




**Validation report form for post-registration changes for
CDM project activities
(Version 03.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan UNFCCC ref. No-10392
Process track	<input type="checkbox"/> Prior approval <input checked="" type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report	03
Completion date of the validation report	14/11/2020
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents ¹ <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 type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents <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	07
Project participants	Janardan Wind Energy Pvt. Ltd.
Host Party	India
Applied methodologies and standardized baselines	ACM0002 Version 17.0 – “Grid-connected electricity generation from renewable sources”
Mandatory sectoral scopes	Sectoral scope : 1- Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	NA
Name and UNFCCC reference number of	Earthood Services Private Limited UNFCCC ref.No- E-0066

¹ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

the DOE	
Name, position and signature of the approver of the validation report	<div>Sign</div> <div></div> <div>Dr. Kaviraj Singh Managing Director</div>

SECTION A. Executive summary

>> The project activity involves electricity generation by solar energy and supplying the generated electricity to the Indian Grid. The project being a renewable energy generation activity, it leads to removal of fossil fuel dominated electricity generation. The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and plays beneficial role in the mitigation of climate change.

The project activity involves electricity generation by solar power and supplying the same to the Indian grid. This is renewable energy generation which will replace the fossil fuel dominated grid connected electricity generation. The project activity involves the installation of 20 MW_{AC} (23.9976 MW_p DC) solar power project Villages: Sanwreej, Teshil: Phalodi, District: Jodhpur, State: Rajasthan. in Jodhpur district of Rajasthan, India. The project activity was commissioned in two phases, first phase commissioned on 30/03/2017 and second phase on 18/04/2017 as verified against the commissioning certificates/16/.

The project is fully functional and the assessment team verified this through the latest photographs/21/ of online monitoring system (SCADA), videos recording, generation records/15/ and interaction with site personal during the con-call.

The basic details of the project activity are mentioned below:

Project title	20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan
UNFCCC registration number	10392
ESPL Ref.No-	CDM.VER.20.17
Date of registration	12/10/2017
Sectoral scope	1 - Energy industries (renewable/ non-renewable sources).
Methodology/ies applied	Approved consolidated baseline methodology ACM0002, Version 17.0
Project participant	Janardan Wind Energy Pvt. Ltd.
Location of Project Activity	Jodhpur district, Indian State of Rajasthan
Geographical coordinates	Latitude: 26.98° N, Longitude: 72.25° E

Scope of validation

Janardan Wind Energy Pvt. Ltd. has contracted Earthood Services Private Limited (Earthood) to conduct the verification and certification of emission reductions reported for the CDM project activity 10392 "20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan" in India for the period 01/08/2018 to 29/02/2020 (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 (VVS), Project Standard (PS), Project Cycle Procedures (PCP) 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 the remote audit, 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 that is accepted by Technical Reviewer is then approved on behalf of Earthood Services Private Limited and processed further as per CDM procedures.

Conclusion

The description in the revised PDD, Version 07 dated 13/10/2020 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 project design of the registered project activity identified during the verification. The proposed design changes to the registered project are covered under Appendix of the CDM Project Standard for project activities version 02.0 (EB 101, Annex 01) and hence do not require prior approval by the Board.

SECTION B. Validation team, technical reviewer and approver

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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)	Verification findings
1.	Team Leader and Local Expert	EI	Soni	Ravi Kant	Central office	Y	NA	Y	Y
2.	Verifier	EI	Soni	Ravi Kant	Central office	Y	NA	Y	Y
3	Technical Expert and Meth Expert	EI	Soni	Ravi Kant	Central office	Y	NA	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	IR	Guleria	Shifali	Central Office
2.	Expert to TR	IR	Guleria	Shifali	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Means of validation**C.1. Desk/document review**

Earthood 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, Earthood has reviewed;

- The registered PDD Version 03 dated 11/07/2017, revised PDD version 07, dated 13/10/2020;
- The applied monitoring methodology (ACM0002 Version 17.0);
- 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

Due to the current situation with the global COVID-19 pandemic scenario and country wide lock down in India, an on-site inspection has not been performed by the assessment team. As per the communication received from CDM Executive Board regarding the relaxation for mandatory site visits by DOEs for a period of three months (23 March to 23 June 2020) and further communication received on 24/06/2020 to extend the relaxation till 31/12/2020, due to COVID-19 pandemic, it is recommended that site visit should be postpone as a result of the COVID-19 pandemic. It is to be noted that the MR was published at UNFCCC website on 14/04/2020, hence the site visit could have been conducted after 21 days of publication.

The assessment team had decided to suspend the physical site visit due country wide lock down in India and travel restrictions from 25/03/2020 onwards and extended up to 30/06/2020.

The DoE has determined that the physical site visit neither be postpone nor conducted in the current circumstances due to COVID-19 pandemic. As recommended by CDM EB/23/ via emails dated 20/03/2020 and 24/06/2020, justification for the approach being followed by the DoE is provided below:

1. The corona virus pandemic is "accelerating" in India and the total number of cases in the country now stands at 1,004,383 and 25,605 deaths, the Worldometer indicates in its latest data update on 16/07/2020.
(Source: <https://www.worldometers.info/coronavirus/country/india/>)
2. The Project participant has signed the ERPA with buyer and as per the contract the credits shall be delivered on or before 31/01/2021, hence it is not possible to postpone the site visit for indefinite period and the contract might be terminated in case if the credits not delivered as per the timeline agreed in the contract.
3. The project activity is located in Jodhpur district in Rajasthan state in India and as per the state government notification, passengers arriving in Rajasthan will have to follow 14 days of home quarantine, wherein those coming for business and those with a negative COVID-19 report will be allowed to move around after seven days. (source: <https://swachhindia.ndtv.com/flying-amid-covid-19-here-are-the-quarantine-rules-in-different-states-45209/>)
4. There are post registration changes identified during the current monitoring period and combined request for approval of a post-registration change with a request for issuance of CERs (the issuance track) is being submitted. Since the on-site visit cannot be conducted, hence the assessment team has risen a FAR accordance with the guidance provided under paragraph 36 of VVS for PAs version 02.0. The verifying DoE shall review the project implementation in line with the approved PDD including the post registration changes, during the next verification of the proposed CDM project activity.

Considering health and safety a top priority, it is justified to not conduct the physical site visit for validation of post registration changes. Since the site visit cannot be postponed but is not conducted due to the COVID-19 pandemic, hence the DOE has used standard auditing techniques for validation as referred to in sections 7.1.3 and 9.1.3 of the VVS for PAs version 02.0.

The assessment team has interviewed the site personnel (PPs representative) and consultant telephonically and verified the latest photographs/video recordings of the equipment's (indicating technical specifications) installed at project site (please refer section D.7 for further details).

Duration of on-site inspection: DD/MM/YYYY to DD/MM/YYYY				
No.	Activity performed on-site	Site location	Date	Team member
1.	NA	-	-	-
...	-	-	-	-

C.3. Interviews

The details of the persons interviewed during the voice con-call held on 15/06/2020 are mentioned in the table below:

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			

1.	Kodali	Praveen	Assistant Manager (renewable) JWEPL	15/06/2020	Electricity Generation Records (monthly energy statements, Invoices and break up sheets), Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure Changes to the project design of the registered project.	Ravi Kant Soni
2.	Yadav	Vikash	Consultant (Infinite Soulution)	15/06/2020	Monitoring and measuring system, Collection of measurements, Observations of established practices and Data Verification of monitoring parameters Changes to the project design of the registered project.	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, standardized baselines or other methodological regulatory documents	-	-	-
Corrections	-	-	-
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 methodological regulatory documents	-	-	-
Changes to the project design	-	CAR #1	FAR #1
Changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
Total	-	01	01

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

Means of validation	The project participants used a later version of the PDD form 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 11.0, the DOE can confirm that the information transferred to the later version of the
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	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 from.

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

Means of validation	Not applicable
Findings	Not applicable
Conclusion	Not applicable

D.3. Corrections

Means of validation	<p>The following correction is identified in the registered PDD version 03, dated 11/07/2017:</p> <p>It is noted that value of the build margin emission factor ($EF_{grid,BM,y}$) as reported under section B.6.2 of the registered PDD/18/ was not consistent with same as mentioned in section B.4, B.6.1, Appendix-4 of the registered PDD and registered ER calculation sheet as well.</p> <p>The value of build margin emission factor was reported in the registered PDD (section B.4, B.6.1 and Appendix-4) and in the registered ER calculation sheet as 0.9285, however the same was reported as 0.9258 in section B.6.2 of the registered PDD due to typo error.</p> <p>The PP has rectified the typo error under section B.6.2 of the PDD, updating the value of the build margin emission factor ($EF_{grid,BM,y}$) and made consistent with the same as reported under section B.4, B.6.1, Appendix-4 of the registered PDD and registered ER calculation sheet as well.</p>
Findings	CAR #1 is raised and resolved.
Conclusion	<p>The assessment team has verified the correction in the registered PDD and confirmed that values of the parameters fixed ex-ante, at the time of registration of project are not updated due the identified revision. Hence in accordance with the paragraph 232 of CDM PS for PAs version 02.0, this editorial change is considered as correction to the parameters fixed at registration of the CDM project activity as described in the registered PDD.</p> <p>The PP has appropriately described the correction under Appendix-7 of the revised PDD.</p> <p>As discussed above, the change incorporated in revised PDD as "Correction" was assessed by the validation team and found to be reflecting the actual project information and do not raise any concern with respect to project design or monitoring plan.</p> <p>It is to be noted that this project is registered under the previous regulatory framework (VVS V 9.0), and the old information is transferred to the new VVS track form (CDM VVS for PAs V 02.0). The assessment team confirms that the material (information) included in the new form is materially the same as the information in the registered PDD.</p> <p>The correction does not require prior approval as per paragraph 1(a) Appendix of the CDM Project Standard for project activities version 2.0 and suitable to be submitted under the issuance track.</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 methodological regulatory documents

Means of validation	Not applicable
Findings	Not applicable
Conclusion	Not applicable

D.7. Changes to the project design

Means of validation

The following changes are done in the registered PDD/18/ to reflect the changes to the project design of the registered project activity.:

As per the registered PDD, total number of solar PV modules commissioned are as following:

Table: 1

Module Rating (p)	Module model	Number of modules	Total capacity (MWp)	Module supplier
303	TP 303 series	19520	5.91456	TATA Power Solar Systems Ltd.
306	TP 306series	9920	3.03552	
309	TP 309series	19200	5.9328	
312	TP 312series	16960	5.29152	
315	TP 315series	7360	2.3184	
Total	-	72,960	22.4928	-

Actual number of solar PV modules commissioned at project site as verified through revised PDD are as following:

Table:2

Module Rating (p)	Module model	Number of modules	Total capacity (MWp)	Module supplier
303	TP 303 series	19520	5.91456	TATA Power Solar Systems Ltd.
306	TP 306series	9920	3.03552	
309	TP 309series	19200	5.9328	
312	TP 312series	19360	6.04032	
315	TP 315series	9760	3.0744	
Total	-	77,760	23.9976	-

The assessment team has checked the connectivity and installation reports/22/ and actual number of solar PV modules of particular rating(p) commissioned under project-I and Project-II as following:

Table:3

Module Rating (p)	Number of solar PV modules	
	Project-I	Project -II
303	-	19520
306	9920	-
309	19200	-
312	9760	9600
315	-	9760
303	-	-
Total	38880	38880

Validation of the changes to the project design of the registered project activity:

As indicated in the above table-1 as per the registered PDD, there are 72,960 solar PV modules (TP 312 and TP 315 series) were commissioned at project site, however the actual number of solar PV modules installed at site are 77,760 (table-2). This is verified through the connectivity and installation reports/22/ issued by the Commissioning committee.

There are additional 4,800 solar PV modules commissioned at site, these modules are identical to the existing modules with respect to the capacity and supplier.

It is noted that due to commissioning additional 4,800 solar PV modules, DC

capacity of the project is increased from 22.4928 MWp to 23.9976 MWp. However the effective output capacity is remaining as 20 MW_{AC} as the inverters (4*2500kW for project-I and project-II each) capacity is not changed as verified through the actual photographs of invertors indicating the rated capacity/21/ and as mentioned in the connectivity and installation reports/22/ .

The assessment team has checked the ER calculation sheet validated and approved during registration of project under CDM/13/ and confirmed that the emissions reductions were estimated considering the AC capacity (20 MW_{AC}) that is unchanged despite of project design change as discussed above, hence the increase in the DC capacity is does not have any direct impacts on the emission reductions.

The increase in the project capacity (DC capacity) due to installation of additional number of PV modules is considered as "Project design Change" in line with the guideline outlined under paragraph 241(a) of the project standard for PAs version 02.0.

In accordance with the section 4.4.1 of PPA, *"NTPC at any time during the contract year shall not be obliged to purchase any additional energy from the SPD (Solar Project Developer) beyond 20.59 Million kWh (MU) i.e. energy generated corresponding to a CUF of 23.5% as committed by the SPD. If for any contract year, it is found that the SPD has not been able to generate minimum energy of 16.21 Million kWh (MU) corresponding to a CUF of 18.5% i.e. 23.5%-5%, on account of the reasons solely attributable to the SPD, the non-compliance by the SPD, shall make SPD liable to pay the compensation provided in the PSA (Power Sale Agreement) as payable to DISCOM and shall duly pay such compensation to NTPC to enable NTPC to remit the amount to DISCOMs.*

This compensation shall be applied to the amount of shortfall in generation during the contract year.

Hence in order to meet the minimum energy generation the project participant has commissioned the additional solar PV modules at site.

It is noted that due to installation of additional solar PV modules, DC capacity of the project increased from 22.4928 MWp to 23.9976 MWp.

The PP has provided the description of the actual changes as compared to the description in the registered PDD under Appendix-7 of the revised PDD.

In line with the guidelines provided under paragraph 309(b) of VVS for PAs version 02.0, the assessment team would like to clarify the following:

- The project design change occurred due to the requirement of minimum energy generation by the project activity as outlined under the power purchase agreement (PPA) signed by the PP with NTPC.
- The project design change is taken place during the commissioning of the project activity as verified through the connectivity and installation reports/22/, hence the change is applicable from 18/04/2017 i.e. when project got completely commissioned.
- Since the project design change has occurred at the time of commissioning of the project and before registration of project under CDM, hence it is confirmed that this change was known to the PP at the time of registration, however the validation of the project was done based on the information's available at the time of decision making/10/ and the project was not completely commissioned at the time of CDM validation site visit, hence the actual number of solar PV modules commissioned at project site(i.e. the actual changes in the project design) could not updated in the registered PDD.

The assessment team has interviewed the site personnel telephonically and verified the actual photographs of monitoring equipment's indicating technical specifications/21/, video recordings, monthly JMRs/Invoices /14 & 15/ and it is confirmed that the there are no changes in the project other than the number of solar PV modules and project implementation is in accordance with the registered PDD.

It is to be noted that at the time of validation, emission reductions were calculated considering the AC capacity of the project (20MW_{AC}), that is not altered due the design change under concern, it would not have any impact on the overall operation/ability of the project activity to deliver emission reductions as stated in the registered PDD.

In accordance with the paragraph 309 (c) of VVS for PAs version 02.0, the assessment team has also checked if the actual design change would affect the conclusions of the validation report of the registered PDD with regard to:

(i) *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 number of solar PV modules 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.

(ii) *The project boundary and any associated leakages due to the changes,*
There are no changes in the project boundary due to the actual design change identified/22/ and also the applied monitoring methodology ACM0002 does not prescribe any leakage emissions to be considered.

(iii) *The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;*

Due to the design change, there are no changes to the registered monitoring plan as described in the registered PDD, this is verified through the data records (JMRs/Invoices) and interviewing the site personnel remotely; hence it does not change the conclusions of the validation report of the registered PDD regarding the conformity of registered monitoring plan with the applied approved monitoring methodology.

(iv) *The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan;*

There no change in the monitoring procedure due to the actual design change, hence do not reduce the level of accuracy and/or completeness of monitoring procedure.

(v) *The additionality of the registered CDM project activity;*

There are no changes identified in the financial analysis due to the actual design change, hence does not adversely affect the additionality of a registered project activity and is accepted.

(vi) *The scale of the registered CDM project activity*

There is no change to scale of the project activity due commissioning of additional solar PV modules (actual design change), the project activity will remain large scale project. There is no change in AC capacity of the project capacity (20 MW_{AC}) due to design change, this is also verified through the PPA/19/, JMRs/15/ and commissioning certificates/16/ hence it does not affect the conclusions of the validation report of the registered PDD regarding the same.

In view of the above analysis, it can be confirmed that the project design change identified 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 02.0.

As per the paragraph 131 of CDM PCP for PAs v02.0 *"If the change relates to an increase in the capacity or addition of technologies/measures, the DOE shall submit a request for approval by the Board of the change within two years of the commissioning or implementation of the changes, whichever is later. For the changes that occurred before 31 August 2018, the DOE shall submit a request for approval by the Board of the change by 31 August 2020.*

It is to be noted that in the 107th EB meeting, the CDM EB has extended the deadline for submission of post-registration change requests due to an increase in the capacity till 31/12/2020. In accordance with the paragraph 32 of EB meeting report *"In accordance with rule 30 of the "Rules of procedure of the Executive Board of the clean development mechanism" and in response to the communications from the stakeholders (see paragraph 50 below), the Board agreed on 9 July 2020 via electronic decision-making, considering the COVID-19*

	<p><i>pandemic, to extend the deadline for submission of post-registration change requests due to an increase in the capacity or addition of technologies/measures that occurred before 31 August 2018, from 31 August 2020 to 31 December 2020 and shift the cut-off date for the post-registration change cases applying this deadline from 31 August 2018 to 31 December 2018 accordingly, notwithstanding the corresponding requirements in paragraph 131 of the PCP-PA and paragraph 173 of the PCP-PoA".</i></p> <p>Since the change in the project activity is related to increase in the capacity and occurred before 31/08/2018, hence the request for approval by the Board of the change can be submitted by 31/12/2020.</p>
Findings	CAR #1 was raised and resolved. FAR #1 is raised and shall be addressed during the next verification of project.
Conclusion	<p>In line with the guidelines prescribed under paragraph 308-309 of CDM VVS for project activities version 02.0, the assessment team able to confirm that:</p> <ul style="list-style-type: none"> i. 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. ii. Proposed changes were 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. iii. The proposed changes would not adversely affect the conclusions of the validation report of the registered PDD with regard to: <ul style="list-style-type: none"> i. The applicability and application of the applied methodology under which the registered CDM project activity has been registered. ii. The project boundary and any associated leakages due to the changes; iii. The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents; iv. The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan; v. The additionality of the registered CDM project activity; vi. The scale of the registered CDM project activity. <p>Therefore, in line with the clause 1(d) of Appendix of the Project Standard for PAs version 02.0, the change does 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

>> A draft validation report that is prepared by validation 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 verification 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 issuance 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 validation team. The decision taken by the Technical Reviewer is final and is authorized by the Quality Manager 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 10392 "20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan". 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 telephonic interviews), have provided Earthood with sufficient evidence to determine the fulfilment of stated criteria. The changes proposed are summarized in section D.7 of this report.

The description in the revised PDD, Version 07 dated 13/10/2020 meets all relevant UNFCCC requirements for the CDM and correctly applies the selected baseline and monitoring methodology. This report is the assessment opinion for the project design change and correction that is actually identified in the registered project and request is submitted as part of issuance, as the design change and correction identified are accordance with the clause 1(a) & 1(d) of Appendix of the Project Standard for PAs version 02.0 respectively, hence the changes do not require prior approval by the Board.

Appendix 1. Abbreviations

Abbreviations	Full texts
General	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology for SSC Projects
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CH ₄	Methane
CL	Clarification Request
CM	Combined Margin
CME	Coordinating/Managing Entity
CO ₂	Carbon di oxide
CP	Crediting Period
CPA DD	Component Project Activity Design Document
DNA	Designated National Authority
DR	Desk Review
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GW	Giga Watt
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
Kw	kilo Watt
kWh	kilo Watt hour
LoA	Letter of Approval/Authorization
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
N ₂ O	Nitrous Oxide
OM	Operating Margin
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PLF	Plant Load Factor
PoA DD	Programme of Activities Design Document
PP	Project Participant
PS	Project Standard
RFR	Request for Registration
Tco _{2e}	Tonnes of Carbon di oxide equivalent
TPH	Tonnes Per Hour
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VVS	Validation and Verification Standard
Project Specific	

ABT	Availability Based Tariff
DISCOM	Distribution Company
EPC	Engineering and Procurement Contractor
ERPA	Emission Reductions Purchase Agreement
GOI	Government of India
JMR	Joint Meter Reading
JWEPL	Janardan Wind Energy Pvt. Ltd.
L&T	Larsen & Toubro
NTPC	National Thermal Power Corporation Limited
NVVN	NTPC Vidyut Vyapar Nigam
O&M	Operation and Maintenance
PPA	Power Purchase Agreement
QA/QC	Quality Assurance/Quality Control
RMP	Revision in Monitoring Plan
RRECL	Rajasthan Renewable Energy Corporation Limited
RVPNL	Rajasthan Rajya Vidyut Prasaran Nigam Ltd.

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Ravi Kant Soni		
Country	India		
Education	B. Tech. (Mechanical Engineering) M. Tech. (Energy Management)		
Experience	8 Years +		
Field	Energy and Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.C., ACM0002		
Local expert	YES (India)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	YES (TA 1.2)		
Reviewed by	Shreya Garg	Date	04/06/2019
Approved by	Anshika Gupta	Date	04/06/2019

Competence Statement	
Name	Shifali Guleria
Education	M.Sc. (Environmental Studies and Resource Management), TERI University
Experience	2+ year
Field	Climate Change
Approved Roles	
Team Leader	YES

Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G., AMS-III.A.V., AMS-I.D, ACM0002)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Shreya Garg	Date	09/07/2020
Approved by	Ashok Gautam	Date	09/07/2020

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UNFCCC	Standard: CDM PS for Pas	Ver. 02.0	Others
2	UNFCCC	Standard: CDM PCP for Pas	Ver. 02.0	Others
3	UNFCCC	Standard: CDM VVS for Pas	Ver. 02.0	Others
4	UNFCCC	Form: CDM-MR-FORM	Ver. 07.0	Others
5	JWEPL	Monitoring Report (published)	Ver.01, dated 05/04/2020	PP
5.1	JWEPL	Monitoring Report	Ver.02, dated 19/05/2020	PP
5.2	JWEPL	Monitoring Report	Ver.03, dated 20/07/2020	PP
5.3	JWEPL	Monitoring Report	Ver.04, dated 03/09/2020	PP
6	JWEPL	Monitoring Report (revised/final)	Ver.05,dated 13/10/2020	PP
7	JWEPL	ER Spread sheet (draft)	Ver.01, dated 05/04/2020	PP
7.1	JWEPL	ER Spread sheet	Ver.02, dated 19/05/2020	PP
7.2	JWEPL	ER Spread sheet	Ver.03, dated 03/09/2020	PP
8	JWEPL	ER Spread sheet (revised/final)	Ver.04,dated 13/10/2020	PP
9	JWEPL	Revised PDD	Ver.04, dated 21/05/2020	PP
			Ver.05, dated 20/07/2020	
			Ver.06, dated 03/09/2020	
			Ver. 07, dated 13/10/2020	
10	DOE(Applus+Certification)	Validation report	Version 02, dated 11/07/2017	Others
11	UNFCCC	Form: CDM-MR-FORM	Ver. 07.0	Others
12	UNFCCC	ACM0002	Version 17.0 dated 13/05/2016	Others
13	UNFCCC	Project Webpage	https://cdm.unfccc.int/Projects/DB/Applus1501572247.73/view	Others
14	JWEPL	Monthly Invoices raised by the PP to state NTPC	For the period 01/08/2018 to 29/02/2020	PP

15	RVPNL	Monthly meter reading reports (JMRs) issued by state utility	For the period 01/08/2018 to 29/02/2020	PP
16	RRECL	Commissioning certificate	Phase -1, Dated 12/04/2017	PP
			Phase -2, Dated 18/04/2017	
17	Darsh Calibrations Private Limited	Calibration certificates for all the meters	NABL accreditation ref: NABL: - CC-2070	PP
18	JWEPL	Registered PDD	Ver.03, dated 11/07/2017	Others
19	GOI	Power Purchase Agreement between NTPC and JWEPL	Dated 15/06/2016	PP
20	CEA	CO ₂ Baseline Database for Indian Power Sector	Ver.11	Others
21	ESPL	<ul style="list-style-type: none"> Remote audit (Voice con-call with consultant and site personal) Latest photographs of all the equipment's Video recording of project site including online monitoring system 	Dated 15/06/2020	PP
22	RRECL	Connectivity and installation report for phase-1	Dated 30/03/2017	PP
		Connectivity and installation report for phase-2	Dated 18/04/2017	
23	CEA	CEA Notification No. 502/70/CEA/DP&D	Dated 17/03/2006	Others

24	CDM EB	<p>(a) Email received from CDM Executive Board regarding the relaxation for mandatory site visits by DOEs for a period of three months (23 March to 23 June 2020) due to COVID-19 pandemic</p> <p>(b) Second email received from CDM Executive Board regarding the relaxation for mandatory site visits by DOEs till 31/12/2020</p>	<p>Dated 20/03/2020</p> <p>Dated 24/06/2020</p>	Other
25.	Confidential	Emission reductions Purchase Agreement (ERPA)	Dated 12/04/2020	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			
Project participant response			
Date: DD/MM/YYYY			
Documentation provided by project participant			
DOE assessment			
Date: DD/MM/YYYY			

Table 2. CARs from this validation

CAR ID	01	Section no.	E.4	Date: 18/05/2020
Description of CAR				

1. Number of modules and DC capacity (MW_p) of the project activity reported in section B.1 of the MR is not consistent with the same reported in the registered PDD. Please clarify the reason for the same.
2. Please submit the supporting evidences with reference to the actual number of modules installed at project site.
3. As per the information provided in section B.2.2 of the MR, changes in the number of modules installed at site is considered as corrections to the PDD, however the same occurrence is also described as project design change in section B.2.6 of the MR, kindly clarify the ambiguity observed.
4. Please clarify why the revised PDD in track change mode, describing the changes is not submitted (ref: paragraph 229 PS for PAs v02.0).

Project participant response	Date : 19/05/2020
<p>1. PP would like to clarify that during project conception phase, the total 72,960 No. of Module was planned to achieve 20 MW_{AC} capacity. However, actually 77,760 No. of Module have been commissioned to achieve 20 MW_{AC} Capacity. Same can be cross-checked from the installation report and connectivity report in the name of project owner "Janardan Wind Energy Pvt. Ltd.", submitted along with this submission.</p> <p>2. PP is submitting the installation report and connectivity report in the name of project owner "Janardan Wind Energy Pvt. Ltd.", with reference to the actual number of PV modules installed at project site as a supporting evidence.</p> <p>3. PP has revised the MR to report the corrections in reporting the number of PV modules of 312 Wp & 315 Wp capacity under the section B.2.2 of the MR. The correction in the total number of modules reported in the registered PDD does not alter the allowable AC installation capacity of project which is 20 MW_{AC}. As the number of installed Inverter capacity and number of Inverter reported in the registered PDD does not changed. Hence there is no change in the Project overall output inverter capacity. Thus, the project design capacity remains the same i.e. 2 X 10 MW_{AC} = 20 MW_{AC}.</p> <p>Therefore, PP has revised MR section B.2.6 to explicitly mention that "There are no changes to the project design has happened since commissioning and during this crediting period."</p> <p>4. PP is submitting the revised PDD in track change mode, describing the corrections in the reported PV modules.</p>	
Documentation provided by project participant	
MR Version 02 Installation report and connectivity report Revised PDD in track Change	
DOE assessment	Date: 10/07/2020
<p>The PP has described the changes with reference to number of solar modules in the MR; however appropriate reason for the same is not mentioned and it is not discussed whether the changes would have been known prior to the registration of the CDM project activity, how the changes would impact on the overall operation/ability of the CDM project activity to deliver emission reductions or net anthropogenic removals as stated in the PDD, and whether the revised estimation of emission reductions due to the change takes into account the applicable limits in accordance with the "CDM project standard for project activities Appendix-7 of revised PDD: Impacts of the actual changes to the registered CDM project activity are not discussed, in accordance with the criteria outlined under paragraph 242 point (a) to (e) of CDM PS for PAs version 02.0.</p> <p>It is noted that due to increase in the number of solar panels, DC capacity of the project activity is increased. Kindly clarify why this change is not considered as project design change in line with the guidance provided under paragraph 241 (c) of CDM PS version 02.0.</p> <p>The PP has submitted the installation report and connectivity report, that indicates the actual number of solar modules installed at site, found satisfactory, hence accepted.</p> <p>CAR #1 is open</p>	
Project participant response	Date : 20/07/2020

PP has revised MR to consider the changes in the number of PV modules under "Project design Change" in line with Para 241(C) of the project standard version 02 and explained the reason for the same as well in the MR. PP would like to clarify that the change in the number of PV modules changes the DC capacity of the Project activity from 22.4928 MWp to 23.9973 MWp but the overall output capacity of inverters i.e. the Project AC capacity has not been changed from 20MWac. Thus, there is no revision in estimations of emission reduction as there is no change in the scale of the project activity. The above changes in number of modules was done at the time of commissioning of the project just to ensure the reliability of delivered power to the grid in line with the PPA contracted capacity.

Furthermore, PP hereby clarifies that the project was not commissioned fully at the time of CDM validation site visit of the project activity. The overall commissioning certificate of project activity was received in the month of April 2017 and therefore, the changes were missed to update before submission of PDD for registration. Hence, PP is requesting for the changes in the PDD during the first monitoring period.

Also, PP has revised Appendix 7 of the PRC PDD Version 5 in line with the paragraph 242 point (a) to (e) of CDM PS for PAs version 02.0. to discuss the impacts of the actual changes to the registered CDM project activity transparently.

Documentation provided by project participant

MR Version 03

MR Version 05

DOE assessment

Date: 31/07/2020

The PP has discussed the reasons for the design change appropriately in the revised MR. In accordance with the section 4.4.1 of PPA, the solar project developer has to generate minimum energy 16.21 MU (Million kWh) per year corresponding to a CUF of 18.5% i.e. (23.5%-5%) on account of reasons solely attributable to project developer and in case of non-compliance, the project developer shall be liable to pay compensation to DISCOM. Hence in order to ensure the minimum energy generation as per PPA, the project developer has increased the number of solar PV modules.

It is noted that due to installation of additional solar PV modules, DC capacity of the project increased from 22.4928 MWp to 23.9973 MWp. This change is considered as project design change in line with the guidance provided under paragraph 241 (c) of CDM PS version 02.0.

Since at the time of validation the emission reductions were calculated considering the AC capacity (20MWac), that is remain unchanged, hence no impact on the overall operation/ability of the CDM project activity to deliver emission reductions or net anthropogenic removals as stated in the PDD. Furthermore the changes don't have impact on scale of the project or applicability of methodology or additionality of the project activity.

CAR #1 is closed.

CAR#1 re-opened

Date: 31/08/2020

1. Value of the parameter $EF_{grid,BM,y}$ is changed in the revised, please clarify how this change is not described under Appendix-7 of the revised PDD.
2. The project activity consists of two parts Project-I and Project-II. It is not clear how many solar modules were added to project -I or Project-II.
3. Please clarify about effective date(s) for applied project design change.
4. ER sheet (Tab-ER calculation, H24) Please clarify why the generation of the month Jan 2020 & February 2020 (Project –II) is not added while calculating total generation for current monitoring period.

Project participant response

Date : 03/09/2020

1. Please be clarified that this was a typo error in the registered PDD under section 6.2, as the Value of the parameter $EF_{grid,BM,y}$ was determined 0.9285 tCO_{2e}/MWh. Please refer the section 6.1 of the registered PDD under step 5 the value of $EF_{grid,BM,y}$ has been transparently determined as 0.9285 tCO_{2e}/MWh, same can be verified from the registered ER sheet as well. PP has mentioned this typo error correction in build margin under Appendix-7 of the revised PDD version 06.
2. Please be clarified that the number of PV module for the model TP 312 series & TP 315 Series were reported 16,960 and 7,360 in the registered PDD but actual number of PV module commissioned for the model TP 312 series & TP 315 Series are 19,360 and 9,760 respectively in line with the commissioning certificate. Thus, the total number of PV modules reported in the registered PDD was 72,960 but the number of actual commissioned PV modules is 77,760. Total 4800 number of PV modules has been increased. However, there is no change in the inverters i.e the project AC capacity (20 MWac) remains the same. PP has explicitly provided the details under Section A.3 and Appendix 7 of the PRC PDD version 6.
3. PP would like to confirm that the effective date of the change in number of modules is 18/04/2017 i.e the commissioning date of the Phase 2.
4. PP has corrected the ER sheet (Tab-ER calculation, H24) to consider the generation from the month of Jan & Feb 2020. However, PP has already considered the generation from the month of Jan & Feb 2020 in column I & J 24. Hence, there will not be any change in the ER values as the same was not impacted due to Cell no H24.

Documentation provided by project participant

MR Version 04
ER Version 03
PDD Version 06

DOE assessment
Date : 10/09/2020

The PP has rectified the typo error in section B.6.2 of the revised PDD and made the value of build margin emission factor ($EF_{grid,BM,y}$) consistent within the PDD and also with registered ER calculation sheet. It is noted that values of fixed parameters are not changed due this amendment, hence considered as correction to the parameter fixed at registration of the CDM project activity as described in the registered PDD in line with the paragraph 232 of PS for PAs v02.0. This correction is appropriately described under Appendix-7 of the revised PDD.

Number of solar PV modules to be commissioned for the project activity was considered as 72,960, there was no segregation with reference to the number of modules specific to project-I or project-II. Hence the project design changes are assessed considering the change in the solar PV modules actually commissioned at site.

The project design change is applicable from date of commissioning of project-II as 18/04/2017, since the project was completely commissioned on this date, hence found to be appropriate and correct.

The PP has corrected the formula in the ER calculation sheet, including the generation of the month Jan 2020 & February 2020 (Project –II) while calculating total generation for current monitoring period.

CAR #1 is closed.

CAR#1 re-opened
Date: 04/10/2020

The project design change is related to increase in the DC capacity of the project activity, please clarify why the change is not considered as project design change in line with the guidance provided under paragraph 241 (a) of CDM PS version 02.0 and the assessment of the change is not described in the revised PDD accordingly.

Project participant response
Date : 13/10/2020

We would like to clarify that the increase in the number of PV modules, it is to be noted that as per para 241 (a.) of the project standard version 02, same has been considered under "Changes to the project design". The total number of PV modules reported in the registered PDD was 72,960 but the number of actual commissioned PV modules are 77,760. Due to this change, the project DC capacity has been changed to 23.9976 MWp from 22.4928 MWp reported in the registered PDD. Thus, PP wishes to correct the number of PV modules reported in the registered PDD in line with the commissioned PV modules. PP has the revised information in the PDD with respect to the number of PV modules and the DC capacity of the project activity. However, project Installed AC capacity i.e. 20 MWac remains the same. PP has updated the PRC PDD Appendix 7 to transparently discuss the change and the reason in line with the project standard para 241 a.

Documentation provided by project participant

PRC PDD version 07 Revised MR v05	
DOE assessment	Date: 31/10/2020
Since the project design change involves the increase in the D.C capacity of the project activity, hence this change is considered in line with the paragraph 241(a) of the CDM PS for PAs v02.0. The PP has corrected that reference of CDM PS paragraph relevant to the project design change in the revised PDD, found to be satisfactory, hence accepted. CAR #1 is closed.	

Table 3. FARs from this validation

FAR ID	01	Section No.	E.4.6	Date : 31/08/2020
Description of FAR				
During the verification and PRC validation process, physical site visit is not conducted. Since the project is undergoing first verification and involves project design change, therefore, in accordance with the guidance provided under paragraph 36 of VVS for PAs version 02.0, the verifying DOE shall check/review the project implementation (including project design change) in accordance with the approved PDD, during next verification of the project activity.				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN); Make editorial improvements.
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		