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Hussainabad, Hyderabad

No. CEO/HESCO/DG(MIRAD)/1439-43

Dated: 27.01.2023

The Registrar,

National Electric Power Regulatory Authority (NEPRA),

NEPRA Tower, Ataturk Avenue (East), G5/1,

Islamabad.

Subject:- **PETITION FOR DETERMINATION OF USE OF SYSTEM CHARGES.**

1. In Pursuance of Section-7 of NEPRA's Open Access (Interconnection and Wheeling of Electric Power) Regulations, 2022, whereby a **Distribution Company** shall **prepare** and **submit** a separate **petition** to the **honorable Authority** for **determination** of its **Use of System Charges**.

2. In this regard, enclosed please find the petition for determination of Use of System Charges including Cost of Service Study of HESCO (FY 2022-23) as **Annex-A**, thereto forming fundamental basis for the instant petition, for kind consideration & approval of Authority.

3. For any clarification or additional information or any other matter relating to this application **Mr. Muhammad Roshan Otho, Director General (MIRAD) HESCO, Hyderabad** (Cell No.0333-3700021, email: dgmirad@hesco.gov.pk) is designated as focal person.

[Signature]
Chief Executive Officer,
HESCO, Hyderabad.

Copy to: -

1. GM (Tech) HESCO, Hyderabad for information.
2. GM (Op.) HESCO, Hyderabad for information.
3. Chief Financial Officer HESCO, Hyderabad for information.
4. Chief Commercial officer HESCO, Hyderabad for information.
- Master file.

TARIFF (DEPARTMENT)

Dir (T-I)..... Dir (T-II).....

Dir (T-III)..... Dir (T-IV).....

Dir (T-V)..... Addl. Dir (RE).....

Date: 28-01-2023

[Signature]
Dir (T-II)

For info add further in a PI

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3 DG (CAD)	4 DG (Admn/HR)
5 ADG (Trf)	6 ADG (Legal)
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10 Consultant	12 Consultant
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CC: 1 Chairman
2 Member (Licencing)
3 Member (Law)
4 Member (Technical)
5 Member (Tariff & Finance)

Tariff Division Record

File No.

Dated

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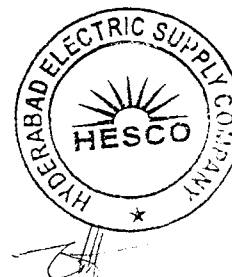
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HYDERABAD ELECTRIC SUPPLY COMPANY



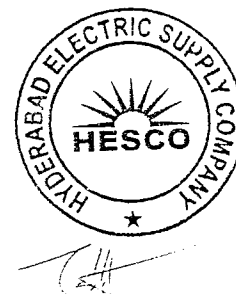
**PETITION FOR DETERMINATION
OF
USE OF SYSTEM CHARGES (UoSC)
FOR
FY 2022-23**





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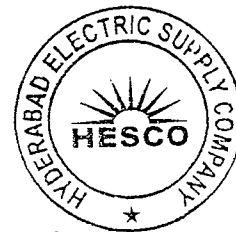


Background

As a result, of restructuring, Hyderabad Electric Supply Company (HESCO) was incorporated on 23rd April 1998 and obtained Certificate for Commencement of Business on 26th May, 1998. The HESCO is responsible for Supply of Electricity to almost 1.20 Million Consumers of different categories of 13 Districts (namely Hyderabad, Thatta, Sujawal, Jamshoro, Matiari, Nawab Shah, Sanghar, Umarkot, Mirpur Khas, Tharparkar, Badin, Tando Muhammad Khan & Tando Allah Yar) Sindh Province, as set out in HESCO's Distribution License No.05/DL/2002, granted by NEPRA under the NEPRA Act on April 23, 2002. The Company is Headed by a Chief Executive Officer (CEO) and HESCO Board of Directors.

Under the Provisions of Regulation of Generation, Transmission & Distribution of Electric Power (Amendment) Act, 2018, HESCO is deemed to hold a license for Supply of Electric Power 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. The deemed licensee status is expiring on May 01, 2023 and, accordingly, HESCO has already submitted an Application for Grant of Licence for Supply of Electric Power to the Authority.

After the approval of Competitive Trading Bilateral Contract 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), approval of Market Commercial Code (MCC) and promulgation of several Regulations to ensure smooth implementation of CTBCM and create balance in roles, rights and obligations of the stakeholders in the CTBCM.



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Grounds of Petition:

Pursuant to the relevant directions of National Electricity Policy 2021 ("**NE Policy-2021**") read with Section-7 of the NEPRA's 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:

- a. In compliance with the NE Policy-2021 Clause **4.4**, Clause **5.5.2(f)**, Clause **5.5.2(g)**, Clause **5.5.4** and Clause **5.6.5** and;
- b. In compliance with the Section-7 of Open Access Regulations, each distribution licensee, in consultation with the respective supplier of last resort shall, within ninety days following the date of notification (*i.e.* **02.11.2022**) of Open Access Regulation, submit separate petition to the Authority for Determination of Use of System Charges (**UoSC**).

Directions in National Electricity Policy, 2021:

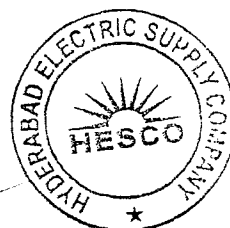
The National Electricity Policy, 2021 issued under Section 14A of the NEPRA's Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 ("The Act") was prepared by the Government of Pakistan for the Development, Reform, Improvement and Sustainability of the Power Market and 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 petition, are provided in the below lines.

Clause 4.4 (Financial Viability):

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





- a) *promoting investments on least cost basis balanced with development in the underserved areas;*
- b) *having cost-reflective tariffs in transmission and distribution, to the extent feasible;*
- c) *timely passing of costs to the consumers, while netting off any subsidies funded by the Government; and*
- d) *recovery of costs arising on account of open access, distributed generation, etc.*

Clause 5.5 (Market Development and Operation):

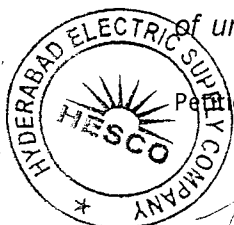
Clause 5.5.2(f) *"providing a level playing field to all market participants through uniform application of cross-subsidization and other grid charges to consumers of all suppliers";*

Clause 5.5.2(g) *"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 *"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 (Cost of Service, Tariff and Subsidies):

Clause 5.6.5 *"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.”

Legal and Regulatory Framework:

The approved design of Competitive Trading 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 per provision of 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”).

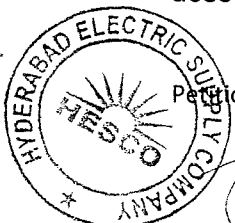
For the purpose of this petition for determination of Use of System Charges in terms of mentioned Open Access Regulations, following terms as defined in the legal and regulatory framework are reproduced as below:

Clause 2 (Definition) of the NEPRA’s Act 1997 (Amended):

Clause 2(ii) “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 Section-2 of NEPRA’s Open Access Regulations are provided below:

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:

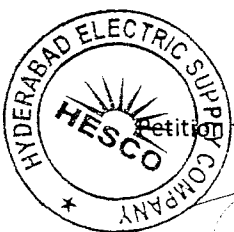
- (i) an electric power supplier for supply of electric power to its consumer(s); or
- (ii) a captive generating plant for delivery of the electric power from generation facility to the destination of its use; or
- (iii) any other person, including a licensee for delivery of electric power from a designated 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.

Part-III (OPEN ACCESS) Section-5 (Obligation to provide open access) 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."*

Section-7 (Filing of petition and determination of use of system charges) 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."

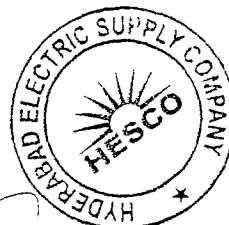
Section-8 (Wheeling of electric power) is reproduced hereunder:

"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."

Technical and Financial Attributes:

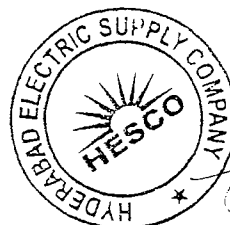
Adjoining the purposes of CTBCM, directions of the National Electricity Policy, 2021 and stipulations of the legal and regulatory framework; following understandings are inferred:

- i) The network licensee, the HESCO 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 HESCO is entitled for recovery of Use of System Charges (**UoSC**) 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. the voltage level (132kV, 11kV etc) 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, as already determined by the honorable Authority, 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 HESCO, these shall not form part of use of system charges to be recovered directly by HESCO.
 - 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, 2021 (referred above).
 - 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.





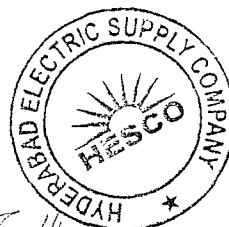
- e. As the transmission and distribution losses will be charged to market participants of open access through the mechanism as explained in the Market Commercial Code, therefore, such charges shall not be levied under this use of system charges as requested under this instant petition.

Explanation:

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.

- f. The use of system charges, including the Distribution Margin Charges, as requested by HESCO 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.
- g. The use of system charges shall be with reference to the voltage level (132/66kV, 11/33kV) for the applicable consumer categories of all possible BPCs. The component-wise Cost of Service as per outcome detailed Cost of Service Study ***Annex-A*** and consequent assessment, as detailed above, of component-wise Use of System Charges for the applicable BPCs is provided at ***Annex-B***.
- h. Power Factor Penalty as provided in applicable documents shall remain applicable in addition to the Use of System Charges.
- i. 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.
2.	System Operator Charge / Fee	System Operator through NTDC.
3.	MSP Charge / Fee	MSP through NTDC
4.	Distribution Use of System Charge	HESCO as Distribution Licensee
5.	Cross Subsidy	HESCO as SOLR (Supply Licensee)
6.	Stranded Capacity Costs	HESCO as SOLR (Supply Licensee)

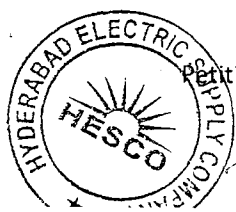
Basis of Use of System Charges

The instant petition for determination of use of system charges has been developed based on Cost of Service Study (FY 2022-23) carried out by HESCO forming integral part of this petition and provided separately as attached here to as **Annex-A**.

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, MSP, 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. 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.
- 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 at the Market this option may not provide a balanced approach to promised sharing of risks and rewards under CTBCM regime.
- 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.

As already mentioned, **Annex-B** to this petition also include proposed rates to be charged under each of the Three (3) options narrated above.

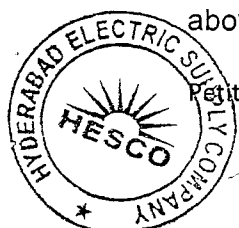
It is, however, noted that the methodology and process as per FACOS model, for the purpose of allocation of demand (kW or MW) related costs, allocates single system peak demand (of HESCO) to different categories to arrive at the allocation base. This allocation, irrespective of being rational, judicious and in line with international norms, results in less than actual (billable) MDIs of respective customers. Accordingly, taking the same MW demand as denominator for demand (MW) based rate making will result in higher per MW rates. In consideration thereof, a second proposal (Proposal-2) for arriving at demand based rates as per option (i) above, i.e. whole cost recovery in terms of Rs./kW and option (iii), hybrid partial cost recovery in terms of Rs./kW; has been developed **based on billable MDIs** of B-3, B-4, C-2(b) & C-3(a) customer categories and provided as **Annex-B1** herewith.

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.

Applicable Categories / Classification of Eligible BPCs:

While, in terms of existing stipulation contained in the Act, a consumer who purchases or receives electric power, **at one premises**, in an amount of **one megawatt or more** is considered as Bulk Power Consumer, following position, with regard to consumer with one megawatt or more load at connection voltage 11 kV and above, is brought out for consideration:

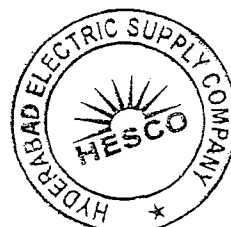




Sr. No.	Consumption Category	Tariff Category	Voltage Level	Remarks
1.	Industrial Consumer ranging from 500 kW to 5000 kW.	B-3	11/33 kV	B-3 consumer ranges from 500 kW to 5000 kW. It is clarified here that the consumers of this category below 1MW shall not be treated as eligible BPCs for CTBCM. The use of system charges indicated for B-3 category will apply in case of eligible BPC.
2.	Industrial	B-4	66/132 kV	B-4 consumer ranges above 5000 kW.
3.	Bulk Supply Ranging from 500 kW to 5000 kW.	C-2(b)	11/33 kV	Bulk Supply consumer ranges from 500 kW to 5000 kW. Although, the Bulk Supply C-2(a) customers are at 11/33 KV connection level. It is clarified here that the consumers of this category below 1MW shall not be treated as eligible BPCs for CTBCM. The use of system charges indicated for C-2(b) category will apply for C-2(a). Further, the consumers falling under the resale shall not be considered as eligible BPC.
4.	Bulk Supply	C-3(a)	66/132 kV	C-3(a) consumer ranges above 5000 kW. The use of system charges indicated for C-3(a) category will apply for C-3(b).
5.	Housing Colonies attached to Industries	H	N/A	As per the existing tariffs, no kW sanctioned load quantification or connection voltage is applicable to H tariff category. Further, these connections are resale in nature. Accordingly these are not considered BPC for the purposes of this petition.

Other Important Aspects:

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





Government Subsidies

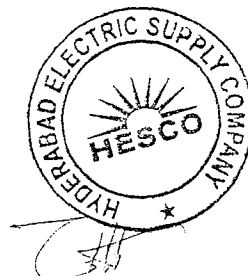
Any subsidy provided by the Government to the industrial or any other eligible BPC, as applicable, will be dealt with according to the directions and terms and conditions thereof as decided by the Government. However, for the purposes of this petition, such subsidies are not considered.

Captive Power Producers and Users:

- (1) A captive power producer / user using the HESCO's 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.
- (2) 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.

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, 2021.





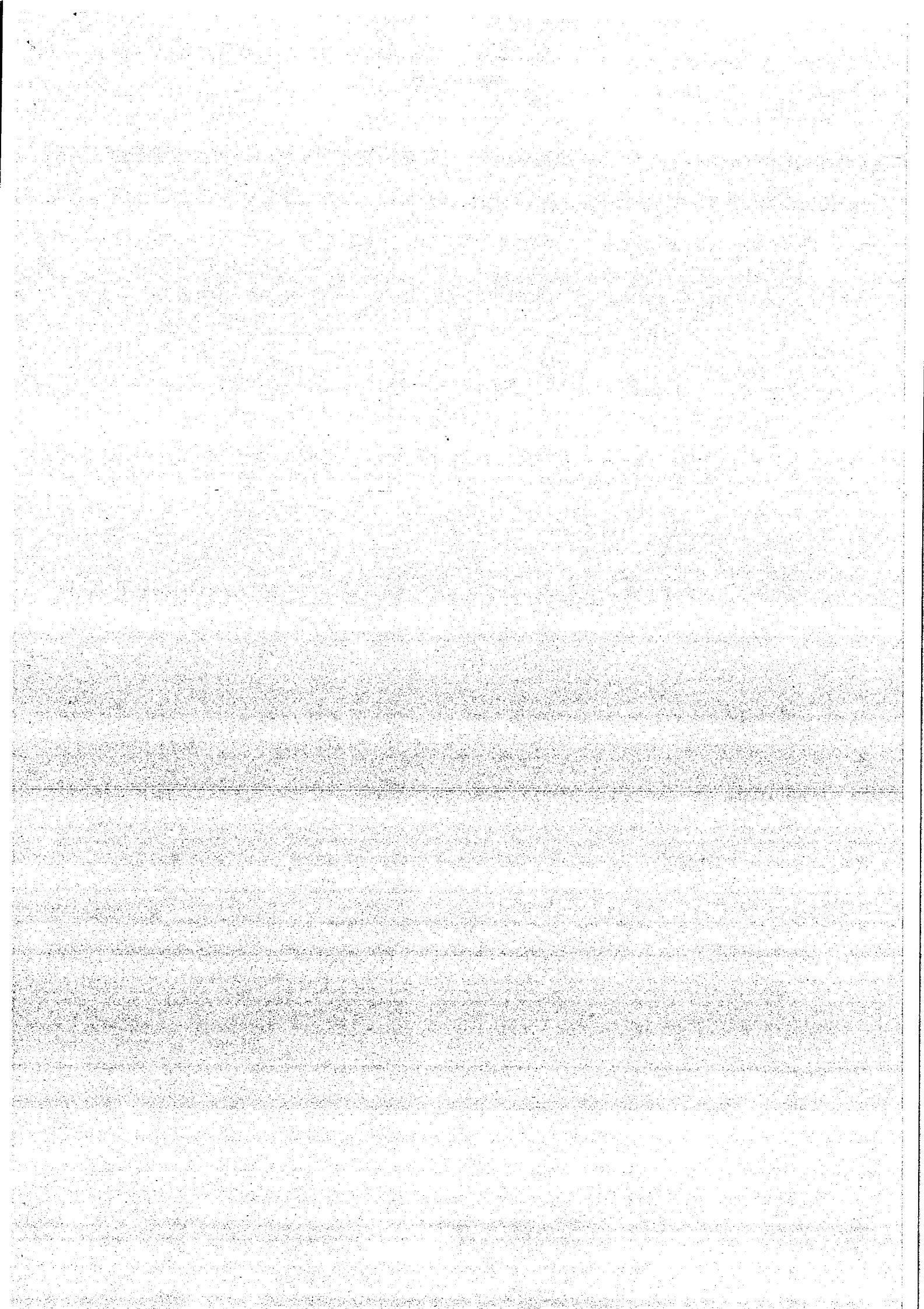
Applicability of Use of System Charges on New Eligible BPCs

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 above submissions, it is, humbly requested that the Authority may kindly consider and determine the Use of System Charges as calculated in the attached *Annex-B* and/or *Annex-B1*, which contain detailed analysis.







Annex-A

HYDERABAD ELECTRIC SUPPLY COMPANY



COST OF SERVICE STUDY

FOR

FY 2022-23

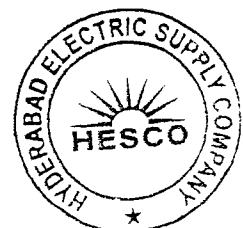
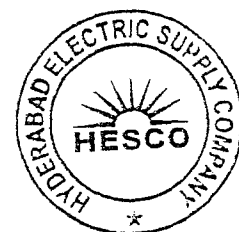




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Cost of Service (COS) Study:

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 DISCO's 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 service "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. kW 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. kW of capacity, kWhs of energy and the number of customers) of each class.

Fundamental Assumptions:

Table 1

Description	FY 2022-23
Allowed Rate of Return (WACC) (NEPRA Determination)	10.66%
Capital Work in Progress ("CWIP")	CWIP 100%
Working Capital Allowance to be included in Rate Base	NO
Prior Year Adjustment (Rs. In Millions)	5,388.00
Demand Allocation Methodology (highest coincident peak in the year). Alternative is 12CP that means average of 12 months coincident peak.	1 CP (Single Annual Peak)
Customer Growth %	3.22%
Model Year	FY 2022-23
Base Year	FY 2021-22

Projections and Revenue Requirement for Financial Year 2022-23:

The Revenue Requirement (RR) is the fundamental input to the Cost of Service of HESCO 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 HESCO.

Table 2

Description	FY 2022-23	Source
Units Purchased (MkWh)	5,957.20	NEPRA MYT Determination FY 2022-23
Units Sold (MkWh)	4,851.00	
Assessed T&D Losses	18.57%	
Consumer Growth	3.22%	
Average Monthly MDI (MW) (Non-Coincidence at CDPs)	1,496.00	
Energy Purchase Price (Rs/kWh)	8.96	These rates are calculated from Tariff Determination FY 2022-23. However average rates of energy, capacity and T.UoS for current Financial Year (2022-23 Six months) are Rs. 10.04/kwh, Rs. 3,304.07/KW/M and Rs. 391.51/KW/M respectively
Capacity Charges (Rs/kW/Month)	3,980.56	
T.UoS Rate (Rs/kW/Month)	362.59	
MOF (Rs/kW/Month)	1.71	
Energy Charges (Rs. M)	53,401.00	Calculated by using above rates
Capacity Charges (Rs. M)	71,459.00	
T.UoS Rate (Rs. M)	6,509.30	
MOF (Rs. M)	30.70	
Power Purchase Price (Rs. M)	131,400.00	

O&M Cost (Rs. M)	11,997.00	NEPRA MYT Determination FY 2022-23
Depreciation (Rs. M)	3,206.04	
RORB (Rs. M)	3,590.46	
Other Income (Rs. M)	-2,052.00	
Prior Year Adjustment (Rs. M)	5,388.00	
Revenue Requirement (Rs. M)	153,529.51	
Cost per KWH (Sold)	31.65	

Summary of Revenue Requirement:

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

Table 3

Summary of Revenue Requirement	
Description	FY 2022-23 Rs. (M)
Energy Charges	53,401.00
Capacity Charges	71,459.00
T.UoS Rate	6,509.30
MOF	30.70
Power Purchase Price	131,400.00
O&M Cost	11,997.00
Depreciation	3,206.04
RORB	3,590.46
Other Income	-2,052.00
Distribution Margin	16,741.51
Prior Year Adjustment	5,388.00
Revenue Requirement	153,529.51

Line Losses Charged on Voltage Levels:

Line losses taken from HESCO's MYT Determination for FY 2022-23 as a percentage on purchased units is given in **Table 4**. Line losses as a percentage on received units at each voltage level are calculated on the basis of sales data of FY 2021-22.

Table 4

Losses FY 2022-23					
Voltage Level	0.2 KV	0.4KV	11KV	132KV	Total
Losses %age on purchased units	6.27%		9.30%	3.00%	18.57%
Losses %age on received units	8.21%		10.03%	3.00%	
					Target as per NEPRA Determination is 18.57%
					Calculated as applied on units received at each voltage level.

Customer Classification by Voltage Level:

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

Table 5

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

HESCO Tariff determined by NEPRA in July-2022:

Tariffs for various categories of HESCO consumers as determined by NEPRA vide their determination No.NEPRA/R/ADG(Tariff)/TR-100/XWDISCOs/13540-13542 dated 22-07-2022 are provided in **Table 6** below.

Table 6

NEPRA DETERMINED TARIFF (22-07-2022)			
TARIFF CATEGORIES		Fixed Charges	Variable Charges
		Rs/kW/M	Rs/kWh
A1 (a)	RESIDENTIAL -A1		
i	Up to 50 Units Life line		5.00
ii	51-100 units Life line		22.16
iii	01-100 Units		25.19

iv	101-200 Units		27.20
v	01-100 Units		27.82
vi	101-200 Units		31.04
vii	201-300 Units		31.55
viii	301-400Units		32.79
ix	401-500Units		33.23
x	501-600Units		34.23
xi	601-700Units		35.23
xii	Above 700 Units		36.23
A1(b)	Time of Use (TOU) - Peak		35.23
	Time of Use (TOU) - Off-Peak		27.85
E-1(i)	Temporary E-1 (i)		36.23
	COMMERCIAL - A2		
A2 (a)	Commercial - For peak load requirement up to 5 kW		32.21
A2 (b)	Sanctioned load 5 kw and above	500	30.25
A2 (c)	Time of Use (TOU) - Peak (A-2)	500	35.26
	Time of Use (TOU) - Off-Peak	500	29.13
E-1 (ii)	Temporary E-1 (ii)		32.23
	INDUSTRIAL		
B1(a)	B1		31.16
B1(b)	B1- TOU (Peak)		35.05
	B1 - TOU (Off-peak)		28.95
B2 (a)	B2	500	31.05
B2 (b)	B2 - TOU (Peak)	500	35.05
	B2 - TOU (Off-peak)	500	28.45
B3	B3 - TOU (Peak)	460	35.05
	B3 - TOU (Off-peak)	460	29.85
B4	B4 - TOU (Peak)	440	35.05
	B4 - TOU (Off-peak)	440	29.65
E-2	Temporary E-2		34.05
	BULK		
C1 (a)	C1(a) up to 5 kW		31.84
C1 (b)	C1(b) exceeding 5 kW	500	31.64
C1 (c)	Time of Use (TOU) - Peak	500	35.23
	Time of Use (TOU) - Off-Peak	500	28.63
C2 (a)	C2 Supply at 11 kV	500	31.54
C2 (b)	Time of Use (TOU) - Peak	460	35.23
	Time of Use (TOU) - Off-Peak	460	30.03
C3 (a)	C3 Supply above 11 kV	440	31.43
C3 (b)	Time of Use (TOU) - Peak	440	35.23

	Time of Use (TOU) - Off-Peak	440	29.83
	AGRICULTURAL TUBE WELLS - Tariff D		
D1 (a)	D1 Scarp		31.84
D2 (a)	D2 Agricultural Tube-wells	200	35.23
D1 (b)	Time of Use (TOU) - Peak	200	28.63
	Time of Use (TOU) - Off-Peak	200	31.84
D2 (b)	Time of Use (TOU) - Peak	200	35.23
	Time of Use (TOU) - Off-Peak	200	28.63
G	Public Lighting G		35.63
H	Residential Colonies H		36.03
K1	Special Contracts - Tariff K (AJK)		
K1 (i)	Time of Use (TOU) - Peak		
	Time of Use (TOU) - Off-Peak		
A3	General Service		32.26

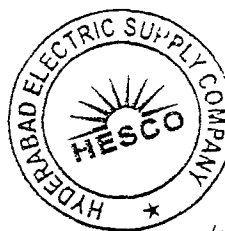
Results from FACOS Model:

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 **Table 7** below:

Table 7

Revenue Requirement Allocation %age				
Description	Energy	Demand	Customer	Total
Energy Charges	100%	-		100%
Capacity Charges	-	100%		100%
T.UoSC	-	100%		100%
MOF	-	100%		100%
O&M Cost	-	65%	35%	100%
Depreciation	-	80%	20%	100%
RORB	-	82%	18%	100%
Other Income	-	82%	18%	100%
Prior Year Adjustment	-	65%	35%	100%



Revenue Requirement Allocation to Energy, Demand and Customer.

Based on the allocation percentages given in above table, the revenue requirement allocated to energy, demand and customer (cost triggers) is shown in **Table 8** below.

Table 8

Revenue Requirement Allocation Rs. (M)				
Description	Energy	Demand	Customer	Total
Energy Charges	53,401	-	-	53,401
Capacity Charges	-	71,459	-	71,459
T.UoSC	-	6,509	-	6,509
MOF	-	31	-	31
Power Purchase Price	53,401	77,999	-	131,400
O&M Cost	-	7,798	4,199	11,997
Depreciation	-	2,565	641	3,206
RORB	-	2,944	646	3,590
Other Income	-	-1,683	-369	-2,052
Distribution Margin	-	11,624	5,117	16,742
Prior Year Adjustment	-	3,502	1,886	5,388
Revenue Requirements	53,401	93,126	7,003	153,530

Revenue as per NEPRA Tariff by Customer Category and Voltage Level

The **Table 9** below provides detailed category-wise estimated revenue and average (Rs./kWh) thereof. Whereas the **Table 10** is summary of the said category-wise estimated revenue based on the supply Voltage level of relevant customer category, with average rate (Rs./kWh) thereof. As already mentioned, the calculation of revenue is based on NEPRA Tariff determined vide No.NEPRA/R/ADG(Tariff)/TRF-100/XWDISCOs/13540-13542 dated 22-07-2022 already provided in (Table 6 above).

Table 9

FY 2022-23						
Consumer Category	MDI MW	Sales (GWh)	Fixed Charge Rs. (M)	Variable Charge Rs. (M)	Total Revenue Rs. (M)	Rs./KWH
Residential -- A1(a)		713.78	-	78,897.40	78,897	29.07
Residential -- A1(b)		49.94	-	1,454.05	1,454	29.12
Commercial -- A2(a)		142.82	-	4,600.13	4,600	32.21
Commercial -- A2(b)	0.05	0.34	0.28	10.22	10	31.06
Commercial -- A2(c)	68.49	171.76	410.95	5,204.45	5,615	32.69
Industrial -- B1(a)		6.75		210.33	210	31.16

Industrial -- B2(a)	0.39	1.14	2.36	35.45	38	33.12
Industrial -- B1(b)		72.87	-	2,179.98	2,180	29.92
Industrial -- B2(b)	174.69	434.00	1,048.11	12,780.87	13,829	31.86
Industrial -- B3	89.97	350.16	496.63	10,754.88	11,252	32.13
Industrial -- B4	43.71	234.73	230.78	7,151.66	7,382	31.45
Single Point Supply -- C1(a)		0.63	-	20.06	20	31.84
Single Point Supply -- C1(b)	2.38	11.11	14.25	351.37	366	32.92
Single Point Supply -- C1(c)	7.87	25.66	47.24	1,174.72	1,222	47.62
Single Point Supply -- C2(a)	3.62	21.98	21.72	809.31	831	37.81
Single Point Supply -- C2(b)	6.79	39.93	37.49	1,140.54	1,178	29.50
Single Point Supply -- C3(a)	7.40	37.04	39.06	690.79	730	19.71
Single Point Supply -- C3(b)	0.00	-	-	-	-	-
Agricultural --D1(a)		8.92	-	210.77	211	31.84
Agricultural --D2(a)		4.24	-	149.53	150	35.23
Agricultural --D1(b)	10.44	180.66	25.06	1,839.65	1,865	10.32
Agricultural --D2(b)	84.07	58.70	201.78	5,386.13	5,588	95.20
Temporary Supply -- E1(i)		0.01	-	0.35	0	36.23
Temporary Supply -- E1(ii)		2.06	-	66.45	66	32.23
Temporary Supply -- E2		0.10	-	3.35	3	34.05
Public Lighting -- G		9.72	-	346.50	346	35.63
Residential Colonies -- H		3.21	-	115.59	116	36.03
Azad Jammu Kashmir - K1a		-	-	-	-	-
Azad Jammu Kashmir - K1b		-	-	-	-	-
A3 General		271.06	-	8,744.28	8,744	32.26
Total	499.87	4,851.00	2,575.71	144,328.80	146,904.51	30.28

Table 10

FY 2022-23						
Consumer Class	MDI MW	Sales (GWh)	Fixed Charge Rs. (M)	Variable Charge	Total Revenue Rs. (M)	Rs./KWH
0.2 KV		2,866.15	-	83,798.07	83,798.07	29.24
0.4 KV	348.38	1,312.09	1,750.03	39,867.96	41,617.99	31.72
11 KV	100.38	416.06	555.84	12,820.31	13,376.15	32.15
132 KV	51.11	256.71	269.84	7,842.45	8,112.29	31.60
G. TOTAL	499.87	4,851.00	2,575.71	144,328.80	146,904.51	30.28

Cost of Service Functionalized Rates (Tariff Wise)

Based on the allocation of overall Revenue Requirement of HESCO to customers categories, the resultant functional amounts (Rs. in million) for each customer category are summarized at Table 11 below.

Table 11

FY 2022-23											
Classes	Voltage Level	No of Customers	Energy	Demand	Generation Cost		Transmission	MOF	Distribution Cost		Total Cost
			GWH	MW	Energy (Rs. M)	Demand (Rs. M)	Cost (Rs. M)	Cost (Rs. M)	Demand (Rs. M)	Customer (Rs. M)	
Residential -- A1(a)	0.2kV	995,387	2,713.78	350.20	31,499.84	35,000.61	3,188.25	15.04	7,414.55	1,443.23	78,562
Residential -- A1(b)	0.4kV	5,487	49.94	9.69	579.66	968.09	88.18	0.42	205.08	15.33	1,857
Commercial -- A2(a)	0.2kV	169,358	142.82	33.36	1,657.73	3,333.94	303.69	1.43	706.26	75.95	6,079
Commercial -- A2(b)	0.4kV	51	0.34	0.08	3.92	8.43	0.77	0.00	1.79	0.10	15
Commercial -- A2(c)	0.4kV	6,114	171.76	43.42	1,993.68	4,339.27	395.27	1.86	919.23	52.72	7,702
Industrial -- B1(a)	0.2kV	4,965	6.75	1.30	78.35	130.37	11.88	0.06	27.62	3.59	252
Industrial -- B2(a)	0.4kV	312	1.14	0.22	13.25	22.32	2.03	0.01	4.73	0.35	43
Industrial -- B1(b)	0.4kV	6,361	72.37	18.36	845.79	1,834.89	167.14	0.79	388.70	22.37	3,260
Industrial -- B2(b)	0.4kV	3,326	434.00	85.77	5,037.61	8,572.63	780.89	3.68	1,816.03	133.22	16,344
Industrial -- B3	11kV	243	350.16	53.21	3,730.86	4,881.94	444.70	2.10	797.37	93.60	9,951
Industrial -- B4	132/66kV	8	234.73	36.27	2,250.06	2,993.45	272.68	1.29	379.29	55.77	5,953
Single Point Supply -- C1(a)	0.2kV	44	0.63	0.10	6.71	9.78	0.89	0.00	2.07	0.34	20
Single Point Supply -- C1(b)	0.4kV	106	11.11	2.50	128.90	249.71	22.75	0.11	52.90	3.41	458
Single Point Supply -- C2(a)	11kV	12	25.66	4.13	273.40	378.76	34.50	0.16	61.86	6.86	756
Single Point Supply -- C3(a)	132/66kV	3	21.98	4.18	210.68	344.97	31.42	0.15	43.71	5.22	636
Single Point Supply -- C1(c)	0.4kV	168	39.93	4.49	463.47	449.06	40.91	0.19	95.13	12.26	1,061
Single Point Supply -- C2(b)	11kV	22	37.04	5.90	394.60	541.20	49.30	0.23	88.40	9.90	1,084
Single Point Supply -- C3(b)	132/66kV	1	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	425	6.62	0.62	76.84	61.93	5.64	0.03	13.12	2.03	160
Agricultural -- D2(a)	0.4kV	3,923	4.24	1.08	49.27	107.52	9.80	0.05	22.80	1.30	191
Agricultural -- D2(b)	0.4kV	8,980	180.66	33.88	2,097.03	3,385.82	308.42	1.45	717.25	55.46	6,565
Agricultural -- D1(b)	0.4kV	2,882	58.70	11.59	681.32	1,158.34	105.51	0.50	245.38	18.02	2,209
Temporary Supply -- E1(i)	0.2kV	29	0.01	0.00	0.11	0.23	0.02	0.00	0.05	0.01	0
Temporary Supply -- E1(ii)	0.2kV	434	2.06	0.53	23.93	53.32	4.86	0.02	11.30	1.10	95
Temporary Supply -- E2	0.2kV	29	0.10	0.02	1.14	2.43	0.22	0.00	0.51	0.05	4
Public Lighting -- G	0.4kV	591	9.72	1.98	112.88	197.96	18.03	0.09	41.93	2.99	374
Residential Colonies -- H	11kV	113	3.21	0.91	34.18	83.48	7.60	0.04	13.64	0.86	140
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	14,236	271.06	50.15	3,146.25	5,012.00	456.55	2.15	1,061.74	83.21	9,762
Total	-	1,224,230	4,851.00	753.94	55,391.47	74,122.56	6,751.93	31.84	15,132.46	2,099.24	153,529.51

Based on the cost drivers (energy, demand & customers) based allocation of overall Revenue Requirement of HESCO 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 12** below.

Table 12

FY 2022-23

Customer Class	Voltage Level	No. of Customers	Energy	Demand	Generation Cost		Transm	MOF	Distribution		Total Rs./ kWh
			GWh	MW	Energy (Rs./kWh)	Demand (Rs./kW/Month)	(Rs./kW/Month)	(Rs./kW/Month)	(Rs./kW/Month)	(Rs./Cust/Month)	
Residential -- A1 (a)	0.2kV	995,387	2,713.78	350.20	11.61	8,328.81	758.68	3.58	1,764.38	343.43	28.95
Residential -- A1 (b)	0.4kV	5,487	49.94	9.69	11.61	8,328.81	758.68	3.58	1,764.38	131.89	37.18
Commercial -- A2 (a)	0.2kV	169,358	142.82	33.36	11.61	8,328.81	758.68	3.58	1,764.38	189.74	42.57
Commercial -- A2 (b)	0.4kV	51	0.34	0.08	11.61	8,328.81	758.68	3.58	1,764.38	102.40	44.46
Commercial -- A2 (c)	0.4kV	6,114	171.76	43.42	11.61	8,328.81	758.68	3.58	1,764.38	101.20	44.84
Industrial -- B1 (a)	0.2kV	4,965	6.75	1.30	11.61	8,328.81	758.68	3.58	1,764.38	229.33	37.31
Industrial -- B2 (a)	0.4kV	312	1.14	0.22	11.61	8,328.81	758.68	3.58	1,764.38	130.76	37.40
Industrial -- B1 (b)	0.4kV	6,981	72.87	18.36	11.61	8,328.81	758.68	3.58	1,764.38	101.53	44.73
Industrial -- B2 (b)	0.4kV	3,326	434.00	85.77	11.61	8,328.81	758.68	3.58	1,764.38	129.44	37.66
Industrial -- B3	11kV	243	350.16	53.21	10.65	7,645.34	696.43	3.28	1,248.72	146.58	28.42
Industrial -- B4	132/66kV	8	234.73	36.27	9.59	6,878.26	626.55	2.95	871.53	128.16	25.36
Single P. Supply C1(a)	0.2kV	44	0.63	0.10	10.65	8,328.81	758.68	3.58	1,764.38	285.29	31.42
Single P. Supply C1(b)	0.4kV	106	11.11	2.50	11.61	8,328.81	758.68	3.58	1,764.38	113.70	41.22
Single P. Supply C2(a)	11kV	12	25.66	4.13	10.65	7,645.34	696.43	3.28	1,248.72	138.45	29.45
Single P. Supply C3(a)	132/66kV	3	21.98	4.18	9.59	6,878.26	626.55	2.95	871.53	104.13	28.94
Single P. Supply C1(c)	0.4kV	168	39.93	4.49	11.61	8,328.81	758.68	3.58	1,764.38	227.33	26.57
Single P. Supply C2(b)	11kV	22	37.04	5.90	10.65	7,645.34	696.43	3.28	1,248.72	139.85	29.26
Single P. Supply C3(b)	132/66kV	1	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	425	6.62	0.62	11.61	8,328.81	758.68	3.58	1,764.38	273.26	24.11
Agricultural -- D2(a)	0.4kV	3,923	4.24	1.08	11.61	8,328.81	758.68	3.58	1,764.38	100.84	44.96
Agricultural -- D2(b)	0.4kV	8,980	180.66	33.88	11.61	8,328.81	758.68	3.58	1,764.38	136.42	36.34
Agricultural -- D1(b)	0.4kV	2,882	58.70	11.59	11.61	8,328.81	758.68	3.58	1,764.38	129.56	37.64
Temporary - E1 (i)	0.2kV	29	0.01	0.00	11.61	8,328.81	758.68	3.58	1,764.38	185.02	43.34
Temporary - E1 (ii)	0.2kV	434	2.06	0.53	11.61	8,328.81	758.68	3.58	1,764.38	171.25	45.85
Temporary - E2	0.2kV	29	0.10	0.02	11.61	8,328.81	758.68	3.58	1,764.38	179.52	44.30
Public Lighting -- G	0.4kV	591	9.72	1.98	11.61	8,328.81	758.68	3.58	1,764.38	125.60	38.45
Res Colonies -- H	11kV	113	3.21	0.91	10.65	7,645.34	696.43	3.28	1,248.72	78.53	43.58
AJK - K1a	11kV	-	-	-	-	-	-	-	-	-	-
AJK - K1b	11kV	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	14,236	271.06	50.15	11.61	8,328.81	758.68	3.58	1,764.38	138.27	36.01
Total	-	1,224,230	4,851.00	753.94	304.59	219,242.95	19,971.15	94.18	43,789.93	4,261.49	31.65

The above detailed functional rates recapitulated, in terms of Rs./kW/Month, for each function is given in table **Table 13** below.

Table 13

FY 2022-23											
Customer Class	Voltage	Sales GWh	Energy	Demand	Generation Cost		Transm	MOF	Distribution		Total Rs./ kWh/ Month
			GWh	MW	Energy (Rs /kW/ Month)	Demand (Rs /kW/ Month)	(Rs /kW/ Month)	(Rs /kW /Month)	(Rs /kW/ Month)	(Rs /kW/ Month)	
Residential -- A1 (a)	0.2kV	2,714	2,713.78	350.20	7,495.76	8,328.81	758.68	3.58	1,764.38	343.43	18,694.65
Residential -- A1 (b)	0.4kV	50	49.94	9.69	4,987.00	8,328.81	758.68	3.58	1,764.38	131.89	15,974.34
Commercial -- A2 (a)	0.2kV	143	142.82	33.36	4,141.31	8,328.81	758.68	3.58	1,764.38	189.74	15,186.51
Commercial -- A2 (b)	0.4kV	0	0.34	0.08	3,972.13	8,328.81	758.68	3.58	1,764.38	102.40	14,829.99
Commercial -- A2 (c)	0.4kV	172	171.76	43.42	3,826.68	8,328.81	758.68	3.58	1,764.38	101.20	14,783.34
Industrial -- B1 (a)	0.2kV	7	6.75	1.30	5,005.36	8,328.81	758.68	3.58	1,764.38	229.33	16,090.15
Industrial -- B2 (a)	0.4kV	1	1.14	0.22	4,944.57	8,328.81	758.68	3.58	1,764.38	130.76	15,930.79
Industrial -- B1 (b)	0.4kV	73	72.87	18.36	3,839.16	8,328.81	758.68	3.58	1,764.38	101.53	14,796.14
Industrial -- B2 (b)	0.4kV	434	434.00	85.77	4,894.34	8,328.81	758.68	3.58	1,764.38	129.44	15,879.23
Industrial -- B3	11kV	350	350.16	53.21	5,842.70	7,645.34	696.43	3.28	1,248.72	146.58	15,583.05
Industrial -- B4	132/66kV	235	234.73	36.27	5,170.12	6,878.26	626.55	2.95	871.53	128.16	13,677.57
Single P. Supply C1(a)	0.2kV	1	0.63	0.10	5,715.86	8,328.81	758.68	3.58	1,764.38	285.29	16,856.61
Single P. Supply C1(b)	0.4kV	11	11.11	2.50	4,299.32	8,328.81	758.68	3.58	1,764.38	113.70	15,268.47
Single P. Supply C2(a)	11kV	26	25.66	4.13	5,518.59	7,645.34	696.43	3.28	1,248.72	138.45	15,250.82
Single P. Supply C3(a)	132/66kV	22	21.98	4.18	4,200.73	6,878.26	626.55	2.95	871.53	104.13	12,684.16
Single P. Supply C1(c)	0.4kV	40	39.93	4.49	8,596.01	8,328.81	758.68	3.58	1,764.38	227.33	19,678.79
Single P. Supply C2(b)	11kV	37	37.04	5.90	5,574.40	7,645.34	696.43	3.28	1,248.72	139.85	15,308.02
Single P. Supply C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	6.62	0.62	10,332.92	8,328.81	758.68	3.58	1,764.38	273.26	21,461.64
Agricultural -- D2(a)	0.4kV	4	4.24	1.08	3,812.90	8,328.81	758.68	3.58	1,764.38	100.84	14,769.19
Agricultural -- D2(b)	0.4kV	181	180.66	33.88	5,158.52	8,328.81	758.68	3.58	1,764.38	136.42	16,150.40
Agricultural -- D1(b)	0.4kV	59	58.70	11.59	4,898.90	8,328.81	758.68	3.58	1,764.38	129.56	15,883.91
Temporary - E1 (i)	0.2kV	0	0.01	0.00	4,038.32	8,328.81	758.68	3.58	1,764.38	185.02	15,078.80
Temporary - E1 (ii)	0.2kV	2	2.06	0.53	3,737.76	8,328.81	758.68	3.58	1,764.38	171.25	14,764.47
Temporary - E2	0.2kV	0	0.10	0.02	3,918.22	8,328.81	758.68	3.58	1,764.38	179.52	14,953.20
Public Lighting -- G	0.4kV	10	9.72	1.98	4,749.31	8,328.81	758.68	3.58	1,764.38	125.60	15,730.36
Res Colonies -- H	11kV	3	3.21	0.91	3,130.24	7,645.34	696.43	3.28	1,248.72	78.53	12,802.55
AJK - K1a	11kV	-	-	-	-	-	-	-	-	-	-
AJK - K1b	11kV	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	271	271.06	50.15	5,228.36	8,328.81	758.68	3.58	1,764.38	138.27	16,222.08
Total	-	4,851	4,851.00	753.94	136,929.51	219,242.95	19,971.15	94.18	43,789.93	4,261.49	424,289.22

Unbundled Rates Rs./kWh (Tariff Wise)

The functional allocation of Revenue Requirement of HESCO (Generation, Transmission, MO Fee and Distribution Cost) to customers categories, in Rs./kWh are shown in Table 14 below.

Table 14

FY 2022-23								
Customer Class	Voltage	Sales GWh	Demand MW	Generation Rs. /kWh	T. UoSC Rs. /kWh	MOF Rs. /kWh	D. UoSC Rs. /kWh	Total Rate Rs/ kWh
Residential -- A1 (a)	0.2kV	2,714	350.20	24.50	1.17	0.01	3.26	28.95
Residential -- A1 (b)	0.4kV	50	9.69	30.99	1.77	0.01	4.41	37.18
Commercial -- A2 (a)	0.2kV	143	33.36	34.95	2.13	0.01	5.48	42.57
Commercial -- A2 (b)	0.4kV	0	0.08	36.57	2.27	0.01	5.60	44.46
Commercial -- A2 (c)	0.4kV	172	43.42	36.87	2.30	0.01	5.66	44.84
Industrial -- B1 (a)	0.2kV	7	1.30	30.92	1.76	0.01	4.62	37.31
Industrial -- B2 (a)	0.4kV	1	0.22	31.16	1.78	0.01	4.45	37.40
Industrial -- B1 (b)	0.4kV	73	18.36	36.79	2.29	0.01	5.64	44.73
Industrial -- B2 (b)	0.4kV	434	85.77	31.36	1.80	0.01	4.49	37.66
Industrial -- B3	11kV	350	53.21	24.60	1.27	0.01	2.54	28.42
Industrial -- B4	132/66kV	235	36.27	22.34	1.16	0.01	1.85	25.36
Single P. Supply C1(a)	0.2kV	1	0.10	26.18	1.41	0.01	3.82	31.42
Single P. Supply C1(b)	0.4kV	11	2.50	34.09	2.05	0.01	5.07	41.22
Single P. Supply C2(a)	11kV	26	4.13	25.42	1.34	0.01	2.68	29.45
Single P. Supply C3(a)	132/66kV	22	4.18	25.28	1.43	0.01	2.23	28.94
Single P. Supply C1(c)	0.4kV	40	4.49	22.85	1.02	0.00	2.69	26.57
Single P. Supply C2(b)	11kV	37	5.90	25.27	1.33	0.01	2.65	29.26
Single P. Supply C3(b)	132/66kV	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	0.62	20.96	0.85	0.00	2.29	24.11
Agricultural -- D2(a)	0.4kV	4	1.08	36.96	2.31	0.01	5.68	44.96
Agricultural -- D2(b)	0.4kV	181	33.88	30.35	1.71	0.01	4.28	36.34
Agricultural -- D1(b)	0.4kV	59	11.59	31.34	1.80	0.01	4.49	37.64
Temporary - E1 (i)	0.2kV	0	0.00	35.55	2.18	0.01	5.60	43.34
Temporary - E1 (ii)	0.2kV	2	0.53	37.47	2.36	0.01	6.01	45.85
Temporary - E2	0.2kV	0	0.02	36.28	2.25	0.01	5.76	44.30
Public Lighting -- G	0.4kV	10	1.98	31.96	1.85	0.01	4.62	38.45
Res Colonies -- H	11kV	3	0.91	36.68	2.37	0.01	4.52	43.58
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-
A3 General	0.4kV	271	50.15	30.10	1.68	0.01	4.22	36.01
Total	-	4,851	753.94	26.70	1.39	0.01	3.55	31.65

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 15** below.

Table 15

FY 2022-23

Customer Class	Voltage	Sales GWh	Demand MW	Generation Rs. /kWh	T. UoSC Rs. /kWh	MOF Rs. /kWh	D. UoSC Rs. /kWh	Total Rate Rs/ kWh
Residential -- A1 (a)	0.2kV	2,714	350.20	24.50	1.17	0.01	3.26	28.95
Residential -- A1 (b)	0.4kV	50	9.69	30.99	1.77	0.01	4.41	37.18
Commercial -- A2 (a)	0.2kV	143	33.36	34.95	2.13	0.01	5.48	42.57
Commercial -- A2 (b)	0.4kV	0	0.08	36.57	2.27	0.01	5.60	44.46
Commercial -- A2 (c)	0.4kV	172	43.42	36.87	2.30	0.01	5.66	44.84
Industrial -- B1 (a)	0.2kV	7	1.30	30.92	1.76	0.01	4.62	37.31
Industrial -- B2 (a)	0.4kV	1	0.22	31.16	1.78	0.01	4.45	37.40
Industrial -- B1 (b)	0.4kV	73	18.36	36.79	2.29	0.01	5.64	44.73
Industrial -- B2 (b)	0.4kV	434	85.77	31.36	1.80	0.01	4.49	37.66
Industrial -- B3	11kV	350	53.21	24.60	1.27	0.01	2.54	28.42
Industrial -- B4	132/66kV	235	36.27	22.34	1.16	0.01	1.85	25.36
Single P. Supply C1(a)	0.2kV	1	0.10	26.18	1.41	0.01	3.82	31.42
Single P. Supply C1(b)	0.4kV	11	2.50	34.09	2.05	0.01	5.07	41.22
Single P. Supply C2(a)	11kV	26	4.13	25.42	1.34	0.01	2.68	29.45
Single P. Supply C3(a)	132/66kV	22	4.18	25.28	1.43	0.01	2.23	28.94
Single P. Supply C1(c)	0.4kV	40	4.49	22.85	1.02	0.00	2.69	26.57
Single P. Supply C2(b)	11kV	37	5.90	25.27	1.33	0.01	2.65	29.26
Single P. Supply C3(b)	132/66kV	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	0.62	20.96	0.85	0.00	2.29	24.11
Agricultural -- D2(a)	0.4kV	4	1.08	36.96	2.31	0.01	5.68	44.96
Agricultural -- D2(b)	0.4kV	181	33.88	30.35	1.71	0.01	4.28	36.34
Agricultural -- D1(b)	0.4kV	59	11.59	31.34	1.80	0.01	4.49	37.64
Temporary - E1 (i)	0.2kV	0	0.00	35.55	2.18	0.01	5.60	43.34
Temporary - E1 (ii)	0.2kV	2	0.53	37.47	2.36	0.01	6.01	45.85
Temporary - E2	0.2kV	0	0.02	36.28	2.25	0.01	5.76	44.30
Public Lighting -- G	0.4kV	10	1.98	31.96	1.85	0.01	4.62	38.45
Res Colonies -- H	11kV	3	0.91	36.68	2.37	0.01	4.52	43.58
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-
A3 General	0.4kV	271	50.15	30.10	1.68	0.01	4.22	36.01
Total	-	4,851	753.94	26.70	1.39	0.01	3.55	31.65

Note: Variable Cost in **Table 15** includes energy cost and customer services cost.

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 16** 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 16 below.

Table 16

FY 2022-23							
Customer Class	Voltage	Sales GWh	Allocated Cost Rs. (M)		Fixed Charge Rs /kW /Month	Variable Charge Rs/ kWh	Total Rate Rs/ kWh
			Fixed Cost	Variable Cost			
Residential -- A1 (a)	0.2kV	2,714	45,618.45	32,943.06	10,855.45	12.14	28.95
Residential -- A1 (b)	0.4kV	50	1,261.77	594.99	10,855.45	11.91	37.18
Commercial -- A2 (a)	0.2kV	143	4,345.33	1,733.68	10,855.45	12.14	42.57
Commercial -- A2 (b)	0.4kV	0	10.99	4.02	10,855.45	11.91	44.46
Commercial -- A2 (c)	0.4kV	172	5,655.64	2,046.41	10,855.45	11.91	44.84
Industrial -- B1 (a)	0.2kV	7	169.92	81.94	10,855.45	12.14	37.31
Industrial -- B2 (a)	0.4kV	1	29.09	13.60	10,855.45	11.91	37.40
Industrial -- B1 (b)	0.4kV	73	2,391.53	868.16	10,855.45	11.91	44.73
Industrial -- B2 (b)	0.4kV	434	11,173.23	5,170.83	10,855.45	11.91	37.66
Industrial -- B3	11kV	350	6,126.12	3,824.46	9,593.77	10.92	28.42
Industrial -- B4	132/66kV	235	3,646.70	2,305.83	8,379.29	9.82	25.36
Single P. Supply C1(a)	0.2kV	1	12.75	7.05	10,855.45	11.19	31.42
Single P. Supply C1(b)	0.4kV	11	325.47	132.31	10,855.45	11.91	41.22
Single P. Supply C2(a)	11kV	26	475.29	280.26	9,593.77	10.92	29.45
Single P. Supply C3(a)	132/66kV	22	420.26	215.91	8,379.29	9.82	28.94
Single P. Supply C1(c)	0.4kV	40	585.29	475.72	10,855.45	11.91	26.57
Single P. Supply C2(b)	11kV	37	679.13	404.50	9,593.77	10.92	29.26
Single P. Supply C3(b)	132/66kV	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	80.72	78.87	10,855.45	11.91	24.11
Agricultural -- D2(a)	0.4kV	4	140.27	50.57	10,855.45	11.91	44.96
Agricultural -- D2(b)	0.4kV	181	4,412.94	2,152.49	10,855.45	11.91	36.34
Agricultural -- D1(b)	0.4kV	59	1,509.74	699.34	10,855.45	11.91	37.64
Temporary - E1 (i)	0.2kV	0	0.30	0.12	10,855.45	12.14	43.34
Temporary - E1 (ii)	0.2kV	2	69.50	25.03	10,855.45	12.14	45.85
Temporary - E2	0.2kV	0	3.16	1.19	10,855.45	12.14	44.30
Public Lighting -- G	0.4kV	10	258.01	115.86	10,855.45	11.91	38.45
Res Colonies -- H	11kV	3	104.76	35.04	9,593.77	10.92	43.58
A J K - K1a	11kV	-	-	-	-	-	-
A J K - K1b	11kV	-	-	-	-	-	-
A3 General	0.4kV	271	6,532.44	3,229.45	10,855.45	11.91	36.01
Total		4,851	96,038.80	57,490.71	283,098.22	11.85	31.65

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 17** below. The Table also provides the Revenue to Cost Ratio, which shows that:

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

Table 17

FY 2022-23											
Customer Class	Voltage	Sales GWh	Demand MW	Revenue As Per NEPRA Tariff		Cost of Service		Difference/ Subsidy		Revenue to Cost Ratio	
				Fixed (Rs. M)	Variable (Rs. M)	Fixed (Rs. M)	Variable (Rs. M)	Fixed Rs. M	Variable Rs. M	Fixed	Variable
Residential A1 (a)	0.2kV	2,713.78	350.20	-	78,897.40	-	78,561.51	-	335.90	1.00	1.00
Residential A1 (b)	0.4kV	49.94	9.69	-	1,454.05	-	1,856.76	-	(402.70)	1.00	0.78
Commercial A2 (a)	0.2kV	142.82	33.36	-	4,600.13	-	6,079.01	-	(1,478.88)	1.00	0.76
Commercial A2 (b)	0.4kV	0.34	0.08	0.28	10.22	10.99	4.02	(10.72)	6.19	0.03	2.54
Commercial A2 (c)	0.4kV	171.76	43.42	410.95	5,204.45	5,655.64	2,046.41	(5,244.69)	3,158.04	0.07	2.54
Industrial B1 (a)	0.2kV	6.75	1.30	-	210.33	-	251.86	-	(41.53)	1.00	0.84
Industrial B2 (a)	0.4kV	1.14	0.22	2.36	35.45	29.09	13.60	(26.73)	21.85	0.08	2.61
Industrial B1 (b)	0.4kV	72.87	18.36	-	2,179.98	-	3,259.69	-	(1,079.71)	1.00	0.67
Industrial B2 (b)	0.4kV	434.00	85.77	1,048.11	12,780.87	11,173.23	5,170.83	(10,125.12)	7,610.03	0.09	2.47
Industrial B3	11kV	350.16	53.21	496.63	10,754.88	6,126.12	3,824.46	(5,629.49)	6,930.42	0.08	2.81
Industrial B4	132/66kV	234.73	36.27	230.78	7,151.66	3,646.70	2,305.83	(3,415.93)	4,845.83	0.06	3.10
Bulk Supply C1(a)	0.2kV	0.63	0.10	-	20.06	-	19.80	-	0.26	1.00	1.01
Bulk Supply C1(b)	0.4kV	11.11	2.50	14.25	351.37	325.47	132.31	(311.21)	219.06	0.04	2.66
Bulk Supply C2(a)	11kV	25.66	4.13	21.72	809.31	475.29	280.26	(453.58)	529.05	0.05	2.89
Bulk Supply C3(a)	132/66kV	21.98	4.18	39.06	690.79	420.26	215.91	(381.19)	474.89	0.09	3.20
Bulk Supply C1(c)	0.4kV	39.93	4.49	47.24	1,174.72	585.29	475.72	(538.05)	699.00	0.08	2.47
Bulk Supply C2(b)	11kV	37.04	5.90	37.49	1,140.54	679.13	404.50	(641.64)	736.04	0.06	2.82
Bulk Supply C3(b)	132/66kV	-	-	-	-	-	-	-	-	1.00	1.00
Agricultural D1(a)	0.4kV	6.62	0.62	-	210.77	-	159.59	-	51.18	1.00	1.32
Agricultural D2(a)	0.4kV	4.24	1.08	-	149.53	-	190.84	-	(41.30)	1.00	0.78
Agricultural D2(b)	0.4kV	180.66	33.88	201.78	5,386.13	4,412.94	2,152.49	(4,211.16)	3,233.64	0.05	2.50
Agricultural D1(b)	0.4kV	58.70	11.59	25.06	1,839.65	1,509.74	699.34	(1,484.67)	1,140.31	0.02	2.63
Temporary E1 (i)	0.2kV	0.01	0.00	-	0.35	-	0.42	-	(0.07)	1.00	0.84
Temporary E1 (ii)	0.2kV	2.06	0.53	-	66.45	-	94.53	-	(28.08)	1.00	0.70
Temporary E2	0.2kV	0.10	0.02	-	3.35	-	4.36	-	(1.01)	1.00	0.77
Public Lighting G	0.4kV	9.72	1.98	-	346.50	-	373.87	-	(27.38)	1.00	0.93
Residential Col. H	11kV	3.21	0.91	-	115.59	-	139.80	-	(24.21)	1.00	0.83
A J K K1a	11kV	-	-	-	-	-	-	-	-	1.00	1.00
A J K K1b	11kV	-	-	-	-	-	-	-	-	1.00	1.00
A3 General	0.4kV	271.06	50.15	-	8,744.28	-	9,761.90	-	(1,017.62)	1.00	0.90
Total		4,851.00	753.94	2,575.71	144,328.80	35,049.88	118,479.62	(32,474.18)	25,849.18	0.07	1.22

Revenue, Cost of Service and Subsidies (Rs./kWh)

Revenue, Cost of Service and Subsidy in terms of Rs./kWh for each category of the consumers is shown in **Table 18** below. The Table also provides the Revenue to Cost Ratio.

Table 18

FY 2022-23						
Customer Class	Voltage	Sales GWh	Revenue Rs. /kWh	Cost Of Service Rs. /kWh	Subsidy Rs. /kWh	Revenue to Cost Ratio
Residential A1 (a)	0.2kV	2,713.78	29.07	28.95	0.12	1.00
Residential A1 (b)	0.4kV	49.94	29.12	37.18	(8.06)	0.78
Commercial A2 (a)	0.2kV	142.82	32.21	42.57	(10.36)	0.76
Commercial A2 (b)	0.4kV	0.34	31.06	44.46	(13.39)	0.70
Commercial A2 (c)	0.4kV	171.76	32.69	44.84	(12.15)	0.73
Industrial B1 (a)	0.2kV	6.75	31.16	37.31	(6.15)	0.84
Industrial B2 (a)	0.4kV	1.14	33.12	37.40	(4.28)	0.89
Industrial B1 (b)	0.4kV	72.87	29.92	44.73	(14.82)	0.67
Industrial B2 (b)	0.4kV	434.00	31.86	37.66	(5.80)	0.85
Industrial B3	11kV	350.16	32.13	28.42	3.72	1.13
Industrial B4	132/66kV	234.73	31.45	25.36	6.09	1.24
Bulk Supply C1(a)	0.2kV	0.63	31.84	31.42	0.42	1.01
Bulk Supply C1(b)	0.4kV	11.11	32.92	41.22	(8.30)	0.80
Bulk Supply C2(a)	11kV	25.66	32.39	29.45	2.94	1.10
Bulk Supply C3(a)	132/66kV	21.98	33.21	28.94	4.26	1.15
Bulk Supply C1(c)	0.4kV	39.93	30.60	26.57	4.03	1.15
Bulk Supply C2(b)	11kV	37.04	31.81	29.26	2.55	1.09
Bulk Supply C3(b)	132/66kV	-	-	-	-	-
Agricultural D1(a)	0.4kV	6.62	31.84	24.11	7.73	1.32
Agricultural D2(a)	0.4kV	4.24	35.23	44.96	(9.73)	0.78
Agricultural D2(b)	0.4kV	180.66	30.93	36.34	(5.41)	0.85
Agricultural D1(b)	0.4kV	58.70	31.77	37.64	(5.87)	0.84
Temporary E1 (i)	0.2kV	0.01	36.23	43.34	(7.11)	0.84
Temporary E1 (ii)	0.2kV	2.06	32.23	45.85	(13.62)	0.70
Temporary E2	0.2kV	0.10	34.05	44.30	(10.25)	0.77
Public Lighting G	0.4kV	9.72	35.63	38.45	(2.82)	0.93
Residential Col. H	11kV	3.21	36.03	43.58	(7.55)	0.83
A J K K1a	11kV	-	-	-	-	-
A J K K1b	11kV	-	-	-	-	-
A3 General	0.4kV	271.06	32.26	36.01	(3.75)	0.90
Total	-	4,851.00	30.28	31.65	(1.37)	0.96

Revenue, Cost of Service and Subsidies (11 kV and Above)

The revenue, cost of service and subsidies for customer categories that fall under 11kv are summarized at **Table 19** below.

Table 19

FY 2022-23											
Customer Class	Voltage	Sales GWh	Demand MW	Revenue As Per NEPRA Tariff			Cost of Service			Difference Subsidy M.PKR	Subsidy Rs.kWh
				Demand Charge (M.PKR)	Energy Charge M.PKR	Total M.PKR	Demand Cost (M.PKR)	Energy Cost M.PKR	Total M.PKR		
Industrial B3	11kV	350.16	53.21	496.63	10,754.88	11,251.50	6,126.12	3,824.46	9,950.58	1,300.92	3.72
Industrial B4	132/66kV	234.73	36.27	230.78	7,151.66	7,382.44	3,646.70	2,305.83	5,952.53	1,429.90	6.09
Bulk Supply C2(a)	11kV	25.66	4.13	21.72	809.31	831.03	475.29	280.26	755.55	75.47	2.94
Bulk Supply C3(a)	132/66kV	21.98	4.18	39.06	690.79	729.86	420.26	215.91	636.16	93.69	4.26
Bulk Supply C2(b)	11kV	37.04	5.90	37.49	1,140.54	1,178.03	679.13	404.50	1,083.63	94.40	2.55
Bulk Supply C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-
Residential Col. H	11kV	3.21	0.91	-	115.59	115.59	-	139.80	139.80	(24.21)	(7.55)

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

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

1. 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.
2. 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.
3. Consumer category for tariff H, i.e. housing colonies attached to industries, despite being connected at 11 kV, cannot be considered as BPC for (i) principally being resale in nature and (ii) being less than 1 MW.

Based on the above clarification, the abstract of Revenue (Rs./kWh), the Cost of Service (Rs./kWh) and resultant cross-subsidy (Rs./kWh) is appended at **Table 20** below.

Table 20
FY 2022-23

Customer Class	Voltage	Sale GWH	Revenue Rs. /KWH	Cost of Service Rs. /KWh	Subsidy Rs. /KWh
Industrial B3	11kV	350.16	32.13	28.42	3.72
Industrial B4	132/66kV	234.73	31.45	25.36	6.09
Bulk Supply C2(b)	11kV	37.04	31.81	29.26	2.55
Bulk Supply C3(a)	132/66kV	21.98	33.21	28.94	4.26

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

For interest of the readers to glance through overall master data for result of HESCO's Cost of Service Study (FY 2022-23), following Tables (Table 21 to Table 27) are added separately.

Final Remarks:

- The above Cost of Service Study Report (FY 2022-23) is a sincere human effort to arrive at judicious assessment of functional (generation, transmission, market operator, distribution and customer services) costs for each category of consumers demonstrating the needs and parameters associated with relevant category.
- The results of the study are to be used for the purposes of rate making of Use of System Charges for possible eligible Bulk Power Consumers.
- The Fully Allocated Cost of Service (FACOS) Model used for the purpose of this study is realistically elaborate, professionally structured in line with international practices and reasonably accurate to provide equitable results in terms of costs associated with demonstrated needs of the customers. Human errors and omissions are, however, expected.
- The underlying assumptions made and considerations relied upon in carrying out this Cost of Service Study were adopted with all possible care, without any prejudice and have been disclosed in details to the extent possible.
- Inherent and unforeseen limitations of the FACOS model, assumptions made and consideration relied upon may not be as exhaustive as expected; accordingly, for the purposes of rate making of Use of System Charges, certain out of the model iterations may be necessary.



- While the Cost of Service is substantially (96%) covered by the determined tariffs, inherent cross subsidization and possibility of stranded costs need considerate, careful, concerted and continuous attention for proactive mitigation thereof.
- While currently certain classes of consumers are enjoying benefit of inter and intra tariff subsidies, the other categories of consumers are paying huge (30~35%) cross-subsidies. For a robust, vibrant and successful wholesale, and later retail, power market, minimization, if not elimination, of intra and inter tariff subsidies shall remain fundamental requirement.

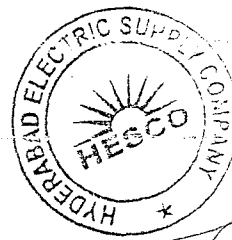


Table 21

FY 2022-23

Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Cost (Rs. M)
		Sold	Purchased	at Meter	at CDP	Energy (Rs.M)	Demand (Rs.M)	Cost (Rs.M)	Cost (Rs.M)	Demand (Rs.M)	cust. Cost (Rs.M)	
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	31,500	35,001	3,188	15	7,415	1,443	78,562
Residential -- A1(b)	0.4kV	50	62	10	12	580	968	88	0	205	15	1,857
Commercial -- A2(a)	0.2kV	143	178	33	42	1,658	3,334	304	1	706	76	6,079
Commercial -- A2(b)	0.4kV	0	0	0	0	4	8	1	0	2	0	15
Commercial -- A2(c)	0.4kV	172	214	43	54	1,994	4,339	395	2	919	53	7,702
Industrial -- B1(a)	0.2kV	7	8	1	2	78	130	12	0	28	4	252
Industrial -- B2(a)	0.4kV	1	1	0	0	13	22	2	0	5	0	43
Industrial -- B1(b)	0.4kV	73	91	18	23	846	1,835	167	1	389	22	3,260
Industrial -- B2(b)	0.4kV	434	542	86	107	5,038	8,573	781	4	1,816	133	16,344
Industrial -- B3	11kV	350	401	53	61	3,731	4,882	445	2	797	94	9,951
Industrial -- B4	132/66kV	235	242	36	37	2,250	2,993	273	1	379	56	5,953
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	7	10	1	0	2	0	20
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	129	250	23	0	53	3	458
Single Point Supply -- C2(a)	11kV	26	29	4	5	273	379	35	0	62	7	756
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	211	345	31	0	44	5	636
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	463	449	41	0	95	12	1,061
Single Point Supply -- C2(b)	11kV	37	42	6	7	395	541	49	0	88	10	1,084
Single Point Supply -- C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	8	1	1	77	62	6	0	13	2	160
Agricultural -- D2(a)	0.4kV	4	5	1	1	49	108	10	0	23	1	191
Agricultural -- D2(b)	0.4kV	181	226	34	42	2,097	3,386	308	1	717	55	6,565
Agricultural -- D1(b)	0.4kV	59	73	12	14	681	1,158	106	0	245	18	2,209
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	0	0	0	0	0	0	0
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	24	53	5	0	11	1	95
Temporary Supply -- E2	0.2kV	0	0	0	0	1	2	0	0	1	0	4
Public Lighting -- G	0.4kV	10	12	2	2	113	198	18	0	42	3	374
Residential Colonies -- H	11kV	3	4	1	1	34	83	8	0	14	1	140
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	271	338	50	63	3,146	5,012	457	2	1,062	83	9,762
Total		4,851	5,957	754	926	55,391	74,123	6,752	32	15,132	2,099	153,530

Table 22

FY 2022-23 (kW or kWh at Consumer)												
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Fixed
		Sold	Purchased	at Meier	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	cust. Cost (Rs./kW/M)	Cost (Rs./kW/M)
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	11.61	8,328.81	758.68	3.58	1,764.38	343.43	11,198.89
Residential -- A1(b)	0.4kV	50	62	10	12	11.61	8,328.81	758.68	3.58	1,764.38	131.89	10,987.34
Commercial -- A2(a)	0.2kV	143	178	33	42	11.61	8,328.81	758.68	3.58	1,764.38	189.74	11,045.20
Commercial -- A2(b)	0.4kV	0	0	0	0	11.61	8,328.81	758.68	3.58	1,764.38	102.40	10,957.86
Commercial -- A2(c)	0.4kV	172	214	43	54	11.61	8,328.81	758.68	3.58	1,764.38	101.20	10,956.65
Industrial -- B1(a)	0.2kV	7	8	1	2	11.61	8,328.81	758.68	3.58	1,764.38	229.33	11,084.78
Industrial -- B2(a)	0.4kV	1	1	0	0	11.61	8,328.81	758.68	3.58	1,764.38	130.76	10,986.22
Industrial -- B1(b)	0.4kV	73	91	18	23	11.61	8,328.81	758.68	3.58	1,764.38	101.53	10,956.98
Industrial -- B2(b)	0.4kV	434	542	86	107	11.61	8,328.81	758.68	3.58	1,764.38	129.44	10,984.89
Industrial -- B3	11kV	350	401	53	61	10.65	7,645.34	696.43	3.28	1,248.72	146.58	9,740.36
Industrial -- B4	132/66kV	235	242	36	37	9.59	6,878.26	626.55	2.95	871.53	128.16	8,507.45
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	10.65	8,328.81	758.68	3.58	1,764.38	285.29	11,140.75
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	11.61	8,328.81	758.68	3.58	1,764.38	113.70	10,969.15
Single Point Supply -- C2(a)	11kV	26	29	4	5	10.65	7,645.34	696.43	3.28	1,248.72	138.45	9,732.22
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	9.59	6,878.26	626.55	2.95	871.53	104.13	8,483.42
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	11.61	8,328.81	758.68	3.58	1,764.38	227.33	11,082.78
Single Point Supply -- C2(b)	11kV	37	42	6	7	10.65	7,645.34	696.43	3.28	1,248.72	139.85	9,733.62
Single Point Supply -- C3(b)	132/66kV											
Agricultural -- D1(a)	0.4kV	7	8	1	1	11.61	8,328.81	758.68	3.58	1,764.38	273.26	11,128.72
Agricultural -- D2(a)	0.4kV	4	5	1	1	11.61	8,328.81	758.68	3.58	1,764.38	100.84	10,956.29
Agricultural -- D2(b)	0.4kV	181	226	34	42	11.61	8,328.81	758.68	3.58	1,764.38	136.42	10,991.88
Agricultural -- D1(b)	0.4kV	59	73	12	14	11.61	8,328.81	758.68	3.58	1,764.38	129.56	10,985.01
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	11.61	8,328.81	758.68	3.58	1,764.38	185.02	11,040.48
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	11.61	8,328.81	758.68	3.58	1,764.38	171.25	11,026.71
Temporary Supply -- E2	0.2kV	0	0	0	0	11.61	8,328.81	758.68	3.58	1,764.38	179.52	11,034.98
Public Lighting -- G	0.4kV	10	12	2	2	11.61	8,328.81	758.68	3.58	1,764.38	125.60	10,981.05
Residential Colonies -- H	11kV	3	4	1	1	10.65	7,645.34	696.43	3.28	1,248.72	78.53	9,672.31
Azad Jammu Kashmir - K1a	11kV											
Azad Jammu Kashmir - K1b	11kV											
A3 General	0.4kV	271	338	50	63	11.61	8,328.81	758.68	3.58	1,764.38	138.27	10,993.72
Total		4,851	5,957	754	926	11.42	8,192.84	746.30		1,672.61	232.03	10,843.77

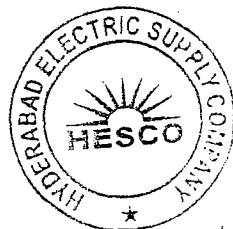


Table 23

FY 2022-23 (kW or kWh CDP)												
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Fixed
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	cust. Cost (Rs./kW/M)	Cost (Rs./kW/M)
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	9.30	6,671.91	607.75	2.87	1,413.38	275.11	8,971.03
Residential -- A1(b)	0.4kV	50	62	10	12	9.30	6,671.91	607.75	2.87	1,413.38	105.65	8,801.56
Commercial -- A2(a)	0.2kV	143	178	33	42	9.30	6,671.91	607.75	2.87	1,413.38	152.00	8,847.91
Commercial -- A2(b)	0.4kV	0	0	0	0	9.30	6,671.91	607.75	2.87	1,413.38	82.03	8,777.94
Commercial -- A2(c)	0.4kV	172	214	43	54	9.30	6,671.91	607.75	2.87	1,413.38	81.07	8,776.98
Industrial -- B1(a)	0.2kV	7	8	1	2	9.30	6,671.91	607.75	2.87	1,413.38	183.71	8,879.52
Industrial -- B2(a)	0.4kV	1	1	0	0	9.30	6,671.91	607.75	2.87	1,413.38	104.75	8,800.66
Industrial -- B1(b)	0.4kV	73	91	18	23	9.30	6,671.91	607.75	2.87	1,413.38	81.33	8,777.25
Industrial -- B2(b)	0.4kV	434	542	86	107	9.30	6,671.91	607.75	2.87	1,413.38	103.69	8,799.50
Industrial -- B3	11kV	350	401	53	61	9.30	6,671.91	607.75	2.87	1,089.73	127.92	8,500.18
Industrial -- B4	132/66kV	235	242	36	37	9.30	6,671.91	607.75	2.87	845.38	124.31	8,252.23
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	9.30	6,671.91	607.75	2.87	1,413.38	228.54	8,924.45
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	9.30	6,671.91	607.75	2.87	1,413.38	91.08	8,786.99
Single Point Supply -- C2(a)	11kV	26	29	4	5	9.30	6,671.91	607.75	2.87	1,089.73	120.82	8,493.08
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	9.30	6,671.91	607.75	2.87	845.38	101.00	8,228.92
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	9.30	6,671.91	607.75	2.87	1,413.38	182.11	8,878.02
Single Point Supply -- C2(b)	11kV	37	42	6	7	9.30	6,671.91	607.75	2.87	1,089.73	122.05	8,494.31
Single Point Supply -- C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	8	1	1	9.30	6,671.91	607.75	2.87	1,413.38	218.90	8,914.82
Agricultural -- D2(a)	0.4kV	4	5	1	1	9.30	6,671.91	607.75	2.87	1,413.38	80.78	8,776.69
Agricultural -- D2(b)	0.4kV	181	226	34	42	9.30	6,671.91	607.75	2.87	1,413.38	109.28	8,805.20
Agricultural -- D1(b)	0.4kV	59	73	12	14	9.30	6,671.91	607.75	2.87	1,413.38	103.78	8,799.70
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	9.30	6,671.91	607.75	2.87	1,413.38	148.22	8,844.13
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	9.30	6,671.91	607.75	2.87	1,413.38	137.18	8,833.10
Temporary Supply -- E2	0.2kV	0	0	0	0	9.30	6,671.91	607.75	2.87	1,413.38	143.81	8,839.72
Public Lighting -- G	0.4kV	10	12	2	2	9.30	6,671.91	607.75	2.87	1,413.38	100.61	8,796.53
Residential Colonies -- H	11kV	3	4	1	1	9.30	6,671.91	607.75	2.87	1,089.73	68.53	8,440.79
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	271	338	50	63	9.30	6,671.91	607.75	2.87	1,413.38	110.76	8,806.68
Total		4,851	5,957	754	926	9.30	6,671.91	607.75	2.87	1,362.10	188.96	8,833.59

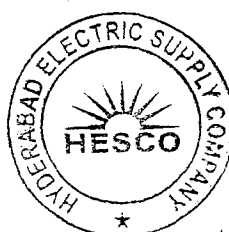


Table 24

FY 2022-23 (kWh at Consumer)												
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Fixed
		Sold	Purchased	at Meier	at CDP	Energy (Rs./kWh)	Demand (Rs./kWh)	Cost (Rs./kWh)	Cost (Rs./kWh)	Demand (Rs./kWh)	cust. Cost (Rs./kWh)	Cost (Rs./kWh)
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	11.61	12.90	1.17	0.01	2.73	0.53	17.34
Residential -- A1(b)	0.4kV	50	62	10	12	11.61	19.39	1.77	0.01	4.11	0.31	25.57
Commercial -- A2(a)	0.2kV	143	178	33	42	11.61	23.34	2.13	0.01	4.95	0.53	30.96
Commercial -- A2(b)	0.4kV	0	0	0	0	11.61	24.97	2.27	0.01	5.29	0.31	32.85
Commercial -- A2(c)	0.4kV	172	214	43	54	11.61	25.26	2.30	0.01	5.35	0.31	33.23
Industrial -- B1(a)	0.2kV	7	8	1	2	11.61	19.31	1.76	0.01	4.09	0.53	25.71
Industrial -- B2(a)	0.4kV	1	1	0	0	11.61	19.55	1.78	0.01	4.14	0.31	25.79
Industrial -- B1(b)	0.4kV	73	91	18	23	11.61	25.18	2.29	0.01	5.33	0.31	33.13
Industrial -- B2(b)	0.4kV	434	542	86	107	11.61	19.75	1.80	0.01	4.18	0.31	26.05
Industrial -- B3	11kV	350	401	53	61	10.65	13.94	1.27	0.01	2.28	0.27	17.76
Industrial -- B4	132/66kV	235	242	36	37	9.59	12.75	1.16	0.01	1.62	0.24	15.77
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	10.65	15.53	1.41	0.01	3.29	0.53	20.77
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	11.61	22.49	2.05	0.01	4.76	0.31	29.61
Single Point Supply -- C2(a)	11kV	26	29	4	5	10.65	14.76	1.34	0.01	2.41	0.27	18.79
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	9.59	15.70	1.43	0.01	1.99	0.24	19.36
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	11.61	11.25	1.02	0.00	2.38	0.31	14.97
Single Point Supply -- C2(b)	11kV	37	42	6	7	10.65	14.61	1.33	0.01	2.39	0.27	18.60
Single Point Supply -- C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	8	1	1	11.61	9.36	0.85	0.00	1.98	0.31	12.50
Agricultural -- D2(a)	0.4kV	4	5	1	1	11.61	25.35	2.31	0.01	5.37	0.31	33.35
Agricultural -- D2(b)	0.4kV	181	226	34	42	11.61	18.74	1.71	0.01	3.97	0.31	24.73
Agricultural -- D1(b)	0.4kV	59	73	12	14	11.61	19.73	1.80	0.01	4.18	0.31	26.03
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	11.61	23.94	2.18	0.01	5.07	0.53	31.73
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	11.61	25.86	2.36	0.01	5.48	0.53	34.24
Temporary Supply -- E2	0.2kV	0	0	0	0	11.61	24.67	2.25	0.01	5.23	0.53	32.69
Public Lighting -- G	0.4kV	10	12	2	2	11.61	20.36	1.85	0.01	4.31	0.31	26.84
Residential Colonies -- H	11kV	3	4	1	1	10.65	26.02	2.37	0.01	4.25	0.27	32.92
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	271	338	50	63	11.61	18.49	1.68	0.01	3.92	0.31	24.41
Total		4,851	5,957	754	926	11.42	15.28	1.39	0.01	3.12	0.43	20.23

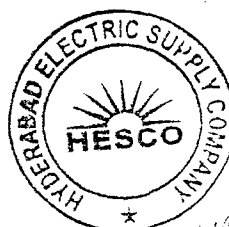


Table 25

FY 2022-23 (kWh at CDP)												
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Fixed
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kWh)	Cost (Rs./kWh)	Cost (Rs./kWh)	Demand (Rs./kWh)	cust. Cost (Rs./kWh)	Cost (Rs./kWh)
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	9.30	10.33	0.94	0.00	2.19	0.43	13.89
Residential -- A1(b)	0.4kV	50	62	10	12	9.30	15.53	1.41	0.01	3.29	0.25	20.49
Commercial -- A2(a)	0.2kV	143	178	33	42	9.30	18.70	1.70	0.01	3.96	0.43	24.80
Commercial -- A2(b)	0.4kV	0	0	0	0	9.30	20.00	1.82	0.01	4.24	0.25	26.31
Commercial -- A2(c)	0.4kV	172	214	43	54	9.30	20.24	1.84	0.01	4.29	0.25	26.62
Industrial -- B1(a)	0.2kV	7	8	1	2	9.30	15.47	1.41	0.01	3.28	0.43	20.59
Industrial -- B2(a)	0.4kV	1	1	0	0	9.30	15.66	1.43	0.01	3.32	0.25	20.66
Industrial -- B1(b)	0.4kV	73	91	18	23	9.30	20.17	1.84	0.01	4.27	0.25	26.54
Industrial -- B2(b)	0.4kV	434	542	86	107	9.30	15.82	1.44	0.01	3.35	0.25	20.87
Industrial -- B3	11kV	350	401	53	61	9.30	12.17	1.11	0.01	1.99	0.23	15.50
Industrial -- B4	132/66kV	235	242	36	37	9.30	12.37	1.13	0.01	1.57	0.23	15.30
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	9.30	13.55	1.23	0.01	2.87	0.46	18.12
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	9.30	18.01	1.64	0.01	3.82	0.25	23.72
Single Point Supply -- C2(a)	11kV	26	29	4	5	9.30	12.88	1.17	0.01	2.10	0.23	16.40
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	9.30	15.22	1.39	0.01	1.93	0.23	18.78
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	9.30	9.01	0.82	0.00	1.91	0.25	11.99
Single Point Supply -- C2(b)	11kV	37	42	6	7	9.30	12.75	1.16	0.01	2.08	0.23	16.24
Single Point Supply -- C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	8	1	1	9.30	7.49	0.68	0.00	1.59	0.25	10.01
Agricultural -- D2(a)	0.4kV	4	5	1	1	9.30	20.31	1.85	0.01	4.30	0.25	26.72
Agricultural -- D2(b)	0.4kV	181	226	34	42	9.30	15.01	1.37	0.01	3.18	0.25	19.81
Agricultural -- D1(b)	0.4kV	59	73	12	14	9.30	15.81	1.44	0.01	3.35	0.25	20.85
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	9.30	19.18	1.75	0.01	4.06	0.43	25.42
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	9.30	20.72	1.89	0.01	4.39	0.43	27.43
Temporary Supply -- E2	0.2kV	0	0	0	0	9.30	19.76	1.80	0.01	4.19	0.43	26.19
Public Lighting -- G	0.4kV	10	12	2	2	9.30	16.31	1.49	0.01	3.45	0.25	21.50
Residential Colonies -- H	11kV	3	4	1	1	9.30	22.71	2.07	0.01	3.71	0.23	28.73
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	271	338	50	63	9.30	14.81	1.35	0.01	3.14	0.25	19.55
Total		4,851	5,957	754	926	9.30	12.44	1.13	0.01	2.54	0.35	16.47

Table 26

FY 2022-23 (Cost of Losses on kW or kWh)												
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Fixed
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	cust. Cost (Rs./kW/M)	Cost (Rs./kW/M)
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	2.31	1,656.90	150.93	0.71	351.00	68.32	2,227.86
Residential -- A1(b)	0.4kV	50	62	10	12	2.31	1,656.90	150.93	0.71	351.00	26.24	2,185.78
Commercial -- A2(a)	0.2kV	143	178	33	42	2.31	1,656.90	150.93	0.71	351.00	37.75	2,197.29
Commercial -- A2(b)	0.4kV	0	0	0	0	2.31	1,656.90	150.93	0.71	351.00	20.37	2,179.91
Commercial -- A2(c)	0.4kV	172	214	43	54	2.31	1,656.90	150.93	0.71	351.00	20.13	2,179.67
Industrial -- B1(a)	0.2kV	7	8	1	2	2.31	1,656.90	150.93	0.71	351.00	45.62	2,205.16
Industrial -- B2(a)	0.4kV	1	1	0	0	2.31	1,656.90	150.93	0.71	351.00	26.01	2,185.55
Industrial -- B1(b)	0.4kV	73	91	18	23	2.31	1,656.90	150.93	0.71	351.00	20.20	2,179.74
Industrial -- B2(b)	0.4kV	434	542	86	107	2.31	1,656.90	150.93	0.71	351.00	25.75	2,185.29
Industrial -- B3	11kV	350	401	53	61	1.36	973.43	88.67	0.42	158.99	18.66	1,240.18
Industrial -- B4	132/66kV	235	242	36	37	0.29	206.35	18.80	0.09	26.15	3.84	255.22
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	1.36	1,656.90	150.93	0.71	351.00	56.76	2,216.30
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	2.31	1,656.90	150.93	0.71	351.00	22.62	2,182.16
Single Point Supply -- C2(a)	11kV	26	29	4	5	1.36	973.43	88.67	0.42	158.99	17.63	1,239.14
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	0.29	206.35	18.80	0.09	26.15	3.12	254.50
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	2.31	1,656.90	150.93	0.71	351.00	45.22	2,204.76
Single Point Supply -- C2(b)	11kV	37	42	6	7	1.36	973.43	88.67	0.42	158.99	17.81	1,239.32
Single Point Supply -- C3(b)	132/66kV	-	-	-	-	-	-	-	-	-	-	-
Agricultural -- D1(a)	0.4kV	7	8	1	1	2.31	1,656.90	150.93	0.71	351.00	54.36	2,213.90
Agricultural -- D2(a)	0.4kV	4	5	1	1	2.31	1,656.90	150.93	0.71	351.00	20.06	2,179.60
Agricultural -- D2(b)	0.4kV	181	226	34	42	2.31	1,656.90	150.93	0.71	351.00	27.14	2,186.68
Agricultural -- D1(b)	0.4kV	59	73	12	14	2.31	1,656.90	150.93	0.71	351.00	25.77	2,185.31
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	2.31	1,656.90	150.93	0.71	351.00	36.81	2,196.35
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	2.31	1,656.90	150.93	0.71	351.00	34.07	2,193.61
Temporary Supply -- E2	0.2kV	0	0	0	0	2.31	1,656.90	150.93	0.71	351.00	35.71	2,195.25
Public Lighting -- G	0.4kV	10	12	2	2	2.31	1,656.90	150.93	0.71	351.00	24.99	2,184.53
Residential Colonies -- H	11kV	3	4	1	1	1.36	973.43	88.67	0.42	158.99	10.00	1,231.51
Azad Jammu Kashmir - K1a	11kV	-	-	-	-	-	-	-	-	-	-	-
Azad Jammu Kashmir - K1b	11kV	-	-	-	-	-	-	-	-	-	-	-
A3 General	0.4kV	271	338	50	63	2.31	1,656.90	150.93	0.71	351.00	27.51	2,187.05
Total		4,851	5,957	754	926	2.12	1,520.93	138.54	(2.87)	310.50	43.07	2,010.18

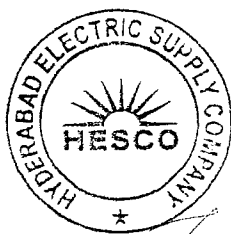
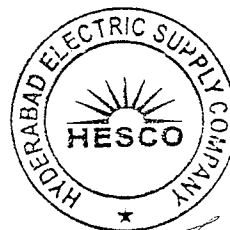


Table 27

FY 2022-23 (Cost of Losses on kWh)												
Classes	Voltage Level	Energy GWh		Demand MW		Generation Cost		Transm	MOF	Distribution		Total Fixed Cost
		Sold	Purchased	at Meter	at CDP	Energy (Rs./kWh)	Demand (Rs./kW/M)	Cost (Rs./kW/M)	Cost (Rs./kW/M)	Demand (Rs./kW/M)	cust. Cost (Rs./kW/M)	Cost (Rs./kW/M)
Residential -- A1(a)	0.2kV	2,714	3,388	350	437	2.31	2.57	0.23	0.00	0.54	0.11	3.45
Residential -- A1(b)	0.4kV	50	62	10	12	2.31	3.86	0.35	0.00	0.82	0.06	5.09
Commercial -- A2(a)	0.2kV	143	178	33	42	2.31	4.64	0.42	0.00	0.98	0.11	6.16
Commercial -- A2(b)	0.4kV	0	0	0	0	2.31	4.97	0.45	0.00	1.05	0.06	6.53
Commercial -- A2(c)	0.4kV	172	214	43	54	2.31	5.03	0.46	0.00	1.06	0.06	6.61
Industrial -- B1(a)	0.2kV	7	8	1	2	2.31	3.84	0.35	0.00	0.81	0.11	5.11
Industrial -- B1(a)	0.4kV	1	1	0	0	2.31	3.89	0.35	0.00	0.82	0.06	5.13
Industrial -- B1(b)	0.4kV	73	91	18	23	2.31	5.01	0.46	0.00	1.06	0.06	6.59
Industrial -- B2(b)	0.4kV	434	542	86	107	2.31	3.93	0.36	0.00	0.83	0.06	5.18
Industrial -- B3	11kV	350	401	53	61	1.36	1.78	0.16	0.00	0.29	0.03	2.26
Industrial -- B4	132/66kV	235	242	36	37	0.29	0.38	0.03	0.00	0.05	0.01	0.47
Single Point Supply -- C1(a)	0.2kV	1	1	0	0	1.36	1.98	0.18	0.00	0.42	0.07	2.64
Single Point Supply -- C1(b)	0.4kV	11	14	2	3	2.31	4.47	0.41	0.00	0.95	0.06	5.89
Single Point Supply -- C2(a)	11kV	26	29	4	5	1.36	1.88	0.17	0.00	0.31	0.03	2.39
Single Point Supply -- C3(a)	132/66kV	22	23	4	4	0.29	0.47	0.04	0.00	0.06	0.01	0.58
Single Point Supply -- C1(c)	0.4kV	40	50	4	6	2.31	2.24	0.20	0.00	0.47	0.06	2.98
Single Point Supply -- C2(b)	11kV	37	42	6	7	1.36	1.86	0.17	0.00	0.30	0.03	2.37
Single Point Supply -- C3(b)	132/66kV											
Agricultural -- D1(a)	0.4kV	7	8	1	1	2.31	1.86	0.17	0.00	0.39	0.06	2.49
Agricultural -- D2(a)	0.4kV	4	5	1	1	2.31	5.04	0.46	0.00	1.07	0.06	6.64
Agricultural -- D2(b)	0.4kV	181	226	34	42	2.31	3.73	0.34	0.00	0.79	0.06	4.92
Agricultural -- D1(b)	0.4kV	59	73	12	14	2.31	3.93	0.36	0.00	0.83	0.06	5.18
Temporary Supply -- E1(i)	0.2kV	0	0	0	0	2.31	4.76	0.43	0.00	1.01	0.11	6.31
Temporary Supply -- E1(ii)	0.2kV	2	3	1	1	2.31	5.15	0.47	0.00	1.09	0.11	6.81
Temporary Supply -- E2	0.2kV	0	0	0	0	2.31	4.91	0.45	0.00	1.04	0.11	6.50
Public Lighting -- G	0.4kV	10	12	2	2	2.31	4.05	0.37	0.00	0.86	0.06	5.34
Residential Colonies -- H	11kV	3	4	1	1	1.36	3.31	0.30	0.00	0.54	0.03	4.19
Azad Jammu Kashmir - K1a	11kV											
Azad Jammu Kashmir - K1b	11kV											
A3 General	0.4kV	271	338	50	63	2.31	3.68	0.34	0.00	0.78	0.06	4.86
Total		4,851	5,957	754	926	2.12	2.84	0.26	0.00	0.58	0.08	3.76





Hyderabad Electric Supply Company (HESCO)

Annex-B

Cost of Service & Proposed Use of System Charges

For Possible Eligible Bulk Power Consumers (One MW or More at One Premises)

(PROPOSAL – 1)

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-1)			
Consumption Category	Industrial				Industrial				Industrial B-3 (1 MW or More)			
Tariff Category	B-3				B-3				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	10.65			10.65	9.30			9.30	743.91	1.36		1.36
Generation Cost - Capacity		7,645.34	12.94	12.94		6,671.91	12.17	12.17	6,671.91	12.17	2,001.57	8.93
Transmission Charges		696.43	1.27	1.27		607.75	1.11	1.11	607.75	1.11	182.33	0.78
Market Operator's Fee		3.28	0.01	0.01		2.87	0.01	0.01				
Distribution Use of System		1,395.30	2.54	2.54		1,217.65	2.22	2.22	1,217.65	2.22	365.29	1.55
Total Applicable Costs	10.65	9,740.36	17.76	28.42	9.30	8,500.18	15.50	24.80	9,241.23	16.85	2,549.19	12.20
Impact of allowed losses					1.36	1,240.18	2.26	3.62	1,240.18	2.26	372.05	1.58
Total Cost of Service	10.65	9,740.36	17.76	28.42	10.65	9,740.36	17.76	28.42	10,481.40	19.11	2,921.25	13.79
Cross Subsidy				3.72				3.72	2,037.31	3.72		3.72
Average Applicable Tariff				32.13				32.13	12,518.71	22.83	2,921.25	17.50

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-1)			
Consumption Category	Bulk Supply				Bulk Supply				Bulk Supply C-2(b) (1 MW or More)			
Tariff Category	C2(b)				C2(b)				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	10.65			10.65	9.30			9.30	709.75	1.36		1.36
Generation Cost - Capacity		7,645.34	14.61	14.61		6,671.91	12.75	12.75	6,671.91	12.75	2,001.57	8.93
Transmission Charges		696.43	1.33	1.33		607.75	1.16	1.16	607.75	1.16	182.33	0.81
Market Operator's Fee		3.28	0.01	0.01		2.87	0.01	0.01				
Distribution Use of System		139.85	2.65	2.65		1,211.77	2.32	2.32	1,211.77	2.32	363.53	1.62
Total Applicable Costs	10.65	8,484.90	18.60	29.26	9.30	8,494.31	16.24	25.53	9,201.19	17.59	2,547.43	12.72
Impact of allowed losses					1.36	1,239.32	2.37	3.73	1,239.32	2.37	371.80	1.66
Total Cost of Service	10.65	8,484.90	18.60	29.2596	10.65	9,733.62	18.60	29.26	10,440.51	19.96	2,919.23	14.38
Cross Subsidy				2.55				2.55	1,333.55	2.55		2.55
Average Applicable Tariff				31.81				31.81	11,774.06	22.50	2,919.23	16.93

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-1)			
Consumption Category	Industrial				Industrial				Industrial B-4			
Tariff Category	B4				B4				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	9.59			9.59	9.30			9.30	157.69	0.29		0.29
Generation Cost - Capacity		6,878.26	12.75	12.75		6,671.91	12.37	12.37	6,671.91	12.37	2,001.57	8.66
Transmission Charges		626.55	1.16	1.16		607.75	1.13	1.13	607.75	1.13	182.33	0.79
Market Operator's Fee		2.95	0.01	0.01		2.87	0.01	0.01				
Distribution Use of System		128.16	1.85	1.85		969.70	1.80	1.80	969.70	1.80	290.91	1.26
Total Applicable Costs	9.59	7,635.92	15.77	25.36	9.30	8,252.23	15.30	24.60	8,407.06	15.58	2,474.81	10.99
Impact of allowed losses					0.29	255.22	0.47	0.76	255.22	0.47	76.57	0.33
Total Cost of Service	9.59	7,635.92	15.77	25.3593	9.59	8,507.45	15.77	25.36	8,662.28	16.06	2,551.38	11.33
Cross Subsidy				6.09				6.09	3,340.48	6.09		6.09
Average Applicable Tariff				31.45				31.45	12,002.75	22.15	2,551.38	17.42

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-1)			
Consumption Category	Bulk Supply				Bulk Supply				Bulk Supply C-3(a)			
Tariff Category	C3(a)				C3(a)				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	9.59			9.59	9.30			9.30	150.45	0.29		0.29
Generation Cost - Capacity		6,878.26	15.70	15.70		6,671.91	15.22	15.22	6,671.91	15.22	2,001.57	10.66
Transmission Charges		626.55	1.43	1.43		607.75	1.39	1.39	607.75	1.39	182.33	0.97
Market Operator's Fee		2.95	0.01	0.01		2.87	0.01	0.01				
Distribution Use of System		104.13	2.23	2.23		946.39	2.16	2.16	946.39	2.16	283.92	1.51
Total Applicable Costs	9.59	7,611.89	19.36	28.94	9.30	8,228.92	18.78	28.08	8,376.51	19.06	2,467.82	13.43
Impact of allowed losses					0.29	254.50	0.58	0.87	254.50	0.58	76.35	0.41
Total Cost of Service	9.59	7,611.89	19.36	28.94	9.59	8,483.42	19.36	28.94	8,631.01	19.64	3,010.41	16.32
Cross Subsidy				4.26				4.26	2,230.25	4.26		4.26
Average Applicable Tariff				33.21				33.21	10,861.25	23.90	3,010.41	20.58





Hyderabad Electric Supply Company (HESCO)

Annex-B-1

Cost of Service & Proposed Use of System Charges

For Possible Eligible Bulk Power Consumers (One MW or More at One Premises)

(PROPOSAL – 2)

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-2)			
Consumption Category	Industrial				Industrial				Industrial B-3 (1 MW or More)			
Tariff Category	B-3				B-3				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	10.65			10.655	9.30			9.298	440.03	1.357		1.357
Generation Cost - Capacity		4,522.33	13.94	13.942		4,248.72	12.17	12.167	4,248.72	12.167	1,274.62	8.517
Transmission Charges		411.95	1.27	1.270		387.02	1.11	1.108	387.02	1.108	116.11	0.776
Market Operator's Fee		1.94	0.01	0.006		1.83	0.01	0.005				
Distribution Use of System		825.34	2.54	2.544		775.41	2.22	2.221	775.41	2.221	232.62	1.554
Total Applicable Costs	10.655	5,761.56	17.763	28.418	9.298	5,412.98	15.501	24.799	5,851.19	16.852	1,623.35	12.204
Impact of allowed losses					1.36	348.58	2.26	3.618	348.58	2.262	104.57	1.583
Total Cost of Service	10.655	5,761.56	17.763	28.418	10.655	5,761.56	17.763	28.418	6,199.77	19.114	1,727.92	13.787
Cross Subsidy				3.72				3.72	1,205.10	3.715		3.715
Average Applicable Tariff				32.13				32.13	7,404.86	22.829	1,727.92	17.502

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-2)			
Consumption Category	Bulk Supply				Bulk Supply				Bulk Supply C-2(b) (1 MW or More)			
Tariff Category	C2(b)				C2(b)				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	10.65			10.655	9.30			9.298	616.62	1.357		1.357
Generation Cost - Capacity		6,642.16	14.61	14.613		6,240.31	12.75	12.753	6,240.31	12.753	1,872.09	8.927
Transmission Charges		605.04	1.33	1.331		568.44	1.16	1.162	568.44	1.162	170.53	0.813
Market Operator's Fee		2.85	0.01	0.006		2.68	0.01	0.005				
Distribution Use of System		121.50	2.65	2.654		1,133.38	2.32	2.316	1,133.38	2.316	340.02	1.621
Total Applicable Costs	10.655	7,371.56	18.605	29.260	9.298	7,944.81	16.236	25.534	8,558.75	17.587	2,382.64	12.718
Impact of allowed losses					1.36	511.62	2.37	3.725	511.62	2.369	153.49	1.66
Total Cost of Service	10.655	7,371.56	18.605	29.260	10.655	8,456.43	18.605	29.260	9,070.37	19.956	2,536.13	14.376
Cross Subsidy				2.55				2.55	1,158.57	2.549		2.549
Average Applicable Tariff				31.81				31.81	10,228.94	22.505	2,536.13	16.925

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-2)			
Consumption Category	Industrial				Industrial				Industrial B-4			
Tariff Category	B4				B4				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	9.59			9.586	9.30			9.298	93.28	0.288		0.288
Generation Cost - Capacity		5,708.32	12.75	12.753		5,362.96	12.37	12.370	5,362.96	12.370	1,608.89	8.659
Transmission Charges		519.98	1.16	1.162		488.52	1.13	1.127	488.52	1.127	146.56	0.789
Market Operator's Fee		2.45	0.01	0.005		2.30	0.01	0.005				
Distribution Use of System		106.36	1.85	1.853		779.45	1.80	1.798	779.45	1.798	233.84	1.259
Total Applicable Costs	9.586	6,337.12	15.773	25.359	9.298	6,633.24	15.300	24.599	6,724.22	15.583	1,989.28	10.994
Impact of allowed losses					0.29	427.16	0.47	0.761	427.16	0.473	128.15	0.331
Total Cost of Service	9.586	6,337.12	15.773	25.359	9.586	7,060.40	15.773	25.359	7,151.38	16.056	2,117.43	11.325
Cross Subsidy				6.09				6.09	1,975.94	6.092		6.092
Average Applicable Tariff				31.45				31.45	9,127.32	22.148	2,117.43	17.417

Cost Assessment Level	Cost of Service (Inclusive of Energy Loss Impact)				Cost of Service (Separated Energy Loss Impact)				PROPOSED Use of System Charges (Proposal-2)			
Consumption Category	Bulk Supply				Bulk Supply				Bulk Supply C-3(a)			
Tariff Category	C3(a)				C3(a)				MDI Based Volumetric Hybrid			
	Variable	Fixed		Total	Variable	Fixed		Total	Rs./kW/ Month	Rs./kWh	Rs./kW/ Month	Rs./kWh
	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kW/ Month	Rs./kWh	Rs./kWh				
Generation Cost - Energy	9.59			9.586	9.30			9.298	130.71	0.288		0.288
Generation Cost - Capacity		3,884.83	15.70	15.696		3,649.79	15.22	15.225	3,649.79	15.225	1,094.94	10.657
Transmission Charges		353.87	1.43	1.430		332.46	1.39	1.387	332.46	1.387	99.74	0.971
Market Operator's Fee		1.67	0.01	0.007		1.57	0.01	0.007				
Distribution Use of System		58.81	2.23	2.226		517.71	2.16	2.160	517.71	2.160	155.31	1.512
Total Applicable Costs	9.586	4,299.19	19.359	28.944	9.298	4,501.54	18.778	28.076	4,630.68	19.059	1,349.99	13.428
Impact of allowed losses					0.29	289.89	0.58	0.868	289.89	0.581	86.966	0.407
Total Cost of Service	9.586	4,299.19	19.359	28.944	9.586	4,791.42	19.359	28.944	4,920.57	19.640	1,692.01	16.317
Cross Subsidy				4.26				4.26	1,937.61	4.263		4.263
Average Applicable Tariff				33.21				33.21	6,858.17	23.903	1,692.01	20.579

