

**Fuel Surcharge for First Quarter of FY 2016-17**

**(April'16- June'16)**

**FINAL REPORT**

**Submitted to**

**Jaipur VidyutVitrان Nigam Limited**

**Jaipur**

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## **Background**

1. In term of the Regulation 88 of the RERC Tariff Regulation 2014, JVVNL is allowed to recover the variation in the approved and actual variable cost of power purchased. The variation allowed has to be passed on to the consumers of JVVNL on quarterly basis as fuel surcharge.
2. The said provision under the RERC Tariff Regulations, 2014 with respect to the fuel surcharge is reproduced as below:

### **“88. Fuel Surcharge**

*“The Fuel Surcharge (FS) chargeable by the distribution licensee from its consumers for any quarter shall be computed as per the following formula:*

$$FS = C/E \quad \text{Rs./kWh}$$

*Where,*

*C (in Rs. Lakh) = {(Weighted Average Variable Cost of all sources of power purchase during previous quarter in Rs/kWh – Base Weighted Average Variable Cost of all sources of power purchase as approved under Tariff Order for the year under operation in Rs/kWh) x Corresponding Power Purchase from all sources during previous quarter in LU}.*

*E (in Lakh Units) = Energy sold (metered plus estimated) during previous quarter.”*

*Note:*

- *Quarter referred under this formula shall correspond to financial quarter (s) viz Q1 (Apr. to Jun) Q.2 (Jul to Sept), Q3 (Oct to Dec) and Q4 (Jan to Mar).*
- *The variation in power purchase cost due to UI and Hydro based generation and other unapproved purchases shall not be covered under fuel surcharge adjustment.*
- *For the generation stations/power purchase sources, which have single part tariff, 1/3 of the tariff shall be considered as fixed charge and 2/3 of the tariff shall be considered as energy charge for adjustment under this formula.*
- *The cost and quantum of power purchase shall be based on bills paid/credits received during the previous quarter irrespective of period to which it pertains and shall include arrears or refunds, if any, for previous period, not considered earlier.*
- *The rate of Fuel Surcharge shall be worked out in Rs./kWh rounded off next second decimal place.*
- *The Fuel Surcharge per unit for any quarter shall not exceed 10% of weighted average power purchase cost approved by the Commission, or such other ceiling as may be stipulated by the Commission from time to time.*
- *The total Fuel Surcharge recoverable, as per the formula specified above, shall be recovered from the actual sales and in case of un-metered consumers, it shall be recoverable based on estimated sales to such consumers, calculated in accordance with such methodology as may be stipulated by the Commission.”*

## Description

1. The Hon'ble Commission vide its ARR/Tariff order dated 20<sup>th</sup> February 2015 for FY 2014-15 had approved the sources, quantum and cost of the power to be procured, which has been considered for calculation for the approved weighted average variable cost.
2. In terms of the Regulation 88 of the RERC Tariff Regulations 2014, the variation in power purchase cost due to UI and Hydro based generation and other unapproved purchases shall not be covered under fuel surcharge adjustment. Further where the Generating Station/ Power purchase source has a single part tariff the tariff would be bifurcated into one-third as fixed charges and two-thirds as variable charges.
3. For the computation of FSA for first quarter of FY 2016-17 (April'16- June'16), the weighted average variable cost for the fourth quarter (January '16 - March '16) of FY 2015-16 against the RERC approved weighted average variable cost in the Tariff Order for FY 2014-15 is tabulated below

### Weighted Average Variable Cost

Weighted Avg variable Cost of all sources of power purchase (Rs/kWh)					
Sl. No.	Sources of Power Purchase	Approved Power Purchase for JVVNL (Jan '16 to Mar '16)		Actual Power Purchase of Previous Quarter (Jan '16 - Mar '16)	
		Net Generation	Total variable Cost	Net Generation	Total Variable Cost
		(MU)	(Rs. Cr.)	(MU)	(Rs Cr)
<b>A</b>	<b>NTPC</b>				
	ANTA GTPS	138.00	43.00	5.15	2.53
	AURIYA GTPS	57.00	23.00	11.35	4.86
	DADRI GTPS	108.00	41.00	22.27	8.04
	FARAKKA STPS	26.00	9.00	4.67	0.99
	KAHALGAON II (U 1)	55.00	16.00	7.31	1.45
	KAHALGAON-2 STPS	239.00	67.00	47.44	8.91
	RIHAND STPS (unit 1 & 2)	211.00	29.00	59.26	8.59
	RIHAND 2 STPS	224.00	30.00	70.55	9.90
	RIHAND STPS III	288.00	18.00	87.86	15.56
	SINGRAULI STPS	840.00	97.00	235.11	29.75
	TALCHAR STPS	0.00	0.00	0.00	0.00
	Unchahar I	34.00	10.00	6.06	1.56
	Unchahar II	70.00	20.00	15.40	3.96
	Unchahar III (unit 5)	42.00	11.00	9.41	2.41
	NCTPS I & II (DADRI II)	2.00	1.00	0.80	0.22
	Prior Period			0.00	-0.34
	<b>Sub-Total (A)</b>	<b>2334.00</b>	<b>415.00</b>	<b>582.64</b>	<b>98.39</b>
<b>B</b>	<b>Lignite Based plant</b>				
	Giral TPS stage I	110.00	11.00	-0.82	-0.09
	Giral II			4.18	0.42
	Barsingsar (Neyveli Lignite Power)	488.00	58.00	111.30	14.85
	Rajwest Total	2455.00	413.00	670.44	147.58

Weighted Avg variable Cost of all sources of power purchase (Rs/kWh)					
Sl. No.	Sources of Power Purchase	Approved Power Purchase for JVVNL (Jan '16 to Mar '16)		Actual Power Purchase of Previous Quarter (Jan '16 - Mar '16)	
		Net Generation	Total variable Cost	Net Generation	Total Variable Cost
		(MU)	(Rs. Cr.)	(MU)	(Rs Cr)
	Prior Period				
	<b>Sub-Total (B)</b>	<b>3053.00</b>	<b>482.00</b>	<b>785.11</b>	<b>162.76</b>
<b>C</b>	<b>NPCIL</b>				
	NAPP 1&2	103.00	16.67	39.87	6.77
	RAPP-I &II	522.00	95.33	28.52	5.53
	RAPP-III& IV	465.00	84.67	120.86	22.97
	RAPP-V & VI	291.00	66.00	76.14	17.80
	Prior Period			0.00	-0.14
	<b>Sub-Total (C)</b>	<b>1381.00</b>	<b>262.67</b>	<b>265.39</b>	<b>52.94</b>
<b>D</b>	<b>State Gen. &amp; Others</b>				
	STPS (Unit 1 to 5) Total	3824.00	1369.00	553.59	206.49
	STPS Unit 6				
	KTPS (Unit 1 to 6) Total	3325.00	1087.00	778.18	261.47
	KTPS Unit 7				
	Ramgarh TPS	191.00	48.00	48.74	13.21
	Dholpur GTPP (U-1, U-2, U-3)	364.00	110.00	22.24	6.87
	Chhabra-I	1007.00	220.00	176.92	38.92
	Chhabra-II				
	Chhabra-III	313.00	53.00	168.97	35.65
	Chhabra Phase 3 Unit IV	177.00	30.00	163.65	30.34
	Kalisind Unit 1	610.00	0.00	403.32	98.81
	Ramgarh project stage 3 unit 4	230.00	52.00	88.62	23.84
	<b>Sub-Total (D)</b>	<b>10041.00</b>	<b>2969.00</b>	<b>2404.23</b>	<b>715.61</b>
<b>E</b>	<b>Indira Gandhi (jhajjar -unit 1&amp; 2) (Aravali Power)</b>	<b>119.00</b>	<b>50.00</b>	<b>1.21</b>	<b>0.39</b>
<b>F</b>	<b>COASTAL GUJARAT (MUNDRA) unit 1, 2 and 3</b>	<b>1024.00</b>	<b>164.00</b>	<b>284.26</b>	<b>39.95</b>
<b>G</b>	<b>ADANI POWER RAJASTHAN LTD.</b>	<b>3001.00</b>	<b>666.00</b>	<b>908.17</b>	<b>198.18</b>
<b>H</b>	<b>SASAN POWER LTD.</b>	<b>367.00</b>	<b>81.00</b>	<b>306.46</b>	<b>67.84</b>
<b>J</b>	<b>NVVN Bundled Power</b>	<b>948.00</b>	<b>359.00</b>	<b>239.57</b>	<b>70.92</b>
<b>K</b>	<b>NCES</b>				
	Wind Farms	1392.00	430.00	339.16	119.36
	Solar	307.00	62.00	32.03	13.65
	Bio-Mass	143.00	55.33	26.59	11.33

Weighted Avg variable Cost of all sources of power purchase (Rs/kWh)					
Sl. No.	Sources of Power Purchase	Approved Power Purchase for JVVNL (Jan '16 to Mar '16)		Actual Power Purchase of Previous Quarter (Jan '16 - Mar '16)	
		Net Generation	Total variable Cost	Net Generation	Total Variable Cost
		(MU)	(Rs. Cr.)	(MU)	(Rs Cr)
	CPPs	55.00	9.33	0.00	0.00
	<b>Sub-Total (E)</b>	<b>1897.00</b>	<b>556.67</b>	<b>397.78</b>	<b>144.34</b>
	<b>TOTAL (without bilateral trading)</b>	<b>24165.00</b>	<b>6005.33</b>	<b>6174.81</b>	<b>1551.32</b>
<b>L</b>	<b>Other Short term source</b>				
	Bilateral Trading	-131.00	-34.67	196.24	45.36
	<b>Sub-Total (F)</b>	<b>-131.00</b>	<b>-34.67</b>	<b>196.24</b>	<b>45.36</b>
	<b>GRAND TOTAL</b>	<b>24034.00</b>	<b>5970.67</b>	<b>6371.05</b>	<b>1596.68</b>
	<b>Weighted Avg Variable Cost (Rs./kWh)</b>		<b>2.48</b>		<b>2.51</b>

4. As can be inferred from the table above that the weighted average power purchase cost as approved by the Commission in the Tariff Order for FY 2014-15 is lower than the actual weighted average variable cost for the first quarter of FY 2016-17. Hence, fuel surcharge is recoverable for the First quarter (period April '16- June '16) of FY 2016-17.

#### Calculation of Fuel Surcharge:

5. As per the regulation "The Fuel Surcharge (FS) chargeable by the distribution licensee from its consumers for any quarter shall be computed as per the following formula:

$$FS = \frac{C}{E} \text{ Rs./kWh}$$

Where,

$C$  (in Rs. Lakh) = {(Weighted Average Variable Cost of all sources of power purchase during previous quarter in Rs/kWh – Base Weighted Average Variable Cost of all sources of power purchase as approved under Tariff Order for the year under operation in Rs/kWh) x Corresponding Power Purchase from all sources during previous quarter in LU}.

$E$  (in Lakh Units) = Energy sold (metered plus estimated) during previous quarter."

Based on the above mentioned formula, fuel surcharge is computed.

6. The Fuel Surcharge for the Fourth quarter of FY 2015-16 (January'16 to March'16) was not applicable. The weighted average variable cost as approved by the commission was Rs 2.48/kwh, which

was higher than the actual weighted average variable cost of Rs 2.35/kWh for the applicable previous quarter (October'15 to December'15) of FY 2015-16 used for the Fuel Surcharge computation for the fourth quarter of FY 2015-16 (January'16- March'16).

7. The fuel surcharge for the First quarter of FY 2016-17 (period April '16- June '16) is computed as follows:

Sr. No.	Particulars	Variables	Amount
1	Actual weighted avg. variable cost of all sources of power purchase during previous quarter (January'16 to March'16) (Rs/kWh)	X	2.51
2	Weighted Avg. Variable Cost of all sources of power purchase as approved under Tariff Order for the year under operation (Rs/kWh)	Y	2.48
3	Power Purchase from all sources during previous quarter (January'16 to March'16) (MU)	Z	6371.05
4	Energy sold during previous quarter (January'16 to March'16) (MU)	E	4569.46
5	C (Rs crores)	$C = (X-Y) * Z / 10$	13.95
6	<b>Fuel Surcharge (Rs./kWh)</b>	C/E	0.03

8. The power purchase quantum and cost approved by the Hon'ble Commission for FY 2015-16 is as follows:

Approved by RERC for FY 2014-15 in TO dated 20th Feb 2015	
Total Quantum (MU)	26605
Total Variable Cost (Rs Cr)	6783
Total Fixed Cost (Rs Cr)	2797
Total Power Purchase Cost (Rs Cr)	9580
<b>Weighted average Power Purchase Cost (Rs/kWh)</b>	<b>3.60</b>

**Conclusion:**

9. As per the above calculation the per unit fuel surcharge comes around Rs. 0.03/ unit for first quarter (April'16- June'16) of FY 2016-17, which is less than the ceiling of Rs. 0.36/kWh approved by the Hon'ble commission (i.e. 10% of the weighted average power purchase cost approved by the Hon'ble Commission in its Tariff Order for FY 2014-15). The fuel surcharge for first quarter of FY 2016-17 for Jaipur Discom is recoverable as the weighted average power purchase cost is more than the weighted average cost as approved by the Commission.