

CDM Executive Board

Our / Your Reference

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Date
09.03.2011

Request for Review

"GEI Wind Power Project in Karnataka, India" (Ref. no. 4144)

Dear Sir/Madam,

Please find below the response of the TÜV NORD JI/CDM Certification Program to the request for review for the above mentioned project No. 4144.

If you have any questions do not hesitate to contact us.

Yours sincerely,

TÜV NORD JI/CDM Certification Program

Rainer Winter

Request for Review																												
Issue raised by EB Members	<p>1. The DOE is requested to further explain how it has validated the suitability of the input values in the investment analysis in line with the EB51 Annex 58 paragraph 6, in particular:</p> <p>(a) how the input values sourced from the supplier's offer (25/07/2006) and DPR (28/07/2006) were suitable, given the PP also considered the benefits of the CDM on 05/02/2007 based on the revised DPR dated 01/02/2007;</p>																											
Response of PP	<p>We wish to submit that the decision to invest in the project was taken on 2006-08-23 and the Purchase orders were placed on 2006-08-24. The guidance to investment analysis calls for using data and parameters available at the time of investment decision making and therefore in accordance with the guidance, the input values applicable at the time of investment decision making were considered.</p> <p>We wish to draw your attention to the Board resolution of 2006-08-23. The decision to place Purchase Orders on Enercon was taken in order to freeze the price of WEGs and tariff. Although Enercon had indicated the sites in 2006, the sites were finalized and a firm offer of location was made by Enercon only in February 2007 after which the DPR and the purchase order were revised to include the Gadag site. The project cost under revised DPR was taken as INR 1599.10 Million which included miscellaneous costs such as administration cost, employee cost, monitoring cost etc of INR 44.95 Million in addition to purchase order cost of INR 1554.15 Million. However, the lower value of project cost has been considered for investment analysis, which is conservative. The changes between the first DPR, prepared in 2006, and the revised DPR, prepared in 2007, are summarily presented below.</p> <table border="1"> <thead> <tr> <th>Parameters</th><th>First DPR</th><th>Revised DPR</th><th>Investment Analysis</th><th>Remarks</th></tr> </thead> <tbody> <tr> <td>Project Cost (INR Millions)</td><td>1,554.15</td><td>1,599.10</td><td>1,554.15</td><td>The lower value of Project cost has been considered which is conservative</td></tr> <tr> <td colspan="5">Means of Finance</td></tr> <tr> <td>Own Source (Rs. Millions)</td><td>388.54</td><td>399.78</td><td>388.54</td><td rowspan="2">There is a marginal change in equity and debt contributions in the revised DPR because of the change in project cost. However for Investment Analysis the changes have not been considered and IRR has been calculated considering the first DPR value, which is conservative.</td></tr> <tr> <td>Term Loan (Rs. Millions)</td><td>1,165.61</td><td>1,199.33</td><td>1,165.61</td></tr> </tbody> </table>				Parameters	First DPR	Revised DPR	Investment Analysis	Remarks	Project Cost (INR Millions)	1,554.15	1,599.10	1,554.15	The lower value of Project cost has been considered which is conservative	Means of Finance					Own Source (Rs. Millions)	388.54	399.78	388.54	There is a marginal change in equity and debt contributions in the revised DPR because of the change in project cost. However for Investment Analysis the changes have not been considered and IRR has been calculated considering the first DPR value, which is conservative.	Term Loan (Rs. Millions)	1,165.61	1,199.33	1,165.61
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	Interest Rate	11.00%	11.25%	11.00%	<p>The data for Bank lending rate had changed from 11% (Average of Prime Lending Rate of 10.75% and 11.25%; Source: http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/71520.pdf) at the time of first DPR to 11.25% (Average of Prime Lending Rate of 11.00% and 11.50%; Source: http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/75120.pdf) at the time of revised DPR.</p>
	<p>As can be seen, the only key differences between the two DPRs are the increase in project cost and corresponding changes to the equity and term loans. In order to be conservative we have consider the lower capital cost i.e. INR 1554.15 million vide DPR dated 2006-07-28. The change in Interest rate from 11% to 11.25% had a negligible impact on IRR (from 9.35% to 9.36%).</p> <p>Evidence of CDM consideration is available in both versions of DPR and board resolutions.</p>				
Response of DOE	<p>TUV NORD has validated the suitability of input values from two sources. One from the supplier's offer dated 2006-07-25 and also the subsequent DPR dated 2006-07-28. It can also be seen that the DPR is just 3 days later to the supplier's offer, which do not alter any input parameters considered for investment analysis. Hence, based on the documented evidences, TUV NORD has validated as per the following explanations:</p> <p>TUV NORD has verified the Supplier's offer dated 2006-07-25 ^{/Appendix 1/} and DPR dated 2006-07-28 ^{/Appendix 2/} which were submitted to the management of M/s. Generacion Eolica India (GEI) in order to decide upon investing in wind power projects. It is evident from the Board resolution dated 2006-08-23 ^{/Appendix 3/}, that GEI had taken into consideration the initial offer from supplier and also the DPR to evaluate the viability of the project. It is also evident that GEI considered CDM revenue to proceed to invest in the project.</p> <p>Since, the board on 2006-08-23 has resolved to go ahead with CDM, TUV NORD has validated the input parameters that were available at the time of investment decision, which have been sourced from the supplier's offer letter and the DPR dated 2006.</p> <p>Though, due to subsequent addition of contingent cost to the total project cost offered by Enercon in its offer letter, the DPR has been revised on 2007-02-01 ^{/Appendix 4/} and also the board based on the second DPR has again resolved on date 2007-02-05 ^{/Appendix 5/} to proceed with the CDM, however, the validation team considered the first board resolution date as the investment decision date as the PP had already decided to invest in the project activity with CDM benefits in August 2006 itself. Hence as per EB51 Annex 58 paragraph 6, the input values sourced from Supplier's offer dated 2006-07-25 and first DPR dated 2006-07-28 which were available during the investment decision have been validated to evaluate the investment analysis.</p>				

But to ensure conservativeness of the investment analysis the validation team did an analysis comparing the input financial parameters especially project cost, loan and interest rate which differed from first DPR Enercon offer dated 2006 with the second DPR dated 2007. All other input parameters like installed capacity, operation and maintenance cost, tariff and PLF sourced from Supplier's offer, first DPR were found to be same with the second DPR.

The comparison analysis is provided in the below table.

Input parameters in the financial analysis	1 st DPR / Enercon offer 2006	2 nd DPR 2007	Conclusion
Total Project cost	INR. 1554.15 Million	INR.1599.10 Million	The value sourced from first DPR is found to be more conservative and hence the same value (INR. 1554.15 Million) used for investment analysis is assessed to be appropriate
Term loan	INR. 1165.6 Million	INR. 1199.10 Million	Though the debt: equity ratio (70:30) is same with both the DPRs, the values of debt and equity amount got increased in the second DPR due to increase in the project cost. However the values sourced from 1 st DPR were found to be conservative and assessed to be appropriate.
Own Source	INR. 388.54 Million	INR. 399.78 Million	
Interest rate	11%	11.25%	The change in Interest rate from 11% to 11.25% based on the average Prime lending rates prevailing during preparation of each DPR was assessed to have negligible impact on the project IRR and hence the interest rate sourced from first DPR was found to be suitable for the investment analysis.

	<p>Thus, TUV NORD in its validation had considered only the first DPR values and not the second DPR values because the project IRR provided in the first DPR is found to be 8.38% whereas the project IRR provided in the second / revised DPR is 8.06%. The correctness of the presented/calculated IRRs in the DPRS was checked during validation by the validation team and found to be ok. Hence the overall project IRR with input values sourced from first DPR is more conservative than with the input values sourced from second DPR (after some conservative adaptations during validation e.g. using higher PLF based on EB 48 guidelines the project IRR works out to 9.35%).</p> <p>Hence, referring to EB 51, Annex 58, Paragraph 6 of "Guidance of Assessment of Investment Analysis" TÜV NORD is able to confirm that the input values sourced from the supplier's offer (2006-07-25) and DPR (2006-07-28) were agreeable for investment analysis, as all the input parameters sourced from these documents were prevailing during the investment decision time (2006-08-23) and are apart also more conservative than the values from the second DPR.</p>
Issue raised by EB Members	and (b) the PLF, as it appears that it became available after the investment decision.
Response of PP	<p>We draw attention to the fact that our investment decision was based on effective PLF of 23.71%¹ (section B.5, Page 19 of the PDD version 6) as per DPR dated 2006-07-28. In addition, we had mandated a separate wind resource assessment to corroborate the PLF offered by Enercon. We draw reference to section 3 of DPR dated 2007-02-01 which states that a separate wind resource assessment would be carried out by the Centre for Wind Energy Testing, Government of India (CWET). This report was completed in May 2007.</p> <p>As per the Guidance to Investment Analysis, the PLF value considered for investment decision making should also be considered for Investment Analysis. However, in July 2009, in EB 48, the special guidance on validation of PLF for ACM0002 projects were provided. As per EB 48, Annex 11, additionality is required to be demonstrated considering the PLF validated by an independent third party. As per CWET, the PLF for the site was assessed at 25.3% and therefore in accordance with EB 48, Annex 11, the investment analysis was carried out considering a PLF of 25.3%.</p> <p>We must also point out that the PLF considered for Investment Analysis i.e. 25.3% is higher than the PLF considered for Investment decision making i.e. 23.71%.</p>
Response of DOE	<p>TUV NORD would like to state that the PLF used in the financial analysis of the project activity is sourced from the third party(C-WET) ^{/Appendix 6/} report on assessment of the wind potential in the project region.</p> <p>The first DPR was checked to state a net exportable PLF of 23.71% after adjusting for grid availability and transmission loss from the Enercon offered PLF of 25.47%. In the webhosted PDD ^{/Appendix 7/}, the PLF of 26.5% sourced from the KERC order dated 2005-01-18 ^{/Appendix 8/} was used. These PLFs which were prevailing before investment decision were assessed.</p> <p>But the guidance on PLF was issued by EB 48 held from 17-19 July 2009 where as the PDD of the project activity was webhosted on 04 April 2009 before the PLF guideline was in place.</p>

¹ Enercon offered PLF of 25.47% works out to net exportable PLF of 23.71% after adjusting for grid availability and transmission loss (source: DPR dated 28/07/2006)

As the PLF in the webhosted PDD was not meeting the guideline of EB 48 annex 11, TUV NORD raised a corrective action request to provide the basis for the proof of PLF during the course of validation. Upon the CAR (No: B2) raised by TUV NORD, the PP had submitted the C-WET assessed project PLF to be at 25.3%. It can also be seen that the C-WET study has been provided even before commissioning of the projects. TUV NORD has verified the PLF based on the third party assessed C-WET data.

Moreover, TUV NORD compared the estimated PLFs of the project activity which were available before the investment decision of the project activity with the C- WET assessed PLF of 25.3% (available after investment decision) and derived a conclusion:

SNO	Estimated PLFs before investment decision	Source	Observation
1.	26.5%	KERC dated 2005-01-18	4.7% increase in PLF sourced from KERC order when compared to the C-WET PLF analysis.
2.	25.47%	Supplier's offer dated 2006-07-25	0.6% increase in PLF sourced from Supplier's offer dated 2006 when compared to the C-WET PLF analysis.
3.	23.71%	Effective PLF (after adjusting for grid availability and transmission loss) based on DPR dated 2006-07-28	6.7% decrease in PLF sourced from DPR dated 2006-07-28 when compared to the C-WET PLF analysis

Further the validation team has checked the parameter of PLF for sensitivity analysis of +/-10% which also covers the PLFs as indicated by the WTG supplier, KERC order and 1st DPR and it was found that the IRR does not cross the bench mark.

Even with 10 % increase in PLF, the project IRR is less than the benchmark ^{/Appendix 9/}. As the above mentioned PLFs are already covered under sensitivity analysis, the validation team concluded that the additionality of the project would not be affected with 0.6% increase in PLF (25.47%) and also with 4.7% increase in PLF (26.5%) (even e.g. with a PLF of 32,5% the project is still additional). In fact, the investment analysis with the third party estimated PLF (25.3%) is found to be more conservative when compared with effective PLF (23.7%) sourced from first DPR which was prevailing during investment decision.

Moreover, one of the EB clarifications with reference to PLF, F-CDM-AM-Clar_Respon_01.1 - AM_CLA_0170 ^{/ Appendix 10/} which was available before submission of this project for registration was checked to have stated that the "Project proponents can contract an independent third party to determine the PLF even after the start of the operations of the renewable energy project under consideration".

Based on the above clarification, the validation team accepted the selection of the PLF of the

	project activity of 25.3%, which a) has been estimated by third party company, b) is used in the financial analysis are reasonable and in line with “ guidelines for the reporting and validation of plant load factor”.
Issue raised by EB Members	The DOE is requested to further substantiate the common practice analysis in accordance with the VVM version 01.2 paragraph 120, as it is not clear why it only identified similar projects developed by single project proponent.
Response of PP	<p>We understand that the confusion could be because of our reference to “single project proponent” in step 4 of B.5 of PDD. We wish to clarify that for carrying out the common practice analysis we have considered all wind projects set up by individual investors and not single project proponent that are of 15 MW capacity or higher. The Wind power directory of India provides information on all wind power projects in India, which has been provided to DOE for reference during validation. Since CDM has provision for bundling of smaller projects by individual investors, there are bundles with capacity greater than 15 MW in Karnataka, which in any case have been pursued under CDM as the concept of bundling is relevant only in context of CDM.</p> <p>We regret the confusion. We once again clarify that we have not ignored any wind projects of more than 15 MW in the state of Karnataka.</p>
Response of DOE	<p>TUV NORD would like to clarify as per the following:</p> <p>The “individual investors” mentioned now in the revised PD is not one proponent nor a single company. The consideration here has been for all the investors who have invested in scale of projects more than 15 MW.</p> <p>However, to explain further, as per the “Tool for the demonstration and assessment of additionality” version 5.2, sub step 4 a) the PP has analyzed similar projects which are in the same region with similar scale and the analysis has been provided in the PDD ^{/Appendix 11/}. The Wind power Directory of India and common practice analysis sheet (the spread sheet has been prepared by taking list of all private wind farm owners in India and wind installation in Karnataka were segregated using the data given in Directory of wind power 2008) ^{/Appendix 12/} were checked in respect to the analysis done to identify the capacity of installations in each state for each investor. It has been found that there are 8 investors who have wind project activities greater than 15 MW in Karnataka and also evident that all the 8 investors are seeking CDM benefits for their projects. The PP has not fixed any upper limit for above 15 MW projects for common practice analysis. Thus the validation team could assess that the comparison is done with projects of similar scale and nature with respect to regulatory framework, investment climate, access to technology and access to financing.</p> <p>The wind tariff and other regulations concerning installations are governed by different state regulatory commissions in India. The project activity is located in the state of Karnataka and exports power to the state grid and wind mills in this region /state has been considered for common practice analysis. Since the policies and tariff regime is consistent throughout the state of Karnataka, TUV NORD considers the selection of the region is appropriate. Thus through local and sectoral expertise, it has been found that the geographical scope of common practice analysis is appropriate for the assessment of common practice related to project activity’s technology.</p> <p>Bundled large scale projects are not compared for the analysis which was accepted by the</p>

validation team as the bundled large scale projects are in fact just an aggregation of multiple project activities that are bundled together for the sake of ease in CDM development (Consultancy, validation and verification charges and ease in co-ordination with single point of contact) and do not necessarily represent large scale projects investments. Each of the aggregated activities are independent project activities on their own, therefore unless these smaller activities are more than 15 MW (comparable size), they do not represent investments of similar scale.

As this project activity was under taken only by an individual investor GEI, this implied the investment was made by GEI alone. Thus the comparison with individual investors (who have invested in project capacity of more than 15 MW) is comparable and acceptable by TUV NORD.

Hence, identification of similar projects developed by individual investors in the same geographical region (Karnataka) for the common practice analysis was assessed to be appropriate by the validation team.

As per VVM 1.2 para 120, based on the local and sectoral expertise, to further substantiate that wind power generation is not the common practice in Karnataka, TUV NORD assessed the following information:

Moreover, the KREDL (the nodal agency for Karnataka for development of renewable energy) has been considered in describing the wind potential of the state. It was noticed that against an assessed wind potential of 7470.165 MW, the state had installed wind capacity of 910.635 MW till 2007-2008 ^{/Appendix 13/} i.e., before commissioning of wind turbines of the project activity. This shows that until 2007-08, the installed capacity of wind energy in Karnataka was about 12% of its potential.

It has been analysed the extent to which the wind energy projects have diffused in electricity sector in Karnataka in terms of power generated (based on 2004-05 latest available data) and found that the wind electricity generation in Karnataka was 489.53 GWh ^{/Appendix 14/} and the total electricity availability at bus-bar in the state of Karnataka was 33,523.92 GWh ^{/Appendix 15/}. This works out to 1.46%, showing that wind energy generation is insignificant as compared to other power generation sources in Karnataka. Please note that this wind generation is for all wind projects (including CDM projects). If one were to remove the CDM wind generation from the above data, the percentage would be still lower.

Thus it has been confirmed through official sources and local and industry expertise, what extent similar and operational projects other than CDM project activities have been undertaken in the defined region and concluded that the project activity without CDM benefits is not a common practice in the region (Karnataka).

The above discussion under sub step 4a of additionality tool shows that in Karnataka all similar projects (more than 15 MW) are CDM projects seeking CDM benefits. This proves that similar activities are not widely observed or commonly carried out and hence sub-step 4b is not required.

Hence the validation team assessed that the proposed CDM project activity is not a common practice in the defined region (Karnataka).

We sincerely hope that the Board accepts our aforementioned explanations and we look

	forward to the registration of the project activity.
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List of references to supporting documents reviewed during validation:

/Appendix 1/- Enercon (India) Limited offer for the supply of 39 x800 KW WTGs for M/s. Generacion Eolica India Limited dated 2006-07-25

/Appendix 2/- Detailed Project Report Prepared by Enercon (India) Limited and submitted to Generacion Eolica India Limited dated 2006-07-28.

/Appendix 3/- Management decision by M/s. Generacion Eolica India Limited with serious consideration of CDM benefits and finalization of EPC Contractors as well as committing investment into the project on 2006-08-23.

/Appendix 4/- Revised Detailed Project Report prepared by Enercon (India) Limited and submitted to Generacion Eolica India Limited dated 2007-02-01.

/Appendix 5/- Management decision by M/s. Generacion Eolica India Limited with serious consideration of CDM benefits took place on 2007-02-05 based on revised DPR dated 2007-02-01.

/ Appendix 6/- C-WET report (dated May 2007) on site validation and generation estimate of proposed wind farm at Kurtkoti village of Gadag District in Karnataka.

/Appendix 7/-

Draft Project design document: "GEI Wind Power Project in Karnataka, India" (hosted for public comments during 04/04/2009 to 03/05/2009).

/Appendix8/-

<http://kerc.org/NCE-PUBLIC-HEARING-23-10-2007/4%20KERC%20Order%20DATED%2018.1.2005%20on%20NCE%20Tariff%20.doc>

/ Appendix 9/- Investment analysis calculation sheet corresponding to version 6 of the PDD.

/Appendix10/-

<http://cdm.unfccc.int/methodologies/PAmethodologies/clarifications/02736>

/Appendix11/- Project design document "GEI Wind Power Project in Karnataka, India" dated 2010-102-25, version 07.

/Appendix 12/- Common Practice analysis sheet (Karnataka)

/Appendix13/-

http://www.kredl.kar.nic.in/docs/Yearwise_allotment_and_commissioned_wind_power_projects.xls

/Appendix14/- Table 3.4 titled "Gross Electrical Energy Generation (Utilities Only) Prime mover-wise, Region-wise / State-wise During 2004-05" in chapter 3 of the CEA general review 2006 available at http://www.cea.nic.in/power_sec_reports/general_review/index_general_Review.html

/Appendix 15/- Table 5.3 titled “Statewise System Losses During 2004-05” in chapter 5 of the CEA
General review 2006 available at
http://www.cea.nic.in/power_sec_reports/general_review/index_general_Review.html