

TÜV NORD CERT GmbH • P.O. Box 10 32 61 • 45032 Essen • Germany

TÜV NORD CERT GmbH

Langemarckstrasse 20
45141 Essen
Germany

Phone: +49 201 825-0
Fax: +49 201 825-2517

Info.tncert@tuev-nord.de
www.tuev-nord-cert.com

TÜV®

CDM Executive Board

Our / Your Reference

Contact
Rainer Winter
E-Mail: rwinter@tuev-nord.de

Direct Dial
Phone: -3329
Fax: -2139

Date
25.04.2008

Request for Review
“Rice husk based Co generation project at Dujana unit of KRBL Limited” (1551)

Dear Sir/Madam,

Please find below the response of the project participant (KRBL Limited) and the TÜV NORD JI/CDM Certification Program to the three (3) requests for review for the above mentioned project no. 1551.

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

Yours sincerely,

TÜV NORD JI/CDM Certification Program



Rainer Winter

Request for Review (1-1,1-2,1-3)	
Issue raised by EB Members / DNA	<p>1. The DOE is requested to describe how it has validated that the project activity complies with the applicability condition of AMS-I.D- that the project activity “supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit” as the baseline is a captive diesel fired unit.</p>
Response of project participant	<p>The project activity – “Rice husk based Co generation project at Dujana unit of KRBL Limited” – involves installation of 3.5 MW biomass residue based (rice husk) cogeneration plant in the rice mill/processing facility of KRBL Limited at Gautam Budh Nagar, U.P.</p> <p>The project activity by generation of renewable electricity through the use of biomass residues results in displacement of fossil fuel based electricity generation from the local mini electricity distribution system at KRBL Limited.</p> <p>In the absence of the project activity the electricity would have been generated in the mini electricity distribution system at KRBL which would have been supplied by fossil fuels based electricity generating units (5 numbers of Diesel Generators).</p> <p>The project activity uses AMS I.D. – Grid Connected renewable electricity generation – version 10 for determination of baseline and calculation of emission reductions by the project activity.</p> <p>Para 1 of AMS I.D. states:</p> <p>“This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal and renewable biomass, that supply electricity to and/or displace electricity from an <u>electricity distribution system</u> that is or would have been supplied by <u>at least one fossil fuel fired generating unit.</u>”</p> <p>In the baseline, a set of 5 uniquely identified diesel generators (DG) would have been used to meet the electricity requirements at KRBL.</p> <p>These DG sets supply generated electricity to the electricity distribution panel system. From the electricity distribution panel the electricity is distributed to various load points like processing plant, milling unit, drying unit, packaging plant, compressor units, boiler units, ETP, lighting points etc. at manufacturing facility of KRBL. Thus, the project activity by generation of renewable electricity displaces electricity from the local electricity distribution system at KRBL based on fossil fuel based electricity generation units (DG sets). Hence, para 1 of category I.D. is indeed applicable to the project activity.</p> <p>Besides, AMS I.D. para 8 provides value of emission factor at different loads and capacities for electricity distribution systems supplied by diesel generating units. Kindly refer to the extract of AMS I.D. version 10 as appended below:</p>

8. For a system where all generators use exclusively fuel oil and/or diesel fuel, the baseline is the annual kWh generated by the renewable unit times an emission coefficient for a modern diesel generating unit of the relevant capacity operating at optimal load as given in Table I.D.1.

Table I.D.1
Emission factors for diesel generator systems (in kg CO₂e/kWh*) for three different levels of load factors**

Cases:	Mini-grid with 24 hour service	i) Mini-grid with temporary service (4-6 hr/day) ii) Productive applications iii) Water pumps	Mini-grid with storage
Load factors [%]	25%	50%	100%
<15 kW	2.4	1.4	1.2
≥15 <35 kW	1.9	1.3	1.1
≥35 <135 kW	1.3	1.0	1.0
≥135 <200 kW	0.9	0.8	0.8
≥ 200 kW***	0.8	0.8	0.8

As the project activity involves displacement of the electricity distribution system that uses diesel fuel exclusively in power generation sets, thus, this baseline scenario (para 8) is applicable to the project activity. The same has been used for calculation of emission reductions in case of the project activity.

Thus, the project activity meets the applicability criteria - "supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit"

There have been other similar projects using AMS. I.D. that have been registered as CDM project activity with UNFCCC for example

- Project 0195 : Rice Husk based Cogeneration project at Shree Bhawani Paper Mills Limited (SBPML), Rae Bareli, Uttar Pradesh, India

<http://cdm.unfccc.int/UserManagement/FileStorage/A7QQQ86H1RZ68J2XBV71T51OMQ3S59>

The cogeneration project at SBPML replaces DG sets at paper manufacturing facility. The project claims benefit for electricity generation only by the project activity. No export of electricity is involved in the project activity and the electricity generated is intended for captive use only. In the absence of the project activity the electricity was being supplied by the diesel set based mini grid at SBPML.

- Project 0168 : BK Energia Itacoatiara Project (hereafter referred to simply as BK Itacoatiara Project)

<http://cdm.unfccc.int/UserManagement/FileStorage/2DXBVJIKB2J8A6U5ALGX37JLL64N89>

in the aforesaid project activity, the electricity is generated with a high-pressure boiler and a multiple stage condensing steam turbine coupled with a 9 MW generator. The power plant replaces several diesel generators and it is the first of its kind in a region supplied by 100% diesel fuelled electrical power generators.

Response of DOE

During course of on-site interview, the validation team has verified the existence of the local mini electricity distribution system at KRBL Ltd.

KRBL Limited meets all its electricity needs through five number of DG sets. The generated electricity is fed to an electricity distribution panel system that is or would have been supplied by at least one fossil fuel fired generating unit, as per AMS.I.D. paragraph 1. From the electricity distribution panel the electricity is distributed to various load points within KRBL Ltd. Since this distribution system, respectively mini grid, was fed only by diesel generator sets paragraph 8 of AMS.I.D was assessed as the applicable baseline scenario for the project activity, though it is not connected to the regional grid.

	<p>Contact person:</p> <p>Mr. Manu Maudgal TUV India Pvt. Ltd. # 304-305, 3rd Floor Bhikaji Cama Bhawan 11, Bhikaji Cama Place New Delhi- 110 066 India Tel: +91-11-416 592 30, 414 59105 Mobile: 9810831645 Fax: +91-11-416 592 31 email: mmaudgal@tuv-nord.com</p>
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Request for Review (2-1,2-2,2-3)																																											
Issue raised by EB-Members / DNA	2. The DOE is requested to provide details regarding how the plausibility of the baseline scenario has been validated, in particular how it has been confirmed that the existing DG sets are capable of supplying the same quantity of electricity as the project activity for the entire length of the proposed crediting period.																																										
Response of project participant	<p>The specifications of the DG sets that would have been used in the absence of the project activity are mentioned below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #ffff00;"> <th>DG Set Specifications</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Serial No.</td> <td>6PN00813</td> <td>6PN00667</td> <td>G-72M/2161</td> <td>6PN00516</td> <td>9JROO194</td> </tr> <tr> <td>Make</td> <td>CAT</td> <td>CAT</td> <td>RUMEX</td> <td>CAT</td> <td>CAT</td> </tr> <tr> <td>Year of Manufacturing</td> <td>2002</td> <td>2002</td> <td>1998</td> <td>2000</td> <td>2004</td> </tr> <tr> <td>kVA</td> <td>1000</td> <td>1000</td> <td>1000</td> <td>1000</td> <td>725</td> </tr> <tr> <td>kW =(kVA*0.8)</td> <td>800</td> <td>800</td> <td>800</td> <td>800</td> <td>580</td> </tr> <tr style="background-color: #ffff00;"> <td>Total</td> <td colspan="5" style="text-align: center;">3.78 MW</td> </tr> </tbody> </table> <p>As evident from the table above the combined capacity of the DG sets installed at KRBL is equivalent to 3.78 MW. The project activity is a biomass residue based cogeneration unit of 3.5 MW. Thus, the DG sets are capable of generation the same quantity of electricity as the project activity. Further, the remaining lifetime of the each of the DG sets is more than 10 years and hence extends beyond the crediting period.</p> <p>As stated above four DG sets are of CATERPILLAR (CAT) make and one is of Rumex make.</p> <p>As per the certificate provided by Rumex (Enclosure 1), the equipment supplier for DG set no. G-72M/2161, the operational lifetime of corresponding DG set is 20 years or 100000 running hours (measured as service units), which ever is earlier. The document clearly state that the remaining operational lifetime of the DG set is 10-11 years as on date and hence extends beyond the proposed crediting period.</p> <p>Similarly the certificate provided by Tractors India Limited (TIL) (Enclosure 2) states the operational lifetime of the DG sets of CAT make is atleast 100000 service units, provided the DG sets are maintained as per the Standard Operating Procedures and genuine spare parts provided by CAT are used.</p> <p>KRBL is in Annual Maintenance Contract (AMC) with TIL and ensures proper operation and maintenance of DG as per the manufacturer's specifications.</p> <p>Please refer to the AMC reports issued by TIL (Enclosure 3) for various DG sets which are being enclosed herewith.</p> <p>The reports clearly mention number of service hours for which a DG set has been under operation (denoted as Service Metered Units). The Service Units (SU) is metered by the inbuilt meters on the corresponding DG set.</p>	DG Set Specifications	1	2	3	4	5	Serial No.	6PN00813	6PN00667	G-72M/2161	6PN00516	9JROO194	Make	CAT	CAT	RUMEX	CAT	CAT	Year of Manufacturing	2002	2002	1998	2000	2004	kVA	1000	1000	1000	1000	725	kW =(kVA*0.8)	800	800	800	800	580	Total	3.78 MW				
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The same are reported in the annual service and maintenance reports carried out by TIL. Besides, the Service Metered Units (SMU) forms the basis for overhauling of the DG sets and hence the same is monitored with utmost care and accuracy.

The service reports for various DGs details the SMU for corresponding DG as follows:

Sl. No.	DG Set Specifications	1	2	3	4
1	Serial No.	6PN00813	6PN00667	6PN00516	9JRO0194
2	Make	CAT			
3	Year of installation	2002	2002	2000	2004
4	kVA	1000	1000	1000	725
5	Operational lifetime (Service units)	100000	100000	100000	100000
6	Spent lifetime (Service metered units) as on March 07' 2008)	25690	32850	19700	11350
7	% operational Lifetime utilization	26	33	20	11
8	Operational lifetime remaining (service units)	74310	67150	80300	88650
9	Operational lifetime remaining (%)	74	67	80	89
10	Operational years remaining (taking total operational lifetime to be 20 years)	15	13	16	18

Based on the above justification and supporting documents it is evident that all the DG sets at KRBL have considerable lifetime remaining that extends beyond the crediting period and are capable of producing same quantity of electricity for the entire proposed crediting period.

Response of DOE

The arguments presented by the project proponent in support of the DG set residual life-time beyond the 10 year crediting period are well-supported by documented assertions from the DG set manufacturer.

As the cogeneration plant has a capacity of 3.5 MW and the combined capacity of all DG sets together is 3.78 MW it can be assessed that the existing facilities are capable to supply the same amount of electricity as the proposed project activity.

The condition of the DG sets was checked during the on-site visit. As a result it was concluded, that they were well inspected and relatively new. It could be clarified and confirmed, that the remaining lifetime of the DG sets will exceed the crediting period of ten years. Based on experiences with comparable devices it can be assessed that the total operational lifetime is most likely at least 20 years. As the oldest DG set was installed in 1998, the remaining lifetime will not affect the chosen ten year crediting period.

Furthermore by means of CAR B4 the project participant has confirmed that it is highly unlikely that the existing DG sets will be removed during the crediting period as they are needed as a back up captive power source.

However, the validation team noted a minor discrepancy in the response made by the project participant for the review comment.

In the response the project participant states that the 'Serial no of the DG set no 5 is 9JR00194'. However, in PDD section A.2 submitted for RfR, this stated as 9JR00184.

The validation team re-checked this against the manufacturer Annual Maintenance Contract records (attached Enclosure 1, 2 and 3) and confirmed that the serial number is indeed 9JR00194.

The root-cause of this error is a typo error made in RfR PDD, which has also been reproduced in the Final Validation report submitted for RfR.

To confirm that no other DG sets, apart from the five stated in PDD, are being used by the project participant at the project site, a written statement has been obtained (attached Enclosure 4).

Contact person:

Mr. Manu Maudgal
TUV India Pvt. Ltd.
304-305, 3rd Floor
Bhikaji Cama Bhawan
11, Bhikaji Cama Place
New Delhi- 110 066
India
Tel: +91-11-416 592 30, 414 59105
Mobile: 9810831645
Fax: +91-11-416 592 31
email: mmaudgal@tuv-nord.com