



**ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION**

**Hyderabad**

**Dated: 30-03-2010**

**Present:**

Sri A.Raghotham Rao, Chairman

Sri R.Radhakishen, Member

Sri C.R.Sekhar Reddy, Member

**O. P. No. 40 of 2010**

**In the matter of approval of format for Power Purchase Agreement (PPA) and Guidelines on Power Evacuation from Wind Power Projects in Andhra Pradesh**

1. The Andhra Pradesh Electricity Regulatory Commission passed orders on 01-05-2009 in O.P. Nos. 6&7 of 2009, determining the tariff for Wind Power Projects. As per the said orders, the tariff for Wind Power Projects for which PPAs would be entered into between 01-05-2009 and 31-03-2014, shall be firm at Rs. 3.50 per unit for the first ten (10) years from Commercial Operation Date (COD). The orders also stipulated that the

eligible developer shall bear the entire cost of power evacuation facilities for interconnecting the Wind Firms with the Grid and delivery of power.

2. Against the above backdrop, a petition was filed by 4 DISCOMS & APTRANSCO (herein after referred to as petitioners) on 20-08-2009, seeking orders u/s 86 (1) (b) & (e) of the Electricity Act, 2003 read with sec: 21 (4) of APER Act, 1998, for approval of guidelines for evacuation of power from Wind Power Projects and format of revised standard PPA. The motivation for filing the above said petition, as stated in the petition itself, is a request from the prospective Wind Power Project developers seeking issuance of guidelines on power evacuation facilities and making certain amendments to the existing standard PPA towards uniform and Regulatory approved guidelines for evacuation facilities and power purchase agreement format which will provide clarity and help in sustainable promotion of Wind Power Projects. Obviously the petition is a next step to orders determining tariff for the wind projects towards attracting investments in the wind sector in the state of Andhra Pradesh. Admittedly, the guidelines on power evacuation facilities and PPA format have been evolved in consultation with prospective developers and Non Conventional Energy Development Corporation of Andhra Pradesh (NEDCAP).

3. The petition was taken on record by the Commission and was assigned O.P.No.40 of 2009. Thereafter, Public Notice was issued on 26-10-2009

inviting the views of Public and other Stakeholders on the petition filed by the 4 Discoms and AP Transco which was placed on the official website of the Commission. The last date for receipt of views was 15-11-2009 and thereafter a Public hearing was scheduled for 30-11-2009.

4. In response to the above notice, two (2) Associations viz. (1) Indian Wind Turbine Manufacturers Association (IWTMA) and (2) Indian Wind energy Association (InWEA) filed their written submissions with a copy to the Chief Engineer/ IPC/ APPCC, the petitioner on 11-11-2009 and 23-11-2009 [InWEA took permission to file their written submissions after the due date of 15-11-2009] respectively. The Commission had directed the petitioner to file their responses vide letter dated 25-11-2009 with a copy to the above two Associations. The petitioner had filed their responses vide their letter dated 30-12-2009. Subsequently, the matter was part heard on 30-11-2009 and thereafter finally heard on 10-02-2010. During the hearings, in addition to the petitioner and members of the above said associations, a representative of (NEDCAP) was also present.
5. The Commission, having perused the record and with due regard to the written and oral submissions of the above said two associations, together with the written and oral responses of the petitioner, and also cognizing the views of the representative of the NEDCAP, identified the following key issues in the context of approval of guidelines for evacuation of power from

wind power projects and approval of format of revised standard power purchase agreement:

- (i) Whether Choice of conductor (technology, size, and loading) at 33 kV level should be left to the developer.
- (ii) Whether there is any need for sanctioning of estimates and drawings by any agency, since the 33 kV system is constructed, operated and owned by the developer.
- (iii) Whether supervision charges are to be levied, since the 33 kV network is constructed, owned and operated by the wind firm developer.
- (iv) Whether there should be a provision for the individual projects to be inter-connected to the grid network also.
- (v) Whether Explanation 2 under Delivered Energy clause is to be modified.
- (vi) Whether certain additional undertakings of Discoms need to be inserted under clause 6.2 of the PPA.

- (vii) Whether seeking approval of guidelines for power evacuation by the licensee has legal validity.
- (viii) Whether evacuation costs beyond metering point should be borne by STU.
- (ix) Whether differential treatment for Cluster and Individual projects can be allowed.
- (x) Whether deemed generation clause needs to be incorporated into the PPA:

6. The detailed examination of the key issues and findings of the Commission thereon are as under:

(i) Whether Choice of conductor (technology, size, and loading) at 33 kV level should be left to developer: IWTMA suggested that in the draft guidelines, choice of the Conductors has been limited to only AAAC Conductors which is not appropriate as there are several other types of conductors available in the Market like ACSR, new technologies like ACCC etc. They further stated that the developer should be left free to adopt available technologies and the size, type and loading on the conductors based on thermal limits. On this, the petitioner stated that the limit of

power to be transferred at specific voltage level is characterized by current carrying capacity of the conductor and voltage regulation and as such, there was requirement to specify the permissible capacity on specific conductor at specific voltage. They further stated that the other states' ERCs have also specified the norms for injection of power by NRE projects to the state grid, and that the Rajasthan Electricity Regulatory Commission in its order dt. 31.3.2006 had stipulated the norms for connectivity of NRE projects with the grid. The petitioners requested the Commission to approve the evacuation norms for Wind power projects to be permitted at 33 KV level as proposed. The representative of the NEDCAP also opined that from the point of view of ensuring uniformity in the Grid, the choice of selecting the technology, size, type and loading of the conductor cannot be left to the developer. After a detailed examination of the technical considerations, the Commission is of the view that no changes are warranted on this account, in the evacuation guidelines or the PPA format submitted by the petitioner.

(ii) Whether there is any need for sanctioning of estimates and drawings by any agency since 33 kV system is constructed, operated and owned by the developer: IWTMA stated that the 33 kV line is constructed, operated and owned by the Wind firm developer and as such 33 kV systems should not be subject to sanctioning of estimates or drawings from any of the agencies. In response, the petitioner stated that Section 7 of the Electricity Act, 2003

stipulates that a generating company has to comply with technical standards relating to connectivity with grid, referred to in clause (b) of Section 73. The petitioner further stated that the Central Electricity Authority's (CEA) notified regulations on technical standards for connectivity to the grid, and particularly Clause 6 (6) of the above said regulation, stipulates that a generating company has to make a request for connection in the planning stage to the transmission or distribution licensee, as the case may be, and the licensee should carry out interconnection study to determine the interconnection point, required interconnection facilities and modifications required to the existing grid. The petitioner further added that the regulation also states that the study may also address transmission system capability, losses and voltage regulation etc., and as such, the Transmission and Distribution licensees have to study and finalize the inter connection scheme for wind power projects. The petitioner further stated that states like Karnataka and Tamilnadu are also following a similar procedure. The Commission having considered the views of both the parties, is of the view that sanctioning of estimates and approval of drawings has to be necessarily done by the concerned licensees, in as much as the 33 kV system, even though owned and operated by the developer, will ultimately form part of the grid and as such supervision by the licensee is a necessity and is in line with provision of the EA 2003 and accordingly, no changes are warranted in the evacuation guidelines and the format PPA submitted by the petitioner.

(iii) Whether supervision charges are to be levied since 33 kV network is constructed, owned and operated by the wind firm developer: IWTMA pointed out that since the entire 33 KV network from the Wind turbine up to and including the Wind farm pooling station is constructed, owned and operated by the Wind firm developer, there should not be any supervision charges payable to APTRANSCO or DISCOM. In response to this, the petitioner stated that the evacuation scheme executed by Wind developers required to be supervised by the concerned Officers of transmission and distribution licensee for adherence to the standards/norms. The petitioner further stated that, to promote Wind power projects, the Transmission and Distribution licensees have already agreed to collect concessional supervision charges and that the charges proposed are minimum, when compared to similar charges being collected in Tamilnadu and Karnataka from Wind power projects. Further, the representative of NEDCAP also supported the stand of the petitioner. The Commission, noting that the evacuation scheme executed by the developer is to be supervised by the concerned officers of the petitioner, and also upon cognizing that such charges are already concessional besides being in the nature of one time payment, is of the view that supervision charges are to be necessarily paid by the wind developer and accordingly no change is warranted to the guidelines for evacuation of power from wind power projects or the PPA format as filed by the petitioner on this account.

(iv) Whether there should be a provision for the individual projects to be inter-connected to the grid network also: IWTMA stated that the individual Wind power projects may be interconnected with the nearest grid SS or **grid network** [addition suggested by IWTMA]. In response, the petitioner stated that as per the existing procedure, the wind power projects and other NRE projects coming up as independent projects at specific location have to be interfaced to the nearest sub station with dedicated line and metering shall be provided at sub station. The petitioner has further brought to the notice of the Commission that very less capacity of wind power projects will come up as individual projects. NEDCAP also confirmed that in AP Projects are coming up in clusters. In view of the above position, and duly recognizing that in AP individual projects are not very likely to come, Commission is of the view that no changes are warranted on this account to the evacuation guidelines or the PPA format as filed by the petitioner.

(v) Whether Explanation 2 under Delivered Energy clause is to be modified: IWTMA stated that the Definition of Delivered Energy (Definition 1.5) is very clear and precise, whereas, the Explanation 2 under the Delivered Energy clause is ambiguous and redundant. They further stated that, whatever a wind farm generates from the agreed capacity as per the preamble and Project Definition (Definition 1.13), the same will become the delivered

energy and as such the question of calculation of energy based on the number of hours and fraction thereof, and limiting the delivered energy to that extent will not arise at all. IWTMA finally stated that this explanation will definitely lead to confusion in the future and therefore should be removed. In response, the petitioner stated that the explanation is already approved by the Hon'ble Commission in the earlier PPAs, and that the explanation indicates that in any month, the energy delivered by Wind Power Projects above 100% PLF, if any, shall not be accounted for payment. Further, the petitioner stated that the Commission also asked the NEDCAP about their opinion on the issue, and in response they have opined that the apprehension of the wind developers on this is unfounded as the PLF of a wind generator would never exceed 100% PLF and accordingly, the clause can be retained as it is without any change. Commission, is therefore of the opinion that there is no harm in retaining the clause as it is. Hence no change is warranted in the revised standard PPA.

(vi) Whether certain additional undertakings of Discoms need to be inserted under clause 6.2 of the PPA: IWTMA suggested that the following

undertakings of Discoms need to be inserted under clause 6.2 of the PPA:

- (a) to off-take and purchase all the Electricity generated by the Company at the Delivery Point
- (b) to coordinate with APTRANSCO and assist the Company in obtaining approval for the interconnection facilities where the

interconnection is at 66 KV or above voltages, for synchronization, Commercial Operation, regular operation etc., as required by the Company (c) to allow the Company to operate the Project as a must run generating station (d) to provide start up power required for the plant as and when necessary. The point wise response of the petitioner is as follows: (a) the proposed clause is similar to the existing clause at 6.2 (ii) which states that DISCOM agreed to purchase delivered energy from the project and as such incorporation of this clause will create duplication and may not be necessary (b) the proposed clause may be considered (c) as per APERC orders Wind projects are already considered as must run stations (d) Article 2.5 of PPA format already provides that Wind projects can avail start up power required for plant as and when necessary by paying necessary charges and as such incorporation of proposed clause will create duplication and may not be necessary. Commission having carefully examined the suggestion of IWTMA and the responses of the petitioner is of the view that all the points raised by IWTMA have been already covered by the PPA clauses already built in except for item (b) as above. Accordingly, it would be sufficient, if the revised standard PPA is modified by inserting the undertaking indicated at (b) above. Accordingly, Commission modifies the PPA format suitably.

(vii) Whether seeking approval of guidelines for power evacuation by the licensee has legal validity: InWEA pointed out that though the approval of

PPA format is clearly stipulated in Section 86 (1) (b) of Electricity Act, 2003, there is no legal provision stipulating for seeking approval of guidelines for power evacuation by licensees. In response, the petitioner stated that Section 86 (1) (e) of Electricity Act 2003 stipulates that the Hon'ble Commission shall promote NRE projects by providing suitable measures for connectivity with the Grid. The petitioner stated that even though various State ERCs have announced measures for connectivity with Grid in respect of NRE projects in the light of the above mentioned provision, APERC had not specified measures in respect of NRE projects under Section 86 (1) (e) of the Act for connectivity with the Grid. The petitioner further stated that the Act has not prohibited the licensees from approaching the Hon'ble Commission seeking approval to measures for connectivity with the Grid in respect of NRE projects under Section 86 (1) (e) of the Act and accordingly, the licensees had filed the petition under Section 86 (1) (e) of the Act, along with other provisions of the Act, seeking approval to power evacuation guidelines for Wind Power Projects and as such, the Petition is not contrary to Section 86 (1) (e) of the Act. Further, the petitioner stated that the Petition filed by the petitioners provided a platform for participation by all concerned stakeholders in the proceedings and put forth their views before the Hon'ble Commission and as such, no prejudice is caused to the Respondent.

The Commission has examined the contention of InWEA. An order on determination of tariff / power purchase price in respect of “New Wind based Power Projects” was issued on 01-05-2009. It is necessary to have an approved set of guidelines, format of PPA in furtherance of the order of 01-05-2009. NEDCAP has informed during the course of hearing that some of the developers are already coming forward to sign PPAs and commission the project before 31<sup>st</sup> March 2010, based on the PPA and guidelines finalized by the AP Transco and if the same are approved by the Commission, all the obstacles for investment in Wind sector would vanish. Further, IWTMA assured the Commission that investment would be forthcoming once PPA and guidelines are approved by the Commission. Commission does not want to come in the way of attracting investments in the State of A.P. Further, Commission has no hesitation in holding that approval of evacuation guidelines is squarely covered by the provision *“promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid”* as mentioned under section 86 (1) (e) of the Electricity Act 2003. For all the reasons mentioned above, the Commission considers that the contention of InWEA can not be accepted.

(viii) Whether the evacuation costs beyond metering point should be borne by STU: INWEA stated that as per the Electricity Act, the STU is required to plan and develop intra-state transmission for smooth flow of electricity

from generating station to load centre. InWEA further stated that Forum of Regulators also had reported that grid connectivity for RE sources should be optimally provided by licensees through their CAPEX plans submitted to appropriate Commission for approval and that the Rajasthan ERC also had stipulated that transmission licensees are responsible for the development of the evacuation system beyond pooling substation till the nearest grid substation. InWEA finally stated that the draft PPA and guidelines should be suitably amended specifying that the licensees shall be responsible for development of system beyond the Interconnection Point (metering point). In response, the petitioner stated that Section 10 of the Electricity Act 2003 specified the duties of generating companies. Further, the petitioner stated that this section stipulated that it shall be the duty of the generating company to establish, operate and maintain generating stations, tie-lines, substations and dedicated transmission lines, connected therewith in accordance with the provisions of the Act or the rules or regulations made there under. The petitioner further stated that the evacuation line from the interconnection point (metering point) of the generating project to existing Grid will be a tie-line or dedicated transmission line for interfacing the generating project with the Grid and as such, as per the above provision of the Act, the Wind developers have to establish the evacuation line beyond the interconnection point (metering point) to the Grid. The petitioner also stated that the Hon'ble Commission in its orders dated 1.5.2009 in OP Nos.6 & 7 of 2009, adopted Wind Power

Project cost as Rs.4.70 Crs/MW including evacuation cost and arrived at a tariff of Rs.3.43/unit, however, finally the Hon'ble Commission fixed tariff for wind power projects at Rs.3.50/unit in order to encourage this sector. Finally, the petitioner opined that in view of the above position, the developers shall have to bear the entire cost of evacuation for connecting Wind Projects to the Grid and delivery of power.

On this, the Commission is generally in agreement with the views of the petitioners namely 4 Discoms and AP Transco as narrated above. Further, it is also to be recalled that when GoAP issued its new Wind Policy cognizing the views of IWTMA vide G.O Ms.No.48, dt.11-04-2008 as amended by G.O Ms.No.99, dt.9.9.2008, it was clearly mentioned that the eligible developer shall bear the entire cost of power evacuation facilities for interconnecting the wind firm with the Grid and delivery of power. It is thus clear that the wind developers are in agreement with the above provision of the policy as it relates to evacuation cost. The cost of evacuation by the developer was taken into consideration in arriving at Rs.3.43 / unit. The tariff of Rs.3.50 / unit was finally determined to encourage generation of wind power in the state of AP, thus providing additional 7 paise per unit. Further, it may be noted that, it is only the InWEA that is raising this issue and IWTMA did not raise this issue at all, implying that the above provision on evacuation cost are workable. That apart, the touchstone on which the effectiveness of any policy can be

tested is whether it is able to attract any investment or not. In this case, both based on policy announced by the GoAP and based on the orders passed by the Commission on 01-05-2009, and based on PPA and evacuation guidelines proposed by the AP Discoms/AP Transco, 16 number of PPAs totaling to a capacity of 16.8 MWs have been signed and submitted to the Commission seeking consent, precisely in the same format of PPA and based on the guidelines now sought to be approved. This is a proof positive that investments are forthcoming based on the existing Policy / Order / PPA / Evacuation Guidelines. That being the case, the Commission feels that the issues raised by InWEA are only hypothetical in nature at least in AP situation based on the current level of network expansion and guidelines submitted by the petitioner and hence, they do not warrant any changes in the guidelines on evacuation or PPA format.

(ix) Whether differential treatment for Cluster and Individual projects can be allowed: InWEA stated that the proposed guidelines and the draft PPA proposed interconnection point for cluster of wind farms as EHV side of pooling substation. However, in respect of wind projects developed as individual projects, it is proposed at APTRANSCO/DISCOM substation. InWEA opined that this is discriminatory and that the CERC also has not provided any differential treatment for wind projects under cluster scheme and individual projects and as such, PPA and guidelines should be suitably amended specifying that metering point shall be online isolator on outgoing

feeder on HV side at pooling substation for all wind projects. In response, the petitioner stated that the CERC regulation has not mentioned the interconnection point for Wind Power projects coming up at specific location as an individual project without having a Pooling substation and hence reference to CERC Regulation is irrelevant. The petitioner further stated that as per the existing procedure, Wind power projects and other NRE projects coming up as independent projects at specific locations have to be interfaced to the nearest substation with dedicated line and metering shall be provided at substation. The petitioner also stated that very less capacity of Wind Power Projects will come up as individual projects and these projects can directly feed power to the existing grid substations through dedicated feeders without constructing another pooling substation. As such, metering for these projects is proposed as per the existing norms approved by the Hon'ble Commission for individual NRE projects and the same may be approved. On this, NEDCAP also stated that in AP, plants are coming as clusters and not as individual projects. The Commission having considered the above views feels that since individual projects are unlikely to come in AP, no changes are warranted to the either guidelines or PPA as submitted by the petitioner.

(x) Whether deemed generation clause needs to be incorporated into the PPA: InWEA stated that necessary clauses of remedy (to provide compensation for deemed generation) should be incorporated in PPA

against default by APTRANSCO /DISCOM in timely completion of evacuation scheme and breakdown or outages of evacuation infrastructure. In response, the petitioner stated that the evacuation guidelines and draft PPA clearly specified that the Wind developers can also carryout evacuation infrastructure development by paying supervision charges. The petitioner further stated that the draft PPA format at Article 6.2 provides that DISCOM shall make arrangements for evacuation of power prior to COD. Article 4.19 also provides that DISCOM shall use all reasonable efforts to rectify system emergency circumstances causing reduction in generation as soon as possible. Further, the petitioner also stated that the Wind Projects are must run stations and DISCOMs have to purchase energy as and when generated by these projects and deemed Generation clause is associated only where generator has to give availability declaration and subjected to scheduling and dispatch and compensation/ penalty is leviable on generators, in case of default. The Commission having considered the views of all the parties, and duly examining the provisions of the PPA at Article 4.19 and 6.2, and also recognizing that the option of carrying out infrastructure development is also available to the wind developer, and further having come to an understanding that there is no motivation for Discoms not to off-take renewable power, in view of the Renewable Power Purchase obligation (RPPO), cast upon the Discoms, obligating to buy a minimum of 5% of their purchases, is of the view that the existing provision of the PPA, which were also evolved in consultation with NEDCAP and

prospective wind developers, is in order and accordingly no changes are warranted on this account in the PPA format.

7. The Commission having examined the key issues in para '6' supra hereby approves the Guidelines on Power Evacuation from Wind Power Projects in Andhra Pradesh (Annexure-1) and PPA format (Annexure-2) as annexed to this order duly incorporating the changes as approved in the preceding paragraphs of this order and certain other changes to add clarity. From now on the parties to the agreement should execute the agreement as per the Commission's approved PPA.
8. The Commission hopes that the final guidelines and standard PPA will make sure that Andhra Pradesh will see some major capacity addition from wind in the coming years.

**This order is signed by the Andhra Pradesh Electricity Regulatory**

**Commission on this 30<sup>th</sup> day of March 2010.**

**Sd/-  
C.R.Sekhar Reddy  
Member**

**Sd/-  
R.Radhakishen,  
Member**

**Sd/-  
A.Raghotham Rao,  
Chairman**

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