## TRIBAL AREAS ELECTRICITY SUPPLY COMPANY PESHAWAR

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Office of the Chief Executive Officer TESCO 213-WAPDA House, Shami Road Peshawar

11 /2023

Dated: \

## NO. SILLI-43/CEO/TESCO

#### The Registrar,

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

#### Subject: ADDENDUM TO THE PETITION FOR DETERMINATION OF USE OF SYSTEM CHARGES UoSC)/WHEELING CHARGESFY 2023-24

Ref: This office Letter No. 4969-71/CEO/TESCO dated 27/09/2023

This, is in continuation of letter cited above, where TESCO had earlier submitted, the petition for determination of use of system charges/wheeling charges for FY 2023-24. However, based on deliberation with representatives of Ministry of Energy, a revised Use of System Charges (UoSC)/Wheeling Charges Petition (UoSC) for, FY 2023-24 is being submitted to NEPRA, after incorporating the following.

- 1. The revenue requirement has been aligned with the Indexation Adjustment, determined by NEPRA for FY 2023-24 in respect of TESCO.
- 2. The Cross-Subsidy, has now been based on the difference between the cost of service and average applicable GoPtariff for the relevant category.
- 3. The units sold and purchased, has been aligned with the Indexation Adjustment, determined by NEPRA for FY 2023-24 in respect of TESCO.
- 4. The Sales Mix, has been aligned with the Indexation Adjustment, determined by NEPRA for FY 2023-24 in respect of TESCO.

Foregoing in view, addendum is being submitted to the petition submitted earlier for Use of System Charges (UoSC)/Wheeling Charges for FY 2023-24, along with summary (Annexure-A) and revised results of Cost of Service Study for FY 2023-24 (Annexure-B), for the consideration of NEPRA.

For any clarification or additional information or any other matter relating hereto, Mr.Hammad Amer Hashmi, Director General MIRAD TESCO (focal person), Phone: (0330-5059090), Email:dgmiradtesco@gmail.com, dgmiradtesco@tesco.gov.pk,may please be contacted.

#### DA/As above (Annexure A, Annexure B)

CHIEF EXECUTIVE OFFICER TESCO PESHAWAR

Copy to:

on Record

Dated.

Director General, MIRAD TESCO Peshawar
 Director Finance, TESCO Peshawar //



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#### DA/As above (Annexure A, Annexure B)

CHIEF EXECUTIVE OFFICER

TESCO PESHAWAR

Copy to:

- 1. Director General, MIRAD TESCO Peshawar
- 2. Director Finance, TESCO Peshawar

TRIBAL AREAS ELECTRIC SUPPLY COMPANY



# Petition for Determination of Use of

# System Charges FY 2023-24

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 3<sup>rd</sup> July 2002, is responsible for the delivery of electricity to 445,220 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.

#### 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 11<sup>th</sup> 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, has already submitted an application for grant of Electric Power Supply License vide Letter No. 2456-61 dated 26/4/2023 to NEPRA.

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 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. 2<sup>nd</sup> 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

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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:

- 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 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:

#### 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 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:

"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:

- 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.
  - 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.
- 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 <b>OR</b> 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 2023-24 Annexure-B to arrive at cost reflective tariffs giving proper price signals for its eligible consumers.

#### 4.2. Method for Recovery of Use of System Charges

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:

- 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-1.

#### 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 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.

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Sr.	Consumption	Tariff	Voltag	Remark
No.	Category	Categor	e	S
		У	Level	
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 costumers, 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.
2.	Industrial Consumer ranging from 500 kW to 5 MW. [extendable to7.5 MW under conditions]	B-3	11/33 kV	B 3 consumer ranges from 500 kW to 5 MW.[Extendable to 7.5 MW under conditions] 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.
3.	Industrial	B-4	66/132 kV and above	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 costs.

TESCO: Petition	for Determination	of UoSC	(FY 2023-24)	Revised
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4.	Bulk Supply	C-2(b)	11/33 kV	Bulk Supply consumer ranges from
	Ranging from 500			500 KW to 5 MW. [Extendable to 7.5
	kW to 5 MW.			MW under conditions]
	[extendable to 7.5	a.		
	MW under			Although the Bulk Supply C-2
	conditions			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
				PDCs for CTPCM The use of system
				BPCS for CIBCM. The use of system
				charges indicated for C-2 category will
	1. S.			apply in case of BPC at one premises.
1				Further, the consumers falling under
				the resale shall not be considered as
				eligible
				BPC.
5.	Bulk Supply	C-3(b)	66 kV	Currently there is no C-3 consumer
	11 5		and	in TESCO Service Territory
			ahovo	Accordingly the Cost of Service
		2	above	Accordingly, the cost of service
		,		assessment could not be made.
54	1 a			However, the use of system charges
				for B-4 category of consumers are
				assessed in the analogy of C-2
	1			adjusted with differential costs
				aujusteu with unterential costs.

6.	Housing Colonies attached to Industries	Н	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	К	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.

#### 5.2. Captive Power Producers and Users

- 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.
- 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 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-A and Annexure-B which contain detailed analysis".

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# Annexure-A

#### TRIBAL AREAS ELECTRIC SUPPLY COMPANY Revised Proposed Use of System Charges For Eligible Bulk Power Consumers of 1MW or Above

ost Assessment Level	Cost	of Service (Inclusive of Er	nergy Loss Imp	lact)	Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges				
onsumption Category		Industrial			Industrial				Industrial B-3 (1 MW or More)				
ariff Category		B-3				B-3							
	Variable	able Fixed		Total	Variable	Fixed		Total	MDI Based	Volumatric	Hyorid		
Functional Cost Element	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh	
ieneration Cost - Energy	6.997			6.997	6.366			6.366	1,390.06	0.631		0.631	
eneration Cost - Capacity		9,504.73	4.318	4.318		8,646.95	3.928	3.928	8,646.95	3.928	2,594.09	2.750	
ransmission Charges		775.49	0.353	0.353		705.42	0.321	0.321	706.42	0.321	211.93	0.225	
Aarket Operator's Fee		-	-	-		-	-		The second second	al in this she	A CONTRACTOR OF THE OWNER	A STATISTICS	
istribution Use of System		414.32	0.188	0.188		376.93	0.171	0.171	376.93	0.171	113.08	0.120	
otal Applicable Costs	6.997	10,695.54	4.859	11.856	6.366	9,730.30	4.420	10.786	11,120.36	5.052	2,919.09	3.726	
mpact of allowed losses					0.631	965.25	0.438	1.070	965.25	0.438	289.57	0.307	
otal Cost of Service	6.997	10,695.54	4.859	11.856	6.997	10,695.54	4.859	11.856	12,085.51	5.490	3,208.66	4.033	
ross Subsidy				21.948				21.948	48,313.69	21.948		21.948	
verage Applicable Tariff				33.805				33.805	60,399.30	27.439	3,208.66	25.981	

.

ost Assessment Level	Cost c	of Service (Inclusive of Er	nergy Loss Imp	act)	Cost	of Service (Separated En	ergy Loss Impa	act)	PROPOSED Use of System Charges (Proposal-1)				
onsumption Category		Bulk Supply				Bulk Supply			Bulk Supply C-2(b) (1 MW or More)				
ariff Category		C2(b)				C2(b)			MDI Record	Volumatric	Hybrid		
	Variable	Fixed		Total	Variable	Fixed		Total	INIDI Dased	Volumatic			
Functional Cost Element	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh	
eneration Cost - Energy	6.997			6.997	6.366			5.366	3,015.00	0.631		0.631	
eneration Cost - Capacity		9,504.73	1.991	1.991		8,646.95	1.811	1.811	8,646.95	1.811	2,594.09	1.268	
ransmission Charges		776.49	0.163	0.163		706.42	0.148	0.148	706.42	0.148	211.93	0.104	
Distribution Use of System		538.95	0.113	0.113		490.31	0.103	0.103	490.31	0.103	147.09	0.072	
otal Applicable Costs	6.997	10,820.17	2.266	9.264	6.366	9,843.68	2.062	8.428	12,858.68	2.693	2,953.10	2.075	
mpact of allowed losses					0.631	976.49	0.205	0.836	976.49	0.205	292.95	0.14	
otal Cost of Service	6.997	10,820.17	2.266	9.264	5.997	10,820.17	2.266	9.264	13,835.17	2.898	3,246.05	2.218	
Cross Subsidy				27.228				27.228	129,996.00	27.228		27.228	
Average Applicable Tariff				36.491				36.491	143,831.16	30.125	3,246.05	29.445	
Cost Assessment Level	Cost	of Service (Inclusive of E	nergy Loss Imp	pact)	Cost	of Service (Separated Er	ergy Loss Imp	act)	P	ROPOSED Use of S	stem Charges		
Consumption Category		Industrial				Industrial			1	Industrial B-4 (1 N	W or More)		
fariff Category		B-4				B-4	Λ.		MDI Based	Volumatric	Hybrid		
					the second se				I I Dased	· · · · · · · · · · · · · · · · · · ·			

	Variable	Fixed		Total	Variable Fixed			Total	WIDI Daseu	Volumbule		
Functional Cost Element	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
Seneration Cost - Energy	6.957			6.957	6.366			6.366	1,301.73	0.591		0.591
Seneration Cost - Capacity		9,450.219	4.293	4.293		8,646.950	3.928	3.928	8,646.95	3.928	2,594.09	2.750
Transmission Charges		772.041	0.351	0.351		706.417	0.321	0.321	706.42	0.321	211.93	0.225
Distribution Use of System		411.943	0.187	0.187		376.928	0.171	0.171	376.93	0.171	113.08	0.120
Total Applicable Costs	6.957	10.634.20	4.831	11.788	6.366	9,730.30	4.420	10.786	11,032.03	5.012	2,919.09	3.686
mpact of allowed losses					0.591	903.91	0.411	1.002	903.91	0.411	271.17	0.287
Total Cost of Service	6.957	10.634.20	4.831	11.788	6.957	10,634.20	4.831	11.788	11,935.93	5.422	3,190.26	3.973
Cross Subsidy				21.898				21.898	48,202.61	21.898	A	21.898
Average Applicable Tariff				33 686		5		33.686	60,138,54	27.320	3,190.26	25.871

Cost Assessment Level	Cost	of Service (Inclusive of Er	ergy Loss Imp	act)	Cost	of Service (Separated En	ergy Loss Impa	act)	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 Bacad	Volumatric	Hybrid		
	Variable	Variable Fixed		Total	Variable	Fixed		Total	WIDI Baseu	Volumente			
Functional Cost Element	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh	
Generation Cost - Energy	7.957			7.957	6.366			6.366	7,598.28	1.591		1.591	
Generation Cost - Capacity		9,450.22	1.98	1.979		8,646.95	1.81	1.811	8,646.95	1.811	2,594.09	1.268	
Transmission Charges		772.04	0.16	0.162		706.42	0.15	0.148	706.42	0.148	211.93	0.104	
Market Operator's Fee		-	-	-		-	-	-				Constant Mi	
Distribution Use of System		535.86	0.11	0.112		490.31	0.10	0.103	490.31	0.103	147.09	0.072	
Total Applicable Costs	7.957	10,758,12	2.253	10.211	6.366	9,843.68	2.062	8.428	17,441.96	. 3.653	2,953.10	3.035	
impact of allowed losses					1.591	914.44	0.192	1.783	914.44	0.192	274.33	0.134	
Total Cost of Service	7,957	10.758.12	2.253	10.211	7.957	10,758.12	2.253	10.211	18,356.40	3.845	3,227.43	3.169	
Cross Subsidy				26.162				26.162	124,909.19	26.162		26.162	
Average Applicable Tariff				36.373				36.373	143,265.60	30.007	3,227.43	29.331	

# Annexure-B

## TRIBAL AREAS ELECTRIC SUPPLY COMPANY



## **Cost of Service Study FY 2023-24**

TESCO H/Q WAPDA HOUSE SHAMI ROAD

## TESCO - Cost of Service Study FY 2023-24 Annex-B

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## TESCO - Cost of Service Study FY 2023-24 Annex-B

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## **Tribal Areas Electric Supply Company**

#### Cost of Service Study for FY 2023-24

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 2023-24
Allowed Rate of Return (WACC) (It has been determined as the NEPRA indexation methodology)	21.14%
Capital Work in Progress ("CWIP")	CWIP 100%
Prior Year Adjustment (Rs. in Million)	-509.763/-
Demand Allocation Methodology	1 CP
Customer Growth %	0.24%
Model Year	FY 2023-24
Base Year	FY 2021-22

## Projections and Revenue Requirement for Financial Year 2023-24

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.

	1	a	b	l	е	2
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DESCRIPTION	MODEL YEAR
	FY 2023-24
Proj. Units Purchased (MkWh) incl export loss	2,470
Proj. Units Sold (MkWh) TESCO consumers	2,247
Assessed T&D Losses	9.01%
Average Monthly MDI (MW)	860
Energy Purchase Price (Rs/kWh)	6.60
Capacity Purchase Price (Rs/kW/Month)	6,066
UoS Rate (Rs/kW/Month)	495.57
POWER PURCHASE PRICE	PKR
Energy Charge	16,295,009,648
Capacity Charge	62,602,008,261
Transmission Charge	5,114,305,231
TOTAL	84,011,323,140
DISTRIBUTION MARGIN	
Pay & Allowances	1,292,034,214
Provision for Retirement Benefits	296,194,876
Maintenance	26,939,670
Traveling allowance	28,110,960
Vehicle maintenance	29,282,254
Other expenses + Wheeling Charges	74,850,268
TOTAL 0&M COST	1,747,412,242
Other Income	277,388,447
Depreciation	520,066,632
Return on Assets	655,594,992
TOTAL DISTRIBUTION MARGIN	2,645,685,419
Prior Year Adjustment	(509,763,278)
TOTAL REVENUE REQUIREMENT	86,147,245,281
AVERAGE TARIFF (Rs/kWh)	
Power Purchase Price-Unadj.	34.02
Power Purchase Price-Adjusted	37.38
Distribution Margin	1.18
Prior Year Adjustment	-0.23
AVERAGE TARIFF (Rs/kWh)	38.33

#### Summary of Revenue Requirement

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

Table 3	3
Summary of Revenue	le Requirement
Description	FY 2022-23 Rs.
Energy Charges	16,295,009,648
Capacity Charges	62,602,008,261
NTDC & MOF	5,114,305,231
	<u>ģ</u>
Power Purchase Price	84,011,323,140
O&M Cost	1,747,412,242
Depreciation	520,066,632
Provision of bad debt	-
RORB	655,594,992
Other Income	(277,388,447)
Distribution Margin	2,645,685,419
Prior Year Adjustment	(509,763,278)
Revenue Requirement	86,147,245,281

## 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	0.4	11 kV	132kV	Total
	kV	kV			
Losses %age	3.	.30%	4.21%	1.5%	9.01%

## **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.

TESCO - Cost of Service Study FY 2023-24 Annex-2 Revised

Classification by Voltage Level					
Voltage	132/66k V	11kV	0.4k V	0.2 kV	
	B4	B3	A1b	A1a	
	C3a	C2a	A2b	A2a	
Grad	C3b	C2b	A2c	B1a	
Cust		H1	A3a	C1a	
Class		H2	B1b	E1i	
Class		K1a	B2a	E1ii	
		K1b	B2b	E2	
			C1b		
			C1c		
			D1a		
	•		D1b		
			D2a		
			D2b		
		< 1	G1	4	
		5	G2		

Table 5

## GoP Applicable tariffs Notified in in July-2023.

GoP rates for various categories of TESCO consumers as notified by NEPRA vide their Letter No. No. NEPRA/RIDG(Trf)/TRF-100/19271-19290 dated July, 25<sup>th</sup> 2023 are provided in **Table 6** below.

TARIFF CATAGORIES		GOP	Rates
		Fixed* Charge (Rs/kW/M)	Variable Charge (Rs/kWh)
A1	Residential -A1		
(a)			
i	Up to 50 Units Life line		3.95
ii	51-100 units Life line		7.74
iii	01-100 Units (Protected)		7.74
iv	101-200 Units (Protected)	· · · ·	10.06
v	01-100 Units		16.48
vi	101-200 Units		22.95
vii	201-300 Units		27.14
viii	301-400Units		32.03
ix	401-500Units		35.24
x	501-600Units		36.66

Table 6

xi	601-700Units		37.80
xii	Above 700 Units		42.72
A1(b)	Time of Use (TOU) - Peak		41.89
	Time of Use (TOU) - Off-Peak		35.57
	Total Residential-A1		
	Commercial - A2		
A2	Commercial -For peak load requirement up to 5 kW		37.75
(a)			
A2 (b)	Regular	500	39.43
A2 (c	Time of Use (TOU) - Peak (A-2)	500	41.35
	Time of Use (TOU) - Off-Peak	500	35.38
A2 (d	Electric Vehicles		39.43
	Total Commercial-A2	2	
	Industrial-B		
B1(a)	B1		34.33
B1(b)	B1- TOU (Peak)		37.89
	B1 - TOU (Off-peak)	1	32.33
B2	B2	500	33.83
(a)		1	1
B2 (b)	B2 - TOU (Peak)	500	37.83
	B2 - TOU (Off-peak)	500	32.12
B3	B3 - TOU (Peak)	460	37.83
	B3 - TOU (Off-peak)	460	32.03
B4	B4 - TOU (Peak)	440	37.83
	B4 - TOU (Off-peak)	440	31.93
	Total Industrial-B		
	Bulk-C		
C1 (a)	C1(a) - up to 5 kW	3	38.43
C1 (b)	C1(b) -exceeding 5 kW	500	37.93
C1 (c )	Time of Use (TOU) - Peak	500	41.35
	Time of Use (TOU) - Off-Peak	500	34.75
C2 (a)	C2 Supply at 11 kV	460	37.73
C2 (b)	Time of Use (TOU) - Peak	460	41.35
	Time of Use (TOU) - Off-Peak	460	34.55
C3 (a)	C3 Supply above 11 kV	440	37.63
C3 (b)	Time of Use (TOU) - Peak	440	41.35
	Time of Use (TOU) - Off-Peak	440	34.45
	Total Single Point Supply-C		
	Agricultural Tube-wells - Tariff D		
D1	D1 Scarp		34.43
(2)			

D2	D2 Agricultural Tube-wells	200	24.10
D1	Time of Use (TOU) - Peak	200	37.35
(b)			
	Time of Use (TOU) - Off-Peak	200	30.10
D2	Time of Use (TOU) - Peak	200	24.10
(b)	Time of Use (TOU) Off Deels	200	24.10
	Time of use (100) - On-Peak	200	24.10
	Total Agricultural-D		
	Temporary Supply Tariff- Tariff E		
E-1(i)	Temporary E-1 (i)		42.03
E-1 (ii)	Temporary E-1 (ii)		38.14
E-2	Temporary E-2		35.41
	Total Temporary-E		
	Public Lighting- Tariff G		
G	Public Lighting G		37.43
	Total Public Lighting - G		
	Residential Colonies attached to Industrial		-
Н	Residential Colonies H		37.43
	Total Tariff-H		
	Special Contracts		
K1(a)	Azad Jammu Kashmir K1(a)	440	34.65
K1(b)	Azad Jammu Kashmir K1(b) - Peak	440	40.35
	Azad Jammu Kashmir K1(b) - Offpeak	440	33.45
K2	Rawat Lab		
	Total Special Contracts -K		
	General		
A3	General		37.31
	Total Special Contracts -K		
	Wheeling Charge-Export to DISCOS		
	Export to DISCOs-132kV		0.00
	Export to DISCOs-11kV		0.00
	Grand Total		

#### **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 for FY 2023-24

Revenue Requirement Allocation Rs. (M)						
Description	Energy	Demand	Customer	Total		
Engergy Charges	16,295,009,648	-	-	16,295,009,648		
Capacity Charges	-	62,602,008,261	-	62,602,008,261		
T.UoSC & MOF	-	5,114,305,231	-	5,114,305,231		
	-	-	-	-		
Power Purchase Price	16,295,009,648	67,716,313,492	-	84,011,323,140		
O&M Cost	-	1,130,598,353	616,813,889	1,747,412,242		
Depreciation	-	415,453,974	104,612,658	520,066,632		
RORB	· · · ·	539,686,971	115,908,021	655,594,992		
Provision of bad debt			-	-		
Other Income	-	(227,042,878)	(50,345,569)	(277,388,447)		
Distribution Margin	-	1,858,696,420	786,988,999	2,645,685,419		
Prior Year Adjustment	-	(329,139,425)	(180,623,853)	(509,763,278)		
Revenue Requirement	16,295,009,648	69,245,870,488	606,365,145	86,147,245,281		

#### Table 7

## Revenue as per GoP 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 9** 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 determination vide their Letter No. No. NEPRA/RIDG(Trf)/TRF-100/19271-19290 dated July, 25<sup>th</sup> 2023

## Table 8

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Customer		Sales	Demand	Revenue T	as per Govt ariff	
Class	Voltage	GWh	MW	Fixed (Rs.M)	Variable (Rs. M)	Iotal
Residential A1(a)	0.2kV	1632.20	474.72	-	46,888.98	46,888.98
Residential A1(b)	0.4kV	0.20	0.04	-	7.13	7.13
Commercial A2(a)	0.2kV	6.50	1.40	-	245.50	245.50
Commercial A2(b)	0.4kV	0.00	0.18	-	-	-
Commercial A2(c)	0.4kV	2.28	0.69	5.75	84.16	89.91
Commercial A2(d)	0.4kV	0.00	0.09		14.39	14.39
Industrial B1(a)	0.2kV	0.42	0.09	0.07	1.57	1.64
Industrial B2(a)	0.4kV	0.05	0.01	-	8.21	8.21
Industrial B1(b)	0.4kV	0.25	0.05	129.49	4,727.76	4,857.25
Industrial B2(b)	0.4kV	144.39	23.71	79.66	12,480.81	12,560.46
Industrial B3	11kV	384.36	14.55	-	-	-
Industrial B4	132/66kV	0.00	0.00	-	3,32	3.32
Bulk Supply C1(a)	0.2kV	0.09	0.02	5.70	100.04	105.74
Bulk Supply C1(b)	0.4kV	2.64	0.42	-	10.66	10.66
Bulk Supply C2(a)	11kV	0.28	0.06	-	-	· •
Bulk Supply C3(a)	132/66kV	0.00	0.00	1.30	309.53	310.83
Bulk Supply C1(c)	0.4kV	8.84	1.86	78.17	635.80	713.97
Bulk Supply C2(b)	11kV	17.84	0.31	-	-	· -
Bulk Supply C3(b)	132/66kV	0.00	0.00	-	54.44	54.44
AgriculturalD1(a)	0.4kV	1.58	0.34	6.02	534.20	540.22
AgriculturalD2(a)	0.4kV	22.17	4.00	2.62	183.62	186.24
AgriculturalD2(b)	0.4kV	7.62	1.40	-	-	-
AgriculturalD1(b)	0.4kV	0.00	0.00	-	-	-
Temporary Supply E1(i)	0.2kV	0.00	0.00	-	-	-
Temporary Supply E1(ii)	0.2kV	0.00	0.01	· · · ·	-	-
Temporary Supply E2	0.2kV	0.00	0.00	-	-	-
Public Lighting G	0.4kV	0.00	0.05	-	-	· -
Residential Colonies H	11kV	0.00	0.00	-	-	-
Azad Jammu Kashmir - K1a	11kV	0.00	0.00	-	-	-
Azad Jammu Kashmir - K1b	11kV	0.00	0.00	-	579.90	579.90
A3 General	0.4kV	15.54	2.29			
Total		2.247	526	308.77	66.870.04	67.178.81

#### TESCO - Cost of Service Study FY 2023-24 Annex-B Revised

Table 9

		F	Y 2023-24		
Custome				GoP Tariff	
r Class	Sales (GWh)	MDI	Fixed Charges (M.PKR)	Variable Charges (M.PKR)	Rs./ kWh
0.2 kV	1,639	476	6.020	47,740.827	29.12 4
0.4kV	206	35	144.927	6,001.938	29.19 9
11kV	402	15	157.826	13,127.271	32.61 6
132 kV	0	0	0.000	0.000	
Total	2,247	526	308.773	66,870.036	29.75 6

#### 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.

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.

				FY	2023-24					
			Energy	Demand	Generati	on Cost	Transm	Distribu	ution	
Classes	Volt. Level	No. of Customers	GWh	MW	Energy (Rs.M)	Demand (Rs.M)	Cost (Rs.M)	Demand (Rs.M)	Cust. Cost (Rs.M)	Total Cost
Residential A1(a)	0. 2kV	402554	1632.20	474.72	11925.67	56537.09	4618.83	1830.57	79.20	74,991.37
Residential A1(b)	0. 4kV	37	0. 20	0.04	1.43	4.76	0.39	0.15	0.01	6.75
Commercial A2(a)	0. 2kV	28772	6. 50	1.40	47.52	166.73	13.62	5.40	0.32	233.59
Commercial A2(b)	0. 4kV	5	0.00	0.18	0. 00	20.87	. 1.71	0.68	0.00	23.26
Commercial A2(c)	0. 4kV	172	2.28	0.69	16.67	82.10	6.71	2.66	0.11	108.25
Commercial A2(d)	0. 4kV	1	0, 00	0.09	0.00	10.72	0.88	0.35	0.00	11.94
Industrial B1(a)	0. 2kV	3180	0.42	0.09	3.06	10.72	0.88	0.35	0.02	15.02
Industrial B2(a)	0. 4kV	249	0.05	0.01	0.34	1.07	0.09	0.03	0.00	1.54
Industrial B1(b)	0. 4kV	. 24	0. 25	0.05	1.82	5.36	0.44	0.17	0.01	7.80
Industrial B2(b)	0. 4kV	812	144.39	23.71	1054.98	2824.21	230.73	91.44	6.99	4,208.35
Industrial B3	11kV	58	384.36	14.55	2689.52	1659.64	135.59	53.73	18.62	4,557.09
Industrial B4	132/66 k∨	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Bulk Supply C1(a)	0. 2kV	2	0.09	0.02	0.60	1.79	0.15	0.06	0.00	2.60
Bulk Supply C1(b)	0. 4kV	23	2.64	0.42	19.27	50.02	4.09	1.62	0.13	75.13
Bulk Supply C2(a)	11kV	1	0.28	0.06	1.98	6.84	0.56	0.22	0.01	9.62
Bulk Supply C3(a)	132/66 k∨	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Bulk Supply C1(c)	0.4kV	42	8.84	1.86	64.59	221.52	18.10	7.17	0.43	311.81
Bulk Supply C2(b)	11kV	6	17.84	0.31	124.81	35.51	2.90	1.15	0.86	165.23
Bulk Supply C3(b)	132/66 k∨	O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
AgriculturalD1(a)	0. 4kV	351	1. 58	0.34	11.55	40.49	3.31	1.31	0.08	56.74
AgriculturalD2(a)	0. 4kV	5077	22.17	4.00	161.96	476.39	38.92	15.42	1.07	693.76
AgriculturalD2(b)	0. 4kV	3	7.62	1.40	55.67	166.73	13.62	5.40	0.37	241.79
AgriculturalD1(b)	0. 4kV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Temporary Supply E1(i)	0. 2k∨	O	0.00	0.00	0. 00	0.00	0.00	0.00	0.00	
Temporary Supply E1(ii)	0. 2k∨	З	0.00	0.01	0. 00	0.66	0.05	0.02	0.00	0.74
Temporary Supply E2	0. 2kV	O	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	6.03	0.49	0.20	0.00	6.72
Residential Colonies H	11kV	O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Azad Jammu Kashmir - K1a	11kV	O	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	-
A3 General	0. 4k∨	2069	15.54	2.29	113.56	272.73	22.28	8.83	0.75	418.16
Total	and the second	443,446	2.247	526	16.295	62 602	5.114	2.027	109	86,147

#### Table 10

## TESCO – Cost of Service Study FY 2023-24 Annex-B Revised

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	STATES.		Energy	Demand	Generat	ion Cost	Transm	Distribu	ution	Total
Classes	Volt. Level	No. of Customers	GWh	M₩	Energy (Rs/kWh)	Demand (Rs/kW/ Month)	(Rs/kW /Month)	(Rs/kW/Mont h)	(Rs./ Cust/ Month)	Rs./ kWh
Residential A1(a)	0.2kV	402554	1632	475	7.31	9,924.69	810.80	321.34	16.40	45.94
Residential A1(b)	0.4kV	37	0	0	7.31	9,924.69	810.80	321.34	21.26	34.41
Commercial A2(a)	0.2kV	28772	7	1	7.31	9,924.69	810.80	321.34	0.91	35.92
Commercial A2(b)	0.4kV	5	0	0		9,924.69	810.80	321.34		
Commercial A2(c)	0.4kV	172	2	1	7.31	9,924.69	810.80	321.34	53.41	47.44
Commercial A2(d)	0.4kV	1	0	0	-	9,924.69	810.80	321.34		•
Industrial B1(a)	0.2kV	3180	0	0	7.31	9,924.69	810.80	321.34	0.53	35.85
Industrial B2(a)	0.4kV	249	0	0	7.31	9, 924. 69	810.80	321.34	0.75	33.05
Industrial B1(b)	0.4kV	24	0	0	7.31	9,924.69	810.80	321.34	42.72	31.31
Industrial B2(b)	0.4kV	812	144	24	7.31	9,924.69	810.80	321.34	718	29.15
Industrial B3	11kV	58	384	15	7.00	9, 504, 73	776.49	307.71	26,798.47	11.86
Industrial B4	132/66 kV	n	0		8. •			-		
Bulk Supply C1(a)	0.2kV	2	0	0	7.00	9,924.69	810.80	321.34	174.12	30.10
Bulk Supply C1(b)	0.4kV	23	3	0	7.31	9,924.69	810.80	321.34	458.47	28.48
Bulk Supply C2(a)	11kV	1	0	0	7.00	9, 504, 73	776.49	307.71	1,365.68	34.02
	132/66									
Bulk Supply C3(a)	k٧	0	0	-				-		
Bulk Supply C1(c)	0.4kV	42	9	2	7.31	9,924.69	810.80	321.34	841	35.27
Bulk Supply C2(b)	11k∨	6	18	0	7.00	9, 504. 73	776.49	307.71	12,673.57	9.26
	132/66									
Bulk Supply C3(b)	kV	0	0		-			-	•	
AgriculturalD1(a)	0.4kV	351	2	0	7.31	9, 924. 69	810.80	321.34	18.19	35.89
AgriculturalD2(a)	0.4kV	5077	22	4	7.31	9, 924, 69	810.80	321.34	17.62	31.30
AgriculturalD2(b)	0.4kV	3	8	1	7.31	9,924.69	810.80	321.34	9,951.14	31.73
AgriculturalD1(b)	0.4kV	0	0	· -			· · ·	-	•	
Temporary Supply E1(i)	0.2kV	O	0	-				-	-	-
Temporary Supply F1(ii)	0.2kV	з	0	0		9,924,69	810.80	321.34	-	-
Tomperery Supply 52	0.244	0	0							-
Public Lighting G	0.2KV	5	0	0		9 974 69	810.80	321 34		
Residential Colonies	U.4KV	J	0			5,524,05	010.00	021.01		
H	11kV	п	0	-	-			-		
Azad Jammu Kashmir -										
K1a	11k∨	0	0	-			-	-	-	
Azad Jammu Kashmir -										
K1b	11k∨	0	0	-	-	-	· · ·	-	-	-
A3 General	0.4kV	2069	16	2	114	273	22	9	1	418
Total/Average		443,446	2,247	526	7.25	9,912.78	809.83	320.96	20.48	38.33

#### Table 11

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

TESCO – Cost of Service Study FY 2023-24 Annex-B Revised

Table 12

			Energy	Demand	Generati	ion Cost	Transm	Distrib	ution	
Classes	Voit. Level	No. of Customers	GWh	MW	Energy (Rs/kW/ Month)	Demand (Rs/kW/ Month)	(Rs/kW /Month)	(Rs/kW/Mont h)	(Rs./ kW/ Month)	Total Rs./kW/ Month
Residential A1(a)	0.2kV	402,554	1,632	475	2,093.47	9,924.69	810.80	321.34	13.90	13,164.21
Residential A1(b)	0.4kV	37	0	0	2,986.51	9,924.69	810.80	321.34	19.80	14,063.15
Commercial A2(a)	0.2kV	28,772	7	1	2,828.41	9,924.69	810.80	321.34	18.78	13,904.03
Commercial A2(b)	0.4kV	5		0	-	9,924.69	810.80	321.34	-	11,056.84
Commercial A2(c)	0.4kV	172	2	1	2,015.60	9,924.69	810.80	321.34	13.36	13,085.80
Industrial B1(a)	0.2kV	1		0	-	9,924.69	810.80	321.34	-	11,056.84
Industrial B2(a)	0.4kV	3,180	0	0	2,835.47	9,924.69	810.80	321.34	18.83	13,911.14
Industrial B1(b)	0.4kV	249	0	0	3,144.41	9,924.69	810.80	321.34	20.85	14,222.09
Industrial B2(b)	0.4kV	24	0	0	3,372.87	9,924.69	810.80	321.34	22.36	14,452.07
Industrial B3	11kV	812	144	24	3,707.35	9,924.69	810.80	321.34	24.58	14,788.76
Industrial B4	132kV	58	384	15	15,402.81	9,504.73	776.49	307.71	106.61	26,098.35
Single P. Supply C1(a)	0.2kV	-			-	-	-	-	-	-
Single P. Supply C1(b)	0.4kV	2	0	0	3,356.03	9,924.69	810.80	321.34	23.27	14,436.14
Single P. Supply C2(a)	11kV	23	3	0	3,823.59	9,924.69	810.80	321.34	25.35	14,905.78
Single P. Supply C3(a)	132kV	1	0	0	2,746.93	9,504.73	776.49	307.71	19.01	13,354.87
Single P. Supply C1(c)	0.4k∨	-			-	-	-	-	-	-
Single P. Supply C2(b)	11 kV	42	. 9	2	2,893.81	9,924.69	810.80	321.34	19.19	13,969.83
Single P. Supply C3(b)	132kV	б	18	0	33,408.14	9,504.73	776.49	307.71	231.24	44,228.31
AgriculturalD1(a)	0.4kV	-			-	-	-	-	-	
AgriculturalD2(a)	0.4kV	351	2	0	2,831.34	9,924.69	810.80	321.34	18.77	13,906.95
AgriculturalD2(b)	0.4kV	5,077	22	4	3,374.07	9,924.69	810.80	321.34	22.37	14,453.28
AgriculturalD1(b)	0.4kV	3	8	1	3,313.66	9,924.69	810.80	321.34	21.97	14,392.47
Temp. Supply - E1(i)	0.2kV	-			-	-	-		-	-
Temp. Supply-E1(ii)	0.2kV				-	-	-	-	-	-
Temp. Supply - E2	0.2kV	3		0	-	9,924.69	810.80	321.34	-	11,056.84
Public Lighting G	0.4kV				-	-	-	-	-	·
Res. Colonies H	11 kV	5		0	-	9,924.69	810.80	321.34	-	11,056.84
АЈК - К1а	11kV		-	2		-	-	-	-	-
AJK - K1b	11kV	· •	-					-	-	-
A3 General	0.4kV		-		-	-	-	-	-	-
Total	自己的问题是	441 377	7 737	574	2 580 25	9 917 78	800 83	220.96	1776	13 641 08

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## 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.

		FY	2023-24				
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	1,632.20	474.72	41.95	2.83	1.17	45.94
Residential A1(b)	0.4kV	0.20	0.04	31.59	1.98	0.83	34.41
Commercial A2(a)	0.2kV	6.50	1.40	32.94	2.09	0.88	35.92
Commercial A2(b)	0.4kV	-	0.18	-		-	-
Commercial A2(c)	0.4kV	2.28	0.69	43.28	2.94	1.21	47.44
Commercial A2(d)	0.4kV		0.09	- 1		-	-
Industrial B1(a)	0.2kV	0.42	0.09	32.88	2.09	0.88	35.85
Industrial B2(a)	0.4kV	0.05	0.01	30.37	1.88	0.80	33.05
Industrial B1(b)	0.4kV	0.25	0.05	28.81	1.76	0.74	31.31
Industrial B2(b)	0.4kV	144.39	23.71	26.87	1.60	0.68	29.15
Industrial B3	11kV	384.36	14.55	11.32	0.35	0.19	11.86
Industrial B4	132/66kV		-		-	-	-
Bulk Supply C1(a)	0.2kV	0.09	0.02	27.69	1.69	0.72	30.10
Bulk Supply C1(b)	0.4kV	2.64	0.42	26.27	1.55	0.66	28.48
Bulk Supply C2(a)	11kV	0.28	0.06	31.21	1.98	0.83	34.02
Bulk Supply C3(a)	132/66kV	-	-	. –	-	-	-
Bulk Supply C1(c)	0.4kV	8.84	1.86	32.37	2.05	0.86	35.27
Bulk Supply C2(b)	11kV	17.84	0.31	8.99	0.16	0.11	9.26
Bulk Supply C3(b)	132/66kV	-	-	-	-	-	-
AgriculturalD1(a)	0.4kV	1.58	0.34	32.92	2.09	0.88	35.89
AgriculturalD2(a)	0.4kV	22.17	4.00	28.80	1.76	0.74	31.30
AgriculturalD2(b)	0.4kV	7.62	1.40	29.19	1.79	0.76	31.73
AgriculturalD1(b)	0.4kV	-	-	-	-	-	-
Temporary Supply E1(i)	0.2kV	-	-	-	-	-	-
Temporary Supply E1(ii)	0.2kV		0.01	· · ·	-	-	-
Temporary Supply E2	0.2kV	-	-	-	-	-	•
Public Lighting G	0.4kV	-	0.05	-	-	-	-
Residential Colonies H	11kV	-	-	-	-	•	-
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	
Azad Jammu Kashmir - K1b	11kV	-	-	-		-	-
A3 General	0.4kV	15.54	2.29	24.85	1.43	0.62	26.90
Total		2.247	526	34.94	2.27	15.48	38.33

#### Table 13

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#### 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.

		Allocated C	ost Rs. (M)		Variable	
Voltage Level	Sales GWh	Fixed Cost	Variable Cost	Fixed Charge Rs/kW/Month	Charge Rs/kWh	Rs/kWh
0.2 kV	1632.20	62,986.49	12,004.87	11,057	7.36	45.94
0.4 kV	0.20	5.31	1.44	11,057	7.35	34.41
0.2 kV	6.50	185.75	47.83	11,057	7.36	35.92
0.4 kV	0.00	23.26	-	11,057	-	-
0.4 kV	2.28	91.47	16.78	11,057	7.35	47.44
0.4 KV	0.42	11.94	-	11,057	-	4
0.2 kV	0.05	11.94	3.08	11,057	7.36	35.85
0.4 kV	0.25	1.19	0.34	11,057	7.35	33.05
0.4 kV	144.39	5.97	1.83	11,057	7.35	31.31
0.4 kV	384.36	3,146.38	1,061.97	11,057	7.35	29.15
11kV	0.00	1,848.96	2,708.14	10,589	7.05	11.86
132/66kV	0.09	-	-	-	-	-
0.2 kV	2.64	1.99	0.61	11,057	7.05	30.10
0.4 kV	0.28	55.73	19.40	11,057	7.35	28.48
11kV	0.00	7.62	1.99	10,589	7.05	34.02
132/66kV	8.84	-	· -	-	-	-
0.4 kV	17.84	246.79	65.02	11,057	7.35	35.27
11kV	0.00	39.56	125.67	10,589	7.05	9.26
132/66kV	1.58	-	-	-	-	-
0.4 kV	22.17	45.11	11.63	11,057	7.35	35.89
0.4 KV	7.62	530.73	163.03	11,057	7.35	31.30
0.4 kV	0.00	185.75	56.04	11,057	7.35	31.73
0.4 kV	0.00	-	-	-	-	-
0.2 kV	0.00	-	· · · -	-	-	-
0.2 kV	0.00	0.74		11,057	-	-
0.2 kV	0.00	-	-	-	-	-
0.4 kV	0.00	6.72	-	11,057	-	-
11kV	0.00	-	-	-	-	-
11kV	0.00	-		-	-	-
0.4 kV	15.54	303.84	114.32	11,057	7.35	-
	Voltage Level 0.2 kV 0.4 kV 0.2 kV 0.4 kV 0.4 kV 0.4 kV 0.4 kV 0.4 kV 0.4 kV 0.4 kV 0.4 kV 0.4 kV 11 kV 132/66 kV 0.4 kV 11 kV 132/66 kV 0.4 kV 11 kV 132/66 kV 0.4 kV 0.4 kV 11 kV 132/66 kV 0.4 kV 11 kV 11 kV 11 kV 11 kV 0.4 kV	Voltage Level         Sales GWh           0.2 kV         1632.20           0.4 kV         0.20           0.2 kV         6.50           0.4 kV         0.00           0.4 kV         0.00           0.4 kV         0.00           0.4 kV         0.28           0.4 kV         0.48           0.4 kV         0.42           0.2 kV         0.05           0.4 kV         0.25           0.4 kV         144.39           0.4 kV         384.36           11 kV         0.00           132/66 kV         0.99           0.2 kV         2.64           0.4 kV         0.28           11 kV         0.00           132/66 kV         1.58           0.4 kV         17.84           11 kV         0.00           132/66 kV         1.58           0.4 kV         7.62           0.4 kV         7.62           0.4 kV         0.00           0.2 kV         0.00	Voltage Level         Sales GWh         Allocated C Fixed Cost           0.2 kV         1632.20         62,986.49           0.4 kV         0.20         5.31           0.2 kV         6.50         185.75           0.4 kV         0.00         23.26           0.4 kV         2.28         91.47           0.4 kV         0.42         11.94           0.2 kV         0.05         11.94           0.4 kV         0.25         1.19           0.4 kV         0.25         1.19           0.4 kV         144.39         5.97           0.4 kV         384.36         3,146.38           11kV         0.00         1,848.96           132/66 kV         0.09         -           0.4 kV         2.64         1.99           0.4 kV         0.28         55.73           11kV         0.00         7.62           132/66 kV         1.58         -           0.4 kV         17.84         246.79           11kV         0.00         39.56           132/66 kV         1.58         -           0.4 kV         7.62         530.73           0.4 kV         0.00         -	Voltage Level         Sales GWh         Allocated Cost Rs. (M) Fixed Cost         Variable Cost $0.2 kV$ 1632.20         62,986.49         12,004.87 $0.4 kV$ $0.20$ $5.31$ $1.44$ $0.2 kV$ $6.50$ $185.75$ $47.83$ $0.4 kV$ $0.00$ $23.26$ - $0.4 kV$ $0.00$ $23.26$ - $0.4 kV$ $0.42$ $11.94$ - $0.4 kV$ $0.42$ $11.94$ - $0.2 kV$ $0.05$ $11.94$ $3.08$ $0.4 kV$ $0.42$ $11.94$ $3.08$ $0.4 kV$ $0.42$ $11.94$ $3.08$ $0.4 kV$ $0.42$ $11.94$ $3.08$ $0.4 kV$ $0.25$ $1.19$ $0.34$ $0.4 kV$ $384.36$ $3,146.38$ $1,061.97$ $11kV$ $0.00$ $7.62$ $1.99$ $0.61$ $0.4 kV$ $2.64$ $1.99$ $0.61$ $0.4 kV$ $1.266kV$ $1.88$	Voltage Level         Sales GWh         Allocated Cost Rs. (M) Fixed Cost         Fixed Charge Rs/kW/Month           0.2kv         1632.20         62,986.49         12,004.87         11,057           0.4kv         0.20         5.31         1.44         11,057           0.4kv         0.20         5.31         1.44         11,057           0.4kv         0.00         23.26         -         11,057           0.4kv         0.42         11.94         -         11,057           0.4kv         384.36         3,146.38         1,061.97         11,057           11kv         0.00         1,848.96         2,708.14         10,589           132/66kv         8.84         -         -         - <td< td=""><td>Voltage Level         Sales GWh         Allocated Cost Rs. (M) Fixed         Fixed Charge Cost         Variable Rs/kW/Month         Variable Charge Rs/kWh           0.2 kV         1632.20         62,986.49         12,004.87         11.057         7.36           0.4 kV         0.20         5.31         1.44         11,057         7.35           0.4 kV         0.00         23.26         -         11,057         7.35           0.4 kV         0.00         23.26         -         11,057         -           0.4 kV         0.42         11.94         -         11,057         -           0.4 kV         0.42         11.94         -         11,057         -           0.4 kV         0.42         11.94         -         11,057         7.35           0.4 kV         0.25         1.19         0.34         11,057         7.35           0.4 kV         384.36         3,146.38         1,061.97         11,057         7.35           0.4 kV         384.36         3,146.38         1,061.97         11,057         7.35           11kV         0.00         7.62         1.99         10,589         7.05           132/66kV         8.84         -         -<!--</td--></td></td<>	Voltage Level         Sales GWh         Allocated Cost Rs. (M) Fixed         Fixed Charge Cost         Variable Rs/kW/Month         Variable Charge Rs/kWh           0.2 kV         1632.20         62,986.49         12,004.87         11.057         7.36           0.4 kV         0.20         5.31         1.44         11,057         7.35           0.4 kV         0.00         23.26         -         11,057         7.35           0.4 kV         0.00         23.26         -         11,057         -           0.4 kV         0.42         11.94         -         11,057         -           0.4 kV         0.42         11.94         -         11,057         -           0.4 kV         0.42         11.94         -         11,057         7.35           0.4 kV         0.25         1.19         0.34         11,057         7.35           0.4 kV         384.36         3,146.38         1,061.97         11,057         7.35           0.4 kV         384.36         3,146.38         1,061.97         11,057         7.35           11kV         0.00         7.62         1.99         10,589         7.05           132/66kV         8.84         -         - </td

Table 14

## 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.

Τ	a	bl	le	1	5

Customer		Sales	Demand	Reven NEPI	ue as per RA Tariff		Cost of So	ervice	
Class	Voltage	GWh	MW	Fixed (Rs.M)	Variable (Rs. M)	Total	Fixed (Rs.M)	Variable (Rs. M)	Total
Residential A1(a)	0.2kV	1632.20	474.72	-	61,408.75	61,408.75	62,986.49	12,004.87	74,991.37
Residential A1(b)	0.4kV	0.20	0.04	-	8.60	8.60	5.31	1.44	6.75
Commercial A2(a)	0.2kV	6.50	1.40	-	293.44	293.44	185.75	47.83	233.59
Commercial A2(b)	0.4kV	0.00	0.18	-	-	-	23.26	-	23.26
Commercial A2(c)	0.4kV	2.28	0.69	-	100.98	100.98	91.47	16.78	108.25
Commercial A2(d)	0.4kV	0.00	0.09	-	17.41	17.41	11.94	-	11.94
Industrial B1(a)	0.2kV	0.42	0.09	0.07	1.91	1.98	11.94	3.08	15.02
Industrial B2(a)	0.4kV	0.05	0.01	-	10.01	10.01	1.19	0.34	1.54
Industrial B1(b)	0.4kV	0.25	0.05	-	5,768.81	5,768.81	5.97	1.83	7.80
Industrial B2(b)	0.4kV	144.39	23.71	-	15,252.07	15,252.07	3,146.38	1,061.97	4,208.35
Industrial B3	11kV	384.36	14.55	-	-	-	1,848.96	2,708.14	4,557.09
Industrial B4	132/66kV	0.00	0.00	-	3.95	3.95	-	-	-
Bulk Supply C1(a)	0.2kV	0.09	0.02	5.70	119.48	125.18	1.99	0.61	2.60
Bulk Supply C1(b)	0.4kV	2.64	0.42	-	12.75	12.75	55.73	19.40	75.13
Bulk Supply C2(a)	11kV	0.28	0.06	-	-	-	7.62	1.99	9.62
Bulk Supply C3(a)	132/66kV	0.00	0.00	-	374.68	374.68	-	-	-
Bulk Supply C1(c)	0.4kV	8.84	1.86	-	767.25	767.25	246.79	65.02	311.81
Bulk Supply C2(b)	11kV	17.84	0.31	·	-	-	39.56	125.67	165.23
Bulk Supply C3(b)	132/66kV	0.00	0.00	-	66.09	66.09	-	-	-
AgriculturalD1(a)	0.4kV	1.58	0.34	-	697.56	697.56	45.11	11.63	56.74
AgriculturalD2(a)	0.4kV	22.17	4.00	-	239.78	239.78	530.73	163.03	693.76
AgriculturalD2(b)	0.4kV	7.62	1.40	-	-	-	185.75	56.04	241.79
AgriculturalD1(b)	0.4kV	0.00	0.00	-	-	-	-	-	-
Temporary Supply E1(i)	0.2kV	0.00	0.00		-	-	-		-
Temporary Supply E1(ii)	0.2kV	0.00	0.01	-	-	-	0.74	-	0.74
Temporary Supply E2	0.2kV	0.00	0.00	-	-	-	-	-	-
Public Lighting G	0.4kV	0.00	0.05	-	-		6.72	-	6.72
Residential Colonies H	11kV	0.00	0.00	-	-	-	-	-	-
Azad Jammu Kashmir - K1a	11kV	0.00	0.00	-	-	-	-	-	- 1
Azad Jammu Kashmir - K1b	11kV	0.00	0.00	-			-	-	
A3 General	0.4kV	15.54	2.29	5.77	695.23	-	303.84	114.32	418.16
Total		2,247	526	5.77	85,838.74	85,844.52	69,743.25	16,404.00	86,147.25

#### 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.

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Customer		Sales	Demand	Reven	ue as per RA Tariff		Cast of Se	rvice		Differenc M.	e/Subsidy PKR	Revent F	ue to Cost latio
Class	Voltage	GWh	MW	Fixed (Rs.M)	Variable (Rs. M)	Total	Fixed (Rt.M)	Variable (Rs. M)	lotai	Fixed Rs. M	Variable Rs. M	Fixed	Variable
Residential A1(a)	0.2kV	1632.20	474.72		61,408.75	61,408.75	62,986.49	12,004.87	74,991.37	62,986.49	(49,403.88)	-	5.12
Residential A1(b)	0.4kV	0.20	0.04		8.60	8.60	5.31	1.44	6.75	5.31	(7.16)		5.96
Commercial A2(a)	0.2kV	6.50	1.40		293.44	293.44	185.75	47.83	233.59	185.75	(245.60)		6.13
Commercial A2(b)	0.4kV	0.00	0.18				23.26		23.26	23.26		-	
Commercial A2(c)	0.4kV	2.28	0.69		100.98	100.98	91.47	16.78	108.25	91.47	(84.19)	-	6.02
Commercial A2(d)	0.4kV	0.00	0.09		17.41	17.41	11.94		11.94	11.94	(17.41)		
Industrial B1(a)	0.2kV	0.42	0.09	0.07	1.91	1.98	11.94	3.08	15.02	11.87	1.18	0.01	0.62
Industrial B2(a)	0.4kV	0.05	0.01		10.01	10.01	1.19	0.34	1.54	1.19	(9.66)	-	29.27
Industrial B1(b)	0.4kV	0.25	0.05		5,768.81	5,768.81	5.97	1.83	7.80	5.97	(5,766.97)	-	3,146.47
Industrial B2(b)	0.4kV	144.39	23.71		15.252.07	15.252.07	3,146.38	1,061.97	4,208.35	3,146.38	(14,190.10)		14.36
Industrial B3	11kV	384, 36	14.55				1,848.96	2,708.14	4,557.09	1,848.96	2,708.14		
Industrial B4	132/66kV	0.00	0.00		3.95	3.95					(3.95)		
Bulk Supply C1(a)	0.2kV	0.09	0.02	5.70	119.48	125.18	1.99	0.61	2.60	(3.71)	(118.87)	2.87	196.42
Bulk Supply C1(b)	0.4kV	2.64	0.42		12.75	12.75	55.73	19.40	75.13	55.73	6.65		0.66
Bulk Supply C2(a)	11kV	0.28	0.06				7.62	1.99	9.62	7.62	1.99		
Bulk Supply C3(a)	132/66kV	0.00	0.00		374.68	374.68		1.1			(374.68)		
Bulk Supply C1(c)	0.4kV	8.84	1.86		767.25	767.25	246.79	65.02	311.81	246.79	(702.24)		11.80
Bulk Supply C2(b)	11kV	17.84	0.31				39.56	125.67	165.23	39.56	125.67	-	
Bulk Supply C3(b)	132/66kV	0.00	0.00		66.09	66.09					(66.09)		
Agricultural D 1(a)	0.4kV	1.58	0.34		697.56	697.56	45.11	11.63	56.74	45.11	(685.93)		59.99
AgriculturalD2(a)	0.4kV	22.17	4.00		239.78	239.78	530.73	163.03	693.76	530.73	(76.75)		1.47
Agricultural D 2(b)	0.4kV	7.62	1.40				185.75	56.04	241.79	185.75	56.04		
Agricultural D 1(b)	0.4kV	0.00	0.00										
Temporary Supply E1(i)	0.2kV	0.00	0.00										
Temporary Supply E1(ii)	0.2kV	0.00	0.01				0.74		0.74	0.74			
Temporary Supply E2	0.2kV	0.00	0.00		-					-		-	
Public Lighting G	0.4kV	0.00	0.05				6.72		6.72	6.72			
Residential Colonies H	11kV	0.00	0.00										
Azad Jammu Kashmir - K1a	11kV	0.00	0.00				-			-		-	
Azad Jammu Kashmir - K1b	11kV	0.00	0.00				-						
A3 General	0.4kV	15.54	2.29	5.77	695.23		303.84	114.32	418.16	303.84	(580.92)		6.08
Total	12000	2,247	526	5.77	85,838.74	85,844.52	69,743.25	16,404.00	86,147.25	69,737.47	(69,434.74)	0.00	5.23

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

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

- 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 be connected at 11 KV level, as required.

#### Master Data for Results of TESCO's Cost of Service Study (FY 2023-24)

For interest of the readers to glance through overall master data for result of TESCO's Cost of Service Study (FY 2023-24), following Tables (**Table 17** to **Table 23**) are added separately.

#### **Final Remarks:**

- The above Cost of Service Study Report (FY 2023-24) 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.

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Table17

						FY 2023-24							
		En ergy (	łWł	Deman	MM p	Generatio	n Cost	Transmission Cost	Distributio	an Cast		Cost	
Tariff Category	Voltage Level	Sold	Purchased	at Meter	at CDP	En ergy (Rs.M)	Demand (Rs.M)	(Rs.M)	Demand (Rs.M)	Customer Cost (Rs.M)	Total Cost (Rs. M)	Rs./kwh sold	Cost Rs./kWh Purchased
Residential A1(a)	0.2kV	1,632.202	1794.117	474.72	521.81	11925.67	56537.09	4618.83	1830.57	79.20	74991.365	45.945	41.798
Residential A1(b)	0.4kV	0.196	0.216	0.04	0.04	1.43	4.76	0.39	0.15	0.01	6.750	34.405	31.300
Commercial A 2(a)	0.2kV	6.503	7.149	1.40	1.54	47.52	166.73	13.62	5.40	0.32	233.588	36.918	32.676
Commercial A2(b)	0.4kV	0.000	0.000	0.18	0.19	0.00	20.87	1.71	0.68	0.00	23.256	0.000	0:000
Commercial A2(c)	0.4kV	2.282	2.509	0.69	0.76	16.67	82.10	6.71	2.66	0.11	108.255	47.436	4 3,155
Commercial A 2(d)	0.4kV	0,000	0.000	0.09	0.10	0.00	10.72	0.88	0.35	0.00	11.941	0.000	0.000
Industrial B1(a)	0.2kV	0.419	0.461	0.09	0.10	3.06	10.72	0.88	0.35	0.02	15.024	35,846	32.611
Industrial B2(a)	0.4kV	0.046	0.051	0.01	0.01	0.34	1.07	0.09	0.03	0.00	1.536	33.047	30.065
Industrial B1(b)	0.4kV	0.249	0.274	0.05	0.05	1.82	5.36	0.44	0.17	0.01	7.804	31, 307	28.481
Industrial B2(b)	0.4kV	144.389	158.712	23.71	26.07	1064.98	2824.21	230.73	91.44	6.99	4208.349	29.146	26.516
Industrial B3	11kV	384.364	422,493	14.55	15.99	2689.52	1659.64	136.59	53.73	18.62	4557.093	11.856	10.786
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
Bulk Supply C1 (a)	0.2kV	0.086	0.035	0.02	0.02	0.60	1.79	0.15	0.06	0.00	2.599	660'0E	27.383
Bulk Supply C1 (b)	0.4kV	2.638	2.899	0.42	0.46	19.27	50.02	4.09	1.62	0.13	75.125	28.483	25.913
Bulk Supply C2(a)	11kV	0.283	0.311	0.06	0.07	1.98	6.84	0.56	0.22	0.01	9.616	34.019	30.949
Bulk 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
Bulk Supply C1 (c)	0.4kV	8.840	9.717	1.86	2.04	64.59	221.52	18.10	7.17	0.43	311.807	36.272	32.089
Bulk Supply C2(b)	11kV	17.836	19,606	0.31	0.34	124.81	36.51	2.90	1.15	0.86	165.229	9.264	8.4 28
Bulk 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
AgriculturalD1(a)	0.4kV	1.581	1.738	0.34	0.37	11.55	40.49	3.31	1.31	0.08	56.740	35.888	32.649
AgriculturalD2(a)	0.4kV	22.166	24.365	4.00	4.40	161.96	476.39	38.92	15.42	1.07	693, 75 7	31.298	28.474
AgriculturalD2(b)	0.4kV	7.619	8.375	1.40	1.54	55.67	166.73	13.62	5.40	0.37	241.793	31.735	28.871
AgriculturalD1(b)	0.4kV	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Temporary Supply E1(i)	0.2kV	0.000	0.000	0.00	0:00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Temporary Supply E1(ii)	0.2kV	0.000	0.000	0.01	0.01	0.00	0.66	0.05	0.02	0.00	0.739	0.000	0.000
Temporary Supply E2	0.2kV	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Public Lighting G	0.4kV	0.000	0.000	0.05	0.06	0.00	6.03	0.49	0.20	0.00	6.720	0.000	0.000
Residential Colonies H	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
Azad Jammu Kashmir - K1a	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
Azad Jammu Kashmir - K1b	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
A3 General	0.4kV	15.543	17.085	2.29	2.52	113.56	272.73	22.28	8.83	0.75	418.159	26.904	24.476
Total		2247	2470	526	578	16295	62602	5114	20.27	109	86147	38.33	34.88

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Table 18

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				FΥ	2023-24	(kW or kWh a	t Consumer	(					
		Energy (	swh	Deman	MW P	Generatio	n Cost	Transmission	Distributi	on Cost	Total Elvod	Even Cert	Total Cort.
Classes	Voltage Level	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)	Cost (Rs./kw/M)	Rs./kwh sold	Rs./kwh Sold
Residential A1(a)	0.2kV	1632.202	1794.117	475	522	7.306	9924.690	810.803	321.343	13.903	11070.740	38.638	45.945
Residential A1(b)	0.4kV	0.196	0.216	0	0	7.306	9924.690	810.803	321.343	19.800	11076.637	27.099	34.405
Commercial A2(a)	0.2kV	6.503	7.149	1	2	7.306	9924.690	810.803	321.343	18.784	11075.621	28.611	35.918
Commercial A2(b)	0.4kV	0.000	0.000	0	0	0.000	9924.690	810.803	321,343	0.000	11056.837	0.000	0.000
Commercial A2(c)	0.4kV	2.282	2.509	1	1	7.306	9924.690	810.803	321.343	13.363	11070.200	40.129	47.436
Commercial A2(d)	0.4kV	0.000	0.000	0	0	0.000	9924.690	810.803	321.343	0.000	11056.837	0.000	0.000
Industrial B1(a)	0.2kV	0.419	0.461	0	0	7.306	9924.690	810.803	321.343	18.831	110 75.667	28.540	35.846
Industrial B2(a)	0.4kV	0.046	0.051	0	0	7.306	9924.690	810.803	321.343	20.847	11077.684	25.741	33.047
Industrial B1(b)	0.4kV	0.249	0.274	0	0	7.306	9924.690	810.803	321.343	22.362	11079.198	24.000	31.307
Industrial B2(b)	0.4kV	144.389	158.712	24	26	7.306	9924.690	810.803	321.343	24.579	11081.416	21.839	29.146
Industrial B3	11kV	384.364	422.493	15	16	6.997	9504.728	776.494	30 7. 705	106.614	10695.541	4.859	11.856
Industrial B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0,000	0.000	0.000	0.000	0.000
Bulk Supply C1 (a)	0.2kV	0.086	0.095	0	0	6.997	9924.690	810.803	321.343	23.273	11080.109	23.102	30.099
Bulk Supply C1 (b)	0.4kV	2.638	2.899	0	0	7.306	9924.690	810.803	321.343	25.350	11082.187	21.177	28.483
Bulk Supply C2(a)	11kV	0.283	0.311	0	0	6.997	9504.728	776.494	307,705	19.013	10607.941	27.022	34.019
Bulk 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	0.000
Bulk Supply C1 (c)	0.4kV	8.840	9.717	2	2	7.306	9924.690	810.803	321.343	19.185	11076.022	27.966	35.272
Bulk Supply C2(b)	11kV	17.836	19.606	0	0	6.997	9504.728	776.494	307.705	231.242	108 20.169	2.266	9.264
Bulk 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	0.000
AgriculturalD1(a)	0.4kV	1.581	1.738	0	0	7.306	9924.690	810.803	321.343	18.771	11075.608	28.581	35,888
AgriculturalD2(a)	0.4kV	22.166	24.365	4	4	7.306	9924.690	810.803	321.343	22.370	110 79.206	23.992	31.298
AgriculturalD2(b)	0.4kV	7.619	8.375	1	2	7.306	9924.690	810.803	321.343	21.969	11078.806	24.428	31.735
AgriculturalD1(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
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
Temporary Supply E1(ii)	0.2kV	0.000	0.000	0	0	0.000	9924.690	810.803	321.343	0.000	11056.837	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
Public Lighting G	0.4kV	0.000	0.000	0	0	0.000	9924.690	810.803	321.343	0.000	11056.837	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
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
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
Total		2231.70	2453	524	576	7.302	9956.105	813.369	322.359	17.334	11109.167	31.300	38.602

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Table 19

FY 2023-24 (kW or kWh	3-24 (kW or kWh	1×	(CDP)	100 200 200 200 200 200 200 200 200 200	A CONTRACT OF A CONTRACT OF		States States		1.87 A 143			
Energy GWh	ΗME		Deman	d MW	Generatio	on Cost	Transmission	Distributi	on Cast	Total Fixed	Fixed Cost	Total Cost
Sold Purcha	Purcha	sed	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kw/M)	Customer Cost (Rs./kw/M)	Cost (Rs./kw/ M)	Rs./kWh Purchased	Rs./kWh Purchased
1632.202 1794.	1794.	117	475	522	6.647	9029.012	737.630	292.343	12.648	10071.634	35.151	41.798
0.196 0.2	0.2	16	0	0	6.647	9029.012	737.630	292.343	18.013	10076.999	24.653	31.300
6.503 7.14	7.14	61	1	2	6.647	9029.012	737.630	292.343	17.089	10076.074	26.029	32.676
0.00 0.000	0.0(	8	0	0	0.000	9029.012	737.630	292.343	0.000	10068.985	0.000	0.000
2.282 2.56	2.5(	60	1	1	6.647	9029.012	737.630	292.343	12.157	10071.143	36.508	43.155
0.00 0.00	0.00	8	0	0	0.000	9029.012	737.630	292.343	0.000	10058.985	0.000	0.000
0.419 0.40	0.40	51	0	0	6.647	9029.012	737.630	292.343	17.131	10076.117	25.964	32.611
0.046 0.05	0.05	1	0	0	6.647	9029.012	737.630	292.343	18.966	10077.961	23.418	30.065
0.249 0.27	0.27	=	0	0	6.647	9029.012	737.630	292.343	20.343	10079.329	21.834	28.481
144.389 158.71	158.71	2	24	26	6.647	9029.012	737.630	292.343	22.361	10081.346	19.868	26.516
384.364 422.49	422.49	3	15	16	6.366	8646.950	706.417	279.936	96.992	9730.296	4.420	10.786
0.000 0.000	0000		0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.086 0.095	0.035		0	0	6.366	9029.012	737.630	292.343	21.172	10080.158	21.017	27.383
2.638 2.899	2.899		0	0	6.647	9029.012	737.630	292.343	23.062	10082.047	19.266	Z5.913
0.283 0.311	0.311		0	0	6.366	8646.950	706.417	279.936	17.298	9650.601	24.583	30.949
0.000 0.000	0.000		0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8.840 9.717	9.717		2	2	6.647	9029.012	737.630	292.343	17.454	10076.439	25.442	32.089
17.836 19.606	19.606		0	0	6.366	8646.950	706.417	279.936	210.373	9843.676	2.062	8.428 •
0.000 0.000	0.000		0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.738 1.738	1.738		0	0	6.647	9029.012	737.630	292.343	17.077	10076.063	26.002	32.649
22.166 24.365	24.365		4	4	6.647	9029.012	737.630	292.343	20.351	10079.336	21.827	28.474
7.619 8.37	8.37		1	2	6.647	9029.012	737.630	292.343	19.986	10078.972	22.224	28.871
0.000 0.000	0.000	0	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	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	0	0:000	9029.012	737.630	292.343	0.000	10058.985	0.000	0.000
0.000 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	0	0	0:000	9029.012	737.630	292.343	0.000	10058.985	0.000	0.000
0.00 0.00	00.0	0	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.00 0.000	00.0	0	0	0	0:000	0.000	0.000	0.000	0,000	0000	0.000	• 00000
0.000 0.000	0.000		0	0	0.000	0.000	0.000	0.000	0.000	0,000	0.000	0.000
2231.70 245	245	-	524	576	· 6.643	9057.592	739.965	293.267	15.769	10106.593	28.475	35.118

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Table 20

					FY 2023	-24 (kWh at Co	onsumer)						
		Energy	Gwh	Deman	WW pu	Generatio	n.Cost	Transmission	Distributi	an Cost	Total Fived	Fived Cost	Total Cost
Classes	Voltage Level	sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kWh)	Cast (Rs./kWh)	Demand (Rs./kWh)	Customer Cost iRs./kwh)	Cost (Rs./kWh)	Rs./kwh Purchased	Rs./kwh Sald
Residential A1(a)	0.2kV	1632.202	1794.117	475	522	7.306	34.639	2.830	1.122	0.049	38,638	38.638	45.945
Residential A1(b)	0.4kV	0.196	0.216	0	0	7.306	24.281	1.984	0.786	0.048	27.099	27.099	34.405
Commercial A2(a)	0.2kV	6.503	7.149	1	2	7.306	25.638	2.095	0.830	0.049	28.611	28.611	35.918
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	0.000
Commercial A2(c)	0.4kV	2.282	2.509	1	1	7.306	35.977	2.939	1.165	0.048	40.129	40.129	47.436
Commercial A2(d)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial B1(a)	0.2kV	0.419	0.461	0	0	7.306	25.574	2.089	0.828	0.049	28.540	28.540	35.846
Industrial B2(a)	0.4kV	0.046	0.051	0	0	7.306	23.061	1.884	0.747	0.048	25.741	25.741	33.047
Industrial B1(b)	0.4kV	0.249	0.274	0	0	7.306	21.499	1.756	0.696	0.048	24.000	24.000	31.307
Industrial B2(b)	0.4kV	144.389	158.712	24	26	7.306	19.560	1.598	0.633	0.048	21.839	21.839	29.146
Industrial B3	11kV	384.364	422.493	15	16	266.9	4.318	0.353	0.140	0.048	4.859	4.859	11.856
Industrial B4	132/66kv	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bulk Supply C1(a)	0.2kV	0.086	0.095	0	0	6.997	20.693	1.691	0.670	0.049	23.102	23.102	30.099
Bulk Supply C1(b)	0.4kV	2.638	2.899	0	0	7.306	18.965	1.549	0.614	0.048	21.177	21.177	28.483
Bulk Supply C2(a)	11kV	0.283	0.311	0	0	6.997	24.212	1.978	0.784	0.048	27.022	27.022	34.019
Bulk 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	0.000
Bulk Supply C1(c)	0.4kV	8.840	9.717	2	2	7.306	25.059	2.047	0.811	0.048	27.966	27.966	35.272
Bulk Supply C2(b)	11kV	17.836	19.606	0	0	6,997	1.991	0.163	0.064	0.048	2.266	2.266	9.264
Bulk 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	0.000
AgriculturalD1(a)	0.4kV	1.581	1.738	0	0	7.306	25.611	2.092	0.829	0.048	28.581	28.581	35,888
AgriculturalD2(a)	0.4kV	22.166	24.365	4	4	7.306	21.492	1.756	0.696	0.048	23.992	23.992	31,298
AgriculturalD2(b)	0.4kV	7.619	8.375	1	2	7.306	21.884	1.788	0.709	0.048	24.428	24.428	31.735
AgriculturalD1(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
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
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
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
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
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
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
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
Total		2231.70	2453	524	576	7.302	28.051	2.292	0.908	0.049	31.300	31.300	38.602

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Table 21

					FY 20	23-24 (kWh ai	: CDP)						
		Energy	GWh	Deman	MM p	Generation	1 Cost	Transmission	Distributio	on Cost			trad Cost
Classes	Voltage Level	Sold	Purchased	at Meter	at CDP	Energy (Rs./kwh)	Demand (Rs./kwh)	Cost (Rs./kwh)	Demand (Rs./kWh)	Customer Cost (Rs./kwh)	l otal Hxed Cost (Rs./kwh)	Fixed Cost Rs./kWh Purchased	Rs./kWh Purchased
Residential A1(a)	0.2kV	1632.202	1794.117	475	522	6.647	31.512	2.574	1.020	0.044	35.151	35.151	41.798
Residential A1(b)	0.4kV	0.196	0.216	0	0	6.647	22.089	1.805	0.715	0.044	24.653	24.653	31.300
Commercial A2(a)	0.2kV	6.503	7.149	1	2	6.647	23.324	1.905	0.755	0.044	26.029	26.029	32.676
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	0.000
Commercial A2(c)	0.4kV	2.282	2.509	1	1	6.647	32.730	2.674	1.060	0.044	36.508	36.508	43.155
Commercial A2(d)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial B1(a)	0.2kV	0.419	0.461	0	0	6.647	23.266	1.901	0.753	0.044	25.964	25.964	32.611
Industrial B2(a)	0.4kV	0.046	0.051	0	0	6.647	20.980	1.714	0.679	0.044	23.418	23.418	30.065
Industrial B1(b)	0.4kV	0.249	0.274	0	0	6.647	19.559	1.598	0.633	0.044	21.834	21.834	28.481
Industrial B2(b)	0.4kV	144.389	158.712	24	26	6.647	17.795	1.454	0.576	0.044	19.868	19.868	26.516
Industrial B3	11kV	384.364	422.493	15	16	6.366	3.928	0.321	0.127	0.044	4.420	4.420	10.786
Industrial B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bulk Supply C1(a)	0.2kV	0.086	0.095	0	0	6.366	18.825	1.538	0.610	0.044	21.017	21.017	27.383
Bulk Supply C1(b)	0.4kV	2.638	2.899	0	0	6.647	17.254	1.410	0.559	0.044	19.266	19.266	25.913
Bulk Supply C2(a)	11kV	0.283	0.311	0	0	6.366	22.027	1.799	0.713	0.044	24.583	24.583	30.949
Bulk 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	0.000
Bulk Supply C1(c)	0.4kV	8.840	9.717	2	2	6.647	22.797	1.862	0.738	0.044	25.442	25.442	32.089
Bulk Supply C2(b)	11kV	17.836	19.606	0	0	6.366	1.811	0.148	0.059	0.044	2.062	2.062	8.428
Bulk 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	0.000
AgriculturalD1(a)	0.4kV	1.581	1.738	0	0	6.647	23.300	1.904	0.754	0.044	26.002	26.002	32.649
AgriculturalD2(a)	0.4kV	22.166	24.365	4	4	6.647	19.552	1.597	0.633	0.044	21.827	21.827	28.474
AgriculturalD2(b)	0.4kV	7.619	8.375	1	2	6.647	19.909	1.626	0.645	0.044	22.224	22.224	28.871
AgriculturalD1(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
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
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
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
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
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
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
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
Total		2231.70	2453	524	576	6.643	25.520	2.085	0.826	0.044	28.475	28.475	35.118

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Table 22

-				FY 2	023-24 (C	ost of Losses	on kW or kV	(h)					- 223
		Energy (	ЗWh	Deman	MW p	Generatio	on Cost	Transmission	Distributi	on Cost	Total Fived	Total Fixed	• • • • • • • • • • • • • • • • • • •
Classes	Voltage Level	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)	Cost (Rs./kw/ M)	Cost (Rs./kwh)	Total Cost (Rs./kWh) •
Residential A1(a)	0.2kV	1632.202	1794.117	475	522	0.659	835.678	73.173	29.000	1.255	999.106	3.487	4.146
Residential A1(b)	0.4kV	0.196	0.216	0	0	0.659	895.678	73.173	29.000	1.787	999.638	2.446	3.105
Commercial A2(a)	0.2kV	6.503	7.149	1	2	0.659	895.678	73.173	29.000	1.695	999.547	2.582	3.241
Commercial A2(b)	0.4kV	0.000	0.000	0	0	0.000	835.678	73.173	29.000	0.000	997.851	0.000	0.000
Commercial A2(c)	0.4 kV	2.282	2.509	1	1	0.659	895.678	73.173	29.000	1.206	999.057	3.622	4.281
Commercial A2(d)	0.4 kV	0.000	0.000	0	0	0.000	895.678	73.173	29.000	0.000	997.851	0.000	0.000.
Industrial B1(a)	0.2kV	0.419	0.461	0	0	0.659	895.678	73.173	29.000	1.699	999.551	2.576	3.235
Industrial B2(a)	0.4kV	0.046	0.051	0	0	0.659	895.678	73.173	29.000	1.881	999.733	2.323	2.982
Industrial B1(b)	0.4kV	0.249	0.274	0	0	0.659	895.678	73.173	29.000	2.018	999.869	2.166	2.825
Industrial B2(b)	0.4 kV	144.389	158.712	24	26	0.659	895.678	73.173	29.000	2.218	1000.070	1.971	2.630
Industrial B3	11kv	384.364	4 22.493	15	16	0.631	857.777	70.077	27.770	9.622	965.245	0.438	1.070
Industrial B4	1 32/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0,000	0.000	0.000	0.000	0.000
Bulk Supply C1 (a)	0.2kV	0.086	0.095	0	0	0.631	895.678	73.173	29.000	2.100	999.952	2.085	2.716
Bulk Supply C1 (b)	0.4 kV	2.638	2.899	0	0	0.659	895.678	73.173	29.000	2.288	1000.139	1.911	2.571
Bulk Supply C2(a)	11 kV	0.283	0.311	0	0	0.631	857.777	70.077	27.770	1.716	957.340	2.439	3.070
Bulk 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	0.000
Bulk Supply C1 (c)	0.4kV	8.840	9.717	2	2	0.659	895.678	73.173	29.000	1.731	999.583	2.524	3.183
Bulk Supply C2(b)	11kV	17.836	19.606	0	0	0.631	857.777	70.077	27.770	20.869	976.493	0.205	0.836
Bulk 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	0:000 🖉
AgriculturalD1(a)	0.4kV	1.581	1.738	0	0	0.659	895.678	73.173	29.000	1.694	999.545	2.579	3.239
AgriculturalD2(a)	0.4kV	22.166	24.365	4	4	0.659	896.678	73.173	29.000	2.019	999.870	2.165	2.825
AgriculturalD2(b)	0.4kV	7.619	8.375	1	2	0.659	895.678	73.173	29.000	1.983	999.834	2.205	2.864
AgriculturalD1(b)	0.4 kV	0.000	0.000	0	0	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
Temporary Supply E1(ii)	0.2kV	0.000	0.000	0	0	0.000	895.678	73.173	29,000	0:000	997.851	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
Public Lighting G	0.4kV	0.000	0.000	0	0	0.000	895.678	73.173	29.000	0.000	997.851	0.000	0.000
Residential Colonies H	11 kV	0.000	0.000	0	0	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
Azad Jammu Kashmir - K1b	11 kV	0,000	0.000	0	0	0,000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		2231.70	2453	524	576	0.659	898.513	73.405	29.092	1.564	100 2.574	2.825	3.484

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				щ	Y 2023-24	Cost of Loss	ies on kWh)						
		Energy (	зWh	Deman	d MW	Generatio	n Cost	Transmission	Distributio	on Cost	Total Fixed	Total Fixed	
Classes	Voltage Level	Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kw/M)	D emand (Rs./kw/M)	Customer Cost (Rs./kw/M)	Cost (Rs./kw/ M)	Cost (Rs./kwh)	lotal cost (Rs./kwh)
Residential A1(a)	0.2kV	1632.202	1794.117	475	522	0.659	3.126	0.255	0.101	0.004	3.487	3,487	4.146
Residential A1(b)	0.4kV	0.196	0.216	0	0	0.659	2.191	0.179	0.071	0.004	2.446	2.446	3.105
Commercial A2(a)	0.2kV	6.503	7.149	1	2	0.659	2.314	0.189	0.075	0.004	2.582	2.582	3.241
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	0.000
Commercial A2(c)	0.4kV	2.282	2.509	1	1	0.659	3.247	0.265	0.105	0.004	3.622	3.622	4.281
Commercial A2(d)	0.4kV	0.000	0.000	0	0	0.000	0.000	0.000	0,000	0.000	0.000	0.000	0.000
Industrial B1 (a)	0.2kV	0.419	0.461	0	0	0.659	2.308	0.189	0.075	0.004	2.576	2.576	3.235
Industrial B2(a)	0.4kV	0.046	0.051	0	0	0.659	2.081	0.170	0.067	0.004	2.323	2.323	2.982
Industrial B1(b)	0.4kV	0.249	0.274	0	0	0.659	1.940	0.159	0.063	0.004	2.166	2.166	2.825
Industrial B2(b)	0.4kV	144.389	158.712	24	26	0.659	1.765	0.144	0.057	0.004	1.971	1.971	2.630
Industrial B3	11kV	384,364	422.493	15	16	0.631	0.390	0.032	0.013	0.004	0.438	0.438	1.070
Industrial B4	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bulk Supply C1(a)	0.2kV	0.086	0.095	0	0	0.631	1.867	0.153	0.060	0.004	2.085	2.085	2.716
Bulk Supply C1(b)	0.4kV	2.638	2.899	0	0	0.659	1.712	0.140	0.055	0.004	1.911	1.911	2.571
BulkSupply C2(a)	11kV	0.283	0.311	0	0	0.631	2.185	0.179	0.071	0.004	2.439	2.439	3.070
BulkSupply C3(a)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BulkSupply C1(c)	0.4kV	8.840	9.717	2	2	0.659	2.261	0.185	0.073	0.004	2.524	2.524	3.183
Bulk Supply C2(b)	11kV	17.836	19.606	0	0	0.631	0.180	0.015	0.006	0.004	0.205	0.205	0.836 •
BulkSupply C3(b)	132/66kV	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0:000	0.000	0.000 .
AgriculturalD1(a)	0.4kV	1.581	1.738	0	0	0.659	2.311	0.189	0.075	0.004	2.579	2.579	3.239 .
AgriculturalD2(a)	0.4kV	22.166	24.365	4	4	0.659	1.940	0.158	0.063	0.004	2.165	2.165	2.825
Agricultural D2(b)	0.4kV	7.619	8.375	1	2	0.659	1.975	0.161	0.064	0.004	2.205	2.205	2.864
AgriculturalD1(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
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
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
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
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
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
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
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
Total		2231.70	2453	524	576	0.659	2.532	0.207	0.082	0.004	2.825	2.825	3.484

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