

Additional Submissions on ARR Petition FY 2018-19 for JVVNL

1. The Discom is required to furnish details of Voltage wise Cost of Supply in accordance to Hon'ble APTEL judgment in Appeal No 102 of 2010.

In the judgment referred above, the Tribunal had recognized the difficulty in determination of cost of supply to different categories of consumers. However, instead of waiting indefinitely for availability of the entire data, the Tribunal had suggested a simple method which would take into account the major cost element. The Tribunal had suggested determination of voltage-wise cost of supply taking into account the major cost element which would be applicable to all the consumers connected at a particular voltage level.

According to the said judgment, in the absence of segregated network costs, it would be prudent to work out voltage-wise cost of supply taking into account the distribution losses at different voltage levels. As power purchase cost is a major component of tariff, the power purchase cost can be apportioned at different voltage levels taking into account the distribution losses at the relevant voltage level and the upstream system.

The system study to determine voltage wise technical losses is under process and hence voltage wise technical losses are not available at the moment.

In the absence of voltage wise technical losses, the petitioner has considered the technical distribution losses in the distribution network approved by the Hon'ble Commission for 2006-07 in the order on determination of wheeling charges and cross subsidy surcharge for the year 2006-07 dated 19th September 2006 to work out voltage wise power purchase cost for 2006-07. For commercial losses, the APTEL judgement has suggested apportionment of difference of total and technical losses i.e. commercial losses across all voltage levels in proportion to the sales plus technical losses at the respective voltage levels. In this manner the total losses have been apportioned at different voltage levels.

The following table gives the details of apportionment of total losses for FY 2006-07

Voltage wise Energy Input for FY 2006-07								
Voltage Level	Sales (MU)	Voltage wise Tech Loss (%)	Transmission Loss	Sales + Tech Loss (MU)	Tech. Losses (MU)	Comm Losses (MU)	Total Loss (MU)	Energy Input (MU)
132 KV	537.01	0%	5.60%	568.86	31.86	101.39	133.25	670.25
33 KV	613.72	3.80%	5.60%	675.81	62.09	120.45	182.54	796.26
11 KV	1,150.73	8.80%	5.60%	1,389.41	238.68	247.64	486.32	1,637.05
LT	5,370.07	16.55%	5.60%	7,769.83	2,399.76	1,384.83	3,784.59	9,154.67
Total	7,671.53			10,403.92	2,732.39	1,854.31	4,586.70	12,258.23

As the sales mix has not changed significantly over the years, results of FY 2006-07 have been used to estimate voltage wise cost of supply for FY 2017-18 and FY 2018-19. It is important to mention that the Discom has taken a number of steps to reduce AT&C losses at each voltage level. As such in order to arrive at voltage wise input energy, the total projected loss of FY 2017-18 and FY 2018-19 has been apportioned between the different voltage levels in the same ratio as the voltage wise losses in FY 2006-07. Accordingly input energy has been computed for different voltage levels for FY 2017-18 and FY 2018-19 and the total power purchase cost has been apportioned between different voltages on the basis of energy input required as shown below:

Table 1: FY 2017-18

Voltage Level	Sales (MU)	Total Losses (MU)	Energy Input Required (MU)	Total Power Purchase Cost (Excluding Transmission Cost) (Rs Cr)	Cost per unit sold
	A	B	C = A+B	D	E=D/A*10
132 KV	1,553.14	192.04	1,745.18	701.01	4.51
33 KV	1,775.01	263.09	2,038.10	818.67	4.61
11 KV	3,328.15	700.93	4,029.07	1,618.40	4.86
LT	14570.84	5,454.67	20,025.51	8,043.87	5.52
Total	21,227.14	6,610.73	27,837.86	11,181.95	5.27

Table 2: FY 2018-19

Voltage Level	Sales (MU)	Total Losses (MU)	Energy Input Required (MU)	Total Power Purchase Cost (Excluding Transmission Cost) (Rs Cr)	Cost per unit sold
	A	B	C = A+B	D	E=D/A*10
132 KV	1690.30	158.52	1848.82	783.40	4.63
33 KV	1931.77	217.16	2148.93	910.57	4.71
11 KV	3622.07	578.56	4200.63	1779.94	4.91
LT	15905.28	4502.44	20407.72	8647.41	5.44
Total	23149.41	5456.68	28606.09	12121.32	5.24

According to the Hon'ble Tribunal's Judgment, in absence of segregated network costs, all the other costs such as Return on Equity, Interest on loan, Depreciation, interest on working capital and O&M costs can be pooled and apportioned equitably to all categories to determine the cost of supply.

Various elements and computation of network cost per unit has been presented in the table below:

Elements		FY 2017-18	FY 2018-19
O&M Cost including	Rs. Cr.	1,482.25	1,626.14
Depreciation	Rs. Cr.	843.50	932.53
Interest and Finance Charges	Rs. Cr.	1,830.93	1,874.39
Interest on Working Capital	Rs. Cr.		
RoE	Rs. Cr.	-	-
Transmission Cost	Rs. Cr.	1593.67	1593.67
Insurance Expenses	Rs. Cr.	24.82	26.61
Other Expenses	Rs. Cr.	-	-
Less: NTI	Rs. Cr.	406.14	426.45
Less: Income from wheeling charges	Rs. Cr.	266.60	266.60
Less: Income from Trading Activity	Rs. Cr.	468.26	687.53
Total Cost	Rs. Cr.	4,634.16	4,672.77
Units Sold	MU	21,227.14	23149.41
Network Cost per Unit	Rs./kWh	2.18	2.02

Based on the methodology suggested by the Hon'ble Tribunal and details provided above, the voltage wise cost of supply for FY 2017-18 and FY 2018-19 has been computed and shown in the following tables.

Table 3: FY 2017-18

Voltage Level	Power Purchase Cost per unit sold	Network Cost per unit of sale	Cost of Supply per Unit
	F	G	H=F+G
132 KV	4.51	2.18	6.70
33 KV	4.61	2.18	6.80
11 KV	4.86	2.18	7.05
LT	5.52	2.18	7.70
Total	5.27	2.18	7.45

Table 4: FY 2018-19

Voltage Level	Power Purchase Cost per unit sold	Network Cost per unit of sale	Cost of Supply per Unit
	F	G	H=F+G
132 KV	4.63	2.02	6.65
33 KV	4.71	2.02	6.73
11 KV	4.91	2.02	6.93
LT	5.44	2.02	7.46
Total	5.24	2.02	7.25

2. As per Regulation 11(5) (g) of RERC Tariff Regulations, 2014, the statement showing calculations of the amount of cross subsidy in the existing tariff is as below:

Category of Consumers	FY 18	FY 19
Domestic	-3.87%	-3.77%
Non-Domestic	37.35%	37.79%
Public Street Light	-5.22%	-5.19%
Agriculture (Metered)	-30.13%	-30.12%
Agriculture (Flat)	-23.87%	-23.84%
Small Industry	8.10%	8.05%
Medium Industry	17.41%	17.58%
Large Industry	24.29%	23.96%
Public Water Works (S)	-3.60%	-3.53%
Public Water Works (M)	6.80%	7.23%
Public Water Works (L)	10.94%	11.09%
Mixed Load / Bulk Supply	10.16%	10.08%

3. The Power Purchase details for the first eight months of FY 2017-18 has been attached as **Annexure A**
4. The sales for the first eight months of FY 2017-18 are hereby attached as **Annexure B**. Approximate number Domestic connections released / to be released by JdVVNL during 2017-18 & 2018-19 are as shown below:

Period	Number
No. of connections released from April to Nov.2017 (including DF)	1,50,000
Tentative No. of connections to be released from Dec to March2018	1,00,000
Target for FY 2017-18	2,50,000
Target for FY 2018-19	2,50,000

5. Clarification Detailed information regarding loans taken under UDAY Scheme is attached as **Annexure C**.
6. Details pertaining to Distribution Franchisee area for FY 2016-17 as per Form 2.1 are attached as **Annexure D**.
7. Statement Detailed computation of the sales of agriculture metered and flat rate category for FY 2018-19 is as follows:

Particulars (Metered)	Consumers (Nos.)	Connected Load per consumer (kW)	Total Connected Load (kW)	Specific consumption (kWh/kW/year)	Consumption (Sales) MU
-----------------------	------------------	----------------------------------	---------------------------	------------------------------------	------------------------

Existing consumers	447,754	7.86	3,519,179	1,921.12	6,760.75
New Consumers	15,000	7.86	117,894	1,921.12	113.24
Converted from flat rate	10,000	8.58	85,828	1,945.00	82.44
Total	472,754		3,722,901		7,152.13

Particulars (Flat Rate)	Consumers (Nos.)	Connected Load per consumer (kW)	Total Connected Load (kW)	Specific consumption (kWh/kW/year)	Consumption (Sales) MU
Existing consumers	20,506	8.58	175,996	1,945.00	342.31
Converted to meter	10,000	8.58	85,828	1,945.00	82.44
Total	10,506		90,168	1,945.00	175.38

8. The details of the consumers who availed online payment facility is attached as **Annexure E**
9. With regard to prompt payment rebate it is submitted that the following rebate has been given to railways:

Year	Amount
FY 2015-16	18,28,748.69
FY 2016-17	28,71,267.31

10. Format 2.1 for FY 2017-18 is attached as **Annexure F**.
11. It is submitted that in order to arrive at the revenue from fixed charges in HT category, it has considered a power factor of 0.85 to convert the connected load into kVA and then accordingly multiplied it by the Commission approved fixed charges.
- However the average load factor tends to below 75% and it may be a more practical approach to consider the minimum billing demand of 75% to compute the revenue from fixed charges.
12. It is submitted that the Discom would be in a power surplus scenario in the upcoming years. Considering the power market scenario and prevailing conditions it would not be economically viable to sell off the surplus power at the rates discovered in the exchange. These rates are found to be at a lower side and the average rate at which power is sold off in the exchange tends to be around 2.50 Rs/unit in the previous years. This is even less than the rate of 4.00 Rs/unit as approved by the Hon'ble Commission in its previous tariff order for sale of surplus power through exchange. Thus in order to minimize the financial impact of the same and optimize the power purchase cost, the Petitioner has taken a

prudent call and accordingly proposed to schedule power from the various sources as mentioned in Form 3.1 based on merit order principles.

13. The Form 3.1 is resubmitted as **Annexure G.**

14. The average cost of energy received for Aravali Power Co. Ltd as shown in form 3.1 is Rs 11.59 per unit. This is due to the fact that the quantum of energy from this source is only 3.44 MU very less. Hence the inflated average cost.

15. The details regarding transmission tariff in form 3.4 is attached as **Annexure H.**

16. The Discom would also like to submit that the rates prescribed are applicable for assets life up to 12 years whereas the composition of assets considered while calculating the depreciation in Format 3.6 consists of assets which are older than 12 years, thus the depreciation rate reduces for those assets in subsequent years. Hence there is a difference between rates mentioned in Format 3.6 as compared to those prescribed.

17. Form 4.1 is being resubmitted as **Annexure I.**

18. The Discom requests the Hon'ble Commission to consider the details pertaining to voltage wise cost of supply as submitted for Form 6.1 and 6.3 also. It is submitted that the Discom is striving its best and making all out efforts to work out the voltage wise details in coming years. It is working towards achieving 100% DT metering. Feeder metering for 33kV and 11kV feeders has been completed. The Petitioner is also in process of implementing its feeder monitoring system which would provide us with the separate reports for 11 kV. It would also provide us with separate single phase and three phase losses in rural areas. Post successful completion and implementation of these works the Petitioner would be in a position to provide the actual voltage wise data.

19. It is further submitted that the Discom has made available the information pertaining to Form 6.2 and 7.2 which is being maintained by the Discoms to the Hon'ble Commission and requests it to consider the same. With regard to the targets for defective/stopped meters and replacement of the same, it is submitted that it is an ongoing process and no targets as such are set for the same. The segregation of technical and commercial losses is not feasible at the moment as there is not set methodology or parameters to separate commercial and technical losses from the total losses. Theft and non-recovery of bills for instance form a part of the commercial losses but to identify the same from the total losses as recorded is very difficult task and some methodology would be required to set based on detailed technical study on some pilot or sample basis.

20. The basis of variable and fixed charges for the new station along with their expected date of commercial operation as considered is as follows:

Station	Basis of variable and fixed cost considered	Date of commercial operation considered
Chhabra TPS St - 1 Ph - 3 (Unit - 5)	As per the order for similar plant of Chhabra Unit 4 for FY 2017-18	01February 2018
Chhabra TPS St - 1 Ph - 3 (Unit - 6)	As per the order for similar plant of Chhabra Unit 4 for FY 2017-18	01February 2018
STPS Stage V (Unit 7 & 8)	As per the order for similar plant of STPS Unit 1-6 for FY 2017-18	01April 2018
RAPP Unit 7&8 (2*700) NPCIL	As per the charges for the first six months of FY 2017-18 for similar units of RAPP	01April 2018
Kameng HEP (4*150 MW) NEEPCO	As per the charges for the first six months of FY 2017-18 for NHPC plants	01April 2018
Tanda STPP Stage II (2*660 MW)	As per the order for Tanda STPP	01April 2018
Tapovan Vishnugad HEP (4*130 MW) NTPC	As per the charges for first six months of FY 2017-18 for KHPS i.e hydro plant of NTPC	01April 2018
Parbati HEP Stage II (4*200 MW)	As per the charges for existing plant Parbati III	01December 2018
Unchahar IV (1*1500 MW) NTPC	As per the per unit rate for the month of September'17	01Septmber 2017
NSM Bundled	As per the per unit rate from July- September'17	01July 2017

21. It is submitted that the number of Agriculture Metered and Flat Rate Consumers for FY 2018-19 is 4,72,325 and 10,642 respectively. Also the Distribution loss considered for FY 2017-18 is 20% and Interest on working capital for FY 2017-18 is Rs. 147.54 Cr.