

ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

From

Secretary / APERC,
#11-4-660, 4th Floor,
Singareni Bhavan, Red Hills,
Hyderabad -500 004

To

The Chairman & Managing Director,
APTRANSCO, Hyderabad.

The Chairman & Managing Director,
APCPDCL, Hyderabad.

The Chairman & Managing Director,
APEPDCL, Vishakapatnam.

The Chairman & Managing Director,
APNPDCL, Warangal.

The Chairman & Managing Director,
APSPDCL, Tirupati.

Lr.No. APERC/E- 205/DD-Dist/2010 Dated 06 -05-2010

Sir,

Sub: - APERC – Delivered Capacity – Actual generated capacity calculation-Inflated Demand Allocation to share holders -- Recovery - regarding.

1. While examining the APGPCL generation and the sharing of energy and demand mechanism, the Commission observed the following issues:

- a) In stage-1 of APGPCL, the peak demand generated in any 15 minutes duration of all the fifteen minutes consecutive time blocks in a month, is being allocated to APGPCL-1 shareholders.
- b) In stage-2 of APGPCL, while calculating the Delivered Capacity (demand generated), the number of hours considered in a month are 720 hours, irrespective of actual number of calendar days in a month.

Issue - 1: Sharing of delivered capacity (Demand generated) in stage – 1:

2. Regarding sharing of delivered capacity (demand) among share holders, the APGPCL stage -1 MoU reads as follows;

Clause 3 of Stage-1 MoU - 1:

The power sharing will be proportional to the actual capacity on bars during the month.



Clause 11 of Stage-1 MoU - 1:

*“(11): The Participating Industries will be common consumers of APSEB and APGPDCL. It is agreed that APGPCL, shall be free to formulate the tariff taking into account its financial commitmentsconditions of supply. **The actual arrangement between APSEB, APGPCL and the Participating Industries shall be worked out in detail”.***

Clause 15 (b) of Stage-1 MoU – 1:

*“15(b): In case the total Maximum demand actually availed exceeds the aggregate of CMD with APSEB plus share of power from APGPCL, the consumer APSEB. The entire excess power accordingly. **APGPCL will be entitled to realize charges as per share of power depending on actual capacity on bars during the month.***

3. **Demand Concept:**

The concept of “Demand” is meaningful only with reference to time slot i.e., integration time, say 30 mts or 15 mts or over a period (say one month). In fact the Maximum Demand Meter is also an energy meter which records the largest number of units multiplied by 2 (or 4) during any consecutive 30 mts (or 15 mts) in a month and it is nothing but average demand during 30 mts (or 15 mts). ***That means if the APGPCL stage – I generates and delivers full capacity to the APTRANSCO system at the metering point i.e., 100 MW even for ¼ hour and if it is shut down for balance period in a billing month, the meter at the interconnection point records maximum demand of 100 MW or 100 MVA and this recorded Maximum Demand is being shared among shareholders in proportional to their shareholding throughout the month, which is not specified in the MoU.***

The Demand meter works on the following principle:

$$\text{DEMAND} = \frac{\text{MVAH}}{\text{Time}} = \frac{\text{MVAH}}{1/4} = 4 \times \text{MVAH}$$

i.e., If the Generating station supplies maximum of 25 MVAH in any consecutive 15 minutes time block, in a billing month, then the meter records 100 MVA Maximum Demand, that is four times the number of Units.



4. The allocation of Demand (delivered capacity) to shareholders based on Recorded Maximum Demand is not correct for the following reasons.
- The generating station cannot deliver the same Maximum Demand (Delivered Capacity) through out the month as the demand on the generation station would be varying continuously and cannot be constant.
 - The generating station may not be in operation throughout the month, because of breakdowns or outages.
 - Fuel supply may also vary.

5. Demand Meter working principle:

To get the half an hour demand, the energy recorded in half an hour time is divided with $\frac{1}{2}$ hour time and to get the 15 minutes demand, the energy recorded during 15 minutes time is divided with $\frac{1}{4}$ hour time. The 15 or 30 minutes demand meter works on this principle.

Similarly, to get the actual capacity (Demand) on bars during a month, the energy generated in the month is to be divided with total number of calendar hours in the month.

6. The energy is being shared among participating industries as per the provisions of MoU. While allocating capacity (demand) to share holders, the APGPCL is not implementing the provisions of MoU.

As per clause 3 of stage - 1 MoU, *the power sharing will be proportional to the actual capacity on bars during the month.* The actual capacity on the bars means, the demand generated during every 15 minutes time block. Thus, the demand generated in each time block has to be shared among all participating industries in proportional to their share holdings on real time basis.

(Or)

Alternatively, as explained in para 3, 4 & 5, the Delivered capacity in a month duration would be the average demand generated in that month and shall be shared among all participating industries in proportional to their share holding.

7. The approximate financial loss that the Distribution companies are incurring is explained with the help of actual power allocation statements obtained from APTRANSCO for the months of 02/2009 to 10/2009, as an example in Table - 1. At present, the share of



APTRANSCO in APGPCL stage - 1 is 16%. The details of the actual Demand generated (Delivered capacity to the system) and Maximum Demand (peak demand) recorded by the meter are furnished in the Table - 1. **The difference demand shown in column (7) was supplied by Discoms and not by APGPCL. The APGPCL has raised the bills for this demand at the rate of Rs. 75 per kVA, all these years since inception of APGPCL. The Discoms and APGPCL share holders have been paying this amount since inception of APGPCL Stage - I.**

In the process, the APGPCL is getting undue benefit at the cost of Discom consumers.

The amount paid by APTRANSCO/Discoms to APGPCL towards inflated demand charges is shown in column (8) of Table - 1. The corresponding revenue that should have been received by APTRANSCO / Discoms from APGPCL consumers is shown in column (9).

Table -1 (Model worksheet)

Sl No	Month	No. of Units Generated (kWH)	Maximum Demand Recorded kVA	No. of hours in the month hrs	Delivered Capacity with actual hrs kVA	Difference (Demand supplied by Discoms) kVA	Amount received by APGPCL from Discoms & consumers towards inflated Demand Rs lacs	Revenue loss to Discoms Rs lacs (*)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Feb-09	32,002,380	62042	672	47,622.59	14419.41	10.81	33.16
2	Mar-09	28,556,080	55577	744	38,381.83	17195.17	12.90	39.55
3	Apr-09	32,956,876	96050	720	45,773.44	50276.56	37.71	115.64
4	May-09	64,170,202	100,410	744	86,250.27	14159.73	10.62	32.57
5	Jun-09	58,157,880	98,920	720	80,774.83	18145.17	13.61	41.73
6	Jul-09	63,634,468	97,350	744	85,530.20	11819.80	8.86	27.19
7	Aug-09	64,182,813	96,460	744	86,267.22	10192.78	7.64	23.44
8	Sep-09	66,596,689	96700	720	92,495.40	4204.60	3.15	9.67
9	Oct-09	64,044,298	99730	744	86,081.05	13648.95	10.24	31.39
					Total		115.55	354.34

(*) The revenue loss to DISCOMs shown in column (9) of Table - 1, is calculated assuming the Demand charges of Rs.230/kVA. The actual loss may defer depending upon the voltage level at which the consumer receives the power.

In view of the reasons mentioned above, it is evident that the APGPCL has raised wrong bills by considering peak demand (inflated demand) as against the actual capacity (demand) generated. Allocating inflated demand to participating industries is also affecting Load Factor incentives, applicable to HT-1 category industrial consumers.



8. As explained in para 3 to 6 ante, the actual capacity on bars during a month, generated by a generating station is the average capacity (Demand) generated and not the peak demand generated in any consecutive 15-minutes time block in the month.

Issue 2: Sharing of delivered capacity (Demand generated) in stage – 2:

9. It is observed that while calculating the Delivered Capacity, the number of hours considered in a month are 720 hours, irrespective of number of calendar days in that month. The month-wise approximate revenue loss to Discoms from Feb 2009 to Oct 2009 on account of not considering calendar month hours is furnished in Table – II, below as an example.

Table - II

Sl No	Month	No.of Units Generated(kWH)	Demand in kVA	No. of hours in the month	Delivered capacity with 720 hrs (kVA)	Delivered Capacity with actual hrs(kVA)	Difference in kVA	Approximate Revenue loss in Rs lacs (*)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Feb-09	79,915,920	110994	672	110,994	118,922.50	-7,928.17	-1823478
2	Mar-09	72,181,520	100252	744	100,252	97,018.17	3,233.94	743806
3	Apr-09	78,524,189	109061	720	109,061	109,061.37	0.00	0
4	May-09	87,341,846	121,308	744	121,308	117,394.95	3,913.17	900028
5	Jun-09	112,022,800	155,587	720	155,587	155,587.22	0.00	0
6	Jul-09	106,546,930	147,982	744	147,982	143,208.24	4,773.61	1097930
7	Aug-09	111,065,700	154,258	744	154,258	149,281.85	4,976.06	1144494
8	Sep-09	97,075,037	134826	720	134,826	134,826.44	0.00	0
9	Oct-09	111,710,030	155153	744	155,153	150,147.89	5,004.93	1151134
								3213914

() The revenue loss to DISCOMs shown in column (9) of Table – II, is calculated assuming the Demand charges of Rs.230/kVA. The actual loss may defer depending upon the voltage level at which the consumer receives the power.*

The above data shows that in case of APGPCL stage - 2, by considering 720 hours per month, irrespective of calendar month days, the APGPCL share holders are getting benefited and the Distribution Licensees are incurring losses and this cost is/was borne by consumers of Discom.



10. In view of the above, in case of APGPCL Stage-1, the Licensees viz., APTRANSCO, APCPDCL, APEPDCL APNPDCL and APSPDCL are directed

- i). To arrive at demand share of Discom(s) by dividing the energy share of Discom(s) with calendar hours of the billing month.
- ii) To arrive at demand share of individual participating industries (shareholders) by dividing the net energy share i.e energy share excluding losses (Gross energy –losses) with calendar hours of the billing month.
- iii). To recover the amounts, from APGPCL which were paid by the then APSEB/APTRANSCO/APDiscoms and APGPCL consumers towards difference demand (difference of peak demand and average demand) charges, which was supplied by APTRANSCO and Discoms, as mentioned in column (7) of Table -1.

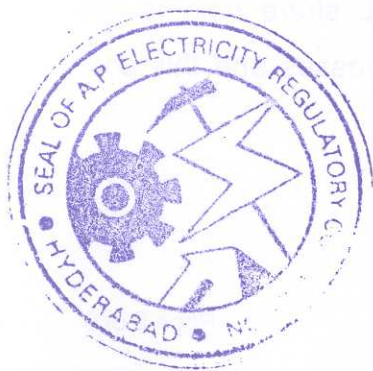
11. In case of APGPCL stage-2, the Licensees are directed to take calendar hours in the billing month to arrive at the Demand share of participating industries. Further, the APTRANSCO/DISCOMs are directed to revise the demand share for all the years for which 720 hours were considered against the calendar hours in the billing month and recover the amount from APGPCL.


12. The APTRANSCO may explain why amendments made to the MoU, subsequent to the commission came into existence, have not been got consented.

13. The APTRANSCO, being a shareholder of APGPCL shall co-ordinate with all the four Distribution Licensees and shall submit a monthly return on the progress made in recovering the amounts from APGPCL.

This Order is signed by the Andhra Pradesh Electricity Regulatory Commission on 06 May, 2010.

(BY ORDER OF THE COMMISSION)




SECRETARY
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A.P. Electricity Regulatory Commission
Hyderabad.