1552.5
2	New Grid	Chak Shahbaz	132	2			2	1	2	2	9.6	0.0	0	176.6	58.2	1552.5
3	New Grid	Kalay Ki Mandi	132	2			2	1	2	2	9.6		0	0	58.2	1552.5
4	New Grid	Vanikay Tarar	132		1		1	1	2	1	7.2	378.2	0	0	51.2	746.3
Total				**6**	**1**	**0**	**7**	**4**	**8**	**7**	**36**	**554.8**	**176.6**	**176.6**	**225.9**	**5,403.7**

1.7.2. STG Transmission Lines Plan Costing

Sr. No	Scope	Name & Description	Length (km)	Circuit Type	Conductor	Investment (MRs)	
						2029-30	2030-31
1	New Line	132kV In/Out T/L from Chak Shehbaz G/S from Malikwal-Bhabra (New Head Faqeerian-Malikwal)	7	DC	Rail	93	527
2	New Line	132kV In/Out T/L for MBD-II G/S fromMBD-Hellan TL	7	DC	Rail	93	527
3	New Line	132kV In/Out T/L for Kaley ki Mandi from 132 kV Nokhar to Hafiz Abad-II T/L	10	DC	Rail	132.9	752.9
4	New Line	132kV In/Out T/L for Vanikey Tarar G/S from Nokhar to Kolo Tarar T/L	12	DC	Rail	47.8	271
Total			**36**			**366.7**	**2078**

Annex-10

Detail of Civil Works Plan

Sr. #	Description	Tentative Cost	Year
1	Construction of M&T Workshop D.C Colony GEPCO, Gujranwala	250	2024-25
2	Renovation of Existing GEPCO Offices (Under all Circles & GEPCO HQ)	70	
3	Construction of New & Fallen B/Walls	5	
4	Construction of SDO Office No. 1, 2 & 3 (Single Storey) at 132 kV Grid Station Zafarwal	70	
5	Renovation of GEPCO Residential Colonies	5	
6	Construction of SDO Office Bohpalwala	15	
7	Constructio of 01-Nos. FLAT B-Type situated at DC Colony, Gujranwala	70	
8	Construction of 01-Nos. FLAT B-Type situated at MB Din.	80	
9	Construction of new GEPCO Circle Office Mandi Bahauddin and residences at MBD	100	
10	Construction of PMU, TS Directorate, MIRAD Office sitatued at City Housing, Gujranwala	15	
11	Constructio of Nandipur Academy and Hostel Block at GEPCO Nandipur Training and Development Center, Gujranwala	30	
12	Construction of SDO Office Wahndo	15	
13	Construction of XEN (M&T) office M.B. Din	20	
14	Construction of XEN/ RO office Malikwal	70	
15	Emergency nature Work/ Limited enquiry basis Civil Works	20	
Total		**835**	

Sr. #	Description	Tentative Cost	Year
1	Construction/ Shifting of GEPCO Headquarter building	50	2025-26
3	Construction of GEPCO Computer Center Narowal	50	
4	Construction of 01-Nos. FLAT set situated at City Housing, Gujranwala	100	
5	Renovation of Existing GEPCO Offices (Under all Circles & GEPCO HQ)	120	
6	Construction of New & Fallen B/Walls	5	
7	Renovation of GEPCO Residential Colonies	5	
8	Construction of PMU, TS Directorate, MIRAD Office sitatued at City Housing, Gujranwala	50	
9	Constructio of Nandipur Academy and Hostel Block at GEPCO Nandipur Training and Development Center, Gujranwala	90	
10	Construction of 1 set of Category IV Flats at 132 kV Essa Narowal	30	
11	Construction of 1 set of Category IV Flats at 132 kV Garden Town Gujranwala	30	
12	Construction of 1 set of Category III Flats at 132 kV Garden Town Gujranwala	40	

Sr. #	Description	Tentative Cost	Year
13	Construction of 1 set of Category IV Flats at 132 kV Eminabad Industrial	30	2025-26
14	Construction of 1 set of Category IV Flats at 132 kV Wando Grid	30	
15	Emergency nature Work/ Limited enquiry basis Civil Works	20	
Total		**650**	

Sr. #	Description	Tentative Cost	Year
1	Construction / Shifting of GEPCO Headquarter bilding	80	2026-27
2	Construction of GEPCO Gymkhana situated at City Housing, Gujranwala	168	
3	Construction of SDO Office Rirkabala	15	
4	Construction of SDO Office Tanda	15	
5	Construction of SDO Office Gojra	18	
6	Construction of SDO Office Qila Kalar Wala	18	
7	Construction of SDO Office Tatle Ali & N/ Virkan	18	
8	Construction of SDO Office Rang Pura Sialkot	18	
9	Construction of 1-Set (06-Nos.) Flats Category-IV at GEPCO colony Shahabpura, Sialkot	46	
10	Renovation of Existing GEPCO Offices (Under all Circles & GEPCO HQ)	120	
11	Construction of New & Fallen B/Walls	5	
12	Renovation of GEPCO Residential Colonies	5	
13	Construction of SDO Office Karianwala	18	
14	Emergency nature Work/ Limited enquiry basis Civil Works	20	
Total		**484**	

Sr. #	Description	Tentative Cost	Year
1	Construction/ Shifting of GEPCO Headquarter building	200	2027-28
2	Construction of GEPCO Gymkhana situated at City Housing, Gujranwala	50	
3	Renovation of Existing GEPCO Offices (Under all Circles & GEPCO HQ)	120	
4	Construction of New & Fallen B/Walls	5	
5	Renovation of GEPCO Residential Colonies	5	
6	Construction of 02-Set (12-Nos.) Flats Category-IV at MB Din & Wahndo	120	
7	Emergency nature Work/ Limited enquiry basis Civil Works	30	
Total		**530**	

Sr. #	Description	Tentative Cost	Year
1	Construction/ Shifting of GEPCO Headquarter building	50	2028-29
2	Renovation of Existing GEPCO Offices (Under all Circles & GEPCO HQ)	120	
3	Construction of New & Fallen B/Walls	10	
4	Renovation of GEPCO Residential Colonies	10	
5	Construction of 02-Set (12-Nos.) Flats Category-IV at Chianwali & DC Colony	120	
6	Construction of 02-Set (12-Nos.) Flats Category-IV at Pasrur & Gurjat-1	120	
7	Emergency nature Work/ Limited enquiry basis Civil Works	30	
Total		**460**	