


Validation report form for post-registration changes for CDM project activities
(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for post-registration changes for CDM project activities" at the end of this form.

VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)

Title and reference number of the project activity	Wind Power Project at Tadas, Karnataka UN Ref. No. 9376
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	1.1
Completion date of the validation report on PRCs	21/09/2015
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline <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 to a registered project activity <input checked="" type="checkbox"/> Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Changes to the project design of a registered project activity <input type="checkbox"/> Types of changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	PDD Version 09
Project participant(s)	ReNew Wind Energy (Karnataka) Private Limited
Host Party	India
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	1, ACM0002, Version 13 Consolidated baseline methodology for grid-connected electricity generation from renewable sources
Name of DOE	Earthood Services Private Limited

Name, position and signature of the
approver of the validation report on PRCs



Ashok Kumar Gautam,
Technical Manager

SECTION A. Executive summary

Brief summary:

Earthood has performed the validation of the post registration changes of CDM project “Wind Power Project at Tadas, Karnataka” having UNFCCC ref. number 9376. The purpose of the project activity is to generate the wind energy and export it to the grid which is carbon intensive. 63 numbers of Enercon make E-53, 800 kW Wind Turbine Generators (WTGs) are installed at the site. The power plant with a total installed capacity of 50.4 MW is located at Tadas in Haveri and Darwada district of Karnataka, India.

Scope of validation:

This validation is an independent and objective review of the post registration changes in registered PDD. The scope of the validation of post registration changes is to determine whether there are proposed or actual changes to the project design of the registered CDM project activity. Earthood also determine whether the description in the revised PDD submitted by project participants, which describe the nature and extent of the actual changes, accurately reflects the implementation, operation and monitoring of the modified project activity. The validation of post registration changed tests the data and assertions set out in the revised PDD based on the following:

- (i) The approved methodology ACM 0002 version 13 /06/ and applied tools, applied in the PDD
- (ii) The revised PDD /01/
- (iii) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (iv) The CDM Validation and Verification Standard (VVS, Ver09) /3/
- (v) The CDM Project Standard (PS, Ver09) and /27/
- (vi) Project Cycle Procedure (PCP, Ver09) /27/

Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the PA's reported emission reductions

Validation process:

The validation process, for post registration changes, is conducted as per internal CDM Quality Manual, which includes the following steps;

- a) Contract with project participants and appointment of validation team and technical review team
- b) Desk review of the revised PDD and annexures by validation team and planning of onsite audit
- c) On site audit by validation team consisting of Team Leader and all Technical Experts, as a minimum
- d) Follow up activities e.g., interviews
- e) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft validation report
- f) Independent technical review of the draft validation report and final/revised documentation (e.g., revised PDD, corresponding ER sheet and evidences)
- g) Reporting and closure of TR comments/findings (CARs/CLs/FARs) and final approval for the decision made
- h) Issuance of final validation report to contracted PP (or authorized representatives) and submission to UNFCCC for approval of post registration changes as appropriate.

Conclusion:

The conclusion of the validation which includes the summary of proposed and assess changes is as under;

- a) The project description has changed from the registered PDD. The electricity that was supposed to be sold to the grid company in the registered PDD at preferential fixed tariff rate of 3.70 INR/kWh through the PPA for the entire 25 years of operation is now sold to the individual customers at retail tariff rate of 5.50 INR/kWh through the WBA for initial 10 years. Thereafter, i.e., 11th year onwards, it will be sold to the grid company at the same terms as envisaged in the registered PDD. The electricity is supplied to Southern Grid irrespective of the change in the project description. It has been assessed by the assessment team that the change in project description does not adversely impact the additionality of the project activity and has no impact on the scale and application of applied methodology. The proposed changes comply with appendix 1 of CDM PS in this regard.
- b) The value of PLF applied for calculating the IRR and emission reductions has been revised to more realistic, appropriate and specific to the project value that complies with the EB 48 Annex 11. It has been assessed that the correction in PLF value does not complying with/covered in appendix 1 of CDM PS. However, it does comply with the relevant provisions (para 271) of the CDM PS.

- c) The monitoring plan has also been revised in order to bring more clarity, in line with actual implementation and practices on site. The proposed changes comply with the appendix 1 of CDM PS.

Considering the validation of post registration changes has occurred prior to commencement of verification therefore these would require prior approval from CDM EB irrespective of whether or not these (PRCs) are as per appendix 1 of CDM PS. The validation confirms that the implementation of the post registration changes is in line with the applied methodology and all other applicable tools and guidance.

This report is the combined assessment opinion for all the changes that are proposed in the PDD and request is submitted for prior approval by CDM EB.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
3.	Validator	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
4.	Technical Expert	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
5.	Financial Expert	IR	Mahawar	Abhishek	Central Office	Y	N	N	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	IR	Gautam	Ashok	Central Office
2.	Expert to TR	EI	Chand	Phool	Central Office
3.	Approver	IR	Gautam	Ashok	Central Office

SECTION C. Means of validation

C.1. Desk review

The validation is performed primarily as a document review of the available revised PDD version initially submitted by client and all other subsequent versions including final version. The desk review assessment is performed by an assessment team using a validation protocol and the submitted documents are revised against the applicable requirements. The non-conformities identified at this stage are clubbed with the findings on site, during the site visit, and issued to client. List all documents reviewed or referenced during the validation in Appendix 3 below.

C.2. On-site inspection

Duration of on-site inspection: 20/11/2014 (Initial) and 09/09/2015 (Re-visit)				
No.	Activity performed on-site	Site location	Date	Team member
1.	Verification of the change in project design and monitoring plan	Tadas	20/11/2014	Kaviraj Singh
2.	Interview with site personnel	Tadas	20/11/2014	Kaviraj Singh
3.	Data verification for power generation	Tadas	09/09/2015	Kaviraj Singh

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Angadi	Suneel	ReNew	20/11/2014 & 09/09/2015	Plant records	Kaviraj Singh
2.	Kulkarni	Pranesh	WWIL	20/11/2014 & 09/09/2015	QA/QC	Kaviraj Singh
3.	Joshi	Rohit	ReNew	11/09/2015 (Interview in head office-off site)	Generation data	Kaviraj Singh

C.4. Clarification requests, corrective action requests and forward action requests raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	Nil	Nil	Nil
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	Nil	Nil	Nil
Corrections	Nil	Nil	Nil
Changes to the start date of the crediting period	Nil	Nil	Nil
Inclusion of a monitoring plan to a registered project activity	Nil	Nil	Nil
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	5	2	Nil
Changes to the project design of a registered project activity	Nil	Nil	Nil
Types of changes specific to afforestation and reforestation project activities	Nil	Nil	Nil
Others (please specify)	Nil	Nil	Nil
Total	5	2	Nil

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

Means of validation	The revised PDD has been submitted in both tracked and clean versions/1 /. Latest PDD template version 06 (CDM-PDD-FORM) available on the UNFCCC website has been used /24/. PDD template (F-CDM-PDD) version 4.1 was used in the registered PDD /1/ however in the current submission template version 6 has been used. Both old and revised PDD were reviewed for the consistency of the information and it is confirmed that information transferred from template version 4.1 to 06 is materially the same as in the registered PDD except the content of proposed PRCs.
Findings	CL 01 was raised for missing information about post registration changes in PDD which in response has been provided by PP. Therefore, CL01 has been closed. Please refer appendix 4 for more details about CL01.
Conclusion	The PDD used the latest PDD template available and the information has been transferred to the new template is materially the same.

D.2. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	NA
Findings	NA

Conclusion

NA

D.3. Corrections**Means of validation**

Following CDM PS para 275, PP has proposed the some corrections in the revised PDD /01/ and inline with CDM PS para 276, requested Earthood (DOE) prior to the commencement of verification to assess these corrections. The corrections in the revised PDD were proposed as per para 1 of Appendix 1 of the CDM PS /05/. The proposed corrections were assessed in accordance with para 304 (a, b) of CDM VVS /3/. The following correction has been made in the revised PDD and assessed by Earthood team.

Plant Load Factor (PLF)Information in the registered PDD:

The validated figure for expected PLF for the project activity in the registered PDD is 26.50%, which was sourced from the KERC Tariff Order. The referenced Tariff Order also prescribed 0.5% to be considered to account the auxiliary consumption. The assessment team reviewed the validation report /19/ in this regard and found it consistent (page 22). Therefore, the registered PDD applied a net PLF value of 26% for investment analysis and emission reductions as confirmed (pageA-21 or page 66 of the file) from the validation report /19/.

It is also stated in the validation report /19/ that the site specific PLF provided by a third party i.e., Garrad Hassan India Private Limited is 23.90% that would comply with the EB 48 Annex 11 "Guidelines for the reporting and validating of plant load factors." The validating DOE accepted the PLF on the grounds that the third party PLF report was not available to the PP at the time of investment decision as indicated (page 22) in the validation report /19/.

Proposed Correction in the revised PDD:

In the revised PDD, the PP has proposed to change the validated PLF to 21.42% as permanent corrections in accordance with CDM PS. The assessment team reviewed the source of revised value considered as 21.42% that is site specific and provided by an independent third party. In the referred PLF report three PLF values were indicated viz., 23.90% at P50, 21.42% at P75 and 19.15% at P90. 'P' stands for Probability of Exceedance. Further details are provided below;

Probability of Exceedance	PLF	Assessment
P50	23.90%	There is 50% probability that this value will be achieved during operation. In the opinion of the technical expert this implies that the project activity is expected to achieve this PLF on once in every two years. Therefore, this value may not be representative for the base PLF to determine IRR and emission reductions. The sensitivity has been performed for this value.
P75	21.42%	There is 75% probability that this value will be achieved during operation. In the opinion of the technical expert this implies that the project activity is expected to achieve this PLF in a typical year. In other words, this value may not be achieved once in every 4 years. Therefore, this value is considered representative for the base PLF to determine IRR and emission reductions.
P90	19.15%	There is 90% probability that this value will be achieved during operation. In the opinion of the technical expert this implies that the project activity is expected to achieve this PLF on almost all years. Therefore, this value may not be representative for the base PLF to determine IRR and emission reductions. The sensitivity has been performed for this value.

In the opinion of the financial expert, the use of P75 as base PLF, as proposed by the PP in the revised PDD is the most reasonable. The approach adopted by PP was crosschecked from standard financing practices /20, 21/ wherein it is stated that banks usually prefer either a P75 or P90 while estimating revenues from the project.

Therefore, the assessment team accepted the use of 21.42% (at P75) as base PLF in the revised PDD as provided by the third party contracted by them, in the revised IRR calculations and emission reductions, as part of permanent corrections.

It is important to note that the project design change (i.e., export of power to industrial consumer through grid) does not impact the PLF of the project in any manner. In fact, change in PLF has been proposed and assessed as Permanent Corrections. However, to clarify further, the intent of including the PLF under project design change was just to indicate that PLF (lower or higher) does impact the effective output of the project activity e.g., electricity and revenue through its sale, which has played a critical role to trigger the change in the project design i.e., sale to industrial consumer at a relatively higher tariff. In other words, the correction in the value of PLF is independent of project design change.

This opinion is a resubmission for the approval of post registration changes by CDM EB because the first submission was not accepted by CDM EB. However, in the ruling note (CDM-PA9376_RULE01) CDM EB has indicated that resubmission is possible with more justification on PLF supplemented with actual data of PLF achieved after the implementation of the project activity, which is reproduced below;

The PP may resubmit the changes to the registered CDM project activity as per paragraph 136-146 of PCP version 7.0, providing more justification to change the plant load factor. The PP/DOE may supplement the request with actual data of the plant load factor after the implementation of the project activity.

The actual values of Plant Load Factor after implementation:

The WTGs commissioning of the project started from 07/12/2012 and completed on 03/05/2013 /25/. The actual date of commissioning for all WTGs that belong to the project were verified as under;

S. No.	Date	No. of WTGs Commissioned
1	07/12/2012	3
2	24/12/2012	5
3	04/01/2013	7
4	28/01/2013	6
5	08/02/2013	4
6	13/03/2013	2
7	30/03/2013	11
8	30/03/2013	5
9	16/04/2013	17
10	03/05/2013	3
Total		63

The PP has provided the actual electricity generation spread sheet /11/ which includes the monthly data of energy supplied to grid, imported from grid and energy lost as transmission losses (upto substation) and net energy exported by the project activity from Jan, 2013 to July 2015 and also calculated the achieved PLF for initial two full years as under;

Operation Period	June 2013# to May 2014	June 2014 to May 2015##
------------------	------------------------	-------------------------

Supplied to Grid (A)	85,297.2 MWh	83,681.4 MWh
Imported from Grid (B)	55.5 MWh	54.9 MWh
Transmission Losses (C)	1,062.4 MWh	1,046.1 MWh
Net Exported (A-C-D*1.15)	84,170.9 MWh	82,572.2 MWh
Installed Capacity (D)	50.4 MW	50.4 MW
Operation Period (E)	8760 hours	8760 hours
Plant Load Factor* [=A/(D*E)*100]	19.32%	18.95%

**imported electricity, transmission losses were not considered, conservative
#period prior to June 2013 was not considered as the aggregated installed capacity of 50.4 MW was not commissioned
##period after May 2015 was not considered as the operation period is not for a full year*

The monthly supplied energy to grid, imported from grid, transmission losses and net energy exported to grid for every month (Jan, 2013 to July 2015) were verified from the "Form B" which is provided by HESCL (grid distribution company) to the PP for invoicing purposes every month. The "Form B" includes the information about name of the generating company, number of machines and their capacity, meter readings, total energy supplied to KPTCL, transmission losses, net export units, net energy to be billed etc., for a particular month /26/. The assessment team verified the reported energy supplied to the grid, imported from grid, transmission losses and net energy exported from the monthly statements "Form B" and found them consistent. The assessment team also checked the meter installed on site and found that all meters (main and check) were calibrated for the period from Jan, 2013 to July 2015 /27/

The commissioning of the project was completed on 03/05/2013 i.e., all WTGs and the actual PLF achieved after that was considered representative for the project activity. The annual values of PLF achieved were verified as under;

June, 2013 to May 2014 – 19.32%
June 2014 to May 2015 – 18.95%

It is evident from above mentioned above that actual PLF achieved, by the project activity during two complete years of power generation, is less than the validated PLF in the revised PDD i.e., 21.42%. The actual PLF is approximately 9.8% and 11.5% less than the validated PLF for the year 2013-2014 and 2014-2015 respectively. Furthermore, the PLF achieved by the project activity has been calculated based on the energy supplied to the grid and energy imported from the grid and transmission losses occurred in this period were discarded on conservative grounds. The actual PLF corroborates that the validated PLF is conservative (being slightly higher than what is likely to be achieved) and therefore was accepted by the assessment team.

The assessment team also compared the energy supplied to the grid for the next two months (June – July 2015) for which the data was available for verification with corresponding months of previous year as under;

	June – July 2013	June – July 2014	June – July 2015
Energy Supplied	28,516.8 MWh	29,654.4 MWh	26,279.4 MWh

The assessment team found that energy supplied to the grid for the last two months, which was not considered for the PLF determination (as it is short period and is not representative of an annualized PLF value) were slightly less than the previous years for the corresponding months. This confirms that the actual operation of the project as on date is clearly below the validated PLF of 21.42%.

Therefore, the assessment team, taking note of the actual PLF values of the project for two complete years, determined and confirm that the validated revised value of PLF (as 21.42%) is appropriate and conservative.

	<p>The concerns raised by CDM EB with regard to actual PLF data has been included, discussed and verified above in the current submission.</p> <p>In summary the assessment team has accepted the revised value of the PLF on the following accounts;</p> <ol style="list-style-type: none"> The reported value is site specific and complying with the EB 48 Annex 11; The reported value was available on 09/01/2013, which earmarks the first step of deviation from the description in the registered PDD; The actual PLF values achieved by project is less, than the validated number for the two years of representative data achieved /11, 26/. The standard financing practices preferred by lenders /20, 21/; Taking note of the response provided by Meth Panel while responding to clarification /22/ AM_CLA_170, wherein it indicated that PLF value provided by the third party may be used even after the investment decision date. The assessment team has referred clarification (AM_CLA_170) in order to get guidance on appropriate validation of PLF, in particular, when third party PLF report /9/ was not available to the PP at the time of initial investment decision wherein the decision to sell the electricity to the grid was taken. In the opinion of assessment team, the referred clarification adequately confirms that the application of PLF that would comply with EB48 Annex11 is to be preferred. Considering the proposed assessment is validation process of post registration changes (of all types, as included in the request) and clarification provides additional guidance on appropriate validation of PLF, therefore the clarification was considered relevant and applicable to the project activity. Notwithstanding, the referred clarification was approved/considered (para 29) in EB 52 (12/02/2010) and therefore was available for application during the validation of the project activity itself. Therefore, in the opinion of assessment team, if one goes by the guidance given therein the clarification (AM 170), the values of PLF that were indicated in the third party PLF report /9/, should have been preferred during validation of the project. Therefore, the present request proposed by PP, to correct the PLF values to more appropriate and project specific, was accepted by the assessment team as part of validation of post registration changes.
Findings	CAR02 has been raised for clarity on PLF value and source of information, and variations in the values of PLF in the validation report. In response PP has clarified the raised points and therefore CAR02 has been closed.
Conclusion	<p>The assessment team confirms</p> <ul style="list-style-type: none"> The corrected information given in the revised PDD is an accurate reflection of actual project information and consistent with the actual implementation; The corrected parameters are in accordance with the applied methodology, the monitoring plan. Considering the proposed changes have been identified prior to the verification through a standalone contract, these are submitted for request for approval to CDM EB.

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

Means of validation	NA
Findings	NA
Conclusion	NA

D.5. Inclusion of a monitoring plan to a registered project activity

Means of validation	NA
Findings	NA
Conclusion	NA

D.6. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	<p>EG_{facility,y}</p> <ul style="list-style-type: none"> a. The source of data for EG_{facility,y}, is Joint Meter Reading or break up sheet provided by KPTCL which is called 'Form B' in Karnataka; b. The value applied is revised to 94,570 MWh because of change in PLF value; c. Measurement method & procedures: The JMR values are taken, from the feeder meter, every month which gives electricity export, import and losses till substation. The net export will be calculated using the data reported in JMR. The net electricity supplied to grid is calculated as a difference of export and import and taking into account the transmission losses; Net export (EG_{facility,y}) = EG_{export,y} - (EG_{export,y} *Transmission loss %)-115% EG_{import,y} d. Monitoring frequency: EG_{facility,y} is a calculated based on two directly monitoring values (EG_{export,y} & EG_{import,y}) therefore the irrelevant information like calibration frequency of meter, accuracy class of meter, recording frequency has been deleted from this parameters because such information is already mentioned separately for two input parameters; e. QA/QC procedures: The source of values is Form B (invoices) and not the meter reading therefore the irrelevant text for cross check has been deleted; Purpose of data has been corrected as 'Baseline emission calculation.'
Findings	NA
Conclusion	<p>The changes are identified by PP and the monitoring plan has been revised in line with the actual implementation of monitoring measures and procedures and QA/QC on site. None of these changes reduce the level of accuracy of the monitoring compared with the requirements contained in the registered PDD.</p> <p>The same version of the methodology has been considered by the PP. The proposed changes do not lead to any deviation from the applied methodology/tools. The proposed permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.</p>

Means of validation	<p>EG_{export,y}</p> <ul style="list-style-type: none"> a. The source of data: The values are taken from joint meter reading or break up sheet provided by KPTCL which is called 'Form B' in Karnataka; b. Value applied has been revised to 94,570 because of change in PLF values; c. The measurement methods and procedures: The electricity board has installed the energy meters at the common feeders of the project activity. The following information has been updated for clarity; Responsibility: The plant management shall be responsible for the regular recording of data Accuracy class of meters: The accuracy class of meter can be 0.2s or 0.5s as per state regulations. The meters are maintained by state grid and accuracy can be chosen as 0.2s or 0.5s. PP has no control on the accuracy class /13/. d. Purpose of data has been corrected as 'Baseline emission calculation'
Findings	NA
Conclusion	<p>The changes are identified by PP and the monitoring plan has been revised in line with the actual implementation of monitoring measures and procedures and QA/QC on site. One of the changes i.e., change in the accuracy of monitoring equipment</p>

	<p>may reduce the level of accuracy of the monitoring compared with the requirements contained in the registered PDD. However, these are not under the control of the PP maintained by the grid company and such change does comply with para 5 of Appendix 1 of CDM PS therefore were accepted.</p> <p>The same version of the methodology has been considered by the PP. The proposed changes do not lead to any deviation from the applied methodology/tools. The proposed permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.</p>
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Means of validation	<p>EG_{import,y}</p> <p>a. The source of data: The values are taken from joint meter reading or break up sheet provided by KPTCL which is called 'Form B' in Karnataka.</p> <p>b. The measurement methods and procedures: The electricity board has installed the energy meters at the common feeders of the project activity. The following information has been updated for clarity; Responsibility: The plant management shall be responsible for the regular recording of data</p> <p>Accuracy class of meters: The accuracy class of meter can be 0.2s or 0.5s as per state regulations. The meters are maintained by state grid and accuracy can be chosen as 0.2s or 0.5s. PP has no control on the accuracy class /13/.</p> <p>Purpose of data has been corrected as 'Baseline emission calculation'</p>
Findings	NA
Conclusion	<p>The changes are identified by PP and the monitoring plan has been revised in line with the actual implementation of monitoring measures and procedures and QA/QC on site. One of the changes i.e., change in the accuracy of monitoring equipment may reduce the level of accuracy of the monitoring compared with the requirements contained in the registered PDD. However, these are not under the control of the PP maintained by the grid company and such change does comply with para 5 of Appendix 1 of CDM PS therefore were accepted.</p> <p>The same version of the methodology has been considered by the PP. The proposed changes do not lead to any deviation from the applied methodology. The proposed permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.</p>

Means of validation	<p>Section B.7.3 of the PDD:</p> <p>The following text has been added inline to the actual implementation of the monitoring plan on site;</p> <p>a) 16 MW (20 WTG's) are connected in one feeder</p> <p>b) 16 MW (20 WTG's) in second feeder</p> <p>c) 18.4 MW (23 WTG's) are connected in third feeder.</p> <p>d) All three are connected in KPTCL substation. Transmission losses are calculated between substation and feeders (procedure is in form B) and net energy export is calculated by:</p> $EG_{\text{facility},y} = EG_{\text{export},y} - (EG_{\text{export},y} * \text{Transmission loss \%}) - 115\% EG_{\text{import},y}$
Findings	NA
Conclusion	<p>The changes are identified by PP and the monitoring plan has been revised in line with the actual implementation of monitoring measures and procedures and QA/QC on site. None of the changes reduce the level of accuracy of the monitoring compared with the requirements contained in the registered PDD. Further, these are not under the control of the PP maintained by the grid company therefore were accepted.</p> <p>The same version of the methodology has been considered by the PP. The proposed changes do not lead to any deviation from the applied methodology.</p>

	The proposed permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.
--	-------------------------------------------------------------------------------------------------------------------------------

Means of validation	<p>Appendix 5</p> <p>This section has been revised, to bring more clarity inline to the onsite implementation and the summary of revision is as following;</p> <ul style="list-style-type: none"> a) Metering: The electricity supplied is monitored and the readings are taken in presence of the O&M contractor (Enercon) and KPTL b) Metering equipment: Main and check meter installed which are two-way trivector meter. c) Meter readings: The JMR consists of energy export and import values adjusted for the transmission losses. These values can be cross checked with the invoices. d) Inspection of energy meters: All meters are inspected and sealed and cannot only be interfered in presence of both the parties. e) Meter Test Checking: The main and check meters are tested for accuracy by KPTCL. If any of the meters found beyond the permissible limit it will be calibrated and the value of the meter in calibration (check of main) will be considered. In case both meters are found faulty the correction will be applied to the readings. f) The daily recording of power generation is done in the SCADA system maintained by O & M contractor.
Findings	NA
Conclusion	<p>The changes are identified by PP and the monitoring plan has been revised in line with the actual implementation of monitoring measures and procedures and QA/QC on site. None of the changes reduce the level of accuracy of the monitoring compared with the requirements contained in the registered PDD.</p> <p>The same version of the methodology has been considered by the PP. The proposed changes do not lead to any deviation from the applied methodology.</p> <p>The proposed permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.</p>

D.7. Changes to the project design of a registered project activity

Means of validation	<p>Sell of power to individual customers:</p> <p>The description in the registered PDD indicated that the electricity generated from the project activity will be supplied to the Southern Grid, which was to be bought by the grid company at preferential tariff rate of fixed 3.70 INR/kWh for the entire operation lifetime (25 years) of the project activity.</p> <p>The description in the revised PDD indicates that the project activity will sell its power to individual customers, through open access sale at retail tariff {HT 2(a) i tariff in state 2012 for industrial consumers}, as a group captive model. The electricity generated by the project, will still be supplied to the Southern Grid, but the applicable tariff is expected to be different than what was validated in the registered PDD. The sale of electricity thorough this route will be done for a period 10 years, which is based on the maximum length of the contract with individual customers. The applicable wheeling and banking agreement /23/ was reviewed by the assessment team in this regard and found to be consistent. Thereafter, the electricity will be sold to grid at the same terms as envisaged in the registered PDD i.e., from 11th year onwards.</p>
Findings	NA
Conclusion	<p>The assessment team confirms that the changes in project design are not adversely affecting the additionality of the project as it remains additional. Also, the changes doesn't affect the scale of the project, the applied methodology ACM 0002</p>

	version 13 is still applicable and the changes brought into the monitoring plan are in compliance with applied monitoring methodology.
--	----------------------------------------------------------------------------------------------------------------------------------------

Means of validation	<p>Change in input values:</p> <p>The changes described above led to the revision of following input values that were used in the investment analysis i.e., IRR calculations.</p> <p>1. Power Tariff</p> <p>The tariff values (3.70 INR/kWh) used for IRR calculation, applicable to the preferential tariff model, has been changed to 5.50 INR/kWh for first 10 years as per the change in project description. The tariff values (5.50 INR/kWh) applicable to open access sale has been used for calculating the revised IRR. The revised tariff (5.50 INR/kWh) is sourced from the applicable government Tariff Order (KERC) for industrial consumers {HT 2(a) i tariff in state 2012 for industrial consumers}, which was available to PP at the time of revision in decision for power sale from grid to individual customers/10/. It is important to note, the referenced sourced document (KERC order) mentioned two separate slabs of power tariff for different consumers, which are; a) 5.10 INR/kWh up to 100,000 unit of power sold, b) 5.50 INR/kWh above 100,000 of unit sold. However, on a conservative basis the flat retail tariff of INR 5.50/kWh has been applied in the revised investment analysis.</p> <p>The applied tariff value (5.50 INR/kWh) has been cross checked with the actual Power Purchase Agreement (PPA) signed with the industrial customers/12/. The landed power tariff agreed with Pantaloon (Retails) India Limited and Tata Tele Service Limited has been validated as 5.78 INR/kWh and 6.10 INR/kWh respectively, with a based tariff of 5.14 INR/kWh and 5.43 INR/kWh respectively. Therefore, the assessment accepted the base tariff of 5.50 INR/kWh as prescribed in the KERK Tariff Order appropriate in the revised PDD and reviewed the applied sensitivity up to the landed tariff rate. The review of referenced PPAs/12/ establishes that the tariff agreed will be applicable for a period of 10 years without any escalation.</p> <p>The tariff agreed in the PPA with industrial customers takes into account the two factors; the retail tariff of host distribution company applicable to those consumers and discount by PP on the above retail tariff. This discount is mutually agreed between the seller and consumer. But the actual realization of revenue by PP is 7% less than the agreed tariff because of wheeling and banking charges that are to be paid by them (PP) to the grid as per wheeling and banking agreement. The wheeling and banking charges are additional charges that are levied by the grid company if the electricity is sold through an open access tariff rate. It may be noted that the wheeling and banking charges are not applicable when electricity is sold to the grid at preferential tariff rate of 3.70 INR/kWh. Therefore, the revised PDD applied wheeling and banking charges for initial period of 10 years as per the revised project description and nil (no charges) thereafter i.e., 11th years onwards.</p> <p>The revised tariff (INR 5.50/kWh) is applied only for 10 years and 11th year onwards a preferential tariff (INR 3.70/kWh) is applied for calculating the IRR. The main reasons for not applying the revised tariff for the project life time are as below;</p> <p>(i) The wheeling and banking agreement, a pre requisite for power sell to third party, is signed for 10 years only and requires agreement of both the parties for renewal after 10 years. These charges which are currently 7% are concessional charges and are applicable only to renewable energy projects. There is a possibility of increase of these charges to make parity with non-renewable power generation projects. Any increase in these charges will lead to the reduction in returns from the project. Therefore, given the uncertainties and policy fluctuations /15/ in the wind power generation market, it's very difficult to make projections about the scenarios of returns</p>
----------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

from the project after 10 years. For example, the current wheeling and banking charges are 7% (=5% wheeling charges + 2% banking charges) however the KERC order which introduced these charges clearly mentions specific applicability of concessions until 10th July, 2013. Also, KERC came out a discussion paper in the month July 2013 pertaining to wheeling & banking charges for renewable energy generators. KERC, vide this discussion paper has proposed to *"discontinue the banking facility on an annual basis and to introduce Transmission and/or wheeling charges for all RE generators seeking open Access/wheeling to Transmission and/or distribution network on par with charges applicable to non RE/conventional power generating companies. These charges shall be as determined by the Commission in its tariff orders issued from time to time. For the excess energy injected to the grid and remaining unutilized by the Wheeling and Banking customer at the end of the month, the ESCOM shall pay the generator at 85% of the generic tariff determined by the Commission for the particular RE source"*

- (ii) The government has currently exempted cross subsidy surcharges and electricity tax for the project supplying power to group captive consumer and these two factors leads to relatively higher returns (as compared to preferential tariff rate) from the project in third party sale /10/. KERC specifies cross subsidy surcharge for FY14 as high as Rs 2.08 / kWh for commercial category consumers at voltage level of 66 kV and above. Govt. of Karnataka had been promoting captive power generating units in the State by allowing exemption from payment of electricity tax on captive power. However, vide 'The Karnataka Electricity (Taxation On Consumption) (Amendment) Act, 2013' /17/, Govt. of Karnataka has specified that: *"Subject to the provisions of this Act, there shall be levied and paid to the State Government by every non licensee electricity tax on all the units of electricity consumed by himself at such rates specified by the State Government, by notification, from time to time but not exceeding the rates specified below, namely:-*

a) electricity tax not exceeding 50 paise per unit on captive consumption;"

It is evident that the above mentioned amendment leads to imposition of electricity tax to the tune of Rs 0.50 / kWh. This would be a significant setback as presently captive consumption is exempted from payment of electricity tax which is at level of 6% of retail tariff

The above mentioned points highlight that the two key regulatory risks (discontinuation of exemption from cross subsidy surcharge and imposition of electricity tax) pose significant threat to viability of the Project. Therefore, it is difficult to predict the continuation of these benefits because they are subject to policy change by the government.

- (iii) The PPA with the consumers is signed for 10 years and afterward it has to be mutually agreed for any extension and provided the wheeling and banking agreement is also renewed. Therefore, it is not guaranteed that consumer will continue to buy the power from the project after 10 years.

Therefore, taking note of the above uncertainties, the consideration of the revised tariff for 10 years by PP is justified and acceptable. PP has also tested the appropriateness/robustness of revised IRR with various sensitivities (change in total project cost, O & M cost, tariff and debt contribution) and with 10% variations the IRR doesn't cross the benchmark for any variable of sensitivity /1/.

2. Wheeling and banking charges

In the registered PDD there are no 'Wheeling and Banking Charges' applicable since the power was supposed to be sold to the grid. However, now the power is

sold to third party customers and wheeled through grid therefore the grid charges PP for 7% of the power as 'Wheeling and Banking Charges' as per KERC tariff order /8,10/. It is worthy to note here that from the net unit of power exported for a month, 7% of energy is deducted towards wheeling and banking charges. Therefore, for the purpose of investment analysis in the project case the supplied 94.570 million kWh get reduced to 87.950 million kWh. The information was cross checked from the invoices /16/.

3. IRR

The application of revised values (tariff, wheeling & banking charges and PLF) in the IRR calculation corresponds to the project design change, resulted into a changed IRR value than the registered PDD. The original IRR of the project (11.33%) validated in the registered PDD is now revised as 13.10%. The revised IRR, in spite of improved financial returns, is well below the validated benchmark (17.65%), therefore, even after the change in input values validated for post registration changes the project remains additional.

When the identified changes occurred:

The individual power producer (project developer) requires a 'Wheeling and Banking Agreement' signed with grid and distribution companies for selling the power to any third parties in Karnataka /10/. PP signed the referred agreement on 9th January, 2013 /12/ in order to be eligible for power sell to individual customers. The authenticity of the used date was verified from a legal document 'Wheeling and Banking' agreement which was signed among PP {Renew Wind Energy (Karnataka) Pvt. Ltd.}, State Government's Grid Company (Karnataka Power Transmission Co-operation Limited, also called KPTCL) and Distribution Companies, also called DISCOM's (Hubli Electricity Supply Company Limited also called HESCL and Bangalore Electricity Supply Company Limited also called BESCL). It is also assessed that the referred agreement is the pre-requisite for supplying the power to individual consumers through grid. The date being the first legal commitment, accepted as the date of actual change happened in the project design. The project got registered with UNFCCC on 31/12/2012 and the change in project design (grid to individual customer) has happened on 09/01/2013.

The reason/s for changes

PP has explored and decided to change the power sell from grid to individual customers to get better returns from the project. The return calculated from the project, at the time of project registration, were based on the PLF values (26.5%) sourced from KERC order. However, the PLF values given by KERC are not specific to the project and in practice the PLF achieved by such projects may vary significantly. Therefore, in order to get more accurate estimation of returns, PP got the PLF study specific to the project, done by a third party which indicated significantly lower PLF than the values considered earlier by PP for financial calculations. The change in PLF value has been discussed separately under section 3.1 of the report as 'correction in the registered PDD'. Given the revised PLF the returns from the project went down and therefore PP started exploring the other options (that might yield better revenues to compensate/improve loss of revenue on account of reduced PLF reported by third party), including sell of power to individual consumers, to get better returns from the project and this triggered to the change in the project design. The third party PLF report was available to PP when the aforesaid wheeling and banking agreement was signed on 09/01/2013. The interview with representative also revealed the dwindling carbon benefits also forced PP to improve the financial returns from the project activity. The changes in monitoring plan are being done to be in-line with the actual implementation and practice on site.

Whether the changes were known to PP prior to the registration of the project activity?

As discussed above, in order to explore the option of selling the power to individual customer, PP must have the wheeling agreement with grid which was signed only

after the registration of the project. Therefore the assessment team is of the view the PP have made the decision to sell the power to individual customers afterwards.

Impact of changes on Additionality of the project activity

The financial returns from the project activity though has improved from erstwhile 11.33% to 13.10% but still below the validated benchmark and under all realistic sensitivity variations. In addition to demonstrating the robustness of IRR by varying the 10% input values, following is also assessed by assessment team.

Parameters	Value applied	IRR	Benchmark
PLF	23.90% (P90)	16.95%	17.65%
	21.42% (P75)	13.10%	17.65%
	19.15% (P50)	9.72%	17.65%
Tariff	5.50 INR/kWh	13.10%	17.65%
	5.78 INR/kWh	14.50%	17.65%
	6.10 INR/kWh	16.20%	17.65%

Impact of changes on Scale of project activity

The changes in project design have no impact the scale of the project activity and it remains the large scale project activity.

Impact of changes on Applicability and application of baseline methodology

The baseline methodology ACM 0002 version 13 remains applicable and no impact in this regard.

Impact of changes on compliance of monitoring plan with applied monitoring methodology

The changes brought into the monitoring plan are in compliance with the applied monitoring methodology. The change in project design does not impact the applicability of the applied methodology.

Findings

CL02 was raised to understand when the change in project design occurred that was clarified by PP and CL03 was closed out.

CL03 was raised to get clarification on the reason behind changes from preferential tariff to open access tariff. In response PP has clarified that after receiving a lower PLF from a project specific third party project PP started exploring the options for better revenues to make project viable and group captive sell model was adopted. The CL03 was closed.

CL04 was raised for further clarity 'whether the change would have known to the PP prior to registration of the project activity'. It was clarified that the actual implementation of project design change date is considered the date of wheeling and banking agreement which was signed on 09th January, 2013. Therefore, it was concluded that the changes were not known to PP before the project registration date.

CL05 was raised for clarification on deletion of auxiliary consumption from the revised PDD. PP has clarified that auxiliary consumption has now been considered inline to the PLF third party report. CL05 was closed.

CAR01 was raised for clarity on the following; (i) the source and availability of revised tariff at the time of decision, (ii) why the revised tariff has not been applied

	for the project lifetime, (iii) why the old tariff has been retained after 10 yrs of project life, (iv) the analysis on sensitivity with the revised input values. PP has satisfactorily responded and justified the use of revised values for financial calculations and therefore CAR01 was closed.
Conclusion	<p>The assessment team confirms that the changes in project design are not adversely affecting the additionality of the project as it remains additional.</p> <p>The changes do not affect the scale of the project, as it is a large scale project activity.</p> <p>The applied methodology ACM 0002 version 13 is still applicable and the changes made into the monitoring plan are in compliance with applied monitoring methodology.</p>

D.8. Types of changes specific to afforestation and reforestation project activities

Means of validation	NA
Findings	NA
Conclusion	NA

SECTION E. Internal quality control

A draft validation report that is prepared by assessment team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the assessment team.

During the technical review process additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for registration is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the assessment team. The decision taken by the Technical Reviewer is final and authorized on behalf of Earthood Services Private Limited.

SECTION F. Validation opinion

Earthood Services Private Limited (Earthood) has performed the validation of the post registration changes of the project activity Wind Power Project at Tadas, Karnataka by ReNew Wind Energy (Karnataka) Private Limited.

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 Earthood with sufficient evidence to determine the fulfilment of stated criteria.

The description in the revised PDD, Version 09 dated 03/09/2015 meets all relevant UNFCCC requirements for the CDM and correctly applies the selected baseline and monitoring methodology.

This report is the combined assessment opinion for all the changes that are proposed in the PDD and request is submitted for prior approval by CDM EB.



Ashok Kumar Gautam

Technical Manager

for **Earthood Services Private Limited**

01/10/2015

Gurgaon, Haryana, India

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
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
CER	Certified Emission Reduction
CL	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
ESCOM	Electricity Supply Company
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
HESCL	Hubli Electricity Supply Company Limited
IPCC	Intergovernmental Panel on Climate Change
INR	Indian National Rupee
JMR	Joint Meter Reading
KERC	Karnataka Electricity Regulatory Commission
KPTCL	Karnataka Power Transmission Corporation Limited
kWh	kilo Watt hour
kV	kilo Volt
MP	Monitoring Plan
MoV	Means of Verification
MWh	Mega Watt Hour
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
PRC	Project Registration Changes
O&M	Operation and Maintenance
QA/QC	Quality Assurance / Quality Control
RNWEKPL	ReNew Wind Energy (Karnataka) Private Limited
RMP	Revised Monitoring Plan
SCADA	Supervisory Control and Data Acquisition
TA	Technical Area
WTG	Wind Turbine Generator
WBA	Wheeling and Banking Agreement
WBC	Wheeling and Banking Charges
UNFCCC	United Nations Framework Convention on Climate Change

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Kaviraj Singh		
Country	India		
Education	Ph.D. (Environmental Engineering), IIT Delhi M.Phil. (Energy & Environmental), DAVV Indore		
Experience	8 Years		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.2)	YES		
TA Expert (13.1)	YES		
TA Expert (13.2)	YES		
TA Expert (15.2)	YES		
Reviewed by	Abhishek Mahawar	Date	30/03/2014
Approved by	Ashok Gautam	Date	30/03/2014

Competence Statement			
Name	Abhishek Mahawar		
Country	India		
Education	B. Tech. (Chemical Engineering) MBA (Finance)		
Experience	7 Years		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert (1.2)	YES		
Reviewed by	Ashok Gautam	Date	29/12/2014
Approved by	Kaviraj Singh	Date	29/12/2014

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	14 Years		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.1)	YES		
TA Expert (3.1)	YES		
TA Expert (13.1)	YES		
Reviewed by	Abhishek Mahawar	Date	29/12/2014
Approved by	Kaviraj Singh	Date	29/12/2014

Competence Statement			
Name	Phool Chand		
Country	India		
Education	M. Sc. (Physics) M. Tech. (Systems Management)		
Experience	8 Years		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (1.2)	YES		
Reviewed by	Abhishek Mahawar	Date	30/12/2014
Approved by	Ashok Gautam	Date	30/12/2014

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
----	--------	-------	----------------------------	----------

S. No.	Party	Document	Date	Category
1.	ReNew	PDD Version 09 (Clean and tracked), (Version 04 to 8 were intermediate used for assessment)	Version 09 dated 03/09/3015	PP
2.	Earthood	Earthood agreement signed with PP	11/10/2014	Others
3.	UNFCC C	CDM Validation and Verification Standard (VVS),	V09	Others
4.	UNFCC C	UN 9376 (http://cdm.unfccc.int/Projects/DB/RINA1356708962.81/view)	NA	Others
5.	UNFCC C	CDM Project Standard (PS)	Version 09	Others
6.	UNFCC C	ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources	Version 13	Others
7.	ReNew	Revised IRR Sheet (corresponding to PDD Version 9)	Version 09	PP
8.	KERC	Tariff Order 2012- BESCO, Karnataka Electricity Regulatory Commission (Chapter 5- Determination of the tariff for FY 2013)	FY 2013	PP & Others
9.	Garrad Hassan	Garrad Hassan India Private Limited (GL Garrad Hassan) PLF Study dated	10/07/2012	PP
10.	KERC	10.1: KERC Tariff Order 2014 for APR for FY 13 and ARR & Retail Supply Tariff for FY 15 10.2 Karnataka Electricity Regulatory Commission, Tariff Order, 2012- BESCO (Chapter-5: determination of tariff for FY2013, page 84)	-	PP & Others
11.	ReNew	Spread sheet for power generation data (Annexure A of the revised PDD)	-	PP
12.	ReNew	PPA signed with; Pantaloon (Retail) India Limited Tata Tele Services Limited	07/12/2012	PP
13.	ReNew	CEA publication in Gazette of India	17/03/2006	PP
14.	-	Plant records for power generation data and other on-site observations	09/09/2015 & 20/11/2015	-
15.	ReNew	The following evidence were reviewed for policy fluctuations; 15.1: KERC order 11 th July, 2008 (wheeling and banking agreements) 15.2: Discussion paper on wheeling and banking charges 15 th July, 2013 (KERC) 15.2: Electricity Act 2003, Amendments (Ministry of Law and Justice) 15.3: KERC tariff order 2013 of BESCO 6 th May 2013 15.4: Karnataka Electricity (Taxation on Consumption) (Amendment) ACT, 2013 (Karnataka Act no 31 of 2013)	KERC order 11 th July, 2008 Paper on wheeling and banking charges 15 th July, 2013 Tariff order 2013 of BESCO 6 th May 2013	PP
16.	ReNew	Invoices of power sold to consumers	-	PP
17.	KSEI	http://ksei.gov.in/Elect%20Tax%20amendment%20act%202013%20new.pdf		Others
18.	ReNew	Registered PDD	28/11/2012	Others
19.	RINA	Validation Report	28/12/2012	Others
20.	Others	http://www.dewi.de/dewi_res/fileadmin/pdf/publications/Magazin_28/07.pdf	-	Others
21.	Others	http://www.windprospect.com.au/docs/news_pdf_142.pdf	-	Others

22.	UNFCC C	AM_CLA_0170 "Guidelines for the reporting and validating of plant load factors"	-	Others
23.	Others	Wheeling and Banking Agreement with Grid Company	09/01/2013	PP
24.	UNFCC C	CDM-PDD-Form, Version 06	https://cdm.unfccc.int/Reference/PDs_Forms/index.html	Others
25.	HESCL	Commissioning certificates	-	PP
26.	HESCL	'Form B'	For the financial year 2012-2013 (Jan 2013 to March 2013), 2013-2014 (April 2013 to March 2014), 2014-2015 (April 2014 to March 2015), 2015 – 2016 (March 2015 to July 2015)	PP
27.	HESCL	Calibration certificates of energy meters	Calibration conducted in 2012, 2013, 2014, 2015	PP
28.	UNFCC C	Project Cycle Procedures (PCP, Ver09)	Version 09	Others
30.	UNFCC C	UNFCCC Ruling on previous submission	CDM-PA9376-RULE01	Others

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

Table 1. CL from this validation

CL ID	01	Section no.	D.1	Date: 03/11/2014
Description of CL				
PDD section A doesn't specify the identified post registration changes especially the export of power to industrial consumer and wheeling through grid?				
Project participant response				Date: 15/11/2014
We agree with the observations of DOE and have mentioned the post registration changes in Section A of PDD. It is also described in Appendix 6 of PDD. Revised PDD is provided to DOE for verification.				
Documentation provided by project participant				
Revised PDD				
DOE assessment				Date: 26/11/2014
The PDD has been revised to include the post registration changes with reference to sell of power, to individuals consumers, which is wheeled through grid. The CL01 is closed.				

CL ID	02	Section no.	D.7	Date: 03/11/2014
Description of CL				
When the identified change occurred?				
Project participant response				Date: 15/11/2014
The identified changes occurred on 9 th January 2013 after signing of first wheeling and banking agreements essential for 3 rd party sale purpose. Initially PP decided for sale to grid option, but later after reviewing the project feasibility on the basis of third party PLF study report dated 10 July 2012 decided to explore the option of third party sale through group captive model. The third party sale through group captive model was not possible without the wheeling and banking agreement signed by PP with KPTCL (Karnataka Power Transmission Corporation Limited) and state DISCOM's (Distribution Companies). Only after 9 th January 2013, the date of signing first wheeling and banking agreement the third party sale option materialized hence this date is considered as the date of change in project structure.				
Documentation provided by project participant				

Wheeling and banking agreement between PP and KPTCL dated 9 th Jan, 2013	
DOE assessment	Date: 26/11/2014
The change of power sell from grid to individual customer has started on 09/01/2013 onward. This authenticity of the used date was verified from a legal document 'Wheeling and Banking' agreement which was signed among PP {Renew Wind Energy (Karnataka) Pvt. Ltd.}, State Government's Grid Company (Karnataka Power Transmission Co-operation Limited, also called KPTCL) and Distribution Companies, also called DISCOM's (Hubli Electricity Supply Company Limited also called HESCL and Bangalore Electricity Supply Company Limited also called BESCL). It is also assessed that the referred agreement is the pre-requisite for supplying the power to individual consumers through grid. The date being the legal commitment, accepted as the date of actual change happened in the project design and therefore CL is closed.	

CL ID	03	Section no.	D.7	Date: 03/11/2014
Description of CL				
The reason for change from preferential tariff to open access tariff?				
Project participant response				Date: 15/11/2014
Initially the project feasibility was assessed based on the KERC tariff order which provided a PLF value of 26.5% and a tariff of INR 3.70/Kwh. But a third party PLF study (Garrod Hassan India Private Limited) provided a PLF value of 21.42%. This forced PP to review their decision and to explore the possibility of third party sale through group captive model.				
Documentation provided by project participant				
PLF report by Garrod Hassan India Private Limited				
DOE assessment				Date: 26/11/2014
The project feasibility was assessed taking reference to the Karnataka Electricity Regulatory Commission (KERC) values of PLF (26.5%) and tariff (INR 3.70/kWh). PP has placed the purchase order for WTGs on 06/04/2012 accordingly. However, in order to estimate more accurate site specific PLF, PP has appointed a third party (Garrod Hassan India Private Limited) which submitted its report on 10/12/2012 with a PLF prediction of 21.42%. Given the revised PLF the returns from the project further went down and therefore PP started exploring the other options, including sell of power to individual consumers, to get better returns from the project. Point b of CL03 closed				

CL ID	04	Section no.	D.7	Date: 03/11/2014
Description of CL				
Whether the changes would have known to PP prior to the registration of the project activity?				
Project participant response				Date: 15/11/2014
Although the PP willing to change the project structure prior to project registration in July 2012 based on a third party PLF report, but it was not confirmed to PP whether the option can be explored. It was confirmed on 9 th January 2013 the date of signing wheeling and banking agreement that project structure can be changed.				
Documentation provided by project participant				
No documents provided.				
DOE assessment				Date: 26/11/2014
The project got registered on 31/12/2012 but the change in project design (grid to individual customer) has happened on 09/01/2013 which is after the date of registration. CL 04 closed				

CL ID	05	Section no.	D.7	Date: 03/11/2014
Description of CL				
Why the auxiliary consumption has been deleted in the revised PDD				
Project participant response				Date: 15/11/2014

In the registered PDD the PLF was considered as per the KERC order which was 26.5%, hence auxiliary consumption was also sourced from KERC order which was 0.5%. Since we have revised the PLF as per the PLF study done by a third party hence we have selected the value of PLF provided in the PLF study report.

Documentation provided by project participant

PLF report by Garrad Hassan India Private Limited

DOE assessment

Date: 26/11/2014

The auxiliary consumption value is also sourced from PLF report which appears more accurate. CL05 closed.

Table 2. CAR from this validation

CAR ID	01	Section no.	D.7	Date: 03/11/2014
Description of CL				
<ul style="list-style-type: none"> Point I: The mode of sale of electricity from the project activity has been changed to open access for a fixed tariff of INR 5.10/kWh for period of 10 years in the revised investment analysis. It is not clear how this value has been identified/established and whether it was available at the time of revised decision, if any Point II: Further, how this tariff or any other open access tariff has not been applied for an entire investment analysis period i.e., after 10 years. Point III: There is no change in the tariff INR 3.7/kWh from the 11th year even in the revised investment analysis from what was applied during the registration. It is not clear why this value has been retained and how it is valid and justified in the context of post registration changes (from supply to grid to the open access). Point IV: The robustness (sensitivity) of the IRR due to change in the tariff and PLF in the context of post registration change. 				
Project participant response				Date: 15/11/2014

Reply for point I & II: The mode of sale of power from the project activity has been changed from grid to third party. The tariff for third party sale is determined on the basis of following two factors:

- i. The retail tariff (industrial/ commercial) for these consumers if the power was to be sourced from host Distribution Company.
- ii. Agreed discount on retail tariff to these consumers upon sourcing power from the Project.

As discussed above the tariff rate depends on the HT rate applicable on different clients and discount offered on that tariff by PP. These parameters vary on client to client basis and for same PPA's can be referred. PP has to pay 7% wheeling and banking charges. Hence net realization is 7% less. The retail tariff for industrial consumers at the time of revised decision was 5.10 Rs/Kwh (BESCOM clients) the reference for same is provided to DOE for verification, as a conservative approach of analysis we haven't applied any discount offered to consumers in this retail tariff. The value of tariff applied in the investment analysis was available at the time of revised project decision.

The open access PPA with different clients were signed for a period of 10 years, the reason for selecting the preferential tariff beyond this period is justified on uncertainty in regulatory regime on following accounts:

- As per KERC Order dated 11th July 2008, net open access charges (inclusive of all charges and losses) applicable on wind power from the Project is 5% of injected energy and banking facility has been provided upon banking charge at additional 2% of injected energy. Thus, the total charge to be paid by the Project for availing open access and banking facility is 7% of injected energy in present case.
- It is further to be highlighted that the above mentioned KERC Order dated 11th July 2008 specifies applicability of concessional wheeling & banking charges till 10th July 2013.
- The two key factors behind choosing sale under open access has been present exemptions from cross subsidy surcharge and electricity tax as the Project is supplying power to group captive consumers. However, it is to be highlighted that both of these factors are open to regulatory risks and thus poses threat to net realization for the Project.

Reply for point III: We would like to submit that the PPA tenure is of 10 years and beyond 10 year it will be mutually decided to extend the PPA or not. Since there is no certainty on PPA beyond 10 year we have taken preferential tariff as applicable tariff since it is the only certain tariff PP can get beyond 10 years for the project.

The post registration changes applied for first 10 years of operation in which mode of power sale changed from grid to open access, beyond 10 year there is no certainty about the mode of power sale. Since the PPA tenure is of 10 years and beyond 10 year it will be mutually decided to extend the PPA or not. Hence preferential tariff is the only certain tariff PP can get beyond 10 years for the project.

The explanation provided in the previous reply can also be referred to justify this argument. However the project is additional if same tariff of open access is applied for the entire lifetime of the project activity.

Reply to point IV: The robustness of the IRR due to change in the tariff and PLF in the context of post registration changes is provided in the revised PDD, revised PDD is provided to DOE for verification.

Documentation provided by project participant

Wheeling and banking agreement
KERC tariff order 2014
Electricity act 2003, Amendments
PPA signed between Pantaloon and Tata Tele Service Ltd.
Invoices of power sell to consumers

DOE assessment

Date: 26/11/2014

Assessment of point I & II: The tariff used for open access was sourced from HT rates applicable and basis of two factors the retail tariff rate and agreed discount on retail tariff and these values were available to PP at the time of decision making CLOSED. The justification given for open access PPA for 10 years was found acceptable. CLOSED

Assessment of point III: The justification given for not applying the open access tariff for 10 yrs is found acceptable given the market uncertainties involved. CLOSED.

Assessment of point IV: The PDD has been revised for change in sensitivity analysis due to revised tariff. CLOSED.

CAR01 has been closed.

CAR ID	02	Section no.	D.3	Date: 26/11/2014
Description of CAR				
It is not clear why the PLF value and source of information has been changed. The validation report referred one third party PLF study conducted by M/s Garrad Hassan India Private Limited which calculated the PLF (23.90) but the KERC PLF (26.5%) was used instead during validation. The PLF (19.80%) considered now in revised PDD v04 is also sourced from a third party. The variations amongst the values subject to their source has not been clarified.				
Project participant response				Date: 20/12/2012
PLF selected in the registered PDD was 26.5% as per the KERC order. While third party PLF report provides a PLF value of 23.9% at P50 level, 21.42% at P75 level and 19.15% at P90 level. We have selected the average PLF of 21.42% of P75 level and have covered 23.9% P90 value in 10% sensitivity. The real performance data of the project also provides the same PLF range as already covered under the sensitivity analysis.				
Documentation provided by project participant				
PLF third party report by Garrad Hassan India Private Limited KERC order				
DOE assessment				Date: 02/03/2015
21.42% PLF (at P75) has been used from the third party report. CLOSED.				

Table 3. FAR from this validation

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

There is no FAR raised in this validation.

Document information

Version	Date	Description
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Registration		
Keywords: post-registration change, project activities, validation report		