ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

4th Floor, Singareni Bhavan, Red Hills, Lakdi-ka-pool,
Hyderabad – 500 004

O.P.No.12 of 2017
Date: 29-04-2017

Present
Sri Justice G. Bhavani Prasad, Chairman
Dr. P. Raghu, Member
Sri P. Rama Mohan, Member

Between:

Eastern Power Distribution Company of
Andhra Pradesh Limited, rep. by its
Chief General Manager Commercial Quality
Control & Assurance
Corporate Office: P & T Colony
Seethammadhara, Visakhapatnam … Petitioner
(Petitioner in O.P.No.12 of 2017)

A N D

-NIL-

The petition has come up for hearing on 15-04-2017 in the presence of Sri P. Shiva Rao, learned Standing Counsel for the petitioner and Sri Shashi Kanth, Deputy General Manager of EESL present on behalf of EESL, a Project Management Consultancy (PMC) company that will be executing the project for APEPDCL. Sri M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, Sri M. Venugopala Rao, Sri K. Hari Kishore Kumar Reddy and Sri Ch. Venugopala Rao objectors/stakeholders are also present. After carefully considering the material available on record and after hearing the arguments of the learned Standing Counsel for the petitioner and considering the comments/views of all objectors/stakeholders, the Commission passed the following:

O R D E R

A petition to allow the Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL) to implement the Agricultural Demand Side Management project, approve the capital investment for the project and the energy savings for recovery of the investment through monthly payout to the investor in accordance with the energy savings, approve the "Agricultural Demand Side Management Agreement" executed on 25-02-2017 between APEPDCL and Energy Efficiency Services Limited (EESL) energy savings agreement and to pass all other necessary orders as deemed fit.

2. The petitioner made the proposal for implementation of the project in the Five districts of Andhra Pradesh namely: Visakhapatnam, Srikakulam, Vizianagaram, East Godavari and West Godavari.

3. The petitioner proposed to replace 35,000 old pump sets out of those existing in the five districts that are connected to the grid, with BEE 5 star rated 5HP energy efficient submersible Pump Sets and Smart control panels. The eligibility criteria for availing 5 HP BEE 5 star rated submersible pump set is that the consumer shall be with a sanctioned load of 5 HP only. The eligible beneficiaries shall be provided with 5 HP rated Energy Efficient Pump Sets free of cost with free repair and maintenance service for a period of 5 years from the date of distribution of such Energy Efficient Pump Sets. APEPDCL shall make capital investment in developing the programme, awareness campaign, procurement, distribution and installation, repair and maintenance of Energy Efficient Pump Sets. EESL or its selected agency(ies) supervisory staff shall be responsible for project development, tendering, vendor management, Project Monitoring and Repair & Maintenance (R&M) supervision as per the terms and conditions mentioned in the agreement. EESL shall maintain the inventory of old pump sets and their accessories. Replaced old pump sets and accessories will remain the property of APEPDCL. APEPDCL or its selected agency shall dispose the pump sets in an environmentally benign manner. Petitioner will engage services of third party agencies such as EESL or any other third party for physical verification. The third party monitoring agency randomly selects samples of distributed energy efficient pump sets and smart control panels for annual verification and certify the working conditions of the energy efficient pump sets and smart control panels in the system. Petitioner will replace the faulty pump sets and smart control panels for any technical defects (not for broken pump sets) free of cost throughout the project period of 5 years irrespective of the type of fault. The quality of Energy Efficient Pump Sets shall be ensured as per the applicable specifications by EESL or a third party agency from NABL accredited laboratory(ies) for testing of the pump sets supplied under this project as per the applicable rules and Acts.

4. Cost of each 5HP submersible pump set along with smart control panel is Rs. 37,676/- (base price). The project cost is around Rs. 157.20 crs and the details are furnished below:

Particulars		**Amount Rs. crs**
Number of Submersible pump sets	35000	
Total cost of EEPS with smart control panel with 5 years maintenance	37676	131.87
EEPS installation cost @ Rs. 4600/ unit		16.10
Cost for awareness & Distribution (Inclusive of call centre agency & software agency)		2.63
EESL PMC charges over 5 years	5%	6.59
Total Project Cost		**157.20**

5. The capital investment required for implementation of the agricultural DSM project will be met by the petitioner. The project cost is based on expected distribution of 35,000 BEE 5 star rated 5 HP submersible pump sets and Smart Control Panels. In case actual distribution varies the project cost will also change accordingly. The above cost is being discovered by EESL through open competitive bidding for the said project and the petitioner has considered the same for implementation of the project.

6. In the petition, APEPDCL mentioned that the energy savings will be around 209.9 MU per annum, resulting in reduction in power procurement cost of Rs. 87 crs per annum. Whereas, in the project report prepared by EESL as part of the agreement, it was mentioned that energy savings would be around 113.12 MU and the corresponding savings in power purchase cost (assuming at Rs. 4/- per kW) would be Rs. 45.24 crs.

7. In the detailed project report, the petitioner furnished data pertaining to supply voltages and power consumption etc.,. A 5HP motor consumes 7.06 HP (5.3 kW) power. Out of 91 numbers pump sets, 48 pump sets are consuming in the range between 7.16 HP (5.37 kW) to 15.5 HP (11.71 kW). Only 43 pump sets are consuming power from 3.66 HP (2.75 kW) to 7.06 HP (5.3 kW), which indicates that these pump sets are of 5HP capacity and are authorised. The voltage profile mentioned in the Detailed Project Report (DPR) indicates that

only 11% of consumers are getting proper voltages i.e, between 400 V to 415 V. The sample data indicates that the anticipated savings may not be realized, since the connected load of more than 50% consumers is over and above 5 HP.

8. Copy of the agreement between the parties dated 25-02-2017 for Providing Project Management Consultancy (PMC) for implementation of Agricultural Demand Side Management (AgDSM) project contained the details of project implementation.

9. As there was no named respondent and as the matter involved general public interest, a public notice was given through the website of the Commission on 17-03-2017 inviting views/suggestions/objections of all the stakeholders and a public hearing was held on 15-04-2017.

10. Sri M. Thimma Reddy, Convener, Peoples' Monitoring Group on Electricity Regulation, while accepting that the proposed replacement of old inefficient pump sets with star rated EEPS will lead to energy savings, stated that the information provided by the APEPDCL in the petition as well as documents annexed to the petition is inconsistent and contradictory (as mentioned in para 6 above). The objector also took an objection on the discrepancy in quantifying the benefits at Rs. 45 crs in DPR as against the benefits mentioned in the petition at Rs. 87 crs. To arrive at annual consumption, the petitioner has considered 270 days against the usual practice of about 200 days for two crops in a year. The number of hours of operation of the pump sets has a bearing on the total power saved under the proposed DSM programme. Cost of the project can be brought down as the pump sets along with the control panel are going to be procured in large scale. PMC charges should be reexamined. Installation cost of Rs. 4600/- per pump set needs to be brought down. Scrap value of the old pump sets needs to be deducted from the project cost and old pump sets need to be scraped and disposed of properly, so that old pump sets do not re-enter the market. Ensuring quality power supply is an important parameter for success of this type of energy efficiency programmes. Impact of operation conditions and audit as per averaged value over a season are better base lines. Nothing was mentioned about learning from the pilot project conducted in Rajanagaram where 944 pump sets were replaced with 5 star EEPS. The DPR only talks about observing 30% of the savings. The programme design, as projected in the petition is devoid of various details referred to by the objector due to which a comprehensive programme evaluation is not possible.

11. Sri M. Venugopala Rao, Senior Journalist & Convenor, Centre for Power Studies, Hyderabad, stated that the issue of bearing expenditure is to be examined and should not be passed on to consumers. The Government of Andhra Pradesh has to bear the expenditure, since the financial benefits would result in reduction of subsidy burden of the State Government.

12. Sri K. Hari Kishore Kumar Reddy and Sri CH. Veneugopala Rao, of Bharatiya Kissan Sangh, stated that the agricultural consumers are now using ISI pump sets. Earlier, the DISCOMs have implemented energy efficiency programmes like replacement of pump sets with star rated pump sets, replacement of normal fans with 5 star rated fans and replacement of bulbs with LED bulbs. In these schemes, it was mentioned that the investment made would be paid back with the accrued amount from energy savings. But the Commission allowed an amount of Rs. 139.91 crs in the tariff order FY2017-18 towards implementation of the above energy efficiency programmes. At present, we have lot of surplus power and there will not be any financial benefit, if this type of energy efficiency scheme is implemented. They submitted not to approve the scheme.

13. Sri G. Muniratnam, Sri Ajanthy Foods, stated that consumers are using pump sets with the ISI marks. The state is having surplus power and there is no need for power saving. The power utilities are running under losses. The expenditure involved is very high and there is no return on investment as the DISCOMs have surplus power. The tariffs have to be increased to cover the losses due to implementation of this scheme. Replacement of old motor with new motor involves both manual labour and skilled mechanic and it is very difficult to ensure that the new motor is installed in place of old motor at a depth of 200 to 400 feet. Old motors have to be scraped which are working in good condition and this is not a good sign when 70% of people are below poverty line. He requested to not approve the project.

14. Sri A Punna Rao, Convenor, Praja Energy Audit Cell in the papers sent to the Commission referred to the possibility of saving 2500 MU of power, if Demand Side Management is adapted. He suggested that fixing of capacitors should be insisted first and then installation of ISI pump sets should be taken up as a second step.

15. In reply to the comments made by the objectors, the petitioner submitted the following replies:

i) With reference to the discrepancy in energy savings of Rs. 87 crs mentioned in the

petition versus energy savings of Rs. 45.24 crs mentioned in DPR, the petitioner stated that it was typographical error and the amount of Rs. 45.24 crs is correct figure.

ii) With regard to objection about 30% efficiency of old pump sets versus 50% (49.71%) efficiency of Energy Efficient Pump Sets, the petitioner claimed that the calculations are correct. The EEPS pump set is 20% more efficient than old pump set, and this 20% more efficiency of EEPS pump set is getting translated to 40% savings in terms of energy. Thus, based on operating conditions of the pump sets, 30% overall savings in energy was considered.

iii) With regard to objection on number of usage days, the petitioner submitted that 270 days is reasonable.

iv) With regard to project cost of Rs. 157.2 crs, petitioner stated that the project cost was arrived by EESL through national level competitive bidding. The PMC charges were arrived based on man power cost, administrative expenses and scope of work involved.

v) In response to query on Smart Control Panel, the petitioner mentioned that it has various features like remote operation control, measurement of actual power consumption, hours of operation and single phase protection. The supplier is also responsible for 5 year repair and maintenance of the pump set along with Smart Control Panel.

vi) In response to query on ensuring 30% of energy savings by replacing old pump sets with EEPS, petitioner claimed that 31% energy savings was achieved in the pilot project implemented at Rajanagaram.

16. The petitioner did not give any specific written reply to the objections of Sri K. Hari Kishore Kumar Reddy, Sri Ch. Venugopla Rao, Sri M. Venugopala Rao and Sri G. Muniratham and the representations are forwarded to APEPDCL for taking appropriate action considering the merits of the suggestions. The petitioner is being directed to look into the issues mentioned by the objectors and take appropriate corrective measures to improve the operational efficiency in the larger interest of public. Sri Shasi Kanth, Deputy General Manager of EESL spoke in support of the scheme and about the role played by EESL.

17. The point for consideration is whether the request for approval of the project has to be positively considered and if so, subject to what terms and conditions in public interest?

18. The Commission studied the Detailed Project Report (DPR) and the petition & noticed the following issues:

I. The basis for arriving at the Project Management Consultancy (PMC) charges considered @ 5% of EEPS cost is not mentioned.

II. The basis for arriving at the installation cost @ Rs. 4600/pump set is not mentioned.

III. In the detailed project report, the petitioner furnished data pertaining to supply voltages and power consumption etc. A 5 HP motor consumes 7.06 HP (5.3 kW) power. Out of 91 numbers pump sets, 48 pump sets are consuming in the range between 7.16 HP (5.37 kW) to 15.5 HP (11.71 kW). Only 43 pump sets are consuming power in the range of 3.66 HP (2.75 kW) to 7.06 HP (5.3 kW), which indicates that these pump sets are of 5 HP capacity and are authorized.

The pump sets that are consuming in the range of 8 HP (6 kW) to 15.5 HP (11.71 kW) are 31 in number and pump sets that are consuming between 7.06 HP (5.3 kW) to 8 HP (6 kW) are 17 in number. Pump sets that are consuming between 3.66 HP (2.75) kW to 7.02 HP (5.27 kW) are 43 in number.

IV. In the DPR, the average capacity of old pump sets considered is 7.61 HP (5.71 kW). Since, the connected load of more than 50% consumers is between 8 HP to 15.5HP, the anticipated savings may not be realized as estimated in the DPR. If, higher capacity consuming pump sets which are in the range of 8 HP (6 kW) to 15.5 HP (11.71 kW) are replaced with 5 HP Energy Efficient Pump Sets, Energy Efficient Pump Sets may not work and may burn out.

V. The voltage profile mentioned in the Detailed Project Report (DPR) indicates that only 11% of consumers are getting proper voltages i.e, between 400 V to 415 V. If, EEPS are installed at such locations where voltage profile is poor, Energy Efficient Pump Sets will burn out.

VI. While replacing the old pump sets with new Energy Efficient Pump Sets, along with smart control panel, APEPDCL has to ensure both in letter and spirit that

the existing old pump set capacity is 5 HP only. APEPDCL also has to ensure proper voltages at the consumer end before replacing the old pump sets with Energy Efficient Pump Sets.

19. The petitioner and the EESL shall have to comprehensively re-assess the installation charges stated at Rs. 4600 per pump set, the basis for arriving at 5% PMC charges on procurement cost of Energy Efficient Pump Sets and the cost for spreading awareness and of distribution.

20. Since, the pump sets proposed to be replaced are submersible pump sets, APEPDCL shall ensure that the old pump sets are replaced with Energy Efficient Pump Sets. The officer entrusted with such duty by the petitioner and the consumer shall jointly certify stating that the old pump set is replaced with EEPS and if it is found that the EEPS does not exist in the bore well at any point of time during the 5 years warranty period, APEPDCL shall have to initiate appropriate disciplinary enquiry against the concerned officer /and /or appropriate civil and/or criminal action against the consumer after conducting a preliminarily enquiry into the responsibility of the consumer and/or the officer.

21. APEPDCL shall ensure Repair and Maintenance of defective or burnt EEPS including smart control panel within two days from the date of failure. In case of any delay in execution of repair and maintenance beyond the stipulated time of two days, APEPDCL shall impose a penalty as agreed under the terms and conditions of supply of EEPS and Smart Control Panel.

22. The petitioner can be accordingly permitted to implement the Agricultural Demand Side Management (AgDSM) Project keeping in view during the implementation of the project, the issues mentioned hereinbefore to achieve the anticipated energy savings and corresponding financial benefits and avoid any irregularities in implementation.

23. The petitioner can also be asked submit a quarterly performance report on the implementation and working of the project, more particularly about the actual energy savings and cost benefit analysis through a third party agency.

24. Accordingly,-

a) the petitioner is permitted to implement the Agricultural Demand Side Management project making the required capital investment and executing the project in accordance with the Agricultural Demand Side Management agreement

dated 25-02-2017 between the petitioner and EESL, subject to the Terms and Conditions stated hereinafter;

b) the petitioner and EESL have to comprehensively re-assess and arrive at reasonable and acceptable installation cost per unit (per pump set), cost of awareness and distribution and PMC charges for 5 years and report to the Commission within 2 months from the date of this order, the reasonable amounts arrived at between the parties together or at different quantum by them under these three heads and obtain the approval of the Commission for finanlising such installation cost, cost of awareness and distribution and PMC charges as considered just and reasonable by the Commission, while the execution of this project shall be taken up and proceeded forthwith even in the meanwhile;

c) the petitioner shall ensure that the capacity of the existing pump set is 5 HP only and that the service connection has a proper voltage before replacing the existing pump sets with new Energy Efficient Pump Sets;

d) the petitioner shall ensure supply of power at proper voltage before replacing the existing pump set with a new energy efficient pump set, if the voltage profile of the service connection is poor before such replacement;

e) the officer of the petitioner entrusted with the duty by the petitioner and the beneficiary consumer shall, at the time of replacement, certify jointly that the old pump set was replaced with an energy efficient pump set. If an inspection at any time during the period of warranty of 5 years is carried out and if such energy efficient pump set were to be found absent in that service connection, the petitioner shall cause a preliminary enquiry into the responsibility of the consumer and/or the officer and initiate an appropriate criminal and / or civil action against the consumer and /or an appropriate disciplinary enquiry against the officer;

f) the petitioner shall ensure repair and maintenance of the energy efficient pump sets including the smart control panel within two days from the date of noticing the defect or failure of the pump set and in default the petitioner shall recover agreed penalty as stipulated under the Terms and Conditions of supply of the pump set, except if the petitioner is satisfied that any delay beyond two days is for reasons beyond the control of the person responsible for repair and maintenance;

g) the petitioner shall submit a quarterly performance and compliance report on the implementation of the project, more particularly about the quantum of actual energy savings and the cost benefit analysis done through a 3rd party, the first such report becoming due by 1st August 2017;

h) the petitioner shall cause the consumption of energy per feeder per month recorded for the feeders under which it is proposing to replace the old pump sets with energy efficient pump sets in execution of this order from the date of communication of this order till such replacement to provide a verifiable basis for assessment of the actual energy savings

i) the petitioner shall examine the issues raised and concerns expressed by the objectors and expeditiously take appropriate corrective measures in public interest and in the interest of the power sector in the state and communicate the action taken to the Commission from time to time;

and

j) the petitioner shall bear his own costs.

This order is corrected and signed on this 29th day of April, 2017.

Sd/-	Sd/-	Sd/-
P. Rama Mohan	**Dr. P. Raghu**	**Justice G. Bhavani Prasad**
Member	Member	Chairman