

TRIBAL ELECTRIC SUPPLY COMPANY PESHAWAR

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OFFICE OF THE
 Chief Executive Officer
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No 1704-10 /CEO/TESCO

Dated: ۱۴ / ۳ / 2023

**The Registrar,
 National Electric Power Regulatory Authority (NEPRA),
 NEPRA Tower, Ataturk Avenue (East), G5/1,
 Islamabad.**

TARIFF (DEPARTMENT)

Dir (T-I)..... Dir (T-II).....
 Dir (T-III)..... Dir (T-IV).....
 Dir (T-V)..... Addl. Dir (RE).....

Date: 22-03-23

**SUBJECT: PETITION FOR DETERMINATION OF USE OF SYSTEM CHARGES
 (UoSC).**

In pursuance of regulation 7 of NEPRA Open Access (Interconnection and Wheeling of Electric Power) Regulation, 2022 whereby, it was directed to all distribution companies to prepare and submit a separate petition to the Honorable Authority for determination of their Use of System Charges. TESCO is pleased to submit the attached Use of System Charges petition for kind consideration and approval of Authority. It may kindly be noted that the instant petition includes Cost of Service Study of TESCO for FY 2022-2023 (Annex-I), thereto forming fundamental basis for the same.

For any clarification or additional information or any other matter relating to the said petition, **Mr. Hammad Ameer Hashmi (Director General MIRAD), TESCO (0330-5059090, Email: dgmiradtesco@gmail.com)** is designated as focal person.

DA as Above

**Chief Executive Officer
 TESCO Peshawar**

CC.

1. Director General, MIRAD TESCO Peshawar.
2. Director Finance, TESCO Peshawar.
3. Director Commercial, TESCO Peshawar.
4. Dy. Director Finance, MIRAD TESCO Peshawar.
5. Company Secretary, TESCO.
- Master File

TARIFF (DEPARTMENT)
 Dir (T-I)..... Dir (T-II).....
 Dir (T-III)..... Dir (T-IV).....
 Dir (T-V)..... Addl. Dir (RE).....
 Date: 21-03-23

Forwarded please:	
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REGISTERED OFFICE
 REGISTRATION NO: 24118
 Date: 24/3/23

TRIBAL AREAS ELECTRIC SUPPLY COMPANY



Petition for Determination of Use of System Charges

TESCO H/Q WAPDA HOUSE SHAMI ROAD

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1. Petition Summary

1.1. Details of the Petitioner

1.1.1 Introduction

Tribal Areas Electric Supply Company (TESCO) incorporated as a Public Limited Company on 3rd July 2002, is responsible for the delivery of electricity to 445,217 consumers of all 7 Merged Tribal Districts formerly known as FATA and all FR-Regions of Pakistan as set out in TESCO's Distribution License no. 22/DL/2013, granted by NEPRA under the NEPRA Act on August 12, 2013. The major objectives of the company include ensuring uninterrupted and stable power supply to all its customers along with state-of-the-art customer care as well as establishing and operating reliable electricity distribution networks.

Under the provisions of Regulation of Generation, Transmission & Distribution of Electric Power (Amendment) Act, 2018, TESCO is deemed to hold a "Power Supply" License to perform the function of sale of electric power in addition to existing licensee as Distribution Company. The Distribution function now shall, under Section 20, be limited to ownership, operation, management or control of distribution facilities for the movement or delivery to consumers of electric power.

After the approval of Competitive Trading and Bilateral Contracts Market (CTBCM) by the honorable Authority on November 12, 2020 several implementation actions were taken. This included issuance of License for the Market Operator (MO) promulgation of several Regulations to ensure smooth implementation of CTBCM and create balance in roles, rights and obligations of the stakeholders in the CTBCM.

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1.1.2 License Details:

TESCO is a licensed public utility responsible for Distribution & Supply of electricity to its consumers. TESCO has been granted a Distribution License bearing No. 22/DL/2013 by National Electric Power Regulatory Authority (NEPRA) on August 12, 2013, which will expire on 11th August 2033. Under Sub-section 23E (1) of NEPRA Act, 1997 (Amended Act of 2018), TESCO is deemed to hold a license for supply of electric power for a period of 5 years. TESCO, in accordance with the requirement of Sub-section 21(b) and Sub-section 21(c) of NEPRA Act, 1997 (Amended Act of 2018) and regulation 7 of NEPRA Open Access (Interconnection and Wheeling of electric power) Regulations, 2022, is required to prepare and submit a separate petition to the Authority for determination of its Use of System Charges.

1.1.3 Key Representatives:

Chief Executive Officer TESCO, Director General MIRAD TESCO, Director Finance TESCO, Director Commercial are key representatives in support of the Use of System charges Petition (individually or jointly), and also to appear before NEPRA as and when required.

2. Grounds of Petition:

Pursuant to the relevant directions of National Electricity Policy (NE Policy) read with regulation 7 of NEPRA Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022 ("Open Access Regulations"), following are the grounds for petition for determination of use of system charges:

In compliance with the Clause 4.4, Clause 5.5.2(f), Clause 5.5.2(g), Clause 5.5.4, Clause 5.6.5 and Clause 5.6.7 of NE Policy, Section 21(b), Section 21(C) of NEPRA Act, 1997 (Amended Act of 2018) and in compliance with the regulation 7 of NEPRA Open Access

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Regulations, each distribution licensee, in consultation with the respective supplier of last resort shall, within ninety days following the date of notification of Open Access Regulation i.e. 2nd Nov 2022, shall submit a separate petition to the Authority for determination of its use of system charges.

Open access envisages non-discriminatory access to the transmission and distribution network. It enables the eligible Bulk Power Consumers to procure power at competitive price, to meet their demand, from suppliers other than supplier of last resort. Therefore, determination of open access charges is necessary to ensure financial viability of distribution companies.

2.1. Directions in National Electricity Policy

The National Electricity Policy, 2021 issued under Section 14A of the NEPRA Act, 1997 (Amended Act of 2018) was prepared by the Government of Pakistan for the development, reform, improvement and sustainability of the power market and power sector.

The National Electricity Policy identifies the major goals sought to be achieved for the power sector, and in this respect, provides policy directions. It also provides the key guiding principles to develop subservient frameworks that will steer the decision making in the power sector to achieve identified goals.

Various sections of the said National Electricity Policy, 2021, as relevant to the instant case, are provided in the below lines.

Clause 4.4 (Financial Viability) of the National Electricity Policy provides that sustainability of the entire power sector pivots around the financial and commercial viability of its individual sub-sectors. This will be done by:

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- 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.*

Clause 5.5.2(f) of National Electricity Policy states:

“Providing a level playing field to all market participants through uniform application of cross-subsidization and other grid charges to consumers of all suppliers;

Clause 5.5.2(g) of National Electricity Policy states:

“The Government shall take a decision on the recovery of costs that arise due to advent of the open access and market liberalization;”

Clause 5.5.4 of National Electricity Policy states:

“In order to ensure implementation of wholesale market design and its further evolution, the Regulator shall in a timely manner frame, modify and evolve regulatory framework for, inter alia, supply, procurement, open access / wheeling, competitive bidding, import of power, and ensure effective market monitoring and enforcement. Provided that after implementation of CTBCM, every transmission licensee and distribution licensee shall offer, to all market participants, non-discriminatory open access / wheeling to its respective transmission or distribution system and interconnection services in accordance with CTBCM on the terms determined under the policy and legal framework.”

Clause 5.6.5 of National Electricity Policy states:

“The Regulator, in order to ensure liquidity of the power sector, provide a level playing field for the development of wholesale market and to facilitate prudent projects of the Government, may impose additional charge(s) which shall be deemed to be costs incurred by the distribution companies / electric power supplier(s). Such additional charge may take into account the sustainability, socio-economic objectives and commercial viability

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of the sector, affordability for the consumers and the policy of uniform tariff. Similarly, the Government may also incorporate, in the consumer-end tariff, any surcharge imposed by it, which shall also be deemed to be cost incurred by the distribution companies / electric power supplier(s) and shall be collected by them in discharge of their public service obligations."

Clause 5.6.7 of National Electricity Policy states:

"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."

2.2. Legal and Regulatory Framework

The approved design of Competitive Trading and Bilateral Contract Market (CTBCM) provides the right of choice to the eligible Bulk Power Consumers (BPCs) to opt for any Supplier of Electric Power. The design, within the framework of the Act, also provides the concept of Competitive Supplier of electric power besides the Supplier of Last Resort, for the purposes of said right of choice to the BPCs within the said wholesale market design.

As directed in Clause 5.5.4 of the said National Electricity Policy, 2021, the honorable Authority promulgated / specified several Regulations to ensure effective implementation of the market regime in Pakistan. This included promulgation of National Electric Power Regulatory Authority Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022 ("Open Access Regulations").

For the purpose of this petition for determination of Use of System Charges in terms of mentioned Open Access Regulations, following terms as defined in the legal and regulatory framework are reproduced as below:

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As per Section 2(ii) of the NEPRA Act 1997 (Amended Act of 2018):

"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"

Important definitions provided in Regulation 2 of Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022 ("Open Access Regulations")

2(1)(m) "*open access means the access to a network licensee's system or its associated facilities for movement and delivery of electric power, subject to the terms and conditions as provided in the Act, these regulations and use of system agreement, on non-discriminatory basis to an electric power supplier for supply of electric power to its consumer(s); or a captive generating plant for delivery of the electric power from generation facility to the destination of its use; or any other person, including a licensee for delivery of electric power from a designated place to another designated place.*"

2(1)(n) "*open access user means any person who is availing open access under these regulations"*

2(1)(r) "*use of system charges shall include all charges related to use of distribution system, use of transmission system, system operator services, market operator services, metering service provider services and any other charges as determined by the Authority that may arise due to advent of the open access and market liberalization."*

Regulation 5 (Obligation to provide open access) of Open Access Regulations is reproduced hereunder:

(1) "*A network licensee shall establish, operate and maintain its distribution system or transmission system, as the case may be, in a manner that ensure non-discriminatory*

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open access in accordance with the Act, these regulations, Market Commercial Code, Grid Code, Distribution Code and other applicable documents.”

- (2) *“A network licensee shall, on an annual basis, prepare an open access report demonstrating compliance with these regulations and licence terms and conditions, with the detail of its open access users, available and planned capacity, any issues identified in provision of open access, and any instances where open access was denied along with justification thereof. The said report shall also be made available on the website of the network licensee.”*
- (3) *“The report required under sub-regulation (2) shall be prepared and submitted to the Authority within a period of one month from the date of end of respective financial year and shall also be made available on the website of the network licensee.”*
- (4) *“The distribution company shall develop the use of system agreement in accordance with the minimum provisions provided in Schedule I within ninety days of the notification of these regulations and shall obtain the approval of the Authority and publish the same in its website.”*

Regulation 7 (Filing of petition and determination of use of system charges) of Open Access Regulations is reproduced hereunder:

“Within ninety days following the date of notification of these regulations, each distribution licensee, in consultation with the respective supplier of last resort, shall prepare and submit separate petition to the Authority for determination of its use of system charges. Such petition shall be accompanied with a statement which will set out the basis upon which the use of system charges shall be calculated in such manner and with such details as shall be necessary.”

Regulation 8 (Wheeling of electric power) of Open Access Regulations is reproduced hereunder:

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"An open access user shall be entitled to wheel electric power using system of network licensee subject to compliance with these regulations and the Market Commercial Code, upon coming into effect, and use of system agreement."

3. Technical and Financial Attributes

Adjoining the purposes of CTBCM, directions of the National Electricity Policy, 2021 and stipulations of the legal and regulatory framework; following understandings are inferred:

- i) The network licensee, the TESCO for the purposes of instant petition, is obligated to provide open access, to its network, to the open access users on non-discriminatory basis.
- ii) For the said obligation, the TESCO is entitled for recovery of use of system charges in line with use of system agreement, as determined by the honorable Authority.
- iii) The use of system charges shall include:
 - a. Transmission Use of System Charges (NTDC, PGC) irrespective of the placement of BPC and the respective generator.
 - b. System Operator Charges
 - c. Metering Service Provider Charges
 - d. Market Operator Charges
 - e. Distribution Margin Charges w.r.t. to the voltage level (132kV, 11kV, others) and consumer category wise for all possible BPCs.
 - f. Cross-Subsidy Charges (consumer category wise for all possible BPCs)
 - g. Stranded Cost/Capacity (consumer category wise for all possible BPCs)
 - h. Technical Transmission and Distribution Losses
- iv) With reference to the above elements of use of system charges, following clarification shall apply for clarity of application:
 - a. Currently applicable Transmission Use of System (TUoS) Charges, compositely represent the charges relating to Transmission Network Operator(s)/Licensee(s), System Operator and Metering Service Provider. Accordingly, the said TUoS Charges remain part of use of system charges till separate charges for each of the said service providers are separately determined by the honorable Authority.

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- b. Market Operator Fee / Charges (MOF) will be recovered by Market Operator as per the mechanism provided in the Market Commercial Code. Accordingly, without prejudice to being part of Cost of Service of TESCO, these shall not form part of use of system charges to be recovered directly by TESCO.
- c. Cross subsidy will be assessed based on Cost of Service analysis for the applicable consumer categories of all possible BPCs, which is according to the principles of uniformity as provided in the National Electricity Policy.
- d. Subject to the decision of the Government on the recovery of costs that arise due to advent of the open access and market liberalization, the Stranded Capacity Costs will be included in the use of system charges.
- e. Stranded Asset Cost and Cross-Subsidy charges are relevant costs that needs to be incorporated into the use of system charges and if these issues are not properly considered, it would have huge financial implications on the regulated consumers or the same would be borne by the GoP.
- f. The use of system charges will be determined in terms of metered quantities (kWh or kW), in consideration of allowed %age of losses and also that arrangements under the Market Commercial Code the parties (the BPC, Competitive Supplier and/or Generator) shall be committing to the Capacity Obligation (including all losses and reserve margin up to bus-bar) through Firm Capacity, therefore, such transmission or distribution losses, as the case may be, will not be charged separately. However, for the purposes of transparency of charges, the impact of such losses may be separately disclosed.
- g. The use of system charges, including the Distribution Margin Charges, as requested by TESCO and to the extent approved by Authority, will be applicable with reference to those eligible Bulk Power Consumers (BPCs) who opt for supply from a competitive supplier, other than supplier of last resort and will be charged at the same level, which is charged to regulated consumer as determined by NEPRA with its subsequent adjustments.
- h. TESCO will also charge, wheeling charges by PESCO as part of its UoSC, as determined by NEPRA.

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- i. The use of system charges shall be with reference to the voltage level (132/66 kV, 11/33 kV, others) for the applicable consumer categories of all possible BPCs. The component-wise Cost of Service Annexure-1 and consequent assessment, as detailed above, of component-wise Use of System Charges for the applicable BPCs is provided.
- j. Any taxes and surcharges as imposed by the Government shall be applicable.

Summarizing the above, following is the abstract of entitled entities for each element of the use of system charges:

Sr. No.	Use of System Charge Element	Entitled Entity
1.	Transmission Use of System Charge	NTDC and other TSPs through NTDC/NGC OR NTDC through TESCO
2.	System Operator Charge / Fee	System Operator through NTDC.
3.	MSP Charge / Fee	MSP through NTDC
4.	Distribution Use of System Charge	TESCO as Distribution Licensee
5.	Cross Subsidy Surcharge	TESCO as SOLR (Supply Licensee)
6.	Stranded Capacity Costs	TESCO as SOLR (Supply Licensee)

4. Features of Petition:

4.1. Basis of Use of System Charges:

The instant petition for determination of use of system charges has been developed based on guidelines provided in the NEPRA Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022. Therefore, TESCO has carried out Cost of Service Study for the FY 2022-23 Annexure-1 to arrive at cost reflective tariffs giving proper price signals for its eligible consumers.

4.2. Method for Recovery of Use of System Charges

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The instant petition is for determination of use of system charges for recovery of costs and charges relating to service providers (SO, TNO, TSP, DNO), stranded capacity costs and the cross-subsidy currently being contributed by the eligible BPCs. It is pertinent to mention that most, if not all, costs and charges are fixed in nature, the natural mode of recovery should be the fixed (in terms of Rs. /kW/Month) charge in line with the NTDC. However, following options are available for consideration and determination:

- i) Use of system charges recovery in term of Rs. /kW/Month metered shall provide guaranteed stream of revenue to cover for costs which are fixed in nature. This may, however, over burden the relevant consumers thus undermining the very purpose of CTBCM and open access regime.
- ii) Use of system charges recovery in term of Rs. /kWh will render the service providers and the SOLR to face the revenue loss arising from low load factor of the eligible BPCs. On the other hand, the open access users shall be benefitted for any favorable Energy or Capacity Imbalance in the Market. This option may not provide a balanced approach to promised sharing of risks and rewards under CTBCM regime.
- iii) Use of system charges recovery through a hybrid approach, i.e. partly through fixed charge in terms of Rs. /kW/Month (subject to minimum MDI compared to the contracted load) and partly in terms of Rs./kWh may provide a balanced plausible approach for all the involved parties. It is submitted that, in order to ensure level playing field for consumers of SOLR and Competitive Supplier, the recovery of use of system charges may have same charging mechanism.

It is worth mentioning here that the proposed tariff rates as per Three (3) options narrated above are attached at Annexure-2.

4.3. Mechanism for Adjustment/Indexation of Use of System Charges

Each component of use of system charges detailed in the instant petition shall be subject to periodic adjustment/indexations. Whenever these components are adjusted for regulated consumers of the suppliers of last resort, at the same time, the corresponding

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adjustment in the relevant component of the proposed Use of System Charges for eligible BPCs shall simultaneously be made.

4.4. Applicable Categories / Eligible BPCs

While, in terms of existing stipulation contained in the NEPRA Act, the Bulk Power Consumer (BPC) 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 determine and the Authority may determine different amounts and voltage levels and with such other characteristics for different areas. The following tariff categories has been considered while working out the proposed of use of service charges.

Sr. No.	Consumption Category	Tariff Category	Voltage Level	Remarks
1.	General	A-2 & A-3	N/A	As per the existing tariffs, no kW sanctioned load quantification or connection voltage is applicable to A-2 and A-3 tariff categories. Accordingly, these are not considered BPC for the purposes of this petition. However, these customers, based on the sanctioned load, may be connected at 11 KV level, as required. Any such customer falling within the definition of BPC, and subject to the approval of the Authority.

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2.	Industrial Consumer ranging from 500 kW to 5 MW. [extendable to 7.5 MW under conditions]	B-3	11/33 kV	<p>B 3 consumer ranges from 500 kW to 5 MW.[Extendable to 7.5 MW under conditions]</p> <p>It is clarified here that the consumers of this category below 1MW shall not be treated as eligible BPCs for CTBCM. The use of system charges indicated for B-3 category will apply in case of eligible BPC.</p>
3.	Industrial	B-4	66/132 kV and above	<p>Currently there is no B-4 consumer in TESCO Service Territory. Accordingly, the Cost-of-Service assessment could not be made. However, the use of system charges for B-4 category of consumers are assessed in the analogy of B-3 adjusted with differential of allowed losses</p>
4.	Bulk Supply Ranging from 500 kW to 5 MW. [extendable to 7.5 MW under conditions]	C-2(b)	11/33 kV	<p>Bulk Supply consumer ranges from 500 kW to 5 MW. [Extendable to 7.5 MW under conditions]</p> <p>Although the Bulk Supply C-2 customers are at 11/33 KV connection level. It is clarified here that the consumers of this category below 1MW shall not be treated as eligible BPCs for CTBCM. The use of system charges indicated for C-2 category will apply in case of BPC at one premises.</p> <p>Further, the consumers falling under the resale shall not be considered as eligible BPC.</p>

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5.	Bulk Supply	C-3(b)	66 kV and above	Currently there is no C-3 consumer in TESCO Service Territory. Accordingly, the Cost of Service assessment could not be made. However, the use of system charges for B-4 category of consumers are assessed in the analogy of C-2 adjusted with differential of allowed losses.
6.	Housing Colonies attached to Industries	H	N/A	Currently there is no H consumer in TESCO Service Territory. Accordingly, the Cost of Service assessment could not be made.
7.	Azad Jammu & Kashmir	K	N/A	Currently there is no K consumer in TESCO Service Territory. Accordingly, the Cost of Service assessment could not be made.

5. Further Consideration

Following paragraphs of the petitions highlights other important aspects which shall be taken into account while determining the said charges.

5.1. Government Subsidies

Any subsidy provided by the Government to the industrial or any other eligible BPC, as applicable, will be dealt with according to the directions and terms and conditions thereof as decided by the Government. However, for the purposes of this petition, such subsidies are not considered.

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5.2. Captive Power Producers and Users

- i) A captive power producer / user using the TESCO network for wheeling of power to user destination will be considered "Market Participant" in terms of Market Commercial Code and will be dealt with accordingly. The use of system charges, except the Cross-Subsidy and Stranded Capacity cost, shall fully apply.
- ii) The cases of captive generation and consumption points at the same location taking additional supply from the local supplier of last resort (SOLR) shall be considered a regulated consumer of the SOLR with applicable regulated tariff. The quantum of additional sanctioned / contracted load (in terms of MW) shall be considered to determine its status as BPC in terms of the Act. In case, such BPC choose to exercise option for a competitive supplier, the use of system charges shall apply in full.

5.3. Applicability of Stranded Capacity Costs

The costs arising on account of market liberalization and advent of open access shall be the capacity charges/stranded costs to be paid by all eligible BPCs of a competitive supplier as detailed in this instant petition and the amount of such capacity charges shall be the same as the total generation capacity charges recovered from the equally placed bulk power consumers of the suppliers of last resort either in a volumetric form (kWh) and/or through fixed charges and such charges shall continue to be paid till such time as may be decided by the Federal Government as per the National Electricity Policy.

5.4. Applicability of Use of System Charges on New Eligible BPCs

The Use of System Charges provided in the instant petition shall be applicable to all such BPCs who will opt to get supply of electric power from competitive supplier including the captive generator using the network to wheel its power to the destination of its use. Such

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charges shall be fully applicable to any new eligible BPC or incremental consumption, obtaining supply of electric power from competitive supplier without any exception.

Prayer:

"In view of the grounds and facts mentioned above, it is respectfully prayed that while admitting and allowing this petition, the TESCO's Use of System Charges may very graciously be determined as estimated in Annexure-1 and Annexure-2 which contain detailed analysis".

Cost Assessment Level		Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges				
Consumption Category		Industrial				Industrial				Industrial B-3 (1 MW or More)				
Tariff Category		B-3				B-3								
Functional Cost Element		Variable	Fixed		Total	Variable	Fixed		Total	MDI Based	Volumetric	Hybrid		
Generation Cost - Energy		12.943			12.943	11.719		4,168.15	8.127	11.719	Rs./kW/Month	Rs./kWh	Rs./kW/Month	Rs./kWh
Generation Cost - Capacity		4,415.52		8.875	8.875		536.95	1.047	1.047	602.18	1.224	1.224	602.18	1.224
Transmission Charges		568.83		1.156	1.156					4,168.16	8.127	1.250.45	5.659	
Market Operator's Fee		-		-	-					536.95	1.047	161.09	0.733	
Distribution Use of System		976.62		1.985	1.985									
Total Applicable Costs		12.943		5,960.97	12.117	25.060	921.91	1.797	1.797	921.91	1.797	276.57	1.258	
Impact of allowed losses						11.719	5,627.03	10.971	22.690	6,229.21	12.495	1,688.11	8.904	
Total Cost of Service		12.943		5,960.97	12.117	25.060	1.224	333.91	1.146	2.370	333.94	1.146	300.18	0.802
Cross Subsidy						12.943	5,960.97	12.117	25.060	6,563.15	13.341	1,788.29	9.706	
Average Applicable Tariff										2,813.85	5.720	5.720		
										9,377.01	19.061	1,788.29	15.426	

Cost Assessment Level		Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges				
Consumption Category		General				General				General A-3 (1 MW or Above)				
Tariff Category		A3				A3				MDI Based	Volumetric	Hybrid		
Functional Cost Element		Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/Month	Rs./kWh	Rs./kW/Month	Rs./kWh	
Generation Cost - Energy		13.555			13.555	12.273		4,186.78	9.359	12.273	573.46	1.282	1.282	
Generation Cost - Capacity		4,624.08		12.432	12.432		539.35	1.205	1.205	4,186.78	9.359	1,256.03	6.551	
Transmission Charges		555.70		1.332	1.332					539.36	1.206	161.81	0.841	
Market Operator's Fee		-		-	-									
Distribution Use of System		916.10		0.166	0.166		916.10	2.048	2.048	916.10	2.048	274.83	1.433	
Total Applicable Costs		13.555		6,135.88	13.930	27.484	12.273	5,642.24	12.612	24.885	6,215.71	13.894	1,692.67	10.110
Impact of allowed losses						1.282	589.32	1.917	2.599	589.32	1.917	176.80	0.922	
Total Cost of Service		13.555		6,135.88	13.930	27.484	13.555	6,231.56	13.929	27.484	6,805.02	15.211	1,869.47	11.032
Cross Subsidy							(0.564)			(252.40)		(0.564)		
Average Applicable Tariff										6,552.63	14.647	1,869.47	10.468	

Cost Assessment Level		Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-1)				
Consumption Category		Bulk Supply				Bulk Supply				Bulk Supply C2(b) (1 MW or More)				
Tariff Category		C2(b)				C2(b)				MDI Based	Volumetric	Hybrid		
Functional Cost Element		Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/Month	Rs./kWh	Rs./kW/Month	Rs./kWh	
Generation Cost - Energy		12.943			12.943	11.719		4,168.15	7.999	11.719	611.79	1.224	1.224	
Generation Cost - Capacity		4,415.52		8.834	8.834		536.95	1.030	1.030	4,168.16	7.999	1,250.45	5.569	
Transmission Charges		568.83		1.138	1.138					536.96	1.030	161.09	0.721	
Market Operator's Fee		-		-	-									
Distribution Use of System		977.92		1.957	1.957		923.14	1.772	1.772	923.14	1.772	276.94	1.240	
Total Applicable Costs		12.943		5,962.28	11.929	24.872	11.719	5,626.26	10.801	22.520	6,240.06	12.025	1,688.48	8.785
Impact of allowed losses						1.224	334.01	1.128	2.352	334.01	1.128	100.20	0.79	
Total Cost of Service		12.943		5,962.28	11.929	24.872	12.943	5,962.28	11.929	24.872	6,574.07	13.193	1,788.68	9.574
Cross Subsidy										2,732.73	5.468	5.468		
Average Applicable Tariff										9,306.80	18.621	1,788.68	15.042	

Cost Assessment Level		Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges				
Consumption Category		Industrial				Industrial				Industrial B-4 (1 MW or More)				
Tariff Category		B-4				B-4				MDI Based	Volumetric	Hybrid		
Functional Cost Element		Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/Month	Rs./kWh	Rs./kW/Month	Rs./kWh	
Generation Cost - Energy		12.670			12.670	11.719		4,168.15	8.127	11.719	487.45	0.950	0.950	
Generation Cost - Capacity		4,505.121		8.785	8.785		536.96	1.047	1.047	4,168.16	8.127	1,250.45	5.569	
Transmission Charges		580.499		1.132	1.132					536.96	1.047	161.09	0.733	
Market Operator's Fee		-		-	-									
Distribution Use of System		995.660		1.943	1.943		923.14	1.772	1.772	923.14	1.772	276.57	1.258	
Total Applicable Costs		12.670		6,083.28	11.861	24.530	11.719	5,626.25	10.971	22.690	6,094.50	11.921	1,688.11	8.630
Impact of allowed losses						0.950	456.25	0.876	1.840	456.25	0.876	136.67	0.623	
Total Cost of Service		12.670		6,083.28	11.861	24.530	12.670	6,083.28	11.861	24.530	6,550.74	12.811	1,824.98	9.253
Cross Subsidy										3,074.69	6.250	6.250		
Average Applicable Tariff										9,625.43	19.061	1,824.98	15.503	

Cost Assessment Level		Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges				
Consumption Category		Bulk Supply				Bulk Supply				Bulk Supply C3(b) (1 MW or More)				
Tariff Category		C3(b)				C3(b)				MDI Based	Volumetric	Hybrid		
Functional Cost Element		Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/Month	Rs./kWh	Rs./kW/Month	Rs./kWh	
Generation Cost - Energy		12.670			12.670	11.719		4,168.15	8.127	11.719	474.93	0.950	0.950	
Generation Cost - Capacity		4,506.12		8.648	8.648		536.95	1.030	1.030	4,168.16	8.127	1,250.45	5.569	
Transmission Charges		580.50		1.114	1.114					536.96	1.030	161.09	0.733	
Market Operator's Fee		-		-	-									
Distribution Use of System		997.99		1.92	1.915		923.14	1.772	1.772	923.14	1.772	276.94	1.240	
Total Applicable Costs		12.670		6,084.61	11.677	24.346	11.719	5,626.25	10.971	22.690	6,103.19	11.751	1,688.4	

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TRIBAL AREAS ELECTRIC SUPPLY COMPANY



Cost of Service Study FY 2022-23

TESCO H/Q WAPDA HOUSE SHAMI ROAD

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Tribal Areas Electric Supply Company

Cost of Service Study for FY 2022-23

A Cost of Service (COS) study is the fundamental tool for evaluating and establishing utility rates. With industry and technology changes, utilities are expanding the scope and use of COS studies and are preparing studies that distinguish full and partial requirements customer classes. This is due to the increasing presence of distributed energy resources and/or to accommodate customers' expectations of having more control over their usage and utility bills.

Cost of Service is the total cost incurred by a utility company/DISCO in providing services to its customers and the allocation of the same to customer classes and/or voltage levels.

Fully Allocated Cost of Service Study (FACOS) Model

FACOS is a model developed in MS Excel with the support of USAID for DISCOs to conduct Cost of Service Study. The methodology used to build the FACOS Model follows very closely the standards that are used internationally. The Model performs the standard three steps encompassed in most of Cost Studies, namely, functionalization, classification, and allocation.

Major Steps of Cost of Service Study

A class cost of service study begins with a detailed documentation of the numerous budgetary elements of the total revenue requirement. The detailed revenue requirements are the data inputs to the FACOS. At a high level, the FACOS process consists of the following three (3) basic steps:

1. **Functionalization** – The identification of each cost element as one of the basic utility services “functions” (e.g. generation/Power Purchase Price, transmission, distribution and customer).
2. **Classification** – The classification of the functionalized costs based on the billing component/determinant that each is associated with (e.g. kWs of capacity, kWhs of energy or number of customers).
3. **Allocation** – The allocation of the functionalized and classified costs to customer classes, based on respective service requirements / parameters (e.g. kWs of capacity, kWhs of energy and the number of customers) of each class.

Fundamental Assumptions

Table 1

Description	FY 2022-23
Allowed Rate of Return (WACC) (It has been determined as the NEPRA indexation methodology, while considering KIBOR of Dec 31, 2022)	13.34%
Capital Work in Progress ("CWIP")	CWIP 100%
Working Capital Allowance to be included in Rate Base	NO
Prior Year Adjustment (Rs. in Million)	528
Demand Allocation Methodology	1 CP
Customer Growth %	0.08%
Model Year	FY 2022-23
Base Year	FY 2020-21

Projections and Revenue Requirement for Financial Year 2022-23

The Revenue Requirement (RR) is the fundamental input to the Cost of Service of TESCO for allocation to different categories of consumers based on Capacity (kW), Energy (kWh) and number of consumers. The **Table 2** below explains the basis and sources for arriving at Revenue Requirement (or overall Cost of Service) of TESCO.

Table 2

Description	FY 2022-23	Source
Units Purchases (MkWh)	2480	PMS Study
Units Sales (MkWh)	2252	Based on PMS Study and assessed losses of NEPRA
Assessed T&D Losses	9.21%	NEPRA assessed in MYT of TESCO.
Consumer Growth	0.08%	PMS Study
Average Monthly MDI (MW)	689	Billed by CPPA-G July-Jan FY 2022-23 with further months projected. Used only for calculation of Capacity related charges of Generation Cost, UoSC and MoF.
Energy Charge (Rs/kWh)	12.09	Billed by CPPA-G July-Jan FY 2022-23 with further months projected.
Capacity Charge (Rs/kW/Month)	3696	Billed by CPPA-G July-Jan FY 2022-23 with further months projected.
T.UoSC (Rs/kW/Month)	473.987	Billed by CPPA-G July-Jan FY 2022-23 with further months projected.
MoF (Rs/KW/Month)	2.18	Billed by CPPA-G July-Jan FY 2022-23 with further months projected.
Engergy Charges (Rs. M)	29,994	Calculated by using above rates and quantitative parameters.
Capacity Charges (Rs. M)	30,563	
UoSC (Rs. M)	3,919	
MoF (Rs. M)	18	
Power Purchase Price	64,494	
O&M Cost (Million Rs.)	1860	Revised Indexation Figures as per MYT 2020-21 to 2024-25
Wheeling Charges by PESCO (M. Rs.)	586	Revised Indexation Figures as per MYT 2020-21 to 2024-25
Depreciation (Million Rs.)	510	Revised Indexation Figures as per MYT 2020-21 to 2024-25
RORB (Million Rs.)	1837	Revised Indexation Figures as per MYT 2020-21 to 2024-25
Allowance for Bad Debts	2577	Projections on base of Financial Statements FY 2021-22
Other Income (Million Rs.)	(789)	Revised Indexation Figures as per MYT 2020-21 to 2024-25.
Prior Year Adjustment (Rs. M)	528	NEPRA Tariff Determination FY 2022-23
Revenue Requirement (Rs. M)	71,603	
Cost per kWh (sold)	31.80	

Summary of Revenue Requirement

The extract of Revenue Requirement is provided in the **Table 3** below:

Table 3

Summary of Revenue Requirement	
Description	FY 2022-23 Rs. (M)
Energy Charges	29,994
Capacity Charges	30,563
T.UoSC	3,919
MOF	18
Power Purchase Price	64,494
O&M Cost	1860
Wheeling Charges by PESCO	586
Allowance for Bad Debts	2577
Depreciation	510
RORB	1837
Other Income	(789)
Distribution Margin	6,581
Prior Year Adjustment	528
Revenue Requirement	71,603

Line Losses Charged on Voltage Levels

Line losses taken from TESCO MYT determination for FY 2020-21 to FY 2024-25

Table 4

Voltage Level	0.2 kV	0.4 kV	11 kV	132kV	Total
Losses %age	3.35%	4.26%	1.6%	9.21%	

Customer Classification by Voltage Level

While the Cost of Service study is based on allocation of the Revenue Requirement on Classes (categories) of the consumers at different voltage levels; the **Table 5** below provides mapping of existing categories of consumers on the basis of applicable voltage levels.

Table 5

Classification by Voltage Level				
Voltage	132/66k V	11kV	0.4k V	0.2 kV
Customer Class	B4	B3	A1b	A1a
	C3a	C2a	A2b	A2a
	C3b	C2b	A2c	B1a
		H1	A3a	C1a
		H2	B1b	E1i
		K1a	B2a	E1ii
		K1b	B2b	E2
			C1b	
			C1c	
			D1a	
			D1b	
			D2a	
			D2b	
			G1	
			G2	

TESCO Tariff determined by NEPRA in July-2022.

Tariffs for various categories of TESCO consumers as determined by NEPRA vide their determination Distribution Tariff Under MYT # TESCO-2022/8665-8667 dated June 2, 2022 Supply Tariff Under MYT # TESCO-2022/8715-8717 dated June 2, 2022 are provided in **Table 6** below.

Table 6

TARIFF CATEGORIES		22-Jul-22	
		Fixed Charges Rs/kW/M	Variable Charges Rs/kWh
A1	RESIDENTIAL - A1		
i	Up to 50 Units Life line		5.00
ii	51-100 units Life line		16.83
iii	01-100 Units		19.83
iv	101-200 Units		21.83
v	01-100 Units		22.45
vi	101-200 Units		25.64
vii	201-300 Units		26.15
viii	301-400Units		27.39
ix	401-500Units		27.83
x	501-600Units		28.83
xi	601-700Units		29.83
xii	Above 700 Units		30.84
A1(b)	Time of Use (TOU) - Peak		29.83
	Time of Use (TOU) - Off-Peak		22.45
E-1(i)	Temporary E-1 (i)		30.83
	COMMERCIAL - A2		
A2 (a)	Commercial - For peak load requirement up to 5 kW		26.81
A2 (b)	Sanctioned load 5 kw and above	500	24.85
A2 (c)	Time of Use (TOU) - Peak (A-2)	500	29.86
	Time of Use (TOU) - Off-Peak	500	23.73
E-1 (ii)	Temporary E-1 (ii)		26.83
	INDUSTRIAL		
B1(a)	B1		25.93
B1(b)	B1- TOU (Peak)		29.82
	B1 - TOU (Off-peak)		23.72
B2 (a)	B2	500	25.82
B2 (b)	B2 - TOU (Peak)	500	29.82
	B2 - TOU (Off-peak)	500	23.22
B3	B3 - TOU (Peak)	460	29.82
	B3 - TOU (Off-peak)	460	24.62
B4	B4 - TOU (Peak)	400	29.82
	B4 - TOU (Off-peak)	400	24.42
E-2	Temporary E-2		28.82
	BULK		
C1 (a)	C1(a) up to 5 kW		26.44

Table 6

C1 (b)	C1(b) exceeding 5 kW	500	26.24
C1 (c))	Time of Use (TOU) - Peak	500	29.83
	Time of Use (TOU) - Off-Peak	500	23.23
C2 (a)	C2 Supply at 11 kV	500	26.14
C2 (b)	Time of Use (TOU) - Peak	460	29.83
	Time of Use (TOU) - Off-Peak	460	24.63
C3 (a)	C3 Supply above 11 kV	440	26.03
C3 (b)	Time of Use (TOU) - Peak	440	29.83
	Time of Use (TOU) - Off-Peak	440	24.43
AGRICULTURAL TUBE WELLS - Tariff D			
D1 (a)	D1 Scarp		26.44
D2 (a)	D2 Agricultural Tube-wells	200	29.83
D1 (b)	Time of Use (TOU) - Peak	200	23.23
	Time of Use (TOU) - Off-Peak	200	26.44
D2 (b)	Time of Use (TOU) - Peak	200	29.83
	Time of Use (TOU) - Off-Peak	200	23.23
G	Public Lighting G		30.13
H	Residential Colonies H		30.43
K1	Special Contracts - Tariff K (AJK)		
K1 (i)	Time of Use (TOU) - Peak		
	Time of Use (TOU) - Off-Peak		
A3	General Service		26.92

Results from FACOS Model

Revenue Requirement Allocation (in Percentage)

While developing the Fully Allocated Cost of Service Model, the detailed study for allocation of cost of service and rate base (for each component) to cost drivers (energy, demand and customer) was developed. Overall summary of the allocation is given in below

Revenue Requirement Allocation to Energy, Demand and Customer.

Based on the allocation percentages, the revenue requirement allocated to energy, demand and customer (cost triggers) is shown in **Table 7** below.

Table 7

Revenue Requirement Allocation Rs. (M)				
Description	Energy	Demand	Customer	Total
Engergy Charges	29,994	-	-	29,994
Capacity Charges	-	30,563	-	30563
T.UoSC	-	3919	-	3,919
MOF	-	18	-	18
Power Purchase Price	29,994	34,500	-	64,494
O&M Cost	-	1755	105	1,860
Wheeling Charges by PESCO	-	553	33	586
Allowance for Bad Debts	-	2,431	146	2,577
Depreciation	-	481	29	510
RORB	-	1,733	104	1,837
Other Income	-	(744)	(45)	(789)
Distribution Margin	-	6,209	372	6,581
Prior Year Adjustment	-	498	30	528
Revenue Requirement	29,994	41,207	402	71,603

Revenue as per NEPRA Tariff by Customer Category and Voltage Level

The **Table 8** below provides detailed category-wise estimated revenue and average (Rs./kWh) thereof. Whereas the **Table** is summary of the said category-wise estimated revenue based on the supply Voltage level of relevant customer category, with average rate (Rs./kWh) thereof. As already mentioned, the calculation of revenue is based on NEPRA Tariff Distribution Tariff Under MYT # TESCO-2022/8665-8667 dated June 2, 2022 Supply Tariff Under MYT # TESCO-2022/8715-8717 dated June 2, 2022

Table 8

Customer Category	MDI MW	Sales (GWh)	Fixed Charge Rs. (M)	Variable Charge Rs. (M)	Total Revenue Rs.(M)	Rs./kWh
Residential -- A1(a)	439.94	1,597.72	32506.173	21922.414	54428.59	34.07
Residential -- A1(b)	0.03	0.12	2.217	1.670	3.886603	31.93
Commercial -- A2(a)	1.05	4.81	77.582	66.019	143.6012	29.85
Commercial -- A2(b)	0.13	-	9.922	0.000	9.92183	-
Commercial -- A2(c)	0.24	1.11	17.733	15.188	32.92152	29.74
Industrial -- B1(a)	0.31	1.41	22.905	19.282	42.18769	30.02
Industrial -- B2(a)	0.03	0.11	2.217	1.571	3.787213	33.09
Industrial -- B1(b)	0.08	0.40	6.114	5.518	11.63268	28.92
Industrial -- B2(b)	23.68	102.73	1749.915	1409.522	3159.437	30.75
Industrial -- B3	82.99	489.93	5855.143	6422.634	12277.78	25.06
Industrial -- B4	-	-	0.000	0.000	0	-
Single Point Supply -- C1(a)	0.02	0.10	1.172	1.294	2.465138	24.98
Single Point Supply -- C1(b)	0.98	4.50	72.410	61.720	134.1295	29.82
Single Point Supply -- C2(a)	-	-	0.000	0.000	0	-
Single Point Supply -- C3(a)	-	-	0.000	0.000	0	-
Single Point Supply -- C1(c)	0.45	3.68	33.610	50.458	84.06751	22.86
Single Point Supply -- C2(b)	0.75	4.50	52.914	58.969	111.8834	24.87
Single Point Supply -- C3(b)	-	-	0.000	0.000	0	-
Agricultural -- D1(a)	0.53	2.42	39.161	33.176	72.33623	29.92
Agricultural -- D2(a)	5.25	24.05	387.911	330.008	717.9185	29.85
Agricultural -- D2(b)	0.02	2.50	1.391	34.253	35.64403	14.28
Agricultural -- D1(b)	-	-	0.000	0.000	0	-
Temporary Supply -- E1(i)	-	-	0.000	0.000	0	-
Temporary Supply -- E1(ii)	0.01	-	0.403	0.000	0.402731	-
Temporary Supply -- E2	-	-	0.000	0.000	0	-
Public Lighting -- G	0.05	-	3.661	0.000	3.661192	-
Residential Colonies -- H	-	-	0.000	0.000	0	-
Azad Jammu Kashmir - K1a	-	-	0.000	0.000	0	-
Azad Jammu Kashmir - K1b	-	-	0.000	0.000	0	-
A3 General	2.22	11.92	164.031	163.520	327.5512	27.48
Total	559	2,252	41,007	30,597	71,604	31.80

Table 9

Customer Class	MDI MW	Sales (GWh)	Fixed Charge Rs. (M)	Variable Charge Rs. (M)	Total Revenue	Rs./kWh
0.2 kV	441.32	1,604.04	32,608.23	22,009.03	54,617	34.05
0.4 kV	33.70	153.53	2,490.29	2,106.60	4,597	29.94
11 Kv	83.74	494.43	5,908.06	6,481.59	12,390	25.06
132 kv	-	-	-	-	-	-
G. TOTAL	559	2,252	41,007	30,597	71,604	31.80

Cost of Service Functionalized Rates (Tariff Wise)

Based on the allocation of overall Revenue Requirement of TESCO to customers categories, the resultant functional amounts (Rs. in million) for each customer category are summarized at 10 below. Currently there is no customer at 132kv in TESCO.

Table 10

Classes	Volt. Level	No. of Customers	Energy	Demand	Generation Cost		Transm	Distribution		Total Cost
			GWh	MW	Energy (Rs.M)	Demand (Rs.M)	Cost (Rs.M)	Demand (Rs.M)	Cust. Cost (Rs.M)	
Residential -- A1(a)	0.2kV	401366	1597.72	439.94	21656.64	24411.81	3144.84	4949.53	265.77	54428.59
Residential -- A1(b)	0.4kV	33	0.12	0.03	1.65	1.66	0.21	0.34	0.02	3.89
Commercial -- A2(a)	0.2kV	29384	4.81	1.05	65.22	58.26	7.51	11.81	0.80	143.60
Commercial -- A2(b)	0.4kV	8	0.00	0.13	0.00	7.45	0.96	1.51	0.00	9.92
Commercial -- A2(c)	0.4kV	114	1.11	0.24	15.00	13.32	1.72	2.70	0.18	32.92
Industrial -- B1(a)	0.2kV	3298	1.41	0.31	19.05	17.20	2.22	3.49	0.23	42.19
Industrial -- B2(a)	0.4kV	252	0.11	0.03	1.55	1.66	0.21	0.34	0.02	3.79
Industrial -- B1(b)	0.4kV	11	0.40	0.08	5.45	4.59	0.59	0.93	0.07	11.63
Industrial -- B2(b)	0.4kV	720	102.73	23.68	1392.47	1314.17	169.30	266.45	17.05	3159.44
Industrial -- B3	11kV	52	489.93	82.99	6341.34	4397.35	566.49	891.31	81.29	12277.78
Industrial -- B4	132/66kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(a)	0.2kV	2	0.10	0.02	1.28	0.88	0.11	0.18	0.02	2.47
Single Point Supply -- C1(b)	0.4kV	4	4.50	0.98	60.97	54.38	7.01	11.03	0.75	134.13
Single Point Supply -- C2(a)	11kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C3(a)	132/66kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(c)	0.4kV	12	3.68	0.45	49.85	25.24	3.25	5.12	0.61	84.07
Single Point Supply -- C2(b)	11kV	4	4.50	0.75	58.22	39.74	5.12	8.05	0.75	111.88
Single Point Supply -- C3(b)	132/66kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural -- D1(a)	0.4kV	391	2.42	0.53	32.77	29.41	3.79	5.96	0.40	72.34
Agricultural -- D2(a)	0.4kV	5859	24.05	5.25	326.02	291.32	37.53	59.06	3.99	717.92
Agricultural -- D2(b)	0.4kV	489	2.50	0.02	33.84	1.04	0.13	0.21	0.41	35.64
Agricultural -- D1(b)	0.4kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(i)	0.2kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(ii)	0.2kV	3	0.00	0.01	0.00	0.30	0.04	0.06	0.00	0.40
Temporary Supply -- E2	0.2kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Public Lighting -- G	0.4kV	5	0.00	0.05	0.00	2.75	0.35	0.56	0.00	3.66

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Residential Colonies -- H	11kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1a	11kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1b	11kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3 General	0.4kV	1541	11.92	2.22	161.54	123.19	15.87	24.98	1.98	327.55
Total		443,548	2,252	559	30,223	30,796	3,967	6,244	374	71,604

Based on the cost drivers (energy, demand & customers) based allocation of overall Revenue Requirement of TESCO to the customers categories, the resultant functional (generation,

transmission, MO Fee & Distribution) rates (in terms of Rs./kWh, Rs./kW/Month and Rs./Customer / Month, as applicable) are summarized at **Table 11** below.

Table 11

Classes	Volt. Level	No. of Customers	Energy	Demand	Generation Cost		Transm	Distribution		Total Rs./ kWh
			GWh	MW	Energy (Rs/kWh)	Demand (Rs/kW/Month)	(Rs/kW /Month)	(Rs/kW/Month)	(Rs./ Cust/Month)	
Residential -- A1(a)	0.2kV	401366	1597.72	439.94	13.55	4,624.08	595.70	937.54	55	34.07
Residential -- A1(b)	0.4kV	33	0.12	0.03	13.55	4,624.08	595.70	937.54	51	31.93
Commercial -- A2(a)	0.2kV	29384	4.81	1.05	13.55	4,624.08	595.70	937.54	2	29.85
Commercial -- A2(b)	0.4kV	8	0.00	0.13	-	4,624.08	595.70	937.54	-	-
Commercial -- A2(c)	0.4kV	114	1.11	0.24	13.55	4,624.08	595.70	937.54	134	29.74
Industrial - - B1(a)	0.2kV	3298	1.41	0.31	13.55	4,624.08	595.70	937.54	6	30.02
Industrial - - B2(a)	0.4kV	252	0.11	0.03	13.55	4,624.08	595.70	937.54	6	33.09
Industrial - - B1(b)	0.4kV	11	0.40	0.08	13.55	4,624.08	595.70	937.54	509	28.92
Industrial - - B2(b)	0.4kV	720	102.73	23.68	13.55	4,624.08	595.70	937.54	1,974	30.75
Industrial - - B3	11kV	52	489.93	82.99	12.94	4,415.52	568.83	894.99	129,961	25.06
Industrial - - B4	132/66kV	0	0.00	0.00	-	-	-	-	-	-
Single Point Supply -- C1(a)	0.2kV	2	0.10	0.02	12.94	4,624.08	595.70	937.54	683	24.98
Single Point Supply -- C1(b)	0.4kV	4	4.50	0.98	13.55	4,624.08	595.70	937.54	15,872	29.82
Single Point Supply -- C2(a)	11kV	0	0.00	0.00	-	-	-	-	-	-
Single Point Supply -- C3(a)	132/66kV	0	0.00	0.00	-	-	-	-	-	-
Single Point Supply -- C1(c)	0.4kV	12	3.68	0.45	13.55	4,624.08	595.70	937.54	4,206	22.86
Single Point Supply -- C2(b)	11kV	4	4.50	0.75	12.94	4,415.52	568.83	894.99	15,868	24.87
Single Point Supply -- C3(b)	132/66kV	0	0.00	0.00	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	391	2.42	0.53	13.55	4,624.08	595.70	937.54	86	29.92
Agricultural -- D2(a)	0.4kV	5859	24.05	5.25	13.55	4,624.08	595.70	937.54	57	29.85
Agricultural -- D2(b)	0.4kV	489	2.50	0.02	13.55	4,624.08	595.70	937.54	71	14.28
Agricultural -- D1(b)	0.4kV	0	0.00	0.00	-	-	-	-	-	-
Temporary Supply -- E1(ii)	0.2kV	0	0.00	0.00	-	-	-	-	-	-
Temporary Supply -- E1(iii)	0.2kV	3	0.00	0.01	-	4,624.08	595.70	937.54	-	-

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Temporary Supply -- E2	0.2kV	0	0.00	0.00	-	-	-	-	-	-
Public Lighting -- G	0.4kV	5	0.00	0.05	-	4,624.08	595.70	937.54	-	-
Residential Colonies -- H	11kV	0	0.00	0.00	-	-	-	-	-	-
Azad Jammu Kashmir - K1a	11kV	0	0.00	0.00	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	0	0.00	0.00	-	-	-	-	-	-
A3 General	0.4kV	1541	11.92	2.22	13.55	4,624.08	595.70	937.54	107	27.48
Total		443,548	2,252	559	13.42	4,592.82	591.67	931.16	70	31.80

The above detailed functional rates recapitulated, in terms of Rs./kW/Month, for each function is given in table **Table 12** below.

Table 12

Classes	Volt. Level	No. of Customers	Energy	Demand	Generation Cost		Transm	MOF	Distribution		Total Rs./kW/Month
			GWh	MW	Energy (Rs/kW/Month)	Demand (Rs/kW/Month)	(Rs/kW/Month)	(Rs/kW/Month)	(Rs/kW/Month)	(Rs./kW/Month)	
Residential -- A1(a)	0.2kV	3,640,578	6,766	1,487	3,786.06	4,011.65	368.23	1.74	780.34	403.56	9,351.58
Residential -- A1(b)	0.4kV	33,116	197	41	3,959.88	4,011.65	368.23	1.74	780.34	335.97	9,457.82
Commercial -- A2(a)	0.2kV	403,793	400	112	2,964.49	4,011.65	368.23	1.74	780.34	315.99	8,442.44
Commercial -- A2(b)	0.4kV	28	0	0	3,196.25	4,011.65	368.23	1.74	780.34	271.18	8,629.39
Commercial -- A2(c)	0.4kV	17,170	359	87	3,445.12	4,011.65	368.23	1.74	780.34	292.30	8,899.38
Industrial -- B1(a)	0.2kV	15,224	39	14	2,350.58	4,011.65	368.23	1.74	780.34	250.55	7,763.09
Industrial -- B2(a)	0.4kV	-	-	-	-	-	-	-	-	-	-
Industrial -- B1(b)	0.4kV	55,698	498	130	3,186.86	4,011.65	368.23	1.74	780.34	270.39	8,619.21
Industrial -- B2(b)	0.4kV	11,364	1,087	228	3,965.94	4,011.65	368.23	1.74	780.34	336.49	9,464.39
Industrial -- B3	11kV	293	1,234	166	5,947.24	3,862.12	354.50	1.68	737.72	522.90	11,426.16
Industrial -- B4	132kV	-	-	-	-	-	-	-	-	-	-
Single P. Supply C1(a)	0.2kV	29	0	0	3,265.19	4,011.65	368.23	1.74	780.34	361.51	8,788.66
Single P. Supply C1(b)	0.4kV	5	0	0	2,859.35	4,011.65	368.23	1.74	780.34	242.60	8,263.91
Single P. Supply C2(a)	11kV	4	-	-	-	-	-	-	-	-	-
Single P. Supply C3(a)	132kV	-	-	-	-	-	-	-	-	-	-
Single P. Supply C1(c)	0.4kV	76	11	3	3,093.92	4,011.65	368.23	1.74	780.34	262.50	8,518.38
Single P. Supply C2(b)	11kV	40	170	25	5,489.30	3,862.12	354.50	1.68	737.72	482.64	10,927.96
Single P. Supply C3(b)	132kV	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	424	0	0	3,524.08	4,011.65	368.23	1.74	780.34	299.00	8,985.04
Agricultural -- D2(a)	0.4kV	17,703	80	13	5,167.46	4,011.65	368.23	1.74	780.34	438.43	10,767.85
Agricultural -- D2(b)	0.4kV	38,605	467	92	4,204.97	4,011.65	368.23	1.74	780.34	356.77	9,723.70
Agricultural -- D1(b)	0.4kV	13	0	0	3,733.01	4,011.65	368.23	1.74	780.34	316.72	9,211.70
Temp. Supply - E1(i)	0.2kV	863	1	0	3,506.50	4,011.65	368.23	1.74	780.34	373.76	9,042.22
Temp. Supply - E1(ii)	0.2kV	2,369	15	3	4,158.29	4,011.65	368.23	1.74	780.34	443.24	9,763.49
Temp. Supply - E2	0.2kV	24	0	0	3,290.15	4,011.65	368.23	1.74	780.34	350.70	8,802.82
Public Lighting -- G	0.4kV	674	14	5	2,280.14	4,011.65	368.23	1.74	780.34	193.46	7,635.56
Res. Colonies -- H	11kV	16	1	0	4,113.97	3,862.12	354.50	1.68	737.72	361.71	9,431.71
AJK - K1a	11kV	-	-	-	-	-	-	-	-	-	-
AJK - K1b	11kV	17	270	48	4,518.79	3,862.12	354.50	1.68	737.72	397.30	9,872.12
A3 General	0.4kV	22,661	170	40	3,507.97	4,011.65	368.23	1.74	780.34	297.63	8,967.57
Total		4,260,789	11,777	2,495	3,907.04	3,997.33	366.91	1.74	776.26	385.52	9,434.80

Unbundled Rates Rs./kWh (Tariff Wise)

The functional allocation of Revenue Requirement of TESCO (Generation, Transmission, MO Fee and Distribution Cost) to customers categories, in Rs./kWh are shown in **Table 13** below.

Table 13

Customer Category	Voltage level	Sales GWh	Demand MW	Generation Rs./kWh	T. UoSC Rs./kWh	D. UoSC Rs./kWh	Total Rate Rs./kWh
Residential -- A1(a)	0.2kV	1597.72	439.94	28.83	1.97	3.26	34.07
Residential -- A1(b)	0.4kV	0.12	0.03	27.23	1.76	2.94	31.93
Commercial -- A2(a)	0.2kV	4.81	1.05	25.66	1.56	2.62	29.85
Commercial -- A2(b)	0.4kV	0.00	0.13	0.00	0.00	0.00	0.00
Commercial -- A2(c)	0.4kV	1.11	0.24	25.59	1.55	2.61	29.74
Industrial -- B1(a)	0.2kV	1.41	0.31	25.80	1.58	2.65	30.02
Industrial -- B2(a)	0.4kV	0.11	0.03	28.10	1.87	3.11	33.09
Industrial -- B1(b)	0.4kV	0.40	0.08	24.97	1.47	2.48	28.92
Industrial -- B2(b)	0.4kV	102.73	23.68	26.35	1.65	2.76	30.75
Industrial -- B3	11kV	489.93	82.99	21.92	1.16	1.99	25.06
Industrial -- B4	132/66kV	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(a)	0.2kV	0.10	0.02	21.86	1.15	1.97	24.98
Single Point Supply -- C1(b)	0.4kV	4.50	0.98	25.64	1.56	2.62	29.82
Single Point Supply -- C2(a)	11kV	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C3(a)	132/66kV	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(c)	0.4kV	3.68	0.45	20.42	0.88	1.56	22.86
Single Point Supply -- C2(b)	11kV	4.50	0.75	21.78	1.14	1.96	24.87
Single Point Supply -- C3(b)	132/66kV	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural -- D1(a)	0.4kV	2.42	0.53	25.72	1.57	2.63	29.92
Agricultural -- D2(a)	0.4kV	24.05	5.25	25.67	1.56	2.62	29.85
Agricultural -- D2(b)	0.4kV	2.50	0.02	13.97	0.05	0.25	14.28
Agricultural -- D1(b)	0.4kV	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(i)	0.2kV	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(ii)	0.2kV	0.00	0.01	0.00	0.00	0.00	0.00
Temporary Supply -- E2	0.2kV	0.00	0.00	0.00	0.00	0.00	0.00
Public Lighting -- G	0.4kV	0.00	0.05	0.00	0.00	0.00	0.00
Residential Colonies -- H	11kV	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1a	11kV	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1b	11kV	0.00	0.00	0.00	0.00	0.00	0.00
A3 General	0.4kV	11.92	2.22	23.89	1.33	2.26	27.48
Total		2,252	559	27.10	1.76	15.45	31.80

Volumetric Rates at Each Customer Category

The above functional rates combined in terms of the nature (Fixed or Variable) and resultant rates in terms of Rs./kW/Month and/or Rs./kWh are provided in **Table 14** below.

Table 14

Customer Category	Voltage Level	Sales GWh	Allocated Cost Rs. (M)		Fixed Charge Rs/kW/Month	Variable Charge Rs/kWh	Total Rate Rs/kWh
			Fixed Cost	Variable Cost			
Residential -- A1(a)	0.2kV	1597.72	32506.17	21922.41	6157.31	13.72	34.07
Residential -- A1(b)	0.4kV	0.12	2.22	1.67	6157.31	13.72	31.93
Commercial -- A2(a)	0.2kV	4.81	77.58	66.02	6157.31	13.72	29.85
Commercial -- A2(b)	0.4kV	0.00	9.92	0.00	6157.31	0.00	0.00
Commercial -- A2(c)	0.4kV	1.11	17.73	15.19	6157.31	13.72	29.74
Industrial -- B1(a)	0.2kV	1.41	22.91	19.28	6157.31	13.72	30.02
Industrial -- B2(a)	0.4kV	0.11	2.22	1.57	6157.31	13.72	33.09
Industrial -- B1(b)	0.4kV	0.40	6.11	5.52	6157.31	13.72	28.92
Industrial -- B2(b)	0.4kV	102.73	1749.92	1409.52	6157.31	13.72	30.75
Industrial -- B3	11kV	489.93	5855.14	6422.63	5879.35	13.11	25.06
Industrial -- B4	132/66kV	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(a)	0.2kV	0.10	1.17	1.29	6157.31	13.11	24.98
Single Point Supply -- C1(b)	0.4kV	4.50	72.41	61.72	6157.31	13.72	29.82
Single Point Supply -- C2(a)	11kV	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C3(a)	132/66kV	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(c)	0.4kV	3.68	33.61	50.46	6157.31	13.72	22.86
Single Point Supply -- C2(b)	11kV	4.50	52.91	58.97	5879.35	13.11	24.87
Single Point Supply -- C3(b)	132/66kV	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural -- D1(a)	0.4kV	2.42	39.16	33.18	6157.31	13.72	29.92
Agricultural -- D2(a)	0.4kV	24.05	387.91	330.01	6157.31	13.72	29.85
Agricultural -- D2(b)	0.4kV	2.50	1.39	34.25	6157.31	13.72	14.28
Agricultural -- D1(b)	0.4kV	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(i)	0.2kV	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(ii)	0.2kV	0.00	0.40	0.00	6157.31	0.00	0.00
Temporary Supply -- E2	0.2kV	0.00	0.00	0.00	0.00	0.00	0.00
Public Lighting -- G	0.4kV	0.00	3.66	0.00	6157.31	0.00	0.00
Residential Colonies -- H	11kV	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1a	11kV	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1b	11kV	0.00	0.00	0.00	0.00	0.00	0.00
A3 General	0.4kV	11.92	164.03	163.52	6157.31	13.72	27.48
Total		2,252	41,007	30,597	5,142	10.91	31.80

Revenue, Cost of Service and Subsidies (Tariff Category Wise)

Based on assessment of revenue and the cost of service for each category of consumer, as per the details provided herein before, the Subsidy or Cross Subsidy (the difference between revenue and cost) in terms of million rupees against each customer tariff category is provided in **Table 15** below. It may be noted that the negative figure means the customer is subsidized (revenue less than cost).

whereas the positive figure shows that the customer is cross subsidizing (revenue more than cost). Average, in terms of Rs./kWh, assessment of subsidy or cross-subsidy, as the case may be, is also arrived in the last column of Table 15 below.

Table 15

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Public Lighting -- G	0.4kV	0	0	-	-	-	-	4	4	(4)	-
Residential Colonies -- H	11kV	0	0	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1a	11kV	0	0	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	0	0	-	-	-	-	-	-	-	-
A3 General	0.4kV	12	2	-	321	321	-	328	328	(7)	(0.56)
Total		2,2 52	559	1,052	62,660	63,711	7,785	63,818	71,604	(7,893)	(3.50)

Revenue, Cost of Service, Subsidy and Revenue to Cost Ratios

Revenue, Cost of Service and Subsidy in terms of million rupees for each category of the consumers is shown in **Table 16** below. The Table also provides the Revenue to Cost Ratio which shows that:

- If this ratio is less than one, the relevant customer class is subsidized, i.e. the tariff revenue is less than the allocated cost;

- If this ratio is greater than one, the relevant customer class is cross subsidizing, i.e. the tariff revenue is higher than the allocated cost; and
- If this ratio is equal to one, the customer class is at adequately priced vis-à-vis the allocated cost.

Table 16

Customer Class	Voltage	Sales GWh	Demand MW	Revenue as per NEPRA Tariff			Cost of Service			Difference Subsidy M. PKR		Revenue to cost ratio	
				Demand Charge (M.PKR)	Energy Charge M.PKR	Total M. PKR	Demand Cost (M.PKR)	Energy Cost M.PKR	Total M. PKR	Fixed Cost	Variable Cost	Fixed Cost	Variable Cost
Residential -- A1(a)	0.2kV	1597.72	439.94	0.00	43499.64	43499.64	0.00	54428.59	54428.59	0.00	10928.94	0.00	0.80
Residential -- A1(b)	0.4kV	0.12	0.03	0.00	3.57	3.57	0.00	3.89	3.89	0.00	-0.31	0.00	0.92
Commercial -- A2(a)	0.2kV	4.81	1.05	0.00	129.00	129.00	0.00	143.60	143.60	0.00	-14.60	0.00	0.90
Commercial -- A2(b)	0.4kV	0.00	0.13	0.00	0.00	0.00	0.00	9.92	9.92	0.00	-9.92	0.00	0.00
Commercial -- A2(c)	0.4kV	1.11	0.24	5.30	31.22	36.52	17.73	15.19	32.92	-12.43	16.03	0.30	2.06
Industrial -- B1(a)	0.2kV	1.41	0.31	0.00	36.44	36.44	0.00	42.19	42.19	0.00	-5.75	0.00	0.86
Industrial -- B2(a)	0.4kV	0.11	0.03	0.14	2.96	3.10	2.22	1.57	3.79	-2.08	1.38	0.06	1.88
Industrial -- B1(b)	0.4kV	0.40	0.08	0.00	11.60	11.60	0.00	11.63	11.63	0.00	-0.03	0.00	1.00
Industrial -- B2(b)	0.4kV	102.73	23.68	369.81	2987.00	3356.81	1749.92	1409.52	3159.44	1380.11	1577.48	0.21	2.12
Industrial -- B3	11kV	489.93	82.99	661.79	14420.53	15082.32	5855.14	6422.63	12277.78	5193.35	7997.89	0.11	2.25
Industrial -- B4	132/66 kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(a)	0.2kV	0.10	0.02	0.00	2.61	2.61	0.00	2.47	2.47	0.00	0.14	0.00	1.06
Single Point Supply -- C1(b)	0.4kV	4.50	0.98	4.96	118.04	123.00	72.41	61.72	134.13	-67.45	56.32	0.07	1.91
Single Point Supply -- C2(a)	11kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C3(a)	132/66 kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Point Supply -- C1(c)	0.4kV	3.68	0.45	4.98	108.48	113.47	33.61	50.46	84.07	-28.63	58.02	0.15	2.15
Single Point Supply -- C2(b)	11kV	4.50	0.75	4.57	131.93	136.49	52.91	58.97	111.88	-48.35	72.96	0.09	2.24
Single Point Supply -- C3(b)	132/66 kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural -- D1(a)	0.4kV	2.42	0.53	0.00	63.93	63.93	0.00	72.34	72.34	0.00	-8.41	0.00	0.88
Agricultural -- D2(a)	0.4kV	24.05	5.25	0.00	717.47	717.47	0.00	717.92	717.92	0.00	-0.45	0.00	1.00
Agricultural -- D2(b)	0.4kV	2.50	0.02	0.07	74.42	74.49	1.39	34.25	35.64	-1.32	40.17	0.05	2.17
Agricultural -- D1(b)	0.4kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(i)	0.2kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Supply -- E1(ii)	0.2kV	0.00	0.01	0.00	0.00	0.00	0.00	0.40	0.40	0.00	-0.40	0.00	0.00
Temporary Supply -- E2	0.2kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Public Lighting -- G	0.4kV	0.00	0.05	0.00	0.00	0.00	0.00	3.66	3.66	0.00	-3.66	0.00	0.00
Residential Colonies -- H	11kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1a	11kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Azad Jammu Kashmir - K1b	11kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3 General	0.4kV	11.92	2.22	0.00	320.83	320.83	0.00	327.55	327.55	0.00	-6.72	0.00	0.98

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Total		2252. 00	558.77	1051.6 3	62659. 66	63711. 29	7785.3 3	63818. 47	71603. 80	6733.7 0	-	1158.81	0.1 4	0.98
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Revenue, Cost of Service and Subsidies (Rs./kWh)

Revenue, Cost of Service and Subsidy in terms of Rs./kWh for each category of the consumers is shown in **Table 17** below. The Table also provides the Revenue to Cost Ratio.

Table 17

FY 2022-23						
Customer Class	Voltage	Sales GWh	Revenue Rs./kWh	Cost of Service Rs./kWh	Subsidy Rs./kWh	Revenue to Cost Ratio
Residential -- A1(a)	0.2kV	1597.72	27.23	34.07	(6.84)	0.80
Residential -- A1(b)	0.4kV	0.12	29.37	31.93	(2.57)	0.92
Commercial -- A2(a)	0.2kV	4.81	26.81	29.85	(3.04)	0.90
Commercial -- A2(b)	0.4kV	0.00	-	-	-	-
Commercial -- A2(c)	0.4kV	1.11	33.00	29.74	3.26	1.11
Industrial -- B1(a)	0.2kV	1.41	25.93	30.02	(4.09)	0.86
Industrial -- B2(a)	0.4kV	0.11	27.04	33.09	(6.04)	0.82
Industrial -- B1(b)	0.4kV	0.40	28.85	28.92	(0.07)	1.00
Industrial -- B2(b)	0.4kV	102.73	32.68	30.75	1.92	1.06
Industrial -- B3	11kV	489.93	30.78	25.06	5.72	1.23
Industrial -- B4	132/66kV	0.00	-	-	-	-
Single Point Supply -- C1(a)	0.2kV	0.10	26.44	24.98	1.46	1.06
Single Point Supply -- C1(b)	0.4kV	4.50	27.34	29.82	(2.47)	0.92
Single Point Supply -- C2(a)	11kV	0.00	-	-	-	-
Single Point Supply -- C3(a)	132/66kV	0.00	-	-	-	-
Single Point Supply -- C1(c)	0.4kV	3.68	30.85	22.86	7.99	1.35
Single Point Supply -- C2(b)	11kV	4.50	30.34	24.87	5.47	1.22
Single Point Supply -- C3(b)	132/66kV	0.00	-	-	-	-
Agricultural -- D1(a)	0.4kV	2.42	26.44	29.92	(3.48)	0.88
Agricultural -- D2(a)	0.4kV	24.05	29.83	29.85	(0.02)	1.00
Agricultural -- D2(b)	0.4kV	2.50	29.84	14.28	15.56	2.09
Agricultural -- D1(b)	0.4kV	0.00	-	-	-	-
Temporary Supply -- E1(i)	0.2kV	0.00	-	-	-	-
Temporary Supply -- E1(ii)	0.2kV	0.00	-	-	-	-
Temporary Supply -- E2	0.2kV	0.00	-	-	-	-
Public Lighting -- G	0.4kV	0.00	-	-	-	-
Residential Colonies -- H	11kV	0.00	-	-	-	-
Azad Jammu Kashmir - K1a	11kV	0.00	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	0.00	-	-	-	-
A3 General	0.4kV	11.92	26.92	27.48	(0.56)	0.98
Sub Total		2,252	28.29	31.80	(3.50)	0.89

Revenue/kWh, Cost of Service/kWh and Subsidies/kWh (BPC only)

With regard to the above analysis, the following points are emphasized:

1. Currently, there is no 132/66 KV customer within TESCO, therefore, in the absence of real data, no values thereof could be assessed. A broad assessment of the Cost of Service of such customers can, however, be inferred based on analogy of other closest category of customers(e.g. B-3 for B-4 and C-2 for C-3) by incorporating differential of energy losses.
2. Although the Industrial B-3 and Bulk Supply C2 customers are at 11 KV connection level, however, any of these customers may not fall within the definition of BPC as contained in NEPRA Act, 1997, being less than 1 kW.
3. The customer categories A-2 and A-3, for purposes of cost of service assessment, have been considered at 0.4 KV level. However, these costumers, based on the sanctioned load, may beconnected at 11 KV level, as required.

Master Data for Results of TESCO's Cost of Service Study (FY 2022-23)

For interest of the readers to glance through overall master data for result of TESCO's Cost of Service Study (FY 2022-23), following Tables (**Table 18** to **Table 23**) are added separately.

Final Remarks:

- The above Cost of Service Study Report (FY 2022-23) is a sincere human effort to arrive at judicious assessment of functional (generation, transmission, market operator, distribution and customer services) costs for each category of consumers demonstrating the needs and parameters associated with relevant category.
- The results of the study are to be used for the purposes of rate making of Use of System Charges for possible eligible Bulk Power Consumers.
- The Fully Allocated Cost of Service (FACOS) model used for the purpose of this study is realistically elaborate, professionally structured in line with international practices and reasonably accurate to provide equitable results in terms of costs associated with demonstrated needs of the customers. Human errors and omissions are, however, expected.
- The underlying assumptions made and considerations relied upon in carrying out this Cost of Service Study were adopted with all possible care, without any prejudice and have been disclosed in details to the extent possible.
- Inherent and unforeseen limitations of the FACOS model, assumptions made and consideration relied upon may not be as exhaustive as expected; accordingly, for the purposes of rate making of Use of System Charges, certain out of the model iterations may be necessary.
- While the Cost of Service is substantially (99%) covered by the determined tariffs, inherent cross subsidization and possibility of stranded costs need considerate, careful, concerted and continuous attention for proactive mitigation thereof.
- While currently certain classes of consumers are enjoying benefit of inter and intra tariff subsidies, the other categories of consumers are paying huge (30~35%) cross-subsidies. For a robust, vibrant and successful wholesale, and later retail, power market, minimization, if not elimination, of intra and inter tariff subsidies shall remain fundamental requirement.

Table 18

Tariff Category	Voltage Level	Cost of Service Study FY 2022-23											
		Energy GWh	Demand MW	Generation Cost	Transmission Cost	Distribution Cost	Total Cost (Rs. M)	Cost Rs./kWh sold	Cost Rs./kWh Purchased				
Sold	Purchased at Meter	at CDP	Energy (Rs.M)	Demand (Rs.M)	(Rs.M)	Demand (Rs.M)	Customer Cost (Rs.M)						
Residential -- A1(a)	0.2kV	1,597.721	1757.599	439.94	485.89	21656.64	24411.81	3144.84	4949.53	265.77	54428.587	34.066	30.968
Residential -- A1(b)	0.4kV	0.122	0.134	0.03	0.03	1.65	1.66	0.21	0.34	0.02	3.887	31.933	28.913
Commercial -- A2(a)	0.2kV	4.812	5.314	1.05	1.16	65.22	58.26	7.51	11.81	0.80	143.601	29.845	27.023
Commercial -- A2(b)	0.4kV	0.000	0.000	0.13	0.15	0.00	7.45	0.96	1.51	0.00	9.922	0.000	0.000
Commercial -- A2(c)	0.4kV	1.107	1.223	0.24	0.27	15.00	13.32	1.72	2.70	0.18	32.922	29.740	26.928
Industrial -- B1(a)	0.2kV	1.405	1.552	0.31	0.34	19.05	17.20	2.22	3.49	0.23	42.188	30.020	27.181
Industrial -- B2(a)	0.4kV	0.114	0.126	0.03	0.03	1.55	1.66	0.21	0.34	0.02	3.787	33.085	29.956
Industrial -- B1(b)	0.4kV	0.402	0.444	0.08	0.09	5.45	4.59	0.59	0.93	0.07	11.633	28.922	26.187
Industrial -- B2(b)	0.4kV	102.730	113.460	23.68	26.16	1392.47	1314.17	169.30	266.45	17.05	3159.437	30.755	27.846
Industrial -- B3	11kV	489.930	541.102	82.99	87.92	6341.34	4397.35	566.49	891.31	81.29	12277.778	25.060	22.690
Industrial -- B4	132/66kV	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Single Point Supply -- C1(a)	0.2kV	0.099	0.109	0.02	0.02	1.28	0.88	0.11	0.18	0.02	2.465	24.983	22.621
Single Point Supply -- C1(b)	0.4kV	4.498	4.968	0.98	1.08	60.97	54.38	7.01	11.03	0.75	134.130	29.818	26.998
Single Point Supply -- C2(a)	11kV	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Single Point Supply -- C3(a)	132/66kV	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Single Point Supply -- C1(c)	0.4kV	3.677	4.062	0.45	0.50	49.85	25.24	3.25	5.12	0.61	84.068	22.860	20.698
Single Point Supply -- C2(b)	11kV	4.498	4.968	0.75	0.79	58.22	39.74	5.12	8.05	0.75	111.883	24.872	22.520
Single Point Supply -- C3(b)	132/66kV	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Agricultural -- D1(a)	0.4kV	2.418	2.670	0.53	0.59	32.77	29.41	3.79	5.96	0.40	72.336	29.917	27.087
Agricultural -- D2(a)	0.4kV	24.052	26.564	5.25	5.80	326.02	291.32	37.53	59.06	3.99	717.919	29.849	27.026
Agricultural -- D2(b)	0.4kV	2.496	2.757	0.02	0.02	33.84	1.04	0.13	0.21	0.41	35.644	14.278	12.928

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Table 19

FY 2022-23 (kW or kWh Units Sold)										
Classes	Voltage Level	Energy GWh		Demand MW	Generation Cost		Transmission		Distribution Cost	
		Sold	Purchased	at Meter	at CDP	Demand (Rs./kWh)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	Customer Cost (Rs./kWh/M)	Total Fixed Cost (Rs./kW/M)
Residential -- A1(a)	0.2kV	1597.721	1757.599	440	486	13.555	4624.079	595.695	937.538	50.342
Residential -- A1(b)	0.4kV	0.122	0.134	0	0	13.555	4624.079	595.695	937.538	56.112
Commercial -- A2(a)	0.2kV	4.812	5.314	1	1	13.555	4624.079	595.695	937.538	63.521
Commercial -- A2(b)	0.4kV	0.000	0.000	0	0	0.000	4624.079	595.695	937.538	0.000
Commercial -- A2(c)	0.4kV	1.107	1.223	0	0	13.555	4624.079	595.695	937.538	6157.312
Industrial -- B1(a)	0.2kV	1.405	1.552	0	0	13.555	4624.079	595.695	937.538	0.000
Industrial -- B2(a)	0.4kV	0.114	0.126	0	0	13.555	4624.079	595.695	937.538	6221.105
Industrial -- B1(b)	0.4kV	0.402	0.444	0	0	13.555	4624.079	595.695	937.538	6220.152
Industrial -- B2(b)	0.4kV	102.730	113.460	24	26	13.555	4624.079	595.695	937.538	62.840
Industrial -- B3	1.1kV	489.930	541.102	83	88	12.943	4415.523	568.828	894.995	52.773
Industrial -- B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	6224.536
Single Point Supply -- C1(a)	0.2kV	0.099	0.109	0	0	12.943	4624.079	595.695	937.538	86.261
Single Point Supply -- C1(b)	0.4kV	4.498	4.968	1	1	13.555	4624.079	595.695	937.538	63.485
Single Point Supply -- C2(a)	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	6217.305
Single Point Supply -- C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	5960.973
Single Point Supply -- C1(c)	0.4kV	3.677	4.062	0	1	13.555	4624.079	595.695	937.538	111.817
Single Point Supply -- C2(b)	11kV	4.498	4.968	1	1	12.943	4415.523	568.828	894.995	6220.796
Single Point Supply -- C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	5962.276
Agricultural --D1(a)	0.4kV	2.418	2.670	1	1	13.555	4624.079	595.695	937.538	63.098
Agricultural --D2(a)	0.4kV	24.052	26.564	5	6	13.555	4624.079	595.695	937.538	63.363
Agricultural --D2(b)	0.4kV	2.496	2.757	0	0	13.555	4624.079	595.695	937.538	1833.725
Agricultural --D1(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000

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Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E1(i)	Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	4624.079	595.695	937.538	0.000	6157.312	0.000	0.000	0.000	0.000	0.000
E1(ii)	Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E2	Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Public Lighting -- G	0.4kV	0.000	0.000	0	0	0.000	4624.079	595.695	937.538	0.000	6157.312	0.000	0.000	0.000	0.000	0.000	0.000
Residential Colonies - H	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
- K1a	Azad Jammu Kashmir	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
- K1b	A3 General	0.4kV	11.918	13.163	2	2	13.555	4624.079	595.695	937.538	74.249	6231.561	13.929	27.484			
Total		2252.00	2480	559	613	13.420	4592.823	591.669	931.162	55.828	6171.482	18.375	31.796				

Table 20

FY 2022-23 (kW or kWh Units Purchased)											
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transmission		Distribution Cost	
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	Customer Cost (Rs./kW/M)	Total Fixed Cost (Rs./kW/M)
R Residential -- A1(a)	0.2kV	1597.721	1757.599	440	486	12.322	4186.780	539.360	848.875	45.581	5620.596
R Residential -- A1(b)	0.4kV	0.122	0.134	0	0	12.273	4186.780	539.360	848.875	50.806	5625.821
C Commercial -- A2(a)	0.2kV	4.812	5.314	1	1	12.273	4186.780	539.360	848.875	57.513	5632.529
C Commercial -- A2(b)	0.4kV	0.000	0.000	0	0	0.000	4186.780	539.360	848.875	0.000	5575.015
C Commercial -- A2(c)	0.4kV	1.107	1.223	0	0	12.273	4186.780	539.360	848.875	57.760	5632.776
I Industrial -- B1(a)	0.2kV	1.405	1.552	0	0	12.273	4186.780	539.360	848.875	56.897	5631.913
I Industrial -- B2(a)	0.4kV	0.114	0.126	0	0	12.273	4186.780	539.360	848.875	47.782	5622.798
I Industrial -- B1(b)	0.4kV	0.402	0.444	0	0	12.273	4186.780	539.360	848.875	60.867	5635.882
I Industrial -- B2(b)	0.4kV	102.730	113.460	24	26	12.273	4186.780	539.360	848.875	54.319	5629.335
I Industrial -- B3	11kV	489.930	541.102	83	88	11.719	4158.162	536.962	844.856	77.054	5627.034
I Industrial -- B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000
Single Point Supply - C1(a)	0.2kV	0.099	0.109	0	0	11.719	4186.780	539.360	848.875	78.103	5653.119
Single Point Supply - C1(b)	0.4kV	4.498	4.968	1	1	12.273	4186.780	539.360	848.875	57.481	5632.496
Single Point Supply - C2(a)	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000
Single Point Supply - C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000
Single Point Supply - C1(c)	0.4kV	3.677	4.062	0	1	12.273	4186.780	539.360	848.875	101.242	5676.258
Single Point Supply - C2(b)	11kV	4.498	4.968	1	1	11.719	4158.162	536.962	844.856	78.284	5628.264
Single Point Supply - C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000
A Agricultural -D1(a)	0.4kV	2.418	2.670	1	1	12.273	4186.780	539.360	848.875	57.131	5632.146
A Agricultural -D2(a)	0.4kV	24.052	26.564	5	6	12.273	4186.780	539.360	848.875	57.371	5632.386
A Agricultural -D2(b)	0.4kV	2.496	2.757	0	0	12.273	4186.780	539.360	848.875	1660.310	7235.325

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Agricultural --D1(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(i)	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(ii)	0.2kV	0.000	0.000	0	0	0.000	4186.780	539.360	848.875	0.000	5575.015	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E2	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Public Lighting -- G	0.4kV	0.000	0.000	0	0	0.000	4186.780	539.360	848.875	0.000	5575.015	0.000	0.000	0.000	0.000	0.000	0.000
Residential Colonies -- H	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1a	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1b	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A3 General	0.4kV	11.918	13.163	2	2	12.273	4186.780	539.360	848.875	67.227	5642.243	12.612	24.885				
Total	2252.00	2480	559	613	12.186	4184.087	539.013	848.294	50.860	5622.254	16.684	28.870					

Table 21

Classes	Voltage Level	FY 2022-23 (kWh Units Sold)										
		Energy GWh			Demand MW		Generation Cost		Transmission		Distribution Cost	
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kWh)	Cost (Rs./kWh)	Demand (Rs./kWh)	Customer Cost (Rs./kWh)	Total Fixed Cost (Rs./kWh)	Total Cost Rs./kWh Sold
Residential -- A1(a)	0.2kV	1597.721	1757.599	440	486	13.555	15.279	1.968	3.098	0.166	20.512	34.066
Residential -- A1(b)	0.4kV	0.122	0.134	0	0	13.555	13.677	1.762	2.773	0.166	18.378	31.933
Commercial -- A2(a)	0.2kV	4.812	5.314	1	1	13.555	12.109	1.560	2.455	0.166	16.291	29.845
Commercial -- A2(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Commercial -- A2(c)	0.4kV	1.107	1.223	0	0	13.555	12.030	1.550	2.439	0.166	16.185	29.740
Industrial -- B1(a)	0.2kV	1.405	1.552	0	0	13.555	12.240	1.577	2.482	0.166	16.465	30.020
Industrial -- B2(a)	0.4kV	0.114	0.126	0	0	13.555	14.543	1.873	2.949	0.166	19.531	33.085
Industrial -- B1(b)	0.4kV	0.402	0.444	0	0	13.555	11.416	1.471	2.315	0.166	15.368	28.922
Industrial -- B2(b)	0.4kV	102.730	113.460	24	26	13.555	12.792	1.648	2.594	0.166	17.200	30.755
Industrial -- B3	11kV	489.930	541.102	83	88	12.943	8.975	1.155	1.819	0.166	12.117	25.060
Industrial -- B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(a)	0.2kV	0.099	0.109	0	0	12.943	8.917	1.149	1.808	0.166	12.040	24.983
Single Point Supply -- C1(b)	0.4kV	4.498	4.968	1	1	13.555	12.089	1.557	2.451	0.166	16.263	29.818
Single Point Supply -- C2(a)	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(c)	0.4kV	3.677	4.062	0	1	13.555	6.864	0.884	1.392	0.166	9.305	22.860
Single Point Supply -- C2(b)	11kV	4.498	4.968	1	1	12.943	8.834	1.138	1.791	0.166	11.929	24.872
Single Point Supply -- C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Agricultural --D1(a)	0.4kV	2.418	2.670	1	1	13.555	12.163	1.567	2.466	0.166	16.362	29.917
Agricultural --D2(a)	0.4kV	24.052	26.564	5	6	13.555	12.112	1.560	2.456	0.166	16.294	29.849
Agricultural --D2(b)	0.4kV	2.496	2.757	0	0	13.555	0.419	0.054	0.085	0.166	0.723	14.278

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Agricultural --D1(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(i)	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(ii)	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E2	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Public Lighting -- G	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Residential Colonies - H	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1a	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1b	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A3 General	0.4kV	11.918	13.163	2	2	13.555	10.336	1.332	2.096	0.166	13.929	13.929	27.484	
Total	2252.00	2480	559	613	13.420	13.675	1.762	2.772	0.166	18.375	18.375	31.796		

Table 22

FY 2022-23 (kWh Units Purchased)										
Classes	Voltage Level	Energy GWh		Demand MW	Generation Cost		Transmission		Distribution Cost	
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kWh)	Cost (Rs./kWh)	Demand (Rs./kWh)	Customer Cost (Rs./kWh)
Residential -- A1(a)	0.2kV	1597.721	1757.599	440	486	12.322	13.889	1.789	2.816	0.151
Residential -- A1(b)	0.4kV	0.122	0.134	0	0	12.273	12.384	1.595	2.511	0.150
Commercial -- A2(a)	0.2kV	4.812	5.314	1	1	12.273	10.964	1.412	2.223	0.151
Commercial -- A2(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Commercial -- A2(c)	0.4kV	1.107	1.223	0	0	12.273	10.893	1.403	2.209	0.150
Industrial -- B1(a)	0.2kV	1.405	1.552	0	0	12.273	11.083	1.428	2.247	0.151
Industrial -- B2(a)	0.4kV	0.114	0.126	0	0	12.273	13.167	1.696	2.670	0.150
Industrial -- B1(b)	0.4kV	0.402	0.444	0	0	12.273	10.337	1.332	2.096	0.150
Industrial -- B2(b)	0.4kV	102.730	113.460	24	26	12.273	11.583	1.492	2.348	0.150
Industrial -- B3	11kV	489.930	541.102	33	38	11.719	8.127	1.047	1.647	0.150
Industrial -- B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(a)	0.2kV	0.099	0.109	0	0	11.719	8.074	1.040	1.637	0.151
Single Point Supply -- C1(b)	0.4kV	4.498	4.968	1	1	12.273	10.946	1.410	2.219	0.150
Single Point Supply -- C2(a)	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(c)	0.4kV	3.677	4.062	0	1	12.273	6.214	0.801	1.260	0.150
Single Point Supply -- C2(b)	11kV	4.498	4.968	1	1	11.719	7.999	1.030	1.621	0.150
Single Point Supply -- C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Agricultural -D1(a)	0.4kV	2.418	2.670	1	1	12.273	11.013	1.419	2.233	0.150
Agricultural -D2(a)	0.4kV	24.052	26.564	5	6	12.273	10.967	1.413	2.223	0.150
Agricultural -D2(b)	0.4kV	2.496	2.757	0	0	12.273	0.379	0.049	0.077	0.150
Agricultural -D1(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(i)	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000

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Temporary Supply – E1(ii)	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E2	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Public Lighting -- G	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Residential Colonies - H	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1a	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1b	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A3 General	0.4kV	11.918	13.163	2	2	12.273	9.359	1.206	1.897	0.150	12.612	12.612	24.885	
Total	2252.00	2480	559	613	12.186	12.417	1.600	2.517	0.151	16.684	16.684	28.870		

Table 23

FY 2022-23 (Cost of Losses on kW or kWh)										
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transmission		Distribution Cost (Rs./kW/M)
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	
Residential -- A1(a)	0.2kV	1597.721	1757.599	440	486	1.233	437.299	56.335	88.663	4.761
Residential -- A1(b)	0.4kV	0.122	0.134	0	0	1.282	437.299	56.335	88.663	5.307
Commercial -- A2(a)	0.2kV	4.812	5.314	1	1	1.282	437.299	56.335	88.663	6.007
Commercial -- A2(b)	0.4kV	0.000	0.000	0	0	0.000	437.299	56.335	88.663	0.000
Commercial -- A2(c)	0.4kV	1.107	1.223	0	0	1.282	437.299	56.335	88.663	6.033
Industrial -- B1(a)	0.2kV	1.405	1.552	0	0	1.282	437.299	56.335	88.663	5.943
Industrial -- B2(a)	0.4kV	0.114	0.126	0	0	1.282	437.299	56.335	88.663	4.991
Industrial -- B1(b)	0.4kV	0.402	0.444	0	0	1.282	437.299	56.335	88.663	6.357
Industrial -- B2(b)	0.4kV	102.730	113.460	24	26	1.282	437.299	56.335	88.663	5.674
Industrial -- B3	11kV	489.930	541.102	83	88	1.224	247.361	31.866	50.138	4.573
Industrial -- B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(a)	0.2kV	0.099	0.109	0	0	1.224	437.299	56.335	88.663	8.158
Single Point Supply -- C1(b)	0.4kV	4.498	4.968	1	1	1.282	437.299	56.335	88.663	6.004
Single Point Supply -- C2(a)	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(c)	0.4kV	3.677	4.062	0	1	1.282	437.299	56.335	88.663	10.575
Single Point Supply -- C2(b)	11kV	4.498	4.968	1	1	1.224	247.361	31.866	50.138	4.646
Single Point Supply -- C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Agricultural --D1(a)	0.4kV	2.418	2.670	1	1	1.282	437.299	56.335	88.663	5.967
Agricultural --D2(a)	0.4kV	24.052	26.564	5	6	1.282	437.299	56.335	88.663	5.992
Agricultural --D2(b)	0.4kV	2.496	2.757	0	0	1.282	437.299	56.335	88.663	173.415

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Agricultural --D1(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(i)	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temporary Supply -- E1(ii)	0.2kV	0.000	0.000	0	0	0.000	437.299	56.335	88.663	0.000	582.297	0.000	0.000	0.000	0.000
Temporary Supply -- E2	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Public Lighting -- G	0.4kV	0.000	0.000	0	0	0.000	437.299	56.335	88.663	0.000	582.297	0.000	0.000	0.000	0.000
Residential Colonies -- H	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir -K1a	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir -K1b	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A3 General	0.4kV	11.918	13.163	2	2	1.282	437.299	56.335	88.663	7.022	589.318	1.317	2.599		
Total	2252.00	2480	559	613	1.235	408.736	52.655	82.868	4.968	549.228	1.691	2.926			

Table 24

FY 2022-23 (Cost of Losses on kWh)										
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transmission		Total Fixed Cost (Rs./kWh/M)
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	
Residential -- A1(a)	0.2kV	1597.721	1757.599	440	486	1.233	1.390	0.179	0.282	0.015
Residential -- A1(b)	0.4kV	0.122	0.134	0	0	1.282	1.293	0.167	0.262	0.016
Commercial -- A2(a)	0.2kV	4.812	5.314	1	1	1.282	1.145	0.148	0.232	0.016
Commercial -- A2(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Commercial -- A2(c)	0.4kV	1.107	1.223	0	0	1.282	1.138	0.147	0.231	0.016
Industrial -- B1(a)	0.2kV	1.405	1.552	0	0	1.282	1.158	0.149	0.235	0.016
Industrial -- B2(a)	0.4kV	0.114	0.126	0	0	1.282	1.375	0.177	0.279	0.016
Industrial -- B1(b)	0.4kV	0.402	0.444	0	0	1.282	1.080	0.139	0.219	0.016
Industrial -- B2(b)	0.4kV	102.730	113.460	24	26	1.282	1.210	0.156	0.245	0.016
Industrial -- B3	11kV	489.930	541.102	83	88	1.224	0.849	0.109	0.172	0.015
Industrial -- B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(a)	0.2kV	0.099	0.109	0	0	1.224	0.843	0.109	0.171	0.016
Single Point Supply -- C1(b)	0.4kV	4.498	4.968	1	1	1.282	1.143	0.147	0.232	0.016
Single Point Supply -- C2(a)	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Single Point Supply -- C1(c)	0.4kV	3.677	4.062	0	1	1.282	0.649	0.084	0.132	0.016
Single Point Supply -- C2(b)	11kV	4.498	4.968	1	1	1.224	0.835	0.108	0.169	0.016
Single Point Supply -- C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000
Agricultural --D1(a)	0.4kV	2.418	2.670	1	1	1.282	1.150	0.148	0.233	0.016
Agricultural --D2(a)	0.4kV	24.052	26.564	5	6	1.282	1.145	0.148	0.232	0.016
Agricultural --D2(b)	0.4kV	2.496	2.757	0	0	1.282	0.040	0.005	0.008	0.016
Agricultural --D1(b)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000

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Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E1(i)	Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E1(ii)	Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E2	Temporary Supply --	0.2kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Public Lighting -- G	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Residential Colonies	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-- H	Azad Jammu Kashmir - K1a	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Azad Jammu Kashmir - K1b	11kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A3 General	0.4kV	11.918	13.163	2	2	1.282	0.977	0.126	0.198	0.016	1.317	1.317	2.599		
Total		2252.00	2480	559	613	1.235	1.258	0.162	0.255	0.015	1.691	1.691	2.926		

