BEFORE THE APPELLATE TRIBUNAL FOR ELECTRICITY
Appellate Jurisdiction, New Delhi

<u>Appeal No. 205/2006 & Appeal No. 235/2006</u>

Dated this 18th day of December, 2007

Coram : Hon'ble Mr. A. A. Khan, Technical Member
Hon'ble Ms. Justice Manju Goel, Judicial Member

IN THE MATTER OF:

Wind Power Producers Association
Having office at:
M/s. Madras Cements Limited
Auras Corporate Centre (5th Floor),
98-A, Dr. Radhakrishnan Salai,
Mylapore,
Chennai – 600 004. ... Appellant(s)

Versus

1. Union of India
   Rep. by the Secretary to Government,
   Ministry of non-conventional Energy Sources (MNES)
   New Delhi

2. Union of India,
   Rep. by the Secretary to Government,
   Ministry of Power,
   New Delhi

3. Tamil Nadu Electricity Board,
Rep. by its Chairman,
800, Anna Salai,
Chennai – 600 002.

4. State of Tamil Nadu
Rep. by the Secretary to Government,
Energy Department,
Secretariat,
Chennai – 600 009.

5. Indian Renewable Energy Development Agency (TEDA)
New Delhi

6. Tamil Nadu Electricity Regulatory Commission
No.17, 3rd Main Road ,
Seethammal Colony,
Alwarpet,
Chennai – 600 018. ... Respondent(s)

For the Appellant(s) : Mr. Jaideep Gupta, Sr. Advocate
Mr. A. V. Raghavan, Mr.V. Raghu
Mr. T. Srinivasan Murthy, Advocate
Mr. Senthil Jagadeesan, Advocate

For the Respondents(s) : Mr. Ramji Srinivasan, Advocate
Ms. Mandakini Singh, Advocate
Mr. Anuj Aggarwal, Advocate
Mr. Harsh Kaushik, Advocate

Mr. G. Umapathy, Advocate
Mr. A. Leo G Rozario, Advocate
Mr. Rohit Singh, Advocate

JUDGMENT

Ms. Justice Manju Goel, Judicial Member

These two appeals are filed by an Association of Wind Power Producers to challenge the tariff order, being No. 3/2006 dated 15.05.06 and a subsequent order dated 29.05.06 passed in DRP No.1/2002. The order No.3/2006 dated 15.05.06 is challenged in appeal No. 235/06 so far as it relates to fixation of tariff for the power generated by members of the appellant Association. The challenge to the impugned order dated 29.05.06 is also limited to that issue. Another prayer in the appeal i.e. to direct the respondent No.3, Tamil Nadu Electricity Board (TNEB for short), to provide infrastructure to ensure 100% evacuation of powe generated by windmills is not pressed as the Commission has mad sufficient order in this behalf.

2) The appellants filed the DRP. No. 1/2002 challenging the pric fixed for the power generated by the members of the appellant association at Rs.2.70 per unit by the Tamil Nadu State Electricit Board in their BP No.99 dated 27.09.2001 who was buying th entire energy generated by these wind power producers. Th appellants pleaded that the rate fixed was contrary to the guideline laid down by Ministry of Non-Conventional Energy Sources (MNE for short). The appellants sought quashing of BP No. 99 date

27.09.2001 and a consequent revision of tariff, direction for payment of difference in rate, restoration of capital subsidy etc. The Commission also initiated *suo moto* proceedings of fixation of tariff in which the appellants as well as the other respondents entered appearance. Finally the tariff order was passed on 15.05.2006 in *suo motu* proceeding No.3. The order in DRP No. 1/2002 was passed subsequently on 29.05.06. The present appeal challenges the rate fixed by Tamil Nadu Electricity Regulatory Commission by the order dated 15.05.2006 which was reiterated in its subsequent order dated 29.05.06. Although large number of grounds has been mentioned in the Memo of Appeal, the only ground pressed by the learned counsel for the appellants during the hearing of the appeal relates to time value of money. By the order dated 15.05.2006, the Commission fixed the levelised tariff for the wind energy producers on the basis of calculations relating to O&M charges, insurance, interest on loan, depreciation, return on equity etc. Based on the calculation of cost on the items mentioned above, per unit cost was determined for 20 years to follow. For the existing units, it was observed that average per unit cost amounted to Rs.2.74 over the next 20 years. For the future units, average per unit cost was calculated at Rs.2.90. For the existing wind energy generators, tariff was fixed at Rs.2.75 and for the new generators at Rs.2.90 per KWh.

3) It may be mentioned at the outset that in the grounds of appeal the appellants have not used the term 'time value of money'. They on the other hand, challenged the assumptions of the Commission regarding the various items of cost. For eg. the appellants have challenged the calculations of capacity utilization factor, the assumed life of a generator, the assumption of operation and maintenance (O&M) expenses at 1.10% of the capital cost, assumption of interest at 9% per annum etc. It is also alleged in the grounds of appeal that the tariff fixed by the Commission will deny the investors of their legitimate expectations. However, at the time of hearing, instead of pressing these grounds separately the learned counsel has preferred to limit his challenge to the tariff fixed only to the extent the factor called the 'time value of money' has not been incorporated in the tariff fixing methodology. Therefore, he has not challenged the calculations of the Commission on individual items. Nor has he challenged the assumption regarding the capacity utilization factor or the life of a plant. The appellants seems to be satisfied if the time value of money is also added as a relevant factor to fixation of tariff for the next 20 years.

4) In the subsequent impugned order dated 29.05.05 the Commission has followed the order dated 15.05.05 so far as tariff is concerned.

5) So far as time value of money is concerned, the topic was duly raised when the Commission was hearing the *suo moto* proceedings in which the impugned tariff order No.3 dated 15.05.2006 was passed. The impugned order records the substance of the discussion that took place on various aspects. Tariff methodology has been discussed under issue No.2. It records that Mr.Palaniappan, (IWEA) during the public hearing held on 23.12.2005, stated that the normalized cost plus single part tariff was acceptable and that the differential tariff for new projects could be considered. He also suggested that instead of simple average tariff, a levelised tariff may be considered which includes time value of money and said that discount factor suggested as a capital cost of the project is_against average cost plus single part tariff proposed. It was also brought to the notice of the Commission by Mr.Venkat Sundaram, Secretary, IWEA that the weighted average cost of capital worked out to 3.55 per KWh as against 3.09 per KWh as computed by the Commission. Mr. K. Kasthurirangaian Vice Chairman of the Indian Wind Power Association had made a written submission in which he requested to adopt cost plus tariff, which was fair and reasonable. He also recommended to revise the levelised tariff duly factoring the time value of money as against simple average as was being suggested by the Commission. Another person who talked about the weighted average was Mr.T.V.Chikkoba, (Retired) Member of Tamil Nadu Electricity Board who gave his opinion that while allowing cost plus tariff,

environmental benefit need not be factored. He also came out with an opinion that whether simple average method or discounted average method was adopted, the result would be the same. However, there is no sample calculation given in the discussion to show that weighted average would be the same as simple average. Nor does it appear to be a correct opinion. The Chairman of Tamil Nadu Electricity Board also suggested to give up the system of two part tariff for the wind energy generators and suggested that a single part tariff be fixed taking into consideration the project cost, fuel and quality of power. He suggested that the tariff can be levelised and remain firm. The Commission came out with the following decision:

> *"<u>The Commission's views / Decisions</u>*
> *Since wind energy is not amenable (with the existing technology) to merit order dispatch principles because of infirm nature, and all the cost of wind electric generators are fixed, the single part tariff is considered more suitable for wind power. Therefore, Commission accepts the majority views for a cost plus generalized single part tariff. The Commission have decided to categorize the Wind Energy Generators in two groups as below:*

1. *Group I Projects: (a) Wind power projects Commissioned, and to be commissioned based on agreements executed prior to the date of this order.*

2. *Group II Projects: Wind power projects to be commissioned based on future agreements after the date of this order.*

In regard to levelised tariff, the Commission accepts the views expressed by Thiru. T. B. Chikkoba, Member (Retired), TNEB. To factor-in the time value of money, in calculating the tariff, the escalation provided for O&M charges, derating of the CUF after 10 year period and grouping of the existing and proposed generators in two categories, are expected to address this issue."

6) According to the learned counsel for the appellant, the Commission's view that the escalation provided for O&M charges, de-rating of CUF (capacity utilization factor) after 10 year period and grouping of the existing and proposed generators in two categories cannot address the issue of time value of money.

7) On behalf of Tamil Nadu Electricity Board it is submitted that the Commission did not actually intend to fix any levelised tariff and there was further no question of factoring in the time value of

money. Further he said that the wind power producers were getting benefits in various forms namely that their tariff was higher than that for the hydro projects, that they were provided with facility of wheeling of excess power, albeit at a cost, that they have been permitted to sell power to third parties, that de-rating of CUF has been done, that escalation in O&M has been considered and further that tax exemption on the cost of setting up of a wind mill has been provided and that in any case the wind mills have been assured recovery of the cost as the tariff is higher than the cost of production.

8) The learned counsel appearing on behalf of the Commission reiterated the view of the Commission as expressed in the part of the impugned tariff order No.3 which has been extracted above.

9) It may be stated here that the Tamil Nadu Electricity Board's contention that the Commission did not proceed to fix the levelised tariff is not a correct proposition. Even the Commission does not mention in the impugned tariff order that the tariff that was laid down for the next 20 years was not the levalised tariff. The learned counsel for the Tamil Nadu Electricity Board did not come out with any other way in which the tariff fixed by the Commission, for the wind power generators for 20 years, could be looked at. Even the learned counsel appearing for the Commission does not say that the

Commission purported to fix anything other than the levalised tariff.

10) **What is time value of money?** IF a sum, say Rs.1000/-, is deposited with a financial institution, with base interest as 10% compounded annually, the deposit would grow to 1100 at the end of the first year, 1210 at the end of the second year and 1331 at the end of the third year. Future value of a single amount of investment today is therefore calculated in the following formula:

$$FV_n = PV\,(1+k)^n$$

Where FV_n stands for future value of n years, PV is the present value of the amount, K is the interest per year and n is the number of years for which the compounding is done. From this formula, we can also derive the present value of future payment. Therefore, PV will be equal to

$$PV = FV_n \left[\frac{1}{1+K}\right]^n$$

11) The Supreme Court had the occasion to refer to the present value and the net present value in the case of *TN Godavarman Thirumulpad Vs. Union of India & Others (2006) 1 SCC Page 1* in which the Supreme Court said as under:

"22. Clause 6.6 which by use of the word "may" leaves it to the discretion of CAMPA to establish special-purpose vehicles (SPV) for undertaking compensatory afforestation deserves to be amended so as to substitute the word "may" by the word "shall" so that the regeneration is done by some SPV n specified areas."

....

28. Cost is a function of the discount rate (a measure of the value of capital) used. Under NPV (net present value), all costs are discounted to some reference date which we have taken as 2005 for illustration. The total cost reckoned at this reference date is the sum of present value or future value of costs discounted to the year 2005. Similarly, one can calculate the present value of the revenues from the expected benefits of forest regeneration.

29. The question then is why charge NPV. In the case of conventional project like hydroelectric project, the accounting procedure is normally based on return on investment (ROI) in which the unit cost of energy includes return on capital, investment, depreciation of capital, annual fuel cost and operational and maintenance costs. However, ROI excludes the time value of money. It also excludes the gestation period of the project. Therefore, we *have the NPV method which discounts future costs and future benefits by use of appropriate discount rate and brings down such costs and benefits to the reference date which in the present case has been assumed to be the year 2005.*

....

37. The above discussion shows that NPV helps levalising the costs of public projects like forestry. It is an important tool of SBCA. Under SBCA, benefits from each of the above environmental outputs are identifiable. Hence applying NPV, one can allocate levelised costs according to the contribution of each product in the total revenue. It is important to bear in mind that a benefit or cost received or incurred now is worth more than that received or incurred later. Therefore, using the appropriate discount rate helps to aggregate marginal benefits and costs. The choice of interest rate depends upon time preference. For public project, such as forestry, a social discount rate, which indicates time preference of the society, should be used."

12) The rate of interest or the rate at which the future value is discounted for arriving at the present value is an important criterion for levalising the future payments and present payments. When future figure is weighed with the present figure, by taking

into consideration the rate of discount, the average of such weighted figures will certainly be different from the average of original figures. It cannot be said that the weight will not make any difference.

13) The Commission's view that the factor "the time value of money" is taken care of by providing escalation of O&M charges, de-rating of CUF and grouping of generators in two categories is clearly an incorrect view. O&M charges will increase over time and the expected O&M charges as would stand at the future point of time is the absolute value. The same value cannot be taken today if the time value of money is taken into consideration. De-rating of CUF after 10 years or grouping of existing generators in two categories also do not satisfy the need of factoring in the time value of money. Even the Honorable Commission has not made any effort to make two parallel calculations to show how with the figures of escalation of O&M charges, de-rating of CUF and grouping of the existing generators are equal to the levelised tariff as it could be determined with a reasonable discounting factor.

14) Has any other Commission taken into account the time value of money while fixing levelised tariff over a long period of time? The learned counsel for the appellants have produced before us orders of two Commissions namely those of Gujarat and Rajasthan. The Gujarat Electricity Regulatory Commission in its order dated 11th

August, 2006, has determined the price for procurement of power by distribution licensees in Gujarat from the wind energy projects. The Gujarat Commission has considered levelised cost and opted for fixed tariff for 20 years. Coming to actual fixation of tariff, the Gujarat Electricity Regulatory Commission said :

> *"1) **For new Projects:** Based on the various parameters as discussed above, the levelised cost of generation including RoE using discounting rate at weighted average cost of capital i.e. 11.38%, works out to Rs.3.37 per KWh.*
>
> *The Commission has determined the tariff for generation from wind energy project at Rs.3.37 (constant) for entire project life of 20 years i.e. from the first year to the twentieth year."*

It may be added here that for arriving at the levelised cost apart from the discounting factor, the Gujarat Commission has also considered the other factors namely capital utilization factor, de-rating the plant life, the depreciation, escalation of O&M expenses, the debt equity ratio, interest, income tax liability as well as the return on equity (RoE).

15) The Rajasthan Electricity Regulatory Commission has passed its order on 29.03.2007 "in the matter of determination of tariff for

sale of electricity from the wind and biomass based generating station to distribution licenses". The Rajasthan Commission after taking all those above factors into consideration fixed the levelised tariff for biomass based power plants. In paragraph 93 of the order the Commission said "Considering the above parameters for biomass based power plants to be commissioned after 30.09.08, the levelised tariff for 20 years at 10.6% discount factor are as under:

Particulars	Tariff
For plants with water cooled condensers	Rs. 4.17 per kwh
For plants with air cooled condensers	Rs. 4.55 per kwh*

*corrected vide order dated 14.3.07

16) Similarly, for the wind power plants, Rajasthan Commission's ruling is mentioned in Paragraph 43 of the order, which is as below:

"43. Based on the various parameters for tariff determination of wind power plants in Rajasthan as discussed above, the Commission has determined a back loaded tariff corresponding to levelised tariff for 20 years for wind power plants commissioned after 31.3.2007. The levelised tariff for 20 years at 10.6% discount factor are as under:

Particular	*Jaisalmer, Jodhpur, Barmer District*	*Rest of the Districts*
For Wind Power injection on 33 kV or 11 kV system	*Rs.3.60 per kwh*	*Rs.3.78 per kwh*
EHV system	*Rs.3.71 per kwh*	*Rs.3.89 per kwh*

The above tariff are determined based on different CUF and line losses. The tariff schedule is attached at schedule A."

17) The factoring in time value of money is a rational way of looking at future incomes and future returns from an investment made today. The above orders passed by the Rajasthan and Gujarat Commissions are examples of how tariff for future years can be fixed on the basis of costs levelised over a number of years in the future.

18) Now we can consider the submission of the Tamil Nadu Electricity Board that keeping in view the various advantages that wind power generators has been receiving in the State this Tribunal should not interfere with the impugned tariff order. Having heard the counsel appearing for the parties and having considered the matter carefully we are unable to agree with contention of the counsel of the Tamil Nadu Electricity Board. Nothing of the advantages mentioned by him are windfalls for the wind energy

generators. If they are entitled to wheeling of their extra energy the benefit is given at a cost. Similarly, permission to sell to third parties has been given for the benefit of the entire power sector rather than for the wind generators. De-rating of CUF, escalation of O&M are usual consideration. Certain tax exemptions have been provided to the wind generators on considerations entirely different from those relevant for fixing of tariff. If the tax exemptions are taken into consideration while fixing the tariff the exemption would be neutralized leading to denial of benefit of any tax exemption. The wind energy generators are entitled to the same returns as are allowed to other kinds of energy generators. It is not disputed that these generators are entitled to return on equity @ 16%. It is not sufficient that the tariff is higher than the cost. The wind energy generators are entitled to their 16% return on equity. Admittedly, the tariff fixed when discounted at an appropriate rate does not ensure return of 16% on equity invested by the generators. Accordingly, the impugned tariff order calls for interference.

19) The wind generation of energy is pollution free and accordingly environment friendly. World over there is a demand for increasing production of energy through wind power as well as through other non-conventional sources. The Ministry of Non-conventional Energy Sources has issued certain guidelines for promoting the production of non-conventional energy sources. One of the important guidelines relates to tariff which has been acknowledged

by the Commission. As per these guidelines, the tariff for MNES would be at 2.25 for the base year 1994-95 and would escalate by 5% per annum in the next 10 years. The Tamil Nadu Electricity Board fixed 2.25 as the average tariff for non-conventional energy sources for the year 1995 but after five years it pegged the tariff to 2.70. No reason is forthcoming from the Commission for not adhering to the MNES guidelines in this respect. Even going by these guidelines, the tariff to be fixed by the Commission for the wind power generators would have been much higher than 2.75 and 2.90 as has been done for the two groups of the wind power producers.

20) The Commission, after taking note of the guidelines, proceeds to say that the MNES guidelines need not be adopted for Tamil Nadu because the wind power generation is saturated in Tamil Nadu. It has also expressed the view that the guidelines are not binding and they are merely recommendatory in nature. The view that wind power generation in Tamil Nadu has reached saturation is contradicted by the very impugned order itself. The Paragraph 1.4 of the impugned order incorporates a tabular statement in which the potential capacity of wind generation in Tamil Nadu is shown as 4500 MW and the total installed capacity as on 31.03.2006 is shown as 2931.465 MW only. The mere fact that Tamil Nadu is the biggest producer of wind power cannot be an

excuse not to give a reasonable return to the investment made into these projects.

21) So far as guidelines are concerned, they may not be binding as the letters of a statute. However, the guidelines cannot be over looked according to the whims and fancies of the Commission. The Commission has not come out with any reason as to why the guidelines of the Commission could not be adhered to while fixing the tariff. The guidelines cannot be bypassed by simply saying that they are not binding.

22) In view of the above analysis we have no hesitation to hold that the tariff order dated 15.05.2006, relating to the wind power generation, as reiterated in the order dated 29.05.2006 cannot be sustained.

23) It has been further brought to our notice that Annexure-VIII to the tariff order which is a tabular statement of cost has shown depreciation at 4.5% as 1822500 where as the correct figure should be 202500. The Commission filed a corrected table at the time of arguments but the tariff determined is based on the incorrect figures and the tariff has not been amended despite amendment in the table.

24) Accordingly we allow the appeal and set aside the impugned tariff fixed by the Tamil Nadu Electricity Regulatory Commission by the impugned orders and direct that the tariff for the wind power producers be re-determined within the next two months by taking into consideration the time value of money. The Commission shall allow the appellant an opportunity of being heard in the process of redetermination. The members of the appellant association shall be entitled to recover from the TNEB the arrears as per the new tariff order for the period during which they have been paid at the rates fixed by the impugned orders and the TNEB shall pay the same within two months of the redetermination of tariff.

Pronounced in open court on this ***18th day of December, 2007.***

(Justice Manju Goel)
Judicial Member

(A.A. Khan)
Technical Member

The End

No. of Corrections :

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