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TÜV®

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Our / Your Reference

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Date  
09.08.2007

### Request for Review

"Nagda Hills Wind Energy Project (India)" (0112)

Dear Sir/Madam,

Please find below the response of the project participant and the TÜV NORD JI/CDM Certification Program to the request for review for the above mentioned project no. 0112.

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

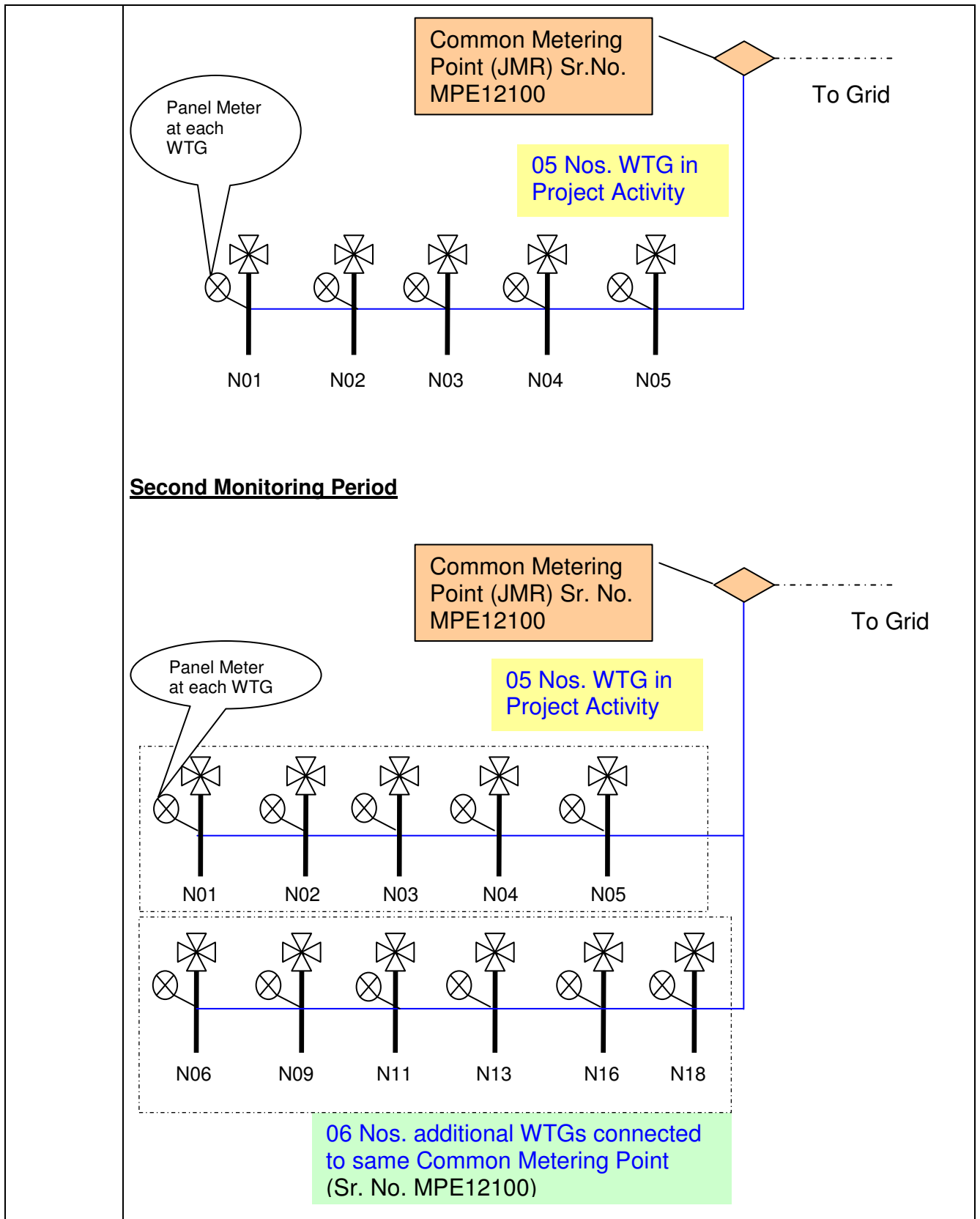
Yours sincerely,

TÜV NORD JI/CDM Certification Program



Rainer Winter

<b>Request for Review</b>	
Issue raised by EB Member(s) / DNA	<p><i>“Clarification on how the electricity delivered to the grid generated by 5 WTGs and electricity generated by each WTG have been monitored.”</i></p>
Response of project participant	<p>From the starting date of crediting period i.e. 01 July 2004 onwards the five WTGs of this project activity is connected to a common metering point provided by MPEB (Madhya Pradesh Electricity Board) having endorsed Sr. No. MPE12100.</p> <p>From 31 March 2006, additional 06 WTGs were joined to the MPEB meter (Sr. No. MPE12100) and these 06 WTGs are not part of the project activity.</p> <p>Individual WTGs (made by Suzlon) connected to the grid via above said MPEB meter has accurate monitoring and controlling systems as part of respective WTG’s machine panel. The monitoring of all eleven (11) WTGs is done from a common monitoring station as a part of central monitoring system. The system consists of a state- of- the-art controlling and monitoring and well trained staff personnel of Suzlon are always present on site to monitor various parameters of power generation and deal with any problems related to generation, transmission or maintenance.</p> <p>To account for the net power delivered to the grid generated by 05 WTGs installed as a part of CDM project activity, following procedure for monitoring/accounting has been considered. The documents and evidences in relation of monitoring of electricity generated by each WTG and monitoring of net electricity delivered to grid by 5 WTGs were verified by DOE during site visit for this Monitoring Period. Following are the pictorial representations for the situations prior to start of Second Monitoring period and during second monitoring period.</p> <p><b><u>First Monitoring Period (Prior to Second Monitoring Period)</u></b></p>



1. A joint meter reading (JMR) is taken every month by MPEB personnel and a cumulative monthly generation certificate is issued for all WTGs (11 Nos) connected to the MPEB meter (Sr. No. MPE12100).
2. In addition to this JMR, individual meter readings for each WTG, from respective WTG panel meters, are also noted down for the same time period as in JMR. These readings pertain to power generation recorded at each WTG panel meter individually and are maintained by Suzlon.
3. Based on JMR and individual WTG's power generation detail, a Monthly Report on Generation and Consumption (MRGC) is prepared by Suzlon O&M personnel. MRGC is endorsed by Senior Officer from Madhya Pradesh Pashchim Kshetra Vidyut Vitaran Co. Ltd., Dewas<sup>1</sup> (MPPKVVCL).
4. The MRGC contains details of power exported/imported to/from the grid by each of the WTGs connected. The method of accounting is well explained in the MRGC too. The net power supplied from individual WTG as calculated in the MRGC is the basis for estimation of emission reductions from 05 WTGs in the project activity.

So, for a particular WTG Net power supplied to grid is calculated as:

$$\text{GEN}_i = \text{KWh export from WTG}_i - \text{KWh import by WTG}_i$$

$i$  represents individual WTGs of the set of eleven (11) WTGs.

The calculation in MRGC is based on simple mathematical formula of weighted averages and is written clearly on each monthly MRGC. The formula is as below.

$$\text{KWh export from WTG}_i =$$

$(\text{Generation at controller of WTG}_i / \text{Total Controller Generation of all WTGs}) * \text{KWh export recorded at common metering point}$

Where;

Generation at controller of WTG<sub>i</sub> = Generation reading from individual WTG panel meter.

Total Controller Generation of all WTGs= sum of generations from all WTGs panel meters.

KWh export recorded at common metering point = Export reading from JMR. (MPEB meter Sr. No. MPE12100)

$$\text{KWh import by WTG}_i =$$

$(\text{Generation at controller of this particular WTG} / \text{Total Controller Generation of all WTGs}) * \text{KWh import recorded at common metering point}$

where;

Generation at controller of this particular WTG = Generation reading from individual

<sup>1</sup> MPPKVVCL is a distribution company under jurisdiction of MP State Government.

WTG meter.

Total Controller Generation of all WTGs= sum of generations from all WTG meters.  
 KWh import recorded at common meter = Import reading from JMR. (MPEB meter Sr. No. MPE12100)

**Sample Calculation:**

We shall explain the same via an example. Let's say for sample readings of **July-2006**.

1. **As per JMR** (Recorded by MPEB meter: MPE12100) the readings for Month of July are:  
 Units Exported by wind farm (11 WTGs) = 4105500 KWh  
 Units imported by wind farm (11 WTGs) = 300 KWh
2. Now readings from individual WTG generations are as follows:

WTG Unique Code	Ownership	Generation recorded at respective WTG panel (KWh) meter
N01 (part of project activity)	Rajratan Global Wires	396129
N02 (part of project activity)	Ruchi Soya Industries Ltd. (amalgamated with company formerly known as General Foods Ltd.)	391581
N03 (part of project activity)	Itarsi Oils & Flours Ltd. (IOFL)	386814
N04 (part of project activity)	Anik Industries Ltd (formerly Madhya Pradesh Glychem Industries Ltd.)	396898
N05 (part of project activity)	Ruchi Soya Industries Ltd. (RSIL)	397806
N06, N18	Sanghvi Foods Pvt. Ltd.	701491
N13, N16	KS Oil Ltd.	815404
N11	Mittal Appliances Ltd.	333582
N09	Betul Oils and flours Ltd.	335862

**Total Generation recorded at individual WTGs (sum of 11 WTGs) = 4155567 KWh**

Calculation for net power export from individual WTG in the project activity:

WTG No.	KWh export formula	KWh export	KWh import formula	KWh import	Net power export to grid
N01	=(396129/4155567)	<b>391356</b>	=(396129/4155567)	<b>29</b>	<b>391327</b>

	* 4105500		* 300		
<b>N02</b>	=(391581/4155567) * 4105500	<b>386863</b>	=(391581/4155567) * 300	<b>28</b>	<b>386835</b>
<b>N03</b>	=(386814/4155567) * 4105500	<b>382154</b>	=(386814/4155567) * 300	<b>28</b>	<b>382126</b>
<b>N04</b>	=(396898/4155567) * 4105500	<b>392116</b>	=(396898/4155567) * 300	<b>29</b>	<b>392087</b>
<b>N05</b>	=(397806/4155567) * 4105500	<b>393013</b>	=(397806/4155567) * 300	<b>29</b>	<b>392984</b>
<p>Total of Net Export to grid by 05 WTGs (project activity) = 1945359 (same as KWh export written in second monitoring report for month of <b>July 2006</b>).</p>					
Response of DOE	<p>Based on the existing monitoring condition demonstrated by the project proponent the monitoring plan of the registered PDD is not completely followed. In this context the monitoring plan should undergo revision in accordance with CDM EB prescribed "Procedures for revising monitoring plans in accordance with paragraph 57 of the modalities and procedures for the CDM". TUV NORD will prepare and submit a validation opinion on the proposed revised monitoring plan to be made by PP. Once the same is accepted, the revised document portfolio will be submitted for issuance.</p> <p>Mr. Asim Kumar Jana TUV India Pvt. Ltd. 801, Raheja Plaza - I L.B.S. Marg. Ghatkopar (West) Mumbai - 400 086 India Phone: +91 22 56477074 Email: <a href="mailto:jana@tuv-nord.com">jana@tuv-nord.com</a></p>				

### Request for Review

Issue raised by EB Member(s) / DNA	<p><i>"Clarification on why the project participant selected the grid emission factor which is higher than the grid emission factor stipulated in the PDD"</i></p>
Response of project participant	<p>As per Methodology (AMS ID Version 06 dated 30<sup>th</sup> September 2005) and registered PDD, the baseline estimation is done based on following lines:</p> <ul style="list-style-type: none"> <li>➤ <i>The weighted average emissions (in kg CO<sub>2</sub>equ/KWh) of the <b>current generation mix</b>.</i></li> </ul> <p>This is an ex-post approach and latest available data is used to estimate the emission factor. The value of GEF used at the time of project registration and first crediting period was calculated using available data.</p>

	<p>At the time of finalization of second monitoring report, GEF was available publicly in published form on Central Electricity Authority (CEA) website (<a href="http://www.cea.nic.in/planning/c%20and%20e/user%20guide%20ver1.1.pdf">http://www.cea.nic.in/planning/c%20and%20e/user%20guide%20ver1.1.pdf</a>).</p> <p>Incidentally weighted average emissions available at the time of finalization of second monitoring report is higher than GEF calculated in PDD. Moreover the GEF value in PDD is based on data available at that time i.e. till 2003-04. Had the GEF been lower in CEA published data, even then it would have been used to estimate emission reductions as it is required by the methodology. The intention is to use latest available data, which is transparent and verifiable.</p>
<p>Response of DOE</p>	<p>As per the registered PDD the current generation mix approach for grid emission factor estimation was opted. However the registered monitoring plan does not include the provision of ex-post estimation of current generation mix (CGM) based grid emission factor derived from most currently available official data.</p> <p>In this context monitoring plan should undergo revision in accordance with CDM EB prescribed “Procedures for revising monitoring plans in accordance with paragraph 57 of the modalities and procedures for the CDM”. TUV NORD will prepare and submit a validation opinion on the proposed revised monitoring plan to be made by PP. Once the same is accepted, the revised document portfolio will be submitted for issuance.</p> <p>Mr. Asim Kumar Jana TUV India Pvt. Ltd. 801, Raheja Plaza - I L.B.S. Marg. Ghatkopar (West) Mumbai - 400 086 India Phone: +91 22 56477074 Email: <a href="mailto:jana@tuv-nord.com">jana@tuv-nord.com</a></p>