



TELANGANA ELECTRICITY REGULATORY COMMISSION

5thFloor, Singareni Bhavan, Red Hills, Lakdi-ka-pul,
Hyderabad 500004.

Present

Sri Ismail Ali Khan, Chairman
Sri H. Srinivasulu, Member
Sri L. Manohar Reddy, Member

ORDER

Dated 27th March, 2015

O.P. No.077 of 2015

Northern Power Distribution Company of Telangana Limited (TSNPDCL)

O.P.No.076 of 2015

Southern Power Distribution Company of Telangana Limited (TSSPDCL)

In the matter of determination of cross subsidy surcharge under Sections 39, 40 and 42 of the Electricity Act, 2003 for FY 2015-16

The Northern Power Distribution Company of Telangana Limited (TSNPDCL) and Southern Power Distribution Company of Telangana Limited (TSSPDCL) filed separate Petitions under Sections 64 of the Electricity Act, 2003, before the Telangana State Electricity Regulatory Commission (TSERC or the Commission) on 7th February, 2015 for approval of Aggregate Revenue Requirement (ARR) and Tariff proposal for Retail Supply Business for FY 2015-16. The Licensees have also filed their proposals of determination of Cross Subsidy Surcharge for FY 2015-16. The Commission vide a

separate Order dated 27th March, 2015 approved the Aggregate Revenue Requirement and Retails Supply Tariff for FY 2015-16. The Commission, in this Order, in exercise of powers conferred on it under Sections 39,40, and 42 of the Electricity Act, 2003 and all other powers enabling it in that behalf, hereby specifies the Cross Subsidy Surcharge applicable to different categories of consumers availing open access in Transmission and Distribution system at different voltages during FY 2015-16, as indicated hereinafter.

1. INTRODUCTION

1.1. STATUTORY PROVISIONS

- 1.1.1. Sections 39(2)(d)(ii), 40(c)(ii) and 42(2) of the Electricity Act, 2003 (hereinafter referred to as 'the Act') provide for payment of a surcharge by the consumer (hereinafter also referred to as 'the Cross-subsidy Surcharge') when a consumer avails power under open access. Further, Section 42(2) of the Act provides that the surcharge shall be determined by the State Commission and such surcharge shall be utilised to meet the requirements of current level of cross subsidy within the area of supply of the distribution licensee.
- 1.1.2. As per the afore-mentioned provisions, to maintain current level of subsidy, cross subsidy surcharge has to be levied on the consumers who opt for open access.
- 1.1.3. Cross subsidy surcharge is normally computed as the difference between (i) the tariff applicable to the relevant category of consumers and (ii) the cost of the distribution licensee to supply electricity to the consumers of the applicable class i.e., Cost of Service (CoS) for a particular category of consumers.
- 1.1.4. Two methodologies are available for determining the Cross Subsidy Surcharge viz., (a) Embedded Cost Methodology and (b) Surcharge formula prescribed in National Tariff Policy (NTP).

1.2. EMBEDDED COST METHODOLOGY

- 1.2.1. Embedded cost methodology examines the relative cost to deliver specific service based on cost causation, by a class of consumers.

- 1.2.2. In this methodology while determining the cost incurred for each consumer category, the cost attributable to each class of consumer may be differentiated based on the load factor, power factor, voltage of supply, total consumption of power during any specified period or the time at which the supply is required or the geographical position of consumer area, the nature of supply and the purpose for which the supply is required etc,.
- 1.2.3. The cost of service for each consumer category has been worked out by the Commission by allocating the approved aggregate revenue requirement (ARR) across various categories and per unit cost is worked out for each category (Cost of Service) in its Order dated March 27, 2015 on approval of ARR and Tariffs for FY 2015-16.
- 1.2.4. The revenue in excess of the cost of service (for each consumer category) is considered as Cross Subsidy available (to be adjusted against a class of consumers whose revenue is less than the cost of service).
- 1.2.5. Cross Subsidy Surcharge for a particular consumer category is the Cross Subsidy available divided by the approved sales for that consumer category.

1.3. TARIFF POLICY METHODOLOGY (NTP)

- 1.3.1. Tariff Policy specifies that the amount of cross-subsidy surcharge and the additional surcharge to be levied from consumers who are permitted to avail open access in Transmission and Distribution network should not be so onerous that it eliminates competition which is intended to be fostered in generation and supply of power directly to the consumers through open access. The Tariff Policy further stipulates that a consumer who is permitted open access will have to make payment to the generator, the transmission licensee whose transmission

systems are used, distribution utility for the wheeling charges and, in addition, the cross subsidy surcharge. The computation of cross subsidy surcharge, therefore, needs to be done in a manner that while it compensates the distribution licensee, it does not constrain introduction of competition through open access.

1.3.2. The cost of supply to the consumer for this purpose is computed as the aggregate of

(a) the weighted average of power purchase costs (inclusive of fixed and variable charges) of top 5% power sources at the margin, excluding liquid fuel based generation, in the merit order approved by the SERC adjusted for average loss compensation of the relevant voltage level and

(b) the distribution charges determined on the principles as laid down for intra-state transmission charges.

1.3.3. The formula prescribed by the National Tariff Policy for computation of Cross Subsidy Surcharge is as given below:

Surcharge formula:

$$S = T - [C (1 + L / 100) + D]$$

Where,

S is the Surcharge.

T is the Tariff payable by the relevant category of consumers.

C is the Weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power.

D is the Wheeling charge.

L is the system Losses for the applicable voltage level, expressed as a percentage.

2. CONSULTATION WITH STAKEHOLDERS

The suggestions and objections on the Cross Subsidy Surcharge as submitted by the stakeholders and responses as submitted by the Licensees are summarized below:

2.1. (A)Objections regarding Open Access (OA) charges: The India Cement Ltd& others stated that,

The Cross subsidy surcharge on consumers availing Open Access (OA) should not be imposed for FY 2013-14 and FY 2014-15 as there was power cut for industries till Nov-2014. Last power cut was on 20th November 2014.

(B)Licensee's Response:

Provision 1 of the Section 42(2) of the Act-2003 reads as *"Provided that such open access may be allowed before the cross subsidies are eliminated on payment of a surcharge in addition to the charges for wheeling as may be determined by the State Commission."*

Hence Cross Subsidy surcharge is provided to meet the levels of cross subsidies determined in respective tariff order in the event that cross subsidizing consumers opt for open access.

(C)Commission's View:

The cross subsidy surcharge now determined by the Commission is applicable for FY 2015-16. The Cross Subsidy Surcharge for FY 2013-14 was waived by the Commission in view of Restriction and Control (R&C) measures imposed by the Commission during the year. The Commission has not determined the cross subsidy surcharge for FY 2014-15.

3. DETERMINATION OF CROSS SUBSIDY SURCHARGE FOR FY 2015-16

3.1. LICENSEES' SUBMISSIONS

3.1.1. The Licensees filed for determination of Cross Subsidy Surcharge for FY 2015-16 based on the surcharge formula prescribed in the NTP. The Cross Subsidy Surcharge filed by the Licensees for FY 2015-16 is given in the Tables below:

Table 1: Cross Subsidy Surcharge for FY 2015-16 as filed by TSNPDCL

Particulars	Average Realization	Marginal PP	Wheeling Charges	Applicable Loss	Cross Subsidy Surcharge
	Rs./kWh	Rs./kWh	Rs./kWh	%	Rs./kWh
HT Category at 11 kV					
HT-I Indl. Segregated	8.14	5.85	0.44	11.78%	1.06
HT-II - Industrial Non Segregated	9.28	5.85	0.44	11.78%	2.21
HT - III Airport Bus and Railway Station	8.63	5.85	0.44	11.78%	1.56
HT Category at 33 kV					
HT-I Indl. Segregated	6.66	5.85	0.13	7.86%	0.18
HT-II - Industrial Non Segregated	10.56	5.85	0.13	7.86%	4.08
HT Category at 132 kV					
HT-I Indl. Segregated	6.25	5.85	0.11	4.02%	0.05
HT-II - Industrial Non Segregated	10.56	5.85	0.11	4.02%	4.36
HT - V Railway Traction	6.75	5.85	0.11	4.02%	0.55

Table 2: Cross Subsidy Surcharge for FY 2015-16 as filed by TSSPDCL

Particulars	Average Realization	Marginal PP	Wheeling Charges	Applicable Loss	Cross Subsidy Surcharge
	Rs./kWh	Rs./kWh	Rs./kWh	%	Rs./kWh
HT Category at 11 kV					
HT-I Indl Segregated	8.12	5.80	0.36	12.46%	1.13
HT-II - Industrial Non Segregated	10.01	5.80	0.36	12.46%	3.02
HT - III Airport Bus and Railway Station	12.15	5.80	0.36	12.46%	5.15
HT Category at 33 kV					
HT-I Indl Segregated	6.72	5.80	0.12	7.85%	0.30
HT-II - Industrial Non Segregated	8.77	5.80	0.12	7.85%	2.35
HT Category at 132 kV					
HT-I Indl Segregated	6.26	5.80	0.11	4.02%	0.11
HT-II - Industrial Non Segregated	8.89	5.80	0.11	4.02%	2.73
HT - V Railway Traction	6.94	5.80	0.11	4.02%	0.79

3.2. COMMISSION'S ANALYSIS

3.2.1. The erstwhile Andhra Pradesh Electricity Regulatory Commission (APERC) adopted the Embedded Cost Methodology for determination of the Cross Subsidy Surcharge for FY 2006-07 issued vide the Order dated 29th August, 2006 in O.P. No. 13 of 2006. The said Order was challenged by M/s R.V.K Energy Pvt.Ltd.,and others before the Hon'ble Appellate Tribunal for Electricity (ATE).

3.2.2. Hon'ble ATE in its Judgment dated 5th July, 2007 in Appeal Nos. 169, 170, 171, 172 of 2005 & 248 and 249 of 2006 ordered that the Cross Subsidy Surcharge should be determined in accordance with the National Tariff Policy formula

specified in Para 8.5 for FY 2006-07, previous years and subsequent years. The said Judgment of the Hon'ble ATE was challenged by the erstwhile APERC and also the four Licensees of the un-divided Andhra Pradesh in the Hon'ble Supreme Court of India vide Civil Appeal No. 4936-4941 of 2007. The Hon'ble Supreme Court of India vide its Interim Order, dated 5th May, 2008 stayed the operation of the Order of the Hon'ble ATE. Further, the Hon'ble Supreme Court of India vide its Order, dated 4th December, 2009 ruled that the Interim Order, dated 5th May, 2008 shall remain operative till the final disposal of the Appeal and the matter is now sub-judice.

- 3.2.3. The erstwhile APERC vide the Order dated 26th October, 2012 in O.P. No. 77 of 2012 determined the Cross Subsidy Surcharge for all the years from FY 2007-08 to FY 2012-13 by adopting the Embedded Cost Methodology considering the case pending in Hon'ble Supreme Court of India.
- 3.2.4. This Commission was constituted on 3rd November, 2014 consequent to the formation of Telangana State from the un-divided State of Andhra Pradesh.
- 3.2.5. This Commission (TSERC) computed the Cross Subsidy Surcharge using both the methodologies viz., (a) Embedded Cost Methodology and (b) Surcharge Formula prescribed in National Tariff Policy.
- 3.2.6. The surcharge determined with embedded cost methodology results in higher rates. The objective of the Electricity Act, 2003 is to facilitate indiscriminate open access and create competition and the open access consumers should not be burdened with high surcharge. Hence, the Commission decided to refrain from the methodology adopted by the erstwhile APERC for determination of Cross Subsidy Surcharge. The Commission, in this Order, adopted the National Tariff

Policy Methodology for determination of Cross Subsidy Surcharge for FY 2015-16 without prejudice to the earlier year Orders by the erstwhile Commission.

3.2.7. The Commission observed that the computed Cross Subsidy Surcharge rates of certain categories are abnormally high because of the low consumption and high demand. The Commission decided to revise the rates of these categories considering the actuals.

3.2.8. The Cross Subsidy Surcharge applicable to different categories of consumers availing open access at different voltages in the area of supply of the respective Licensees is as given below:

Table 3: Cross Subsidy Surcharge approved for FY 2015-16

FY 2015-16	Cross Subsidy Surcharge as per NTP (Rs./kWh)	
	NPDCCL	SPDCL
HT Category at 11 kV		
HT-I Industry General	2.00	2.07
HT-II Others	3.14	3.98
HT-III Airports, Bus & Rly Stns.	2.55	3.32*
HT Category at 33 kV		
HT-I Industry General	1.54	1.29
HT-II Others	3.04*	3.22
HT Category at 132 kV		
HT-I Industry General	0.83	0.93
HT-II Others	2.90*	2.98*

FY 2015-16	Cross Subsidy Surcharge as per NTP (Rs./kWh)	
HT-III Airports, Bus & Rly Stns.	-	1.51
HT-V Railway Traction	1.42	1.42

**The surcharge rates calculated found to be abnormally high as the volume of energy consumption for this sub-sector is very low as compared to the cost of service. The Commission decided to normalize the Cross- Subsidy rates comparing with those of HT-II Others (which have highest Tariff).*

3.2.9. The calculations in arriving at the above rates of Cross Subsidy Surcharge are shown in Annexures 1 to 4.

3.2.10. The Cross Subsidy Surcharge rates determined in this Order are effective from 1st April, 2015 to 31st March, 2016.

3.2.11. This Order, determining the rates of Cross Subsidy Surcharge for FY 2015-16, now being issued by the Commission, is subject to the final Judgment of the Hon'ble Supreme Court of India in civil Appeal No. 4936-4941 of 2007.

This order is signed on this 27th March, 2015

Sd/-
(L MANOHAR REDDY)
MEMBER

Sd/-
(H SRINIVASULU)
MEMBER

Sd/-
(ISMAIL ALI KHAN)
CHAIRMAN

ANNEXURE - 1

CROSS SUBSIDY SURCHARGE AS PER NTP

Particulars	Avg. Revenue Realization (Rs./kWh)		Grossed up Avg. PP Cost + wheeling (Rs./kWh)		Cross Subsidy Surcharge as per NTP (Rs./kWh)	
	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL
HT Category at 11 kV						
HT-I Industry General	8.08	8.08	6.07	6.01	2.00	2.07
HT-II Others	9.22	9.99	6.07	6.01	3.14	3.98
HT-III Airports, Bus & Rly Stns.	8.63	12.15	6.07	6.01	2.55	3.32*
HT Category at 33 kV						
HT-I Industry General	7.05	6.80	5.51	5.51	1.54	1.29
HT-II Others	10.48	8.73	5.51	5.51	3.04*	3.22
HT Category at 132 kV						
HT-I Industry General	6.21	6.31	5.38	5.38	0.83	0.93
HT-II Others	11.83	8.90	5.38	5.38	2.90*	2.98*
HT-III Airports, Bus & Rly Stns.	-	6.89	5.38	5.38	-	1.51
HT-V Railway Traction	6.80	6.80	5.38	5.38	1.42	1.42

**The surcharge rates calculated found to be abnormally high as the volume of energy consumption for this sub-sector is very low as compared to the cost of service. The Commission decided to normalize the Cross- Subsidy rates comparing with those of HT-II Others.*

ANNEXURE - 2

AVERAGE REVENUE REALIZATION

Particulars	Sales (MU)			Revenue (Rs. Cr)			Avg. Revenue Realization (Rs./kWh)		
	NPDCL	SPDCL	Total	NPDCL	SPDCL	Total	NPDCL	SPDCL	Total
HT Category at 11 kV									
HT-1 Industry General	564.24	3036.43	3600.67	455.80	2452.33	2908.13	8.08	8.08	8.08
HT-2 Others	100.40	1233.61	1334.00	92.55	1231.98	1324.53	9.22	9.99	9.93
HT-3 Airports, Bus & Rly Stns.	8.63	4.81	13.44	7.45	5.84	13.29	8.63	12.15	9.89
HT Category at 33 kV									
HT-1 Industry General	173.49	5071.48	5244.97	122.33	3449.57	3571.90	7.05	6.80	6.81
HT-2 Others	9.74	599.35	609.09	10.22	522.96	533.18	10.48	8.73	8.75
HT Category at 132 kV									
HT-1 Industry General	585.96	2160.55	2746.51	363.82	1362.85	1726.67	6.21	6.31	6.29
HT-2 Others	1.74	72.63	74.36	2.05	64.64	66.70	11.83	8.90	8.97
HT-3 Airports, Bus & Rly Stns.	0.00	63.95	63.95	0.00	44.07	44.07	-	6.89	6.89
HT-5 Railway Traction	470.83	200.42	671.25	320.16	136.29	456.45	6.80	6.80	6.80

ANNEXURE - 3

CALCULATION OF 5% TOP MARGINAL POWER PURCHASE COSTS EXCLUDING LIQUID FUEL AND RENEWABLE ENERGY

Station	Avg. Cost	Total Despatch	NPDCL	SPDCL
	Rs./kWh	MU	MU	MU
Total Hydro	1.85	4037.64	1189.08	2848.55
NPC-MAPS	2.14	132.13	38.91	93.21
Talcher Stage 2	2.21	1371.46	403.90	967.57
Stage-II	2.81	618.86	182.25	436.60
Stage-I	2.85	322.88	95.09	227.79
KTPS D	2.99	1766.97	520.37	1246.60
NPC-Kaiga unit I	3.03	419.45	123.53	295.92
NTPC (SR)	3.04	2183.36	643.00	1540.36
BSES	3.14	250.65	73.82	176.84
NPC-Kaiga unit II	3.17	444.79	130.99	313.80
APGPCL II - Allocated capacity	3.26	72.55	21.36	51.18
Vallur Thermal Power Plant	3.32	612.33	180.33	432.00
RTS B	3.53	219.38	64.61	154.77
NTPC (SR) Stage III	3.54	559.33	164.72	394.61
Kakatiya Thermal Power Plant Stage II	3.56	2269.33	668.32	1601.02
Thermal Power	3.59	1990.99	586.35	1404.64
NTPCSimhadri Stage I	3.63	3718.97	1095.24	2623.74
KTPS C	3.63	832.85	245.27	587.58
KTPS A	3.64	824.03	242.68	581.35
Kondapalli (Gas)	3.65	536.17	157.90	378.27
KTPS B	3.67	788.78	232.30	556.48
APGPCL I - Allocated capacity	3.79	19.34	5.70	13.64

NPDCL	SPDCL
PP Cost	PP Cost
Rs. Cr	Rs. Cr
219.62	526.12
8.31	19.92
89.09	213.43
51.16	122.57
27.14	65.02
155.52	372.55
37.38	89.55
195.40	468.09
23.21	55.59
41.55	99.54
6.96	16.67
59.81	143.28
22.78	54.58
58.30	139.67
237.90	569.92
210.40	504.03
397.16	951.43
88.98	213.16
88.26	211.42
57.70	138.22
85.36	204.50
2.16	5.17

Station	Avg. Cost	Total Despatch	NPDCL	SPDCL
	Rs./kWh	MU	MU	MU
KSK Mahanadi (MT)	3.88	1570.60	462.54	1108.06
VTPS I	3.98	1053.25	310.18	743.07
Kakatiya Thermal Power Plant Stage I	3.99	1910.01	562.50	1347.51
VTPS II	4.00	1039.77	306.21	733.56
Spectrum	4.04	499.18	147.01	352.17
Hinduja	4.04	3652.74	1075.73	2577.01
VTPS III	4.10	928.14	273.34	654.80
VTPS IV	4.32	1938.65	570.93	1367.72
NTPCSimhadri Stage II	4.32	1656.25	487.77	1168.48
Tuticorn	4.74	841.31	247.77	593.54
KTPS Stage VI	4.75	1565.10	460.92	1104.18
RTPP Stage-II	4.76	324.20	95.48	228.72
GVK	4.85	126.86	37.36	89.50
DamodaramSanjeevaiah Thermal power plant - I	5.06	2824.91	831.93	1992.97
DamodaramSanjeevaiah Thermal power plant - II	5.06	2824.91	178.68	2646.22
Total		46748.11	13114.07	33634.04
5% top Margin Purchase Required		2337.41	655.70	1681.70
Attributable price per Unit for 5% Top Margin Purchases as per NTP				

NPDCL	SPDCL
PP Cost	PP Cost
Rs. Cr	Rs. Cr
179.61	430.27
123.57	296.02
224.59	538.03
122.33	293.06
59.38	142.26
434.68	1041.32
112.13	268.61
246.55	590.64
210.90	505.23
117.43	281.32
219.03	524.72
45.46	108.90
18.11	43.39
420.78	1008.00
90.38	1338.41
4789.10	12594.61
331.64	850.57
5.06	5.06

ANNEXURE - 4

CALCULATION SHOWING SEQUENTIAL GROSSING UP OF POWER PURCHASE COST

Table 1

	Avg. Cost (T.O. PP Cost)	
	NPDCL	SPDCL
132 kV	Rs./kWh	
	5.06	5.06
33 kV	Rs./kWh	
	5.27	5.27
11 kV	Rs./kWh	
	5.49	5.49

Table 2

Grossed up Avg. PP Cost with Losses

	NPDCL	SPDCL
	Rs./kWh	
% Loss	4.02%	4.02%
132 kV	5.27	5.27
	Rs./kWh	
% Loss	4.00%	3.99%
33 kV	5.49	5.49
	Rs./kWh	
% Loss	4.25%	5.00%
11 kV	5.73	5.78

Table 3

Wheeling Charges

	NPDCL	SPDCL
	Rs./kW/month	
132 kV	76.66	76.66
	Rs./kVA/month	
33 kV	13.74	15.71
	Rs./kVA/month	
11 kV	259.09	173.97

Table 4

Wheeling Charge conversion to Rs./kWh

	NPDCL	SPDCL
	Rs./kWh	
132 kV	0.11	0.11
	Rs./kWh	
33 kV	0.02	0.02
	Rs./kWh	
11 kV	0.34	0.23

Table 5 = Table 2 + Table 4

Final Grossed up Avg. PP Cost

	NPDCL	SPDCL
	Rs./kWh	
132 kV	5.38	5.38
	Rs./kWh	
33 kV	5.51	5.51
	Rs./kWh	
11 kV	6.07	6.01