

**JOINT ELECTRICITY REGULATORY COMMISSION FOR
THE STATE OF GOA AND UNION TERRITORIES
GURGAON**

Coram
Dr. V.K. Garg, Chairperson
Sh. S.K.Chaturvedi, Member
Petition No. 79 /2012
(Suo-moto)

In the matter of

Fuel & Power Purchase Cost Adjustment Formula (FPPCA) in compliance of Judgment dated 11.11.2011 in OP No. 1 and as required to be specified under Clause 7 (2) of Joint Electricity Regulatory Commission for State of Goa and UTs (Terms and Conditions for Determination of Tariff) Regulations 2009.

ORDER

27.06.2012

In exercise of the powers conferred by Section 83 of the Electricity Act, 2003 the Central Government constituted a two member (including Chairperson) Joint Electricity Regulatory Commission for all Union Territories except Delhi to be known as “Joint Electricity Regulatory Commission for Union Territories” with Headquarters at Delhi as notified vide notification no. 23/52/2003- R&R dated 2nd May, 2005. Later with the joining of the state of Goa, the Commission came to be known as “Joint Electricity Regulatory Commission for the State of Goa and Union Territories” as notified on 30th May, 2008. The Joint Electricity Regulatory Commission, (for the State of Goa and Union Territories) started functioning with effect from August 2008 temporarily in the district town of Gurgaon, Haryana.

- 2.0 Hon’ble APTEL in judgment dated 11.11.2011 in OP No. 1 of 2011 issued directions to all the State Commissions to have in place a mechanism for Fuel and Power Purchase Cost Adjustment in terms of Section 62(4) of the Electricity Act, 2003
- 3.0 Joint Electricity Regulatory Commission for State of Goa and UTs (Terms and Conditions for Determination of Tariff) Regulations 2009 Clause 7 (2) requires the Commission to specify a fuel & power purchase cost adjustment formula (in short referred as FPPCA formula). Accordingly, Commission purposed to amend the said regulation and insert the

specified formula as clause 7 (3) in Joint Electricity Regulatory Commission for State of Goa and UTs (Terms and Conditions for Determination of Tariff) Regulations 2009, below clause 7(2) of the said regulation.

4.0 Joint Electricity Regulatory Commission (herein after referred as JERC) in compliance of the Judgment dated 11.11.2011 in OP No. 1 of 2011 and as required under Clause 7(2) of JERC Regulations 10 / 2009 started Suo-moto hearings in petition no. 79 of 2012 for amendment in Joint Electricity Regulatory Commission for State of Goa and UTs (Terms and Conditions for Determination of Tariff) Regulations 2009, for asserting specified formula as clause 7(3) in the said regulations. The Commission formulated FPPCA formula, uploaded on website of the Commission and published in followings news papers covering entire areas of all licensees:-

Sr. No.	Publication	Language	Edition
1.	The Times of India	English	Goa
2.	Gomantak	Marathi	Goa
3.	Sunaparathn	Konkani	Goa
4.	Andman Express	English	Portblair
5.	Rajasthan Patrika	Hindi	Kolkata
6.	Ajit	Punjabi	Jalandhar
7.	Tribune	English	Chandigarh
8.	Amar Ujala	Hindi	Chandigarh
9.	Free Press Journal	English	Mumbai
10.	Divya Bhaskar	Gujrati	Surat
11.	Savera India Times	Hindi	Daman
12.	vartman Pravah	Gujrati	Daman
13.	Navbharat Times	Hindi	Mumbai
14.	Daman Ganga Times	Gujrati	Silvasa
15.	Dinakaran	Tamil	Puducherry
16.	Daily Thanti	Tamil	Puducherry
17.	The Hindu	English	Chennai
18.	Malayala Manorma	Malayam	Chennai
19.	Mathrubhumi	Malayam	Chennai

5.0 Features of the FPPCA formula formulated by the Commission are as under:-

1. Recovery Periodicity (Cycle)

The licensee will compute fuel and power procurement cost variations on quarterly basis and adjustment shall be made in consumer bills starting after a month following the end of the quarter. For example, Fuel & Power Purchase Cost Adjustment (FPPCA) for the quarter April-May-June shall be made in the month of July and shall be reflected in the consumer bills raised in the months of August-September-October. The formula will be applicable from 1st April of FY 2012-13. FPPC adjustment shall be done for all consumer categories except Below Poverty Line (BPL) and agriculture consumers.

2. Fuel & Power Purchase Cost Adjustment Formula

- i. The **formula** for determination of per unit Fuel & Power Purchase Cost Adjustment (“FPPCA”) is as under:

In words:

Per Unit FPPCA (Paisa/unit) =

Per Unit Actual Cost of Power Purchase – Per Unit Approved Cost of Power Purchase in the Tariff Order

Translating into calculations:

$$FPPCA \text{ (Paisa per unit)} = \frac{(P_{Actual} - S_{Bulk})}{[X - Z\{1 - Y_{Approved}/100\}]} * 100 - R_{Approved}$$

Please Note: ₁(....)₁ will be opened up first then ₂(....)₂ and so...on

Where:

P_{Actual}	=	Actual cost of power purchased during the quarter excluding purchase from unapproved bilateral and other unapproved sources and also excluding transmission charges of PGCIL, SLDC charges, RLDC charges and reactive energy charges (₹crores).
		Explanatory Note : The actual cost of power purchase during the quarter will include the total

		cost of power purchased during the quarter through approved sources of power including central generating stations, other approved stations& power purchased through power exchanges limited to the rate given in the Tariff Order of the licensees. The UI over drawal charges will be limited to the actual UI rate or UI rate corresponding to 49.7 Hz, whichever is lower. The total cost of power purchase in this formula does not include the transmission charges of PGCIL, SLDC/ RLDC charges and reactive energy charges. Any variation in these charges shall be taken care in the true up.
S_{Bulk}	=	Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹crores). Explanatory Note: The actual revenue recognized from sale of power to persons other than utility's consumers includes the revenue recognized by the utility with adjustments of brokerage and Power Exchange charges, if any. The actual revenue from sale will also include the adjustments made through UI mechanism in case of under drawl by the utility.
$R_{Approved}$	=	Approved per unit cost of power purchase for use in the FPPCA formula as given in the tariff order of the Licensee (paise per unit). Explanatory Note: The approved per unit cost of power purchase for the financial year to be considered in the FPPCA formula excluding transmission charges of PGCIL, SLDC charges , RLDC charges and charges for reactive energy (paise per unit) would be calculated and mentioned in the tariff order of the respective utility .
X	=	Actual Energy units (kWh)procured during the quarter in consideration excluding unapproved sources (in million units). Explanatory Note The actual energy unitsduring the quarter will include the total energy (units)procured during the quarter through approved sources including central generating stations, other approved stations, powerprocured through power exchanges and over drawal from the grid. The total energy unitsprocured shall be without considering transmission losses.

A	=	Actual Energy Units (kWh)procured during the quarter in consideration (in million units)from power exchanges, power generation within the periphery of the licensee&used by licensee and units overdrawn from the grid.
T _{Approved} %	=	Approved inter-state transmission losses as provided in the Tariff Order. (in %)
Y _{Approved} %	=	Approved T&D losses for the year in consideration (in %)
X _s	=	Actual Sale of power to persons other than the utility consumers(in million units) during the quarter. Explanatory Note: The actual units sold to persons other than utility consumers through bilateral transactions, transactions through power exchanges and under drawl through UI mechanism.
Z	=	Actual energy units billed for BPL and Agriculture category consumers(in million units).

The mechanism for FPPCA can also be understood in simpler terms as mentioned below:

$$\text{Per Unit FPPCA (Paisa/unit)} = \left[\frac{(P_{Actual} - S_{Bulk})}{\{(X-c)-v\} * b} \right] * 1000 - R_{Approved}$$

Whereas

$$c = \{(X-A) * T_{Approved} / 100\}$$

$$v = X_s$$

$$b = (1 - Y_{Approved} / 100)$$

and

X, A, T_{approved}, X_s and Y_{approved} are already defined above

Terms and Conditions

1. For the purpose of Fuel & Power Purchase Cost Adjustment, all the bills admitted and credits, if any, received by the distribution licensee (during the period in consideration), irrespective of the period to which they pertain, shall be considered.
2. The variation in fuel & power purchase cost adjustment with respect to the approved per unit power procurement cost, as per the formula specified above, shall be made from the actual sales of metered consumers and in case of un-metered consumers, it shall be recoverable/payable based on estimated sales to such consumers, calculated in accordance with such methodology/mechanism as may be stipulated by the Commission.
3. Per unit rate of FPPCA to be billed to consumers shall be worked out in Paisa after rounding off to the next lower integer in case of fraction less than 0.5 and to the next higher integer in case of fraction equal to or greater than 0.5.

4. The perunit FPPCA so worked out shall be charged differentially as per the approved retail tariff of the consumers. The determination of differential per unit FPPCA is mentioned below:

Step 1: Determination of Value of K

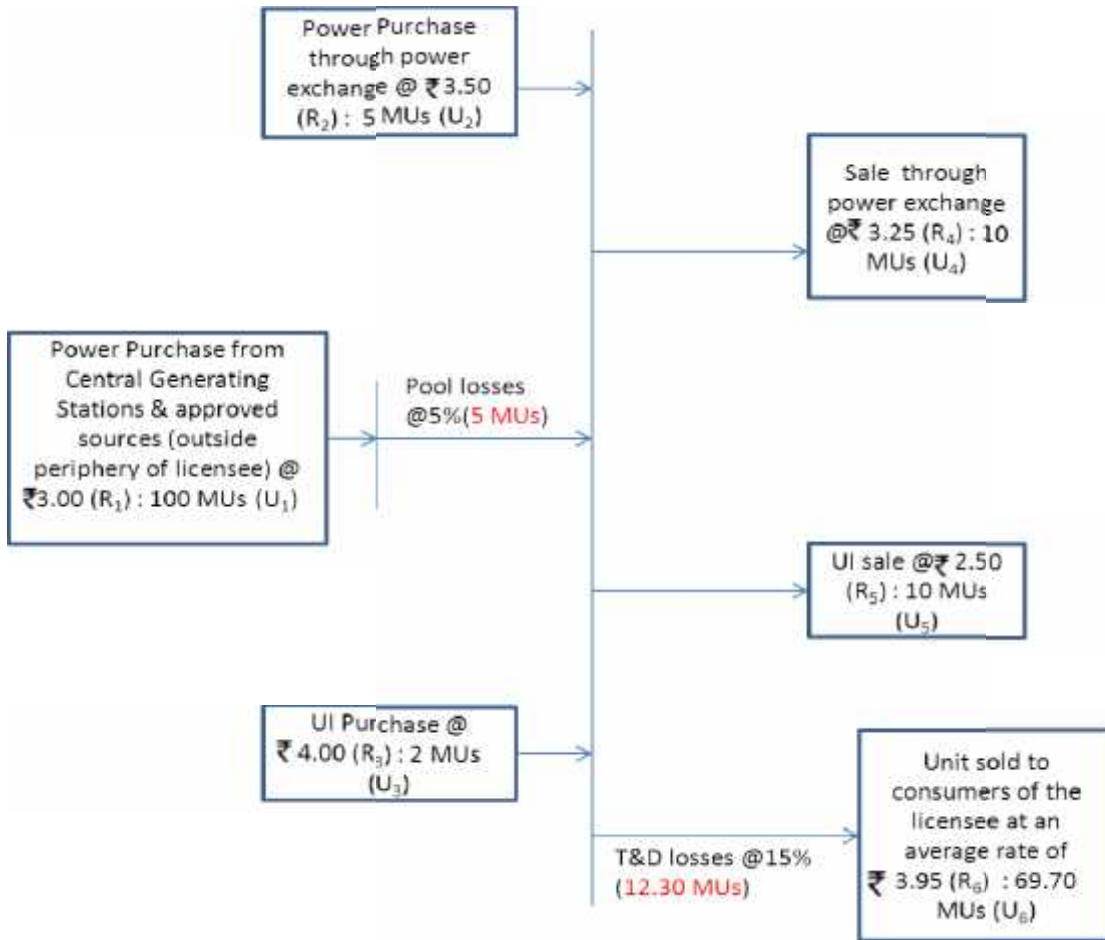
K (constant) = Approved Retail Tariff for a category or sub-category / Average Cost of Supply

Step 2: Determination of proportionate FPPCA (Paisa/unit) consumer category/sub-category wise

FPPCA to be billed for the consumer category or sub-category (Paisa/unit) = Average FPPCA (Paisa/unit) * K
for that consumer category or sub-category

Illustration no. 1 in case of Fuel & Power purchase cost adjustment is recoverable from the consumers

All values mentioned here are for illustrative purposes only



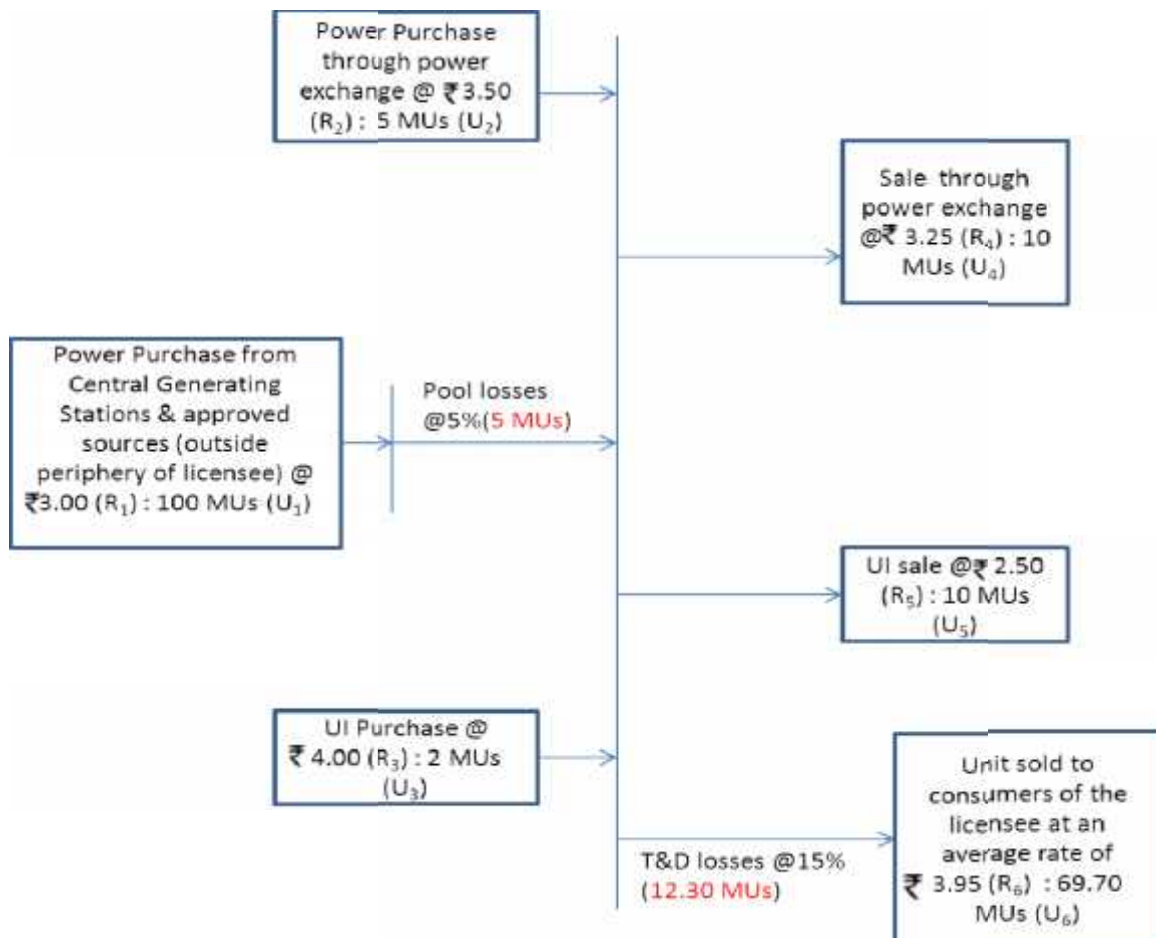
S No.	Particulars	Amount/Units
Numerator = $(P_{Actual} - S_{Bulk})$		
1.	P_{Actual} : $\{(R_1 * U_1 + R_2 * U_2 + R_3 * U_3) / 10\}$ [Actual cost of power purchased during the quarter excluding purchase from unapproved bilateral and other unapproved sources and also excluding transmission charges of PGCIL, SLDC charges, RLDC charges and reactive energy charges (₹ crores)]	₹ 32.55 Crores
2.	S_{Bulk} : $\{(R_4 * U_4 + R_5 * U_5) / 10\}$ [Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹ crores)]	₹ 5.75 Crores
3.	$(P_{Actual} - S_{Bulk}) : (1-2)$	8 Crores
Denominator = ${}_7[{}_5\{{}_4\{{}_3[X_{-2}\{1(X-A)_1 * T_{Approved} / 100\}]_2\}_3 - X_5\}_4\}_5 * (1 - Y_{Approved} / 100)_6\}_7 - Z$		
4.	X : $(U_1 + U_2 + U_3)$ [Actual Energy units (kWh) procured during the quarter in consideration excluding unapproved sources (in million units)]	107 MUs (100 MUs + 5 MUs + 2 MUs)
5.	A : $(U_2 + U_3)$ [Actual Energy Units (kWh) procured during the quarter in consideration (in million units) from power exchanges, state generation stations (including licensee owned & self-generation) and units overdrawn from the grid]	7 MUs (5 MUs + 2 MUs)
6.	$T_{Approved}\%$ [Approved inter-state transmission losses as provided in the Tariff Order (in %)]	5%
7.	X_5 : $(U_4 + U_5)$ [Actual Sale of power to persons other than the utility consumers (in million units) during the quarter]	20 MUs (10 MUs + 10 MUs)
8.	$Y_{Approved}\%$ [Approved T&D losses for the year in consideration (in %)]	15%
9.	Z [Actual energy units billed for BPL and Agriculture category consumers (in million units)]	2 MUs
10.	${}_7[{}_5\{{}_4\{{}_3[X_{-2}\{1(X-A)_1 * T_{Approved} / 100\}]_2\}_3 - X_5\}_4\}_5 * (1 - Y_{Approved} / 100)_6\}_7 : U_6$	69.7 MUS
11.	${}_7[{}_5\{{}_4\{{}_3[X_{-2}\{1(X-A)_1 * T_{Approved} / 100\}]_2\}_3 - X_5\}_4\}_5 * (1 - Y_{Approved} / 100)_6\}_7 - Z$	67.7 MUs
12.	Actual per unit Rate of Power Purchase = $(\text{Numerator} / \text{Denominator}) * 1000$	396 Paisa/unit
13.	$R_{Approved}$ [Approved per unit cost of power purchase for use in the FPPCA formula as given in the tariff order of the Licensee (Paisa per unit)]	350 Paisa/unit
14.	Per Unit FPPCA (Paisa/unit) = Actual per unit Rate of Power Purchase – Approved per unit Rate of Power Purchase (12-13)	46 Paisa/unit to be recovered from the consumers

Determination of Differential FPPCA to be **recovered** from the consumers of different consumer categories

S. No.	Category / Sub-category (assuming there are only 3 categories)	Actual MUs which were billed after actual T&D Losses	Retail Tariff (₹ Per Unit)	WART - Weighted ART of all categories / sub-categories (₹ /unit)	K (RT/WART)	FPPCA (Paisa per Unit) to be refunded to consumers
A	Domestic	40.62				
1	50-150 KWh	24.372	3.2	3.69	0.87	40
2	Above 150 KWh	10.155	3.5	3.69	0.95	44
3	0-50 KWh	6.093	1.9	3.69	0.52	24
B	Non-Domestic/Commercial	16.925	4.65	3.69	1.26	58
C	Industrial	10.155	4.5	3.69	1.22	56
	Total	67.7	3.69			

Illustration no. 2 in case of Fuel & Power purchase cost adjustment is refundable to the consumers

All values mentioned here are for illustrative purposes only



S No.	Particulars	Amount/Units
Numerator = $(P_{Actual} - S_{Bulk})$		
1.	$P_{Actual} : \{(R_1 * U_1 + R_2 * U_2 + R_3 * U_3) / 10\}$ [Actual cost of power purchased during the quarter excluding purchase from unapproved bilateral and other unapproved sources and also excluding transmission charges of PGCIL, SLDC charges, RLDC charges and reactive energy charges (₹crores)]	₹ 32.55 Crores
2.	$S_{Bulk} : \{(R_4 * U_4 + R_5 * U_5) / 10\}$ [Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹crores)]	₹ 5.75 Crores
3.	$(P_{Actual} - S_{Bulk}) : (1-2)$	8 Crores
Denominator = ${}_7[{}_5\{{}_4\{{}_3[X_2\{1(X-A)_1 * T_{Approved} / 100\}]_2 - X_s\}_4]_5 * {}_6(1 - Y_{Approved} / 100)_6]_7 - Z$		
4.	$X : (U_1 + U_2 + U_3)$ [Actual Energy units (kWh) procured during the quarter in consideration excluding unapproved sources (in million units)]	107 MUs (100 MUs + 5 MUs + 2 MUs)
5.	$A : (U_2 + U_3)$ [Actual Energy Units (kWh) procured during the quarter in consideration (in million units) from power exchanges, state generation stations (including licensee owned & self-generation) and units overdrawn from the grid]	7 MUs (5 MUs + 2 MUs)
6.	$T_{Approved} \%$ [Approved inter-state transmission losses as provided in the Tariff Order (in %)]	5%
7.	$X_s : (U_4 + U_5)$ [Actual Sale of power to persons other than the utility consumers (in million units) during the quarter]	20 MUs (10 MUs + 10 MUs)
8.	$Y_{Approved} \%$ [Approved T&D losses for the year in consideration (in %)]	15%
9.	Z [Actual energy units billed for BPL and Agriculture category consumers (in million units)]	2 MUs
10.	${}_7[{}_5\{{}_4\{{}_3[X_2\{1(X-A)_1 * T_{Approved} / 100\}]_2 - X_s\}_4]_5 * {}_6(1 - Y_{Approved} / 100)_6]_7 : U_6$	69.7 MUS
11.	${}_7[{}_5\{{}_4\{{}_3[X_2\{1(X-A)_1 * T_{Approved} / 100\}]_2 - X_s\}_4]_5 * {}_6(1 - Y_{Approved} / 100)_6]_7 - Z$	67.7 MUs
12.	Actual per unit Rate of Power Purchase = (Numerator/Denominator) * 1000	396 Paisa/unit
13.	$R_{Approved}$ [Approved per unit cost of power purchase for use in the FPPCA formula as given in the tariff order of the Licensee (Paisa per unit)]	410 Paisa/unit
14.	Per Unit FPPCA (Paisa/unit) = Actual per unit Rate of Power Purchase – Approved per unit Rate of Power Purchase (12-13)	14 Paisa/unit to be refunded to consumers

Determination of Differential FPPCA to be refunded to the consumers of different consumer categories

S. No	Category / Sub-category (assuming there are only 3 categories)	Actual MUs which were billed after actual T&D Losses	Retail Tariff (₹ Per Unit)	WART - Weighted ART of all categories / sub-categories (₹/unit)	K (RT/WART)	FPPCA (Paisa per Unit) to be refunded to consumers
A	Domestic	40.62				
1	50-150 KWh	24.372	3.2	3.69	0.87	12
2	Above 150 KWh	10.155	3.5	3.69	0.95	13
3	0-50 KWh	6.093	1.9	3.69	0.52	07
B	Non-Domestic/Commercial	16.925	4.65	3.69	1.26	18
C	Industrial	10.155	4.5	3.69	1.22	17
	Total	67.7	3.69			

6.0 In response to public hearing notices issued through news papers and FPPCA formula uploaded on website of JERC, comments/suggestions/objections on FPPCA formula from following stake holders were received:

1. Pulkitt Steel Rolling Mills, Puducherry
2. Snam Aloys Pvt. Ltd, Puducherry
3. District Panchayat, Dadra & Nagar Haveli
4. Silvassa Industries & Manufacturers Association, D &NH
5. Executive Engineer, Electricity Department Dadra and Nagar Haveli
6. Superintending Engineer, Electricity Department, Chandigarh
7. President, Bharatiya Janata Party, Dadra and Nagar Haveli
8. Sakesh Kumar, Advocate, Silvassa Industries Association, D&NH
9. Executive Engineer, Electricity Department Daman and Diu
10. Feedback Infra, Consultant, Electricity Department, Goa

7.0 The Commission issued public hearing notices as mentioned earlier and held public hearings in the territories of following distribution licensees as under:-

Sl. No.	Distribution Licensee	Place of Public Hearing	Date of Hearing
1	State of Goa	EDC Complex, Patto, Panaji, Goa	22 nd May, 2012
2	UT of Daman & Diu	Swami Vivekananda Hall, Nani, Daman and Community Hall, Ashok Nagar Colony, Near Sidhi Vinayak Temple, Ghoghla, Diu	15 th May, 2012 and 17 th May, 2012 respectively
3	UT of Dadra & Nagar Haveli	Town Hall, Silvassa	2 nd & 3 rd May, 2012
4	UT of Puducherry	Municipal Marriage Hall, Vishnalayam Street YANAM and Auditorium, Civil station, MAHE	26.03.2012 and 3.04.2012 respectively
5	All licenses/ Stakeholders of State of Goa and all UTs	Court Room of Joint Electricity Regulatory Commission, (For the State of Goa & Union Territories), 2 nd Floor, HSIIDC Office Complex, Vanijya Nikunj Complex, Udyog Vihar, Phase – V, Gurgaon – 122 016 (Haryana)	25.05.2012 and 07.06.2012

JERC, in addition to the public hearing held on different dates at different places as mentioned above also held public hearing on 25.05.2012 at Commission's Head Quarter of all licensees and stakeholders. Notice for which was published in Newspapers covering entire jurisdiction of all seven licensees. Public hearing continued on 07.06.2012 at Commission's Head Quarter.

8.0 The main suggestions/ comments alongwith the Commission's view are as given below:

(a) FPPCA should not be imposed for purpose of cross subsidization.

Commission's views

FPPCA will be levied for recovery of variation in Power Purchase Cost as per the tariff policy. The proposed formula maintains the cross subsidy levels.

- (b) disagreement over point no. 1 of terms and condition in which it is proposed that cost of Fuel and Power Purchase for Adjustment irrespective of the period to which they pertain shall be considered.**

Commission's views

Only those arrear bills raised/ credits received and/or paid during the period under consideration will be considered for FPPCA.

- (C) In the Z category along with BPL and agriculture category domestic consumers should also be included in the category put together, as these categories are consuming not more than 2% of the total consumption of the D& NH.**

Commission's views

This is not in accordance with the tariff Policy as the consumer mix/sales mix is different for different constituent licensees under the purview of the Commission, the exemption of BPL and Agriculture is aimed towards reducing the burden on economically weaker sections of the society.

- (d) FPPCA charges should be recovered on monthly basis, in accordance with APTEL Op. No. 1 of November 2011.**

Commission's views

Recovery of FPPCA for previous quarter will be done during the subsequent months of the quarter in contention

- (e) **limitation on the UI drawal/ adjustment up to 49.7 Hz should be released. As 94% consumers of DNH are form industrial category, therefore load shedding in industries due to restriction of power drawal beyond 49.7 Hz will encourage industries to move into other States.**

Commission's views

The regulations in regard to unscheduled interchange are governed by CERC Regulation and are binding on the Commission and the utilities.

- (f) **POC charges as per CERC Regulations, PGCIL charges, RLDC charges, SLDC charges and any other charges towards procurement and wheeling of power up to the periphery of the utility should be included in the formula.**

Commission's views

Transmission charges/ RLDC charges/ SLDC charges is almost invariable and hence its effect, if any, may be considered at the time of truing up.

- (g) **T approval should be as per POC mechanism set by CERC and be adjusted as per actual as declared by respective RLDC.**

Commission's views

T approved should be as per the data based on the approval losses in respective tariff order. The actual losses would be considered as determined under POC regulations in the process of truing – up.

- (h) **Sbulk should include receivable by selling power in power exchange, open access or Underdrawal of electricity under UI excluding brokerage.**

Commission's views

Sbulk is amount receivable including brokerage for settling the transactions under energy sale/ purchase which is a legitimate expense considered under the Power Purchase Cost etc.

- (i) The applicability of the formula is quarterly, hence bills for 1st quarter shall be reflected in the bills of the 2nd quarter. So, interest liability should be calculated as $I = (AxRxT) / 100$**

Commission's views

The FPPCA is an automatic pass – through and will be billed to the consumers in the subsequent month of the quarter in contention. The matter of any carrying cost on this would be dealt as the JERC (Terms and Condition of Determination of Tariff), Regulations 2009 separately during the process of determination of ARR/ Tariff.

- (j) The uncontrollable cost such as water charges/ taxes, duties and other levies are also required to be adjusted in the FPPCA, as per OP- 1 of Hon'ble APTEL Order dated 11.11.2011.**

Commission's views

The P actual and P approved includes the said charges.

- (k) UI charges receivable or reactive energy charges receivable can be kept in separate account as System Development fund and can be for system/ distribution network development scheme.**

Commission's Views

In accordance with the prevailing regulations the Commission considers all receivables incidental (including UI receivable) to the distribution/ transmission business of the licensee while determining the ARR. Any surplus/gap is then treated appropriately.

(l) FPPCA formula needs to have an Adjustment factor which will reconcile under / over recovery of FPPCA of previous months.

Commission's Views

Under / over recovery if any may be considered at the time of true-up.

(m) The Commission may allow power purchase cost from unapproved / bilateral sources subject to it's cost is less than approved weighted average power purchase cost / non-availability of Power from CGS.

Commission's Views

The Power purchase cost includes all cost pertaining to approved sources, UI and power exchanges limited to the mentioned ceiling. Upfront approval from Commission with due justification should be obtained for any bilateral purchase.

9.0 Commission's Conclusion

After having heard all the Stake Holders at length, giving thoughtful consideration and detailed deliberations on the comments/objections/suggestions received from all concerned, the Commission in compliance of the directions issued by Hon'ble APTEL in judgment dated 11.11.2011 in OP No. 1 of 2011 and as required under Clause 7(2) of JERC Regulations 10 / 2009 **specifies the following formula for insertion as clause 7(3) after clause 7(2) in** Joint Electricity Regulatory Commission for State of Goa and UTs (Terms and Conditions for Determination of Tariff) Regulations 2009.

1. Recovery Periodicity (Cycle)

The licensee shall compute fuel and power procurement cost variations on quarterly basis and adjustment shall be made in consumers bills starting after a month following the end of the quarter on units billed in the month under consideration. For example, Fuel & Power Purchase Cost Adjustment (FPPCA) for the quarter April-May-June shall be made in the month of July and shall be reflected in the consumer bills raised in the months of August-September and October on the units billed for the month of August, September and October respectively. The formula shall be applicable from 1st April of 2012 for the purpose of consideration of Fuel and Power Purchase Cost Adjustment. FPPCA shall be done for all consumer categories except Below Poverty Line (BPL) and Agriculture consumers.

2. Fuel & Power Purchase Cost Adjustment Formula

- ii. The **formula** for determination of per unit Fuel & Power Purchase Cost Adjustment (“FPPCA”) is as under:

In words:

Per Unit FPPCA (Paisa/unit) =

Per Unit Actual Cost of Power Purchase – Per Unit Approved Cost of Power Purchase in the Tariff Order

i.e.

$$\text{Per Unit FPPCA (Paisa/unit)} = \left[\frac{(P_{Actual} - S_{Bulk})}{\{(X-c) - X_s\} * b} - Z \right] * 1000 - R_{Approved}$$

Whereas

$$c = \{(X-A) * T_{Approved} / 100\}$$

$$b = (1 - Y_{Approved} / 100)$$

Where:

P_{Actual}	<p>Actual cost of power purchased during the quarter excluding purchase from unapproved bilateral and other unapproved sources and also excluding transmission charges of PGCIL, SLDC charges, RLDC charges and reactive energy charges (₹ crores).</p> <p>Explanatory Note : The actual cost of power purchase during the quarter will include the total cost of power purchased during the quarter through approved sources of</p>
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	power including central generating stations, other approved stations & power purchased through power exchanges limited to the rate given in the Tariff Order of the licensees. UI over drawal charges will be limited to the actual UI rate or UI rate corresponding to 49.7 Hz, whichever is lower. The total cost of power purchase in this formula does not include the transmission charges of PGCIL, SLDC/ RLDC charges and reactive energy charges. Any variation in these charges shall be taken care in the true up.
S_{Bulk}	Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹ crores). Explanatory Note: The actual revenue recognized from sale of power to persons other than utility's consumers includes the revenue recognized by the utility with adjustments of brokerage and Power Exchange charges, if any. The actual revenue from sale will also include the adjustments made through UI mechanism in case of under drawl by the utility.
R_{Approved}	Approved per unit cost of power purchase for use in the FPPCA formula as given in the tariff order of the Licensee (paise per unit). Explanatory Note: The approved per unit cost of power purchase for the financial year to be considered in the FPPCA formula excluding transmission charges of PGCIL, SLDC charges , RLDC charges and charges for reactive energy (paise per unit) would be calculated and mentioned in the tariff order of the respective utility .
X	Actual Energy units (kWh) procured during the quarter in consideration excluding unapproved sources (million units). Explanatory Note The actual energy units during the quarter will include the total energy (million units) procured during the quarter through approved sources including central generating stations, other approved stations, power procured through power exchanges and over drawal from the grid. The total energy units procured shall be without considering transmission losses.
A	Actual Energy Units (kWh) procured during the quarter in consideration (million units) from power exchanges, power generation within the periphery of the licensee & used by licensee and units overdrawn from the grid.
T_{Approved}	Approved inter-state transmission losses for the year in consideration as provided in the Tariff Order (%).
Y_{Approved}	Approved T&D losses for the year in consideration as provided in the Tariff order (%)

X _s	Actual Sale of power to persons other than the utility consumers (million units) during the quarter. Explanatory Note: The actual units sold to persons other than utility consumers through bilateral transactions, transactions through power exchanges and under drawl through UI mechanism.
Z	Actual energy units billed for BPL and Agriculture category consumers (million units) .

Terms and Conditions

1. For the purpose of Fuel & Power Purchase Cost Adjustment, all the bills admitted and credits, if any, received by the distribution licensee during the period in consideration, irrespective of the period to which they pertain, shall be considered. The bills or credits for earlier period will not be considered for the purpose of FPPCA.
2. The variation in fuel & power purchase cost adjustment with respect to the approved per unit power purchase cost, as per the formula specified above shall be recoverable/payable based on units billed for each category of consumers except BPL & Agriculture.
3. Per unit rate of FPPCA to be billed to consumers shall be worked out in Paisa after rounding off to the next lower integer in case of fraction less than 0.5 and to the next higher integer in case of fraction equal to or greater than 0.5.
4. The per unit FPPCA so worked out shall be charged differentially as per the approved retail tariff of the consumers. The determination of differential per unit FPPCA is mentioned below:

Step 1: Determination of Value of K

$$K = \frac{\text{Approved Retail Tariff for a category or sub-category}}{\text{Weighted Average Retail Tariff (WART)}}$$

The value of K for different consumer category or sub category for the year in consideration will be as provided in the respective Tariff Order.

Step 2: Determination of proportionate FPPCA (Paisa/unit) consumer category/sub-category wise

$$\text{FPPCA to be billed for the consumer category or sub-category (Paisa/unit)} = \text{Average FPPCA (Paisa/unit)} * K \text{ for that consumer category or sub-category}$$

Duties of the Licensees and Designated officer

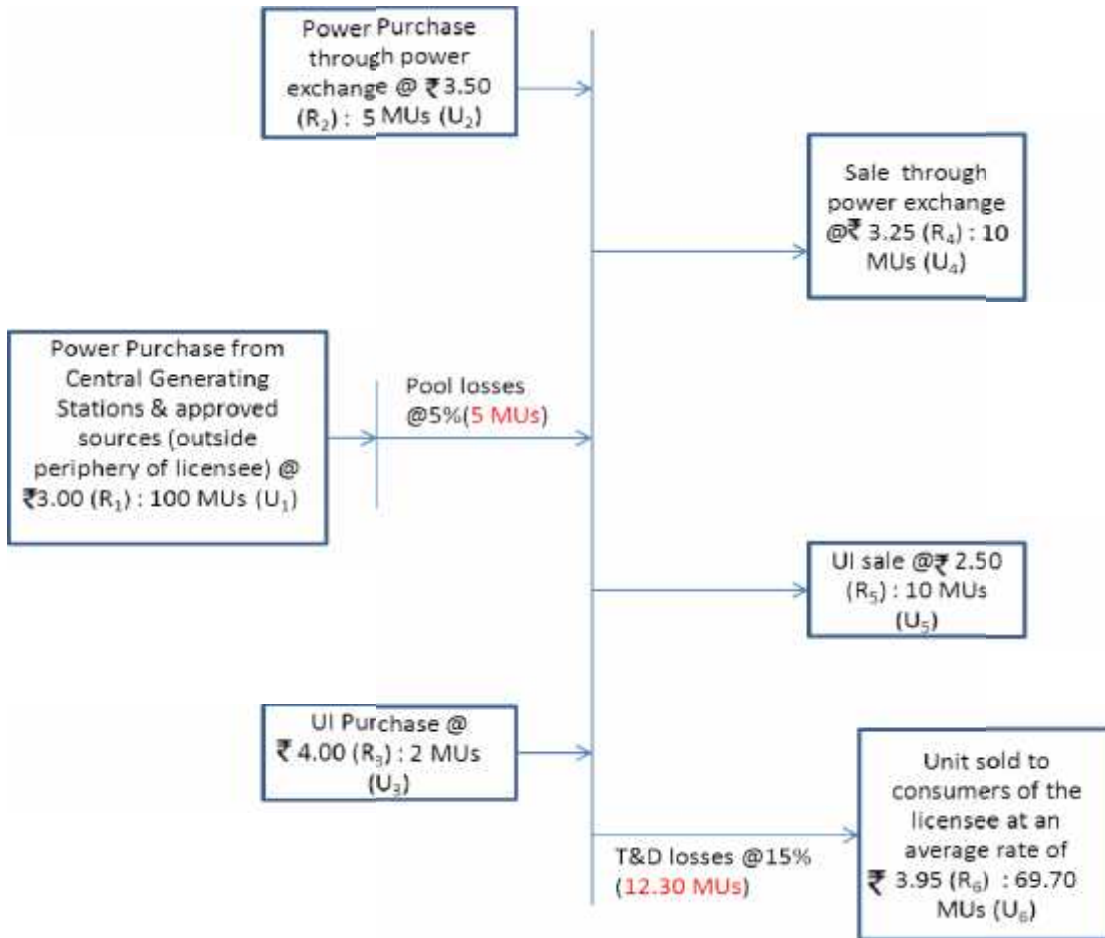
1. Every distribution licensee shall appoint a designated officer not below the rank of Executive Engineer with Name, Designation, Telephone no. & Fax and Place of Posting, who shall compute,

certify and post the FPPCA calculations, FPPCA chargeable & related data summary on the licensee's website and clarify to consumers query, if any.

- The Designated Officer shall send certified copy of FPPCA calculations immediately to Joint Electricity Regulatory Commission.

Illustration no. 1: Fuel & Power purchase cost adjustment is recoverable from the consumers

All values mentioned here are for illustrative purposes only



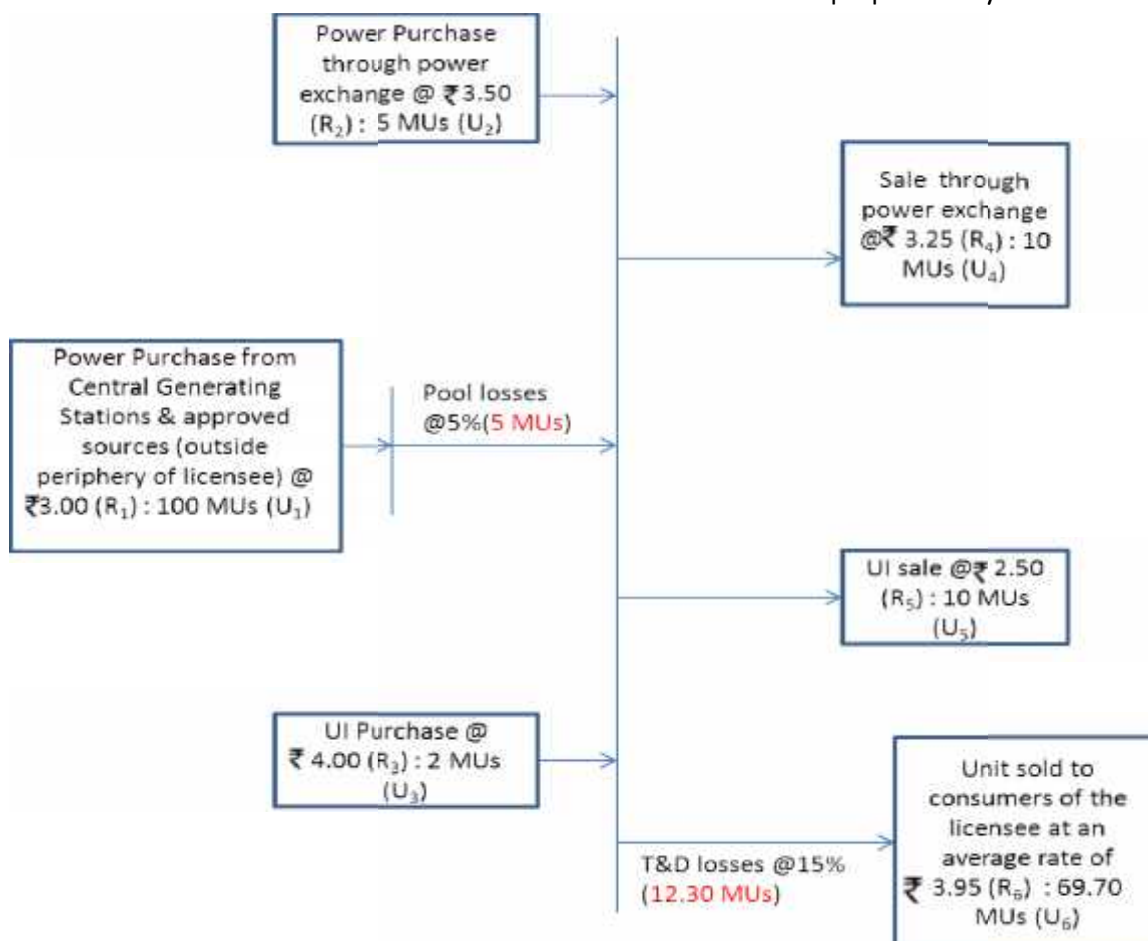
S No.	Particulars	Amount/Units
Numerator = $(P_{Actual} - S_{Bulk})$		
1.	$P_{Actual} : \{(R_1 * U_1 + R_2 * U_2 + R_3 * U_3) / 10\}$ [Actual cost of power purchased during the quarter excluding purchase from unapproved bilateral and other unapproved sources and also excluding transmission charges of PGCIL, SLDC charges, RLDC charges and reactive energy charges (₹ crores)]	₹ 32.55 Crores
2.	$S_{Bulk} : \{(R_4 * U_4 + R_5 * U_5) / 10\}$ [Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹ crores)]	₹ 5.75 Crores
3.	$(P_{Actual} - S_{Bulk}) : (1-2)$	₹ 26.8 Crores
Denominator = $\{[(X-c) - X_s] * b\} - Z$		
4.	$X : (U_1 + U_2 + U_3)$ [Actual Energy units (kWh) procured during the quarter in consideration excluding unapproved sources (in million units)]	107 MUs (100 MUs + 5 MUs + 2 MUs)
5.	$A : (U_2 + U_3)$ [Actual Energy Units (kWh) procured during the quarter in consideration (in million units) from power exchanges, state generation stations (including licensee owned & self-generation) and units overdrawn from the grid]	7 MUs (5 MUs + 2 MUs)
6.	$(X-A) : (4-5)$	100 MUs
7.	$T_{Approved} \%$ [Approved inter-state transmission losses as provided in the Tariff Order (in %)]	5%
8.	$c = \{(X-A) * T_{Approved} / 100\}$	5 MU
9.	$X_s : (U_4 + U_5)$ [Actual Sale of power to persons other than the utility consumers (in million units) during the quarter]	20 MUs (10 MUs + 10 MUs)
10.	$Y_{Approved} \%$ [Approved T&D losses for the year in consideration (in %)]	15%
11.	$b = (1 - Y_{Approved} / 100)$	0.85
12.	Z [Actual energy units billed for BPL and Agriculture category consumers (in million units)]	2 MUs
13.	$\{[(X-c) - X_s] * b\} - Z$	67.7 MUS
14.	$(\text{Numerator} / \text{Denominator}) * 1000$ Actual per unit Rate of Power Purchase	396 Paisa/unit
15.	$R_{Approved}$ [Approved per unit cost of power purchase for use in the FPPCA formula as given in the tariff order of the Licensee (Paisa per unit)]	350 Paisa/unit
16.	<i>Per Unit FPPCA (Paisa/unit) = Actual per unit Rate of Power Purchase – Approved per unit Rate of Power Purchase (14-15)</i>	<i>46 Paisa/unit to be recovered from the consumers</i>

Determination of Differential FPPCA to be recovered from the consumers of different consumer categories

S. No.	Category / Sub-category (assuming there are only 3 categories)	Actual MUs which were billed after actual T&D Losses	Retail Tariff (RT) (₹ Per Unit)	WART - Weighted Average Retail Tariff of all categories (₹ /unit)	K (RT/WART)	FPPCA (Paisa per Unit) to be recovered from consumers
A	Domestic	40.62				
1	50-150 KWh	24.372	3.2	3.69	0.87	40
2	Above 150 KWh	10.155	3.5	3.69	0.95	44
3	0-50 KWh	6.093	1.9	3.69	0.52	24
B	Non-Domestic/Commercial	16.925	4.65	3.69	1.26	58
C	Industrial	10.155	4.5	3.69	1.22	56
	Total	67.7	3.69			

Illustration no. 2: Fuel & Power purchase cost adjustment refundable to the consumers

All values mentioned here are for illustrative purposes only



S No.	Particulars	Amount/Units
Numerator = $(P_{Actual} - S_{Bulk})$		
1.	$P_{Actual} : \{(R_1 * U_1 + R_2 * U_2 + R_3 * U_3) / 10\}$ [Actual cost of power purchased during the quarter excluding purchase from unapproved bilateral and other unapproved sources and also excluding transmission charges of PGCIL, SLDC charges, RLDC charges and reactive energy charges (₹ crores)]	₹ 32.55 Crores
2.	$S_{Bulk} : \{(R_4 * U_4 + R_5 * U_5) / 10\}$ [Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹ crores)]	₹ 5.75 Crores
3.	$(P_{Actual} - S_{Bulk}) : (1-2)$	₹ 26.8 Crores
Denominator = $\{[(X-c) - X_s] * b\} - Z$		
4.	$X : (U_1 + U_2 + U_3)$ [Actual Energy units (kWh) procured during the quarter in consideration excluding unapproved sources (in million units)]	107 MUs (100 MUs+5 MUs+2 MUs)
5.	$A : (U_2 + U_3)$ [Actual Energy Units (kWh) procured during the quarter in consideration (in million units) from power exchanges, state generation stations (including licensee owned & self-generation) and units overdrawn from the grid]	7 MUs (5 MUs + 2 MUs)
6.	$(X-A) : (4-5)$	100 MUs
7.	$T_{Approved}\%$ [Approved inter-state transmission losses as provided in the Tariff Order (in %)]	5%
8.	$c = \{(X-A) * T_{Approved} / 100\}$	5 MU
9.	$X_s : (U_4 + U_5)$ [Actual Sale of power to persons other than the utility consumers (in million units) during the quarter]	20 MUs (10 MUs + 10 MUs)
10.	$Y_{Approved}\%$ [Approved T&D losses for the year in consideration (in %)]	15%
11.	$b = (1 - Y_{Approved} / 100)$	0.85
12.	Z [Actual energy units billed for BPL and Agriculture category consumers (in million units)]	2 MUs
13.	$\{[(X-c) - X_s] * b\} - Z$	67.7 MUs
14.	$(\text{Numerator} / \text{Denominator}) * 1000$ Actual per unit Rate of Power Purchase	396 Paisa/unit
15.	$R_{Approved}$ [Approved per unit cost of power purchase for use in the FPPCA formula as given in the tariff order of the Licensee (Paisa per unit)]	410 Paisa/unit
16.	$\text{Per Unit FPPCA (Paisa/unit)} = \text{Actual per unit Rate of Power Purchase} - \text{Approved per unit Rate of Power Purchase (14-15)}$	14 Paisa/unit to be refunded to consumers

Determination of Differential FPPCA to be refunded to the consumers of different consumer categories

S. No .	Category / Sub-category (assuming there are only 3 categories)	Actual MUs which were billed after actual T&D Losses	Retail Tariff (RT) (₹ Per Unit)	WART - Weighted Average Retail Tariff of all categories (₹ /unit)	K (RT/WART)	FPPCA (Paisa per Unit) to be refunded to consumers
A	Domestic	40.62				
1	50-150 KWh	24.372	3.2	3.69	0.87	12
2	Above 150 KWh	10.155	3.5	3.69	0.95	13
3	0-50 KWh	6.093	1.9	3.69	0.52	07
B	Non-Domestic/Commercial	16.925	4.65	3.69	1.26	18
C	Industrial	10.155	4.5	3.69	1.22	17
	Total	67.7	3.69			

10.0 The FPPCA formula be sent for publication to the Controller of Publications, Department of Publications, Ministry of Urban Development, and necessary amendment be made and inserted as Clause 7(3) below clause 7 (2) in Joint Electricity Regulatory Commission for State of Goa and UTs (Terms and Conditions for Determination of Tariff) Regulations 2009.

Sd/-
(S.K.Chaturvedi)
Member

Sd/-
(Dr. V.K.Garg)
Chairperson