Validation report form for CDM project activities

(Version 02.0)

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

VALIDATION REPORT	
Title of the project activity	20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan
Version number of the validation report	02
Completion date of the validation report	11/07/2017
Version number of PDD to which this report applies	02
Date when PDD was uploaded for global stakeholder consultation	15/11/2016
Project participant(s)	Janardan Wind Energy Pvt. Ltd
Host Party	India
Estimated annual average GHG emission reductions or net removals in the crediting period (tCO2e)	34,882tCO_2e per annum
Sectoral scope(s) and selected methodology(ies)	Methodology: - ACM0002/ Version 17.0, EB 89, "Grid-connected electricity generation from renewable sources" & Sectoral Scope 1: Energy Industries (renewable - /non renewablesources)
Name of DOE	LGAI Technological Center, S.A. (LGAI Tech. Center S.A)
Name, position and signature of the approver of the validation report	Juan Sendin Caballero, Applus LGAI Managing Director

SECTION A. Executive summary

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source for sale of electricity to the grid. Janardan Wind Energy Pvt. Ltd. (JWEPL) is the promoter of the proposed project activity.

The project activity involves installation of 10 MW_{AC} (Project-I) & 10 MW_{AC} (Project-II), totalling to 20 MW_{AC}(corresponding to 22.5MWp) solar power project under Jawaharlal Nehru National Solar Mission (JNNSM) Phase-II, Batch-II (DCR[1] Category).Both the projects are installed in the same project boundary at Village: Sanwreej, Tehsil: Phalodi, District: Jodhpur, State: Rajasthan.

The electricity generated from project activity will be sold under the Power Purchase Agreement (PPA), signed with NTPC Vidyut Vyapar Nigam (NVVN) Ltd. The electricity generated from the project activity will be evacuated through 132 kV sub-station located at Sanwreej for consumption in the Indian Electricity Grid.

The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 34,882tCO_2e per annum, thereon displacing 35,678MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/fossil fuel based power plant.

The project activity is the installation of a new grid-connected renewable power plant/unit and this is not a CPA that has been excluded from a registered CDM PoAas a result of erroneous inclusion of CPAs.

The details of the project are mentioned in the table:

Project Investors' Name	**Capacity in MW_{AC}**	**Capacity in MWp**	**State**
Janardan Wind Energy Pvt. Ltd. (JWEPL)	20	22.5	Rajasthan

The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation. The design lifetime of the solar project is 25 years (As per the Manufacturer specifications). The same is acceptable to the assessment team.

The project is located in the state of Rajasthan.

Validation Scope: The scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002/ Version 17.0, EB 89, "Grid-connected electricity generation from renewable sources". The validation was based on the requirements in the Validation and Verification Standard (VVS version 09.0)

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design document.

Once Applus+ LGAI receives the PDD, it has been made publicly available on the UNFCCC website, which initiates a 30 days global stakeholder consultation (GSC) process. The details of the GSC are included in this report.

Validation Process: The project assessment is based on the "Clean Development Mechanism Validation and Verification Standard version 09.0 and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM project activity are appointed.

Once the project is made available for the global stakeholder consultation process, the members of the assessment team carried out:

I A desk review of the project design documentation;

[1] DCR - Domestic Content Requirement

II Follow-up interviews with project stakeholders;
III The resolution of outstanding issues and the issuance of the final validation report and opinion.

The prepared validation report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the CDM-EB.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. Applus+ LGAI has developed a specific checklist customized for the project. The checklist demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

The validation checklist consists of three tables. The different columns in these tables are described in the tables below

Validation Checklist Table 1: Mandatory Requirements			
Requirement	Reference	Conclusion	Cross reference
The requirements which the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the validation report.	Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Checklist Table 2: Requirement checklist				
Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organized in several different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification is used when the validation team has identified a need for further clarification. Forward action request to highlight issues related to project implementation that requires review during the first verification.	Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.

Validation Checklist Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	Ref. to checklist question in table 1&2	Summary of project owner response	Validation conclusion
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request,	Reference to the checklist question number in Table 1&2 where the Corrective Action Request or	The responses given by the Client or other project participants during the communications with the validation team	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".

these should be listed in this section.	Clarification Request is explained.	should be summarized in this section.	

Appointment of the assessment team

According to the sectoral scopes / technical area and experiences in the sectoral or national business environment, Applus+ LGAI has composed a project validation team in accordance with the appointment rules in Applus+ LGAI. The composition of assessment team has to be approved by the Applus+ LGAI ensuring that the required skills are covered by the team. The four qualification levels for team members that are assigned by formal appointment rules as below:
Leader Auditor (LA)
Auditor (A)
Auditor Trainee (T)
Technical Experts (E)
Technical Review (TR)

It is required that the sectoral scope / technical area related to the methodology has to be covered by the assessment team.

The detail regarding the assessment team is provided below in section B.1 and B.2 of this report

Document review

The Project Design Document submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in Appendix 3 of this report.

Follow-up interviews

A site visit is conducted by Applus+ LGAI performed interviews, telephone conferences, and physical site inspection with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in section C.2 and C.3 of this report

Resolution of Clarification and Corrective Action Request

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ LGAI's positive conclusion on the project design document. The Corrective Action Requests and Clarification Requests raised by Applus+ LGAI were resolved during communications between the Client and Applus+ LGAI to guarantee the transparency of the validation process, the concerns raised and responses given are summarized in Appendix 4 below.

The final PDD version 02 submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the validation process are not considered to be significant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality control

As final step of a validation of the final documentation including the validation report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform

Conclusion

Applus+ LGAI has performed a validation of the "20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan". The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria, e.g. ACM0002 version 17.0, given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided Applus+ LGAI with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by Applus+ LGAI for registration with the UNFCCC.

Applus+ LGAI has received a confirmation from the host Party that the project activity assists it in achieving sustainable development.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment and technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 34,882tCO_2e per year, thereon displacing35,678 MWh/year amount of electricity.

The validation has been performed following the requirements of the latest version of the CDM VVS version 09.0 and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM/UNFCCC project cycle.

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/Technical expert	OR	DAS	SUKANTA	TRUE QUALITY CERTIFICATIONS PRVATE LIMITED	YES	YES	YES	YES

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

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	Xue	Denny	Applus+ LGAI [2]

[2]The TR is changed as Ms. Natalia left the organization on 06/21/2017. The information is shared with client and COI for New TR is also considered for the present project activity.

SECTION C. Means of validation

C.1. Desk review

The details of the document observed during the validation process are listed below in Appendix 3 of this report.

C.2. On-site inspection

Duration of on-site inspection: 03/02/2017 to 04/02/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment team checked the implementation of the project, Baseline emission, and emission reduction calculation, technical description of the project and Onsite Monitoring practice.	The project is located at Village: Sanwreej, District: Jodhpur, Rajasthan	03/02/2017 to 04/02/2017	Mr. SukantaDas

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Kumar	Ashwini	Head, LNB	03/02/2017 to 04/02/2017	Same as mentioned in section C.2 of the FVR	Mr. SukantaDas
2	Singh	Sandeep	Manager, LNB	03/02/2017 to 04/02/2017	Same as mentioned in section C.2 of the FVR	Mr. SukantaDas
3	Sah	Jimmy	Infinite Solutions	03/02/2017 to 04/02/2017	Same as mentioned in section C.2 of the FVR	Mr. SukantaDas
4	Jain	Deepak	Infinite Solutions	03/02/2017 to 04/02/2017	Same as mentioned in section C.2 of the FVR	Mr.Sukanta Das
5	Singh	Sumer	Villager	03/02/2017 to 04/02/2017	Local Stakeholder meeting	Mr. SukantaDas
6	-	Om Prakash	Villager	03/02/2017 to 04/02/2017	Local Stakeholder meeting	Mr. SukantaDas

C.4. Sampling approach

The assessment team didn't apply any sampling approach for the project activity. The site visit was conducted for the complete solar project implemented in the locations/site as mentioned in the PDD.

C.5. Clarification requests, corrective action requests and forward action requests raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Global stakeholder consultation	0	0	0
Approval	0	01	0
Authorization	0	0	0
Contribution to sustainable development	0	0	0
Modalities of communication	0	01	0
Project design document	0	03	0
Description of project activity	0	0	0
Application of selected baseline and monitoring			

methodology and selected standardized baseline			
- Applicability of methodology and standardized baseline	0	0	0
- Deviation from methodology	0	0	0
- Clarification on applicability of methodology, tool and/or standardized baseline	0	0	0
- Project boundary	0	00	0
- Establishment and description of baseline scenario	0	0	0
- Demonstration of additionality	0	01	0
- Emission reductions	0	01	0
- Monitoring plan	0	01	0
Duration and crediting period	0	0	0
Environmental impacts	0	0	0
Local stakeholder consultation	0	01	0
Others (please specify)	01		
Total	01	09	0

SECTION D. Validation findings

D.1. Global stakeholder consultation

Means of validation	The UNFCCC web page is checked to confirm the GSC comments. https://cdm.unfccc.int/Projects/Validation/DB/26X331QJ5HY5OHQ6XWJ6I8AWNUQ6BE/view.html
Findings	No Findings raised during the validation process.
Conclusion	No comments received during the global stakeholder consultation process.

D.2. Approval

Means of validation	The Approval is provided by the Indian DNA (Ministry of Environment and Forest, Govt of India). Assessment team checked the HCA supplied by the project participant and also cross checked the same from the web site (http://www.cdmindia.gov.in/). The HCA confirms the approval of Indian DNA which is the party to Kyoto protocol and confirms that project is vide by the guideline of CDM
Findings	During the validation process a CAR was raised regarding the approval issue from one of the party involved in the project as per the requirement of VVS version 09.0. The detail CAR 01 is mentioned below in appendix 4 of this report
Conclusion	Assessment team confirms that the project is approved from Indian DNA and thus the same is in line with VVS version 09.0. The HCA confirms that 1. The Party is a Party to the Kyoto Protocol 2. Participation is voluntary; 3. the proposed project activity contributes to the sustainable development of the country; 4. HCA refers to the precise proposed project activity title in the PDD being submitted for registration. 5. HCA is unconditional with respect to above items and thus acceptable to the assessment team.

D.3. Authorization

Means of validation	The Authorisation is provided by the Indian DNA (Ministry of Environment and Forest, Govt of India). Assessment team checked the HCA supplied by the project participant and also cross checked the same from the web site (http://www.cdmindia.gov.in/). The HCA confirms the authorisation of Indian DNA which is the party to Kyoto protocol and confirms that project is vide by the guideline of CDM
Findings	During the validation process a CAR was raised regarding the approval issue from one of the party involved in the project as per the requirement of VVS version 09.0. The detail CAR 01 is mentioned below in appendix 4 of this report
Conclusion	Assessment team confirms that the project is authorised from Indian DNA and thus

	the same is in line with VVS version 09.0. The HCA confirms that • The Party is a Party to the Kyoto Protocol • Participation is voluntary; • the proposed project activity contributes to the sustainable development of the country; • HCA refers to the precise proposed project activity title in the PDD being submitted for registration. • HCA is unconditional with respect to above items

D.4. Contribution to sustainable development

Means of validation	The Approval is provided by the Indian DNA (Ministry of Environment and Forest, Govt of India). Assessment team checked the HCA supplied by the project participant and also cross checked the same from the web site (http://www.cdmindia.gov.in/). The HCA confirms the approval of Indian DNA which is the party to Kyoto protocol and confirms that project is vide by the guideline of CDM. The HCA confirms that the project will contribute to the sustainable development.
Findings	During the validation process a CAR was raised regarding the authorisation issue from one of the party involved in the project as per the requirement of VVS version 09.0. The detail CAR 01 is mentioned below in appendix 4 of this report
Conclusion	Assessment team confirms that the project is authorised from Indian DNA and thus the same is in line with VVS version 09.0. The HCA confirms that • the Party is a Party to the Kyoto Protocol • Participation is voluntary; • the proposed project activity contributes to the sustainable development of the country; • HCA refers to the precise proposed project activity title in the PDD being submitted for registration. HCA is unconditional with respect to above items. • The project activity is in line with sustainable development policies of the country and national regulation / policy on Environmental Protection, Electricity and Non- Conventional Energy. Nevertheless, in the Host Country Approval, it is stated that the project participant (PP) has to comply with the following conditions: • PP shall not sell the CERs to any agency /company/ organization which purchases the CERs using ODA Funds • PP shall inform the national CDM Authority regarding all transaction details of CERs including the name and address of the party to which CERs were sold within 30 days of transfer of the CERs • PP shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority. • PP shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project • All transaction shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP • This approval is not transferable. The authority reserved the rights to revoke this Host Country Approval if the conditions stipulated in this approval are not complied with to the satisfaction of the National CDM Authority. All the above conditions are met and same is checked by the assessment team from the host country approval number 4/7/2016 CC-dated 24/05/2017 and found correct.

D.5. Modalities of communication

Means of validation	Assessment team checked the MOC supplied by the project participant and found that the latest form applicable in the UNFCCC web site is used and signing authority has the power to sign the same on behalf of PP
Findings	Assessment team raised concern regarding the MOC signing and supporting document. The detail of the same is mentioned as CAR 02 in this report and the

	same is closed successfully
Conclusion	Assessment team checked the supporting MOC dated 25/05/2017signed and the declaration that MOC is signed by the approved person on behalf of the organisation. The same is as per the requirement of VVS version 09 and thus assessment team confirm that the MOC is correct and accurate.

D.6. Project design document

Means of validation	The guideline for completing CDM form version 08 for Large scale project activity is checked by the assessment team
Findings	The PDD version 01 submitted to the DOE is not in compliance with CDM form version 08 for project activity in some sections. As a corrective measure CAR 03, 04, 05 were raised during the validation process. Please refer appendix 4 of this report for detail of NC raised and the closure.
Conclusion	CAR 03, 04 and 05 were closed based on revision in the PDD and in compliance with CDM form version 08 for large scale project activity. The PDD version 02 is thus acceptable to the assessment team.

D.7. Description of project activity

Means of validation

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source for sale of electricity to the grid. Janardan Wind Energy Pvt. Ltd. (JWEPL) is the promoter of the proposed project activity.

The project activity involves installation of 10 MW_{AC} (Project-I) & 10 MW_{AC} (Project-II), totalling to 20 MW_{AC}(corresponding to 22.5MWp) solar power project under Jawaharlal Nehru National Solar Mission (JNNSM) Phase-II, Batch-II (DCR[3] Category).Both the projects are installed in the same project boundary at Village: Sanwreej, Tehsil: Phalodi, District: Jodhpur, State: Rajasthan. Assessment team confirmed the Location of the project activity by Google earth and confirm that the Latitude and longitude of the project is correct.

The electricity generated from project activity will be sold under the Power Purchase Agreement (PPA), signed with NTPC Vidyut Vyapar Nigam (NVVN) Ltd. The electricity generated from the project activity will be evacuated through 132 kV sub-station located at Sanwreej for consumption in the Indian Electricity Grid.

The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 34,882tCO_2e per annum, thereon displacing 35,678MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/fossil fuel based power plant.

The project activity is the installation of a new grid-connected renewable power plant/unit and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

The details of the project are mentioned in the table:

Project Investors' Name	**Capacity in MW_{AC}**	**Capacity in MWp**	**State**
Janardan Wind Energy Pvt. Ltd. (JWEPL)	20	22.5	Rajasthan

The technical details were checked by the assessment team from the details available from the manufacturers (2nd party)

The commissioning of the project activity is already achieved as confirmed by the assessment team during the validation site visit.

The detail of Phase wise commissioning is below:

[3] DCR - Domestic Content Requirement

Commissioning Project I-10 MW_{AC}	30/03/2017
Commissioning Project II- 10 MW_{AC}	18/04/2017

The technical specification of the project is as below and confirm by the assessment team from Manufacturer specification and onsite visit:

A. Solar PV modules:

Module Supplier	Module Model	Capacity (p)	Number	Total Capacity (MWp)
TATA Power Solar Systems Ltd.	**TP 303**series	303	19520	5.91456
	TP 306series	306	9920	3.03552
	TP 309series	309	19200	5.9328
	TP 312series	312	16960	5.29152
	TP 315series	315	7360	2.3184
TOTAL CAPACITY				22.4928

B. Inverters:

S.No.	Make	10 MW (Project – I)	10 MW (Project – II)
1.	Manufacturer	Sungrow Power	Sungrow Power
2.	Model	SG2500	SG2500
3.	Rated Capacity	2500 kVA	2500kVA
4.	No. of Inverters	4	4
5	Rated Input Voltage(Max.Input Voltage)	1000V	1000V

C. Transformers

S.No.	Make	10 MW (Project – I)	10 MW (Project – II)
1.	Manufacturer	Danish Private Limited	Danish Private Limited
2.	Model	Oil Cooled	Oil Cooled
3.	Capacity	2800KVA	2800KVA
4.	No. of Transformers	4	4
5.	Voltage Ratio	33 KV/360V	33 KV/360 V

D. Metering Equipment Details

S.No.	Make	10 MW (Project – I)	10 MW (Project – II)
1.	Manufacturer	Secure Make	Secure Make
2.	Type	ABT meters	ABT meters
3.	Accuracy Level	0.2s	0.2s
4.	Total no of meter (Site and Substation)	4	4

As per the glossary of CDM terms version 08, the capacity of the project is above 15 MW type I small scale project activity and thus assessment team confirms that the project is large scale project activity. The technology being employed is well proven, safe & sound. No technology transfer to host party is there due to project activity.

Findings	No findings are raised related to the project activity

Conclusion	The project activity description, capacity limitation and de-bundling criteria are checked and found correct by the assessment team. The PDD mentions all the criteria properly and found correct by the assessment team.

D.8. Application of selected baseline and monitoring methodology and selected standardized baseline

D.8.1. Applicability of methodology and standardized baseline

Means of validation	The assessment team has validated the documentation referred to in the PDD and verified the documentation content for verifying the justification of the applicability of the methodology and confirmed that the documentation referred to in the PDD is correctly quoted and interpreted. The assessment team has also cross-checked the information provided in the PDD with the documentation other than from the PDD based on the local and sectoral knowledge of the assessment team. Following documentation has been reviewed by the assessment team: 1. Site visit 2. Interview with the concerned person mentioned in this report 3. Technical detail analysis of the power plant from the documents submitted by the manufacturer. The assessment of the project's compliance with the applicability criteria of ACM0002 version 17.0 are documented in detail in section B.2 of the PDD.
Findings	Applicability criteria were explained properly as per the requirement of the applied approved methodology. No findings was raised during the validation process.
Conclusion	The applied baseline methodology is justified as it has been demonstrated that the proposed project activity is: Applicability 1: The project activity is installation of a new grid connected solar power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable. Applicability 2: The proposed project activity is an installation of a new grid connected solar power plant and hence this condition is met. Applicability 3: The project does not involve any capacity additions, retrofits or replacements and therefore this condition is not applicable Applicability 4: The project activity is a grid connected solar power project and not a hydro power plant. Therefore, these criteria are not applicable for the project activity. Applicability 5: The project activity is a grid connected solar power project and not a hydro power plant. Therefore, these criteria are not relevant to the project activity. Applicability 6: The project activity is a grid connected solar power project and not a hydro power plant. Therefore, these criteria are not relevant to the project activity. Applicability 7:The project activity is installation of a new grid connected solar power project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the project activity. & This is a solar power plant and not a biomass fired plant and hence this applicability criterion is not applicable to the project activity. Applicability 8: The project activity is a new grid connected solar power plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.

	<u>Applicability conditions of "Tool to calculate the emission factor for an electricity system"</u> • OM, BM and CM are estimated using the tool under section B.6.1 of the PDD for calculating baseline emissions. • The project activity is grid connected and thus emission factor is calculated and thus OM, BM and CM are estimated using the tool under section B.6.1 of the PDD for calculating baseline emissions. • The project activity is located in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity. • The project activity is a grid connected solar power project and not a hydro power plant. Therefore, this criterion is not applicable for the project activity. Applus+ LGAI confirms that the application of the baseline methodology is transparent and conservative, and confirms that the chosen baseline and monitoring methodology i.e. ACM0002 version 17.0is applicable to the project activity.

D.8.2. Deviation from methodology

Means of validation	ACM0002 version 17.0 and PDD version 01 is checked by the assessment team
Findings	No findings was raised during the validation process
Conclusion	The deviation of the methodology is not a requirement as the project activity fulfils the requirement of the applied methodology ACM0002 version 17.0

D.8.3. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	ACM0002 version 17.0 and PDD version 01 is checked by the assessment team
Findings	No NC findings was raised during the validation process
Conclusion	All the tools are mentioned as per the latest version available in UN web page during the submission to DOE for GSC process.

D.8.4. Project boundary

Means of validation	The project boundary as depicted in the PDD version 01 is checked during the validation site visit and also during the interview with the plant official.
Findings	No findings raised for the project activity.
Conclusion	The spatial extent of project boundary diagram (including the metering system) referred by the methodology is now mentioned in the PDD as per the requirement of applied methodology and thus the same is acceptable to the assessment team. The below table mentions the emission source:

	Sources	GHGs involved	Description
Baseline Emissions	INDIAN Grid	CO_2	Carbon Dioxide
Project Emissions	NA	NA	NA

D.8.5. Establishment and description of baseline scenario

Means of validation	The baseline scenario as depicted in the PDD version 01 is checked during the validation site visit and also during the interview with the plant official.
Findings	No findings were raised.
Conclusion	Being a grid connected solar energy generation project, PP developed the project based on the Methodology ACM0002 version 17.0. As per methodology *If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:* Electricity delivered to the grid by the project activity would have otherwise been

	generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system As per VVS version 09.0, "where the baseline scenario is not prescribed in the approved methodology, the DOE shall assess the list of identified credible alternatives to the project activity in the PDD selected to determine the most realistic baseline scenario." Thus, PDD should mention the credible alternatives to the project activity in order to determine the most realistic baseline scenario. As the selected small scale methodology clearly mention the baseline scenario and the same has been opted in this project, therefore, no further analysis on baseline is required. Validation Team, therefore, concludes that the PDD conforms to the guidance given by EB via VVS version 09.0

D.8.6. Demonstration of additionality

Means of validation	The cost of solar panels, electricity tariff, O&M cost, depreciation, de-ration ration, salvage value and tax rate have been checked with offer letters, purchase order, tariff order, Income Tax Act 1961, Power purchase agreement, third party PLF report and financial analysis sheet. During the validation site visit validation team interviewed the personal and confirms that the input parameters considered is appropriate and correct.
Findings	CAR 07 was raised during the validation process and closed successfully. For detail regarding the CAR, please refer APPENDIX 4.
Conclusion	During conceptualization of the project activity, board of directors of the project proponents considered the CDM revenue to improve the project financials. During the board meeting dated 11/03/2016for board of Directors decided that they would consider CDM revenue for their project activity. In continuation to the board decision, PP issued the respective purchase order for the supply of Solar Panels. As per the "Guidelines on the demonstration and assessment of prior consideration of the CDM, EB 62 Annex 13 and VVS version 09.0 Para 115, as the start date of the project is after 02/08/2008, PP needs to intimate DNA and UNFCCC regarding the serious CDM consideration. Assessment team checked the intimations to DNA and UNFCCC and found the intimation was done within 180 days of project start date which is the purchase order placed amongst the bundle. Moreover, as per 'Glossary of CDM terms (Version 08)', "earliest real action for this project activity was taken on 20/07/2016 which is the Purchase Order issued to Manufacturer for erection and installation of solar Panels in the state of Rajhsthan. Hence, this date has been treated as the start date of the project activity. In the above background Validation Team concludes that the additionality justification regarding the serious CDM consideration given by the project developer is in accordance with the requirements derived from VVS version 09.0. PDD mentioned that the project would not be economically or financially feasible without the revenue from the sale of certified emission reductions (CERs). The claim of the project developer has been assessed by the Validation Team through the following steps: <u>a) Suitability of investment analysis, financial indicator and benchmark:</u> Project developer had demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required capital investment as per VVS version 09.0. In the web hosted PDD version 01 for global stake holder consultation process PP has adopted a conservative approach to identify the benchmark for the project activity. The project is earning revenue from the installation of the project activity. Thus simple cost analysis is not appropriate. Also in the absence of the project activity grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment analysis is

also not appropriate for the project activity. Therefore, benchmark analysis is used for the project activity as per project type and decision-making context. Therefore, the Expected return on equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for the project activity.

PP identified the benchmark using EB92, Annex 5 (=Available at the time of Investment decision), "The values in the table in Appendix may also be used, as a simple default option". However, since RBI (Reserve Bank of India, India Central Bank) provides forecast inflation for 5 and 10 years, the project investor has calculated benchmark using 5 and 10 year as benchmark for the project The WPI median inflation forecast for 5 and 10 years are added to the default values for the project participant as per the requirement of EB92, Annex 5

The benchmark has been computed in the following manner:

Nominal Benchmark[4] = {(1+Real Benchmark)*(1+Inflation rate)}-1

Where,
Real Benchmark= Default Value, i.e., 11.06% (as per Appendix of EB92, Annex 5)
Inflation rate= Projected Inflation Rate for India in next 5 and 10 years (RBI Forecast)

Inflation Forecast as per RBI:

Project Promoters' Name	**Inflation Forecast**		**Benchmark**	
	5 Years	**10 Years**	**5 Years**	**10 Years**
JWEPL	5.00%[5]	4.50%	16.61%	16.06%

As a conservative approach, benchmark of **16.06% (lowest amongst the two)**has been selected for this project activity and thus the same is deemed appropriate and acceptable to the assessment team.

<u>b)Parameters and assumptions used:</u>

The project activity is a renewable source of electricity generation and supplies the electricity to the INDIAN Electricity grid. The key parameters which determine the Equity IRR of the project activity are project cost, PLF and profitability estimates.

In the revised PDD version 02, the project cost is based on the DPR (=Detailed project report)dated 10/03/2016.DPR report has been submitted to validation team. The cost of Panel is 64.84 MN/MW which is the normal price in the region and is acceptable to the assessment team. The DPR were available during decision making and financial profitability of the project was decided based on this DPR. Validation team checked the DPR of the project activity and found that consideration of the project cost in revised PDD version 02 is correct and it is in line with Appendix of EB92, Annex 5 as well as in compliance to VVS version 09.0. Hence, the project cost consideration is justified. Moreover, the actual cost of the project activity is 65Mn/MW and considering the same the project still do not breach the benchmark as detailed out in sensitivity analysis. If the actual cost is considered IRR still reduce and hence the same is considered conservative.

In India, infrastructure projects are generally entitled to a debt equity ratio of 70:30. However, depending on the relationship of the client with the bank, its credit rating and collaterals offered, banks consider higher debt equity ratio also. The debt equity ratio for the project is 70:30. Assessment team checked the loan sanction letter dated 09/12/2016and found that the ratio of Debt to equity was considered correctly for the present validation condition.

[4]As per Pg. 320 of Corporate Finance, Second Edition of AswathDamodaran
[5]https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=16980

	The profitability of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, electricity tariff, O&M cost, depreciation and taxation. The installed capacity is based on the capacity of wind mills, which is evidenced by the Offer letter subsequently. <u>c)Assessment of Plant Load Factor (PLF):</u> PP considered the Plant load factor from a third party engineering company, for expected electricity generation estimation. They are contracted by the PPs for this project. PP has submitted the copies of the PLFs estimation report to the assessment team. Validation team assessed the PLF assessment report and the actual electricity generation and found correct. Same 3rd party PLF report has been used in the financials and the emission reduction calculation. PLF estimation by 3rd party engineering company is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team. The decay factor solar panel is considered for PLF and ER calculation. For IRR calculation de-ration factor is already included. The decay factor for IRR calculation is sourced from DPR which was available to the PP at the time of investment decision. Hence the value is considered correct. Also state electricity commission provide decay rate for solar project in the region as same. Hence the decay is acceptable <u>d)Assessment of Electricity Tariff:</u> The tariff is considered from DPR dated 10/03/2016available to the PP at the time of decision making. Validation team assessed the tariff and found that same value was available during decision making and in conformity with guidance Appendix of EB92, Annex 5. Furthermore, assessment team has also checked the actual tariff in the power purchase agreement signed for further substantiation as these values are available during the validation stage. The vales as considered for the financial additionality determination are same as the values mentioned in power wheeling agreement <u>e)Assessment of O& M cost:</u> PP considered the O&M cost from the DPR. The DPR has been used in the financial calculation as same was available during decision making and hence applicable. According to Appendix of EB92, Annex 5, the cost should be based on the input parameters available at the time of decision making and the PP has submitted DPR supporting this consideration. Therefore, considering the above assessment, validation team concluded that the O&M cost considered from respective DPR in the computation of financial indicator is in conformity with guidance Appendix of EB92, Annex 5. <u>f)Assessment of Tax computation:</u> The project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision (conformity to Appendix of EB92, Annex 5). Hence, these assumptions are appropriate during decision making context. <u>g)Cross checking parameters:</u>

The cost of Solar Panels, electricity tariff, O&M cost, depreciation, salvage value and tax rate have been checked with offer letters, tariff order, Income Tax Act, power purchase agreement.

The DPR value has been used in the financial calculation as same was available during decision making and hence applicable. According to Appendix of EB92, Annex 5, the O&M cost should be based on the input parameters available at the time of decision making and the PP have submitted DPR supporting this consideration. There is no difference in the value used for O&M in the IRR sheet and the DPR. The same is acceptable to the assessment team

The project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country.

The tariff is considered from DPR report available to the PP at the time of decision making

The documents supporting the financial calculations, in the opinion of Validation Team, are therefore authentic and conform to the guidance given by EB. CARs and CLs were raised as non-conformities and they were either set right or clarified. With the corrections having been incorporated, the input costs considered conform to guidance on investment analysis issued by EB. All the input parameters considered in computation, the basis, correctness and appropriateness thereof are checked and found correct. Please refer CAR 07 for detail analysis.

h)Assessment of correctness of computation:

The assessment involved checking the data input taken from DPR, power purchase agreement, tariff order, adoption of correct accounting principle and arithmetical accuracy. Validation Team checked the documents and ensured that appropriate input has been taken in the project cost and projections. Based on the CARs and CLs, corrections were incorporated or issues were clarified. The arithmetical accuracy was also found to be correct.

The equity IRR has been computed for a period of 25 years (=Operational lifetime of the project (for solar), which is the life time of the project and is in conformity with the Appendix of EB 92 Annex 05. As required by Appendix of EB 92 Annex 05 the expected realization on the sale of assets at the end of the operating life has been taken as salvage value in the terminal year. In computing the IRR, the project developer has taken into account profit after tax, depreciation tax shield and salvage value (in the terminal year). The principle adopted conforms to the accepted accounting and taxation principles.

Validation team also confirms that rest of the input parameters are considered appropriately and are in line with guidance Appendix of EB 92 Annex 05.Therefore, from the above arguments/ justifications it is evident that the project is not business as usual scenario and requires CDM benefits to sustain.

Sensitivity analysis:

The Guidance on Appendix of EB 92 Annex 05requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developer has identified Plant Load Factor (PLF), Project cost, Electricity tariff and O&M cost as critical assumptions. These critical parameters constitute more than 20% of either total project costs or total project revenues. The sensitivity analysis reveals that even under more favourable conditions, the IRR without CDM revenue would not cross the benchmark return as given in the following table:

Variation %	-10%	Normal	10%	Breaching Value
PLF	7.87%	11.21%	14.92%	12.77%
O&M	11.54%	11.21%	10.87%	-148.69%
Project Cost	14.82%	11.21%	8.59%	-12.61%
Tariff Rate	7.87%	11.21%	14.92%	12.77%

- The PLF is considered from the third party engineering company for the long duration data. The probability of the PLF going higher than 10% is highly unrealistic and thus the PLF considered under the project activity is assessed to be appropriate.

- The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. Hence, the reduction in the O&M cost is highly unlikely.

- The actual power purchase agreement is signed between state electricity board and project participant and available to the PP at this stage of validation for 25 Years. However, the increase or decrease of tariff is highly unlikely.

- Estimated Project Cost for financial analysis is considered from DPR. However, if we consider the actual cost (65Mn/MW)of the project even then the benchmark is not breached.

The results of sensitivity analysis show that even with a variation of +10% & -10% in Project Cost, O&M cost, PLF and Tariff Rate Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favourable conditions.

Moreover, Annex 3 of the EB 22 states that national and/or sectoral policies and circumstances have to be accounted for when considering the baseline scenario. Paragraph 7(a) states that, only those national and/or sectoral policies or regulations under paragraph 6(a), i.e., type E+ policy that increase GHG emissions, that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11/12/1997), shall be taken into account when developing a baseline scenario. The Electricity Act of 2003 promoted cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity (Refer Section 86(1) of Electricity Act 2003). Therefore, it could be seen that the provincial and sectoral policies are E- i.e., policies that decrease GHG emissions and are after November 2001.Hence the baseline scenario of electricity generation by grid connected fossil fuel dominated power plants is in accordance with Annex 3 of EB 22.

The baseline mentioned in Section D.8.5 above is in compliance with all the applicable regulatory policies and laws. Additionally, the Project Participant is under no compulsion to opt for any particular technology or even a renewable mode of power generation. There is no governmental body or EB policy which requires a particular kind of fuel to be chosen and there is no legal requirement to which the above alternative does not conform.

Demonstration of Parallel and continuing actions as per the 'Guidelines on the demonstration and assessment of prior consideration of the CDM' Annex 13 to EB 62 and Para 114-116 of VVS version 09.

The decision to invest in the project activity was taken at Board Meeting of respective project investors. The board resolution acknowledged that the project does not generate enough returns and CDM revenue is considered in the cash flows to generate extra revenue for the project.

As per Para 114-116 of VVS version 09 it is mentioned that serious CDM consideration for the project having start date after 2nd August 2008 will be considered if the intimation to UNFCCC and DNA is received within 180 days of project start date.

Assessment team checked the UN web site (https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html) and found that intimation letter were send within 180 days of project start date and thus confirms that PP considered CDM seriously. In line with the above guidance, project investors have intimated the UNFCCC and host party DNA i.e. National CDM Authority (NCDMA) of its intention to seek CDM for the proposed project activity in a defined F-CDM form within 180 days of the project start date i.e. on07/20/2016. The project start date is 07/20/2016and intimation is done on 08/15/2016. Hence, it can be clearly established that CDM was seriously considered in the decision to proceed with the proposed project activity.

Common Practice analysis:

The common practice analysis is proved by following points as per the requirement of Methodological tool "Common Practice", version 03.1 EB84, Annex 7[6]:

1. Applicable Geographical Area (Para 9): The Rajhsthan state has been considered as the applicable geographical area for this project. PP had considered the state of Rajhsthan geo-graphical area due to regulatory regime since applicable power tariff structure for renewable energy projects is unique for all the states across national boundary of India; which is based on Electricity Act 2003 (EA 2003), section 82 which clearly mentions "*Every State Government shall, within six months from the appointed date, by notification, constitute for the purposes of this Act, a Commission for the State to be known as the (name of the State) Electricity Regulatory Commission*" Appropriateness of the same has been checked and confirmed from EA 2003 (http://www.cercind.gov.in/08022007/Act-with-amendment.pdf[/40/]).

Furthermore, following significant points on the State specific policy & regulatory framework on the renewable energy projects with special emphasis to solar power projects have been validated:

- Electricity Act 2003 (EA 2003) has changed the legal and regulatory framework for the renewable energy sector in India. The EA 2003 mandates policy formulation to promote renewable sources of energy by the federal government, the State governments and the State Electricity Regulatory Commissions (=SERCs) within their jurisdictions.

- The Electricity Act 2003 introduced some enabling provisions conducive to accelerated development of grid connected renewable energy sources. Under Section 61(h), promotion of cogeneration and generation of electricity from renewable sources of energy has been made the explicit responsibility of SERCs, which are bound by law to take these considerations into account while drafting their terms and conditions for tariff regulations. Nearly all SERCs have issued their tariff regulations incorporating suitable clauses, which will enable them to provide a preferential treatment to renewable energy (RE) during the tariff determination process. The SERCs determine the tariff for all renewable energy projects across the States, and the state-owned power Distribution Companies (DISCOMs) ensure grid connectivity to the renewable energy

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf

project sites.

- EA 2003 has initiated the adoption of the National Tariff Policy, 2006 as one of the key policies, National Tariff Policy (2006) framed under the Section 3 of the EA 2003. As per the excerpt from National Tariff Policy, 2006; pursuant to provisions of section 86(1)(e) of the EA 2003, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006.

- As mandated under section 86(1)(e) of the Electricity Act (2003), by June 2012, 26 SERCs had fixed quotas (in terms of % of electricity being handled by the power utility) to procure power from renewable energy sources. The mandate, which is called a Renewable Purchase Specification (RPS), varies from 0.5% to 14% in various states over varying time-scales. Few states have come out with technology specific RPSs. Besides, the state regulators determine the tariff for all RE projects in the states and ensure connectivity to the grid through extension of power evacuation from the RE project sites.

- At present thirteen SERCs have declared preferential feed–in tariffs (FITs) for purchase of electricity generated from solar power projects established in respective states, which varies from state to state in India. All the SERCs have adopted a 'cost plus' methodology to fix the feed–in tariff, which varies across the states depending upon the state resources, project cost and more importantly the tariff regulations of SERCs. Solar power related tariff polices in different states also has difference in regulatory and policy incentives. Several states have implemented fiscal and financial incentives for renewable energy generation, including; energy buy back (i.e. a guarantee from an electricity company that they will buy the renewable power produced); preferential grid connection and transportation charges and electricity tax exemptions.

Therefore the investment climate for the renewable energy projects varies from State to State within India due to state specific local policy & regulatory framework as outlined by the State Electricity Regulatory Commissions of the respective state. This difference in investment condition leads to essential distinction among solar energy projects between different States of the host country India.

Thus, the specific geographical area i.e. state of Rajasthan for the common practice analysis of the proposed project activity is considered and thus the same is acceptable to the assessment team.

2. Measure (Para 10): The project activity reduces greenhouse gas emissions by generating electricity using renewable energy source-solar. Therefore, the project activity falls under the following measure:
   (b) Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies.
3. Output (Para 11): The project activity produces electricity. Therefore, electricity is considered as output of the project activity.
4. Different Technologies (Para 12): The project activity uses solar energy for producing electricity and hence as per Para 12(a), the technologies which use energy source/ fuel other than solar will be considered as the different technologies for the project activity.

The step wise approach to provide common practice anayalsis as per the guideline is as follows:

Step (1): Capacity or output range as +/-50% of the total design capacity

Range	Capacity	Unit

+50%	30	MW
Capacity of the proposed project activity	20	MW
-50%	10	MW

The +/- 50% range as selected for the proposed project activity is accurate.

Step (2): Rajhsthan state of India has been considered applicable geographical (explained above) area as a default, for the common practice analysis of project activity. All power plants generating electricity from solar energy within the capacity range of 10 MW to 30 MW and having commercial operations date before project activity start date (20/07/2016) have been considered. The power generation plants identified in this step are only solar power projects.

Numbers of Similar projects identified (as per data published by RRECL[7]), which fulfil above-mentioned conditions are
N_{solar}= 41

Step (3):CDM project activities which have got registered or are under validation have been excluded in this step. Assessment team checked the same from cdm.unfccc.int.
After excluding the registered and under validation projects the total number of projects,
N_{all}= 20

Step (4): As per the tool on Common Practice, different technologies are technologies that deliver the same output and differ by at least one of the following:

i. Energy Source/Fuel
ii. Feed stock
iii. Size of installation (power capacity)
   - Micro
   - Small
   - Large
iv. Investment climate in the date of the investment decision, inter alia:
   - Access to technology;
   - Subsidies or other financial flows;
   - Promotional policies
   - Legal regulations
v. Other features, inter alia:
   - Nature of the investment

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria:

1. **Size of Installation:** as the proposed project activity is a large scale project and applies large scale methodology i.e. AMC0002 therefore **small scale projects** i.e. with capacity below or equal to 15 MW are considered as different projects.
2. **Investment climate on the date of the investment decision:** The proposed project activity is developed and implemented under Jawaharlal Nehru National Solar Mission (JNNSM) Batch–II Tranche–I Phase–II state specific bundling scheme [Non Solar Park – DCR (Domestic Content Requirement) Category]. The policy of **Domestic Content Requirement (DCR)** is the use of the local manufactured components of solar generation equipment which includes the cells and modules. Since the cost of locally manufactured components is comparatively higher, accordingly Tariff Rate is deemed to be higher for projects sourcing components locally. Accordingly, the DCR category bidders are allowed to bid at a comparatively higher tariff rate than the Open category projects. Therefore

[7]Rajasthan Renewable Energy Corporation Limited, Details of Commissioned Gird Connected Solar Power Projects in Rajasthan published as on 31-Sep-2015

the Projects other than DCR Category projects are considered as different projects on account of different Investment Climate for such projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating Ndiff projects.

N_{diff} = 18

Step (5):

N_{all}	20
N_{diff}	18
N_{all} -N_{diff}	2
F	**0.10**

As per the Guidelines, the proposed project activity is a "common practice" within a sector in the applicable geographical area if the factor F is less than 0.2 and N_{all}-N_{diff} is less than 3. For the proposed project activity, the value of factor F as calculated in Step 4 is 0.1 which is less than 0.2 and difference of N_{all}-$N_{diff}$is which is less than 3. Since both the conditions are not meet, hence the project activity is not a common practice.

The analysis clearly demonstrates that project activity is not a common practice within the sector in the applicable geographical area. Therefore, it can be concluded that the project activity is additional and requires CDM revenues to alleviate the investment barrier to the project activity

D.8.7. Emission reductions

Means of validation	The emission reduction sheet, CEA database and PDD version 2 is checked by the assessment team.
Findings	CAR 06 was raised during the validation process. The revision in the PDD leads to the closure of CARs. Please refer appendix 4 of this report.
Conclusion	The baseline emissions as discussed in section B.6.1 will include emissions that would have occurred in the absence of the project activity. The emission reduction calculation has been done as per the LSC methodology ACM 0002 version 17. Baseline Emission (BEy): BE_y = EGfacility,y*$EF_{grid,CM,y}$----------(1) Where BE_y = Baseline Emissions in year y; (tCO_2) EGfacility,y= Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh) $EF_{grid,CM,y,}$= Grid emission factor (MWh/tCO_2) PP has estimated the baseline energy generation considering the capacity of the project activity, yearly generation hour and plant load factor. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors according to the procedure prescribed in the "Tool to calculate the emission factor for an electricity system" version 5.0which is sourced from CEA, Govt. of India and forms the part of emission reduction calculation. The baseline emission factor calculation is checked by the validation team and found that the calculation is transparent and conservative. For estimating the operating margin emission factor, PP calculated ex-ante Simple Operating Margin (OM). As per the "Tool to calculate the emission factor for an electricity system" version 5.0"": for grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation. Hence, PP considered the weighted average of latest net electricity

generation and import of electricity and associated emission from CEA. The value of operating margin considered as 0.9941tCO_2 /MWh and the value of build margin as 0.9285tCO_2 /MWh (based on the latest one year data). The weighting for both operating margin is taken as 0.75 and build margin as 0.25 for wind/solar power generation projects. Validation team checked the estimation procedure and considered data and found transparent and conservative. Emission factor of the project considered is mentioned below:

$EF_{grid, y =}$ 0. 9777 tCO_2e/MWh and it is fixed ex ante for the crediting period.

Considering this process, combined margin emission factor has been considered and same value is confirmed correct. The baseline emission for the project is described below

Project Investors' Name	Capacity	PLF (%)	Baseline Emission Factor (tCO_2/MWh)	Baseline emissions (tCO_2/ year)
Janardan Wind Energy Pvt. Ltd.	20 MW_{AC}	20.532%	0.9777	34,882

Project Emissions:

For most renewable power generation projects activities PE_y =0. As per applied methodology only emission associated with the fossil fuel combustion, emission from operation of geo-thermal power plants due to release of non-condensable gases, emission from water reservoir of Hydro should be accounted for the project emission. Since the project activity is a wind power project and hence project emission is zero

Hence PE_y=0

Emission Reductions:

The project activity reduces carbon dioxide emissions through displacement of grid electricity generation with predominantly fossil fuel based power plants[8] by renewable electricity. The emission reduction (ER_y) due to project activity during a given year y is calculated as the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to, as per the formulae given below:

$ER_y = BE_y – PE_y$

Where,
BE_y = Baseline emissions in the year y in tCO_{2e}
PE_y = Project emissions in the year y.

Here,
PE_y = 0 for the project activity as per the methodology.

Therefore, $ER_y = BE_y$.

D.8.8. Monitoring plan

Means of validation	Assessment team checked the monitoring practice onsite and also checked the guideline of RERC.
Findings	Assessment team checked the monitoring practice and CAR 08 was raised during the validation process which was closed successfully. Please refer Appendix 4 of this report for further detail.
Conclusion	**Parameters determined ex-ante**: Baseline emission factor of INDIAN Grid is establish ex-ante based on Tool to

[8] http://www.cea.nic.in/power_sec_reports/general_review/0304/tables.pdf

	calculate the grid emission factor, using a combined approach consisting 75 % operating margin and 25 % build margin. The emission coefficient from official data published in Central Electricity Authority (CEA) CO_2 Baseline database available to the project participant at the time of submission of PDD for validation and global stakeholder's consultation process. CEA is an official source of Ministry of Power, Government of India have worked out baseline as CO_2 baseline database. The assumption were verified by the validation team and found to be correct. **Parameters determined ex-post:** The parameters monitored ex-post involves net electricity supplied to the grid (calculated from electricity exported and imported) to the Indian grid by the project activity. As per the registered PDD (version 02), the Monthly Meter Reading Reports (separately for each individual 10 MW (Project-I and Project-II)provided by State electricity grid operators are the source of the monthly values of electricity exported and imported by the project activity. The net is then calculated from export and import. The DOE will use the same source for verification of emission reductions. As per the applied methodology ACM0002 version 17.0 "Monitoring shall consist of metering the net electricity supplied by the project activity to the grid. Measurement results shall be cross-checked with records for sold electricity/electricity invoices". Moreover, the meters are located at the HT side of the transformer and are of accuracy class of 0.2S. Electricity export to the grid and import from the grid is metered by main and check tri-vector energy meters. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of state utility and O&M personnel. In the event of failure of main meter, the check meter will be used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other solar farm projects. The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration will be done once in a 5year[9]. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly O&M contractor is responsible for monitoring of the generation data at CMS. It is reported that the data will be kept for 2 years following the end of the crediting period. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the site visit.

D.9. Duration and crediting period

Means of validation	The PDD version 02 is checked by the assessment team
Findings	No findings raised
Conclusion	PDD version 02 mentions renewal crediting period and the same is acceptable to the assessment team. The length of the crediting period is 7 years.

D.10. Environmental impacts

Means of validation	The guideline provided by MOEF is checked by the assessment team http://envfor.nic.in/legis/eia/so1533.pdf
Findings	NA
Conclusion	The project activity is expected to have positive impacts and no significant adverse environmental impacts are foreseen. Since, the project activity is an electricity

[9] http://powermin.nic.in/whats_new/pdf/Metering_Regulations.pdf, page 12

	generation from renewable source (i.e. solar energy) therefore no negative impact are envisaged. There is no mandatory legal requirement for carrying out an environmental impact assessment in the host country. The Ministry of Environment and Forests (MoEF), Government of India (GOI) notification[10] dated September 14, 2006 regarding the requirement of Environment Impact Assessment (EIA) studies states that any project developer in India needs to file an application to the Ministry of Environment and Forests (including a public hearing and an EIA) in case the proposed industry or project is listed in a predefined list. The list includes thirty nine project activities that require EIA studies. The wind power projects are not included in this list and thus an EIA study is not required.

D.11. Local stakeholder consultation

Means of validation	The local stakeholder consultation MOM, attendance sheet is checked by the assessment team. During the validation site visit assessment team also interviewed some of the stakeholder present during the meeting with PP.
Findings	Assessment team raised concern regarding the stakeholder consultation meeting and supporting document. The detail of the same is mentioned as CAR 09 in this report and the same is closed successfully
Conclusion	As per the CDM requirements, it is necessary to invite the relevant stakeholders, before the validation process starts. Moreover, the start date of the project is 20/07/2016 and stakeholder consultation meeting took place on 11/07/2016which is before the start date of the project activity which fulfill the requirement of Para 78 of project standard version 09.The DOE checked the relevance of the dates during the validation site visit. All the stakeholders have been invited through public notice (dated 20 June 2016) to attend the stakeholders meeting. The local stakeholders' consultation meeting was attended by local persons including local villagers, local vendors and technology suppliers. The stakeholders identified by the project participant were local villagers who are the major population of the particular area, local communities and gram panchayat (Village head), WTG supplier, project proponent representatives, O&M Team and other people involved in the project. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. The validation team also verified the minutes of meeting to note that no negative comments were received and the same was cross checked with the information obtained during follow up interviews with the stakeholder's. Moreover, as per Para 164 of VVS version 09, DOE enquired with the MOEF (Host country DNA) dated14/01/2017 regarding any stakeholder comments received for this particular project activity. DOE waited for 14 days and no comments received from MOEF. Based on the guideline and directive of Para 164, DOE concluded that Stakeholder consultation is in line with the requirement of this Para 164 and hence conclude that Local stakeholder consultation was conducted properly. Thus Validation team is of the opinion that the stakeholder meeting was adequate and appropriate.

SECTION E. Internal quality control

As final step of a validation of the final documentation including the validation report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

[10] http://envfor.nic.in/legis/eia/so1533.pdf

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform

SECTION F. Validation opinion

Applus+ LGAI has performed a validation of the “20 MW Solar Project in Sanwreej, Jodhpur, Rajasthan”. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria, e.g. ACM0002 version 17.0, given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided Applus+ LGAI with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by Applus+ LGAI for registration with the UNFCCC.

Applus+ LGAI has received a confirmation from the host Party that the project activity assists it in achieving sustainable development.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment and technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 34,882tCO_2e per year, thereon displacing 35,678 MWh/year amount of electricity.

The validation has been performed following the requirements of the latest version of the CDM VVS version 09.0 and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM/UNFCCC project cycle.

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism

CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
EB	Electricity Board
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
PP	Project Participant
PPA	Power purchase agreement
PLF	Plant Load factor
RBI	Reserve Bank Of India
RERC	Rajhsthan Electricity regulatory commission
SERC	State Electricity regulatory commission

Appendix 2. Competence of team members and technical reviewers

1. Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India respectively. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than eight years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.

2. Hanshen (Denny) Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
2	NA	PLF assessment study report for the project activity	PLF report from TUV Rhineland (=As per annex 11 EB 48)	Project participant
3	NA	Technical specifications of solar Panels generators from manufacturers	Manufacturer technical specifications	Project participant
4	NA	Board decision for serious CDM consideration	Board meeting dated 03/11/2016for investment into the project.	Project participant
5	NA	Intimation to UNFCCC	Prior consideration emails for the project. Also checked from UN web site https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html	Project participant
6	NA	Webhosted PDD for GSC comment- version 01 Final PDD based on which opinion is provided- version 02	15/11/2016 01/07/2017	Project participant
7	NA	Financial Calculation sheet- version 01	01/07/2017	Project participant
8	NA	Emission reduction calculation sheet- version 01 Emission reduction calculation sheet-	15/11/2016 01/07/2017	Project participant

		version 02		
9	NA	DPR for the project activity	DPR dated 10/03/2016	Project participant
10	NA	The operational lifetime of the project activity from the manufacturer(=Technical specifications)	Manufacturer technical specifications	Project participant
11	NA	The stakeholder consultation process documents: • List of attendee • Minutes of meeting • Feedbacks from the stakeholders	MOM and attendance sheet of the meeting	Project participant
12	NA	ACM 002 version 17: ACM0002/ Version 17.0, EB 89, "Grid-connected electricity generation from renewable sources	UNFCCC CDM web site	UNFCCC
13	NA	RERC order http://rerc.rajasthan.gov.in/ RBI: Reserve Bank of India www.rbi.org.in Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in Income tax act 1961 http://law.incometaxindia.gov.in/DIT/	Reference link is provided.	Independent Search
14	NA	Tools/ guidelines used in the project activity • Clarification on national and/or sectoral policies Para 27 EB 55 • Guidelines for the reporting and validation of Plant Load Factor Annex 11 EB 48 • Guidelines on the demonstration and assessment of Prior Consideration of the CDM EB 62 Annex 13 • Tool to determine the remaining lifetime of the project activity in line with Annex 15 EB 50	UNFCCC CDM web site	UNFCCC

		• Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Version 2, EB 41 • Tool to calculate the emission factor for an electricity system version 03 • Glossary of CDM terms version 08		
15	NA	Letter of ODA from the PP	ODA letter dated 16/02/2017	Project Participant
16	NA	Host country approval	HCA letter dated 24/05/2017	Project Participant
17	NA	Modalities of Communication	MOC dated 25/05/2017	Project Participant
18	NA	Commissioning Certificates for the project activity	Phase 1: 30/03/2017 Phase 2: 18/04/2017	Project Participant

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

Table 1 CL from this validation

CL ID	01	**Section no.**	CDM requirement	**Date:** 06/02/2017
Description of CL				
The Project Participant is requested to provide documentation to confirm there is no public funding of the proposed CDM project activity.				
Project participant response				**Date:** 01/07/2017
PP has not availed any public funding for the proposed CDM Project activity. Moreover an ODA Declaration Letter, version Dt. 16-02-2017 is being provided by the PP in support of the same.				
Documentation provided by project participant				
ODA Declaration version Dt. 16-02-2017				
DOE assessment				**Date:** 05/07/2017
The ODA dated 16/02/2017 is checked by the assessment team and confirm that PP has not availed any public funding for the proposed CDM Project activity. Based on the submission of the required document, CL is thus closed.				

Table 2 CAR from this validation

CAR ID	01	**Section no.**	CDM requirement	**Date:** 06/02/2017
Description of CAR				

In accordance with CDM Project Standard, Version 09.0 (Project Standard), the APPLUS Project Team requires a letter of approval provided by the DNA - National CDM Authority (NCDMA) Ministry of Environment & Forests, for the Party involved in the proposed Project Activity. The APPLUS Project Team requests letter of approval when available, and before the request for registration can be submitted.	
Project participant response	**Date:** 01/07/2017
Letter of approval from DNA version Dt. 24-05-2017 is being provided along with this submission	
Documentation provided by project participant	
Letter of approval Letter, No. 4/7/2016-CC, Dt. 24-05-2017	
DOE assessment	**Date:** 05/07/2017
Letter of approval no 4/7/2016-CC, Dt.24/05/2017 is checked by the assessment team and confirms that project activity complies with host country requirement. CAR is thus closed.	

CAR ID	02	**Section no.**	CDM requirement	**Date:** 06/02/2017
Description of CAR				
In accordance with the Project Standard Version 09.0, the APPLUS Project Team requests that the Project Participant submit the Modalities of Communication (MoC) statement. Corrective action is sought and requisite document need to be submitted				
Project participant response				**Date:** 01/07/2017
Modalities of Communication version Dt. 25-05-2017 is being provided along with this submission				
Documentation provided by project participant				
Modalities of Communication, Dt.25-05-17				
DOE assessment				**Date:** 05/07/2017
MOC dated 25/05/2017 is checked by the assessment team and found correct. The MOC undertaking certifies that the person is authorised to sign on behalf of the company and will be sole responsible for the communication with UNFCCC. Hence CAR is closed.				

CAR ID	03	**Section no.**	A.1	**Date:** 06/02/2017
Description of CAR				
In accordance with the Attachment "Instructions for filling out the project design document form for large-scale CDM project activities" at the end of "Project design document form for large-scale CDM project activities" Version 08.0, the APPLUS Project Team has the following observation: 1. The version of tool referred in section A.1 is not provided.. 2. The terminology "Project Proponent" is not correct as per "Glossary CDM terms". Please check the same throughout the PDD. 3. The document related to technical lifetime is not provided to the DOE for Wind technology Corrective action is sought for the above queries and requisite documents needs to be submitted.				
Project participant response				**Date:** 01/07/2017
The point wise reply to each of the queries are as described below: Section A.1 of the PDD is revised to mention the version number 05.0 of the tool. The terminology "Project Proponent" is now been revised to “Project Participant” which is as per "Glossary CDM terms" and necessary changes have been made throughout the PDD. As the project is solar project, the technical lifetime of the project activity is of 25 years, and can be found in Manufacturers specification document (Warranty section on Page No.1), submitted along with this submission				

Documentation provided by project participant	
1. For points 1-2 please refer revised PDD version 2, dt.1-Jul-17 2. For point 3, Manufacturer specification document name “Annexure-I_Datasheet - TP300 _JWEPL” is attached herewith.	
DOE assessment	**Date:** 05/07/2017
Following are the observation of the DOE: 1. The version of tool referred in section A.1 has been provided now as version 4.0. 2. The terminology "Project Proponent" has been corrected as per "Project Participant" throughout the PDD and the same is in line with glossary of CDM terms. 3. Document related to lifetime of the project is checked by the assessment team and found that the same is in line with the information provided in the revised PDD version 02. Based on the above corrections CAR is thus closed	

CAR ID	04	**Section no.**	A	**Date:** 06/02/2017
Description of CAR				
During the desk review APPLUS team observed that the geographical map addressing the project activity site is missing in the PDD. Corrective action is sought in this regard.				
Project participant response				**Date:** 01/07/2017
Map addressing the project activity site has been updated in Section A.2.4 of revised PDD.				
Documentation provided by project participant				
Please refer revised PDD version 2, dt.1-Jul-17				
DOE assessment				**Date:** 05/07/2017
The geographical map is now provided which clearly shows the exact location of the project activity. Based on the revision in the PDD, CAR is thus closed.				

CAR ID	05	**Section no.**	A.3	**Date:**06/02/2017
Description of CAR				
The Section A.3 of the PDD is not in accordance with the GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT FORM in following manner. 1. The description of the "Technologies and/or measures" in Section A.3 does not include a list of the facilities, systems and equipment that will be installed by the project activity. The Project Participants are requested to revise the PDD to include the required information.				
Project participant response				**Date: 01/07/2017**
Section A.3 of the revised PDD now includes facilities, systems and equipment that will be installed by the project activity. Moreover, Manufacturers Technical Specifications document is being provided along with this submission, DOE is requested to refer the same.				
Documentation provided by project participant				

1. Revised PDD version 2, dt.1-07-17 2. Manufacturers Technical Specifications – Solar Module 3. Manufacturers Technical Specifications - Inverter	
DOE assessment	**Date:05/07/2017**
The information is now included in section A.3 of the revised PDD version 02. CAR is thus closed.	

CAR ID	06	**Section no.**	B.4	**Date:06/02/2017**
Description of CAR				
In order to confirm that Data Source used for calculation of grid emission factor is the latest available data at the time of PDD webhosting, the assessment team request that the Project Participant mention the date of publication of CEA data for Grid Emission Factor in the table in Section B.4 of the PDD. Moreover, Emission reduction sheet is not submitted to the DOE. Corrective action is sought for the same.				
Project participant response				**Date:01/07/2017**
The month and year of publication of CEA data for Grid Emission Factor is inserted in the table of Section B.4.of the revised PDD and Emission Reduction sheet is being submitted along with submission to the DOE. Further the CEA emission factor version 11 has been revised considering the latest data available and conservativeness of the calculations.				
Documentation provided by project participant				
1. Revised PDD version 2, dt.1-07-17 2. ER Sheet version dt1-07-17				
DOE assessment				**Date:05/07/2017**
CEA Database for CO_2 emission factor for Indian Power System, Version 11.0, is used in the revised PDD. CAR is thus closed.				

CAR ID	07	**Section no.**	B.5	**Date: 06/02/2017**
Description of CAR				
During the desk review of the PDD and onsite visit document verifications, APPLUS team observed following inconsistency in the additionality determination : 1. Following documents are missing and thus the IRR calculation is reserved: a. PLF reports b. Project Cost defragmentation c. Other expenses d. Insurance letter 2. What are other expenses and the source for the same? Moreover, escalation of other expenses is not acceptable. Please clarify or explain. Also please produce genuine evidence 3. The non-depreciable cost is considered in Book depreciation. Please explain what is the non-depreciable cost 4. MAT has been provided throughout. Please clarify whether the company is in MAT bracket and expected to be in MAT bracket throughout the operating life of the project.Kindly please submit the latest audit report 5. The offer letter dated Sept 15, 2015 as submitted to the DOE amount to INR 349,730,000 however				

the total project cost as mentioned in the IRR sheet is INR 12964.84 in Million sourced from DPR. Please explain or elaborate the difference and the correct source of data for project cost

6. As per the Board resolution dated 31st July 2015 the total project cost will be taken care by equity investment however as per the IRR sheet the project cost is divided as equity and debt. Please explain. Also, please submit the Loan application and Loan sanction letter from the bank.

7. O&M cost is considered from DPR. Please submit the same for cross check. Also please explain how the escalation from 3rd year is considered as 5% of the total project cost.

8. Please explain de-ration by a credible source of data. Does CERC/SERC mention the same?

9. What is a RERC fees. Please explain with credible evidences?

10. The tariff rate is considered from DPR. Please provide the source of data.

11. DPR is mentioned as source of data for all assumption. Assessment team is failed to Understand how IT rate, MAT, service tax can be the sourced from DPR when we have IT act which can be applied for fiscal year. Please explain.

Corrective action is sought in the PDD section B.5 and supporting documentation is requested for further analysis. Also, IRR sheet is reserved

Project participant response	**Date: 01/07/2017**

1. a. PLF report is being provided to the DOE along with this submission

1. b. Purchase Orders and Land Document are already provided to the DOE. DOE is requested to refer the same for Project Cost defragmentation

1. c. Other Expenses has been considered from Detailed Project Report. DOE is requested to refer the same.

1. d. Insurance Letter is being provided to the DOE along with this submission

2. Other Expenses has been considered from Detailed Project Report. DOE is requested to refer the same.

3. Land is considered as a non-depreciable cost.The IRR sheet has now been revised and refers to land cost in place of non-depreciable cost.

4. As per Section 115JA of the Income Tax Act, all companies having book profits under the Companies Act shall have to pay a minimum alternate tax. Accordingly, the IRR sheet submitted considers MAT to be applicable for all years where the company has a book profit. The Latest Audit Report is also being submitted to DOE for its perusal.

5. Estimated cost of Project for financial evaluation is considered as per Detailed Project Report.DOE is request to refer the same.

6. Initially, Project Investor decided to invest 100% equity in the project, but later on it was decided to go for Loan. The same can be cross checked from the DPR based on which the final investment was done. Hence, financial evaluation is revised considering the equity as well as debt which was decided at the time of decision making and is found that Equity IRR does not breach the Benchmark returns. DOE is requested to

refer the revised IRR Sheet.

Loan Sanction Letter is being submitted along with this submission.

7. O&M cost along with escalation is now considered as per the DPR available at the time of financial evaluation.

8. De-ration is now considered as per DPR available at the time of financial evaluation.

9. RERC fees has been removed. Pls. refer the revised IRR Sheet

10. Tariff has been considered as per the DPR.

11. The IT rate, MAT and service tax rate have been sourced as per the prevailing rates prescribed by the Government of India. The source have now been correctly mentioned in the IRR sheet.

Documentation provided by project participant

1. PLF Report, version dt.20-02-16
2. Insurance Certificate dt. 22-04-17
3. Loan Sanction Letter, version dt. 9-12-16
4. Audited Balance Sheet, FY 15-16
5. Detailed Project Report dt. 10-03-16
6. Revised IRR Sheet, version dt.1-07-17

DOE assessment	**Date: 05/07/2017**

Following are the observation of the DOE:

PLF Report, version dt.20-Feb-16 checked by the assessment team and confirms that the PLF value considered for ER and IRR sheet is correct. CAR is thus closed.

- Purchase Orders and Land Document are checked by the assessment team and found correct. CAR is closed
- Other Expenses has been considered from Detailed Project Report dated 10-03-16. CAR is thus closed
- Insurance Certificate dt. 22/04/2017 is checked by the assessment team and confirms that the value considered in IRR calculation is correct. CAR is thus closed
- Land is considered as a non-depreciable cost. The IRR sheet has now been revised and refers to land cost in place of non-depreciable cost. Based on this revision in the IRR sheet CAR is thus closed
- As per Section 115JA of the Income Tax Act, all companies having book profits under the Companies Act shall have to pay a minimum alternate tax. Accordingly, the IRR sheet submitted considers MAT to be applicable for all years where the company has a book profit. Assessment team checked the latest audit report for Fiscal Year 15-16 and confirms the same. CAR is thus closed.
- PP considered estimated cost of Project for financial evaluation as per Detailed Project Report dated 10-Mar-16 and thus based on this submission of document CAR is closed.
- Project Investor decided to invest 100% equity in the project, but later on it was decided to go for Loan. The same is cross checked from the DPR dated 03/10/2016 based on which the final investment was done. Hence, financial evaluation is revised considering the equity as well as debt which was decided at the time of decision making and is found that Equity IRR does not breach the

Benchmark returns

- O&M cost along with escalation is now considered as per the DPR available to the PP at the time of investment decision. CAR is thus closed
- De-ration is now considered as per DPR dated 03/10/2016 available at the time of financial evaluation. CAR is thus closed.
- Tariff has been considered as per the DPR dated 03/10/2016 available at the time of financial evaluation. CAR is thus closed.
- The IT rate, MAT and service tax rate have been sourced as per the prevailing rates prescribed by the Government of India available at the time of financial evaluation. CAR is thus closed.

CAR ID	08	**Section no.**	B.7	**Date:06/02/2017**

Description of CAR

During the document review it was observed that in section B.7.1 of the PDD it is mentioned that JMR will be the source of data for net electricity exported. As per DOE experience the same is not correct. As per DOE experience the calibration frequency in the state of Rajhsthan is annual. Please explain the reason for once in a five year?

The operation and organizational chart in not as per the site practice. Please take corrective action.

The emergency preparedness is not detailed out in the PDD. In the behest of the same assessment would like to know the following details:

1. How the net electricity would be monitored when one of the 2 meters is not working or both the meters fails.
2. During the course of verification if the billing period do not match with the monitoring period, how the net electricity calculation would be done.

Project participant response **Date:01/07/2017**

The source of data for net electricity exported has been corrected to mention Monthly Metering reports in section B.7.1 in the revised PDD.Moreover, calibration frequency has been considered in line with the CEA guidelines, which specify the calibration frequency as once in a five years.Even the PPA (Page 22) mentions that the calibration of meters should be done in accordance with the CEA guidelines. The same has been followed in the PDD.

The operation and organizational chart is now made consistent as per the site practice in the revised PDD.

1. The monitoring of net electricity when one of the meter fail or both meter fail has been included in section B.7.3 of revised PDD.
2. If billing period does not match with the monitoring period, then the net electricity will be measured as described in Section B.7.3 of the revised PDD.

Documentation provided by project participant

1. CEA Guideline for Calibration frequency *:http://www.cea.nic.in/reports/regulation/meter_reg.pdf*

2. Revised PDD version 2, dt.1-07-17

DOE assessment **Date:05/07/2017**

Following are the observation of the DOE:

The source of data for Net electricity exported to the grid is now correct and as per the onsite practice. Calibration frequency has been considered in line with the CEA guidelines, which specify the calibration frequency as once in five years. Even the PPA (Page 22) mentions that the calibration of meters should be

done in accordance with the CEA guidelines. The revision now forms part of revised PDD version 02. The operation and organizational chart is now made consistent as per the site practice in the revised PDD. The emergency preparedness is now included in the revised PDD. CAR is thus closed.

CAR ID	09	**Section no.**	E	**Date:06/02/2017**
Description of CAR				
During the desk review related to stakeholder consultation following observation is made by the APPLUS project team: 1. The stakeholder documentation is also not provided to the DOE. Moreover, PDD should clearly mention the stakeholder notice date, medium of notice and the meeting dates. 2. Section E.2 of the PDD should define clearly the process, query asked and resolution of the stakeholder meeting process. The stakeholder analysis will be reserved till the documents are submitted to the assessment team.				
Project participant response				**Date:01/07/2017**
1. Section E.1 of revised PDD now mentions the stakeholder notice date, medium of notice and meeting dates. 2. Section E.2 of the revised PDD have been updated with the process, query asked and resolution of the stakeholder meeting process.				
Documentation provided by project participant				
1. Revised PDD version 2, dt.1-Jul-17 2. Stakeholder Consultation Documents.				
DOE assessment				**Date:05/07/2017**
The Stakeholder documentation is now checked and found correct by the assessment team. The query asked and replies to them are now appropriately mentioned in the revised PDD version 02. CAR is thus closed.				