



JOINT ELECTRICITY REGULATORY COMMISSION

(FOR THE STATE OF GOA & UNION TERRITORIES)

2nd Floor, HSIIDC Office Complex, Vanijya Nikunj Complex,

Udyog Vihar, Phase-V, Gurgaon – 122016, Haryana

Ph. 0124 – 2342851, 2342852, Fax:- 0124 – 2342853,

Email: secretaryjerc@gmail.com Website: www.jercuts.gov.in

NOTICE FOR INVITING SUGGESTIONS/OBJECTIONS ON

FUEL & POWER PURCHASE COST ADJUSTMENT (FPPCA) FORMULA APPLICABLE FOR DISTRIBUTION LICENSEES

The Appellate Tribunal for Electricity in its dated 11th November 2011, in the matter of OP no. 1 of 2011 has advised all State Electricity Regulatory Commissions to put in place a mechanism for Fuel & Power Purchase cost adjustment preferably on a monthly basis but in no case exceeding a quarter. Further, in accordance with the section 64(4) of Electricity Act 2003, no tariff or part of any tariff may ordinarily be amended more frequently than once in any financial year, except in respect of any changes expressly permitted under the terms of any fuel surcharge formula as may be specified.

The Commission has therefore formulated the mechanism for Fuel & Power Purchase Cost Adjustment (FPPCA) applicable for Distribution licensees in the State of Goa and Union Territories, so as to ensure periodic adjustment of the uncontrollable expenses on account of Fuel & Power purchase cost variations.

The specified formula with the illustration is as detailed below:

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:

$$FPPCA \text{ (Paisa per unit)} = \frac{(P_{Actual} - S_{Bulk})}{\left[\frac{X - \left\{ \frac{X - A}{T_{Approved}/100} \right\} - X_5}{\left(1 - \frac{Y_{Approved}}{100} \right)} \right]} * 1000 - R_{Approved}$$

Please Note: $X_1(\dots)_1$ will be opened up first then $X_2(\dots)_2$ and so...on

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 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.</p>
S_{Bulk}	=	<p>Actual Revenue recognized from Sale of power to persons other than consumers of the licensee during the quarter. (₹ crores).</p> <p>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.</p>
$R_{Approved}$	=	<p>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).</p> <p>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 .</p>
X	=	<p>Actual Energy units (kWh) procured during the quarter in consideration excluding unapproved sources (in million units).</p> <p>Explanatory Note The actual energy units during the quarter will include the total energy (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.</p>

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:

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

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 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

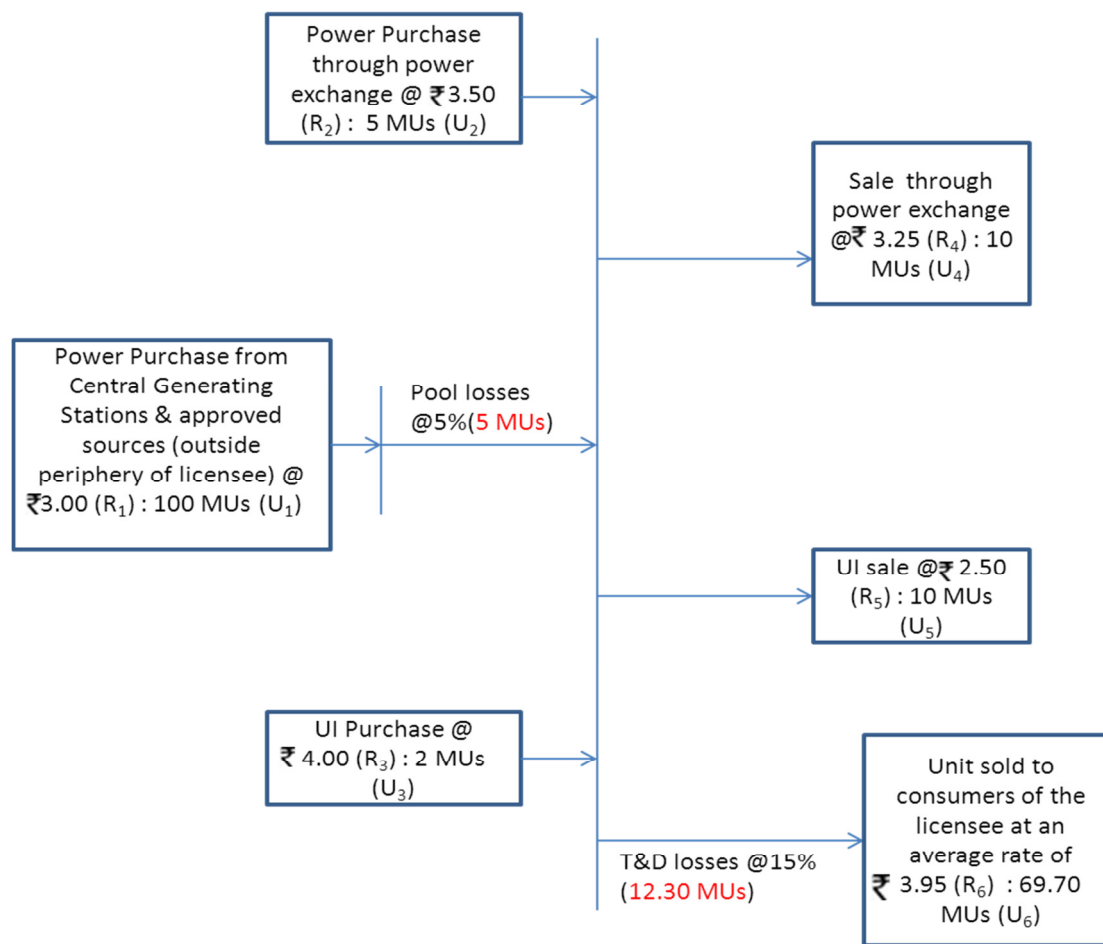
K (constant) = Approved Retail Tariff for a category or sub-category / Average Cost of Supply

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.	$(P_{Actual} - S_{Bulk}) : (1-2)$	₹ 26.8 Crores
Denominator = ${}_7[{}_5\{{}_4\{{}_3[X_{-2}\{{}_1(X-A)_1 * T_{Approved} / 100\}]_2 - X_5\}_4\}_5 * {}_6(1 - Y_{Approved} / 100)]_7 - Z$		
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%

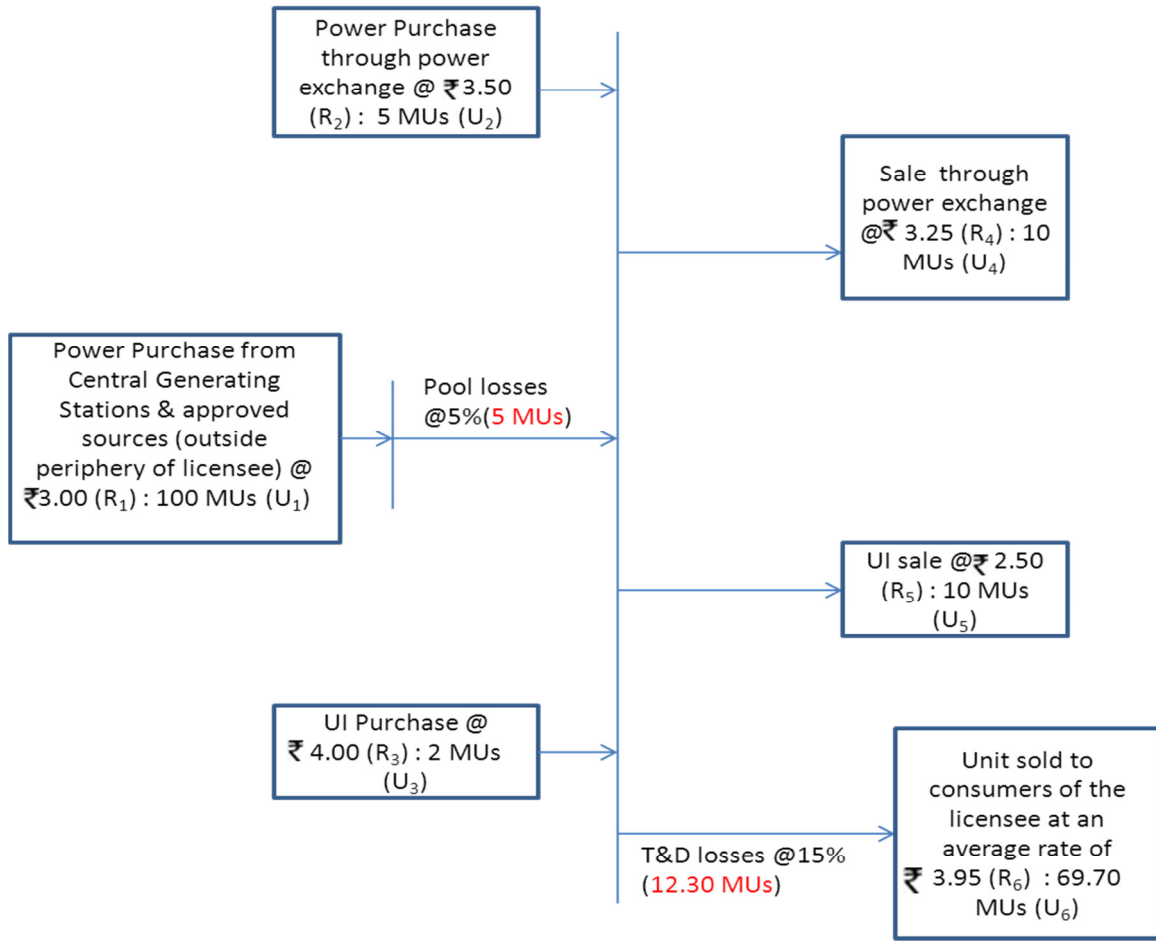
S No.	Particulars	Amount/Units
9.	Z [Actual energy units billed for BPL and Agriculture category consumers (in million units)]	2 MU's
10.	$U_6 \left[\frac{X_5 \{ X_4 \{ X_3 \{ X_2 \{ X_1 \{ X - A \}_1 \} * T_{Approved} / 100 \}_2 \} - X_5 \}_4 \} \} * (1 - Y_{Approved} / 100) \}_6 \right]_7$	69.7 MUS
11.	$Z \left[\frac{X_5 \{ X_4 \{ X_3 \{ X_2 \{ X_1 \{ X - A \}_1 \} * T_{Approved} / 100 \}_2 \} - X_5 \}_4 \} \} * (1 - Y_{Approved} / 100) \}_6 \right]_7$	67.7 MU's
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)]	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.	$(P_{Actual} - S_{Bulk}) : (1-2)$	₹ 26.8 Crores
Denominator = ${}_7[{}_5\{{}_4\{{}_3[X_{-2}\{{}_1(X-A)_1 * T_{Approved} / 100\}]_3 - X_5\}]_4\} * {}_6(1 - Y_{Approved} / 100)]_7 - Z$		
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%

S No.	Particulars	Amount/Units
9.	Z [Actual energy units billed for BPL and Agriculture category consumers (in million units)]	2 MU's
10.	$7 \left[\frac{5 \left\{ 4 \left[X_2 \left\{ (X-A)_1 * T_{Approved} / 100 \right\} \right] - X_3 \right\} - X_4 \right\} * 6 \left(1 - Y_{Approved} / 100 \right) \right] : U_6$	69.7 MUS
11.	$7 \left[\frac{5 \left\{ 4 \left[X_2 \left\{ (X-A)_1 * T_{Approved} / 100 \right\} \right] - X_3 \right\} - X_4 \right\} * 6 \left(1 - Y_{Approved} / 100 \right) \right] - Z$	67.7 MU's
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			

Suggestions required on the Fuel & Power Purchase Cost Adjustment (FPPCA) formula on the following points:

The Commission shall hold Public Hearing at a notified date after receipt of comments from the concerned stakeholders on the Fuel & Power Purchase Cost Adjustment (FPPCA) formula. The stakeholders are requested to file their objections/suggestions to the Secretary, JERC latest by 25th April, 2012 by 3 PM.

Sd/-
(R. K. Malik)
Secretary