

**Before the Karnataka Electricity Regulatory Commission, Bangalore**

**Dated this the 17<sup>th</sup> day of September, 2003**

**Present**

- |                                  |          |                 |
|----------------------------------|----------|-----------------|
| <b>1. Sri. Philipose Matthai</b> | <b>-</b> | <b>Chairman</b> |
| <b>2. Sri. H.S. Subramanya</b>   | <b>-</b> | <b>Member</b>   |
| <b>3. Sri. S.D.Ukkali</b>        | <b>-</b> | <b>Member</b>   |

**Case No.S/08/2003(Batch-B)**

**In the matter of**

**Approval of draft Power Purchase Agreements relating to Wind Power**

**Between**

1. M/s Jindal Aluminium Ltd.,  
Jindalnagar,  
Tumkur Road,  
BANGALORE 560 073.
2. M/s J.N.Investments & Trading Co.(P) Ltd.  
No.Kaysons No.1,  
Mehra Estate, L.B.S.Marg,  
Vikhroli West,  
MUMBAI 400 079.
3. M/s Godawath Pan Masala Products(I)(P) Ltd.,  
Plot No.438, P.B.No.118,  
A.P.Chipri 416 101 (Via Jaysingpur)  
KOLLAPUR DISTRICT
4. M/s Shriram Investment Ltd.  
117/118, "B" Wing, Dalamal Towers,  
211, Nariman Point,  
MUMBAI 400 021.
5. M/s Shriram Transport Finance Company Ltd.,  
117/118, "B" Wing, Dalamal Towers,  
211, Nariman Point,  
MUMBAI 400 021.

6. M/s Shriram City Union Finance Ltd.,  
117/118, "B" Wing, Dalamal Towers,  
211, Nariman Point,  
MUMBAI 400 021.
7. M/s Mohite and Mohite Engineers & Contractors (P) Ltd.  
Zilla Parishat Road,  
Nagala Park,  
KOLHAPUR 416 003
8. M/s ENERCON Wind Farms (Karnataka) Ltd.,  
Plot No.33, Daman Patalia Road,  
Bhimpore Daman (India)
9. M/s Godawath Pan Masala Products (P) Ltd.,  
Plot No.438, P.B.No.118,  
A.P.Chipri 416 101 (Via Jaysingpur)  
KOLHAPUR DISTRICT
10. M/s Topaz Investment (P) Ltd.,  
328, 3rd Main, Ramanjaneyanagar,  
Chikkalasandra,  
BANGALORE 560 061.
11. M/s Lovely Fragrances,  
No.A-701, Baker's Field, Shastri Nagar  
Andheri West,  
MUMBAI 400 058.
12. M/s Sanjay D.Ghodawat (HUF),  
2549, P.O.No.118,  
Yeswanth Co-Op. Housing Society  
Jayasinghpur 416 101
13. M/s TEXMO Industries,  
P.B.No.5303, Mettupalyam Road,  
COIMBATORE 641 029.
14. M/s ENCON Services Ltd.,  
Lanco House, No.25, GN Chetty Road,  
T.Nagar,  
CHENNAI 600 017
15. M/s. Savitha Chemicals,  
66/67, Nariman Bhavan,  
Nariman Point,  
MUMBAI 400 021.

16. M/s Prabath Agri Bio Tech Ltd.,  
6-3-540/10, 1st Floor, Opp.SBH,  
Punjagutta,  
HYDERABAD 500 082.

17. Indian Wind Power Association, Karnataka Council,  
Centenary Building, IV Floor,  
28, M.G.Road,  
Bangalore 560 001.

**Developers**

**and**

The Karnataka Power Transmission Corporation Ltd.,  
Kaveri Bhavan,  
Bangalore-560009

**Licensee**

The Karnataka Power Transmission Corporation Ltd. (KPTCL) has submitted 16 Draft Power Purchase agreements (PPAs) relating to wind power generation, duly initiated by the above developers and the licensee, for consent and approval by the Commission under Section 17 of the Karnataka Electricity Reforms Act, 1999 (Shortly 'Act' hereinafter). Some of these projects are already commissioned.

2. The essential facts of this case, in brief, may be stated as follows:

(i) Some 17 developers of wind power projects had approached this Commission, during May 2003, with a common plea that there was undue delay on the part of the Licensee to initiate and execute the PPAs, though some of them had commissioned their projects and were delivering power to the Licensee, and that they were put to financial loss due to non payments of their bills, in the absence of concluded agreements. The

Commission, after hearing all concerned, had passed an order in Case Nos. OP-1 to 13, 15 and 19 to 21 of 2003 on 29<sup>th</sup> May 2003. The Commission had ordered that the Licensee should complete all formalities and finalise the pending PPAs within 3 months from the date of the order. It had also held that permitting the generating companies to deliver power to the grid of the Licensee without valid agreement and utilizing such power would amount to violation of licensing conditions.

(ii) The Commission has also prescribed the manner in which the PPAs should be drawn up and has informed the Licensee that there shall be no deviation from the standard PPA conditions approved by the Commission in respect of Non-Conventional Energy based projects.

(iii) The KPTCL had proposed to the State Government to permit it to purchase energy generated from wind and biomass projects at the following rates:

- (a) Wind: Rs.3.25 per kWhr from projects already commissioned and to be commissioned on or before 31<sup>st</sup> August 2003 and Rs. 3.10 per kWhr for projects to be commissioned after 31<sup>st</sup> August 2003 with annual escalation of 2% on the base tariff.
- (b) Biomass: Rs.2.80 per kWhr with annual escalation of 2% on the base tariff.

The State Government through its letter dated 23<sup>rd</sup> June 2003 has approved the proposed rates.

(iv) On 22<sup>nd</sup> July 2003, KPTCL submitted 16 draft PPAs, pertaining to Wind energy projects, for consent and approval by the Commission.

3. On examination of the above PPAs, the Commission observed that the following additional clauses/schedules have been added in deviation with the approved format of the Commission:

- 1. Article 3/Undertakings
  - 3.1 Obligations of the Company

3.1 (vi) The benefits accruing on account of Carbon Credit shall be shared between the company and the Corporation in the ratio of 30:70.

2. Article 4/Rates and Charges

4.5 The Company shall agree to maintain the same power factor as that of the Grid System to which it is connected. In case of failure to do so, the Corporation shall charge at the rate of Rs.0.40 per KVARH. Sample calculation is shown in Schedule 7. Alternatively, the Company shall agree to pay to the Corporation, on or before signing of this Agreement, at the rate of Rs.37, 000/- (Rupees Thirty-seven thousand only) per MW of installed capacity and for fractions thereof on a pro rata basis as a one time lump sum payment for the sole purpose of providing the required MVAR capacity at the sub-station of the Corporation to which the project is interconnected to supply the requisite reactive power to the Grid System.

3. Schedule-7 showing sample calculations of KVARH of Corporation Grid and Generating Stations of the Company

The KPTCL maintained that the developers have agreed to the additional clauses regarding sharing of carbon credit benefits and supplying of reactive energy to the grid by maintaining the same power factor as that of the grid.

4. The Commission decided to hear the developers and the KPTCL and heard them on 14 & 21.8.2003.

5. M/s Enercon Wind Farms (Karnataka) Pvt. Ltd., have submitted their written response to the Commission on the additional clauses introduced in the Agreement regarding carbon credit and supply of reactive energy. The other developers have also reiterated their views as follows:

5.1 Carbon credit – “The issue of carbon credit is still being debated a lot by MNES, IREDA and various other stakeholders. While we appreciate the claim of KPTCL for getting benefits under the carbon mitigation scheme, the exact proportion due to the stakeholders may be determined by the Hon'ble

Commission. It may not be out of place, to mention that the developers themselves have to incur costs known as transaction cost for getting the actual credits from purchasers."

5.2 Supply of reactive energy:- "The points made by KPTCL that the generating stations have to deliver RKVAH to the KPTCL grid is well taken. However, the recordings of power factor need to be concurrent at all times both at the points of generating/receiving stations. The law of averages does not work here, as the station may be working at different loads at different points of time and generating stations cannot be made responsible for delivery of RKVAH as per full capacity of the generating stations. Mention is to be made here that power factor differs for various voltage levels and from location to location depending on how much pumping load and other inductive load is connected to that particular station. Such poor power factor can be mitigated only by a large station from where the major portion of power is received by the particular sub station.

5.3 Lastly, the generating stations operate on a band of power factor from 0.85 lagging to 0.95 leading as per their design parameter. No station will be able to deliver power factor beyond these limits, even if the grid so demands.

5.4 In view of the foregoing, the formula mentioned in Schedule 7 of the draft PPA is not implementable."

6. M/s Indian Wind Power Association, Karnataka Circle, have intervened in the proceedings and have furnished their views on the additional clauses introduced in the draft PPAs. This Association has obtained and furnished the opinion of M/s Power Research & Development Consultants Pvt. Ltd., on this subject, which substantiates the views of the developers.

7. The KPTCL has filed the following rejoinder to the written response of the developers:

7.1 Carbon credit

"These Non-conventional projects are eligible for carbon credit as per Kyoto protocol formulated in 1997. The protocol gives credit for carbon-di-oxide equivalent reductions to these NCE projects. Since the power purchase price from these NCE projects being MNES tariff is on higher side, KPTCL has requested these projects to share the carbon Credit with it so that the same may be passed on to the general consumers by way of reduction in tariff. These were discussed in detail with these developers before initialing the PPA and they have agreed for the same. As the quantum of credit due to reduction of Carbon-di-oxide to these projects is not yet finalized, an enabling clause was proposed by KPTCL for sharing of the benefits accruing out of carbon credit in the ratio of 70:30 between KPTCL and the developer. The developers of NCE projects have agreed to this proposal and as such many of them have initialed PPAs while many have signed the PPA with the above provision."

#### 7.2 Reactive power compensation

"KPTCL has observed that these NCE power projects are supplying only active energy and a little reactive energy. In order to maintain the power factor of the grid within permissible limits and for the stability of the system KPTCL has to generate and supply additional reactive energy to the grid to offset the short supply of reactive power by these NCE projects. Hence they have been requested to supply reactive power to the grid by maintaining their power factor same as that of the receiving station to which the project is connected.

7.3 In lieu of failure to supply reactive power as explained above, KPTCL proposed to levy a penalty at a rate of Rs.0.40 per KVRAH. The reactive power compensation liable to be paid by the developers for failure to maintain the power factor as that of the grid was to be estimated as per the method finalized and included in the PPA as a Schedule. A copy of the Schedule providing sample calculation of reactive power compensation is enclosed to the PPA. The proposals of the developers for making a lump sum payment per MW of installed capacity to enable KPTCL to install capacitor banks at the above sub-stations has been examined and the amount to be collected for this purpose has been estimated. The MVAR capacity to be developed is estimated on the basis that 30% of the installed capacity in MW is adequate to provide the required reactive power. This means that for every MW of capacity installed, the corresponding

required MVAR capacity to be installed will be 0.3 MVAR. The total cost for installing the capacitor bank has been calculated utilizing the schedule of rates proposed for the year 2003-04. As per the schedule of rates for the year 2003-04 the capacitor bank capacity available is 5 MVAR and 10 MVAR. As such the capacitor bank proposed are in multiples of the above capacities.

7.4 On the basis of the above, the power project connected/likely to be connected to each of the above sub-stations and the MVAR capacity/capacitor bank required at each of the sub stations has been calculated. As per these calculations, the average cost per MW for installation of capacitor bank and providing the required MVAR capacity works out to Rs.36,684.92 or Rs.37,000/- as against Rs.20,000/- per MW proposed by the developers. Details of the calculation are enclosed. Pursuant of the discussions and negotiations, the power project developers have agreed to the formula suggested by the KPTCL and hence initialed the PPAs which have been duly placed before the Commission for approval."

8. We have heard the developers and the KPTCL. On behalf of the developers, Mr Yogesh Mehra of M/s Enercon Wind Farms, argued the case. He reiterated the points mentioned in their written response and stated that the developers have agreed to the third option of the KPTCL in regard to supply of reactive power and signed the draft agreements. Sri B.S.Hanumanthappa, Chief Engineer, Planning & Coordination, and Sri S.S.Nagananda , learned Counsel for KPTCL argued the case for KPTCL. They conceded that the clauses relating supply of reactive power and Schedule 7 are difficult to implement and they could be deleted. Both the developers and KPTCL were agreeable for the third alternative, viz., one time payment of Rs.37, 000/- by the developer per MW of installed capacity and for fractions thereof on a pro-rata basis for the sole purpose of providing the required MVAR capacity at the sub-station of the Corporation to which the project is interconnected to supply the requisite reactive power to the grid system. However, both of them could not elaborate much on the Carbon Credit. They clarified that it is only an enabling clause and that it would be put to use when the procedures are established.



9. We have examined the issue of carbon credit to enlighten ourselves in this regard. The following is the background of this issue:

The United Nations Framework Convention on Climate Change, generally called "Earth Summit", was signed at the Rio de Janeiro in 1992. Pursuant to the objectives of this summit, more than 160 nations met in Kyoto, Japan, and signed Kyoto Protocol by negotiating binding limitations on green house gases for the developed nations. The Developed nations agreed to reduce their green house gas emissions, relative to the levels emitted in 1990, during the period 2008 to 2012. The Protocol has created two mechanisms to achieve the targets agreed by the nations in an economical way. Green House Gas emissions trading and Clean Development Mechanism (CDM) are the two flexible methods available for reduction of GHG emissions. CMD has been defined in Article 12 of the Kyoto Protocol. The parties (Developed Countries) who adopt CDM will invest in the projects of the Developing countries, which help reduction of GHG emissions. The modalities of sharing the fund inflow and the administrative expenses etc are yet to be finalised. The Non-conventional energy projects are environment friendly and are likely to get credit for non-emission of Green House Gases and share in the fund inflow.

10. Now, therefore, we approve the draft PPAs subject to the following:

- (i) Retention of the clause under Article 3 – Undertakings at item 3.1 (vi) regarding sharing of benefits on account of Carbon credit.
- (ii) Deletion of clause 4.5 under Article 4 – Rates and Charges and to retain the clause regarding one time payment of Rs. 37,000/- per MW of installed capacity and for fractions thereof on a pro-rata basis for the sole purpose of providing the required MVAR capacity at the sub station of the Corporation to which the project is interconnected to supply the requisite reactive power to the Grid System.
- (iii) Deletion of Schedule-7 - reactive power compensation.

So ordered.

sd/-

**(Philipose Matthai)**

sd/-

**(H.S.Subramanya)**

sd/-

**(S.D.Ukkali)**

