TAMIL NADU ELECTRICITY REGULATORY COMMISSION
(Constituted under section 82 (1) of the Electricity Act, 2003)
(Central Act 36 of 2003)

PRESENT:-

Thiru S.Akshayakumar …. Chairman

Thiru.G.Rajagopal …. Member

and

Dr.T.Prabhakara Rao …. Member

P.P.A.P.No.6 of 2015

The Salem Co-operative Sugar Mills Ltd.
Represented by its Managing Director
Tmt. R.Priya
Pettapalayam
Mohanur – 637 015
Namakkal District

… Petitioner
(Thiru R.Bala Ramesh
Counsel for the Petitioner)

Vs.

Tamil Nadu Electricity Board / TANGEDCO
Represented by its Chairman
No.144, Annasalai
Chennai – 600 002.

… Respondent
(Tmt.R.Varalakshmi
Standing Counsel for TANGEDCO)

Dates of hearing: 05-10-2015, 11-02-2016 and 25-04-2016

Date of Order: 28-06-2016

The P.P.A.P.No.6 of 2015 came up for final hearing on 25-04-2016. The Commission upon perusal of the Petition, Counter affidavit filed by the Respondent and all other connected records and after hearing the arguments of both sides hereby makes the following:

ORDER

1. Prayer of the Petitioner in the above P.P.A.P.No.6 of 2015:-

The prayer of the Petitioner in the above P.P.A.P. No.6 of 2015 is to-

(a) fix a sum of Rs.5.32 per unit as tariff for the power exported by the Petitioner Sugar Mills to the Respondent for season by using bagasse as fuel.

(b) fix a sum of Rs.9.24 per unit as tariff for the power exported by the Petitioner Sugar Mills to the Respondent for non-crushing period by using coal as fuel.

2. Contentions of the Petitioner in the Affidavit filed in the above P.P.A.P.No.6 of 2015:-

2.1. The Government of Tamil Nadu vide G.O.Ms.No.24, Industries (MIC-1) Department, dated 26-02-2008 ordered for establishment of bagasse based Co-Generation plants in all the 10 Co-operative and 2 Public sector Sugar Mills through TANGEDCO. In continuation to the aforesaid G.O MS No:24 Industries (MIC-1) Department dated 26.02.2008, the petitioner and the Respondent herein had entered into an agreement dated 11.04.2011 namely Project Development Agreement for the purpose of erecting Co-generation power plant in the premises of the petitioner Sugar mill.

2.2. The Co-generation projects are being implemented in 10 Co-operatives and 2 Public sector Sugar mills for a total capacity of 183 MW. As per the aforesaid G.O, Sugar mills have leased the co-gen site for 10 years with moratorium period of 3 years to TANGEDCO so as to enable TANGEDCO to get the loan from financial institutions by mortgaging the land. TANGEDCO after detailed study decided to install multi fuel boiler so as to operate the co-gen plant even during off-season using coal to make the project viable. The present power tariff for coal based power is far less than the cost of production.

2.3. Another agreement dated 27-08-2010 has been entered between the Petitioner mill and the TANGEDCO namely Land Lease Agreement for the purpose of erecting co-generation plant in the premises of the Petitioner Sugar Mill, wherein the TANGEDCO had agreed to pay the lease amount to the Petitioner mill. In terms of the above agreement, the TANGEDCO will hand over the plant after completion of erection and commissioning to Sugar mill and the Sugar mill has to run the power plant.

2.4. Further, in terms of the above agreement the petitioner Sugar mill will supply the entire bagasse generated from the Sugar mill to Co-gen plant during the crushing season for the purpose of operating the Co-generation plant and agree to export the surplus power to the Respondent/TANGEDCO. TANGEDCO will remit EMI to the financial institutions and reimburse the O&M and other charges to the mill from the revenue realized from the cost of power exported to them. After full debt servicing for the loan taken, the asset will be transferred to the Sugar mill at a depreciated cost by TANGEDCO.

2.5. The project erection works are likely to be completed by the EPC contractor. As per the said G.O., Sugar mill has to operate the plant. The operating cost will be borne by TANGEDCO from its Co-gen facility account. Only if affordable power tariff is given by TANGEDCO, both for bagasse based and coal based power, the co-generation facility will have funds to remit EMI to the financial institutions and to reimburse the O & M charges etc. to the Sugar Mill.

2.6. Therefore the petitioner herein through the Principal Secretary/ Commissioner of Sugar who is the functional Registrar of the Sugar mills had sent a communication calling upon TANGEDCO to fix the tariff cost from the Commission by letter RC.No 6710/P&P/2007 dated 29.06.2011 by filing necessary application before the Commission. But they have sent a reply vide D.O letter Rc.No.CE/ NCES/EE/Cogen/AEE3/F.Cogen projects/D.No167/11, dated 22.07.2011 stating that petitions will be filed with the Commission for approval of off-season tariff.

2.7. Since no such petition has been filed by the TANGEDCO, the petitioner prefer the present P.P.A.P. duly enclosing the cost of production of power by using bagasse as fuel in the power plant during the crushing period and also enclosing the cost of production of power by using coal as fuel in the power plant during non-crushing period.

2.8. On 09-06-2014, the Director of Sugar and Functional Registrar of the Co-operative Sugar Mills had addressed a letter to the Principal Secretary to Government, Industries Department requesting to intervene for fixing of affordable power tariff payable to sugar mill for the export of power during the crushing season and off-season by TANEDCO for viability of projects, wherein it has been requested the Government to sort out various issues including power tariff fixation.

2.9. As a by-product, the Petitioner sugar mill is generating power in its cogeneration power plant. It is in the scheme of cogeneration that when the sugar factory carries on crushing operations, surplus power is generated after meeting the power requirement of the sugar factory and the captive power requirements of the co-gen plant which is fed into State grid / TANGEDCO.

2.10. The object of establishing co-generation plant in the premises of the Sugar mill is only to improve the financial status of the Sugar mill to enable to develop the Sugar mill to make payment to the cane growers and also to meet the power shortage prevailing in the State and to assist the TANGEDCO.

2.11. The Petitioner Sugar mill is Agro based industry and it has to make payments for the farmers who are all sugar cane growers supplying sugar cane to the Mill and if the tariff prayed for herein is not fixed, then the Petitioner Sugar mill will be put into heavy loss and then it will lead to the non-payment of cane price to the sugar cane growers.

3. Contentions of the TANGEDCO in the Common Counter Affidavit filed on 03-03-2016:-

3.1. The Government of Tamil Nadu vide G.O.No.24 dated 26.02.2008 directed TNEB to take steps for establishment of co-generation facilities in Co-operative and Public Sector Sugar Mills in joint venture in consultation with Commissioner of Sugars by raising loans from PFC, New Delhi for a term of 13 years with 3 years moratorium period up to 80-90% of project finance, 10% contribution by Sugar Mills and balance fund if required by Government as equity participation for a total capacity of 183 MW. In continuation to the aforesaid G.O., the Petitioner Co-operative Sugar Mill and Respondent / TNEB had entered into an Project

Development Agreement dated 11.04.2011 for the purpose of erecting Co-generation power plant in the premises of the petitioner sugar mill.

3.2. The Co-generation projects are being implemented in 10 Co-operative and 2 Public sector Sugar mills for a total capacity of 183 MW. As per aforesaid G.O, Sugar mills have leased the Co-gen site for 10 years with moratorium period of 3 years to TANGEDCO so as to enable TANGEDCO to get the loan from financial institutions by mortgaging the land. TANGEDCO after detailed study decided to install multi fuel boiler so as to operate the Co-gen plant even during off-season using coal to make the project viable.

3.3. In terms of the above agreement, TANGEDCO will hand over the plant after completion of erection and commissioning to sugar mills and the sugar mills have to run the plant. The sugar mill will supply the entire bagasse generated from the sugar mills to their co-generation plants during the crushing season for the purpose of operating the co-generation plant and agreed to export the surplus power to the Respondent/TANGEDCO.

3.4. Further in terms of the agreement, TANGEDCO will remit EMI to the financial institutions and reimburse the O & M and other charges to the mills. After full debt servicing for the loan taken the asset will be transferred to sugar mill at a depreciated cost by TANGEDCO.

3.5. The project erection works are likely to be completed by the EPC contractor. As per the aforesaid G.O. sugar mill has to operate the plant. The operating cost will be borne by TANGEDCO from its co-generation facility account. The TANGEDCO has taken up works for establishment of 12 Co-generation Plants in Co-operative and Public Sector Sugar mills along with Sugar mill Modernization in Tamil Nadu at a total Cost of Rs.1,241.15 Crores. The PFC has sanctioned an amount of Rs.827.75 crores towards financial assistance for 12 Nos. of Cogeneration projects on 19.04.2010 for total estimated cost of Rs.1034.69 crores.

3.6. An open tender under two part system vide specification No.SE/NCES/OT No.04/2008-09 has been called for setting up of the cogeneration plants in the existing 17 Nos. Co-operative & Public Sector Sugar Mills along with sugar mill modernization in Tamil Nadu with the total capacity of 234 MW on 28-01-2009. The open tender was called for preparation of feasibility report including DPR and M/s.Mitcon was awarded the work based on the conditions of tender specification.

3.7. The Commission issued Tariff Order No.7 of 2012 applicable for purchase of power by the Distribution Licensee from Bagasse based co-generation plants. In the said generic tariff order, the commission has adopted cost plus tariff approach methodology and Two part tariff is adopted. As per the said Order No.7 of 2012, the power purchase tariff for the year 2012-2013 is Rs.3.76/unit.

3.8. The various tariff components considered in Order No.7 of 2012 are as follows:

Sl. No.	Tariff Components	As per TNERC Order No.7 of 2012
1	Capital Investment	Rs.4.20 Crores / MW
2	Plant Load Factor (PLF)	55%
3	Debt Equity Ratio	70:30
4	Term of Loan	10 years with one year moratorium
5	Interest on Loan per annum	12.25% p.a.

6	Return on equity (RoE)	19.85 (pre-tax)
7	Life of plant	20 years
8	Depreciation on 85% capital investment	4.5% p.a on SLM on 85% of capital cost
9	O & M Charges for Machinery on 85% of Capital Investment	3% with escalation of 5% from 2nd year on 100% of capital cost
10	O&M Charges for Land and civil work on 15% of capital investment Insurance charges machinery on 85% investment for capital	
11	Insurance charges for machinery on 85% capital investment	
12	Station Heat Rate	3700 Kcal / KHWH
13	Calorific value of fuel	2300 Kcal / Kg
14	Specific fuel consumption	1.61 Kg / KWH
15	Fuel cost (Rs./MT) with 5% escalation from 2nd year onwards	Rs.1050 / M.T.
16	Working Capital Components	Fuel Stock – one month, O & M – one month and receivable – one month
17	Interest on Working Capital	12.5% p.a.
18	Auxiliary consumption	9%

3.9. The Commission has issued Consultative Paper on "Comprehensive Tariff Order for Bagasse based Co-generation plants" inviting comments/suggestions on or before 27.10.2014. In the above consultative paper power purchase tariff of Rs.4.74 per unit for the year 2014-15 and Rs.4.90 per unit for the year 2015-16 has been suggested. On issuance of final tariff order by the Commission and on implementation of the same by the TANGEDCO, the same tariff may be made applicable to Co-generation projects being implemented in 10 Co-operative and 2 Public sector Sugar mills for a total capacity of 183 MW. The above tariff may be made applicable for the power generated up to 55% annual PLF.

3.10. It has been decided to use imported coal as fuel for power generation during non-crushing season in order to make the project commercially viable. In such case annual variable charges of fuel cost alone has to be recovered. Any generation beyond the normative PLF of 55% does not warrant payment of fixed charges because annual fixed charges or the capital cost recovery is achieved at the normative PLF of 55%. In view of the above, the tariff determined based on calorific value and cost of the coal used in the power plant may be adopted for the power generated over and above 55% annual PLF. Under the circumstances stated above, it is prayed that the Commission may be pleased to-

(a) permit the TANGEDCO to adopt the generic tariff applicable for bagasse based co-generation plants as fixed by the Commission from time to time for the power generated upto 55% annual PLF from the Petitioner's power plant.

(b) adopt the tariff determined on calorific value and cost of coal used in the power plant for the power generated over and above 55% annual PLF from the Petitioner's power plant.

4. Findings of the Commission:-

4.1 The Prayer of the Petitioner in the above P.P.A.P. is to

a) fix a sum of Rs.5.32 per unit as tariff for the power exported by the Petitioner Sugar Mills to the Respondent for crushing season by using bagasse as fuel.

b) Fix a sum of Rs.9.24 per unit as tariff for the power exported by the Petitioner Sugar Mills to the Respondent for non-crushing season by using coal as fuel.

Before going into the prayers of the Petitioner, the Commission desires to see the plan of the establishment of the bagasse based Co-generation plants in all the 10 Co-operative and 2 Public Sector Sugar Mills through TANGEDCO.

4.2. It is seen from the averments stated by the Petitioner, the Co-generation Plant was not established by the Sugar Mill. The Government of Tamil Nadu vide G.O. Ms. No.24, Industries (MIC-1) Department, dated 26-02-2008 ordered for establishment of bagasse based Co-generation plants in all the 10 Co-operative and 2 Public Sector Sugar Mills through TANGEDCO. In continuation to the aforesaid G.O. Ms. No.24 Industries (MIC-1) Department dated 26-02-2008, the Petitioner and the Respondent herein had entered into an agreement dated 11-04-2011 namely Project Development Agreement for the purpose of erection of Co-generation power plant in the premises including that of the Petitioner Sugar Mill. As per the aforesaid G.O. Sugar mills have leased their co-gen site for 10 years with moratorium period of 3 years to TANGEDCO so as to enable TANGEDCO to get the loan from financial institutions by mortgaging the land. It is stated that TANGEDCO after detailed study decided to install multi fuel boiler so as to operate the co-gen plant even during off-season using coal to make the project viable. It is seen that another agreement dated 27-08-2010 has been entered between the Petitioner Sugar mill and the TANGEDCO namely Land Lease Agreement for the purpose of erecting a co-generating plant in the premises of the Petitioner Sugar Mill, wherein the TANGEDCO had agreed to pay the lease amount to the Petitioner Sugar mill. In terms of the above agreement, the TANGEDCO will hand over the plant after completion of erection and commissioning to Sugar mill and the Sugar mill has to run the power plant.

4.3. It is stated that in terms of the above agreement the petitioner Sugar Mill will supply the entire bagasse generated from the Sugar mill to co-gen plant during the crushing season for the purpose of operating the co-gen plant and agrees to export the surplus power to the TANGEDCO.

4.4. It is seen that they have entered into a mechanism that TANGEDCO to remit the EMI to the financial institutions and reimburse the O & M and other charges to the mill from the revenue realized from the cost of power exported to them. Further, it is stated that after full debt servicing for the loan taken, the asset will be transferred to the Sugar mill at a depreciated cost by TANGEDCO. As per the above G.O., the respective Sugar mill has to operate the plant but the operating cost will be borne by TANGEDCO from its co-gen facility account.

4.5. It is also stated that the object of establishing the co-gen plant in the premises of the Sugar mill is only to improve the financial status of the Sugar mill to enable it to make payment to the cane growers and also to meet the power shortage prevailing in the State and to assist the TANGEDCO.

4.6. TANGEDECO in its common Counter Affidavit has stated that the Government of Tamil Nadu vide G.O. No.24 dated 26-02-2008 directed TNEB to take steps for establishment of co-generation facilities in Co-operative and Public Sector Sugar Mills in Joint Venture in consultation with the Commissioner of Sugars by raising loans from PFC, New Delhi for a term of 13 years with 3 years moratorium period up to 80-90% of project finance, 10% contribution by Sugar Mills and balance fund if required by Government as equity participation for a total capacity of 183 MW.

4.7. TANGEDCO has further stated that it has taken up works for establishment of 12 Co-gen plants in Co-operative and Public Sector Sugar mills along with Sugar mill Modernization in Tamil Nadu at a total cost of Rs.1241.15 Crores and PFC has sanctioned an amount of Rs.827.75 crores towards financial assistance for 12 Nos. of Co-gen projects on 19-4-2010 for a total estimated cost of Rs.1034.69 crores.

4.8. TANGEDCO in its counter has requested that the tariff issued in the tariff order in respect of bagasse based co-generation plant may be extended to this co-gen plant also.

4.9. With the above scenario let us analyse the issues involved in setting the tariff.

4.9.1. In respect of New and Renewable Energy, the Commission is regularly issuing the Generic Tariff Order from 2006 onwards. For wind, bagasse based co-generating plants, biomass based power plant and solar, Commission adopts a Control Period and issues orders after floating Consultative Paper and after receiving comments from the Stakeholders and after consulting the State Advisory Committee. In respect of bagasse based co-generation plants Commission issued Tariff Order No.4 of 2016, dated 31-03-2016 effective from 01-04-2016 with a control period of 2 years.

4.9.2. The commissioning of co-gen plant in the existing Co-operative and Public Sector Sugar mill including that of the petitioner's sugar mills has been initiated by the Government of Tamil Nadu as per G.O.Ms. No. G.O. Ms. No.24 Industries (MIC-1) Department dated 26-02-2008. It is seen from the averments submitted, that TANGEDCO has to construct the project and the O & M expenses and other charges are to be reimbursed to the Sugar mill and the EMIs of the loans drawn are to be paid by TANGEDCO from the facility account. The facility account that will be maintained by TANGEDCO for meeting the above payment obligation is an arrangement made between the parties. Further, it is also mentioned that after repayment of the Debt, the assets of the co-gen plant will be transferred to the Sugar Mill at a depreciated rate is also an arrangement between the parties. The above arrangements were between the parties and Commission has no say on those arrangements.

4.9.3. In respect of usage of fuel, it is stated that during crushing season, the bagasse will be available from the Sugar mill and during non-crushing season the coal will be used as fuel. It has been requested by the Petitioner to fix a separate tariff for crushing season and a separate tariff for non-crushing season.

4.9.4. In this regard, the Commission makes it clear that two separate tariffs for a bagasse based co-gen plant cannot be fixed by the Commission. Commission has already issued Order No.4 of 2016, dated 31-03-2016 and this generic order would be equally applicable to all the bagasse based co-generation power plants in the State subject to the conditions stipulated therein.

4.9.5. Further, it is to be specially noted that in Order No. 4 of 2016, dated 31-03-2016, Commission has clearly mentioned about the fuel mix and it has restricted the usage of fossil fuel to the extent of 15% of total fuel consumption on annual basis to retain its Renewable Energy based Co-generation status. The monitoring mechanism for the use of fossil fuel as stated in the Order No. 4 of 2016 shall apply to this co-gen plant also. The annual PLF of 55% has been fixed as a normative PLF for recovery of fixed cost. Once, the co-gen plant achieves the normative PLF of 55%, the variable cost per unit plus an incentive will be paid to the generation beyond 55% to meet out the additional wear and tear of the plant and machinery and to meet the fuel cost. The variable cost payable by TANGEDCO shall be the variable cost as fixed in the Order No. 4 of 2016, dated 31-03-2016 and as per the Commission's Order from time to time.

4.9.6 If the usage of fossil fuel is above 15%, then the tariff as applicable to a normal generating company as stated in the Order No. 4 of 2006, dated 15-05-2006 shall alone apply.

4.9.7. In the Order No.4 of 2016, dated 31-03-2016, the Commission has determined the tariff (Fixed Cost for 20 years and Variable Cost for 2 years).

4.10. The tariff for the 1st year of Control period FY2016-17 will be Rs.5.58/- per unit (Variable cost Rs.2.76/- per unit plus fixed cost of 1st year Rs.2.82/- per unit). The Variable cost for FY2017-18 will be Rs.2.89/- per unit. This tariff is to be adopted for this co-gen plant.

With the above orders the P.P.A.P. No. 6 of 2015 is disposed of.

5. Appeal:-

An appeal against this order shall lie before the Appellate Tribunal for Electricity under section 111 of the Electricity Act, 2003 within a period of 45 days from the date of receipt of a copy of this order by the aggrieved person.

(Sd ....)	(Sd......)	(Sd........)
(Dr.T.Prabhakara Rao)	**(G.Rajagopal)**	**(S.Akshayakumar)**
Member	**Member**	**Chairman**

/ True Copy /

Secretary
Tamil Nadu Electricity
Regulatory Commission