Tamil Nadu Electricity Regulatory Commission

Constituted under section 82(1) of the Electricity Act 2003
(Central Act 36 of 2003)

PRESENT:

Thiru. S. Kabilan - Chairman

Thiru. K. Venugopal - Member

and

Thiru S.Nagalsamy - Member

PPAP No. 4 of 2008

Dazzle Power Private Ltd.,
G-1, Balakrishna Apartments,
8/97, Periyar Pathai,
Choolaimedu,
Chennai - 600 094. ..... Petitioner
(Counsel for Petitioner K. Bhavadharani, S.Viji)

Vs

The Chairman,
Tamil Nadu Electricity Board,
800, Anna Salai,
Chennai – 600 002 .... Respondent
(Counsel for Respondent Thiru. K. Surendranath,
Thiru. H. S. Mohamed Rafi)

Dates of Hearing

12-1-2009, 1-4-2009, 22-4-2009, 16-6-2009, 29-7-2009, 8-1-2010, 10-2-2010, 25-2-2010, 28-4-2010 and 06-12-2010

Date of Order 20-04-2011

PPAP No. 4 of 2008 came up for final hearing on 06-12-2010. The Commission upon perusing the petition and the connected records and upon hearing both sides passes the following:

<u>Order</u>

1. **<u>Prayer of the Petitioner in PPAP No. 4 of 2008</u>:**

The Prayer of the petitioner in PPAP No.4 of 2008 is to grant approval for the Energy Purchase Rate and the Draft Energy Purchase Agreement (EPA) to enable its execution with TNEB.

2. **<u>Facts of the case:</u>**

Permission under Section 44 of Electricity (Supply) Act 1948 was accorded by Chairman TNEB in letter No. SE/IPP/AEE/C/F. Tuklapatti HEP/D.265/dated 10-7-2000 to the Dazzle Power Pvt Ltd., a company set up for the development of Tuklapatti Hydro Electricity Power Project (HEP) with 1 x 350 KW capacity in Tuklapatti village, Madurai district. Assignment under section 18A (I) Electricity (Supply) Act 1948 was granted in Government letter No.3D No 10 Energy A1 dated 18-10-2000.

3. **<u>Contentions of Petitioner</u>:**

3.1 The Land Lease Agreement (LLA).

LLA in respect of 0.243 acres of PWD land along with IXth branch canal near drop 2 which was required for the construction of the Power House was executed on 30th August 2004 and the site was handed over to the petitioner company in September 2004.

3.2 Loan from SBI.

Loan assistance of Rs.170 lakhs (70% of the project cost) was sanctioned by SBI. Execution of agreement, mortgaging and registering of collateral security in favour of SBI etc., were completed for the drawal of loan in September 2004.

3.3 Land Acquisition.

As taking over of the private lands adjoining the canal by compulsory acquisition through government was expected to take long time, direct purchase was resorted to and the process resulted in delay and increased cost towards land acquisition.

3.4 Finalization of Supply of Electro Mechanical (E&M) equipment.

M/s HPP Energy India Pvt Ltd., have agreed to supply the entire package of the Electro Mechanical equipments for Rs.110 lakhs inclusive of all taxes. Due to the increase in steel prices, the cost of E&M package went up by Rs.16 lakhs.

3.5 **PWD Officials inspections / instructions***.*

As per the suggestion of PWD and local people, the width of the pier of the bridge across the canal had to be increased to 4 feet. PWD also suggested for maintaining a minimum top width of 10 feet on the left side of the canal embankment so as to maintain the inspection road. On the right flank of the embankment, earthen baby dam had to be put up so as to support the embankment.

3.6 Natural calamity.

Due to Tsunami which occurred on 26-12-2004, the entire site was flooded and damaged.

Due to unexpected heavy rains on 4-5-2005 and 12-5-2005 a lot of dewatering / removal of debris had to be undertaken.

3.7 **Problem / Damages caused by Indian Oil Corporation Contractor due to laying of Gas Pipeline.**

Due to frequent movement of heavy earth movers / big lorries of IOC carrying heavy steel pipes, the embankment built by the petitioner company was damaged and had to be redone.

3.8 **Revised Cost Estimate***.*

In view of the various developments that took place in the project execution as explained above, additional expenditure became inevitable and the project cost went up.

The revised cost estimate worked out to Rs.298.50 lakhs. Therefore, the petitioner sought additional loan of Rs.39 lakhs. The petitioner brought in about Rs. 40 lakhs additionally to complete the project.

3.9 **Pre-Commissioning approvals.**

The Chief Electrical Inspector to Government of Tamil Nadu (CEIG) who was addressed in letter dated 10-12-2007 issued the safety certificate in letter dated 16-6-2008.

3.10 Tamil Nadu Pollution Control Board's (TNPCB) Consent to operate.

The TNPCB issued the consent to operate under Air and Water Act in their order dated 2-6-2008.

In view of the multiple clearances required for the project, the commissioning was delayed by 21 months.

3.11 **Cost of Generation**

As per notification of TNERC /NCES/Rgn/16/1, dated 8-2-2008 of the Commission, tariff for power purchase from new and renewable source based generators, shall as for as possible be guided by the principles and methodologies specified by the CERC / Central / State Government etc., Considering the various parameters involved, the average cost of generation from Tuklapatti Power House for a period of 10 years works out to Rs.5.03 per unit.

The higher cost of generation is due to cost overrun and time overrun caused by factors beyond the control of petitioner.

4 <u>Contentions of the Respondent in the Counter Affidavit</u>:

4.1 As per the letter of award, petitioner ought to have completed the project within 2 years from the date of obtaining license and clearances from the appropriate authorities. The petitioner was granted license by Board as early as 03-02-2000 and clearances were obtained by the petitioner on 30-09-2005, and as such petitioner ought to have completed the project by 30-9-2007. Due to delay caused by petitioner, the project cost had increased manifold due to unnecessary payment of interest by the petitioner in the lethargic execution of the project which had increased project cost to Rs.396.38 lakhs. The respondent submits that had the petitioner executed the project as per the letter of award, the project cost, would have been only Rs.280 lakhs i.e., excluding Rs.62.3 lakhs towards the interest which amount shall not be included in the project cost, as the said liability was entirely due to fault of the petitioner.

Apart from interest, the petitioner had included in the project cost a sum of Rs.44.00 lakhs said to have been spent even before the commencement of Civil Works. The cost of the land and site development for an amount of Rs.7.3 lakhs is only considered for the project cost. The said amount is reflected in the balance sheet upto 31-03-2005. Since the said amount was alleged to have been spent even before starting civil works, the same ought not to have been included in the cost of the project.

4.2 **Tariff Calculation:** This project is a captive power project and so only the residual power if any could be purchased by TNEB at mutually agreed terms and conditions. Based on the Central Electricity Regulatory Commission Regulations 2004, annual energy generation at 1.26 Million units as per detailed project report and considering 9 % interest rate for debt, the average tariff for 25 years works out to Rs.2.96 per unit. Moreover, power generated is purely seasonal and it is controlled by irrigation discharge.

4.3 Till the finalization of the Power Purchase Agreement (PPA), the power that is supplied to TNEB grid will be banked after adjusting the consumption of M/s Madurai ACME Enterprises Pvt. Ltd., their sister concern at wheeling charge of 5 % as per award letter.

4.4 The Land Lease Agreement was signed between M/s Dazzle Power Pvt. Ltd. and PWD on 30-8-2004 after a gap of 4½ years from the award date of 3-2-2000. The civil works commenced on 04-03-2005 as reported by the petitioner in letter dated 24-05-2005.

4.5 As per TNEB award letter dated 3-3-2000, all statutory clearances and financial closure should have been fulfilled within 6 months from the date of award. But the land lease agreement has been signed with PWD only on 30-8-2004 after a lapse of 4 ½ years from the award.

4.6 When the transmission lines for power evacuation was ready on 11-6-2008, the turbo generator was not ready for commissioning. No delay is attributable to TNEB in this case.

4.7 The entire project should have been completed and commissioned on 30-09-2007 as per clause X of the award letter dated 3-3-2000 (24 months from the fulfillment condition i.e., statutory clearance and financial closure) but the project was commissioned on 11-09-2008. Interest on capital during the construction was restricted upto 30-09-2007, the scheduled date of completion.

4.8 Average annual generation has been worked out in the detailed project report based on the hydrological analysis for 10 years (1991 – 2001) at 1.26 MU. The promoter has proposed 1.21 MU of generation per year which is not acceptable. The generation of plant has been taken as 1.26 MU and it is used as base for working out the tariff.

4.9 The project cost as furnished by the promoter is Rs.396.38 lakhs, whereas the same has been taken as Rs.280 lakhs by not reckoning the interest for the delay of 11 months and 11 days which is Rs.62.3 lakhs. The expenditure incurred prior to taking up civil works (i.e.) Rs.44 lakhs has been disallowed. The tariff at Rs.2.96 per unit has been worked out based on the total project cost of Rs.280 lakhs including 9 % interest charge for debt and 14 % return on equity as per Central Electricity Regulatory Commissions 2004 (Terms and Conditions of Tariff for the period 1-4-2004 to 31-3-2009) for equity and taking annual generation of 1.26 million units as per detailed project report of the petitioner.

5 **<u>Contentions of the Petitioner in the Rejoinder to the Counter:</u>**

5.1 The second loan of Rs.36 lakhs was sanctioned during January 2007. The second loan amount has been totally left out even though the

SBI's letter dated 07-08-2008 was appended to the 'Completion Report that was submitted to the TNEB.

5.2 The Petitioner had requested the TNEB for erection of the requisite transmission line on 13-10-2005; but the TNEB greatly delayed the erection of the transmission line.

5.3 The Petitioner 's plant was ready for commissioning on 05-02-2008 in all aspects and on 15-02-2008, the TNEB's ED / Projects informed the TNEB's RCE/Madurai about the plant being ready for commissioning and requested that the plant be 'admitted for connectivity'.

5.4 The statement that due to the delay caused by the petitioner the project cost has increased manifold due to unnecessary payment of interest by the petitioner in the lethargic execution of the project which had increased the project cost to Rs.396.8 lakhs is totally denied. The delay is due to laying of transmission line.

5.5 That the project cost could have been limited to Rs.280 lakhs is denied. The exclusion of interest charges of Rs.62.3 lakhs attributing the liability on petitioner is denied. It is prayed that this amount is to be included in the project cost.

5.6 The delay of 4 ½ years in execution of the lease agreement cannot be attributed to the petitioner. The land lease proposal could be submitted only after getting the various licenses / permissions from Tamil Nadu Electricity Board and the Government and also the mandatory in-principle concurrence from PWD for the project.

5.7 Furthermore, it must also be appreciated that the land lease agreement for another private sector project [viz., Pechiparai HEP for 1.3 MW] allotted during August 1995 is yet to be executed inspite of the lapse of 14 years from the date of the allotment.

5.8 The allegation that the transmission line was commissioned on 11-06-2008 is incorrect, since the said transmission line was ready only during August 2008.

5.9 The allegations that the turbo-generator was not ready for commissioning on 11-06-2008 is also not correct. The Petitioner on 5-02-2008 informed the TNEB's ED/Projects/Chennai that the Plant is ready for commissioning.

Hence, it is clear that the Tamil Nadu Electricity Board took about 3 years to erect the transmission line and work at 3 times the cost and there was delay of 7 months on the part of Tamil Nadu Electricity Board.

5.10 The delayed grant of the pre-commissioning approvals by the various Government Departments and the TNEB including the delay in erecting the transmission line resulted in the accumulation of huge interest charges that must be factored for determining the Project Costs.

The 'Directional over Current Relay' must have been envisaged by the TNEB even whilst preparing the estimate for the transmission line so as to avoid any delay. The TNEB's failure to do so and its erratic management of the proposal for the transmission line resulted in the TNEB directing the Petitioner to procure the same at the final stage thereby adding to the delay.

5.11 In the Detailed Project Report, the 'average annual generation' is mentioned as 1.26 MU, which is based on 10 years data [i.e. from 1991-2001]. The Petitioner has now considered the data for additional seven years [i.e. from 2001-2008] for arriving at the 'average annual generation' of 1.21 MU but the Respondents have wrongly construed that the additional data for only one year has been considered. Hence the 'average annual generation' based on the last seventeen years data [i.e. from 1991-2008] is 1.21 MU.

5.12 The Respondents have erroneously determined the project cost as Rs.280 lakhs [instead of Rs.396.38 lakhs] by not considering the interest charges for the delayed period of 11 months & 11 days amounting to Rs.62.3 lakhs and the preliminary expenditure of Rs.44 lakhs incurred prior to taking up the civil works.

5.13 The Respondents have not considered the transformation loss of 0.5 % and the same must be considered as per Regulations-32 [iii] of the Central Electricity Regulatory Commission Regulations 2004.

5.14 As per the letter of award, the wheeling charge of 5 % in kind is to be levied for transmission to the petitioner's sister concern and that the cost of the transmission line has been borne in full by the petitioner. The Petitioner insists that for the power supplied to the Tamil Nadu Electricity Board no wheeling charges is leviable.

6 **Contentions of the Respondent in the Reply to the Rejoinder:**

6.1 The transmission line was commissioned on 11-06-2008, but the turbo generator was not ready for commissioning on 11-06-2008. Hence there is no delay on the part of TNEB.

6.2 The statement of the petitioner that the plant was ready for commissioning on 5-2-2008 is not correct. For any major electrical installation for commissioning, clearance from Chief Electrical Inspector to Government is required. The Chief Electrical Inspector to Government (CEIG) approved the commissioning of electrical installation of the plant on 16-6-2008. The petitioner in his letter dated 5-2-2008 has stated that the plant was ready for commissioning and the same was communicated to the Regional Chief Engineer / Madurai. The Petitioner in letter dated 24-03-2008 has stated that almost all the works of transmission line was completed except Static tri-vector meter, check meter and pilferage proof box (page 18 Annexure of the rejoinder petition). It is evident that the statement that the power house was ready for commissioning on 5-2-2008 is not correct.

6.3 As per the letter of award, petitioner ought to have completed the project within 2 years from the date of obtaining license and clearances from the appropriate authorities. The petitioner was granted license by

Board on 3-2-2000 and clearances were obtained by the petitioner by 30-09-2005, and as such petitioner ought to have completed the project by 30-09-2007.

6.4 Had the petitioner executed the project as per the letter of award, the project cost would have been only Rs.280 lakhs, i.e. excluding Rs.62.3 lakhs towards the interest, which amount shall not be included in the project cost, as the said liability was entirely due to fault of the petitioner.

6.5 The petitioner had included in the project cost a sum of Rs.44 lakhs said to have been spent even before the commencement of civil works. The cost of the land and site development for an amount of Rs.7.3 lakhs is only considered for the project cost. The said amount is reflected in the balance sheet upto year 31-3-2005. Since the said amount was alleged to have been spent even before starting civil works, the same ought not to have been included in the cost of the project.

6.6 The land lease agreement was signed between M/s Dazzle Power Private Ltd. and PWD on 30-08-2004 after a lapse of 4 ½ years from award date (03-02-2000). The civil works started only on 4-3-2005 as per the petitioner's letter dated 24-5-2005.

6.7 Only a portion of the evacuation cost i.e. Dazzle Power Private Ltd., Power House to 4 pole structure near Naickampatty is borne by the petitioner, not the line feeding electricity to the petitioner's sister concern. Even though the petitioner has borne the cost of the evacuation line, the request of "no wheeling" cannot be admitted.

6.8 The project cost as furnished by the promoter is Rs.396.38 lakhs whereas the same has been taken as Rs.280 lakhs by not taking up interest component for the delayed period of 11 months and 11 days which is Rs.62.3 lakhs and not taking up the expenditure incurred prior to taking up civil works (i.e.) Rs.44 lakhs. The tariff at Rs.2.96 per unit has been worked out based on the total project cost of Rs.280 lakhs including 9 % interest charge for debt and 14 % interest as per Central Electricity Regulatory Commission Regulations 2004.

7 **Report of Evaluation Committee:**

The Commission in its order dated 29-07-2008 directed the Secretary of the Commission to evaluate the capital cost of the project. The findings of the Committee are briefly as follows:

7.1 Being a Pilot Project, absence of any clear cut guidelines and regulations, involvement of many agencies and reasons beyond the control of promoters, the delay cannot be attributed to any one. Since the completion and readiness has been reported on 5-2-2008, the delay can, at best be from 30-09-2007 to 5-2-2008, approximately four months only and not 11 months and 11 days. The interest during construction related to this period of four months was Rs.11, 28,695/- and this amount may be disallowed from the claim of total cost.

7.2 The petitioner has claimed an amount of Rs. 44 lakhs under the head preliminary and pre-operative expense. TNEB proposed to disallow Rs.36.70 lakhs as this amount was spent even before the commencement of civil works. The claim of the petitioner seems to be acceptable because they are mainly project dependent preliminaries and will vary from project to project.

7.3 The risk factor is very high since the whole performance is dependant on the vagaries of nature and the generation of the hydro station may not be firm for the whole life period of the project and in one year it may be beneficial to the generator and it may be a loss in another year.

In the context of the above, the revised estimation of 1.21 MU per annum may have to be considered as the average annual generation.

7.4 The Commission in order No1, 2 and 3 of 2009 applicable to renewable source of energy has specified the RoE of 19.85% pre-tax which corresponds to 15.5% post-tax in line with the CERC Regulations 2009. Eventhough the project has been commissioned on

11-09-2008, the tariff is yet to be fixed. Hence, the Commission may consider the RoE of 19.85% pre-tax in line with the CERC Regulations and TNERC order No.1, 2 and 3 of 2009.

7.5 The Promoter in their claim and in letter dated 18-09-2009 stated that the Regulation 19(f)(iv) of CERC Tariff Regulation 2009 specifies that, in case of hydro generating stations, which have **not been in commercial operation for a period of five years as on 01-04-2009,** the O&M expenses shall be fixed at 2 % of the project cost and shall be escalated at 5.72% p.a.

7.6 The accumulated value of the depreciation shall be restricted to 90% of the depreciable value.

7.7 The promoter has claimed auxiliary consumption at 2 % and the TNEB has not objected to this. Therefore, auxiliary consumption may be allowed at the rate of 2 %.

7.8 The rate of interest may be admitted at the rate of 13.29%. As per the conditions laid down by the financing institutions, the loan tenure shall be seven and a half-year, with half-yearly repayments. The moratorium period shall be 18 months.

7.9 The promoter in their letter dated 15-10-2009 stated that they have not availed any subsidy. Since, the banker has not confirmed the non availment of subsidy the capital cost has been reduced to the extent of subsidy amount of Rs.50.20 lakhs.

7.10 The year wise tariff for the project will be as follows. Rs.5.256 per unit for the 1st year, Rs.5.288 per unit for the 2nd year, Rs.4.948 per unit for the 3rd year, Rs.4.485 per unit for the 4th year, Rs.4.024 per unit for the 5th year, Rs.3.566 per unit for the 6th year, Rs.3.109 per unit for the 7th year, Rs.2.656 per unit for the 8th year, Rs.2.204 per unit for the 9th year, Rs.1.881 per unit for the 10th year, Rs.1.934 per unit for the 11th year, Rs.1.990 per unit for the 12th year, Rs.2.050 per unit for 13th year, Rs.2.113 per unit for the 14th year, Rs.2.179 per unit for the 15th year, Rs.2.250 per unit for the 16th year, Rs.2.324 per unit for the 17th year, Rs.2.403 per unit for the 18th year, Rs.2.486 per unit for the 19th year, Rs.2.574 per unit for the 20th year, Rs.2.667 per unit for the 21st year, Rs.2.765 per unit for the 22nd year, Rs.2.869 per unit for the 23rd year, Rs.2.979 per unit for the 24th year, Rs.3.095 per unit for the 25th year, Rs.3.218 per unit for the 26th year, Rs.3.348 per unit for the 27th year, Rs.2.812 per unit for the 28th year, Rs.2.698 per unit for the 29th year and Rs.2.851 per unit for the 30th year.

8 The report of the Evaluation Committee was made available by the Commission to the parties for their views.

8.1 **Views of petitioner on the Report of Evaluation Committee:**

8.1.1 Primary & Pre-operative expenses.

(i) It was clarified to TNEB that Rs.44 lakhs was not preliminary / pre-operative expenses incurred upto 31-3-2005 but it was the promoter's contribution upto 31-3-2005. Rs.17.96 lakhs (out of 44 lakhs) was spent towards the capital works of the project (vide letter dated 18-09-2009). The amount of Rs.17.96 lakhs was spent towards capital works, filling up of the land, site development, raising of embankment, bridge construction etc., which were done as soon as water was stopped during end of January 2005.

(ii) The preliminary and pre-operative expenses incurred upto 31-3-2005 which comes to Rs.25.98 lakhs include expenses relating to various works such as licence under Section 44 and 18A, in – principle concurrence of PWD etc.,

The above expenses have to be added to the project as already recommended by the Evaluation Committee.

8.1.2 Wheeling Charges.

TNEB has levied wheeling charges on the total energy generation of 2,72,064 units. The petitioner requested the Commission to direct TNEB to charge wheeling charges only on the quantum of energy consumed by the sister concern and not for the quantum of energy supplied to TNEB.

Since the petitioner is not opting for banking facility, banking charges of 5% should not be charged on the net energy generation.

8.1.3 Cost of initial Spare.

The claim for initial spares as per clause 33 of CERC norms 2004 of Rs.5.95 lakhs may be allowed.

8.1.4 Return on Equity.

The Commission may consider the RoE of 19.85% pre-tax in line with CERC Regulations and TNERC order No.1, 2 and 3 of 2009 and as recommended by the Evaluation Committee.

8.1.5 Insurance.

The Commission has proposed an insurance rate of 0.75 % of the machinery cost for the first year to be reduced by half a percent of the previous year's insurance cost every year thereafter and the Commission may order accordingly, apart from O&M charges.

8.1.6 Transformation Loss.

Clause 32(iii) of CERC Regulations 2004 provides for 0.5% of energy generated as transformation loss from generation voltage (415V) to transmission voltage (11KV). The Commission may order this to be provided in the tariff calculation.

8.1.7 Interest on working capital.

TNEB has provided for interest on working capital in their tariff calculation in the counter – affidavit. This may be allowed by Commission.

8.1.8 Deemed Generation.

Clause 41 of CERC Tariff Regulations 2004 norms provide for deemed generation. As far as Tuklapatti mini power station is concerned, there have been frequent outages due to grid failure / tripping in SS / line resulting in spillages which have to be made good as per the above norms.

8.1.9 <u>Penalty for delayed payment.</u>

Clause 44 provides for late payment surcharge which may be incorporated in the PPA.

8.1.10 <u>Moratorium period</u>.

Under para 5(i) the Committee has observed as follows:

"*Being a pilot project, absence of any clear cut guidelines and Regulations, involvement of many agencies and reasons beyond the control of promoters, the delay cannot be attributable to any one"*

In as much as the loan account is declared NPA and repayment of loan is to be commenced immediately, it is requested that application of moratorium period may kindly be dispensed with.

8.1.11 <u>Annual Average Generation of 1.21 MU.</u>

In view of the observation made by Evaluation Committee that the revised estimate of 1.21 MU per annum may have to be considered as average annual generation, the energy quantum of 1.21 MU may be considered.

8.2 **<u>Views of Respondent on the Report of Evaluation Committee:</u>**

8.2.1 <u>Views with reference to para 5(i) of the Report.</u>

In para 11 of the counter –affidavit, it has been clearly explained by TNEB that even though the transmission line was commissioned on 11-06-2008, the turbo-generator was not made ready on the said date and there was no delay on the part of TNEB. The overall delay of 11 months and 11 days is attributable to the petitioner and hence the interest component of Rs.32,02,289 for the said delayed period may be disallowed from the total cost of the project.

8.2.2 *<u>Views with reference to para 5(ii) of the Report</u>.*

Obtaining mandatory clearances and financial closure has taken nearly 5 ½ years delay which has given way for the unnecessary pre-operative expenses amounting to Rs.25,98,088/- which cannot be included in the total cost of the project. Further, the project was commissioned on 11-09-2008 and it is the CERC Tariff Regulations

2004 which is applicable for the project and only 2% of the project cost as stated in para 12.4.1 of CEA guidelines should be followed in arriving at the project cost.

8.2.3 Views *with reference to para 5(iii) of the Report.*

Since the plant load factor of the hydro station has been arrived at accounting for good and bad monsoons, the average energy generation of 1.26 MU as derived in the detailed project report has to be adopted. Decision in this regard cannot be taken on the current year irrigation discharges. Hence the revised estimation of 1.21 MU per annum recommended in the Report is to be rejected.

8.2.4 Views *with reference to para 5(iv) of the Report.*

The project was awarded to the company on 3-3-2000 with the condition that the company should get the necessary clearances and financial closure within six months after award of work. But the company took 5 ½ years to satisfy this condition. If the project had been commissioned without any delay after award of the project, the tariff could have been fixed based on the CERC Tariff Regulations 2004. Hence, even though the tariff for the project is yet to be fixed, retrospective effect on tariff is to be given for this project which is commissioned on 11-09-2008 and hence return on Equity of 14% as per CERC Tariff Regulations 2004 is only applicable for fixing tariff of this project.

8.2.5 *Views with reference to para 5(v) of the Report.*

Since the project has been commissioned on 11-09-2008, retrospective effect on tariff is to be made from 11-09-2008, and the CERC tariff Regulations 2004 alone is applicable during the above period and hence Operation and Maintenance expenses shall be fixed at 1.5 % of the project cost with an annual escalation of 4% as per Central Electricity Regulatory Commission (CERC) Tariff Regulations 2004.

8.2.6 *Views with reference to para 5(vi) of the Report (iii).*

Since the depreciation of 3 % has been arrived at based on clause 38(ii) of CERC Tariff Regulations 2004, the same has to be adopted as against 3.3% recommended by the said committee.

8.2.7 Views *with reference to para 5(vii) of the Report.*

As per the clause 32(ii) (a)&(b) of CERC Tariff Regulations 2004 , the auxiliary consumption for surface hydro – electric power generating stations, with rotating exciters mounted on the generators shaft is 0.2 % of energy generated whereas with static excitation system it is 0.5 % of energy generated. Therefore, a maximum auxiliary consumption of 0.5 % is to be adopted in arriving at the cost of generation as against 2 % suggested in said report.

8.2.8 Views *with reference to para 5(viii) of the Report.*

Since the Board's borrowed interest rate is only 9%, the same is to be adopted for arriving at the cost of energy generation as against 13.23 % recommended in the said report.

8.2.9 *Views with reference to para 5(ix) of the Report.*

It has been confirmed from the State Bank of India / Madurai that the company has not availed any subsidy so far. Hence the cost of generation has to be worked out without considering the subsidy.

8.2.10 *General Remarks.*

The average tariff for 25 years at Rs.2.96 per unit has been worked out based on the total project cost of Rs.280 lakhs including 9 % interest charge for debt and 14 % return as per Central Electricity Regulatory Commission Tariff Regulations 2004(Terms and Conditions of Tariff for the period 1-4-2004 to 31-3-2009) for equity and taking annual generation of 1.26 million units as per detailed project report of the promoter. In this case power generation is dictated by the irrigation discharges of PWD and so it is subservient to irrigation needs. Power generated from this micro hydro electric station is purely seasonal. Considering the above aspects, the tariff at Rs.2.96 per KWhr as worked out by the respondent Board is reasonable and the same may be considered for approval.

9. Findings of the Commission:

PPAP No.4 of 2008 was heard on several dates by the Commission and the Commission directed the Secretary, TNERC to evaluate the capital cost of the Project. The Secretary, TNERC has gone into the details of the petition and submitted his report. This report was circulated to the parties on 6-1-2010. Thereafter, the matter was heard on 8-1-2010, 10-2-2010, 25-2-2010, 28-4-2010 and 06-12-2010. During these hearings, the Commission did not go into the details of the issues which were agreed to by the parties. The issues which were in dispute were taken up during the hearing and the findings on the same are discussed below:

9.1 Date of commissioning and Interest during Construction:

To arrive at the capital cost it is necessary to fix the commercial operation date of the plant. The scheduled commercial operation date has been indicated as 30-9-2007 by both the parties i.e. 24 months from the completion of conditions precedent. The project was actually commissioned on 11-9-2008 i.e. after a delay of over 11 months. The evaluation committee report deals with this issue while discussing the interest during construction in para 1(5) of the report. The evaluation Committee came to the conclusion that since the petitioner has conveyed his readiness for commissioning the plant on 5-2-2008 to the TNEB the same needs to be considered as readiness from his part for commissioning the plant. However, the other statutory clearances and non-availability of inter-connection system did not permit the commissioning of the plant in February 2008. The Committee has recommended that the petitioner is responsible for the delay between the scheduled commissioning date 30-9-2007 and 5-2-2008 i.e. the date on which the petitioner has conveyed his readiness for commissioning and accordingly he should be responsible for this delay and the corresponding IDC for this period be disallowed. As regards the period 6-2-2008 to 11-9-2008 the Committee has recommended that the interest during construction for this period be allowed in the capital cost due to the reason that the delay is attributable to other agencies including TNEB for establishing inter connection system. The Commission accepts the recommendation of the Evaluation Committee in this regard as the petitioner conveyed his readiness for commissioning on 05-02-2008 against the scheduled date of 30-09-2007 and this period of delay shall be attributable to the petitioner. The respondent has taken more than two years for completing the evacuation system with transmission lines and the period of delay beyond 05-02-2008 to the actual date of commissioning 11-09-2008 was beyond the control of the petitioner. Therefore, the delay from 05-02-2008 to 11-09-2008 is not attributable to the petitioner and as a corollary, interest during construction for this period will have to be allowed as a part of the capital cost.

9.2 Preliminary and Pre-operative expenses:

The evaluation Committee has gone into the details of preliminary and pre-operative expenses totaling to Rs.44 lakhs. The petitioner was called upon to furnish the break up and corresponding year wise balance sheet, bank statement etc. to support the claim of Rs.44 lakhs by the evaluation committee and the same were furnished. The report indicated that the TNEB officials have not observed any defect in the statement furnished by the petitioner. The contention of TNEB regarding excessive preliminary and pre-operative expenses was based on guidelines issued by the CEA for the preparation of detailed project report for hydro electric project according to which such cost should not exceed 2% of the total cost. The promoters clarified that the CEA guidelines should be applicable for big hydro power projects and not for small hydro projects. The Committee has observed that the claim of the petitioner is acceptable because such costs are mainly project dependant preliminaries and will vary from project to project. The Commission observes that the project is of very small size and the argument of TNEB to limit the preliminary and pre operative expenses to 2% of the total cost which is applicable for large hydro power projects, would not be appropriate. Considering the necessity of expenses relating to preliminary and pre operatives, the expenses of Rs.44 lakhs is allowed.

9.3 Plant Load Factor:

The issue which is debated under plant load factor is actually the quantum of generation which can be expected out of this project. While the detailed project report envisaged the quantum of energy as 1.26 MU, the petitioner had subsequently suggested the energy availability from the station as 1.21 MU per annum. The Evaluation Committee also recommended adoption of 1.21 MU per annum as the energy available from this project. Both the parties have reiterated their written submission. It is necessary to discuss the impact of the quantum of energy per annum and how it impacts the revenue stream. The annual quantum of energy generation from this project is to be decided based on available past data. The Commission observes that this project is linked to irrigation canal and therefore dependent on release of water by PWD for irrigation purposes and not solely on the basis of rainfall etc. The difference between the two parties to the case with regard to availability of energy from this project is 50,000 kwh per annum. This will marginally impact the cost of generation in rupees per kwh. The TNEB should have obtained the exact data of flow of water from this canal based on the discharge of water after obtaining details from the PWD. Since this project depends upon release of water by the Irrigation Department, the Commission considered data on discharge upto the year 2007-08 i.e. discharge details beyond 2001 is also taken into account for arriving at the energy availability. In view of this, the energy available from this project shall be considered as 1.21 MU / annum.

9.4 Applicability of Norms:

The parties have debated on the applicable norms. The norms which were considered for different purposes are:

(1) CERC's Terms and Conditions on Tariff Regulations, 2004

(2) CERC's Terms and Conditions of Tariff Regulations, 2009

(3) TNERC's Regulations for Renewable Energy, 2008

Different Regulations have been adopted for different purposes and accordingly arguments have been advanced by both the parties. The Commission is of the view that for all purposes, only one Regulation must be followed and the parties cannot pick and choose from various Regulations for different applications. After considering the arguments by both the parties, the Commission orders that the TNERC's Regulation for Renewable Energy and various orders issued by the Commission for NCES be adopted for fixing the tariff of this micro hydel power station. CERC's Regulations are for larger hydro power projects and may not be directly relevant for micro hydel power stations. Wherever specific provisions are not available in the Commission's Regulations, reference to other Regulations could be made. This view is taken since the investment of equity in this project is limited to Rs.1 lakh only and rest of the investment in the project is in the form of debt. Accordingly, the following decisions would be applied while calculating the tariff for this Power Station.

(1) RoE is 19.85 % pre-tax which is equal to 15.5% post tax as decided by the Commission in the other renewable tariff orders.

(2) O & M expenses including insurance expenses: 1.5% of the project cost from the date of COD to 31-03-2009 and 2% of the project cost escalated at 5.72% p.a. in accordance with CERC Terms and Conditions of Tariff Regulation, 2009 as recommended by the Evaluation Committee. The actual escalation factor, as notified by

CERC from time to time, shall be considered for arriving at the actual tariff.

(3) Rate of Depreciation: 2.57% of capital cost per annum spread over the useful life of 35 years of asset subject to 90% of capital cost in accordance with Regulation 24 of Tariff Regulations 2005 of the Commission. The balance 10% of capital cost shall be treated as scrap value of the project.

(4) Auxiliary Consumption: 0.5% Auxiliary Consumption plus transformation loss of 0.5% i.e. total 1% of the energy generated.

(5) Rate of Interest: The Petitioner has raised debt from the public sector State Bank of India on a floating rate interest. The floating rate interest considered in this order for tariff calculation is 13.29%. This rate would apply to the entire debt as considered in this petition. The tariff calculation for each year will have to be made based on the actual interest charged by the lender for each year. However, such interest shall not include any penal interest levied by the lender. The argument of TNEB for lower interest rate cannot be accepted for the simple reason that TNEB is a large borrower, who could secure cheaper funds.

(6) Moratorium Period: Moratorium period, as specified in the loan agreement is considered for the purpose of interest calculation. Accordingly, no other interest including penal interest is to be considered for the purpose of tariff. Any other consequences shall be settled between the petitioner and lenders.

(7) Subsidy: No subsidy from Government of India or Government of Tamil Nadu or any other sources is considered in the calculation of tariff as confirmed by the parties.

(8) Interest on Working Capital: O & M expenses –one month, Maintenance spares at 1% of the historical cost with 6% escalation and receivables one month would be the components of working capital. The interest on working capital is considered at the rate of

13.00% p.a. However, the prevailing PLR of SBI for short-term loans shall be applicable.

(9) Tariff Calculation: Based on the above parameters, model tariff calculation has been worked out for various years covering the period of agreement of 20 years and appended to this order. The year wise tariff is subject to amendment of various parameters as covered by this order.

(10) The tariff as discussed in item (9) above is for delivery of energy at the generating station bus bars. Wheeling of energy to sister concern is subject to the payment of wheeling charges as approved by the Government which is 5%. No wheeling charges are payable by the petitioner for the energy supplied to the respondent.

(11) The PPA shall be extended to cover the entire life of the plant.

(12) The CDM benefit shall be shared in accordance with the formula laid down in Commission's order No.1/2009 which is reproduced below.

"Undoubtedly, a promoter of wind energy is required to put in considerable efforts to secure the benefits of Clean Development Mechanism and therefore, there is merit in the views of certain stakeholders that the entire credit should accrue to the promoter as it obtains now. Some State Commissions have permitted the distribution licensee to share 25% of the CDM benefits. The Forum of Regulators has considered this issue and has recommended that CDM benefits should be shared on gross basis starting from 100% to developers in the first year and thereafter reducing by 10% every year till the sharing becomes equal (50:50) between the developer and the consumer in the sixth year. Thereafter, the sharing of CDM benefits will remain equal till such time the benefits accrue. The Commission accepts the formula recommended by the Forum of Regulators."

9.5 The Energy Purchase Agreement, being a commercial arrangement between the parties, shall be in conformity with the Electricity Act, 2003 and the Rules and Regulations issued thereunder. Deviation, if any may be specifically brought out for approval of the Commission.

9.6 The matter was reheard on 06-12-2010, for the limited purpose of deciding the captive status of the petitioner's plant. The counsel for the petitioner submitted that the project was sanctioned by the Government of Tamil Nadu in 2000 and it was commissioned in September 2008. The petitioner's counsel admitted that the rules pertaining to captive status as on the date of commissioning of the plant would be applicable to the project. The petitioner's counsel further submitted that the equity held by the sister concern of the petitioner (Captive user) is only 3% of the equity and that the captive consumption was about 11% in 2008-09.

The Electricity Rules, 2005 stipulate that the captive consumer should hold atleast 26% equity in the captive power plant and the captive consumption shall not be less than 51%. The petitioner does not meet the requirement of these rules and hence is not eligible for any captive consumption. The consequence of this decision would be that the consumer is not eligible for exemption from payment of cross subsidy surcharge as open access consumer. Hence, the entire consumption from the date of commissioning is to be treated as sale by a generating company to a consumer on which cross subsidy surcharge is payable to Tamil Nadu Electricity Board at the specified rates. In view of this, the respondent's objection regarding no wheeling to sister concern as referred in para 6.7 of this order is not maintainable.

9.7 The counsel for the petitioner submitted that an application was filed on 06-10-2010 stating that there is an increase on the paid up share capital to the extent of Rs.1.20 Crores by converting the un secured loans to equity and this may be taken on record for the purpose of determination of tariff. It was pointed out that interest on loan upto

COD is a part of the capital cost as IDC and that changing a part of loan into equity at this stage will result in redoing the entire exercise, which can be done only if a fresh petition is filed withdrawing the present petition. The counsel for the petitioner did not press this issue.

10 Direction

The Tariff payable to the petitioner for each year shall be worked out in accordance with the findings in paragraphs 9.1 to 9.7 above.

11 Appeal.

An appeal against this order lies with the Appellate Tribunal for Electricity as per section 111 of the Electricity Act, 2003 within a period of 45 days.

With the above directions, PPAP 4 of 2008 is finally disposed of. No Costs.

(Sd………….)	**(Sd…………)**	**(Sd……..)**
(S. Nagalsamy)	**(K.Venugopal)**	**(S.Kabilan)**
Member	**Member**	**Chairman**

/ True Copy /

Secretary
Tamil Nadu Electricity Regulatory Commission

APPENDIX
to
Order dt 20-04-2011, PPAP No.4 of 2008
(Read Sl.No.(9) in Para 9.4 of the order)

Basic Parameters

Capital cost (Rs.in lakhs)	385.09
Equity (Rs.in lakhs)	1.00
Loan (Rs.in lakhs)	384.09
RoE	19.85%
Interest on loan (assumed)	13.29%
Loan tenure	7.5 years
Moratorium period	18 months
O & M Expenses	1.5% / 2%
O & M Escalation	5.72%
Depreciation	2.57%
Auxiliary consumption	1%
Project life	35 years
Annual generation	1.21 MU
Date of COD	11/9/2008

Interest on loan

	Year 1-1	Year 1-2	Year 2-1	Year 2-2	Year 3-1	Year 3-2	Year 4-1	Year 4-2	Year 5-1	Year 5-2
Loan Outstanding	384.09	384.09	384.09	384.09	358.48	332.88	307.27	281.67	256.06	230.45
Repayment	0.00	0.00	0.00	25.61	25.61	25.61	25.61	25.61	25.61	25.61
Interest	25.52	25.52	25.52	25.52	23.82	22.12	20.42	18.72	17.02	15.31

	Year 6-1	Year 6-2	Year 7-1	Year 7-2	Year 8-1	Year 8-2	Year 9-1	Year 9-2
Loan Outstanding	204.85	179.24	153.64	128.03	102.42	76.82	51.21	25.61
Repayment	25.61	25.61	25.61	25.61	25.61	25.61	25.61	25.61
Interest	13.61	11.91	10.21	8.51	6.81	5.10	3.40	1.70

Tariff Calculations

Particulars	upto 31-03-09 (6 months)	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Interest on Loan	25.523	51.046	49.344	42.538	35.732	28.926	22.120	15.314	8.508	1.702
Depreciation	4.951	9.902	9.902	9.902	9.902	9.902	9.902	9.902	9.902	9.902
O & M Expenditure	2.888	7.702	8.142	8.608	9.100	9.621	10.171	10.753	11.368	12.018
RoE	0.099	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199
Interest on Working Capital	1.061	1.360	1.382	1.351	1.322	1.296	1.273	1.253	1.237	1.223
Total Cost	**34.522**	**70.208**	**68.969**	**62.598**	**56.255**	**49.944**	**43.665**	**37.421**	**31.213**	**25.044**
Generation	0.605	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210
Auxiliary consumption	0.006	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
Net Generation	0.599	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198
Cost per unit	**5.764**	**5.861**	**5.758**	**5.226**	**4.696**	**4.169**	**3.645**	**3.124**	**2.606**	**2.091**

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29 Upto 10-09-29 (6 months)
Interest on Loan											
Depreciation	9.902	9.902	9.902	9.902	9.902	9.902	9.902	9.902	9.902	9.902	4.951
O & M Expenditure	12.706	13.433	14.201	15.013	15.872	16.780	17.740	18.755	19.827	20.961	11.080
RoE	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.099
Interest on Working Capital	1.270	1.338	1.411	1.488	1.570	1.657	1.748	1.846	1.949	2.058	1.400
Total Cost	**24.076**	**24.872**	**25.713**	**26.603**	**27.543**	**28.538**	**29.589**	**30.701**	**31.877**	**33.120**	**17.531**
Generation	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210	1.210	0.605
Auxiliary consumption	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.006
Net Generation	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198	0.599
Cost per unit	**2.010**	**2.076**	**2.147**	**2.221**	**2.299**	**2.382**	**2.470**	**2.563**	**2.661**	**2.765**	**2.927**

Year	upto 31-03-09 (6 months)	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Tariff	5.764	5.861	5.758	5.226	4.696	4.169	3.645	3.124	2.606	2.091

Year	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29 Upto 10-09-29 (6 months)
Tariff	2.010	2.076	2.147	2.221	2.299	2.382	2.470	2.563	2.661	2.765	2.927

Note:

1. O & M expenditure estimated at 1.5% p.a for the year 2008-09 and 2.00% p.a for the year 2009-10 with an annual escalation of 5.72% per year thereafter. The TNEB shall revise the annual escalation based on the notification of CERC
2. Considering the life of the project as 35 years, the depreciation is estimated at 2.57% p.a. The total accumulated depreciation shall be limited to 90% of the project cost
3.The calculation furnished are only model for tariff determination. The parties shall workout the tariff payable in various years adopting the norms approved by the Commission

Interest on Working Capital

Particulars	Year 1	2	3	4	5	6	7	8	9	10
O & M Expenditure one month	0.481	0.642	0.679	0.717	0.758	0.802	0.848	0.896	0.947	1.002
Maint. Spares @ 1% of the historical cost with 6% escl	1.925	3.966	4.204	4.457	4.724	5.008	5.308	5.626	5.964	6.322
Receivables one month	5.754	5.851	5.747	5.216	4.688	4.162	3.639	3.118	2.601	2.087
Total working capital	8.161	10.459	10.630	10.390	10.170	9.971	9.794	9.641	9.512	9.410
Interest at 13.00% p.a	1.061	1.360	1.382	1.351	1.322	1.296	1.273	1.253	1.237	1.223

Particulars	Year 11	12	13	14	15	16	17	18	19	20	21
O & M Expenditure one month	1.06	1.12	1.18	1.25	1.32	1.40	1.48	1.56	1.65	1.75	1.85
Maint. Spares @ 1% of the historical cost with 6% escl	6.701	7.103	7.529	7.981	8.460	8.968	9.506	10.076	10.681	11.322	6.000
Receivables one month	2.006	2.073	2.143	2.217	2.295	2.378	2.466	2.558	2.656	2.760	2.922
Total working capital	9.766	10.295	10.856	11.449	12.078	12.744	13.450	14.197	14.989	15.828	10.769
Interest at 13.00% p.a	1.270	1.338	1.411	1.488	1.570	1.657	1.748	1.846	1.949	2.058	1.400