

**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-A)**

**In the matter of**

**Approval of draft Power Purchase Agreements under MNES Tariff**

**Between**

1. Narayanpura Left Bank Canal Power House,  
Murudeswara Power Corporation Ltd.,  
7<sup>th</sup> Floor, 14, M.G.Road,  
Bangalore.
2. Rajan Kollur Mini-Hydel,  
Bhoruka Power Corporation Ltd.,  
#48, Levelle road,  
Bangalore-1
3. Harangi HEP Energy Development Co.,  
Energy Development Co. Ltd., Harangi,  
Hydrao Electric Project,  
Hunagunda via Kushalnagar,  
Kushalnagar - 571-233.
4. Hemavathi Mini-Hydel,  
SMIORE  
The Sandur Manganese Iron ore Ltd.,  
Sandur House,  
#56, Palace Road,  
Bangalore - 560 001.
5. Shimsha Mini-Hydel,  
Atria Power Corporation Ltd.,  
#1, Palace Road,  
Bangalore - 560 001.

6. Sheshadri Iyer Mini-Hydel,  
Atria Power Corporation Ltd.,  
#1, Palace Road,  
Bangalore - 560 001.

7. Godavari Sugar Mills Ltd.,  
Unity Building, Tower Block, 4<sup>th</sup> Floor,  
J.C.Road.  
Bangalore - 560 002.

**Developers**

**and**

Karnataka Power Transmission Corpn. Ltd.,  
Kaver Bhavan,  
Bangalore -560 009

**Licensee**

The Karnataka Power Transmission Corporation Ltd. (KPTCL) has submitted 7 Draft Power Purchase Agreements, duly initialed by the above developers and the Licensee, pertaining to Non Conventional Energy Projects which are already commissioned, for consent and approval by the Commission under Section 17 of the Karnataka Electricity Reforms Act, 1999 (Shortly 'Act' hereinafter).

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

(i)The Act came into force on 1<sup>st</sup> June 1999; however, this Commission got constituted under the Act and started functioning with effect from 15<sup>th</sup> November 1999. Section 17 of the Act prescribes that the Power Purchase Agreements (PPAs) between the Licensee and the Developers have to be consented and approved by the Commission. Sub Section 4 of the Section 25 of the Act stipulates that any agreement, unless made with, or subject to, such consent of the Commission shall be void. On investigation, the Commission noticed that after the Act came into force, some 15 Power Purchase Agreements (PPAs) were entered into by the Licensee without prior consent and approval of the Commission under

Section 17 of the Act. Therefore, the Commission, on 21<sup>st</sup> November 2001, informed the KPTCL that these 15 PPAs were null & void. The following is the list of null & void PPAs:

#### **Projects based on Liquid fuel**

1. Peenya Power Project, Peenya Power Co., Bangalore
2. Mandya Power Project, Mandya Power Partners Pvt. Ltd.,

#### **Mini Hydel Projects**

3. Narayanapura LBC Power House, Murudeshwar Power Corporation
4. Somanamaradi Hydro-electric project, Narayanapura Power Co.Pvt. Ltd.
5. Rajankollur Minihydel power project, Bhoruka Power Corporation
6. Harangi Hydro electric project, Energy Development Co. Ltd.
7. Hemavathi Mini hydel project, Sandur Manganese & Iron Ores Co. Ltd.
8. Shimsha Mini Hydel Power Project, Atria Power Corporation Ltd.
9. Seshadri Iyer Mini Hydel power project, Atria Power Corporation Ltd.
10. MGHE Station Tail Race Hydro Power Project, Suchindra Investments Ltd.
11. Mallaprabha MHS, Tungabhadra Steel Products Ltd.
12. Parpikala Mini Hydel Power Project, Parpikala Power Pvt. Ltd.

#### **Co-Generation Projects**

13. Godavari Sugar Mills Ltd. Sammerwadi, Bagalkot Dist.

#### **Wheeling & Banking Agreements of Wind Projects**

14. BSES Ltd., Jogimatti, Chitradurga Dist.
15. GIFSL Ltd., Jogimatti, Chitradurga Dist.

(ii) The Commission had informed KPTCL on 25<sup>th</sup> February 2002 that it should enter into fresh agreements in respect of the above mentioned null & void transactions in the manner prescribed by the Commission and that there should not be any deviation from the standard PPA conditions prescribed by the Commission.

(iii) Among the void PPAs listed above, the projects listed in Sl. No. 1 & 2 based on liquid fuel, were shelved. Sl. No. 14 & 15 are wheeling & banking agreements. The remaining 11 PPAs from Sl. No. 3 to 12, being in respect of

Mini hydel projects and Sl. No.13 being in respect of Co-Generation Project are relevant to this case.

(iv) Between 19<sup>th</sup> March and 2<sup>nd</sup> May 2003, the KPTCL had submitted 7 PPAs relating to Mini Hydel Projects and Co-generation Projects, for consent and approval. These PPAs are now under consideration in this case. However, the KPTCL has not submitted 4 PPAs at Sl. No. 4 and from 8 to 10 for approval by the Commission. On examination of the PPAs that are under consideration, the Commission had observed that the following additional clauses/schedule have been added in deviation to the approved format of the Commission:

(a) Article 2 – Undertakings

2.1 Obligations of the Company:

(xi) “The company shall share with the Corporation any benefits on account of carbon credit, which accrues to it.”

(b) Article 3 - Rates and Charges

“The Company shall agree to maintain the same power factor as that of Corporation's grid to which it is connected ( - - sub station). In case of failure, the Corporation shall charge at Rs.0.40 per KVARH.”

(c) SCHEDULE – 7

Showing sample calculation of KVARH of Corporation's Grid and generating stations of the Company.

The KPTCL has maintained that the developers have agreed to 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.

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

4. In response to the notice issued by the Commission for the hearing, the developers have submitted their written response on the additional clauses introduced in the Agreement regarding carbon credit and supply of reactive energy as follows:

4.1 "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."

4.2 "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.

4.3 "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."

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

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

5.1 "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 the way of reduction and 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."

5.2 "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."

5.3 "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. The proposals of the developers for making a lumpsum 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 banks proposed are in multiples of the above capacities."

5.4 "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."

6. Sri Raviraj Hegde of Murudeshwara Power Corporation Ltd. presented the case on behalf of the developers. He has reiterated the points mentioned in the written response and stated that the supply of reactive energy to match the grid power factor is not feasible and therefore the developers have agreed to the third option of 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. He has further contended that the carbon credit is a new concept and there are many grey areas about its implementation. He has stated that they have agreed to the proposed ratio of sharing the credit, though they would welcome if it is determined by the Commission. He has also stated that the developers have signed the draft

agreement after agreeing to the third option of making lump sum payment in lieu of supplying reactive power.

7. Sri B.S.Hanumanthappa, Chief Engineer, Planning and Co-ordination, KPTCL, argued on behalf of the KPTCL. Sri. S.S.Nagananda, learned Counsel supplemented the arguments of Sri Hanumanthappa. They have reiterated the points mentioned in their rejoinder. They have stated that the third option is introduced to obviate the difficulty of supplying reactive power by the developers. 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.

8. 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.

9. We have carefully considered the various issues brought out before us. Section 17 of the Act prescribes that licensee may purchase electricity in the manner approved by the Commission. The Commission has formulated the standard PPA conditions and has informed the KPTCL to adhere to it. We have carefully considered the reasons stated by KPTCL for the inclusion of the two additional clauses. The developers have agreed before us that they have agreed to the new clauses and that in respect of supply of reactive power, they have agreed for the third option of making lumpsum payment on the installed capacity, for the supply of reactive power. We therefore approve the above draft PPAs, with effect from the date of their signing of the null & void agreements, subject to the following:

1. Retention of the clause under Article 2 – Undertakings at item 2.1 (xi) regarding sharing of benefits on account of Carbon credit.
2. Deletion of clause 3.3 under Article 3 – Rates and Charges.
3. Inclusion of a 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.
4. Deletion of Schedule-7 - reactive power for compensation

10. Though there were 11 PPAs of this kind, the KPTCL has now submitted 7 draft agreements for approval. KPTCL has not sent the remaining 4 PPAs nor has given any reasons for their non-submission. The following PPAs of this category have not been submitted:

- i) Somanamaradi Hydro-electric project, Narayanapura Power Co.Pvt. Ltd.
- ii) MGHE Station Tail Race Hydro Power Project, Suchindra Investments Ltd.
- iii) Mallaprabha MHS, Tungabhadra Steel Products Ltd.
- iv) Parpikala Mini Hydel Power Project, Parpikala Power Pvt. Ltd.

We hereby direct that the principle approved by the Commission in this case shall apply to the above 4 PPAs also. The Licensee is hereby directed to inform the Commission on the follow up action taken in respect of the above 4 PPAs.

11. It is learnt that in case of some projects, the State Government have permitted the enhancement of the capacity of plants. It is clarified that the consent accorded through this order shall be applicable to the projects with enhanced capacities. The Licensee shall make necessary changes in the drafts, wherever necessary, in such cases, and inform the Commission.

12. Consequently, the expenditure incurred by the licensee for the purchase of power from these projects during Fy-03 and FY - 04 is allowed.

Ordered accordingly.

**(Philipose Matthai)**

**(H.S.Subramanya)**

**(S.D.Ukkali)**