

ASSESSMENT ON POST REGISTRATION CHANGES

The logo for EPIC Sustainability features the text "EPIC Sustainability" in a blue, sans-serif font. The text is positioned above a green, swooping line that curves from the left and underlines the word "Sustainability".

EPIC Sustainability

Wind power project in Rajasthan, India

(UNFCCC Registration Ref. No. 8569)

Report No. : ESSPL/CDM/2014/016
Revision No.: 01.3

Report No.:	Date of first issue:	Version :	Date of this revision :
ESSPL/CDM/2014/016	30 th Dec. 2014	01.3	16 th April 2015
Project title	: Wind power project in Rajasthan, India		
Organizational Unit	: EPIC SUSTAINABILITY SERVICES PVT LTD		
Client	: Ratedi Wind Power Private Limited		
Summary:			
<p>EPIC sustainability services private limited (EPIC) has performed the Validation of Post Registration Changes to the Project Design Document (PDD) of the registered project activity titled "Wind power project in Rajasthan, India", with UNFCCC reference number of 8569, registration date of 10/12/2012 and crediting period from 10/12/2012 to 09/12/2022. The Validation of the Post Registration Changes has been performed based on the document review of the Monitoring Report, Registered PDD, supporting documents and on-site assessment.</p> <p>The project activity involves the installation and operation of wind power project of aggregate capacity of 26.4 MW in India. The commissioned Wind Electric Generators (WEGs) include 33 WEGs of 800 kW capacity in Jaisalmer district of Rajasthan. The project activity is the installation and operation of 33 Wind Electric Generators (WEGs) of 800kW capacities each in Jaisalmer district of Rajasthan. The project activity harnesses the available wind power in order to generate electricity and does not consume any fossil fuel, thereby reducing GHG emissions, which would have been otherwise generated by operation of fossil fuel based power projects connected to NEWNE regional grid.</p> <p>The PRC assessment team identified, through the validation process, permanent changes which required a revision of the registered PDD and which do require prior approval by the board as per para 136 and 140 (CDM PCP, version 7.0). The PP has taken actions and submitted to EPIC, the revised PDD version 05.3 and supporting evidence. The PRC assessment team, further confirms that the information in the revised PDD is correct and leads to better representation and transparency and is in line with the requirements of the approved monitoring methodology, ACM 0002, version 13.0.0 Therefore, EPIC requests the CDM-EB to provide approval for acceptance these Post Registration Changes.</p>			
Subject : Validation of Post Registration Changes			
Work carried out by :			
Mr. A Prabu Das	Lead Auditor	<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organisational unit <input type="checkbox"/> Limited distribution <input type="checkbox"/> Unrestricted distribution	
Mr. Arnab Deb	Auditor		
Mr. R Vijayaraghavan	Technical Reviewer		
Work Approved by : Mr. K Sudheendra (Head Operations)			

ABBREVIATIONS

BE	Baseline Emissions
BM	Build Margin
CAR	Corrective action request
CDM	Clean Development Mechanism
CDM-EB	Executive Board of Clean Development Mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CDM PCP	CDM Project Cycle Procedure
CDM PS	CDM Project Standard
CDM VVS	CDM Validation and Verification Standard
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification
CM	Combined Margin
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
DOE	Designated Operational Entity
DISCOM	Distribution Company
EF	Emission Factor
EPIC	EPIC Sustainability Services
ERs	Emission reductions
FAR	Forward action request
GHG	Greenhouse gas
IPCC	Intergovernmental panel on climate change
IWPL	IL&FS Wind Power Limited
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
MoC	Modalities of Communication
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project design document
PE	Project Emissions
PP	Project participant
RWWPL	Ratedi Wind Power Private Limited
MW/MWh	Megawatt/Megawatt hour
O&M	Operation & Maintenance
OM	Operating Margin
QA/QC	Quality Assurance/Quality Control
tCO ₂ e	Tonne of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
WEG	Wind Electric Generator

Table of Contents

1.	Validation opinion	5
2.	Overview of post registration changes.....	5
3.	PRC assessment process	6
4.	Findings	7
5.	Validation findings for temporary deviation	11
6.	Validation findings for corrections	11
7.	Validation findings for changes to the start date of the crediting period.....	12
8.	Validation findings for permanent changes from the registered Monitoring Plan and/or monitoring methodology	12
9.	Validation findings and resolution for changes to the project design of a registered project activity	20
10.	Validation opinion on the Post Registration Changes.....	20
11.	Appendix	22

1. Validation opinion

EPIC Sustainability Services has been contracted by Ratedi Wind Power Private Limited, formerly known as IL&FS Wind Power Limited, to undertake the first verification and Post Registration Changes of the registered CDM project activity titled "Wind power project in Rajasthan, India", with UNFCCC unique reference number 8569, with a registration date of 10/12/2012. EPIC conducted an independent third party assessment of the Post Registration Changes of the project activity as described in the registered PDD following the guidelines in section 9.5 of the CDM Validation and Verification Standard (CDM VVS, Version 7.0), and section 13.8 of the CDM Project Standard (CDM PS, Version 7.0).

2. 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Temporary deviations from the registered monitoring plan and/or monitoring methodology		<input type="checkbox"/> Yes <input type="checkbox"/> No
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)	<input checked="" type="checkbox"/> No post registration change of this type
Corrections (refer to point 3 of Finding section)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type
Changes to the start date of the crediting period 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).		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type
Proposed start date of the change of this type crediting period:	DD/MM/YYYY (changed from DD/MM/YYYY)	
Permanent changes from the registered monitoring plan or applied methodology (refer to point 7 of Finding section)		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No post registration change of this type
Changes to the project design of a registered project Activity (refer to point 8 of Finding section)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type
Changes to the programme design of a registered PoA		Note: All changes to the programme design of a Registered PoA require prior approval by the EB. <input checked="" type="checkbox"/> No post registration change of this type

Changes specific to afforestation or reforestation project activities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type
---	---

EPIC confirms the category of the changes considered are permanent changes to the registered PDD along with the monitoring plan as described in the registered PDD based on the findings raised during the course of the first periodic verification for the project activity. The sole objective of the proposed revision to the registered PDD along with the monitoring plan is to bring more transparency and clarity with respect to the actual monitoring system being followed at the project site and more transparency with respect to the control over the monitoring process between the PP and the state utility. The validation was performed in accordance with the UNFCCC criteria of the CDM i.e. CDM VVS version 7.0 and the host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

EPIC is of the opinion that the post registration changes of the project activity, do require prior approval by the board'. Therefore, in line with para 136 and 140 of CDM PCP, Version 7.0, EPIC submits the post registration changes of the project activity, for acceptance by the CDM EB, prior to submission of the request for issuance.

3. PRC assessment process

The PRC assessment was based on the methodology developed in the Validation and Verification Standard, Version 07.0.

3.1 Appointment of Validation team and conduct of PRC assessment:

The initial step is the appointment of the PRC assessment team. This has been done after due consideration of conflict of interest aspects and team competency in compliance with UNFCCC requirements and EPIC's Internal Procedures. A brief summary of the team appointed for PRC assessment comprising of Mr. A. Prabu Das (Lead Auditor) and Mr. Arnab Deb (Auditor) is provided below.

Mr. A Prabu Das, holds M.Tech Degree in Energy Conservation and Management and B.Tech Degree in Petro-chemical Technology. He is a certified Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has around 8 years of work experience in Design of biomass Power plants, preparing Techno Economic Feasibility Reports (TEFR), carrying out energy audits, of which last six years have been in CDM consultancy and validation services. He has undergone extensive training on CDM validation and verification and is a qualified lead auditor for Sectoral Scope 1 under Technical Area "TA 1.2 Renewables" in accordance with procedures of EPIC sustainability services Pvt. Ltd. He is also an ISO 26000 lead auditor certified by Professional Evaluation and Certification Board (PECB).

Mr. Arnab Deb, holds MBA Degree in Power Management and B.Sc Degree in Mathematics. He is a certified Program and Project Manager from IIT Kanpur. He has around 5 years of experience in Project Financing, Hydro project management, preparation of DPR, project sourcing and approvals and CDM. He has 5 years of extensive experience in auditing of projects related to CDM/GS/VCS/ISO. He is a qualified lead Validator and verifier for sectoral scope 1 Technical Area "TA 1.2 Renewables" in accordance with procedures of EPIC sustainability services Pvt. Ltd.

The PRC assessment was performed based on the following:-

- a review of data and information presented to verify their completeness
- a review of the registered PDD and monitoring methodology, paying particular attention to changes in the Monitoring plan and validation of the same
- a review of changes to other project information and validation of the same
- site visit assessment for validation of the post registration changes

Through the process of validation, the revised PDD and the supporting documents were evaluated to confirm the actions taken by the PP to CLs (clarification requests) issued by EPIC. The details of the CLs raised, response by the PP and closure by the validation team is indicated under section 8.4 of this PRC assessment report. The documents reviewed by EPIC are listed in Appendix section of this report. EPIC reviewed the final version of the PDD Version 05.3 dated 14/04/2015 to confirm that all changes related to the PRC had been incorporated.

3.2 Internal Quality Control

After the completion of assessment by the PRC assessment team all the relevant documentation is submitted to a qualified, Independent Technical Reviewer as part of EPIC's internal quality Control system. The technical reviewer assesses whether all the reporting requirements have been fulfilled and whether all the issues raised were closed satisfactorily by the validation team with appropriate justification. The technical review process can also raise issues in this regard which is resolved further by the PRC assessment team to the satisfaction of the Technical Reviewer.

A brief summary of the technical Reviewer appointed for this project is provided below:

Mr. R. Vijayaraghavan holds BE in Mechanical Engineering, M.Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 10 years of working experience in energy sector including validation and verification and successful registration of twenty CDM wind power projects. These projects include two large scale and eighteen small scale projects. He has also undergone extensive training on GHG validation and verification and has been qualified as Lead Auditor for Sectoral Scope 1 under Technical Area "1.2- Renewables". He is also an ISO 26000 lead auditor certified by Professional Evaluation and Certification Board (PECB).

4. Findings

4.1 Description of corrections to project information and permanent changes from the registered MP and or Methodology

This current scope of work involves only assessment of the changes to the registered monitoring plan; the changes are permanent in nature and therefore there is no temporary deviation from the monitoring plan. The proposed changes to the registered PDD are not covered under Appendix 1 of the CDM project standard, version 07 and hence require prior approval by the board.

The permanent changes in the registered PDD of the monitoring plan are the result of CLs raised by EPIC during the first periodic verification of the project activity.

The revision in the monitoring plan has been proposed by the PP in response to the CL, along with the revised PDD and types of changes are summarized as below;

Monitoring plan and diagram mentioned in B.7.1, B.7.3 of the revised PDD are updated in line with actual monitoring practice being followed at the site.

Section B.7.1 of the revised PDD, version 5.3, is revised with the removal of following parameters:

- $EG_{\text{export,gross}}$ Electricity exported from wind farm measured at State Electricity Board substation
- $EG_{\text{import,gross}}$ Electricity imported by the wind farm from the grid measured at State Electricity Board substation
- $EG_{\text{gross,windfarm}}$ Sum of the panel readings (for generation) of all the WEGs connected to the wind farm
- EG_{export} Electricity exported to the grid by the project activity
- EG_{import} Electricity imported from the grid by the project activity

During the site visit, the PRC assessment team noted that even though the parameter $EG_{\text{gross,windfarm}}$ as described above is monitored and recorded by service provider for the purpose of apportioning the electricity supplied to the grid by each WEG of the entire wind farm; the apportionment procedure is not under the control and /or jurisdiction of the PP since the monitored data also includes electricity generation values of non-project activity wind turbines. The summary of the parameters which are removed / description is updated, with their mode of measurement, accessibility, control and cross check mechanism is summarized in the table below:

S/N	Parameters	Source of data and controlling authority	Means of cross check	Remarks/changes/revisions
1	Sum of LCS panel reading (for generation) of all the WEGs connected to the wind farm ($EG_{\text{gross,windfarm}}$)	Sum of panel readings of generation of all WTGs connected to the wind farm measured at the individual WTGs. It is under the access of the service provider.	There is no means of cross check for the measured and the value is not accessible to the PP.	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan and also there is no means of cross check as required by ACM0002, v13.0.0 for this parameter.
2	Electricity exported from the wind farm, to the grid measured at State Electricity Board substation ($EG_{\text{export,gross}}$)	This is measured at State Electricity Board substation at 220 kV bus for all WTGs of the wind farm (project and non-project WTGs) and is under the control of DISCOM. This data is made available to PP.	There is no means of cross check for the measured value and the meter is not under control of PP.	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan as the parameter is not under control of PP though available. Also the data is pertaining to the entire wind farm not specific to the project activity. Further, as there is no means of cross check as required by ACM0002, v13.0.0, the omission of the parameter is justified.

3	Electricity imported by the wind farm, from the grid measured at State Electricity Board substation ($EG_{import,gross}$)	This is measured at State Electricity Board substation at 220 kV bus for all WTGs of the wind farm (project and non-project WTGs) and is under the control of DISCOM. This is made available to PP.	There is no means of cross check for the measured value and the meter is not under control of PP.	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan as the parameter is not under control of PP though available. Also the data is pertaining to the entire wind farm not specific to the project activity. Further as there is no means of cross check as required by ACM0002, v13.0.0. The omission of the parameter is justified.
4	Electricity export to the grid by the Project activity. (EG_{export})	Calculated from the measured values of parameters indicated in S. No. 1, and No.2 above and $EG_{gross,project}$, the data is under the control of the service provider	There is no means of cross check for the calculated value	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan. Also the parameter is calculated based on the parameters $EG_{gross,windfarm}$ and $EG_{export,gross}$ which are removed. Further as there is no means of cross check as required by ACM0002, v 13.0.0., the omission of the parameter is justified.
5	Electricity imported from the grid by the project activity (EG_{import})	Calculated from the measured values of parameters indicated in S. No. 1, and No.3 above and $EG_{gross,project}$, the data is under the control of the service provider	There is no means of cross check for the calculated value	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan. Also the parameter is calculated based on the parameters $EG_{gross,windfarm}$ and $EG_{import,gross}$ which are removed. Further as there is no means of cross check as required by ACM0002, v13.0.0., the omission of the parameter is justified.
6	Quantity of net electricity generation supplied by the project plant to the grid in year y ($EG_{facility,y}$)	Calculated value based on the difference between S. No. 4 and S. No. 5 above. This is under the control of the PPs representative (service provider)	This is cross checked with the monthly invoice prepared by the PP.	Source of data is described more correctly and transparently. The credit note for the project activity, which is the source of data for the project activity WTGs, is prepared based on the JMR reading of the entire windfarm and the LCS data of the project activity WTGs by the service provider by applying the defined apportioning formula. The means of cross check of the credit note is done by cross

				<p>verifying the monthly invoice generated by the PP to DISCOM based on which the payment is made. Though the invoice mentions the net electricity imported / exported based on the credit statement, DISCOM checks the individual invoices of all the PPs (both the project and non-project) in the windfarm, compares it with the JMR reading and then only accepts the invoice and payment is affected. Hence invoice raised by the PP acts as cross check of the net electricity supplied by the project WTGs.</p> <p>The summation of the individual LCS panel meter reading of the project WTGs measured at the WTG yard constitute the parameter $EG_{gross,project}$. The generated electricity from the wind farm after stepping up to higher voltage levels and after transmission to the SEB sub-station the data is measured (JMR) which constitute the parameter $EG_{export,gross}$ (this includes the project and non-project WTGs). The parameter $EG_{facility}$ is an apportioned data as per the procedure described above, after taking into consideration the transformation and transmission losses. Which means the data $EG_{facility}$ is always lower than the data $EG_{gross,project}$. The DoE accessed the data of $EG_{gross,project}$ for the year 2013 and 2014 and then compared with $EG_{facility}$ for the same period and found that a loss % is in the range of 1% to 6% is applicable. Considering this scenario applicable to the project activity, the parameter $EG_{gross,project}$ can be an indicative cross check mechanism for the parameter $EG_{facility,y}$ in terms of conservativeness, additionally.</p>
--	--	--	--	---

				<p>No change in source of data was verified to be involved.</p> <p>Description of measurements methods and procedures is updated in line with the actual monitoring procedure followed. QA/QC procedures to be applied are updated in line with the actual procedure followed at the site and are as per the applied monitoring methodology.</p>
--	--	--	--	--

PP in addition to the changes in monitoring plan also made corrections which do not affect the project design;

- Name of the company Enercon (India) Ltd (EIL) changed to Wind World (India) Ltd (WWIL), effective from 01/01/2013. Hence, the PP has revised the name of EIL to WWIL throughout the revised PDD. This has been checked from the company website <http://www.windworldindia.com/background-note.jsp>
- Name of the company IL&FS wind power limited (IWPL) changed to Ratedi Wind Power Private Limited (RWWPL) effective from 19/03/2014. Hence, the PP has revised the name of IWPL to RWWPL throughout the revised PDD. This has been checked from the Certificate of incorporation. The change in PP name is already recorded in UNFCCC project page along with updated MoC and HCA.

5. Validation findings for temporary deviation

5.1 Accuracy of the calculation of emission reductions

Not applicable to the project activity as no change in calculation of Emission reductions occurred.

5.2 Exact period to which the deviation applies

NA

6. Validation findings for corrections

6.1 Corrected information

PP in addition to the changes in monitoring plan also made the following corrections, which has resulted in better clarity and transparency of information:

- Name of the company Enercon (India) Ltd (EIL) changed to Wind World (India) Ltd (WWIL), effective from 01/01/2013. Hence, the PP has revised the name of EIL to WWIL throughout the revised PDD. This has been checked from the company website <http://www.windworldindia.com/background-note.jsp>

- Name of the company IL&FS wind power limited (IWPL) changed to Ratedi Wind Power Private Limited (RWWPL) effective from 19/03/2014. Hence, the PP has revised the name of IWPL to RWWPL throughout the revised PDD. This has been checked from the Certificate of incorporation. The change in PP name is already recorded in UNFCCC project page along with updated MoC and HCA.

6.2 Corrected parameters

No parameters were corrected during PRC assessment and therefore are not applicable.

7. Validation findings for changes to the start date of the crediting period

7.1 New starting date of the crediting period

No change has been done in the start date of the crediting period.

7.2 Baseline

No change in baseline occurred therefore, not applicable.

7.3 Progress made to start the project activity

The project is commissioned and operating.

8. Validation findings for permanent changes from the registered Monitoring Plan and/or monitoring methodology

8.1 Level of accuracy and completeness

The PRC has been proposed by PP to provide transparency and simplicity towards the monitoring system and procedures involved in the determination of the parameter “Quantity of net electricity generation supplied by the project plant to the grid ($EG_{\text{facility, y}}$)”. It does not involve any alteration of the project monitoring equipment nor the emission reduction calculation approach in comparison to the registered monitoring plan. The assessment of the changes is discussed below.

8.2 Permanent Changes from Registered monitoring plan:

The monitoring plan of the project activity is updated in line with the actual site scenario and consistent units and minor corrections to improve the clarity of the description under sections B.7.1 and B.7.3 of the revised PDD. The parameter-wise updates are already covered in the table in section 4.1 above.

As verified onsite the proposed change is in accordance with the actual site scenario and summarizes the process involved to arrive at the values of “Quantity of net electricity generation

supplied by the project plant to the grid, ($EG_{\text{facility},y}$)” for the project activity. The monitoring system is not under the direct control of the PP, as the monitoring system is uniform throughout the state and controlled by the state utility (DISCOM). The source of data for all the parameters related to $EG_{\text{facility},y}$ still remains the same. Thus, there is no effect on the accuracy of the measurements however; the transparency and completeness of the monitoring system will improve due to the proposed PRC.

Also the general QA/QC procedures are provided more transparently in the parameter tables which include more clarity on the calibration procedures regarding the level of control of the PP and the state utility. Further, the data reporting procedures were described more transparently so that the electricity data can be traced from various sources.

The parameters $EG_{\text{gross},\text{windfarm}}$, $EG_{\text{export},\text{gross}}$, $EG_{\text{import},\text{gross}}$, EG_{export} and EG_{import} are removed in section B.7.1 of the revised PDD and is justified below:

S/N	Parameters	Source of data and controlling authority	Means of cross check	Remarks/changes/revisions
1	Sum of LCS panel reading (for generation) of all the WEGs connected to the wind farm ($EG_{\text{gross},\text{windfarm}}$)	Sum of panel readings of generation of all WTGs connected to the wind farm measured at the individual WTGs. It is under the access of the service provider.	There is no means of cross check for the Measured and the value is not accessible to the PP.	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan and also there is no means of cross check as required by ACM0002, v13.0.0 for this parameter.
2	Electricity exported from the wind farm, to the grid measured at State Electricity Board substation ($EG_{\text{export},\text{gross}}$)	This is measured at State Electricity Board substation at 220 kV bus for all WTGs of the wind farm (project and non-project WTGs) and is under the control of DISCOM. This data is made available to PP.	There is no means of cross check for the measured value and the meter is not under control of PP.	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan as the parameter is not under control of PP though available. Also the data is pertaining to the entire wind farm not specific to the project activity. Further, as there is no means of cross check as required by ACM0002, v13.0.0, the omission of the parameter is justified.
3	Electricity imported by the wind farm, from the grid measured at State Electricity Board substation ($EG_{\text{import},\text{gross}}$)	This is measured at State Electricity Board substation at 220 kV bus for all WTGs of the wind farm (project and non-project WTGs) and is under the control	There is no means of cross check for the measured value and the meter is not under control of PP.	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan as the parameter is not under control of PP though available. Also the data is pertaining to the entire wind farm not specific to the project activity. Further as there is no means of

		of DISCOM. This is made available to PP.		cross check as required by ACM0002, v13.0.0. The omission of the parameter is justified.
4	Electricity export to the grid by the Project activity. (EG_{export})	Calculated from the measured values of parameters indicated in S. No. 1, and No.2 above and $EG_{\text{gross,project}}$, the data is under the control of the service provider	There is no means of cross check for the calculated value	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan. Also the parameter is calculated based on the parameters $EG_{\text{gross,windfarm}}$ and $EG_{\text{export,gross}}$ which are removed. Further as there is no means of cross check as required by ACM0002, v 13.0.0., the omission of the parameter is justified.
5	Electricity imported from the grid by the project activity (EG_{import})	Calculated from the measured values of parameters indicated in S. No. 1, and No.3 above and $EG_{\text{gross,project}}$, the data is under the control of the service provider	There is no means of cross check for the calculated value	The parameter is now removed from section B.7.1 of the revised PDD for clarity in the Monitoring plan. Also the parameter is calculated based on the parameters $EG_{\text{gross,windfarm}}$, and $EG_{\text{import,gross}}$ which are removed. Further as there is no means of cross check as required by ACM0002, v13.0.0., the omission of the parameter is justified.

The parameter EG_{facility} , updated in section B.7.1 of the revised PDD and is justified below:

S/N	Parameters	Source of data and controlling authority	Means of cross check	Remarks/changes/revisions
1	Quantity of net electricity generation supplied by the project plant to the grid in year y ($EG_{\text{facility,y}}$)	Calculated value based on the difference between the parameters EG_{export} and EG_{import} . This is under the control of the PPs representative (service provider)	This is cross checked with the monthly invoice prepared by the PP.	Source of data is described more correctly and transparently. The credit note for the project activity, which is the source of data for the project activity WTGs, is prepared based on the JMR reading of the entire windfarm and the LCS data of the project activity WTGs by the service provider by applying the defined apportioning formula. The means of cross check of the credit note is done by cross verifying the monthly invoice generated by the PP to DISCOM based on which the payment is made. Though the invoice

				<p>mentions the net electricity imported / exported based on the credit statement, DISCOM checks the individual invoices of all the PPs (both the project and non-project) in the windfarm, compares it with the JMR reading and then only accepts the invoice and payment is affected. Hence invoice raised by the PP acts as cross check of the net electricity supplied by the project WTGs.</p> <p>The summation of the individual LCS panel meter reading of the project WTGs measured at the WTG yard constitute the parameter $EG_{gross,project}$. The generated electricity from the wind farm after stepping up to higher voltage levels and after transmission to the SEB sub-station the data is measured (JMR) which constitute the parameter $EG_{export,gross}$ (this includes the project and non-project WTGs). The parameter $EG_{facility}$ is an apportioned data as per the procedure described above, after taking into consideration the transformation and transmission losses. Which means the data $EG_{facility}$ is always lower than the data $EG_{gross,project}$. The DoE accessed the data of $EG_{gross,project}$ for the year 2013 and 2014 and then compared with $EG_{facility}$ for the same period and found that a loss % is in the range of 1% to 6% is applicable. Considering this scenario applicable to the project activity, the parameter $EG_{gross,project}$ can be an indicative cross check mechanism for the parameter $EG_{facility,y}$ in terms of conservativeness, additionally.</p> <p>No change in source of data was verified to be involved.</p> <p>Description of measurements</p>
--	--	--	--	---

				<p>methods and procedures is updated in line with the actual monitoring procedure followed. QA/QC procedures to be applied are updated in line with the actual procedure followed at the site and are as per the applied monitoring methodology.</p>
--	--	--	--	--

It is confirmed that there is no change in the monitoring or apportioning procedure of net electricity generation supplied to the grid by the project activity WEGs and the same is adopted from the monthly apportioned credit note issued by the Service provider to the PP. Therefore, only parameters available to PP relevant to project activity are kept in the revised monitoring plan.

8.3 Possible impacts on emission reduction calculations due to change in monitoring plan:

The “Quantity of net electricity generation supplied by the project plant to the grid in the year y “ $EG_{\text{facility},y}$ ” which is fed to the grid, represents the realistic quantity of carbon intensive electricity being displaced from the grid system generation mix. The accounting of $EG_{\text{facility},y}$ provides the most accurate and conservative determination of emission reduction calculation for a grid connected renewable energy power plant, such as in the current project activity. The meters installed at the SEB substation measure electricity exported/imported by the entire windfarm and hence determine $EG_{\text{facility},y}$. The meters are sealed and maintained (tested & calibrated) by the grid authorities only.

As per the electricity monitoring system observed in grid connected renewable energy projects, the entire generated electricity is being evacuated to the grid after deducting import from grid. The electricity monitoring is governed by the Terms and conditions as mentioned in the PPA signed with the state utilities. The installed energy meters are owned and controlled by state electricity authority. As per the conditions of the PPA, PP cannot intervene into this metering process. The value of $EG_{\text{facility},y}$ is derived from the credit note issued by the service provider (which is as per the registered PDD) and can be cross checked with the monthly invoice raised by the PP towards the values of $EG_{\text{facility},y}$. Additionally the conservativeness of $EG_{\text{facility},y}$ can be indicatively compared with the parameter, $EG_{\text{gross},\text{project}}$. Thus, the determination approach of $EG_{\text{facility},y}$ is found to be correct, accurate and conservative and the mechanism of cross check is in line with the requirements of ACM0002, v13.0.0 ; hence it is accepted.

It is clear from the above description that the baseline of the project activity would still remain the same. Hence there will be no change in emission reduction calculation due to change in monitoring plan.

The rest of the project details remain the same as mentioned in the registered PDD. Thus, the proposed revision improves the transparency of information in registered PDD and the monitoring plan consistent with the actual site scenario.

8.4 Findings against Post Registration Changes:

CAR 01 # The PP is requested to include a complete line diagram showing all the other power plants connected together with the proposed CDM project activity and relevant monitoring points in monitoring section of the PDD.

PPs Response # Section B.7.3 of the PDD is now revised to include the line diagram. Also the project boundary in Section B.3 is updated for consistency.

Closure # The line diagram provided in the revised PDD is in line with the actual monitoring practice and hence is accepted. The project boundary also is revised for consistency which is accepted.

CL 02 # During site visit it was observed that the apportioning procedure underlined is actually being practiced, however the data provided by PP for parameter $EG_{gross, windfarm}$ is not correctly sourced as against the source identified in registered PDD. PP to provide the source of data.

PPs Response # As per the registered CDM-PDD, the value of $EG_{gross, windfarm}$ is sourced from panel reading (LCS data) of all WEGs in the wind farm. This data is maintained by the service provider (Wind World (I) Ltd.) and is used for apportionment of net electricity supplied to the grid at sub-station end from individual WEGs. It is worth noting here that the parameter under consideration comprises of generation data of non-project (other project owner) WEGs as well. This data is used in apportionment calculation by technology supplier and credit note for individual PP is created. However, the data is not disclosed to PP in order to maintain the confidentiality for other project owners who's WEGs are installed in the same wind farm. Therefore, monitoring of this parameter is outside the control of PP.

This is the practice throughout the state of Rajasthan. In order to support the above justification, DOE may visit UNFCCC CDM website in order to check the following registered CDM project activity bearing URN:

- 5090
- 5186

Both the above mentioned projects are installed in Rajasthan and applied for revision in monitoring plan, as the generation data for the complete wind farm is outside the jurisdiction and monitoring control of PP.

Closure # PP has provided supporting PPA, Credit note and JMR against the findings which clearly indicates that PP has no role in the apportionment and the data regarding $EG_{gross, windfarm}$ is with the technology supplier and cannot be disclosed to PP as non project activity data are also involved. The team has cross verified the actual site practice through interview of the service provider and the review of the documents. The response of PP is justified and accepted.

CL 03 # The parameter $EG_{facility,y}$ is a calculated parameter based on parameters EG_{export} and EG_{import} ; which is further calculated based on $EG_{gross,project}$, $EG_{gross,windfarm}$, $EG_{export,gross}$ and $EG_{import,gross}$, whereas the PP has taken the value of EG_{export} and EG_{import} directly from the JMR/credit note. PP to clarify why has not the parameter been calculated as per registered PDD formula.

PPs Response # The parameter, $EG_{facility,y}$ is calculated based on the difference in values of quantity of electricity supplied by the project activity to the grid (Export) and quantity of electricity

delivered to the project from the grid (Import). In practice, a cohort of WEGs (owned by various Project Proponents) is connected to feeders and transmits the electricity to the substation of the service provider which records the gross electricity for entire wind farm. The Service provider then transmits the electricity to the SEB substation where a main meter and check meter monitor the gross export and gross import from the wind farm. Therefore, in order to calculate the quantity of electricity supplied by the project activity to the grid, service provider, along with DISCOM, apportions the data (as it contains data of other WEG owners) and creates credit note for WEGs of each project owner. However the data used for apportionment procedure, viz., $EG_{gross,windfarm}$ is not disclosed to PP due to the reason of confidentiality, as they include data of other project owners. $EG_{gross,project}$ is the only data available with PP. However as calculation of the final $EG_{Facility,y}$ is dependent on $EG_{gross,windfarm}$ the approach of monitoring and recording $EG_{gross,project}$ separately is not useful in the monitoring plan and further there is no means of cross check of this data and therefore the parameter is removed from the revised PDD.

It is worth noting here that the credit note for individual project owners is prepared based on the above parameters and the payment from associated DISCOM is made on the basis of credit note prepared by service supplier. Considering the fact that the invoice raised by PP is based primarily on the Credit Note and the payment is done by DISCOM on the same basis; the data to calculate $EG_{Facility,y}$ is based on the trivector bi directional energy meter and the net electricity generated is recorded in the credit note (primary source of data) based on which the Invoice is raised by PP (used as source for cross check) which is appropriate and in line with the methodology.

In addition, calculation of $EG_{Facility,y}$ in case of CDM project activity under discussion involves:

- The quantity of electricity supplied by the project plant to the grid, EG_{export} , and
- The quantity of electricity delivered to the project plant from the grid, EG_{import}

$$EG_{Facility,y} = EG_{export} - EG_{import},$$

This is also in-line with the applied methodology, ACM0002, v13.0.0.

CL 03.1 # Justify the exclusion of the parameter ' $EG_{gross,project}$ ' from section B.7.1 of the PDD as it is monitored and accessible to PP.

PPs Response # The parameter $EG_{gross,project}$ which represents the summation of the individual LCS panel reading of the project WTGs is retained in the revised PDD. The parameter would act as an additional indicative cross-check point for the parameter $EG_{Facility,y}$ and therefore, the data represented by $EG_{gross,project}$ is retained as monitoring parameter in section B.7.1 of revised CDM-PDD-FORM, v05.3.

Closure # The parameters $EG_{gross,windfarm}$, $EG_{export,gross}$, $EG_{import,gross}$, EG_{export} and EG_{import} are removed in the section B.7 of the revised PDD. During the site visit, the PRC assessment team noted that the parameters $EG_{gross,windfarm}$ is monitored and recorded by the Service provider for the purpose of apportioning the electricity supplied to the grid by the individual WEG of the entire wind farm. This data apportioning is however not under the jurisdiction of the PP since the monitored data also includes electricity generation values of non-project activity wind turbines. PP does not have any control of the apportioning and data recording procedure involved. The parameter $EG_{gross,project}$ is monitored and is available to the PP, further the monitored data $EG_{gross,project}$, representing the summation of individual LCS data of the project WTGs would act as an indicative cross-check mechanism for the calculated parameter $EG_{Facility,y}$ (apportioned data) in terms of conservativeness.

Hence, based on the JMR the credit note for the individual WEG is prepared by the technology supplier which is the primary data source. Further to this, the PP raises invoice which is the

source of the cross check. Hence the explanation provided by the PP is found justified and in line with the methodological requirements.

CL 04 #The apportioning procedure in the revised PDD indicates that the import multiplication factor is calculated as follows: $MF_{import} = EG_{import,gross} / EG_{gross,windfarm}$ which represents "the fraction of gross imports monitored at the state utility substation to the gross generation monitored at the service provider's substation". The PP is requested to clarify the appropriateness of the applied formula considering the gross generation was applied to calculate the import multiplication factor.

PPs Response # PP would like to clarify that the parameter $EG_{gross,windfarm}$ represents the generation figure of all the WEGs installed in the wind farm by the means of LCS panel reading. The LCS panel readings are capable of providing the export value, i.e. the electricity generation by WEG, measured by LCS panel installed at WEG end. The panel is not equipped with monitoring the import value. Hence, in order to facilitate the apportionment procedure, the above mentioned formula is used. Since the WEGs (project activity) are connected in parallel with other WEGs (non-project activity) to the SEB grid, the import component from the grid to all the WEGs are apportioned as per the formula and this is the common practice in the host country. For better clarity and linkage with the monitoring plan, the formula is now modified as follows in the section B.7.3 of the revised PDD:

$$EG_{export} = \frac{EG_{gross,project} \times EG_{export,gross}}{EG_{gross,windfarm}}$$

$$EG_{import} = \frac{EG_{gross,project} \times EG_{import,gross}}{EG_{gross,windfarm}}$$

Closure # The formula for apportioning now indicates the actual practice followed and clarifies on the use of the gross generation data to calculate both the Electricity export to the grid by the Project activity, (EG_{export}) and Electricity imported from the grid by the project activity (EG_{import}). Also it has been independently verified from other CDM projects and through interview of the service provider, DISCOM officials and on-site observations that this is the practice followed in the host country.

8.5 Conformance to approved monitoring methodology

This permanent change to the registered monitoring plan improves the accuracy of information provided and consistency in the revised PDD.

The proposed revision of the monitoring plan is verified to be in accordance with the approved monitoring methodology applicable to the project activity. Applied methodology ACM 0002 version 13.0.0 applied, which requires Quantity of net electricity generation supplied by the project plant to the grid, ($EG_{facility,y}$) The project activity generates electricity using WEGs and the proposed PRC is making the monitoring approach of this parameter transparent and simple to understand. It has been further assured that there will be no effect from the revision in the monitoring plan on the original chosen baseline mentioned in the registered PDD and it will remain same.

8.6 Findings of previous verification reports related to the changes (if any)

This is the first periodic verification of the project activity.

9. Validation findings and resolution for changes to the project design of a registered project activity

9.1 Description of the changes

No design change has occurred to the project activity.

9.2 Additionality of the project activity

The additionality of the project has not been affected as only information has been corrected and no parameters were changed.

9.3 Scale of CDM project activity in the new PDD, if changes affect the scale of a small scale Project activity

The project activity is large scale project activity and no change in project scale occurred.



9.4 Applicability and application of approved baseline methodology

The project activity is applicable under the approved baseline methodology.

10. Validation opinion on the Post Registration Changes

EPIC identified permanent changes to the registered monitoring plan and corrections that do not affect the project design as specified in the PDD Version 04 dated 29/10/2012. Considering the assessment presented above, the PRC assessment team, through the validation process has assessed that the nature of the permanent changes required a revision of the registered PDD and prior approval by the board as per para 136 and 140 (CDM PCP, version 7.0). Further, EPIC was able to confirm that the changes in the monitoring plan would neither impact the applicability of the methodology to the project activity nor impact the additionality of project activity negatively and would not change the scale of CDM project activity.

The PP has taken actions and submitted to EPIC, the revised PDD version 05.3 dated 14/04/2015 and supporting evidence. The PRC assessment team, further confirms that the information in the revised PDD is correct and leads to better representation and transparency and is in line with the requirements of the approved monitoring methodology, ACM 0002, version 13.0.0 Therefore, EPIC requests the CDM-EB to provide approval for acceptance of these Post Registration Changes.

Prepared by	Approved by :
	
Mr. A. Prabu Das	Mr. K. Sudheendra

(Lead Auditor)	(Head Operations)
----------------	-------------------

11. Appendix

List of documents reviewed

1.	PDD Version 04 dated 29/10/2012, PDD Version 05.3 dated 14/04/2015
2.	Certificate of incorporation dated 19/03/2013
3.	Power purchase agreement 13/06/2011, 05/10/2011 and 17/01/2012
4.	Joint Meter Readings, Credit note issued by service provider and Invoices raised by PP for the year 2013 and 2014
5.	Prior Consideration Form 28/04/2010
6.	CDM Project Standard, Version 07.0
7.	CDM Project Cycle Procedure, Version 07.0
8.	ACM 0002, Version 13.0.0
9.	CDM Validation and Verification Standard, Version 07.0