




**Validation report form for post-registration changes for
CDM project activities
(Version 02.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Wind power project in Tirunelveli Tamilnadu
Process track	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report on PRCs	03
Completion date of the validation report on PRCs	02/07/2018
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan <input checked="" type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools <input checked="" type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	06
Project participants	Vaayu Renewable Energy (Tapti) Private Limited
Host Party	India
Applied methodologies and standardized baselines	AMS I.D version 16 "Grid connected renewable electricity generation" Standardized baselines: NA
Mandatory sectoral scopes linked to the applied methodology	Sectoral Scope 1 – Energy industries (renewable/ non-renewable sources)
Conditional sectoral scopes linked to the applied methodologies	NA
Name and UNFCCC reference number of	

the DOE	LGAI Technological Center, S.A. (Applus+ Certification) UNFCCC ref. No of the DOE - E-0032
Name, position and signature of the approver of the validation report on PRCs	Name: Juan Sendín Caballero Position: Applus+ Certification BU Manager Director Signature: 

SECTION A. Executive summary

>>

The project activity consists of 10 WTGs (0.8 MW capacity each), making the total installed capacity to be 8 MW in the Theni district in Tamil Nadu, India. The WTGs are supplied and maintained by Wind World (India) Limited (WWIL). The WTGs have been commissioned between 29/09/2010 and 30/09/2010.

All 10 WTGs are fully functional and the assessment team verified this during the site visit.

The basic details of the project activity are mentioned below:

Project title	Wind power project in Tirunelveli Tamilnadu
UNFCCC registration number	4846
Date of registration	04/10/2012
Sectoral scope	1 – Energy industries (renewable/ non-renewable sources).
Methodology/ies applied	AMS ID, Version 16
Project participant	Vaayu Renewable Energy (Tapti) Private Limited
Location of Project Activity	Vagaikulam, Kattarakulam & Melelanthaikulam villages, in District Tirunelveli, State of Tamil Nadu, India

Scope of validation

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Vaayu Renewable Energy (Tapti) Private Limited to conduct the verification and certification of emission reductions reported for the CDM project activity “Wind power project in Tirunelveli Tamilnadu” (UN ref no. 4846) in India for the period 01/07/2012 to 31/12/2017 (including both days).

During the course of verification, the PP has decided to propose Post Registration Changes to the project activity in order to address the findings raised as part of verification. The scope of validation remains limited to the proposed changes to the registered PDD. This validation is an independent and objective review of the post registration changes proposed in the revised PDD against latest CDM Validation and Verification Standard (CDM VVS for PAs version 01.0), Project Standard (CDM PS for PAs version 01.0), Project Cycle Procedures (CDM PCP for PAs version 01.0) and other related requirements, as appropriate.

Validation process

The validation process is undertaken by verification team that involved the desk review of proposed changes as submitted by the PP, undertaking site visit, interview or interactions with the representative of PP, reporting and closure of findings, as appropriate and preparing a draft validation report complying with the CDM requirements. An independent Technical Review team reviews the validation report prepared by the team. The final validation report accepted by Technical Reviewer is then approved on behalf of Applus+ Certification and processed further as per CDM procedures.

Conclusion

The description in the revised PDD, Version 06 dated 31/05/2018 meets all relevant UNFCCC requirements for the CDM and correctly applies the selected baseline and monitoring methodology.

This report is the assessment opinion for all the changes that are proposed in the registered monitoring plan, change in the project design and corrections in the registered PDD; the changes are permanent in nature and therefore there is no temporary deviation from the registered monitoring plan. The proposed changes to the registered PDD are not covered under Appendix of the CDM Project Standard for project activities version 1.0 (EB 93, Annex 04) and hence require prior approval by the Board.

SECTION B. Validation team, technical reviewer and approver

>>

B.1. Validation team member

No.	Role	Signature	Last name	First name	Affiliation	Involvement in
-----	------	-----------	-----------	------------	-------------	----------------

					(e.g. name of central or other office of DOE or outsourced entity)	Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	OR	Ahirwar	Vivek Kumar	GCEES	Y	Y	Y	Y
2.	Auditor in Trainee	OR	Soni	Ravi Kant	GCEES	Y	Y	Y	Y
3.	Local Expert & Technical Expert (TA1.2)	OR	Ahirwar	Vivek Kumar	GCEES	Y	Y	Y	Y
4.	Financial Expert	OR	Ahirwar	Vivek Kumar	GCEES	Y	Y	Y	Y

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer	EI	Shen	Simon	Applus+ Certification
2.	Approver	IR	Sendín	Juan	Applus+ Certification

SECTION C. Means of validation

C.1. Desk/document review

>> Applus+ Certification conducted a desk review as under;

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions;

In addition to the monitoring documentation, Applus+ Certification has reviewed;

- The registered PDD Version 03 dated 13/05/2011, revised PDD version 06, dated 31/05/2018 and the monitoring plan;
- The applied monitoring methodology (AMS I.D Version 16);
- The monitoring report (all versions) to verify that it is as per the standardized format;
- Any other information and references relevant to the project activity's emission reductions (e.g. IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations).

The complete list of documents reviewed is included under Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: 25/02/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Confirm the implementation and operation of the project;	WTG project site at Vagaikulam, Kattarakulam & Melelanthaikulam villages, in District Tirunelveli, State of Tamil Nadu, India	25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni
2.	Review the data flow for generating, aggregating and reporting the monitoring parameters;		25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni
3.	Confirm the correct implementation of procedures for operations and data collection;		25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni
4.	Cross-check the information provided in the MR documentation with other sources;		25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni
5.	Check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.;		25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni
6.	Review the calculations and assumptions used to obtain the GHG data and ER;		25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni
7.	Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.		25/02/2018	Vivek Kumar Ahirwar & Ravi Kant Soni

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Yadav	Vikash	Vaayu Renewable Energy (Tapti) Private Limited (Manager)	25/02/2018	Project Activity Description, implementation and operation of the project. Calculations and assumptions used to obtain the GHG data and ER.	Vivek Kumar Ahirwar & Ravi Kant Soni
2.	Bharthi	P	WWIL (Engineer)	25/02/2018	Post registration changes	Vivek Kumar Ahirwar & Ravi Kant Soni
3.	Palani	R	WWIL (Sr. Engineer)	25/02/2018	Monitoring Data & Records, Energy Bills/Records	Vivek Kumar Ahirwar & Ravi Kant Soni
4.	Kumar	Lavan	WWIL	25/02/2018	Monitoring,	Vivek Kumar Ahirwar

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			(Technician)		equipment calibrations, maintenance, data records, certificates etc.;	& Ravi Kant Soni

C.4. Sampling approach

>> Not applicable

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines	-	-	-
Corrections	-	CAR #1	-
Changes to the start date of the crediting period	-	-	-
Inclusion of a monitoring plan	-	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools	-	CAR #2	-
Changes to the project design	-	CAR #3 and CAR #4	-
Changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
Total	-	04	-

SECTION D. Validation findings**D.1. Compliance with PDD form**

Means of validation	The project participants used a later version of the PDD form/23/ for the revised PDD than the version of the PDD form of the registered PDD. By means of checking updated PDD with the latest applicable and available PDD template form, version 10.1, the DOE can confirm that the information transferred to the later version of the PDD form is materially the same as that in the registered PDD besides those changes highlighted and assessed under this report.
Findings	No finding was raised
Conclusion	The updated PDD is in line with the latest applicable PDD form.

D.2. Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines

Means of validation	Not applicable
Findings	Not applicable
Conclusion	Not applicable

D.3. Corrections

Means of validation	The following corrections have been made in the registered PDD version 03, dated 13/05/2011: 1. There is a correction in the PDD with respect to change of name of equipment supplier/O&M contractor. With effect from 01/01/2013, the company name of Enercon (India) Limited (equipment supplier/O&M contractor) has been changed to
----------------------------	---

	<p>'Wind World (India) Limited'. The change of name has been reported in the revised PDD. This information is verified through the 'Fresh Certificate of Incorporation Consequent up on change of name /16/ issued by the Ministry of Corporate Affairs (GOI) and from the company website http://www.windworldindia.com/background-note.jsp, found to be acceptable.</p> <p>2. Section A.1, Section B.4 and Section B.6.1: web links provided under footnotes are updated as existing web links were not functional. Hence, this change does not affect the content of the registered PDD/01/.</p> <p>3. Section B.3: Table of sources and greenhouse gases (GHGs) is added in line with the instructions to complete latest PDD template form. Hence, this change does not affect the content of the registered PDD/01/.</p> <p>4. Section B.5: Typo error in the percentage escalation in O&M cost is corrected in the revised PDD. Hence, this change does not affect the content of the registered PDD/01/.</p> <p>5. Section B.5: Percentage variation in the PLF under sensitivity analysis is updated as +/- 10% instead of +/- 15%. This correction is done in line with the paragraph 20 and 21 of the "Guidelines on the Assessment of Investment analysis", hence, this change does not affect the content of the registered PDD/01/.</p> <p>6. Section B.6.2: Purpose of data has been reported for each parameter in line with the instructions to complete latest PDD template form. Hence, this change does not affect the content of the registered PDD/01/.</p> <p>7. Consistency in abbreviation of WEC instead of WEG/WEC has been done throughout the PDD. Hence, this change does not affect the content of the registered PDD/01/.</p> <p>8. Page 42 of registered PDD: Typographical error regarding source of Bloomberg, Beta snapshots is rectified. In the registered PDD, it was stated that of Bloomberg, Beta snapshots are provided under Appendix 3; however there were no such Appendix included in the registered PDD. Hence, this change does not affect the content of the registered PDD/01/.</p> <p>9. Appendix 1: information about the new project proponent has been updated.</p>
Findings	CAR #1 ,CAR #2 raised and resolved
Conclusion	<p>The assessment team has verified the revised PDD and confirmed that all the minor editorial changes made in the revised PDD/02/ are in line with the actual scenario observed at the site and represent current scenario at the time of submission of the revised PDD/02/. This is in line with paragraph 287-289 of the VVS for project activities version 1.0/11/. These corrections do not require prior approval as per paragraph 1, Appendix of the CDM Project Standard for project activities version 1.0(EB 93, Annex 04)/12/. However, these corrections are being submitted with the post registration changes for approval. Further, it is confirmed that, the changes do not affect the project design and comply with Appendix of the CDM project standard for project activities version 1.0/12/.</p> <p>It is to be noted that this project is registered under the previous regulatory framework (VVM track), and the old information is transferred to the new VVS track form. The verification team confirms that the material (information) included in the new form is materially the same as the information in the registered PDD.</p>

D.4. Changes to the start date of the crediting period

Means of validation	Not applicable
Findings	Not applicable
Conclusion	Not applicable

D.5. Inclusion of a monitoring plan

Means of validation	Not applicable
Findings	Not applicable
Conclusion	Not applicable

D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools

<p>Means of validation</p>	<p>The permanent changes in the monitoring plan as outlined under registered PDD are a result of a CAR raised during the second periodic verification of the project activity. The revision in the monitoring plan has been proposed by the PP in response to the CAR, along with the revised PDD/02/ and the changes are summarized below.</p> <p>Change #1: Description of all monitoring parameters along with QA/QC procedure is updated under section B.7.1 for more transparency and to reflect the actual monitoring of parameters in case of third party sale scenario.</p> <p>Change #2: Corrections have been made under section B.7.3 of PDD in line with the changes identified in the registered monitoring plan.</p> <p>Change #3: Single line diagram showing all the monitoring point is updated in section B.7.3 to reflect the third party sale scenario.</p> <p><u>Validation of Changes to the registered Monitoring Plan:</u></p> <p>As per the registered monitoring plan/01/ monthly values of the electricity supplied to the grid are supposed to be cross checked with the invoices raised by the PP to the state utility. However if the project activity is supplying the electricity to a third party, then the electricity bill will be raised by the state utility to the third party and in turn, the invoice will be raised by the project participant to the third party.</p> <p>Since the third party industrial unit also consumes electricity from other sources, the electricity bill raised by the state utility will have a different figure for net electricity supplied (or exported), when compared with the same figure reported in the invoice raised to the third party by the PP.</p> <p>In other words, the electricity bill raised by the state utility to the third party will provide the value of cumulative electricity consumption (from other sources and from project activity as well) in a particular month. The state utility provides monthly electricity statements to the PP, which mentions the net electricity exported from the project activity to the third party. Since the invoice will be raised to the third party considering the value of electricity exported, provided by the state utility in monthly statements, in this scenario it is not appropriate to cross check net electricity export with the invoices/electricity bills.</p> <p>In the case of third party sale, the value of net electricity exported to the third party, as reflected in monthly statements issued by the state utility, will be cross checked with the monthly LCS meter reading after subtracting the electricity import and transmission losses. LCS is fitted at the controller panel of each WEC and measures the electricity generation of each WEC. The aggregate of electricity recorded at LCS is found to be higher than the net electricity export recorded at HTSC meters, due to transmission and transformation loss. It is worth noting that net electricity export value as mentioned in the monthly statement (without discounting wheeling & banking of electricity), provided by the electricity board (state utility), will be used for emission reduction calculations. The process of monitoring of net electricity export is under purview of state electricity board and the PP does not have any control on it.</p> <p>The assessment team confirms that this approach is appropriate and satisfactory. The assessment team is able to confirm that the changes do not affect the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.</p> <p>The proposed permanent changes (addition of QA/QC procedure for parameter $EG_{BL,y}$ and revision in information of monitoring parameter in line with third part sale scenario) to the monitoring plan as described in the registered PDD are not covered under Appendix of the CDM project standard for project activities version 1.0/12/ and hence require prior approval by the Board.</p> <p>Paragraph 297 VVS for PAs v01.0 –“The DOE shall determine whether the changes to the registered monitoring plan described in the revised PDD are in compliance with the applied methodologies, standardized baselines and other applied standards or tools, and do not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring</p>
-----------------------------------	--

plan”.

Assessment team opinion:

As per the monitoring plan outlined under the registered PDD, the parameter net electricity export to state grid by the project activity should have been cross checked with the invoices raised by PP to state utility in line with the requirement of applied methodology AMS I.D version 16.0.

However as per the JMR for the month June 2013, verified during the site visit, the electricity generated by the project activity is being sold to a third party through Tamil Nadu state distribution & transmission network (i.e. Southern grid) from 15/06/2013 onwards. Hence in this scenario invoicing will be done on the basis of electricity bill raised by state utility to third party. It is worth noting that the electricity bill raised by the state utility to the third party will provide the value of cumulative electricity consumption (from other sources and from project activity as well) in a particular month. In the case of third party sale, the State utility issued monthly statement to the PP that mentions the net electricity export by the project activity to the third party in a particular month and the PP raises the invoice to third party based on the monthly statement only. Hence it is not suitable to cross check the monthly values of net electricity export through the invoices.

As per the proposed revisions in the monitoring plan, in the case of third party sale, the monthly values of net electricity exported by project activity will be cross checked with the monthly electricity generation by the project activity recorded through the LCS meter after subtracting the electricity import and transmission losses.

Moreover the net electricity export value as mentioned in the monthly statement (without discounting wheeling & banking of electricity), issued by the state utility, will be used for emission reduction calculations.

The proposed revision of the monitoring plan is verified to be in accordance with the approved monitoring methodology applicable to the project activity. There is no change in monitoring parameter and only QA/QC procedure has been changed in case of third party sale scenario. The assessment team is able to confirm that the methodology is still applicable and that there is no adverse impact on the application of baseline methodology due to the observed changes.

There are no changes observed in monitoring equipment's, or location of meters in case of third party sale through Tamil Nadu state distribution & transmission network (i.e. Southern grid).

It is verified through the revised PPA that the responsibilities of the state utility regarding the measurement of parameters and calibration of meters shall remain unchanged if the project activity is supplying the electricity to third party. The assessment team is of the opinion that the proposed changes do not affect the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.

Paragraph 297 VVS for PAs v01.0 *“The DOE shall determine whether permanent changes to the registered monitoring plan are likely to lead to a reduction in the accuracy of the calculation of GHG emission reductions or net anthropogenic GHG removals.....”*

There are no impacts on emission reduction calculations due to change in the monitoring plan. As per the revised monitoring plan the net electricity export to third party will be cross checked with monthly electricity generation by the project activity (recorded through the LCS meter fitted at the controller panel of each WEC) after deduction of electricity import and transmission losses, however the net electricity export value as mentioned in the monthly statement (without discounting wheeling & banking of electricity), issued by the state utility, will be used for emission reduction calculations. This approach is found to be reasonable and hence accepted.

Change #4: The registered PDD mentions that the meters will be calibrated and tested once in a year. In the revised PDD the PP has updated the calibration frequency as once in 5 years.

Assessment and Validation opinion on changes:

	<p>In accordance with section 4, clause (i) of the Power Purchase agreement (PPA) signed with state utility (TNEB), “<i>The metering arrangements with facilities to record export and import of energy shall be provided in accordance with the Central Electricity Authority (Installation and Operation of meters) Regulations 2006. The periodicity of testing, checking, calibration ect will be governed by the regulations issued by Central Electricity Authority (CEA) in this regard</i>”.</p> <p>The national guidelines issued by the Central Electricity Authority, Ministry of Power, Government of India Notification No. 502/70/CEA/DP&D dated 17/03/2006/19/ (www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf) which is considered as national standard, mentions that “All interface meters shall be tested at least once in five years.”</p> <p>Further, as per the Section 4 clause (v) of the PPA/09/, the meters shall be sealed by the state utility and that any meter seal shall be broken only by the representative of state utility whenever the metering systems is to be inspected, tested, adjusted, repaired or replaced. This confirms that the meters are sealed and in control of the state utility who calibrates/tests the meters.</p> <p>Therefore it can be confirmed that the calibration frequency of the meters is not in control of the PP and the revised calibration frequency of “once in 5 years” is in accordance with the national standards hence deemed appropriate. This is a case where the PDD has indicated a calibration periodicity which is tighter than the commonly accepted standard. But as the project activity follows and practices the commonly accepted standard there will be no impact in the determination of emission reductions. Further, the assessment team is able to confirm that this change have no material impact on the applicability of the applied methodology or the accuracy and completeness of the monitoring. Thus, same revision is acceptable to the assessment team.</p>
Findings	CAR #1 ,CAR #2 raised and resolved
Conclusion	<p>In line with the guidelines prescribed under paragraph 296-299 of CDM VVS for project activities version 01, the assessment team able to confirm that:</p> <ul style="list-style-type: none"> (a) The changes to the registered monitoring plan are permanent in nature and do not deviates from the relevant requirements applied methodology and comply with the in the “CDM project standard for project activities”. (b) The changes to the registered monitoring plan described in the revised PDD are in compliance with the applied methodology AMS I.D version 16, and do not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. (c) The permanent changes to the registered monitoring plan are not likely to lead to a reduction in the accuracy of the calculation of GHG emission reductions or net anthropogenic GHG removals. (d) The permanent changes comply with the relevant requirements related to the permanent changes to the registered monitoring plan in the “CDM project standard for project activities”. <p>A revised PDD reflecting the permanent changes in the monitoring plan is being submitted in line with the requirements outlined under paragraph 133-134 of CDM PCP for project activities version 1.0/13/</p>

D.7. Changes to the project design

Means of validation	<p>The following changes are done in the registered PDD/01/ to reflect the changes to the project design of the registered project activity.</p> <p>Section A.4: Name of the PP has been revised.</p>
----------------------------	---

Section B.2: revision has been made in applicability of methodology in line with present project scenario from 15/06/2013 onwards to reflect the changes to the project design of the registered project activity i.e. reference of third party is added. The project remains grid connected wind power plant as per methodology applicability criteria and is accepted.

Section B.3: Project boundary diagram has been revised considering both the scenarios (pre & post change of ownership)

Section B.7.3: Correction has been made to make the data measurement procedure more understandable and the single line diagram has been revised. Moreover monitoring information has been updated to reflect the changes to the project design of the registered project activity.

Section B.7.3: Procedure for data uncertainty, correction in O&M structure, Monitoring roles and responsibilities has been revised to reflect the changes to the project design of the registered project activity.

Appendix 1, contact information of the new PP has been added.

Main changes to the project design identified from the registered project as discussed below.

As per the registered PDD /01/, the project was owned by Vish Wind Infrastructure LLP and electricity generated by the project activity was being supplied to state electricity board (state grid) at INR 3.39/kWh. During the site visit for the second periodic verification, it was found that the project activity has been sold to a new Project Participant /07/ "Vaayu Renewable Energy (Tapti) Pvt. Ltd." and the electricity generated by the project activity is being sold to a third party at a different tariff rate of INR 5.10/kWh. This information is also verified through the revised PPA/09/ signed with the third party and the revised HCA issued by the Indian DNA/15/. The contact information provided under appendix 1 of revised PDD is checked and found to be consistent with the same mentioned in the revised HCA/15/.

It is also verified that the new tariff rate is fixed for the next 10 years which is beyond the end date of crediting period (07/07/2021). The change in ownership (i.e change in Project Participant) of the project activity has also been confirmed from the UNFCCC web page of project activity and it is found that Vaayu Renewable Energy (Tapti) Pvt. Ltd is the project participant for the project activity.

Validation of Ownership change and assessment opinion:

In line with the guidelines provided under paragraph 309(b) and (c) of VVS for PAs version 01.0, the assessment team would like to clarify the following:

The change in ownership has taken place on 17/05/2013 as verified through the purchase order/07/ placed by the new project participant. It is also confirmed that this change was not known to the previous PP at the time of registration and would not have any impact on the overall operation/ability of the project activity to deliver emission reductions as stated in the registered PDD. It is also confirmed that there is no impact on the operation and data monitoring due to ownership change because the O&M contractor is same for both new and earlier project participant.

The assessment team has also checked if the change in ownership would affect the conclusions of the validation report of the registered PDD with regard to:

(i) Additionality of the project activity;

As per the clarification (Ref. No-AM_CLA_0223)/14/, ownership change does not adversely affect the additionality of a registered project activity and is accepted.

(ii) Scale of the project activity;

Change in ownership is not relevant to the scale of the project activity as there is no change in the project capacity due to ownership change, this is also verified through the revised PPA/09/ hence it does not affect the conclusions of the validation report of the registered PDD regarding the same.

(iii) Applicability and application of approved baseline methodology under which the project activity has been registered or the later version of the applied methodology; Change in ownership does not impact the applicability and application of the approved baseline methodology; hence it does not affect the conclusions of the validation report of the registered PDD regarding the same.

(iv) The compliance of the monitoring plan with applied monitoring methodology. In case of third party sale, there are changes to the QA/QC procedure of the parameter net electricity supplied, however the same improves the accuracy of monitoring; hence it does not change the conclusions of the validation report of the registered PDD regarding the same. This issue is discussed in detail under section D.6 of this report.

(v) The proposed changes do not reduce the level of accuracy and/or completeness of monitoring procedure, and the conformity with the applied approved monitoring methodology compared with the requirements contained in the registered monitoring plan.

In view of the above analysis it can be confirmed that the ownership change does not change the conclusions of the validation report of the registered PDD with regards to the criteria outlined under paragraph 309(c) of VVS for PAs version 01.0.

Assessment and validation opinion on electricity sell to third party at different tariff rate:

As verified through the monthly generation reports issued by state utility for the month of June 2013/18/, the electricity generated by the project activity is being sold to a third party through the Tamil Nadu state distribution & transmission network (i.e. Southern grid) from 15/06/2013 onwards at a tariff rate of INR 5.10/kWh. This change occurred because of the PPA change; the new PP has entered into open access agreement with a third party (SRF Limited) as verified through revised PPA/09/ signed on 04/05/2013 and invoice raised by the project participant to SRF Limited/24/. Further it is noted that in future the third party buyer may be changed depending on any legal obligation or any other reason that is not under control of PP.

Since the changes occurred after the registration of the project activity and by interviewing the PP's representative during the site visit, the assessment team is able to confirm that the changes were not known to the PP at the time of registration of the project activity. As the project activity is supplying the electricity to a third party using Tamil Nadu state distribution & transmission network (Southern grid) and emission reductions will be claimed on the basis of the net electricity figure provided in the monthly electricity generation statement issued by TNEB, it can be confirmed that this change would not impact the overall operation/ability of the project activity to deliver emission reductions as stated in the registered PDD (Ref: paragraph 309(b) of VVS for PAs version 01.0).

The assessment team has also checked if the change in tariff rate and third party sale, would affect the conclusions of the validation report of the registered PDD with regards to:

(i) Additionality of the project activity:

Since post ownership change, the project activity will be supplying electricity to a third party (SRF Limited) at a different tariff rate; hence additionality of the project activity is re-assessed only modifying the key parameter (tariff rate) in the original IRR spreadsheet in line with paragraph 304(a) of VVS for PAs version 01.0.

As per the clarification (AM_CLA_0223), the Meth Panel clarifies that if the full or part of the original PPA has changed and the project sells the power at a different electricity rate at the time of validation, then the DOE shall establish that the input values would have materially changed and the latest values for the electricity price need to be considered. Since the entire PPA is changed, investment analysis is revised using the latest value of electricity price and the IRR is re-calculated and is therefore in line with clarification (AM_CLA_0223). The assessment team has checked the revised investment analysis/03/ and it is confirmed that the IRR with

new tariff rate arrives at 14.83% which is below the benchmark 16.40%. The tariff is fixed for the entire crediting period, but in line with the paragraph 20 and 21 of the "Guidelines on the Assessment of Investment analysis", the PP has done a sensitivity analysis over tariff rate and the results are summarised in the table below:

IRR with +10% variation	Base IRR	IRR with -10% variation	Benchmark
16.41%	14.83%	13.17%	16.40%

Since the applicable tariff for the first 10 years has been clearly defined (tariff will be fixed during third party sales i.e. from date 15/06/2013 onwards), but the same is unclear from the 11th year onwards (from year 2024). Hence the PP has calculated the tariff, post end of third party sale agreement in line with the 'cost + return on equity (19.85%, pre-tax)' approach as mentioned in the TNERC tariff order, based on which commission calculates tariff and using assumptions that are valid to the project activity. As per this approach, the average tariff, post end of third party sale agreement, is 8.35 INR/kWh.

The assessment team has checked and confirmed that maximum IRR as 14.83% of project activity comes out at tariff of 8.35 INR/kWh after 10 years of third party sale agreement. However, the IRR crosses the benchmark at the sensitivity of +10% in tariff (i.e. at the tariff of INR 9.18/kWh) after the term of the third party sale agreement which is not a possible scenario.

Sensitivity analysis for **capital cost**:

IRR with +10% variation	Base IRR	IRR with -10% variation	Benchmark
13.42%	14.83%	16.61%	16.40%

It is observed that the equity IRR crosses the benchmark if the capital cost decreases by 9%. However as verified through the purchase order placed by the PP, the total project cost is INR 440 million that is 7.30% below than the project cost considered at the time of decision making. Since the project is already implemented and hence further reduction in the capital cost is not the realistic scenario.

As the base IRR is changed due to proposed changes to the design of the registered project activity, the assessment team has re-checked the results of the sensitivity analysis for the parameters; PLF and O&M cost and concluded that the Equity IRR does not cross the benchmark with +/-10% variation in the said parameters.

It is worthy to note that the equity IRR crosses the benchmark if the PLF increases by 11.90% (at PLF 27.64%). The assessment team has verified the actual generation data of last 5 year (December 2012 to November 2017) for the project activity and confirmed that the average annual PLF for project activity from 2012-2017 was 22.90% that is lower than the PLF considered at the time of registration of project activity, as compared to estimated third party PLF. Hence it can be concluded that 11.90% increase in PLF is not a realistic scenario.

In view of this information, the assessment team is able to confirm that the changes to the project design of the registered CDM project activity do not adversely impact the additionality of the project i.e. the change does not change the conclusions of the validation report of the registered PDD and project activity remains additional despite the change of the tariff rate.

(ii) Scale of the project activity

There is no impact on the scale of the project activity due to the change in tariff rate. The project activity remains as a large scale project activity.

(iii) Applicability and application of approved baseline methodology under which the project activity has been registered or the later version of the applied methodology

The project activity was registered with methodology AMS I.D version 16/10/. The

	<p>project activity involves third party sale through grid and thus remains grid connected renewable power generation project, hence the assessment team is able to confirm that the methodology is still applicable and that there is no adverse impact on the application of baseline methodology due to the observed changes.</p> <p>iv) The compliance of the monitoring plan with applied monitoring methodology</p> <p>There are no changes observed in monitoring equipment's, or location of meters in case of third party sale through Tamil Nadu state distribution & transmission network (i.e. Southern grid). It is verified through the revised PPA/09/ that the responsibilities of the state utility regarding the measurement of parameters and calibration of meters shall remain unchanged if the project activity is supplying the electricity to third party through Tamil Nadu state distribution & transmission network.</p> <p>However in the third party sale scenario, QA/QC procedure for the parameter net electricity export, particularly cross checking mechanism is revised that is also in compliance with the applied methodology. This change is considered as permanent changes to the registered monitoring plan as described in the registered PDD and is not covered under Appendix of the CDM Project Standard for PAs, version 01.0/12/ and hence requires prior approval by the Board.</p>
Findings	CAR #3 raised and resolved
Conclusion	<p>In line with the guidelines prescribed under paragraph 308-309 of CDM VVS for project activities version 01.0, the assessment team able to confirm that:</p> <ol style="list-style-type: none"> The proposed changes comply with the relevant requirements in the "CDM project standard for project activities" related to changes to the project design of a registered CDM project activity. Proposed changes were not known prior to the registration of the CDM project activity, and the changes would not impact on the overall operation/ability of the CDM project activity to deliver emission reductions as stated in the PDD. The proposed changes would not adversely affect the conclusions of the validation report of the registered PDD with regard to: <ol style="list-style-type: none"> The additionality of the registered CDM project activity; The scale of the registered CDM project activity; The applicability and application of the applied methodology under which the registered CDM project activity has been registered. The compliance of the monitoring plan with the applied methodology. The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. <p>Therefore in line with the clause 1(d) of Appendix of the Project Standard for PAs version 01.0, the changes do not require prior approval by the Board</p>

D.8. Changes specific to afforestation and reforestation project activities

Means of validation	Not applicable
Findings	Not applicable
Conclusion	Not applicable

SECTION E. Internal quality control

>> As a final step of validation, the final documentation including the validation report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the CDM-EB along with the relevant documents.

SECTION F. Validation opinion

>> Applus+ Certification has performed the validation of the post registration changes of the project activity 4846 "Wind power project in Tirunelveli Tamilnadu.". The validation was performed on the basis of rules and requirements defined by UNFCCC for the CDM project activities. The review of the revised PDD, supporting documentation and subsequent follow-up actions (including onsite visit and interviews), have provided Applus+ Certification with sufficient evidence to determine the fulfilment of stated criteria. The changes proposed are summarized in section D.6 and D.7 of this report.

The description in the revised PDD, Version 06 dated 31/05/2018 meets all relevant UNFCCC requirements for the CDM and correctly applies the selected baseline and monitoring methodology. This report is the assessment opinion for all the changes that are proposed in the registered PDD, the changes are permanent in nature and therefore there is no temporary deviation from the monitoring plan. All the proposed changes to the registered PDD are not covered under paragraph 1 of Appendix of the CDM Project Standard for project activities version 01.0 and hence require prior approval by the Board.

Appendix 1. Abbreviations

Abbreviations	Full texts
ABT	Availability Based Tariff
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification Request
DISCOM	Distribution Company
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EPC	Engineering ,Procurement and Construction
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
O&M	Operation and Maintenance
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
PRC	Post Registration Changes
PS	Project Standard
RMP	Revised Monitoring Plan
TANGEDCO	Tamil Nadu Generation and Distribution Corporation
TNEB	Tamil Nadu Electricity Board
TNERC	Tamil Nadu Electricity Regulatory Commission
TOD	Time of Day
TR	Technical Review
UID	Unique Identification number
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
WEC	Wind Energy Convertor
WTG	Wind Turbine Generator

Appendix 2. Competence of team members and technical reviewers

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the On-Site Assessment
Vivek Kumar Ahirwar	Lead Auditor (LA)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Vivek Kumar Ahirwar	Technical Expert (TE)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Ravi Kant Soni	Auditor in Training(AiT)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Simon Shen	Technical Reviewer (TR)	Yes (1)	Yes (1.2)	N/A	N/A	N/A

The curricula vitae of the DOE's team members are provided below:

Vivek Kumar Ahirwar is a BEE-Certified Energy Auditor by Govt of India with over eight years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the India. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India.

Ravi Kant Soni is a certified lead auditor for Lead Auditor ISO 14001:2004&Lead Auditor ISO 14064:2006 GHG Inventory and verification. He has more than 10 years of work experience across Climate Change, Environmental Management & Monitoring, Health & Safety Management, and Statutory Compliance. He was involved in more than 100 CDM validation and verifications activities and Gold Standard, VER projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1 technical area 1.2. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental

Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from M.I.T.S Gwalior Jiwaji University Gwalior, India

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 3.5years.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	PP	Registered PDD	Version 03 dated 13/05/2011	PP
1.1	PP	Revised PDD, Version 04	Dated 13/03/2018	PP
1.2	PP	Revised PDD, Version 05	Dated 27/04/2018	PP
2	PP	Revised PDD, Version 06	Dated 31/05/2018	PP
3	PP	Revised IRR sheet	Dated 27/04/2018	PP
4	UNFCCC	CDM Project Webpage (UNFCCC No. 4846) https://cdm.unfccc.int/Projects/DB/BVQI1306158095.18/view	-	Others
5	Bureau Veritas Certification	CDM Validation Report (REPORT NO. INDIA-VAL/365.49/2011)	Rev.01, dated 16/04/2011	Others
6	Bureau Veritas Certification	CDM Verification Report (First Monitoring period 08/07/2011 to 30/06/2012)	Rev.02, dated 14/02/2013	Others
7	PP	Purchase order placed by Vaayu Renewable Energy (Tapti) Pvt. Ltd	Dated 17/05/2013	PP
8	State Utility	Commissioning certificates issued by Tamil Nadu generation & distribution corporation limited (for all 10 WTGs)	-	PP
9	PP	Revised Power Purchase Agreement between Vaayu Renewable Energy (Tapti) Pvt. Ltd and SRF Limited	Dated 04/05/2013	PP
10	UNFCCC	Methodology – AMS I.D :Grid connected renewable electricity generation	Version 16	Others
11	UNFCCC	CDM VVS for project activities	Version 01.0	Others
12	UNFCCC	CDM PS for project activities	Version 01.0	Others
13	UNFCCC	CDM PCP for project activities	Version 01.0	Others
14	UNFCCC	Clarification regarding the demonstration of additionality in case of transfer of assets (AM_CLA_0223), https://cdm.unfccc.int/methodologies/PAmethodologies/clarifications/64293	Dated 27/01/2012	Others
15	DNA India	Revised HCA (Ref.No: 4/17/2010-CCC)	Dated 06/01/2014	Others
16	GOI	Fresh Certificate of Incorporation Consequent up on change of name issued by the Ministry of Corporate Affairs (GOI), for change in the name of	Dated 01/01/2013	PP

		EPC contractor from Enercon to WWIL		
17	UNFCCC	Guidelines on the assessment of investment analysis	Version 05 (EB 62,Annex 05)	Others
18	TNEB	JMR report issued by TNEB	For month June 2013	PP
19	CEA	Central Electricity Authority (Installation and Operation of Meters) Regulations Notified on 17/03/2006 No.502/70/CEA/DP&D AmendmentsNotifiedon26/06/2010No.502/6/2009/DP&D/D-I (http://www.cea.nic.in/reports/regulation/meter_reg.pdf)	Dated 17/03/2006	Others
20	TNEB	Power Purchase agreement signed by Vish Wind Infrastructure LLP with TNEB	Dated 29/09/2011	PP
21	PP	Original registered IRR sheet	-	PP
22	PP	Benchmark sheet	-	PP
23	UNFCCC	Project design document form for CDM PAs	Version 10.1, dated 28/06/2017	Others
24	PP	Invoice raised to SRF Limited	For month June 2013	PP

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	xx	Section no.	-	Date: DD/MM/YYYY
Description of CL				
NA				
Project participant response				Date: DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CARs from this validation

CAR ID	01	Section no.	E.3	Date : 25/02/2018
Description of CAR				
During the documents review and interviews of site personnel conducted during site visit, following information's were verified:				
<ol style="list-style-type: none"> 1. Project is owned by Vaayu renewable Energy (Tapti) private limited, however as per the registered PDD, project is owned by Vish Wind Infrastructure LLP. 2. Electricity generated by project activity is being sold to third party (SRF limited, not to state grid. 3. As per the registered monitoring plan calibration frequency of the meters is annual, however the same is reported once in 5 years in the MR. 				
In view of the above observations please clarify how the project activity is implemented in line with the description provided in the registered PDD.				
Project participant response				Date :15/03/2018

1. During post registration phase, the ownership of the project activity has been transferred from 'Vish Wind Infrastructure LLP' to 'Vaayu Renewable Energy (Tapti) Pvt. Ltd' as per the purchase order dated 17/05/2013. Originally, the electricity generated by the project activity was being supplied to the state grid. Further from 04/05/2013 onwards, electricity is being supplied to SRF Limited through a third party sale agreement (as per TANGEDCO statements). As per the present arrangement, the electricity generated by the project activity is being pooled through Tamil Nadu state distribution & transmission network first (part of Indian grid) and then further supplied to SRF Limited.
2. As explained above, Electricity generated by project activity is being sold to third party SRF limited.
3. As per the registered monitoring plan calibration frequency of the meters is annual. However, in accordance with the guidelines as state under section 3.2.3 of CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/19/ which is considered as national standard "All interface meters shall be tested at least once in five years." Hence, PP request to approve the change in calibration/testing frequency from once each year to once in five years as per prevailing national standards.

Documentation provided by project participant*Revised PDD version 4.0**Revised IRR sheet***DOE assessment****Date:** 01/04/2018

Ownership of project activity has been changed (change of PP) from 'Vish Wind Infrastructure LLP' to 'Vaayu Renewable Energy (Tapti) Pvt. Ltd.' as verified through the purchase order dated 17/05/2013 and found to be satisfactory. In addition name of the PP at UNFCCC project webpage and in revised HCA is also found consistent with the same mentioned in the revised PDD.

Also after ownership change the project activity is supplying the electricity to SRF Limited (third party) through southern grid, the same is verified through third party sale agreement (dated 04/05/2013). However as verified through the monthly generation statements and invoices raised to state utility that project activity was supplying the electricity to southern grid till July 2013, in view of this information kindly provide the exact date when the project started supplying the electricity to SRF Limited and also provide relevant evidences.

Calibration frequency is not updated in the revised PDD, please clarify the same.

Name of WTGs supplier as mentioned in the revised PDD is inconsistent with the registered PDD.

Please clarify why the changes identified as PRC are not categorised along with the reason for each change under Appendix 7 of the revised PDD.

Applicability criteria of the applied methodology AMS I.D version 16 does not provide any option that allows the project to supply electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling. Please clarify how the project activity is complying with the applied methodology AMS I.D version 16.

Description of the monitoring parameters provided in section B.7 of the revised PDD is not in line with proposed changes, please clarify about the following issues:

- i. It is mentioned that value of the parameter $EG_{BL,y}$, $EG_{Export,y}$ and $EG_{Import,y}$ will be cross checked with the sales invoice raised to state utility, however the project is supplying the electricity to third party.
- ii. Original line diagram for metering arrangement provided in the registered PDD is deleted in the section B.7.3 of revised PDD.

CAR #1 is open

Project participant response**Date:** 10/4/2018

After ownership change, the project activity is supplying the electricity to SRF Limited (third party) through southern grid which now part integrated Indian grid, as per third party sale agreement (dated 04/05/2013). As per monthly generation statements and invoices raised to state utility, project activity started supplying electricity to SRF Limited from 15 June 2013 onwards and documentary evidences (TANGEDCO statements) are submitted to DOE for verification.

Change in Calibration frequency as per CEA guidelines has been updated in the section B 7.1 & B 7.3 of revised PDD.

With effect from 01/01/2013 name of Enercon (India) Limited has been changed to 'Wind World (India) Limited'. The name change document has been submitted to DOE for verification. This change of name has been reported in revised PDD.

PP has reported categorised changes identified as PRC under Appendix 7 of the revised PDD.

As per clarification (Ref No-SSC_466) of applied methodology AMS I.D version 16, same methodology allows the project to supply electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling or third party sale.

PP has revised description of the monitoring parameters provided in section B.7 of the revised PDD as follows:

- i. Cross checking mechanism of monitoring parameters $EG_{BL,y}$ has now been included under pre and post ownership scenario in section B 7.1 of revised PDD.
- ii. Line diagram for metering arrangement under pre and post third party sale scenario is being provided in the section B.7.3 of revised PDD.

Documentation provided by project participant

Third party sale PPA dated 04/05/2013
 Vaayu Tapti PO dated 17/05/2013
 Name change supportive document
 Revised PDD version 4.0

DOE assessment

Date: 19/04/2018

After ownership change the project activity is supplying the electricity to SRF Limited (third party) through southern grid from 15/06/2013 onwards, the same is verified through the JMR and invoice (Month July 2013), hence accepted.

In the revised PDD (Section B.7.1) it is stated that calibration frequency is updated as once in 5 years as per PPA and CEA metering code. Kindly clarify provide the reference of specific section that PPA that mentions the calibration frequency as once in 5 years.

Name of O&M contractor is changed as Wind World (India) Limited from 01/01/2013 onwards, as verified through the name change consent issued by the Ministry of Corporate Affairs (GOI), dated 01/01/2013 for change in the name of EPC contractor from Enercon to WWIL and the same is updated in the revised PDD, found satisfactory, hence accepted.

The changes identified as PRC are not categorised appropriately along with the reason for each change under Appendix 7 of the revised PDD.

The applied methodology is still applicable to the project activity as per the clarification provided by SSC WG (Ref No-SSC_466):

"Wind turbine project activity that supplies electricity to a grid (irrespective of the electricity production/purchase agreement) ultimately displaces grid electricity. In other words, the electricity produced once injected to a grid would be indistinguishable at the users end to recognize where it comes from but would affect the current electricity generation of existing grid- power plants (i.e. operating margin emission factor) or would affect the construction and future operation of candidate grid-power plants (i.e. build margin emission factor)".

Description of the monitoring parameters provided in section B.7 of the revised PDD is updated in line with proposed changes identified, found to be satisfactory. Line diagram of the metering arrangement prior to PRC and after PRC (Third party sale) is provided in the revised PDD, found to be correct, hence accepted.

It is not clear why version of PDD is not updated.

CAR #1 is open

Project participant response	Date :27/04/2018
-------------------------------------	-------------------------

As per para 6, section 4, metering arrangements of PPA, main and check meter shall be tested for accuracy as per CEA regulations 2006. Further, para 18 (b) of CEA regulations 2006 states that all interface meters shall be tested for once in five years. Hence, PP has revised PDD stating that calibration frequency is updated once in 5 years.

PP has revised appendix 7 summary of post-registration changes to categorise changes with suitable reasons.

Error regretted. PP has now updated version of revised PDD.

Documentation provided by project participant
--

Revised PDD version 5.0

DOE assessment	Date : 20/05/2018
-----------------------	--------------------------

<p>PP has requested to change the calibration frequency from annual to once in 5 years as the same is not under control of PP. Accordance with the guidelines as state under section 3.2.3 of CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006 which is considered as national standard "All interface meters shall be tested at least once in five years."</p> <p>As per the PPA, state utility is the sole authority responsible for calibration of meters and the PP has no control over the same. It is also confirmed that the PP receives payment, for the electricity supplied to the grid, from the state utility (which is a Government Organisation and a 3rd party with respect to this CDM project). This electricity supplied is obtained from the monthly statements issued by the state utility. Hence the state utility ensures that the energy meters are in proper working condition, since it has to make payments based on these meter readings. Hence the assessment team can be confirms that the calibration frequency of once in 5 year, mentioned in the revised PDD for the meters is appropriate.</p> <p>The PP has revised appendix 7 including the summary of post-registration changes with the reason for the particular change occurred, found to be acceptable.</p> <p>Version number of the PDD is updated and found to be satisfactory.</p> <p>Please clarify the following issue: In section B.7.1 it is stated that in case of third party sale, monthly value of the parameter $EG_{BL,y}$ Will be compared with the generation data recorded through LCS meters fitted with each WTG. Since the parameter $EG_{BL,y}$ is calculated and LSC generation data is continuously measured, hence please clarify how this comparison is appropriate and also accordance with the applied methodology AMS I.D version 16. CAR #1 is open</p>	
Project participant response	Date: 31/05/2018
<p>In accordance with applied methodology AMS I.D version 16, PP has revised cross checking procedure in case of post third party sale scenario in section B.7.1 of PDD. Monthly values of the parameter $EG_{BL,y}$ will be cross verified with the gross generation data recorded through LCS meters fitted with each WTG minus electricity import from the grid & transmission losses.</p>	
Documentation provided by project participant	
4846 CDM PDD Version 6.0	
DOE assessment	Date: 10/06/2018
<p>The PP has updated the cross checking procedure for the parameter $EG_{BL,y}$ in section B.7.1 of the revised PDD. Monthly values of the parameter $EG_{BL,y}$ will be cross verified with the gross generation data recorded through LCS meters fitted with each WTG after subtracting the electricity import from the grid & transmission losses.</p> <p>Revised cross checking procedure for the parameter $EG_{BL,y}$ is found to be accordance with the applied methodology AMS I.D version 16. CAR #1 is closed.</p>	

CAR ID	02	Section no.	E.4	Date : 25/02/2018
Description of CAR				
<p>As verified through invoices raised to third party (SRF limited), it is observed that generated electricity is being sold @ INR 5.10/kWh, however the tariff rate was determined as @ INR 3.39/kWh at the time of registration of the project activity.</p> <p>Please clarify how the change in tariff rate does not have any adverse impact on additionality of the project activity.</p>				
Project participant response				Date :15/03/2018
<p>Post registration of project activity, ownership of project has been changed from 'Vish Wind Infrastructure LLP.' to 'Vaayu Renewable Energy (Tapti) Pvt. Ltd.'. During the change of ownership, PPA of project activity has also been changed. Post change of ownership electricity generated from project activity will be used for third party sale to SRF Limited @5.10 INR./Unit instead of sale to state utility. A third party sale agreement has been signed between new PP 'Vaayu Renewable Energy (Tapti) Pvt. Ltd.' & 'SRF Limited'. PP has revised IRR sheet based on ownership change and also reassesses the impact on additionality of the project activity in revised PDD and IRR sheet.</p>				
Documentation provided by project participant				
<p>Revised PDD version 4.0 Revised IRR sheet</p>				
DOE assessment				Date: 01/04/2018

<p>As per the paragraph 230 of CDM PS for PAs version 1.0 <i>"If there is any actual or proposed change to the implementation, operation or monitoring of the registered CDM project activity, the project participants shall prepare a revised PDD (in both track-change and clean versions) that reflects the actual or proposed changes, using the valid version of the applicable PDD form. The project participants shall provide a summary of the changes, including the reasons for the changes and any additional information relating to the changes to the PDD".</i> As per the paragraph 244(a) of CDM PS for PAs version 1.0 If the proposed or actual changes affect the additionality of the registered CDM project..... <i>"If investment analysis was used, the project participants shall only modify the key parameters in the original spreadsheet calculations affected by the proposed or actual changes to the project activity."</i> The assessment team has verified the revised PDD and found that the above guideline is not followed while updating the section B.5 and B.7.3 i.e. some paragraph are copied and pasted in track change. Please update and submit the revised PDD in line with the above guidelines.</p> <p>Percentage variation in the sensitivity analysis for PLF and O&M cost as provided in the revised PDD is not consistent with the original registered PDD; please clarify the reason for the same.</p> <p>CAR #2 is open</p>	
Project participant response	Date : 10/04/2018
<p>PP has revised section B.5 and B 7.3 of PDD in accordance with paragraph 230 and para 244 (a) of CDM PS.</p> <p>PP has revised percentage variation to 10% from 15% in the sensitivity analysis for PLF as per Guidance on the Assessment of Investment Analysis, version-03, Annex-58, EB 51. However, O&M cost and escalation in O&M cost as provided in the revised PDD is now consistent with the original registered PDD.</p>	
Documentation provided by project participant	
Revised PDD version 4.0	
DOE assessment	Date :19/04/2018
<p>In order to assess the impact on additionality, the PP has modified the key parameter (tariff rate) in the original IRR spreadsheet calculations affected by the proposed or actual changes to the project activity. Please about the outcomes/results arrived after reassessment of additionality due to tariff change.</p> <p>Please justify the suitability of revised PLF variation with appropriate evidences.</p> <p>O&M cost escalation rate is updated in the revised PDD, but in response it is stated that O&M is made consistent original registered PDD. Please clarify the statement.</p> <p>CAR#2 is open</p>	
Project participant response	Date : 27/04/2018
<p>1 PP has discussed the outcomes and results arrived after reassessment of additionality due to tariff change in response number 1 of CAR3 below.</p> <p>2. The average PLF based on the third party assessment report was 24.70% as per Annex 11 of EB 48. However, due to third party sale, the revised equity IRR for project activity cross the benchmark at PLF (27.64%) variation of 11.90%. Moreover PP has also analysed actual generation data of last 5 year (December 2012 to November 2017) achieved for project activity. The average observed annual PLF for project activity from 2012-2017 was 22.90% which is lower as compared to estimated third party PLF. PLF analysis sheet has been submitted to DOE for verification.</p> <p>3. PP would like to clarify that O&M cost escalation rate of 6% has been updated in the revised PDD.</p>	
Documentation provided by project participant	
<p>PLF analysis sheet Revised PDD version 5.0</p>	
DOE assessment	Date : 20/05/2018

Since the actual changes in registered PDD affect the additionality, hence PP has revised the investment analysis modifying the tariff rate in the original IRR spreadsheet and results are summarized in the PDD. This approach is found to be in line with guidelines outlined in AM_CLA_0223, hence accepted.

The PP has reassessed the results of sensitivity analysis considering +/- 10% variation in the PLF in line with guidelines provided under paragraph 20, 21 of "Guidelines On The Assessment Of Investment Analysis", found to be appropriate. Equity IRR does not cross the benchmark with +/-10% variation in the PLF.

It is observed that the equity IRR crosses the benchmark if the PLF increase by +11.9%, which is not a realistic scenario. Annual average PLF as 24.70% was considered at the time of registration of project as verified through the registered PDD, however the assessment team has verified the generation records for last 5 years (Dec 2012 to Dec 2017) the maximum average annual PLF was achieved as 22.90%, which is well below the considered PLF (24.70%), hence +11.9% increment in the PLF is not likely a scenario.

The PP has revised the escalation rate in the O&M cost as 6% in the revised PDD as it was not consistent in the registered PDD. This correction do not change the conclusions of the validation report of the registered PDD, hence accepted.

CAR #2 is closed.

CAR ID	03	Section no.	E.4.4	Date : 25/02/2018
Description of CAR				
<ol style="list-style-type: none"> 1. Please clarify with supporting if the applied revised tariff rate is valid for the remaining life time of the project activity and no escalation in tariff rate at all. 2. It is not clear if entering into an open excess merchant sale will make PP eligible for RECs, please confirm the same and provide verifiable documentary evidence. 3. As the project has been sold completely to a new entity, it is not clear why a separate analysis is not presented taking into account the investment made by the new company and remaining lifetime of the project activity and applicable expected ROI. 				
Project participant response				Date :15/03/2018
<ol style="list-style-type: none"> 1. PP has considered possible variation in tariff rate in sensitivity analysis of revised PDD. Additionally, PP has also provided separate IRR sheet based on change in tariff after the completion of term (10 years) of third party sale agreement using 'cost + return on equity (19.85%, pre-tax)' approach as mentioned in TNERC tariff order. 2. The project activity is not registered under REC (Renewable Energy Certificates) scheme. 3. During post registration phase, the ownership of the project activity has been transferred from 'Vish Wind Infrastructure LLP' to 'Vaayu Renewable Energy (Tapti) Pvt. Ltd'. Due to ownership change, PP has submitted IRR analysis sheet to DOE taking into account the investment made by the new company and remaining lifetime of the project activity. 				
Documentation provided by project participant				
Revised PDD version 4.0 Revised IRR sheet				
DOE assessment				Date: 01/04/2018
Please clarify why the possible scenarios to calculate applicable tariff after the completion of term for third party sale agreement and conservative option amongst the identified scenario is not considered. Please provide source of information to clarify that the project is not registered under REC.				
Response provided is not in line with the concern raised. Please clarify why a separate analysis is not presented taking into account the investment made by the new company and remaining lifetime of the project activity and applicable expected ROI. CAR #3 is open				
Project participant response				Date:10/4/2018
As per TNERC tariff order dated 20/03/2009, PP has described possible scenarios to calculate applicable tariff after the completion of term for third party sale agreement and conservative option amongst the identified scenario in revised PDD.				
The project activity is not registered under REC (Renewable Energy Certificates) scheme. (https://www.recregistryindia.nic.in/index.php/general/publics/registered_regens)				
PP has submitted revised IRR analysis sheet to DOE taking into account the investment made by the new company and remaining lifetime of the project activity. Accordingly, PP has also revised relevant sections of PDD.				
Documentation provided by project participant				

Revised PDD version 4.0 TNERC tariff order dated 20/03/2009 Revised Investment Analysis sheet	
DOE assessment	Date: 19/04/2018
<p>Please discuss the entire possible scenario for tariff rate in response and possibility of occurrence of particular scenario along with the impact on additionality.</p> <p>The project activity is not registered under REC scheme as verified through official website (https://www.recregistryindia.nic.in/index.php/general/publics/registered_regens)</p> <p>Response provided is not in line with the concern raised. Only some parameters are updated in the IRR sheet and no separate analysis is presented taking into account the investment made by the new company and remaining lifetime of the project activity and applicable expected ROI.</p> <p>CAR #3 is open.</p>	
Project participant response	Date: 27/04/2018
<p>1. We would like to submit to DOE that PP has signed third party sale agreement at tariff of 5.10 INR/kWh which is fixed for 10 years.</p> <p>PP has analysed three possible scenarios to calculate applicable tariff after the completion of term for third party sale agreement:-</p> <p>a) Fixed tariff as determined by TNERC (20.3.2009) in its order prevailing at the time of project initiation i.e. 3.39 INR/kWh.</p> <p>This is the most likely scenario since TNERC fixed the tariff for 20 years and while going for renewal of PPA with state authority, the applicable tariff would be determined based on the date of commissioning of project activity. Since the project commissioning date falls under the regime of tariff order dated 20.3.2009, applicable tariff after completion of ten years would be 3.39 INR/kWh</p> <p>b) Renewal of current PPA at tariff as mentioned in third party sale agreement i.e. @ 5.10 INR/kWh.</p> <p>c) Further as per 'cost + return on equity (19.85%, pre-tax)' approach as mentioned in TNERC tariff order based on which commission calculates tariff and using assumptions that are valid to the project activity. As per this approach, average tariff post end of third party sale agreement comes out to be 8.35 INR/kWh.</p> <p>PP has analysed all the three options and conservatively maximum IRR (14.83%) of project activity comes out at tariff of 8.35 INR/kWh. However, IRR barely crosses the benchmark at the sensitivity of 10% increase in tariff (i.e. at the tariff of 9.18 INR/kWh) post term of third party sale agreement which is not a possible scenario. Same has been updated in revised PDD.</p> <p>2. We would like to clarify to DOE that as per clarification AM_CLA_0223 (https://cdm.unfccc.int/methodologies/PAmethodologies/clarifications/64293), 'In the cases of projects which could be developed by an entity other than the project participant, the benchmark should be based on publicly available data sources which can be clearly validated by the DOE'. As wind power projects fall in the above stated types of projects mentioned in the tool, ownership is not relevant in this particular project.</p> <p>Further EB clarified, 'If however, the full or part of the original PPA has changed and the project sells the power at a different electricity rate at the time of validation, then the DOE shall establish that the input values would have materially changed and the latest values for the electricity price should be used'.</p> <p>In line with EB guideline PP has analysed project return based on the change in tariff only while keeping the other parameter same as per the time of investment made. However at the revised tariff project is still additional. Please refer revised IRR sheet for detailed analysis. Copy of EB clarification note is attached herewith for DOE reference.</p>	
Documentation provided by project participant	
Revised PDD version 5.0 Revised Investment Analysis sheet Clarification on transfer of asset(Ref. No- AM_CLA_0223)	
DOE assessment	Date: 20/05/2018

Since the actual changes in registered PDD affect the additionality, hence PP has revised the investment analysis modifying the tariff rate in the original IRR spreadsheet and results are summarized in the PDD. This approach is found to be in line with guidelines outlined in AM_CLA_0223, hence accepted.

CAR #3 is closed.

CAR ID	04	Section No.	D.7	Date: 14/06/2018
Description of CAR				
In the revised PDD the base IRR is mentioned as 14.83%, however in the IRR sheet, it is not demonstrated how the base IRR of 14.83% is obtained. Calculation of the maximum tariff rate (INR 8.35/kWh) is not traceable in the IRR sheet, please clarify the same.				
Project participant response				Date: 19/06/2018
PP has submitted revised Final Investment Analysis Sheet mentioning base IRR as 14.83% and maximum tariff rate as INR 8.35/kWh.				
Documentation provided by project participant				
<i>Final Investment Analysis_24.05.2018</i>				
DOE assessment				Date: 21/06/2018
The PP has submitted revised IRR sheet including the calculation of base IRR of 14.83% and maximum tariff rate, found to be satisfactory, hence accepted.				

Table 3. FARs from this validation

FAR ID	xx	Section no.	-	Date: DD/MM/YYYY
Description of FAR				
NA				
Project participant response				Date: DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

- - - - -

Document information

Version	Date	Description
02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Registration		
Keywords: post-registration change, project activities, validation report		