

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**
and
Thiru.G.Rajagopal **Member**

P.P.A.P.No.9 of 2011

The Chief Engineer / NCES
Tamil Nadu Generation and Distribution
Corporation Limited
144, Anna Salai
Chennai – 600 002.

... Petitioner
(Thiru P.H. Vinod Pandian)
Standing Counsel for the Petitioner)

Vs

1. M/s.Arashi Hi-Tech Bio-Power Ltd., Varaopatti
Village, Palladam (TK), Coimbatore
2. M/s.G.K. Bio Energy Pvt. Ltd., Namakkal
3. M/s.Chennai Metro Development Authority, Chennai
4. M/s.Auromira Energy Ltd., Chennai
5. M/s.Subhashri Bio-Energies Private Limited, Namakkal

....Respondents
(Thiru V.V.Sivakumar, Counsel for the 4th Respondent
Thiru R.S.Pandiyaraj, Counsel for the 5th Respondent)

Dates of hearing : **24-01-2012, 29-05-2012, 20-12-2012**
12-02-2013, 29-01-2014, 25-03-2014
21-04-2014 and 30-12-2015

Date of order :

The above P.P.A.P.No. 9 of 2011 came up for final hearing before the Commission on 30-12-2015. The Commission upon perusing the above petition and the connected records and after hearing both sides passes the following order:-

ORDER**1. Prayer of the Petitioner:-**

The prayer of the Petitioner is to fix power purchase tariff applicable for bio-mass power plants, commissioned based on Power Purchase Agreements entered before 15-05-2006, without considering the interest on loan component for the plants completed 11 years service and without considering the fixed cost for the plants completed 20 years service.

2. Facts of the case:-

TANGEDCO filed P.P.A.No.3 of 2011 with a prayer to fix the tariff applicable for bagasse based co-generation plants commissioned before 15-06-2006 and PPA executed prior to that date, for the period from 01-04-2010. The Commission made an order dated 11-07-2011 in the above P.P.A.P. as follows:-

“The Commission has invited the comments of all stakeholders on determination of new tariff for bagasse based cogeneration. The present case should be covered by Order No.3 dated 15-5-2006 relating to bagasse based co-generators. As a special case, the affected sugar mills are permitted to file their comments upto 31-7-2011, although the deadline of 30-6-2011 fixed by the Commission has expired. The TNEB is also permitted to submit revised comments by 31-7-2011.

The pre 15-5-2006 bio-mass generators also can file their comments by 31-7-2011. The TNEB should submit separate petition for biomass generators and separate petition for bagasse based co-generators.

On the prayer of TNEB contained in para 4 of the petition for fixing tariff for co-generation plants having tie-up with TNPL notice may be issued to TNPL. They may be heard.

The PPAs executed after 10-6-2003 should also be included by the TNEB in the case of bagasse based co-generators”.

Pursuant to the above order of the Commission, TANGEDCO has filed the present P.P.A.No.9 of 2011 with the prayer as stated in para 1 above.

3. Contentions of the Petitioner in the P.P.A.P. and additional Affidavit dated 31-07-2012:-

3.1. At present 22 bio-mass power plants with a combined total capacity of 169 MW, are in service across the State of Tamil Nadu. Out of which, 6 Nos. Bio-mass power plants with a combined total capacity of 13.35 MW, have been commissioned based on Power Purchase Agreements (PPAs) entered prior to 15-05-2006.

3.2. The estimated biomass potential availability in the State is around 800 MW. The bio-mass fuel of all agricultural wastes is used as fuel for power generation. Based on the recommendations of the Tamil Nadu Energy Development Agency (TEDA) and depending upon the district-wise availability of biomass potential, the TANGEDCO process the developer's proposals.

3.3. The power drawn from the grid for start-up purpose is billed under HT Industrial Tariff I rate. The power drawn from the grid for maintenance, trial run and watering, is billed under HT Commercial Tariff III rate.

3.4. As per permanent B.P. (FB) No.59, dated 11-04-2000, power purchase tariff applicable for bio-mass power plants was fixed at the rate of Rs.2.73 per unit for the

year 2000-2001 with 5% annual escalation for the period of nine years upto 2010. The price so fixed shall not exceed 90% of the prevailing HT Industrial Tariff 1A which may get revised from time to time. On attaining 90% of the HT Industrial Tariff rate (Rs.3.50 per unit), the power purchase price was pegged at Rs.3.15 per unit in the year 2003-2004 and is being continued. 2% power exported has been deducted towards the line losses.

3.5. Six (6) Nos. bio-mass power plants with a total capacity of 13.35 MW, have been commissioned based on Power Purchase Agreements entered prior to 15-05-2006. The power purchase tariff applicable for bio-mass based power plants for further period from 01-04-2010 is to be fixed. In B.P. No.59, dated 11-04-2000, it has been indicated that till review on power purchase tariff is made and new rate is finalized, the tenth year rate will be continued to be paid if the power generator company continue to supply its surplus power to TNEB. Hence, the power purchase tariff prevailed in the year 2009-10, is being adopted.

3.6. In Order No.2 of 2009, the interest on loan has been considered for the period of 11 years. The fixed cost has been worked out for the period of 20 years.

3.7. M/s.Arashi Hi-Tech Bio-Power Ltd., the Respondent (1) herein having 1.6 MW Bio-mass power plant Varapatti Village, Palladam Taluk, Coimbatore District have frequently stopped their power generation during 2010-12 and also keeping their plant at reduced generation has entered into Power Purchase Agreement on 28-10-2004 with the TANGEDCO for supply of power to TANGEDCO. The validity of agreement period is 15 years. The company has stated that the power purchase tariff of Rs.3.15 per unit now offered by the TANGEDCO is not affordable for them.

3.8. M/s.G.K. Bio-Energy Pvt. Ltd., the Respondent (2) herein has commissioned their 1.5 MW Bio-mass power plant at Namakkal on 03-03-2005. They have entered into Power Purchase Agreement with the Superintending Engineer / Namakkal EDC for supplying power to TNEB now TANGEDCO. The above said power plant has stopped power generation from 08/11/2005. The company has stated that the power purchase tariff of Rs.3.15 per unit now offered by the TANGEDCO is not affordable for them.

3.9. M/s. Chennai Metro Development Authority, the Respondent (3) herein has established 0.250 MW Bio-methanation power plant at Koyambadu Vegetable Market Complex, Koyambadu, Chennai and commissioned on 04-09-2005. The power plant has stopped its generation from 12/2008. The company has entered into Energy Wheeling Agreement for wheeling the power generated against consumption on HT SC No.1686 of Chennai EDC West.

3.10. M/s.Auromira Energy Limited, the Respondent (4) herein has established 7.5 MW Bio-mass power plant at Thiruvengaivasal Village, Kulathur Taluk, Pudukkottai District and the same has been commissioned on 22-03-2006. The company has entered into Power Purchase Agreement with the TNEB (now TANGEDCO) on 17-05-2004 for supply of power to TANGEDCO. The power purchase tariff applicable for the above referred power plant is Rs.3.15 per unit. The company had been in practice of keeping their power plant in operation with reduced generation. The company has been requested to maximize the power generation and to supply to the grid. The company has informed that the power purchase tariff of Rs.3.15 per unit is not affordable for them. They also have requested the

TANGEDCO for approval for third party sale of power under short term Intra State Open Access System. In order to utilize the idle capacity of power generation and also to meet out the power crisis, the company has been permitted to supply power to third party users under Short Term Intra State Open Access System. Accordingly, the company has been supplying power to third party users from 07/2011.

3.11. M/s.Subhashri Bio-Energies Private Limited, the Respondent (5) herein has established 2.5 MW Biomass Power Plant at Goundampalayam Village, Tiruchengode Taluk, Namakkal District and has been commissioned on 05-05-2006. The company entered into Power Purchase Agreement with the TNEB (now TANGEDCO) on 25-02-2005 for supply of power to TANGEDCO. The power purchase tariff applicable for the plant is Rs.3.15 per unit. The power plant has stopped power generation from 6/2010. It was informed by the company that the power purchase tariff of Rs.3.15 per unit is not affordable for them.

4. Contention of the Respondent No.5 in their affidavit dated 09-05-2013:-

4.1. M/s.Subhashri Bio-Energies Private Limited, Namakkal have the capacity of producing 2.5. MW (later enhanced to 3.76 MW) of bio-gas electricity from poultry droppings or poultry litter through Bio-methanation process. They have already supplied 47 lakhs units of bio-gas power to Electricity Board grid. This project is a presidential sanctioned demonstration project by Ministry of New and Renewable Energy (MNRE), Government of India. The capacity of the power plant at 67, Goundampalayam, Kumaramangalam P.O. Tiruchengode T.K., Namakkal District-637 205 is 3.76 MW and was commissioned on 05-05-2006. The bio-gas plant provides an effective solution for production of renewable energy. Some of the unique benefits of Respondent's Bio power plant are as follows:-

- a. Power generation from bio-gas through Bio-Methanation process.
- b. Unique adaptation of technology for integrated High Nutrient Organic Fertilizer Production and Organic Farming Practice.
- c. Green House Gas Reductions.
- d. Air and Water Pollution Reduction.

They have entered into PPA with the Superintendent Engineer, Mettur Electricity Distribution Circle which now fall within the jurisdiction of Superintendent Engineer Namakkal Distribution Circle, TANGEDCO (formerly known as TNEB) on 21-02-2005 for supply of surplus power to Tamil Nadu Electricity Board.

4.2. The company in supplying power to the Tamil Nadu Electricity Board till date. The tariff for providing such power is regulated by permanent B.P. (F.B.) No.59 of 2000. As per the Board proceedings, the power purchase tariff is Rs.3.15 per unit with 5% escalation upto 2010, however, not exceeding 90% of industrial tariff, which is as per the PPA and till date the Respondent is receiving the rate only Rs.3.15 per unit. No 5% escalation was also made.

4.3. Their power plant is a Biomenthanation based power plant, in which poultry litter is fermented and biogas is harvested and further processed to generate electricity. This process of production of electricity and its technology is a pioneering initiative by an individual from rural back ground with indigenious resource and is totally different from biomass power plant, which works on rankine cycle.

4.4. When the company entered into the PPA in 2005 both the Bio mass and Bio gas power plants were categorized under the same group of Bio mass power plants by the Tamil Nadu Electricity Board. Hence it entered into PPA applicable for

Biomass power plant, even though the cost of generation in the Power Plant (Bio Gas) was more when compared to that of Bio mass Power Plant.

4.5. MNRE has successfully partnered with M/s.Subhashri Bio-Energies Private Limited for the development of "Poultry Based Power and Organic Fertilizer Project" under the demonstration category. MNRE wrote a letter dated 30-03-2010 addressed to TEDA to render help to M/s.Subhashri Bio-Energies Private Limited in solving the issues related to various Departments of State Government of Tamil Nadu. In spite of several hardships, they have achieved considerably which are as follows:-

- a. First Innovative, Indigenous adaptation of technology for 3.76 MW Green Power and High Nutrient.
- b. First Technology for fermented organic manure.
- c. The project is one among the 11 projects in the world, UNDP approved for sustainable development.
- d. Project has been approved as Clean Development Mechanism (CDM) by UN.
- e. Prevents global warming by 55,000 M.T. of CO₂ per year.

4.6. The purchase power tariff fixed as per B.P. (F.B.) No.59/2000 has expired on 31-03-2010. Hence the power tariff is to be fixed by the Commission. The Commission in its order in P.P.A.P.No.6 of 2010 has ordered that separate power purchase tariff to be fixed for Bio gas power plant working. Their cost of generation of electricity from bio gas has been worked out, which comes around 13.09 per unit.

4.7. The Commission may be pleased to fix power purchase tariff for the bio gas project of M/s.Subhashri Bio-Energies Private Limited at Goundampalayam Village, Tiruchengode Taluk, Namakkal District, considering high cost of generation of Rs.13.09 per unit and to give retrospective effect for the power purchase tariff fixed by the Commission from 01-04-2010.

5. Further contentions of the Petitioner in the additional affidavit dated 11-04-2014:-

5.1. The Commission has directed on 29-01-2014 that both the Petitioner TANGEDCO and the Respondent generating companies to furnish the data on cost of generation in respect of bio-mass power plants commissioned based on power purchase agreements entered prior to 15-05-2006.

5.2. The Commission has considered Rs.4.00 crores / MW in Order No.3 of 2006 and Rs.4.87 crores / MW in Tariff Order No.2 of 2009 as capital cost for fixation of power purchase tariff for biomass power plants. At present only 4 Bio mass power plants with the combined total capacity of 5.85 MW of the Respondents (1) (2) (3) and (5) herein are supplying power to TANGEDCO under Long Term Energy Purchase Agreements. The Respondent (4) herein is supplying power to third party users under short term intra state open access system on termination of the PPA. The power plants of the Respondents (1), (2) (3) and (5) herein have been commissioned during the period from 2002–2006 i.e. prior to 15-05-2006 (date of issuance of 1st tariff order by the Commission).

5.3. The Respondents power plants have been commissioned during the four years period from 2002 to 2006. The Commission has considered a capital cost of

Rs.4.00 crores / MW in its Order No.3 of 2006 and a capital cost of Rs.4.87 crores per MW in its Order No.2 of 2009 for fixation of power purchase tariff for bio-mass power plants. There was a rise in capital cost in the three years period from 2006 to 2009. Since the present tariff fixation sought in the petition is not a project specific one, it is appropriate to consider a capital cost of Rs.3 crore per MW for fixation of power purchase tariff for the plants commissioned based on PPAs entered prior to 15-05-2006 i.e. from 2002 to 2006.

5.4. To illustrate, taking into consideration of the capital cost of Rs.3 crore / MW for the plants commissioned on 21-08-2002 (date of commissioning of 1st Respondent's power plant) the power purchase tariff is arrived as detailed below by adopting the methodology which the Commission had adopted in Order No.8 of 2012 dated 31-07-2012.

Sl. No.	Period	Power Purchase Tariff Per Unit		
		Fixed Cost Rs.Ps.	Variable Cost Rs.Ps.	Total Cost Rs.Ps.
1.	01-04-12 to 20-08-12 (10 th year)	1.335	3.036	4.371
2.	21-08-12 to 31-03-13 (11 th year)	1.303	3.036	4.339
3.	01-04-13 to 20-08-13 (11 th year)	1.303.	3.188	4.491
4.	21-08-13 to 31-03-14 (12 th year)	1.273	3.188	4.461

5.5. M/s.Subhashri Bio-Energies Private Limited has referred to order in P.P.A.P.No.6 of 2010. The Commission has passed an order dated 28-09-2012 in P.P.A.P.No.6 of 2010 filed by M/s. Pallawa Water Works Limited for fixation of tariff for their proposed bio-gas power plants, fixing power purchase tariff of Rs.6.02 per unit for the year 2012-2013 and Rs.6.21 per unit for the year 2013-2014. The above

order was issued subject to the condition that the projects (for which power purchase tariff was fixed in P.P.A.P. No.6 of 2010) shall be commenced within a period spread over six to twelve months of the date of the order and shall enter into commercial operation within a period of two years of their commencement. The above power plant's installation works have not been initiated till date. The above tariff order is project specific one. Since the power purchase tariff fixed in the above tariff order is high, TANGEDCO preferred an Appeal before the APTEL in Appeal No.23 of 2013. The APTEL has passed an order dated 23-04-2013 in the above Appeal with the following directions:-

“The Learned Counsel for the Appellant submits that the entire period of 6 months for commissioning the plant mentioned in the impugned order is already over. In view of the above, the Appeal becomes infructuous”.

5.6. M/s.Subhashri Bio-Energies Private Limited in their counter affidavit, has prayed to fix tariff for their power plant considering the cost of generation of Rs.13.09 per unit. The Respondent has availed capital subsidy of Rs.3 crore per MW and also is fetching additional revenue by selling manure produced in the process of gas production. TANGEDCO could not purchase Bio mass power at the rate nearing Rs.13.09 per unit as prayed by the 5th Respondent, since the average rate of revenue realization of the TANGEDCO is on the lower side of Rs.5.49 per unit for the year 2012-13.

5.7. The Respondents (1), (2), (3) and (5) have entered into PPAs applicable for Bio mass power plants with the TANGEDCO. Apart from that, the 2 Nos. power plants said to be Bio-gas based ones with combined total capacity of 4.4. MW, have entered into Energy Purchase Agreements in the format in line with various TNERC's Tariff Orders applicable for Bio mass power plants, even when they come

under Bio-gas category. While such tariff fixed by the Commission is commercially viable for other generating companies, it could also be commercially viable for M/s.Subhashri Bio-Energies Private Limited also.

5.8. The Commission may take into account the fixed cost component of the power purchase tariff for fixation of power purchase tariff for the Bio-mass plants commissioned based on PPAs entered prior to 15-05-2006.

6. Further contentions of M/s.Subhashri Bio Energies Private Limited in their Written Submission dated 08-02-2016:-

6.1. M/s.Subhashri Bio Energies Pvt. Ltd., a generator of Non-Conventional electricity using biogas, derived from poultry litter has been at hardship to be recognized as a "BIOGAS" power plant by TANGEDCO. Presently in its order dated 19-01-2015 for M.P. No.11 of 2013, the Commission has taken cognizance of this fact and passed orders on the import tariff of the power plant. Subsequently in the present P.P.A.P.No.9 of 2011, rejoinder was submitted by M/s.Subhashri Bio Energies Pvt. Ltd. on 03-04-2014 as a Respondent and counter was submitted by TANGEDCO on 10-04-2014. After hearing the arguments of both parties, the Commission reserved its order suggesting a separate tariff for the biogas based power plant of M/s.Subhasri Bio Energies Pvt. Ltd. effective from 01-04-2010 vide their daily order dated 21-04-2014.

6.2. It is submitted that even it was clearly stated that M/s. Subhashri Bio Energies Pvt. Ltd. is a Poultry litter based Biomethanation Bio-Gas plant, the PPA was signed with TANGEDCO on 21.02.2005 under Biomass category, as TANGEDCO treated biomass and bio-gas under the same group, ignoring the 'Biogas Technology'.

M/s.Subhashri Bio Energies Pvt Ltd had informed TANGEDCO that their power plant is based on Biomethanation of poultry droppings and power generation is through biogas and not biomass, vide their letter dated 04.01.2005, prior to the signing of the PPA. Further the PPA signed with TANGEDCO clearly mentioned that the project is a "BIOMETHANATION PROCESS FROM POULTRY DROPPINGS". Hence the case for ambiguity for TANGEDCO is unfounded, and TANGEDCO, still calling the project as BIOMASS project instead of BIOGAS project is illegal.

6.3. The argument by TANGEDCO, that the 'BIOMASS Tariff which is viable for other Generating Companies, could also be commercially viable for the 'BIOGAS' plant of M/s.Subhashri Bio Energies Private Limited is highly 'UNSCIENTIFIC' & 'ILLOGICAL', in its assessment of technology differentiation of Non-Conventional Energy projects. It is synonym to saying that 'WIND POWER' and 'SOLAR POWER' can have the same tariff. TANGEDCO has clearly over stepped on its guide lines of the Hon'ble Commission for fixation of Non-Conventional tariff, based on technology and project specific parameters.

6.4. The TANGEDCO had recommended to consider a capital cost of Rs.3 crore/ MW for 'BIOMASS' project, for the purpose of tariff determination. The project of the 5th Respondent is a 'BIOGAS' project and not a 'BIOMASS' project, and hence the suggestion is not valid. The Central Electricity Commission in its Regulation on "Terms and Conditions for Tariff Determination from Renewable Energy Sources" has mentioned the normative capital cost for biogas power to be as Rs.11 crore/MW and Rs.8 crore/MW after deducting the capital subsidy Rs.3 crore/MW. In addition, the actual incurred capital cost of this Respondent is

Rs.8.62 Crores after deduction of SUBSIDY. The capital cost of BIOGAS plant is around 2.8 times the capital cost of BIOMASS power.

6.5. This Respondent had submitted the detailed working sheet for the Biogas tariff in its affidavit dated 9th May 2013 and documentary proof of parameters in its Balance sheets vide our letters dated 08-02-2014 and 06.03.2014 to TANGEDCO. In the tariff workings sheet the average tariff over the years is arrived at Rs.9.1/ Kwh of Biogas power, starting with Rs.13.09/kwh in the first year and Rs.5.88/kwh in the 9th Year.

6.6. The Ministry of New & Renewable Energy had requested the Commission that the tariff for Bio mass plants shall be at CERC's normative cost of Rs.7.20 a Kwhr as against the present Rs.4.70 a Kwhr.

6.7. The State Planning Commission interactive session on Clean Power and Enriched Manure with multiple Government Agencies on 12.8.2013 had suggested to extend all possible help to M/s.Subhashri Bio Energies Pvt. Ltd.

6.8. In the petition PPAP No. 9 of 2011 filed by the TANGEDCO, M/s.Subhashri Bioenergies Private Limited, is the only operating biogas power plant, responding to the Petition. Other companies that have not responded are only biomass plants that have mentioned that the tariff was not viable or have gone for third party sales or stopped functioning.

6.9. M/s.Subhashri Bio Energies Pvt Ltd had remitted the entire cost of Rs.17,20,400/- towards 22 KV dedicated feeder with infrastructure facility for

evacuation of power from their plant to TANGEDCO 110 KV Substation at Unjanai Namakkal District, as a good-will gesture and had removed the burden of TANGEDCO in investing in the same. M/s.Subhasri Bio Energies Pvt Ltd had provided all the infrastructures like a 22 KV feeder etc to TANGEDCO 110 KV sub-station from their plant in May 2006 for evacuation of power by TANGEDCO. Fixing of tariff for sale of power shall be on project specific one for Bio gas plant effective from 01.04.2010, as prayed in the hearings held on 29.01.2014, 25.03.2014, 21.04.2014 and 30.12.2015.

6.10. The Commission may fix tariff for M/s.Subhashri Bio Energies Pvt Ltd Bio-methanation based 'Biogas' plant at Rs.9.1 per Kwhr arrived in the tariff workings sheet. (Average tariff over the years is arrived at Rs. 9.1/ Kwh of Biogas power, starting with Rs. 13.09/kwh in the first year and Rs. 5.88/kwh in the 9th Year) and the arrears from 01.04.2010 may be settled.

7. Written Submissions of the TANGEDCO in affidavit dated 26-02-2016:-

7.1. At present only 4 Bio-gas power plants with the combined total capacity of 5.85 MW of the Respondents (1) (2) (3) & (5) herein, commissioned based on agreement entered prior to 15-05-2006 are supplying power to TANGEDCO under Long Term PPAs at the tariff applicable for Bio-mas power plants. The validity period of power purchase agreement is 15 years. As per the terms of the agreement, the power generators are bound to supply of power to TANGEDCO at the rate as per agreement. As per the above agreement, power purchase tariff for the period upto 31-03-2010 has already been fixed. For fixation of tariff for the period from 01-04-2010, this petition has been filed before the Commission and the tariff to be fixed is applicable for the power plants of the Respondents (1) (2) (3) & (5).

7.2. The TANGEDCO is not agreeable for project specific tariff as prayed by M/s.Subhashri Bioenergies Private Limited, the Respondent (5) herein for the following reasons:-

- (a) The Respondents herein have already entered into Power Purchase Agreements agreeing with generic tariff as fixed in Permanent B.P.(FB) No.59 dated 11-04-2000 which is applicable for Bio-mass power plants.
- (b) Fixation of project specific tariff to M/s.Subhashri Bioenergies Private Limited leads other Respondents herein to seek such project specific tariff.
- (c) The Respondents herein have already agreed with the tariff applicable for Bio-mass power plants by entering into Power Purchase Agreement.
- (d) If the Bio-mass power plants commissioned based on agreements entered prior to 15-05-2006 now under Energy Wheeling Agreement opt for Energy Purchase Agreement, the tariff to be fixed by the Commission on disposal of this petition may be made applicable for them.

The Commission may therefore fix generic tariff for the Bio-mass power plants commissioned based on PPA entered prior to 15-05-2006 taking into account of the fixed cost as submitted by the TANGEDCO.

8. Findings of the Commission:-

We have considered the prayer of the petitioner, namely, fixing power purchase tariff applicable for bio-mass power plants, commissioned based on Power Purchase Agreements entered before 15-05-2006, without considering the interest on loan component for the plants completed 11 years of service and without considering the fixed cost for the plants completed 20 years of service.

Even though the prayer of the petitioner is fixation of generic tariff in respect of the five power plants of the respondents, covered under PPAs meant for Biomass category, the 5th respondent M/s. Subhashri Bio-Energies Private Limited has contended that though they have signed the PPA under Biomass category, actually

their power plant falls under Biogas category involving higher cost of generation and therefore a separate tariff is to be determined for them. Hence, the issues to be decided in this petition are two as noted below and they are dealt with separately herein.

Issue No.1:

Fixation of power purchase tariff for Biomass plants commissioned on the basis of PPAs entered before 15.5.2006.

Issue No.2:

Claim of a separate Tariff categorization by the 5th Respondent after signing PPA under a different category.

Before going into the issues it is necessary to understand the background leading to the filing of the present petition. There are 22 Biomass power plants with a combined capacity of 169 MW in Tamil Nadu. Out of which, 6 nos. Biomass power plants with a combined capacity of 13.35 MW have been commissioned based on PPAs entered prior to 15-5-2006. As regards the determination of price for supply of power in respect of the Biomass plants commissioned after 15-05-2006, there is no difficulty as the same is governed by Commission's Order No.3, dated 15-05-2006. In so far as the Biomass power plants which were commissioned before 15-05-2006 are concerned the proceedings which governed the same earlier was BP(FB) No.59, dated 11-4-2000 according to which the power purchase tariff in respect of these categories of plants were Rs.2.73 per unit for the year 2000-01 with 5% annual escalation for a period of 10 years upto 2010 subject to a maximum of 90% of the prevailing HT industrial tariff. The purchase price was frozen at Rs.3.15 per unit in the year 2003-2004 after the price attained 90% of the HT industrial rate which was Rs.3.50 per unit. Thus, it may be seen that there is a stagnation in the price at which

the Biomass power is procured and there has been no revision since the year 2003-2004 when the ceiling was made on the purchase price at Rs.3.15 per unit. It is further seen that some of the Biomass power plants have made representations to the effect that the power purchase tariff at Rs.3.15 per unit is not affordable and sought revision. M/s. Auromira Energy Limited, the fourth Respondent sought approval for third party sale under short term Intra-State Open Access and the same has been permitted by the TANGEDCO. M/s.Subashree Bio-Energy Private Limited, the fifth Respondent has stopped generation from June 2010 on account of the fact that the tariff at Rs.3.15 per unit was not affordable to it. Some of the Respondents herein are also in the practice of keeping their power plant in operation either with a reduced generation or in a state of zero generation in view of the non-affordability of power purchase price of Rs.3.15 per unit.

It is in this background that the present petition has been filed seeking to review the power purchase price of the Biomass power plants which are static since 01-04-2010. In view of the fact that the BP(FB) No.59, dated 11-4-2000 of the erstwhile Respondent Board stipulated that until the review of the tariff for the Biomass power plants and new rate is fixed, the rate at the end of the 10th year would be continued for the purpose of payment of power purchase price to the generators, and there being no review since the year 2010 the present case requires a critical review of the same by the Commission.

Issue No.1 :

Fixation of Tariff for Biomass plants commissioned on the basis of PPAs entered before 15.5.2006.

Before proceeding to render our findings on the present proposal, it is necessary to go through the averments of the Petitioner Corporation in the present

petition, for the purpose of determination of capital cost and the fixed cost and variable cost of these Biomass units which are pre-requisites.

The Petitioner Corporation referring to the capital cost of Rs.4 crores / MW adopted in Order No.3 of 2006 and Rs.4.87 crores / MW in Order No.2 of 2009 suggested that capital cost of Rs.3 crores / MW could be considered in respect of these plants intrapollating the raise in the capital cost in 3 years period from 2006 to 2009. The Petitioner Corporation has also submitted that since the present tariff determination prayed in the petition is not a project specific one, it may be appropriate to consider the capital cost of Rs.3 crores / MW for determination of power purchase price in respect of these plants for which PPAs were entered into before 15-05-2006.

The suggestion of TANGEDCO for adopting Rs.3 crores/MW as capital cost for determining FCC for these plants is therefore found to be reasonable but the calculations made by TANGEDCO both in the annexure and in para 8 of their affidavit filed on 11.4.2014 are not correct as they are not consistent with the methodology suggested by them particularly with reference to PLF which was adopted at 55% instead of 80% and thus the resultant figures were completely distorted.

The following parameters were adopted in the NCES Order 3 dated 15.5.2006:

Sl.No.	Key Driver description	Biomass Plants
1.	Capital Cost	Rs.4.00 Cr./MW
2.	PLF	80.00%
3.	Life of plant	20 years
4.	Depreciation Rate	7.84% under SLM upto 90%
5.	O & M Expenses	4.50% of capital cost and 5% escalation every year.
6.	Debt Equity Ratio	70 : 30
7.	Term of loan and interest on Loan	10 years with one year moratorium and 9% interest.

8.	ROE	16% pre-tax
9.	Insurance Cost	0.75% on the project cost for 5 years and reduction of 0.5% every year.
10.	Working capital	Two months stock of fuel and two months O&M expenses.
11.	Interest on W/C	11%
12.	Fuel Consumption	Heat rate of 3700 kcal / kWh and calorific value of 3200 kcal / kg to a consumption of 1.16 kg / kWh.
13.	Auxiliary Consumption	9.00%
14.	Fuel cost	Rs.1000 / MT

Adopting a capital cost of Rs.3 crores/MW and keeping other parameters as considered in the NCES tariff Order No. 3 dated 15.5.2006 unchanged we may work out the tariff applicable for the plants that were commissioned before 2006. The FCC thus arrived at for a tariff period of 20 years is tabulated below:

Year	Rs. FCC/Unit
1	1.165
2	1.177
3	1.160
4	1.144
5	1.128
6	1.112
7	1.098
8	1.084
9	1.071
10	1.059

Year	Rs. FCC/Unit
11	1.048
12	0.845
13	0.689
14	0.710
15	0.732
16	0.756
17	0.781
18	0.807
19	0.834
20	0.862

These plants are old and will stand eligible to claim the yearly FCC corresponding later years only, which may not be adequate enough to recover actual FCC as the FCC of the later years will be lesser than FCC of earlier years and therefore Commission has decided to allow the levelised FCC at the weighted average cost of post-tax interest and post-tax ROE which works out to Rs.1.02/unit.

However, Variable Cost i.e. fuel charges are applicable with reference to the respective Financial Year and therefore VC may be adopted as issued by the Commission from time to time.

It is pertinent to mention that as per Commission's Order No. 3 dated 15.5.2006, the plants commissioned during the control period of the Order, the tariff payable has been fixed at Rs.3.15/unit for a tariff period of 12 years i.e. upto 16.5.2018. Hence, it can be seen that for the new plants commissioned after 2006 a tariff of Rs.3.15/unit only upto 2018 has been fixed and therefore these older plants cannot have grievance over the tariff which is fixed now in this order. This is in line with the methodology adopted by the Commission in 2006 in Order No. 3 of 2006 dated 15.5.2006 where the tariff of wind energy was determined by the Commission at Rs.2.90/unit for new plants to be commissioned after 15.5.2006 assuming a capital cost of Rs.5 crores per MW and the tariff for the old plants commissioned prior to 15.5.2006 was fixed at a little lower level at Rs.2.75/unit assuming a lesser capital cost of Rs.4.50 Crores/MW even though there were huge differences in the vintage, technical configurations etc., across the old plants.

Issue No.2:

Claim of a separate Tariff categorization after signing PPA under a different category.

M/s. Subhashri Bio-Energies Private Limited have contended that their power plant is a Biomethanation based power plant, in which poultry litter is fermented and biogas is harvested and further processed to generate electricity which is totally different from biomass power plant, which works on rankine cycle.

When the company entered into the PPA in 2005 both the Bio mass and Bio gas power plants were categorized under the same group of Bio mass power plants

by the Tamil Nadu Electricity Board. Hence it entered into PPA applicable for Biomass power plant, even though the cost of generation in the Power Plant (Bio Gas) was more when compared to that of Bio mass Power Plant.

The power purchase tariff fixed as per B.P. (F.B.) No.59/2000 has expired on 31-03-2010. Hence the power purchase tariff is to be fixed by the Commission. The Commission in its order in P.P.A.P.No.6 of 2010 has ordered that separate power purchase tariff to be fixed for Bio gas power plant working. Their cost of generation of electricity from bio gas has been worked out, which comes around Rs.13.09 per unit.

After hearing the arguments of both parties on 21.4.2014, the Commission reserved its order suggesting a separate tariff for the biogas based power plant of M/s.Subhasri Bio Energies Pvt. Ltd. effective from 01-04-2010 vide their daily order dated 21-04-2014 and therefore they have requested the Commission to fix tariff for M/s. Subhashri BioEnergies Pvt Ltd Bio-methanation based 'Biogas' plant at Rs.9.10 per Kwhr arrived duly submitting workings there for.

Per contra, TANGEDCO has contended that the order referred by M/s.Subhashri Bio-Energies Private Limited in P.P.A.P.No.6 of 2010 filed by M/s. Pallava Water Works Limited for fixation of tariff for their proposed bio-gas power plants, fixing power purchase tariff of Rs.6.02 per unit for the year 2012-2013 and Rs.6.21 per unit for the year 2013-2014 was a project specific tariff applicable to them with certain conditions and it cannot be extended to M/s. Subhashri BioEnergies.

TANGEDCO further contended that they are not agreeable for project specific tariff as prayed by M/s.Subhashri Bioenergies Private Limited, as they have already entered into Power Purchase Agreements agreeing with generic tariff as fixed in

Permanent B.P.(FB) No.59 dated 11-04-2000 which is applicable for Bio-mass power plants and fixation of project specific tariff to M/s.Subhashri Bioenergies Private Limited would lead other Respondents herein to seek such project specific tariff.

We are agreeable with the contention of TANGEDCO that once the PPA is executed under Biomass category and acted upon, it cannot be changed to Biogas category. In this case, the PPA was executed on 21.2.2005 under Biomass category and subsequently COD was declared on 5.5.2006. The supply of power has commenced and payments have been made as per Biomass tariff as per BP (FB) No. 59, dated 11.4.2000. If the Respondent M/s.Subhashri Bioenergies Private Limited had desired to have a project specific tariff, they must have approached the Commission for such tariff determination at that time itself. Now it is too late to undo the same as concluded contracts cannot be unilaterally modified.

The contention of M/s.Subhashri Bioenergies Private Limited that the PPA has expired on 31.3.2010 and tariff is to be determined by the Commission from 1.4.2010 and therefore it can be determined under Biogas is not correct because, the PPA continues to be in force otherwise supply of power would not have been possible without any PPA. It is true that tariff is to be determined for periods from 1.4.2010 and tariff will undergo change but the tariff categorization under which the PPA has been entered into cannot be changed because the subsisting PPA continues to be in force.

Admittedly, as contended by TANGEDCO, Commission's order in PPAP No. 6 of 2010 is a project specific tariff applicable to M/s. Pallava Water and Power Pvt. Ltd. with certain conditions thereon. In this case the developer M/s. Pallava Water and Power Pvt. Limited had approached the Commission well before their entering into a PPA with TANGEDCO for determination of tariff. However, in the case on

hand the 5th Respondent M/s.Subhashri Bioenergies Private Limited, has already a subsisting PPA with the petitioner TANGEDCO. Comparison of the case of Pallava Water Works cannot be made with the present case.

As contended by M/s.Subhashri Bioenergies Private Limited, it is true that Commission made an attempt to see whether it would be possible to go for project specific tariff for them as per its daily order dated 21.04.2014. That was an attempt to explore all the possibilities in the process of tariff determination by the Commission but it was not a decision per se, taken by the Commission at that point in time. Further, the Commission recognises the fact that once the PPA was signed it is binding on all parties to the contract and such concluded contracts cannot be meddled with unless all parties to the contract agree for the same. In the present case TANGEDCO is not agreeable for any modification from Biomass to Biogas category in respect of M/s.Subhashri Bioenergies Private Limited on the plea that it is a concluded contract. As per clause 36.3(i)&(ii) of Commission's Tariff Regulations, which prescribes operating norms in respect of various power plants, there is a provision that the terms as in the concluded contracts shall prevail. From this it is clear that the provisions of the concluded contracts shall continue to have the force and it cannot be modified unilaterally. Therefore Commission is not inclined to interfere into this issue and hence a separate tariff cannot be fixed for them. The tariff as decided under issue No. 1 will alone apply for the plants commissioned by M/s.Subhashri Bioenergies Private Limited under the PPA dated 21.02.2005.

For such of those plants which have completed 20 years of operation but still has a subsisting PPA in force requiring them to supply power to the petitioner TANGEDCO, the fixed cost could not be totally denied as claimed by the petitioner, since the generator would continue to incur certain fixed cost to keep the operations

on. As these plants have depreciated to the extent of 90%, Return on Equity and Insurance is calculated on 10% of the Project Cost with applicable O & M Charges and Interest on Working Capital is allowed and the Fixed Capacity Charges (FCC) for the 21st year works out to Rs.0.71 per unit. This FCC is allowed at a flat rate plus Variable Cost as applicable from time to time.

In view of the fact that clause (ii) of the BPs (FB) No. 59 dt 11.4.2000 clearly provides that till such review is made and a new rate is finalized, the 10th year rate will continue to be paid if the company supplies its surplus power to TNEB, this order shall normally take effect prospectively from the date of this order. However, as TANGEDCO has filed this petition on 21.11.2011, this order shall take effect from the above date of petition filed by TANGEDCO with the Commission.

The parties of these PPAs are given liberty for exit option in case it is not workable for continued operation of these PPAs.

9. 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.....)
(G.Rajagopal)
Member

(Sd.....)
(S.Akshayakumar)
Chairman

/ True Copy /

Secretary
Tamil Nadu Electricity
Regulatory Commission

