

AGRICULTURE IN THE TARIFF 2002-03

All agree that Agriculture is a key sector in the development of Andhra Pradesh. In 1999, agriculture contributed to 28% of the GSDP and employed 70% of the workforce. Sustenance of the sector and its growth is critical to removing poverty. Well irrigation has been a major contributor to the growth in agriculture and in this context energisation of pumpsets assumes significance. Growth in the number of pumpsets over the years and the subsidised power supply to them have contributed to the growth of agricultural production in the state. Agricultural pumpsets are providing livelihoods to more than 15 lakh families directly and many more indirectly by providing wage employment or providing raw material for their work.

Power supply to agriculture is often projected as one of the major reasons for the financial crisis in power sector. It is stated that the average realisation from agricultural consumer is only 4-5% of cost of supply and that the agricultural consumption has grown tremendously. Government data of agricultural consumption as a percentage of total energy handled give show a growth from 12-13 % in 1981 to 25% in 2001. As a percentage of energy sold, the figures are 18% (1981) and 37% in 2001.

Both the points - whether agricultural power is the cause of financial crisis and whether the agricultural consumption of power has increased as projected by the government/Licensees- are debatable. We feel that there are many major reasons for the financial crisis and that the agricultural consumption has been over projected to cover up the high T&D losses and mounting power purchase costs because of PPAs entered into with IPPs.

AGRICULTURE CONSUMPTION AS REPORTED IN ARR_s

DISCOM	2000-01		2001-02		2002-03	
	Agricultural Consumption	Ag.con as % of total	Agricultural Consumption	Ag.con as % of total	Agricultural Consumption	Ag.con as % of total
NPDCL	2646	40.99	2640	46.42	2702	45.60
CPDCL	5082	42.53	4220	38.34	4302	36.56
SPDCL	2283	35.98	2349	34.28	2450	33.77
EPDCL	1060	25.09	1089	24.76	1140	24.53
Total	11071	40.72	10300	36.85	10594	35.68

We are of the firm view that agricultural consumption cannot be so high. In the last traiff hearings, using the available data, various estimates were presented by PMG (and others) for agricultural consumption. These estimates varied from 5000 MU to 7000 MU against APTRANSCO's estimate of 10,500 MU. But still the Honourable Commission decided to go along with the estimate of APTRANSCO. Even after two years the Licensees are not able to count the agricultural services (or the powers that be do not like to lose the golden goose of camouflaging power theft as agricultural consumption). Given this experience it is next to impossible for the Licensees to meter all the agricultural services in another year. Also, in the background of prevailing apprehensions it would not be logical to expect cooperation from the farming community to meter all the agricultural connections. The decision of the Commission in this regard under the tariff order for the year 2001-02 has only emboldened the Licensees to come up with even a bigger figure of 10594 MU for the year 2002-03. We appeal to the Commission not accept this high figure.

METHOD FOLLOWED BY DISCOMs:

No uniform method is followed by the four DISCOMs while arriving at the power purchase projections for the agricultural sector. While Eastern, Northern, Southern DISCOMs gave some details, though not complete details, the Central DISCOM headquartered in Hyderabad did not do even that.

For these projections DISCOMs depend on information collected from metering LV side of DTRs serving agricultural connections. This metering was done as a part of fulfilling the directive given by the Commission in its tariff order for the year 2001-02 to meter all agricultural services by 2003. Given the difficulty in metering a large body of agricultural connections the Licensees have adopted the metering of DTRs serving predominantly agricultural consumers. This is one of the directives given by the Commission in order to arrive at an estimation of the power consumption in the agriculture sector. This metering of DTRs is not uniform among all circles/districts. DT metering is only 25% complete on the average. In some districts it is only 4% (Karimnagar) and in some districts it is 75% (Khammam). The Eastern DISCOM did not provide details on the number of DTRs metered. Though the Central DISCOM provided information on metering of DTRs it did not explain the method used to arrive at the power consumption in the agriculture sector.

From the figures given for agricultural consumption for the coming year we understand that first they projected this figure and then went backwards in calculating this figure. In the case of Northern and Southern DISCOMs based on the given value of annual energy consumption per HP & assuming 9 hours supply per day, the number of days of pumpset operation in a year is arrived at. In NPDCL it varies from 159 (Karimnagar) to 242 days (Nizamabad). In SPDCL, it varies from 115 days (Nellore) to 192 days (Chittoor). In the case of EPDCL consumption of power per HP, per month is assumed and from this final figure was arrived at.

The ARR of the DISCOM's (North and South) give data on LT side metering of agricultural DT's. The actual readings of energy consumption at DT's for the current year have not been given. Instead, for each district, the yearly consumption per HP and the total HP value is used to calculate the agricultural consumption. We request that the actual readings at the DTs be provided so that we can examine the calculations.

It is stated that the LT side loss on the lines serving agricultural connections is 5-6% for different DISCOMs. Is it Technical + commercial? Please clarify if this is the total loss or only the technical loss.

In the tariff order for the year 2000-01 the Honourable Commission had directed, "In order to rectify the situation the Commission directs that the APTRANSCO shall conduct a survey and prepare an upto-date list of number of pumpsets and their capacities by 31st October 2000, as the issue has a bearing on the fixing of tariff" (p.58). Even at the time of hearing for the next year's tariff it was not completed. Only a partial report on sample study of four districts, one district for each DISCOM, prepared by the Productivity Council was submitted at the time of hearing. Even this report was not made public. In its tariff order for the year 2001-02 the Commission has extended the date for completing the census to 31st October 2001. To this day it is not complete. CPDCL wanted time up to

March 2002. EPDCL stated that 90% of the work is over. In the case of SPDCL it is in different stages in different circles except in Chittoor where it is said to be complete and “details will be furnished to the Commission soon on their receipt from the Agency”. In the case of NPDCL work started only after November 2001, one month after the Commission wanted it to be complete, and they expect it to be over by February 2002.

Completion of both the works, metering of DTRs and census of pumpsets, or either one of them at least would have helped to get more reliable data on agricultural consumption. But neither of these tasks have been completed by the DISCOM's. Thus very little additional information is available to scientifically arrive at agricultural consumption, which has a significant impact on tariff. APTRANSCO/DISCOMs should explain the reasons for the delay in carrying out the APERC directive.

THREE ALTERNATIVE MEASUREMENTS

In spite of the Commission's unwillingness to reduce estimated power consumption in the agricultural sector based on various alternative calculations including the ones provided by us (PMG) we again make our efforts to arrive at a meaningful estimate of power consumption in agriculture. Here we try to give three alternatives. While we make some calculations with the help of the first two alternatives, the third one is a suggestion in the background of inordinate delay on the part of the Licensees to implement the directives given by the Honourable Commission. In the given circumstances where 100% metering of agricultural pumpsets is not feasible in the near future the Commission has to follow one or the other estimate to arrive at the figure for the agriculture sector. Absence of metering of agricultural connections or bungling of census operations on the part of the Licensees cannot be taken as an excuse to dump the commercial losses on the agriculture sector and then try to correct it as the culprit. Name the dog and hang it! Medicine on the basis of wrong diagnosis can prove to be fatal.

The first alternative

The first alternative is based on the partial report of the Productivity Council:

Data as presented by Productivity Council

Region	Eastern	Southern	Central	Northern	4 dist.
District	W. G	Chittoor	Nalgonda	Nizamaba	Total
No of Pumps connected	44,377	130,380	229,790	154,302	558,849
No. Unlisted	263	15,065	56,694	34,014	106,051
Average Oper. During year	22,237	40,950	70,853	119,309	253,349
Average rating of listed sets HP	8.26	5.35	4.90	5.61	5.19
Total Connected Load HP	366,533	697,731	973,407	865,056	2,902,766
Operating factor assumed	0.8	0.8	0.8	0.8	0.8
Av. No of hours in a Year	1,350	1,350	1,350	1,350	1,350
Energy consumed in a year MU	202	279	324	862**	1,668
Energy consumed in 2001-02*	690	930	1058	1060	3738
PC data as a proportion of ARR	29.28	30.00	30.62	81.32	44.62

data (%)					
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This table is drawn from Dr.M.H.P. Rao's Article " Analysis of Productivity Council Partial Report Regarding Operating Pump sets in Andhra".

* The data is calculated from the ARRs of the four DISCOMs. The reported data for the first half of the year is doubled to represent the whole year.

** The Northern DISCOM data is to be taken with a pinch of salt as the power consumption data provided in its ARR appears to be either fudged blatantly or carelessly entered. The agricultural consumption data for the first half of 2001-02 given in the ARR represents more than 80% of the magnitude allocated to the agricultural sector for the whole year.

From the above table it is clear that actual consumption in the agriculture sector is only about one third of the quantity indicated by the Licensees for different DISCOMs. From this one can say that power consumption in the agriculture sector as projected by the Licensees is on the higher side. And this leads to the widely held misconception that this sector is a drain on the resources of the Licensees and the state government. We would like to appeal to the Commission that it is the power pilferage but not the agricultural consumption which is the culprit.

Second alternative

Agricultural consumption estimate based on Load curves for peak load day and flood day. Based on the daily load data for a peak day and a rainy day, the maximum agricultural consumption per day works out to be about 30 MU. Considering this load for 200 days gives agricultural consumption of 6000 MU. (check)

Gross estimation of agricultural consumption: Daily load curves for the whole state for some typical days have been provided in the submission of APTRANSCO. Using this and Newspaper reports, we have prepared an alternative estimate of agricultural consumption. Please comment.

- a) On a peak day in 2001, the total energy handled by AP = 142 MU
the total energy sold by AP = 122 MU
It can be assumed that agricultural load will be maximum on this day.
- b) On a rainy day (when there were floods), the total energy handled by AP = 102 MU
the total energy sold by AP = 87 MU
It can be assumed that there is no agricultural load on this day
- c) Both these days are in September 2001, the peak farming season. The load pattern may not change much except in the case of agriculture from one day to another, since both days fall in September.
- d) Difference between a) and b) gives an estimate of the agricultural consumption for a day. Since agricultural supply is not given for 6 hours spread over a day, correction has to be made to account for this. Correction value can be calculated by integrating the load curve during the non agricultural supply hours for both the days and calculating the difference. With these steps, one gets:
Uncorrected Peak Day agricultural consumption = $122 - 87 = 35$ MU
Corrected Peak Day agricultural consumption = $35 - 7 = 28$ MU
- e) The number of days of operation of the pumpsets from data given in ARR vary from 150 to 240 days (CHECK). Taking an average of 200 days, one gets the maximum annual consumption by agriculture as 5600 MU ($200 * 28$).

A suggestion

Another alternative to estimate agriculture consumption is arrive at the figure of pumpsets from the billing data. The Commission in its tariff order for the year 2001-02 has directed the DISCOMs to “store the billing information in a consolidated form for each circle/accounting division and file the same with the Commission as and when required. The Licensees shall keep all such information for a period of 10 years and use this data base as a reference for future sales projections in subsequent filings”. CPDCL in its ARR reported, “ The billing data, consumerwise, as per the formats of APERC has been obtained from the field offices and is being submitted to the Commission in the form of soft copy. Efforts are being continued to complete the process of data collection as prescribed by the Commission”. Similarly, other DISCOMs also reported their progress. The data available from this billing information could be used to estimate power consumption in the agricultural sector.

NOT TO HIKE AGRICULTURAL TARIFF

Under the tariff proposals for the year 2002-03 the Licensees proposed to hike agricultural tariff by Rs.25 per HP across all categories. This appears to be a part of the state government's and Licensees' attempts to follow the conditionalities imposed by the World Bank in order to be eligible to access the loan provided by it for the AP Power Sector Reforms Project. According to these conditionalities during the first year the minimum should be 50 paise per unit. This was already achieved through the tariff order for the year 2000-01. If we calculate the per unit tariff by dividing the income collected from the agriculture sector by the actual units of power consumed in this sector it would be 50 paise. According to the related conditionality by the third year this tariff should be raised to half of the cost to serve. And this year's tariff proposal appears to be in the direction of following this conditionality.

We also would like to draw the kind attention of the Commission to the fact that power to the agriculture is being supplied during non-peak hours. This also needs to be kept in mind while looking at the agriculture tariff.

We also would like to draw the attention of the Commission to the fact that what farmers basically asking for water. And most of the agriculture pumpsets are located in the backward regions of the state where canal irrigation is not provided. While canal farmers are being asked to pay lesser water charges for the water provided to them, it is not correct to expect the farmers using pumpsets to pay more as they have already invested huge capital in sinking bore wells and setting up pumpsets.

As the farmers are basically asking for water, power generated from hydel stations can be allocated to agriculture. Power generated from the hydel stations is more than what the farming sector needs.

YEAR	Power from Hydel Stations in MU
2000-01	7048
2001-02	6250
2002-03	7954

We also wish to state that increasing the agricultural tariff as per the reform plan and as proposed in this year's tariff proposals will break the backs of the farmers in AP. Already farmers are reeling under the crisis engulfing the agriculture sector in the state. Not a single day passes without news papers reporting farmers' suicides. Some of the farmers resorted to this tragic act as they were not able to pay the power bill. Any tariff hike like the one proposed in this year's proposals by the Licensees will add to the burdens of the farmers. This tariff hike will lead increase in cost of agricultural products further and in the prevailing

market situation it would not be possible for the farmers to realise this increased cost. Hence we appeal to the Commission not to give consent to this proposal to hike agricultural tariff.

What the farmer needs is good quality power and an assured time table of power supply. Various studies indicate that APTRANSCO/DISCOMs have not been able to provide quality power (in terms of voltage) or provide uninterrupted power during the committed 9 hours interval.

Poor quality of power supply: Low and erratic voltage of power supply is the cause of motor burn-outs. The WB study indicate that nearly all pumpset motors are rewound once in a season and 25-30% twice in a season!. The annual cost of re-winding and repair (about Rs.1300-2500/motor) is indicated to be 5-10% of the annual gross farming income.

Distribution Transformer burn outs: State average of burn outs is about 29%. But it is seen that the burn out percentage is much higher at 40-50% in villages and even 80% in some areas. Replacement takes few days and causes interruption in the farming activity.

It is to be noted that the impact of poor quality of power is much higher on marginal farmers compared to large farmers . Considering all this, APTRANSCO/DISCOMs should be taking steps to improve the quality of power supply. We request the Commission to direct the Licensees to provide us the concrete steps taken in this regard.

End use efficiency and Demand Side Management: For agricultural loads, it is best for the farmers and the utility to undertake measures towards end use efficiency and demand side management. Studies indicate that energy consumption by pumpsets can be reduced, and the demand requirement brought down. The Commission has issued an order on May 5, 2001 a rebate of 50% of the power bill for three years if the set improvement measures were adopted by the farmers. And it stipulated June 30, 2001 as the last date to be eligible for this rebate. We would like to know from the DISCOMs on the response to this scheme. A dispassionate examination of this experience would help the Licensees and the Regulator to structure the schemes that would work. What are the other steps taken by the utility towards this and what concrete results have come out of these efforts?

Summary:

- method used for agricultural consumption estimation to be explained
- measured data on agricultural DTRs to be provided
- Feel that agricultural consumption estimates are high. Alternate values suggested need to be taken in to account
- Do not raise tariff
- Elaborate measures taken to improve quality of supply