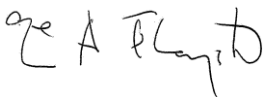
Validation opinion for post registration changes

Title of project activity:		
Clean Energy generation from wind energy in the state of Andhra Pradesh		
CDM reference number:	DNV project No.:	
5821	PRJC-441837-2013-CCS-IND	
Date:	Validation of the changes were conducted:	
20 March 2013	☐ Prior to the commencement of a verification of the project activity ☒ When performing a verification of the project activity	
Work carried out by (name & signature):	Work verified by (name & signature):	Approved by (name & signature):
 Thamizharasi Kaliaperumal	 K.V. Raman	 Ole A. Flagstad

Overview of post registration changes

Type of post registration change		**Are the changes of a type specified in Appendix 1 of the CDM Project Standard?** Note: In case of "No", prior approval by the EB is required
A: Temporary deviations from the registered monitoring plan and/or monitoring methodology (refer to section A)		☐ Yes ☐ No ☒ No post registration change of this type
Applicable period for proposed deviations (inclusive):	From DD/MM/YYYY start date of the earliest included deviation to DD/MM/YYYY end date of the latest included deviation)	
B: Corrections (refer to section B)		☐ Yes ☐ No ☒ No post registration change of this type
C: Changes to the start date of the crediting period (refer to section C) *Prior approval by the CDM EB is not required in case of (a) bringing forward the start date up to one year earlier or (b) postponing the start date by up to one year (by up to two years for project activities in LDCs).*		☐ Yes ☐ No ☒ No post registration change of this type
Proposed start date of the crediting period:	DD/MM/YYYY (changed from DD/MM/YYYY)	
D: Permanent changes from the registered monitoring plan or applied methodology (refer to section D)		☒ Yes ☐ No ☐ No post registration change of this type

E a): Changes to the project design of a registered project activity (refer to section E)	☒ Yes ☐ No ☐ No post registration change of this type
E b): Changes to the programme design of a registered PoA (refer to section E)	Note: All changes to the programme design of a registered PoA require prior approval by the EB. ☒ No post registration change of this type
F. Changes specific to afforestation or reforestation project activities (refer to section F)	☐ Yes ☐ No ☒ No post registration change of this type

A. Temporary deviations from the registered monitoring plan and/or monitoring methodology

Not applicable.

B. Corrections

Not applicable.

C. Changes to the start date of the crediting period

Not applicable.

D. Permanent changes from the registered monitoring plan or applied methodology

D.1 Description of the revision of the monitoring plan

The revision of the monitoring plan pertains to revising the calibration frequency of the energy meters (both cluster meters and substation meters), which are part of the monitoring plan of the project activity, from one year to five years.

The project activity "Clean Energy generation from wind energy in the state of Andhra Pradesh" is implemented as per the registered PDD and applies the "Baseline and monitoring methodology AMS-I.D "Grid connected renewable electricity generation" version 17.

During the site visit, it was observed that the calibration frequency of the energy meters (both cluster meters and substation meters), is not in line with the frequency stated in the registered PDD version 04 dated 12 January 2012. In the registered PDD, the calibration frequency of the energy meters is stated to be annual, as per the power purchase agreement (PPA) signed with the State Electricity Board (Central Power Distribution Company of Andhra Pradesh Limited, also known as APCPDCL). The meters are installed, maintained and calibrated by APCPDCL and owned by them as well.

The project participant now are proposing a change in the calibration frequency of energy meters from annual to once in five year since the meters are not under the control of the project participant and the calibration are done by the State Electricity Board (APCPDCL). As

per the PPA signed with the APCPDCL, calibration of energy meters is solely under the control of the APCPDCL and the project participant does not have any control over it. Also as per article 4 of the PPA, the project participant is not provided with the authority to conduct or appoint a third party for calibration / testing of the energy meters. Though the PPA mentions an annual calibration frequency, in the actual practice, the calibration is done at the convenience and requirement of APCPDCL, and is beyond annual basis.

Since the calibration procedure is under the scope of APCPDCL, the original monitoring plan cannot be followed and thus the calibration frequency is proposed to be changed to once in a five years. This revised frequency of five years is justified as it is in compliance with the guidelines provided in the "Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006", which states in section 18 – 'Calibration and periodical testing of meters" that *the energy meters shall be tested once in five years*.

The applied monitoring methodology AMS-I.D, version 17.0, refers to "General guidelines for SSC CDM methodologies" for calibration frequency and the latest guideline (version 19.0) does not specify any specific time period for calibration / testing of the equipment. DNV confirms that the revision proposed by the project participant is in line with the requirements mentioned in the Central Electricity Authority metering regulations. Central Electricity Authority (CEA) is a Statutory Body attached to the Ministry of Power, Government of India.

It has to be noted that maintaining the accuracy of energy meters is in the interest of both the APCPDCL and the project participant. Since the APCPDCL make payments to the project participant based on the energy meter readings and since once in five years calibration is acceptable to the APCPDCL, it is understood that the accuracy of the energy meter readings is not compromised in any way by changing the calibration frequency from once in a year to once in five years.

The project participant has submitted the revised PDD (version 05.0 dated 12 March 2013) for the change in the calibration frequency of energy meters (both cluster meters and substation meters), from annual to once in five years, which has been verified against the requirement of the "Project Standard - Appendix 1, Changes that do not require prior approval by the board" section 3 "Permanent changes from the registered monitoring plan", point 5 (a) "*Change of calibration frequency or practice for monitoring equipment not within the control of project participants*" and found to be acceptable.

D.2 Assessment of the revision of the monitoring plan

The proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revisions

The proposed revision in the monitoring plan is the change of calibration frequency of energy meters (both cluster meters and substation meters), from one year to five years. As stated in the monitoring methodology AMS-I.D version 17.0, "*All measurements should be conducted with calibrated measurement equipment according to relevant industry standards*", the energy meters are and will be calibrated in line with CEA metering regulations, which stipulates that "*the energy meters shall be calibrated and tested once in five year*". Also the metered values (electricity export and import) will be conservatively corrected for the whole calibration period in case the energy meters are found to be outside of accepted levels of accuracy at the time of calibration. Hence the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process

is not reduced as a result of the revision of "calibration frequency change from one year to five year".

The proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity whilst ensuring the conservativeness of the emission reductions calculation

As stated above, the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity whist ensuring the conservativeness of the emission reduction calculation.

The findings of previous verification reports, if any, have been taken into account

Not applicable, as this post registration change (PRC) is being sought during the first monitoring period.

E. Changes to the project or programme design of a registered project activity or PoA

E.1 Description of the changes as compared to the description in the registered PDD and description of the changes to the monitoring plan

As per the registered PDD, there is one set of main & check meter of 0.2s accuracy class at 132 kV Enercon Pooling sub-station at Ankireddypalli where all the WEGs of project activity and non-project activity are connected. However as verified during the verification site visit, there are two sets of main & check meter of 0.2s accuracy class at 132 kV Enercon Pooling sub-station at Ankireddypalli where all the WEGs of project activity and non-project activity are connected.

Substation energy meters - Set I: main meter – 11070263 and check meter – 11070295

Substation energy meters – Set II: main meter – 11070264 and check meter - 11070337

Details of project activity cluster meters (dedicated energy meters to the project activity) and the substation meters are given in the following table.

Location number	Cluster meters		Ankireddipalli Substation meters	
	Main meter	Check meter	Main meter	Check meter
52	AP900310	AP900311	11070263	11070295
88 & 89	AP900028	AP900076		
80, 81, 82, 83 & 84	AP900316	AP900317	11070264	11070337

E.2 Assessment of the changes to the project design (*applicable to project activities only*)

Assessment of when the changes occurred

The project WEGs were commissioned in the months of October 2010, December 2010 and March 2011, well before its registration as CDM project on 21 February 2012. The monitoring plan and metering arrangements were in place before the project registration but however the exact number of substation meters was not captured in the registered PDD and the validation report.

Assessment of the reasons for these changes taking place

It was found during the project verification site visit, that instead of one set (main and check meter) of energy meters at the substation, two sets of energy meters are in place, to which the project activity's cluster meters are connected.

Assessment of whether the changes would have been known to the project participants prior to registration of the project activity

The monitoring plan and metering arrangements were in place before the project registration but however the exact number of substation meters was not captured in the registered PDD and the validation report.

Assessment of how the changes may impact the overall operation/ability of the project activity to deliver emission reductions as stated in the PDD

The change in the number of substation meters (from one set to two sets) does not have impact in the overall operation / ability of the project activity to deliver emission reduction as stated in the PDD as explained below.

The project activity emission reductions are calculated based on the net electricity export to the grid, sourced from the joint meter readings (JMR) of the cluster meters, taking the transmission losses into account in the net electricity calculation. The transmission losses are calculated by the state utility from the meter readings of substation and the cluster meters. Hence irrespective of the number of substation meter sets, the transmission losses would be calculated and provided to the project participant by the state utility. Hence the proposed change does not have impact in the overall operation / ability of the project activity to deliver emission reduction as stated in the PDD.

E.3 Assessment of the impact of the changes to the project design (*applicable to project activities only*)

In the case of a project activity, do the changes adversely impact any of the following?	☐ The applicability and application of the applied methodology under which the project activity has been registered ☐ The additionality of the project activity ☐ The scale of the project activity ☒ None of the above

Assessment of impacts of the changes on the applicability and application of the applied methodology under which the project activity has been registered

The change in the number of substation meters (from one set to two sets) does not have impact on the applied methodology AMS-I.D, version 17.0. As explained in the previous section, the project activity emission reductions are calculated based on the net electricity export to the grid, sourced from the joint meter readings (JMR) of the cluster meters, taking the transmission losses into account in the net electricity calculation. The transmission losses are calculated by the state utility from the meter readings of substation and the cluster meters.

Hence irrespective of the number of substation meter sets, the transmission losses would be calculated and provided to the project participant by the state utility.

Assessment of impacts of the changes on the additionality of the project activity

The change in the number of substation meters (from one set to two sets) does not affect the project additionality, as the project's additionality during validation is based on investment analysis. The discussed investment analysis holds good with the number of substation meters correction. Hence, the impact of the change in the number of substation meters, to the additionality of the project is NIL.

Assessment of impacts of the changes on the scale of the project activity

The change in the number of substation meters (from one set to two sets) does not have impact on the scale of the project activity, as the capacity of the project activity as stated in the registered PDD (6.4 MW) remains unaffected due to the proposed change.

F. Changes specific to afforestation or reforestation project activities

Not applicable.

Validation opinion

DNV confirms that

1. the change in the calibration frequency of the energy meters (both cluster meters and substation meters), from annual to once in five years
2. and the change in the number of substation meters (from one set to two sets)

do not impact the applicability of monitoring methodology. In addition, the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revision.

The above mentioned changes fall in to the category of Appendix 1 of Project Standard and therefore do not require prior approval of the Executive Board. DNV requests the Executive Board to accept the above mentioned change.

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