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VALIDATION REPORT

40 MW Orange Charanka Solar Power Project in Gujarat, India

Report No.: A+SH_SYST_TQC_002717-GS

Client:

Orange Charanka Solar Energy Private Limited

DATE: 20/04/2018

<table>
<tr><td>Reference No.</td><td>Date of first issue</td><td>Version No.</td><td>Date of this version</td></tr>
<tr><td>A+SH_SYST_TQC_0027
17-GS</td><td>23/09/2017</td><td>02</td><td>20/04/2018</td></tr>
<tr><td>Client</td><td colspan="3">Orange Charanka Solar Energy Private Limited</td></tr>
<tr><td>Project Title</td><td colspan="3">40 MW Orange Charanka Solar Power Project in Gujarat, India</td></tr>
<tr><td>Project Participants</td><td colspan="3">Orange Charanka Solar Energy Private Limited</td></tr>
<tr><td>Project Location</td><td colspan="3"><table><tr><th>Project Participant s' Name</th><th>Village</th><th>Taluka</th><th>District</th></tr><tr><td>Orange Charanka Solar Energy Private Limited</td><td>Charanka</td><td>Santalpur</td><td>Patan</td></tr></table></td></tr>
<tr><td>Contact Person</td><td colspan="3">Mr. Ashman Gautam</td></tr>
<tr><td colspan="2">Applied Methodology/Version:
ACM0002- Grid-connected electricity generation from renewable sources --- Version 17.0</td><td colspan="2">Sectoral scope: 1
Technical area: 1.2</td></tr>
<tr><td colspan="2">Initial Passport version 01: 30/05/2017
Initial PDD Version: 01: 30/05/2017</td><td colspan="2">Final Passport, Version: 04: 18/04/2018
Final PDD, version 04: 19/04/2018</td></tr>
<tr><td colspan="2">Estimated Annual Emission Reduction:</td><td colspan="2">84,421 tCO_2e /year</td></tr>
<tr><td colspan="4">Summary:
M/s Orange Charanka Solar Energy Private Limited has commissioned Applus+ LGAI to perform a validation of "40 MW Orange Charanka Solar Power Project in Gujarat, India"
The scope of the validation is defined as an independent and objective review of the project design document, against the Kyoto Protocol requirements, UNFCCC rules, applicable CDM requirements and requirement of Gold Standard. The validation report is finalized based on the assessment of the Gold Standard Passport, CDM PDD and applying standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.
The report describes a total of 6 findings as per the initial version 01 of GS passport and 8 findings as per initial version 01 of CDM PDD which include:
GS passport version 01:
• 6 Corrective Action Requests (CARs);
• 0Clarification Requests (CLs/CRs);
• 0 Forward Action Requests (FARs).
CDM PDD version 01:
• 8 Corrective Action Requests (CARs);
• 0 Clarification Requests (CLs/CRs);
• 0 Forward Action Requests (FARs).</td></tr>
</table>

<table>
<tr><td colspan="3">The PP has responded these findings by modifying the Gold Standard Passport- version 03/ CDM PDD version 03 and providing adequate additional explanations and evidences. Applus+ LGAI confirms that all the findings have been "closed out" before submitting the request for registration to GS board.
As a summary of the validation, the review of the Gold Standard Passport and the subsequent follow-up interviews have provided Applus+ LGAI with sufficient evidence for the determination of the project's fulfillment with all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and requirement of Gold Standard. Therefore, Applus+ LGAI recommends the project for registration by the GS Registry.</td></tr>
<tr><td>Assessment team</td><td>Roles</td><td>Organization</td></tr>
<tr><td>Mr. Sukanta Das</td><td>Team Leader/Lead Auditor</td><td>True Quality Certifications private Limited-Outsourced entity</td></tr>
<tr><td>Mr. Simon Shen</td><td>Technical Review</td><td>Applus+ LGAI, Spain Barcelona</td></tr>
</table>

ABBREVIATIONS

AMS	Approved Methodology Small Scale
Applus+ LGAI	LGAI Technological Center, S.A. (Applus)
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CL/CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
GS	Gold Standard
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organization
TAC	Gold Standard Technical Advisory Committee
OM	Operational Margin
PP	Project Participant
PS	Project Standard
UNFCCC	United Nations Framework Convention for Climate Change
VVS	Validation and Verification Standard

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1.- INTRODUCTION

M/s Orange Charanka Solar Energy Private Limited has commissioned Applus+ LGAI to perform a validation of "40 MW Orange Charanka Solar Power Project in Gujarat, India" (hereafter referred to as the project activity) in the state of Gujarat in the republic of, India. This validation report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board as well as requirement of Gold Standard version 2.2.

1.1.-Objective

The purpose of a validation is to have an independent third party assessment of the passport/CDM PDD and compliance with the GS requirements as described in the Gold Standard documentation and supporting documents by the client. Validation is part of the GS voluntary project cycle and will finally result in a conclusion by Applus+ LGAI whether a project activity is valid and should be submitted for registration of a proposed project activity rests at the GS and the Parties involved.

1.2.-Scope

The validation scope is defined as an independent and objective review of the project passport, /CDM-PDD of the project's baseline study, additionality assessment, monitoring plan and other relevant documents. The information in these documents is reviewed against all applicable CDM and GS requirements including the approved baseline and monitoring methodology ACM 0002 version 17.The validation was based on the requirements in the Validation and Verification Standard version 09 and Gold Standard requirement version 2.2.

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 passport.

2.- METHODOLOGY

The project assessment is based on the Clean Development Mechanism Validation and Verification Standard version 9.0, Gold Standard requirement version 2.2and 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 project activity are appointed. Once the project is made available for Applus+ LGAI, the members of the assessment team carried out:

1. A desk review of the passport;
2. Follow-up interviews with project stakeholders;
3. 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 before being submitted to the GS Registry.

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 protocol customized for the project. The protocol 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 Complete List of CAR/CL/FAR is included as Appendix 1 of this report

2.1.-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 assessment team in accordance with the appointment rules in Applus+ LGAI. The composition of audit 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)

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

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country experience
Sukanta Das	LA*/E	Y	Y	Y	Y
Simon Shen	TR	Y	Y	Y	N

*LA: Lead Auditor
TR: Technical Review
E: Technical Experts (E)

The complete list of CVs is included as Appendix 2 of this report

2.2.- Document review

The Gold Standard Passport and CDM PDD submitted by the Client were 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 to this report.

2.3.- Follow-up interviews

During the period of 12/07/2017 to 13/07/2017, 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 main interviewed personnel are listed in following table.

Interviewed personnel	Function	Organization
Dilip Suthar	Site In charge	PP representative
Sumeet Singhvi	Consultant	Infinite Soultions
Dungar Bhai	Village head	Local Stakeholder
Shivram Maharaj	Local Villager	Local Stakeholder

2.4.- 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 needs to be clarified for Applus+ LGAI's positive conclusion on the passport and CDM PDD. 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 1 below and documented in more detail in the validation checklist.

The Gold Standard Passport version 04 submitted on 18/04/2018 and CDM PDD version 04 dated 19/04/2018 serves as the basis for the final assessment presented. Additional changes to the passport and PDD during the validation process are not considered to be significant with respect to the main CDM and Gold Standard objectives.

2.5.- Internal quality control

As final step of a validation the final documentation including the validation report and the protocol have to undergo an internal quality control by the technical review committee. Each report has to be finally approved either by the head of technical review committee or the deputy. In case one of these two persons is part of the audit team, approval can only be given by the other one.

After confirmation of the PP the validation opinion and relevant documents are submitted to the GS Registry.

3.- VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the original passport and CDM PDD and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Appendix 1 of this report
2) Where Applus+ LGAI had identified issues that need clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Appendix 1 of this report.
3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and Applus+ LGAI to resolve these Clarification or Corrective Action Requests are summarized.
4) The conclusions for validation subject are presented.

3.1.- Approval

This section is not applicable as this GS VER project.

3.2.- Participation

The project participant is M/s Orange Charanka Solar Energy Private Limited as the project proponent from the host party India. The host country involved is parties to the Kyoto Protocol and meet and requirements to participate in the Gold Standard.

3.3.- Scale of the project

The project activity is identified as a large scale project in section C.1 of the passport applying a large scale methodology ACM 0002 version 17.The total capacity of the power project is 40MW as validated from the CDM PDD and passport. The capacity of the project is confirmed from the commissioning certificate dated 04/08/2017 issued by third party agency and assessment team re-confirmed the same during the validation physical site visit. Since the design capacity of the project activity is more than15 MW, which is stipulated limit for small scale projects by GS/CDM, the project is correctly classified as large scale project. Assessment team also checked the requirement of latest applicable methodology ACM 002 version 17 and confirms that the project qualifies the requirement of the latest methodology also. (I.e. scale, applicability, baseline, additionality and monitoring)

a) Type of project: The project activity involves electricity generation using solar power to reduce atmospheric CO_2 emission by replacing equivalent amount of electricity from the grid of India. The project type is identified as renewable energy project in section C.3 of the passport. The project activity complies with the requirement of ‘the generation and delivery of energy services (e.g. electricity) from non-fossil and non-deployable energy sources’ as defined in section 1.2.3 of GS toolkit. The project activity generates and supplies renewable electricity to the regional grid thereby displacing the electricity which would have generated in fossil fuel based power plants connected to the grid.

3.4.- Greenhouse Gases

The project activity leads to displacement of electricity generation from fossil fuel based power plants connected to the regional grid by renewable energy generated using solar power. The operation of the project activity will result in reduction of carbon-dioxide from the atmosphere due to displacement of electricity in grid by the renewable energy. Hence, the green house gas identified in section C.4 of the passport is carbon dioxide which is duly validated by the DOE.

3.5.- Official Development Assistant (ODA)

The project has not utilized any ODA and a declaration of non-use of ODA has been provided by the project participant. The declaration was made in the template (AnnexD) provided by the Gold Standard and validated for appropriateness by the DOE.

3.6.- Project timeframe

- ***Previous Announcement check:*** The project activity hasconsideredtherevenueofcarbonwhileplanningfortheprojectactivity.The information related to pre-announcement is provided in C.3 of the passport. The start date of the project activity is 19/12/2016 (earliest date when the EPC contracts for solar modules.). The first submission of project activity to GS is on 31/05/2017 which is within one year of start date, thus project activity qualifies as retroactive GS VER project activity. Thus prior consideration of carbon revenue for current project activity is demonstrated being first submission to Gold standard within one year of project start date. The information was validated from the CDM-PDD and found to be consistent. PP also informed UNFCCC regarding prior consideration within 180 days of project start date. The same is confirmed by the assessment team and found correct.
- ***Other certification scheme:*** The project activity has not applied, confirmed by project developer, for any other certification like Green or White certification. Project activity is also not rejected or approved by any other GHG program. The declaration is checked and found correct by the assessment team. Therefore, the validation team concluded that the project activity meets the applicability criteria of Gold Standard.

3.7.- Project Boundary

As per ACM 0002 version 17 - “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM/GS project power plant is connected to”.

The project boundary includes the solar project, sub-stations, grid and all power plants connected to grid. The proposed project activity will evacuate power to the INDIAN grid. Therefore the entire INDIAN grid and all connected power plants have been considered in the project boundary for the proposed CDM project activity. The same is checked by the assessment team during the validation site visit and found correct. DOE also confirms that the project activity complies with the requirement of project boundary in ACM 0002 version 17, which is the latest applicable methodology available to the project participant.

3.8.- Conservative of the baseline and applicability of methodology

Being a grid connected solar energy generation project, PP developed the project based on the Methodology ACM0002 version 17.0. As per methodology version 17, Para 24:

“If the project activity is the installation of a Greenfield power plant, the baseline scenario is 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”.

The project activity involves setting up of solar projects to harness the power of sun to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants. In the absence of the project activity, the equivalent amount of power would have been drawn from the Indian grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid.

The combined margin ($EF_{grid, CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publically available. The CEA database version 11 was the latest available data at the time of PDD submission to DOE for validation, hence same is considered for emission factor calculations.

The combined margin of the Indian grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,y}$	0.9777 tCO_2/MWh	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO_2 Emission Database, Version 11.0, April 2016 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9941 tCO_2/MWh	Operating margin CO_2 emission factor for the project electricity system in year y	Calculated as the last 3 year (2012-13, 2013-14, 2014-15) generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 11.0, April 2016 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.9285 tCO_2/MWh	Build margin CO_2 emission factor for the project electricity system in year y	Baseline CO_2 Emission Database, Version 11.0, April 2016 published by Central Electricity Authority (CEA), Government of India

<u>The applied baseline methodology is justified as it has been demonstrated that the proposed project activity is:</u>

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.

Applicability conditions of "Tool to calculate the emission factor for an electricity system"

- 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.

3.9.- Additionality screen according to the GS Criteria

During conceptualization of the project activity, board of directors of the project proponents considered the Carbon revenue to improve the project financials. During the board meeting dated 27/06/2016for board of Directors decided that they would consider going ahead for the project activity. In continuation to the board decision, PP issued the respective purchase order for the supply of Solar Panels.

The start date of the project activity is 19/12/2016 (earliest date when the EPC contracts for solar modules.). The first submission of project activity to GS is within one year of start date, thus project activity qualifies as retroactive GS VER project activity. Thus prior consideration of carbon revenue for current project activity is checked by the assessment team via email dated 30/05/2017 to 01/06/2017 to GS board within one year of project start date.

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 and GS tool kit version 2.2.

CDM-PDD mentioned that the project would not be economically or financially feasible without the revenue from the sale of carbon revenue. The claim of the project developer has been assessed by the Validation Team through the following steps:

a) Suitability of investment analysis, financial indicator and benchmark:

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 and GS tool kit version 2.2. PDD version 01 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 comparison 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 as per Para 20 of EB92, Annex 5, "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 both 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[1] = {(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)

[1]As per Pg. 320 of Corporate Finance, Second Edition of AswathDamodaran

Since RBI publishes the inflation forecast for 5 years and 10 years, PP has considered both 5 and 10 year inflation.

Inflation Forecast for India as per RBI website:

Project Participants' Name	Inflation Forecast		Benchmark	
	5 Years	10 Years	5 Years	10 Years
Orange Charanka Solar Energy Private Limited	5.00%[2]	4.50%2	16.61%	16.06%

As a conservative approach, lower among the two benchmark is considered for this project activity which is 16.06%. Assessment team found the approach conservative and correct and thus the benchmark is acceptable.

b)Parameters and assumptions used:

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 03, the project cost is based on the DPR (=Detailed project report) dated 18/06/2016. The DPR report has been submitted to validation team. The cost of Panel is 64Mn/MWwhich 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 03 is correct and it is in line with as well as in compliance to EB 92, Annex 5 and VVS version 09.0. Hence, the project cost consideration is justified. Moreover, the actual cost of the project activity is also 64Mn/MWas per the placed purchase order and thus the project cost is acceptable to the DOE.

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 16/02/2017and found that the ratio of Debt to equity was considered correctly for the present validation condition.

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 solar panels, which is evidenced by the DPR subsequently.

c) Assessment of Plant Load Factor (PLF):

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 dated 16/06/2016 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

[2] https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=16980

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 deration factor is already included. The decay factor for IRR calculation is sourced from state electricity tariff order (http://www.gercin.org/uploaded/document/ac6e8efc-297b-408a-ac92-4c89c74c7501.pdfwhich was available to the PP at the time of investment decision. Hence the value is considered correct. Hence the decay is acceptable.

d)Assessment of Electricity Tariff:

The tariff of INR 4.43 per kW his considered from DPR dated 18/06/2016 available 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 guidanceEB 92, Annex 5. Assessment team had done further cross check and found that the project was awarded under the JNNSM (Jawaharlal Nehru National Solar Mission) Phase-II, Batch-IV. However, at the time of application for bidding, SECI had provided an RfS (Request for Selection) document to all prospective bidders. It specifically mentions the tariff to be INR 4.43 per kWh. 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 purchase agreement. Thus the applied tariff is acceptable to the assessment team.

e) Assessment of O& M cost:

PP considered the O&M cost from the DPR dated 18/06/2016. The DPR has been used in the financial calculation as same was available during decision making and hence applicable. According to Appendix of EB 92, 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 EB 92, Annex 5.

f) Assessment of Tax computation:

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 EB 92, Annex 5.). Hence, these assumptions are appropriate during decision making context.

g) Cross checking parameters:

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. Also actual signed PPA between PP and State electricity board also mentions the same tariff rate.

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.

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.

Considering the input values, Equity IRRs is given below:

Project Participants' Name	Equity IRR without CDM	Benchmark(Equity IRR)
Orange Charanka Solar Energy Private Limited	11.59%	16.06%

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 favorable 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	9.35%	11.59%	14.16%	16.86%
O&M	11.85%	11.59%	11.34%	-175.49%

Project Cost	14.56%	11.59%	9.53%	-13.96%
Tariff Rate	9.35%	11.59%	14.16%	16.86%

- 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 INR 64Mn/MW for financial analysis is considered from DPR. Moreover, the actual cost is also same as the cost considered in DPR. Hence, change in project cost is highly unlikely

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 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.

DOE also re-affirms that the project activity complies with the requirement of additionality determination in ACM0002 version 17, which is the latest applicable methodology available to the project participant.

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[3]:

1. Applicable Geographical Area (Para 9): The Gujarat state has been considered as the applicable geographical area for this project. PP had considered the state of Gujarat 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 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)

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

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 Gujarat 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: Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Range	Capacity	Unit
+50%	60	MW
Capacity of the proposed project activity	40	MW
-50%	20	MW

Step (2): Identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

(a) The projects are located in the applicable geographical area;

(b) The projects apply the same measure as the proposed project activity;

(c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;

(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;

(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;

(f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows (cdm.unfccc.int.):

a) As the projects are located in Gujarat state of India, therefore, projects in the geographical area of Gujarat have been chosen for analysis. Each state has different policy for tariff, hence Gujarat state is considered as geographical region for the project activity.

b) The project activity is a green-field solar power project and uses measure (b) "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies". Therefore, projects applying same measure (b) are candidates for similar projects.

c) The energy source used by the project activity is solar. Hence, only solar energy projects have been considered for analysis.

d) The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.

e) The capacity range of the projects is within the applicable capacity range from 20 MW to 60 MW.

f) The start date of the project activity is 19/12/2016. Therefore projects, which have started commercial operation before 19/12/2016, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are

N_{solar}= 20

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all}.

CDM project activities, which have got registered or are under validation, have been excluded in this step. The list of the power plants identified is provided to the DOE. After excluding the registered and under validation projects the total number of projects,

$\mathbf{N_{all} = 2}$

Step (4): Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff}.

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

2. Investment climate on the date of the investment decision

Moreover, the proposed project activity is developed and implemented under JNNSM Phase-II, Batch-IV under the VGF scheme of Grid connected Solar PV Projects in Gujarat Solar Park at Charanka. The PP has bid under the Open Category, i.e., PV modules can be sourced from outside India. Since the cost of foreign manufactured components is quite different than projects that are bid under DCR (Domestic Content Requirement) category (modules to be sourced locally), accordingly VGF is deemed to be higher for projects sourcing components locally. Therefore the Projects other than Open Category projects are considered as different projects on account of different Investment Climate for such projects. Hence, such projects under DCR category are counted for calculating Ndiff projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating N_{diff} projects.

$\mathbf{N_{diff} = 0}$

Step (5): Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

Calculate $F=1-N_{diff}/N_{all}$

$F = 1-(0/2) = 1$

As per methodological tool “common practise” version 03.1, 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 Nall-Ndiff is less than 3.

Thus if both conditions are fulfilled, then project activity will be a common practise otherwise, the project activity is treated as not a common practise.

Outcome of Common Practise Analysis:

As,

1. F = 1; is not less than 0.2

2. $N_{all}-N_{diff} = 0$; is less than 3

The proposed project activity is not a "common practice" within a sector in the applicable geographical area.

The above discussions show that solar power development is not a common practice and the project activity is not financially attractive; hence the project activity is additional.

3.10.- Sustainability Assessment

Do no harm assessment

The project passport has taken into account all the safeguarding principles as mentioned in GS document Annex H. The project proponent has assessed all the risks and all the safeguarding principle is associated with low risk. None of the principles are associated with the medium/high risk of breaching the safeguarding principles.

Serial Number	Safeguarding principle	Level of risk	Assessment team's Opinion/justification for the mitigation measure
1	The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in Human Rights abuses.	LOW	India has signed the universal declaration of Human rights (UDHR) and the project follows the same. Assessment team checked ISO manual for QMS at corporate level. The policy respect internationally proclaimed human rights and hence, the low risk level was found applicable. Hence the safeguarding principle#1 is implemented properly
2	The project does not involve and is not complicit in involuntary resettlement.	LOW	Land has been allotted on lease basis by Government Agency, thus there is no any conflict or resettlement process is involved. No Expropriation has been conducted on any private land involved in project activity. The DOE discussed the same during the validation site visit and found the result to be satisfactory. Hence the safeguarding principle#2 is implemented properly.
3	The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage	LOW	The solar module is installed in the barren land and no cultural heritage has been hampered verified during the site visit. Hence, the low risk level was found applicable. During the validation site visit it was observed that as project was approachable by existing public road, no road construction was undertaken by the project except for internal plant road. Plant land was generally plain so no major excavation and filling

			work was required for making the land level save excavation for foundation of individual structure. As soil is/was alluvial, there was no need of blasting. Hence, the safeguarding principle#3 is implemented properly.
4	The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restriction of these freedoms and rights.	LOW	The employees were interviewed during the site visit and no such restriction was imposed. Hence, the low risk level was found applicable
5	The project does not involve and is not complicit in any form of forced or compulsory labor.	LOW	The labor rights are protected as per labor law in India. The right to unionize, bargain collectively are highly protected by this law. All the employees are involved in the project activity on voluntary basis and no child labor is involved. The project activity is not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. Project activity, being as solar panels, does not expose the employees to any adverse environment. During the site visit the employees were also interviewed to cross verify the information and no such restriction was imposed. Hence, the low risk level was found applicable.
6	The project does not employ and is not complicit in any form of child labor.	LOW	The employees were interviewed during the site visit and the following feedback was received: 1) The employer has a human resource policy which is communicated to every employee during induction/joining. The policy document is also accessible to all employees all time. 2) There were no migrant workers As most of the workers are recruited locally. 3) None of the employees is below18 years. This was further cross-checked from the HR record so fall employees. 4) No employee works as a forced/bonded labor. Hence, the low risk level was found applicable.
7	The project does not involve and is not complicit in any form of	LOW	The HR data was checked and it was observed that the project doesn't

	discrimination based on gender, race, religion, sexual orientation or any other basis.		involve any form of discrimination based on race, religion, sexual orientation or any other basis. The employees were interviewed and no such restriction was imposed. Hence, the low risk level was found applicable
8	The project provides worker with a safe and healthy work environment and is not complicit in exposing worker to unsafe or unhealthy work environments.	LOW	PP follows international standards for environment, health and safety, the project activity does not expose the workers to unsafe or unhealthy work environment. Also the safety trainings provided to the workers. Thus risk associated is low.
9	The project takes a precautionary approach in regards to environmental challenges and is not complicit in practices contrary to the precautionary principles.	LOW	The environment is protected by environmental laws and regulations in India. The project has received all statutory clearances. Thus risk associated is low.
10	The project does not involve or complicit in significant conversion or degradation of critical natural habitats including those that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value or (d) recognized as protected by traditional local communities	LOW	The project proponent has implemented Environment Health Safety and Social guideline which takes into account the same. Thus risk associated is low.
11	The project does not involve and is not complicit in corruption.	LOW	India has ratified the UN Convention against corruption and also has it National Prevention of Corruption Act, 1988 and thus the project activity does not involve and will not be complicit in corruption. All the legal requirements were taken care regarding the project and were checked by the assessment team. It can be confirmed that all the operations are done as per the provisions. Hence, the low risk level was found applicable

In summary, assessment team is of the opinion that there are no critical issue identified under "Do no harm" assessment and project found meeting the requirement.

Sustainability development matrix

The project participant has considered all the indicators mentioned in annex and all the suitable indicators required in case of project activity. There are few indicators that have been indicated as neutrals core as the positive impact of these parameters cannot be monitored effectively. The project also does not have any negatives core against any of the indicator/parameter selected.

S.No.	Indicator	Assessment and acceptance/non acceptance

1	Air quality	The project generates clean energy which replaces the fossil fuel intensive electricity generation. Also report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013. This report clearly mentioned that Solar farms operations do not result in direct air pollution. Adequate measures were taken to mitigate the envisaged impacts like spraying water on the road side to reduce dust level, etc. This was confirmed by the local stakeholders during Validation site visit. Therefore, it is validated that mitigation measures were robustly implemented on ground for air quality issues project will have a positive impact on air quality, however as a conservative estimate the impact in the SDM is considered as neutral and the PP does not wish to include the same which is acceptable to the assessment team.
2	Water quality and quantity	The project has no effect on water quality and quantity because it neither generates any waste nor consumes any water. It was validated during on-site assessment that there was no requirement of water for operations of solar panels and the only usage of water was for drinking and sanitation purpose. The consumption of fresh water during construction was also pretty much limited as confirmed by the local stakeholders during validation site visit. Small amount of water is used for cleaning of solar panels and the same is acceptable to the DOE. Hence the parameter is indicated as neutral and the same is acceptable to the DOE
3	Soil condition	There are negligible impacts envisaged during operation of the project activity. For mitigating the impacts during construction, various mitigation measures were taken which is validated from the plant records of PP and the interview with local villagers. The top soil excavated during construction, was stockpiled and

		used for compaction. The roads were not paved and soling was done with excavated earth & rock material, so land disturbance could be minimized. It was also confirmed that, the vegetation done at site helps for soil erosion. The same is confirmed during the stakeholder meetings during onsite visit. Therefore, it can be concluded that the project has no effect on soil conditions during its operation because it has no waste coming out.
4	Other pollutants - noise	During the operation of the Solar Panels there will be some noise due to electrical equipment's like transformers etc. The maximum decibel level of sound due the project activity equipment's is less than 60 dB which is within permissible limit. Also as distance increases, sound level will be less and less audible. Thus there will be no negative impact on the settlement areas in this project due to the distance. Also report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013. This report does not mention any noise pollution from Solar Panels, thus there is no any impact of noise pollution due to project activity. This report clearly mentioned that solar farms operations do not result in any significant noise pollution. There are no other pollutants generated from the solar power project (renewable energy project).
5	Other pollutants	Solid waste due to construction and daily activities of staff, during both construction and operation phases, will be handled and disposed of in an approved manner; therefore no soil contamination will result. Waste water holding tanks / septic tank will be located away from bore wells or any other underground water holding tanks. It was confirmed during on-site assessment that there was no spillage of lubricants or any other form of ground water contamination observed within the project premises. Therefore, the DOE concludes that there is

		negligible risk of improper management of waste or any adverse impact on environmental due to waste due to project operations. Therefore, the monitoring of waste management of the project activity is not required.
6	Biodiversity	During the validation site visit it was observed that the condition of ground vegetation will be gradually improved; No rare species has been found in the around area. The project site is not on the migration route of migratory bird. As Such solar panels do not have any obstruction in the path of migratory birds. With the implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement. Therefore, the monitoring of this parameter of the project activity is not required.
7	Quality of employment	The project activity employed local population as skilled workers as well as security guards which were envisaged during the validation site visit. The personnel employed by the project activity are also provided trainings and exposed to various awareness programs therefore a positive indicator has been accepted.
8	Livelihood of the poor	The project is associated with infrastructure development like roads in the nearby areas and promoting economic activities like grants to local school and communities temples etc. Also, project employed local villagers as guards for the security of solar panels. However, the impact is not significant and direct.
9	Access to affordable and clean energy services	The project will help to reduce high share of imported fossil fuel dependency of India. In baseline, equivalent quantity of electricity would have been generated from fossil fuel dominated grid connected power plants. Thus project activity helps to increase renewable energy contribution for grid connected power plants. The parameter is considered as sustainable monitoring

		parameter.
10	Human and institutional capacity	The project activity will have an overall positive contribution to the sustainable development of the region. However, it is difficult to measure the positive changes in the project scenario compared to the baseline specifically in terms of education & skills, gender equality and empowerment. In practice, only the employees working on the Project can be considered as the main beneficiaries. The parameter is also a part of organization CSR activities. The parameter is considered as sustainable monitoring parameter.
11	Quantitative employment and income generation	Project activity provides employment to local people and Local persons are employed as security guards, supervisors and even peons. The project activity expected to generate the employment for more than 30 people and they are getting more payment than local level. It is also checked during the site visit that local people will be employed permanently until the operational lifetime of the Project Activity. However as the parameter is subjected to monitoring the same will be checked during each verifications.
12	Access to investment	The project has no direct effect on this parameter
13	Technology transfer and technological self-reliance	In the project activity, technology shall be sourced primarily from inside the country and introduced into the region. At the same time, the project activity shall build usable and sustainable know-how in the region for the technology, where know-how was previously lacking. Hence the project presents ample opportunities of replication in other areas. However, constant monitoring of this parameter involves complexities and hence this parameter is scored neutral as a conservative approach.

Overall it can be summed that the project activity has no negative outcome and aids in sustainable development. The assessment team reviewed the sustainability development matrix as required by the Gold Standard toolkit and is of the opinion that the PP takes into account all the indicators and sufficiently measures the outcome in order to conclude that the project will have a positive impact. The Solar Panels of project activity do not have any effect on transmission system. The project meets all regulatory requirements and running satisfactorily since commissioning of project activity. Also panels are away from residential area, hence there is no any issue of shadow flicker. There is no any feedback received during Local Stakeholder Consultation meeting or during SFR regarding shadow flicker. Thus project does not have any negative impact on additional aspects.

3.11.- Sustainability Monitoring plan

The project developer has developed a credible and rational monitoring plan to assist the monitoring of the sustainability indicators. The parameters being monitored are as follows:

Chosen Parameter	Indicator	Monitoring
Indirect parameter of "Total clean and renewable electricity supplied by the Project" is measured in order to calculate the concentrations of CO_2, as multiplied by default national emission factor from the Indian grid.	Air quality	The net electricity supplied by the Project will be continuously measured by electricity meters. The net electricity supplied can also be cross checked from the invoices which are as per the requirement of the approved methodology.
Training records, categories of jobs created, working conditions of the project activity, occupation health management, and safeguard put in place and living standards of the plant staff.	Quality of employment	The training records are maintained on regular basis with annual consolidation
Change in energy use	Access to affordable and clean energy services	The net electricity supplied by the Project will be continuously measured by electricity meters. The net electricity supplied can also be cross checked from the invoices which are as per the requirement of the approved methodology.
Number of employment opportunities created	Quantitative employment and income generation	Documentation pertaining to employment, attendance register and documentary details of training/capacity building. Assessment team also checked the salary slips and confirms that due to project activity peoples are getting minimum Rs. 350 per day as a salary and this salary is better than local level salary. Based on the roles and responsibility of employee, the

		salary will be higher than the minimum salary mentioned and hence the parameter monitoring is acceptable to the assessment team.
Total number of beneficiaries of the initiatives undertaken by the Project Developer to enhance the human and institutional capacity of the local stakeholders.	Human and institutional capacity	The parameters can be monitored by Photographs, cheques, donation receipts, CSR reports and other supportive documentation on reporting as provided to the assessment team.

<u>Additional monitoring as per the requirement of ACM 0002 version 17:</u>

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 PDD (version 03), the Monthly joint meter reading reports 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[4]. 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.

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

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.

3.12.- Calculation algorithm and/or formula used to determine emission reduction

The baseline emissions as discussed in section B.6.1 of the PDD 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):

$BE_y = EG_{facility,\,y} * EF_{grid,\,CM,\,y}$-------------------------- (1)

Where

BE_y = Baseline Emissions in year y; (tCO_2)

$EG_{facility,y}$= 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 6.0 which 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 6.0””: 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 are 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	PLF (%)	Generated Power(MWh) p.a	Baseline Emission Factor (tCO_2/MWh)	Baseline emissions (tCO_2/ year)
Orange Charanka Solar Energy Private Limited	19.02%	86,347	0.9777	84,421

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 solar 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[5] 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, $ER_y = BE_y$.

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3.13.- Stakeholder consultation for Gold Standard

As per the CDM requirements the start date of the project is 19/12/2016 and stakeholder consultation meeting took place on 26/07/2016 which 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 14/07/2016) 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

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

head), Solar Panel 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.

Thus Validation team is of the opinion that the stakeholder meeting was adequate and appropriate.

3.14.- Stakeholder Feedback Round

The project activity is a retroactive project and therefore PP was required to conduct a Stakeholder Feedback Round (SFR) covering the issues (if any) related to the project activity. An email was sent to all the stakeholder and comment are envisaged from 29/06/2017 for 2 month period. Also the local stakeholders (villagers and farmers) were informed via public notices dated 28/06/2017 regarding SFR round. The sample of onsite emails is also submitted to the DOE. The email attachment is also checked by the assessment team and found correct. Following observations are made by the DOE:

- Different representative of stakeholders like local villagers, head of panchayat, NGOs, Orange employees were invited for their comments via emails during stakeholder's feedback round

- No negative comments were received during the period starting from 29/06/2017 to 2 months' time period and local stakeholders were very satisfied with the project activity implementation and operation in their area.

Assessment team asked following queries to the stakeholders during the validation site visit and concludes that stakeholders are overall happy with the implementation of the project activity.

Some of the questions asked to the stakeholders mentioned in section 2.3 of this report are reported below:

<table>
<tr><td>Name of the stakeholder</td><td>Dungar Bhai</td></tr>
<tr><td>Occupation</td><td>Local Stakeholder</td></tr>
<tr><td colspan="2">DOE QUESTION: Did this Solar power plant cause any pollution?
Answer: No, the plant does not cause any pollution.
DOE QUESTION: Did PP promised employment opportunity?
Answer: Yes, PP told us that employment will be generated and the locals will be given priority.
DOE also like to conclude that during the site visit it was observed that local people were employed for security and operation related work like water spraying, vegetation improvement and other unskilled work. DOE also found that skilled local persons were also employed by the organization for the operation and maintenance of the power plant.</td></tr>
</table>

Name of the stakeholder	Shivram Maharaj

Occupation	Local Stakeholder
DOE questions: Did the power plant discharge any harmful pollutants? Answer: NO the plant does not discharge any harmful pollutants. DOE questions: Did the power plant destroy any crop fields? Answer: The plant is implemented in barren land and there were no any fertile land or crop which is damaged. DOE thus conclude that stakeholders are happy with the implementation of the project activity.	

4.- FINAL VALIDATION OPINION

Applus+ LGAI has performed a validation of the"40 MW Orange Charanka Solar Power Project in Gujarat, India". The validation was performed on the basis of UNFCCC criteria VVS version 09, Gold Standard version 2.2 and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the passport and the subsequent follow-up interviews has provided Applus+ LGAI with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project meets all relevant UNFCCC and Gold Standard requirements for the Gold Standard and all relevant host country criteria. The project will hence be recommended by Applus+ LGAI for registration with the Gold Standard Registry.

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. 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 of84,421tCO_2e per year.

The validation has been performed following the requirements of the latest version of the CDM VVS version 09, Gold Standard version 2.2 and on the basis of the contractual agreement.

In detail the conclusions can be summarized as follows:
- The project meets all eligibility criteria set by the GS PFA process.
- The project does not result in negative social, environmental and/or economic impacts.
- The project contribution to Environment, Social Development and Economic and technological development
- The project additionality is sufficiently justified in the Gold Standard Passport.
- The project does not result in diversion of ODA.
- Conservative assumptions were applied in the project description.
- The monitoring plan of SD parameters is transparent and adequate.
- The project meets the stakeholder consultation requirements.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Assessment team:

Date: 20/04/2018

Leader Auditor: Mr. Sukanta Das

B.U. Systems Certification Area Manager: Mr. Juan Sendín Caballero

Assessment Team Leader: Mr. Sukanta Das.	Technical Reviewer Simon Shen Meng SHEN.
B.U. Systems Certification Area Manager: Juan Sendín Caballero	

Appendix 1: Corrective action/Clarification request/Forward Action request resolution table

GS PASSPORT FINDINGS:

<table>
<tr><td>Type:</td><td>☒ CAR ☐ CL/CR ☐ FAR</td><td>Number:</td><td>#1</td></tr>
<tr><td>Raised by:</td><td>SUKANTA DAS</td><td>Ref. to checklist in above tables:</td><td></td></tr>
<tr><td colspan="2">Description of the audit finding</td><td>Date:</td><td>15-07-2017</td></tr>
<tr><td colspan="4">During the document review of passport v.1 it is observed that the Sustainability feedback round documents were not submitted to the assessment team. SFR explanation in the passport is thus reserved till the document is submitted. The PP shall also provide the invitee list of stakeholder feedback round and how SD, NO Harm assessment, Sustainability monitoring parameters and GS aspects were discussed with local stakeholders.
Corrective action is sought in this context.
Also please submit following documents:
1. Public notice to stakeholder for SFR
2. Emails submitted to stakeholder regarding SFR
3. How the grievance mechanism was made understood to the stakeholders. How the comments can be provided by the stakeholders during the verification of the project.</td></tr>
<tr><td colspan="2">Project Participant's response</td><td>Date:</td><td>09/09/2017</td></tr>
<tr><td colspan="4">The SFR has been carried out on 13th July 2017. The supporting documents like MoM, attendance sheet, invitations and photographs are submitted herewith.</td></tr>
<tr><td colspan="4">Documentation provided as evidence by Project Participant</td></tr>
<tr><td colspan="4">MoM, attendance sheet, invitations and photographs for SFR
Email to GS stakeholders, MOEF, NGO's.</td></tr>
<tr><td colspan="2">Auditor's assessment comment</td><td>Date:</td><td>11/09/2017</td></tr>
</table>

Following are the observation of the DOE: Assessment team checked the SFR meeting documents held on 13th July 201. The minutes of meeting, pictures and attendance sheets are checked by the assessment team. The local stakeholders were invited via invitations and stakeholders meeting were conducted appropriately. The grievance mechanism was also discussed during the SFR round. The stakeholders were also interviewed by the assessment team during the onsite visit and it is understood that stakeholders are aware about the project activity and positive about the implementation of the project activity. However, emails to GS stakeholders. MOEF and NGOs were not submitted to DOE. Also PP didn't describe how NO Harm assessment, Sustainability monitoring parameters was discussed with local stakeholders.CAR is thus open in this context.		
Project Participant's response	Date:	13/09/2017
Email sent to GS stakeholders, MOEF and NGOs are now being submitted to the DOE. Moreover, revised MoM of the SFR meeting is being provided to the auditor that was discussed during the meeting.		
Documentation provided as evidence by Project Participant		
Email sent to GS stakeholders, MOEF and NGOs Revised MoM of SFR meeting		
Auditor's assessment comment	Date:	23/09/2017
The emails sent to GS stakeholders, MOEF and NGOs is checked and found correct by the assessment team. Revised Minutes Of Meeting of SFR meeting is also checked and it is now confirmed that Sustainability monitoring parameters were discussed with local stakeholders and stakeholders are happy with the implementation of the project activity. CAR is thus closed.		

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	#2
Raised by:	SUKANTA DAS	Ref. to checklist in above tables:	
Description of the audit finding		Date:	15-07-2017
In section E.3 of the passport it was observed that a grievance mechanism is missing. The assessment is reserved till the documents are submitted and passport is modified.			
Project Participant's response		Date:	09/09/2017
The Grievance mechanism has been formulated and explained to the stakeholders during the SFR. The procedure is provided herewith. The relevant sections in the GS passport have been revised.			
Documentation provided as evidence by Project Participant			
Grievance mechanism for the project. Revised GS Passport			
Auditor's assessment comment		Date:	11/09/2017
The Grievance mechanism has been formulated and explained to the stakeholders during the SFR. The passport is thus revised in this context which is acceptable to the assessment team. CAR is thus closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	#3

Raised by:	SUKANTA DAS	Ref. to checklist in above tables:	
Description of the audit finding		Date:	15-07-2017
During the document review and site visit it was observed that Environment, Health, Safety and Social Guidelines for Power Projects are in place to tackle various environmental, employee safety and health issue. However, the same documents were not provided to the assessment team. Corrective action is sought.			
Project Participant's response		Date:	09/09/2017
Orange Renewable as a Health and Safety and Environment policy designed to ensure safe and healthy work environment for all its employees, contractors and all stakeholders which is applicable to the whole group and its subsidiaries. The relevant sections of the GS passport are revised.			
Documentation provided as evidence by Project Participant			
HSE policy for Orange Renewable			
Auditor's assessment comment		Date:	11/09/2017
The Environment, Health, Safety and Social Guidelines policy confirms that the project activity is in line with the environmental and social guideline of the host country. The corporate HSE policy depicted and also the code of conduct of the company clearly demonstrate that the company is very much concern with environment and well being of there employees safety. Assessment team checked the group corporate policy and found the same is in line with host country requirement. The same is followed across the company/ subsidiaries and thus is acceptable to DOE. CAR is thus closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	#4
Raised by:	SUKANTA DAS	Ref. to checklist in above tables:	
Description of the audit finding		Date:	15-07-2017
Following information is missing in the passport related to safeguard principles: Safeguarding Principle #2: The PP shall also share information if any expropriation has been conducted on any private land or not. If land acquisition is done on a private land or estate, please share how the process has been managed.			

Safeguarding Principle # 9: The PP shall provide justification on impacts on the environment due to the project activity and the precautionary approaches taken. The PP is required to discuss the minimum impacts as well, for e.g. impacts due to transmission lines, blasting activities (if any) during construction phase, road construction, etc. Corrective action is sought for the same.		
Project Participant's response	Date:	09/09/2017
Safeguarding Principle #2: The Land for the project has been taken on Lease for 30 years from the government entity (Gujarat Power Corporation Limited). Thus no land acquisition was carried out by the PP. Safeguarding Principle # 9: The GS passport has been revised to provide the impacts on the environment due to the project activity. The report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013 has been referred to the impacts associated from Solar power projects. This report clearly mentioned that solar farms operations do not result in adverse environmental impacts.		
Documentation provided as evidence by Project Participant		
Revised GS Passport		
Auditor's assessment comment	Date:	11/09/2017
Following are the observations of the DOE: 1. Assessment team checked that the Land for the project has been taken on Lease for 30 years from the government entity (Gujarat Power Corporation Limited). Therefore, No land was carried out by the PP and hence CAR is closed. 2. The project takes a precautionary approach in regard to environmental challenges and is not complicit in practices contrary to the precautionary principle" –As project was approachable by existing public road, no road construction was undertaken by the project except for internal plant road. Plant land was generally plain so no major excavation and filling work was required for making the land level save excavation for foundation of solar panel structure. There are no any impacts observed during construction and operation stage. The GS passport is revised with more explanation for this principle. CAR is thus closed.		

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	#5
Raised by:	SUKANTA DAS	Ref. to checklist in above	

		tables:	
Description of the audit finding		Date:	15-07-2017
Annex 1 of Passport refers PDD section A.4.5 of the PDD for ODA assistance. However supporting is not submitted till date. Annex M and Annex S as required by GS are also missing. Environment Impact Assessment Report is also missing for the project activity. Corrective action is sought for the same.			
Project Participant's response		Date:	09/09/2017
The PP has declared that no ODA assistance was received for the project, Loan Sanction and other financial details are provided herewith to demonstrate the source of Funding. Annex M and Annex S are attached herewith. As per the notification from MoEF dated September 14, 2006 and its amendment notification S.O.-3067(E) dated 1/12/2009, the list of project activities which require prior environmental clearance is stipulated. This does not include the proposed project activity type as it involves solar power generation. Hence the proposed project activity does not require any Environmental impact analysis.			
Annex M, Annex S, Revised GS Passport			
Auditor's assessment comment		Date:	11/09/2017
Assessment team checked that EIA assessment is not required for the present project activity as per the host country regulations. However, Annex D and Annex S are missing. CAR is thus open.			
Project Participant's response		Date:	13/09/2017
Annex D and Annex S are now being provided.			
Documentation provided as evidence by Project Participant			
Annex D Annex S			
Auditor's assessment comment		Date:	23/09/17
Annex D and Annex S is checked and found correct. CAR is thus closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	#6
Raised by:	SUKANTA DAS	Ref. to checklist in above tables:	
Description of the audit finding		Date:	15-07-2017

1. The PP shall please note that all sustainable development indicators scored (-, 0 or +) must be justified with the help of reference document in SD Matrix. Therefore, provide justification paragraph & reference documents for all the sustainable development indicators in the table provided in the consolidated SD Matrix of GS passport version 01.

2. Air Quality: The **PP** shall please include the discussion on dust emissions as a monitoring parameter during construction phase.

3. Water quality and quantity: PP mention that water will only be use for domestic use and Minor volumes of sewage will be generated from toilet facilities at the site office. The septic tank volume and quantity of domestic water usage is not provided. Moreover, as per DOE experience water is also required for panel operation and maintenance, the discussion of same is missing. Please elaborate.

4. Other pollutants: PP shall require to explain the noise "db" level during the operation of the power plant. Please elaborate how the sound from the transformer /generator/ alternator and other electrical equipment will be controlled.

5. Other pollutants: The PP shall discuss the impacts by the project on landscape by referring to a credible information source. The PP shall also discuss if any access roads were open for transportation of project equipment.

6. **Biodiversity** – The **PP** shall please discuss and share details of potential destruction on vegetation cover and trees due to the

project together with access road structures if applicable. Please provide mitigation measures accordingly and support with responsive monitoring parameters. Please also share credible information with respect to the local flora and fauna and potential impacts of the project

7. Quantitative employment opportunities and income generation: The PP shall provide the expected number of jobs shall be created in the crediting period.

8. The PP shall provide the ER estimation vintage wise in the form of DD/MM/YYYY to DD/MM/YYYY with the start date as expected start of crediting period. ER estimation is reserved till the submission of the proper documents.

9. The PP shall include the address detail in the table where address book will be placed

10. The parameter of salary payment which is better than local level is missing in the monitoring plan.

11. The PP shall provide reference sources/documents for all the sustainable indicators irrespective of the scores provided to the SD indicators

    - Livelihood of the poor. The PP is requested to provide more information on how the project activity has resulted in the improvement of livelihood of people in terms of various parameters discussed in Annex I and Annex G of GS Toolkit v2.2.
    - Human and Institutional Capacity. The PP shall discuss if the project activity will impact the education & skills, gender equality and empowerment. If the project activity will have a positive contribution to this indicator, which shall be added into monitoring plan. Please refer to GS Annex I and G of GS Toolkit v2.2 for more information.
    - Quantitative employment and income generation. The PP shall discuss the expected number of employments generated by the project activity and if the income paid is better than local level.

Corrective action sought.		
Project Participant's response	Date:	09/09/2017

1. All sustainable development indicators scored (-, 0 or +) have been justified with the help of reference document in SD Matrix.
2. Air Quality: Discussion on dust emissions as a monitoring parameter during construction phase has been described.
3. Water quality and quantity: The water consumption for domestic use is expected to be minor volumes of 0.5 KLD. Further, water is also required for panel operation and maintenance, the discussion of same is added in the GS Passport.
4. Other pollutants: Pls. refer the report from MNRE which mentions that noise pollution from Solar projects are negligible and thus are not significant.
5. Other pollutants: With the implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement. Further, since the land for the project is sourced from Government entity thus dedicated road access is available for the project.
6. **Biodiversity** – With the implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement.
7. Quantitative employment opportunities and income generation: The project activity generates employment both directly and indirectly for unskilled labor on contract basis. The total number of employees both skilled and unskilled ranges from 5 to 40 depending on the labour requirement on any given day.
8. The vintage wise ER is provided in the ER sheet. Since the commissioning is on 4th August 2017,thus year 1 would be 4thAugust

2017 to 3rd August 2018 and similarly for the next 7 years covering the first crediting period. 9. The Input/Grievance Register is maintained at project site office and is available to all the stakeholder. 10. The parameter of salary payment is included in the monitoring plan. 11. The PP shall provide reference sources/documents for all the sustainable indicators irrespective of the scores provided to the SD indicators • Livelihood of the poor. The total number of local unskilled workers ranges from 5 to 40 depending on the labour requirement on any given day. The income to all the unskilled workers is made on day to day basis with the minimum being Rs. 350 per day. • Human and Institutional Capacity. The project activity will have an overall positive contribution to the sustainable development of the region. However, it is difficult to measure the positive changes in the project scenario compared to the baseline specifically in terms of education & skills, gender equality and empowerment. In practice, only the employees working on the Project can be considered as the main beneficiaries. Thus, it is considered that the project activity does not have a significant impact on human and institutional capacity. • Quantitative employment and income generation. The total number of local unskilled workers ranges from 5 to 40 depending on the labour requirement on any given day. The income to all the unskilled workers is made on day to day basis with the minimum being Rs. 350 per day.
Documentation provided as evidence by Project Participant
GS Passport version 2.

Employee record, payment records.		
Auditor's assessment comment	Date:	11/09/2017
Following are the observations of the DOE: 1. All sustainable development indicators scored (-, 0 or +) have been justified with the help of reference document in SD Matrix. CAR is thus closed. 2. Discussion on dust emissions as a monitoring parameter during construction phase is included as Air Quality. CAR is thus closed. 3. The quantity of water required for panel operation and maintenance is not described in the parameter. CAR is thus open. 4. As per MNRE report noise pollution from Solar projects are negligible and thus are not significant. CAR is thus closed. 5. Assessment team checked that implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement. Further, since the land for the project is sourced from Government entity thus dedicated road access is available for the project. However, vegetation pictures are not provided to assessment team. CAR is open. 6. Assessment team checked that implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement. However, vegetation pictures are not provided to assessment team. CAR is open. 7. Assessment team checked during the validation site visit that 5 to 40 local employees will be employed during the CP. The		

<table>
<tr><td colspan="3">same is acceptable and thus CAR is closed
8. The vintage wise ER is provided in the ER sheet. Since the commissioning is on 4th August 2017,thus year 1 would be 4th August 2017 to 3rd August 2018 and similarly for the next 7 years covering the first crediting period. CAR is thus closed

9. The Input/Grievance Register is maintained at project site office and is available to all the stakeholder. CAR is thus closed

10. The parameter of salary payment is included in the monitoring plan. CAR is thus closed.

11. The project activity helps for employment generation, thus people nearby site gets employment and their income increased due to project activity. Due to increase in income of local poor people, the standard living of poor is improved due to implementation of project activity. However, the impact is not significant and direct and parameter is considered as neutral. CAR is thus closed.

12. The project activity does not have any direct impact on education & skills, gender equality and empowerment, however this increase in income of nearby local people helps the human and institutional capacity indicators. In practice, only the employees working on the Project can be considered as the main beneficiaries. Thus, it is considered that the project activity does not have a significant impact on human and institutional capacity and considered this parameter as neutral. CAR is thus closed.

13. The project activity envisages to employee at-least 5 to 40 local peoples from the nearby villages. However since the parameter is subjected to monitoring hence the same will be checked during the verification. CAR is thus closed.</td></tr>
<tr><td>Project Participant’s response</td><td>Date:</td><td>13/09/2017</td></tr>
<tr><td colspan="3">1. The quantity of water required for panel operation and maintenance is now described in the passport.

2. Vegetation pictures are now being provided to the auditor for its perusal.</td></tr>
</table>

3. Vegetation pictures are now being provided to the auditor for its perusal.
Documentation provided as evidence by Project Participant
GS Passport version 3 Vegetation pictures

Auditor's assessment comment	Date:	23/09/2017
Following are the observations of the DOE: 1. The quantity of water is now mentioned in the revised passport. The same is acceptable to the assessment team and thus CAR is closed 2. The vegetation pictures are now provided to the assessment team and thus CAR is closed.		

CDM PDD FINDINGS

CAR ID	01	**Section no.**	A.1	**Date:**15/07/2017
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" the APPLUS Project Team has the following observation: 1. The version of tool referred in section A.1 is not provided. 2. The sectoral scope(s) and type of the project activity has not been mentioned in section A.1 of PDD. 3. The terminology "Project Proponent" is not correct as per "Glossary CDM terms". Please check the same throughout the PDD. 4. The document related to technical lifetime is not provided to the DOE for solar technology Corrective action is sought for the above queries and requisite documents needs to be submitted.				
Project participant response				**Date:**04/09/2017

1. The version of the "Tool to calculate the emission factor for an electricity system" is already provided under section A.1 of the PDD. 2. The sectoral scope and type of the project activity has now been mentioned in section A.1 of PDD. 3. The term "Project Proponent" has been replaced by "Project Participant" throughout the PDD in line with "Glossary CDM terms". 4. The same is being provided for perusal of the DOE.	
Documentation provided by project participant	
1. Revised PDD 2. Document supporting technical lifetime of project	
DOE assessment	**Date:**11/09/2017
Following are the observation of the DOE: 1. The version of tool referred in section A.1 is provided in the revised PDD. CAR is thus closed. 2. The sectoral scope(s) and type of the project activity has now been mentioned in section A.1 of PDD. CAR is thus closed. 3. The term "Project Proponent" has been replaced by "Project Participant" throughout the PDD in line with "Glossary CDM terms". CAR is thus closed. 4. The document related to technical lifetime is provided to the DOE for solar technology and same confirms that the technical lifetime of the project is 25 years, CAR is thus closed.	

CAR ID	02	**Section no.**	A.3	**Date:**15/07/2017
Description of CAR				
The technical description is provided in section A.3 of the PDD however the supporting is missing. Corrective action is sought.				
Project participant response				**Date:**04/09/2017
The supporting data for the technical description provided in section A.3 of the PDD is now being submitted.				
Documentation provided by project participant				
Technical specification documents for modules, transformers & inverters.				

DOE assessment	**Date:**11/09/2017
The technical manuals for modules, transformers & inverters are submitted to the DOE. Assessment team checked the details and found that the description in the PDD is correct as per site practice and manual details. CAR is thus closed.	

CAR ID	03	**Section no.**	A.3	**Date:**15/07/2017
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:**04/09/2017
List of the facilities, systems and equipment that will be installed by the project activity is already mentioned under Section A.3 of the PDD. However, the supporting documents are now being provided for the DOE's perusal.				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:**11/09/2017
Section A.3 of the PDD is revised. Based on the revision of the PDD version 02, CAR is thus closed.				

CAR ID	04	**Section no.**	B.4	**Date:**15/07/2017
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:**04/09/2017
Section B.4 of the PDD already mentions that the date of publication of CEA database used for calculation of grid emission factor as April 2016, the latest available data at the time of webhosting of PDD.	
Documentation provided by project participant	
CEA Database version 11	
DOE assessment	**Date:**11/09/2017
The details of CEA database available at the time of web hosting the PDD is mentioned in section B.4 of the PDD. CAR is thus closed.	

CAR ID	05	**Section no.**	B.5	**Date:**15/07/2017
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. All the input value (e.g. Offer letters, Loan sanction, Purchase order, etc) b. O&M source is missing in the IRR sheet. Also provide the supporting for further analysis. c. Board resolution of the project activity. d. Project Cost supporting are missing. Also please justify the cost is appropriate in the region. Moreover, the source is also missing in IRR sheet e. What is Viability Gap Funding (INR Mn).Please elaborate and provide evidence. f. What is Trading margin payable (INR/kWh). Please elaborate and provide evidence. g. 3rd party PLF report h. Source of Residual Value (INR Mn.) i. Detail the working capital and interest on working capital debt.				

2. 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.
3. The tariff rate is considered from MNRE guideline Dt. 30/08/2016. Is this available at the time of investment decision? Please elaborate.
4. Clarify whether it is reasonable to assume that no investment would be made at a return lower than the benchmark particularly having regard to the fact that even with CDM benefits, the financial indicator does not equal/breach the benchmark.
5. Prior consideration document is not submitted to the DOE
6. IRR calculation is reserved till further documents are submitted.
7. Common Practice analysis supporting documents. Moreover, the geographical boundary justification as well the steps is not justified properly. Please use the guidance and justify each step with supporting documents.

Corrective action is sought in the PDD section B.5 and supporting documentation is requested for further analysis.

Project participant response	**Date:**04/09/2017

1. Please note the responses below:

a) Documents/Supportingrelated to all the input parameters are being submitted to the DOE for its perusal.

b) The source of the O&M values is the DPR that was available at the time of decision making. The same is now reflected in the IRR sheet.

c) Board Resolution for the project activity is being submitted.

d) Project cost has been taken as per the DPR of the project activity. The same is being submitted to the DOE. The cost of the project comes out to be INR 64Mn/MW. As per the applicable GERC tariff order at the time of the decision making, the capital cost for a megawatt scale project comes out to be INR 61.5Mn/MW, which is just a 4% deviation from the actual cost. Thus, it can be concluded that the project cost in the region is more or less in line with the prevalent tariff order. Actual documents supporting the cost are also being submitted.

e) SECI had invited bids from solar power developers through tariff based competitive bidding process under NSM Phase – II, Batch – IV Tranche – I in Charanka Solar Park in Gujarat for procurement of poweron long termbasis by SECI. Under the VGF scheme, for bidding of the projects, the government sets a fixed reference price (INR 4.43 per kWh, after deduction of 7 paise margin of SECI), over and above which the companies bid for VGF, which is basically a capital subsidy, from the government. As per the Guidelines for implementation of Scheme[6], under which the project has been implemented, a maximum of INR 1cr per MW was fixed as VGF for projects bidding under the open category. The PP had bid for a VGF of INR 70.25 Lakhs per MW and was subsequently awarded the right to implement the project. All supporting evidences for VGF are being provided to the DOE.

[6] http://mnre.gov.in/file-manager/UserFiles/Guidelines-for-5000MW-Grid-Connected-power-project-under-VGF-NSM.pdf

f) As per applicable Guidelines6 of MNRE dated 14-Mar-16, "The power generated from the projects shall be purchased by SECI at a tariff fixed by the Ministry for 25 years and shall be sold by SECI to willing State Utilities/DISCOMs/Other Bulk Consumers with a trading margin of Rs 0.07 per kWh for 25 years." Basically, SECI acts as a trader of power between the power producer and State Utilities/DISCOMs/Other Bulk Consumers. It charges 7 paise per kWh from the power producer as trading margin. g) 3rd party PLF report is being submitted. h) Salvage value has been considered as per the relevant GERC tariff order. IRR sheet has been updated to reflect the same. i) Working Capital has been considered in line with the DPR. IRR sheet has been updated to reflect the same. 2. A 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. 3. The source of tariff rate that has been considered has now been updated to the DPR which was available at the time of investment decision, which was taken on 27/06/2016. Supporting Board Resolution is being submitted to the auditor. 4. EB guidelines do not suggest that return on the project activity should cross the benchmark for the project activity with CDM revenue (please refer Step 3: Barrier Analysis of "Tool for the demonstration and assessment of additionality version 7.0, EB 70). It talks about only alleviation of risks which refers to improve or assuage the financial risks involved with the project, not complete removal of risk with CDM revenue. Here inclusion of CDM income is helping the project to alleviate the identified barrier, hence project is additional. Please also refer Para 5 of "Guidelines for Objective demonstration and assessment of barriers" Version 01, Annex 13, EB -50" again reiterates the same statement as mentioned in step 3 of additionality tool. It also speaks about the demonstration in an objective way to prove that CDM alleviates each of the identified barriers to a level that the project is not prevented any more from occurring by any of the barriers. 5. Prior consideration document is being submitted now. 6. All supporting documents/sources that have been used in the IRR sheet are either being submitted now to the DOE or the IRR sheet now transparently provides the source of the value being considered. 7. Source of the data considered in the common practice analysis sheet has already been transparently mentioned in the same CPA sheet. The geographical boundary considered as well as the steps used in the process are now transparently justified in the PDD.
Documentation provided by project participant
Board Resolution PLF Report Detailed Project Report Prior Consideration Mail to UNFCCC & DNA

Revised PDD	
DOE assessment	**Date:** 11/09/2017

Following are the observations of the DOE:

a. Documents/Supporting related to all the input parameters are being submitted to the DOE. CAR is thus closed

b. The source of the O&M values is the DPR that was available at the time of decision making. CAR is thus closed

c. Board resolution is now submitted to the DOE which confirms that the input parameters considered for the IRR calculation is available during the investment decision. CAR is thus closed

d. The explanations are acceptable to the DOE. However actual project cost/comparison is missing.CAR is thus open

e. Explanation is acceptable and Viability Gap Funding (INR Mn) is acceptable for IRR calculation. CAR is thus closed.

f. Explanation is acceptableTrading margin payable (INR/kWh) is acceptable for IRR calculation. CAR is thus closed.

g. 3rd party PLF report is checked and found correct by the assessment team. CAR is thus closed

h. Salvage value has been considered as per the relevant GERC tariff order available at the time of decision making. CAR is thus closed

i. Working Capital has been considered in line with the DPR available at the time of decision making. CAR is thus closed

2. 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. However, last 3 fiscal's year audit report is required to ascertain the facts. CAR is thus open in this context.

3. Tariff rate is now considered from the DPR, however the comparison of tariff w.r.t tariff order (CERC/SERC) available at the time of investment decision is missing. CAR is thus open in this context.

4. Explanation accepted. CAR is thus closed

5. As per the rule update for GS VER projects dated 22/01/2015, the GS documents must be submitted to GS within 1 year of project start date to determine prior consideration for GS VER projects. The details of the same are not submitted to the DOE regarding prior consideration requirement. CAR is thus open.

6. Revised IRR sheet is acceptable to the DOE. CAR is thus closed

7. Paragraph 9 of section 4 of the Methodological tool: Common Practice, version 03.1 defines the applicable geographic area as the entire host country. If the project participants opt to limit the applicable geographic area to a specific geographical area (such as province, region, etc.) within the host country, then they shall provide justification on the essential distinction between the identified specific geographical area and rest of the host country. The explanation is missing for selecting state of Gujarat as host country. Moreover, as per step4: Ndiff is chosen as per different technologies on the

basis of Investment climate on the date of the investment decision. Explanation of the same is missing in the PDD. CAR is thus open.	
Project participant response	**Date:**12/09/2017
1. d) The total project cost of the project as per DPR which was available at the time of decision making is INR 2560Mn. The actual cost of the project is also INR 2560Mn. The supporting documents for the cost have already been submitted to the DOE. The project cost can also be referred to from the loan sanction document. 2. Orange Charanka Solar Energy Private Limited was incorporated on 15-Jul-2016, as can be cross-checked from the MCA website[7]. So the company has prepared reports for just 1 year (FY2016-17) but that has not yet been finalized yet. In any case, 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 for all years in which they have book profits. 3. The project was awarded under the JNNSM Phase-II, Batch-IV. So the tariff cannot be cross-checked from a CERC/SERC tariff order. However, at the time of application for bidding, SECI had provided an RfS (Request for Selection) document to all prospective bidders. It specifically mentions the tariff to be INR 4.43 per kWh. RfS document is being submitted to the DOE for its perusal. 5. Start date of the project activity is 19/12/2016. GS documents (including PDD, Passport, IRR Sheer, ER Sheet, Fast Track MoU & Annex M) were uploaded on the GS Registry between 30-May-2017 & 1-Jun-2017. Thus, all GS documents were submitted to GS within 1 year of project start date. All supporting emails from GS are being submitted to the DOE for its perusal. 7. State of Gujarat has been considered as the applicable geographical area for this project. PP has considered the state of Gujarat as the geographical area due to regulatory regime since applicable powertariff 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[8] 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*". 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. EA 2003 mandates policy formulation to promote renewable sources of energy by the federal government, the State governments and the State Electricity	

[7]http://www.mca.gov.in/MinistryV2/

[8]http://www.cercind.gov.in/08022007/Act-with-amendment.pdf

Regulatory Commissions (SERCs) within their jurisdictions.

- EA 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 during tariff determination process. The SERCs determine the tariff for all renewable energy projects across the States, and the state-owned power Distribution Companies ensure grid connectivity to renewable energy 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 SERCs have adopted a "cost plus" methodology to fix the FiT, which varies across the states depending upon the state resources, project cost and more importantly 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 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.

Moreover, the proposed project activity is developed and implemented under JNNSM Phase-II, Batch-IV under the VGF scheme of Grid connected Solar PV Projects in Gujarat Solar Park at Charanka. The PP has bid under the Open Category,i.e., PV modules can be sourced from outside India. Since the cost of foreign manufactured components is quite different than projects that are bid under DCR (Domestic Content Requirement) category (modules to be sourced locally), accordingly VGF is deemed to be higher for projects sourcing components locally. Thereforethe Projects other than Open Category projects are considered as different projects on account of different Investment Climate for such projects.Hence, such projects under DCR category are counted for

calculating Ndiff projects.
Documentation provided by project participant
Revised passport version 03 and PDD version 03

DOE assessment	**Date:** 23/09/2017

Following are the observations of the DOE:

1. The total project cost of the project as per DPR which was available at the time of decision making is INR 2560Mn. The actual cost of the project is also INR 2560Mn. The actual cost is also checked from Loan sanction letter and thus assessment team is of the opinion that project cost was taken appropriately. CAR is thus closed.
2. Orange Charanka Solar Energy Private Limited was incorporated on 15-Jul-2016, as can be cross-checked from the MCA website[9]. So the company has prepared reports for just 1 year (FY2016-17) but that has not yet been finalized yet. In any case, 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 for all years in which they have book profits. The explanation is acceptable and thus CAR is closed
3. The project was awarded to PP under the JNNSM Phase-II, Batch-IV. So the tariff cannot be cross-checked from a CERC/SERC tariff order. However, at the time of application for bidding, SECI had provided an RfS (Request for Selection) document to all prospective bidders. It specifically mentions the tariff to be INR 4.43 per kWh. The tariff was available to the PP at the time of Investment decision and thus the same is acceptable to the DOE. CAR is closed
4. The prior consideration email is now submitted to the assessment team confirming the GS requirement. CAR is thus closed.
5. Common Practice analysis is now explained regarding choosing of the state as geographic region andchoosing different technologies on the basis of Investment climate on the date of the investment decision. The explanation is acceptable to the assessment team. CAR is thus closed.

CAR ID	06	**Section no.**	B.6	**Date:**15/07/2017

[9]http://www.mca.gov.in/MinistryV2/

Description of CAR	
The Decay factor for Solar panels is not accounted for ER calculation. Corrective action is sought in the ER sheet and respective section of the PDD.	
Project participant response	**Date:**04/09/2017
The decay factor has now been factored in the ER calculation. The PDD has also been revised accordingly.	
Documentation provided by project participant	
Revised ER Sheet Revised PDD	
DOE assessment	**Date:**11/09/2017
Decay factor is now included for ER estimation from 2nd year onwards. CAR is thus closed.	

CAR ID	07	**Section no.**	B.7	**Date:**15/07/2017
Description of CAR				
As per ACM0002, the Net electricity supplied to the grid is represented as EGfacility, y however PDD mentions EGpj, y. Corrective action is sought for the same. Moreover, as per DOE expertise the Calibration frequency in the state of Gujarat is Once in a 3 year. Kindly justify. PDD mentions that Net electricity exported to the grid is calculated however as per DOE expertise the same value appears directly in the JMR reports. Please elaborate. 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. How PP would calculate the net electricity measurement in case other Solar plants are connected with the same meter as				

the project panels which is the general case in the state of Rajhsthan 3. 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:**04/09/2017
1. Net electricity supplied to the grid is now represented as $EG_{facility,y}$ in the revised PDD, in accordance with ACM0002. 2. Please refer to para 7.1.1 of the PPA (being provided now) signed between the project participant and SECI. It specifically mentions that calibration of the meters should be done in accordance with CEA Regulations, 2006. Accordingly, the calibration will be done at least once in 5 years in accordance with these guidelines. The CEA Guidelines can be referred to from http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf. 3. The credit note provided by Gujarat SLDC for Solar projects provides the export, import as well as the net values of electricity generated. The same is reflected in the PDD. 4. The operation and organizational chart in as per the site practice. 5. The emergency preparedness in now detailed in the PDD. It specifically mentions how monitoring will be done if either, or all, of the meter(s) are not working, in case other Solar plants are connected with the same meter as the project panels and in case during the course of verification if the billing period do not match with the monitoring period. 6. A dedicated set of meters is used for recording the electricity generated by the project activity. So apportioning would not be required to be done as no other solar projects would be connected to that same feeder. 7. The procedure for calculation of net electricity in case of mismatch in Monitoring Period and the Billing Period is now clearly mentioned in the PDD.	
Documentation provided by project participant	
PPA Revised PDD	
DOE assessment	**Date:**11/09/2017
1. Net electricity supplied to the grid is now represented as EGfacility,y in the revised PDD, in accordance with ACM0002. CAR is thus closed. 2. As the calibration frequency is considered as per the PPA signed, hence the same is acceptable to the DOE. CAR is thus closed 3. The credit note provided by Gujarat SLDC for Solar projects provides the export, import as well as the net values of electricity generated. The same is reflected in the PDD. CAR is thus closed 4. The emergency preparedness in now detailed in the PDD. It specifically mentions how monitoring will be done if either, or all, of the meter(s) are not working, in case other Solar plants are connected with the same meter as the project panels and in case during the course of verification if the billing	

period do not match with the monitoring period. CAR is thus closed 5. A dedicated set of meters is used for recording the electricity generated by the project activity. So apportioning would not be required to be done as no other solar projects would be connected to that same feeder. CAR is thus closed. 6. The procedure for calculation of net electricity in case of mismatch in Monitoring Period and the Billing Period is now clearly mentioned in the PDD. CAR is thus closed.

CAR ID	08	**Section no.**	E	**Date:**15/07/2017
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 2. The site photograph of LSHC meeting is not provided to the DOE. Corrective action is this sought for the same.				
Project participant response				**Date:**04/09/2017
The stakeholder documentation along with photos of LSHC meeting are now being provided to the DOE for its reference.				
Documentation provided by project participant				
Minutes of Meeting, Attendance Sheet, Invitation Letters & Photographs of LSC meeting				
DOE assessment				**Date:**11/09/2017
The stakeholder documentation along with photos of LSHC meeting, MoM of LSHC are now being provided to the DOE and found correct. Assessment team checked with the stakeholders during the onsite visit and confirms that the stakeholders are happy with the implementation of the project activity. CAR is thus closed.				

Appendix 2: CV of the Audit team

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.

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

Appendix 3: List of documents

S.No.	Document/Evidence/Reference/Weblink, Version,Date
1.	Project Design Document (PDD) (CDM) dated 11/09/2017 version 03 Project Design Document (PDD) (CDM) dated 19/04/2018 version 04
2.	Passport, Version 1.0, dated 30/05/2017 Passport , version 2.0 dated 09/09/2017 Passport , version 3.0 dated 11/09/2017 Passport , version 04 dated 18/04/2018
3.	Minutes of Meeting for Local Stakeholders' Consultation are provided below: Date of invitation – 14/07/2016 Date of Meeting – 26/07/2017 Location of Meeting –Site
4.	Emission Reduction Sheet for the project activity
5	Methodology: ACM0002 version 17
6	Standard: CDM Project Standard Version 09
7	Standard: CDM Validation &Verification Standard Version 09
08	Procedure: CDM Project Cycle Procedure Version 09
09	Tools: • Tool to calculate the emission factor for an electricity system, Version 6.0 • **Tool for the demonstration and assessment of additionality version 07**
10.	Gold Standard Toolkit version 2.2(related documents)
11.	Stakeholders consultation process in CDM-PDD
12	Health policy (=EHS) of the PP
13	Training Records of project staff at site
14	Declaration for non-receiving of ODA for project
15	Universal declaration of Human Rights http://mha.nic.in/Human_Rights_Division
16	Ministry of Labor http://labour.gov.in/upload/uploadfiles/files/footergallery_pdf/List%20ofILO%20Conventions%20Ratified%20by%20India.pdf
17	National Prevention of Corruption Act of Government of India http://www.persmin.gov.in/DOPT/EmployeesCorner/Acts_Rules/PCAct/pcact.pdf
18	Ministry of Environment and Forest http://moef.nic.in/division/environment-protection
19	Minutes of Meeting for Stakeholders' Feedback Meeting

20	Emails sent to NGO, Stakeholders, villagers for stakeholder feedback round
21	ISO 9001certificate
22	UNFCCC Website for CDM mechanism–http://cdm.unfccc.int/
23	AnnexD Template issued byGold Standard– http://www.goldstandard.org/sites/default/files/v2.2_annex-d_0.doc
24	HR employment records of the project staff on site
25	Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects // Ministry of New and Renewable Energy (MNRE) , September 2013
26	Prior consideration email to GS registry dated 30/05/2017 to 01/06/2017 which is within one year of start date, thus project activity qualifies as retroactive GS VER project activity
27	Detailed project report dated 18/06/2016
28	Board resolution dated 27/06/2016
29	Commissioning took place on 04/08/2017
30	Loan Sanction letter dated 16/02/2017
31	PPA signed between PP and state electricity board dated 04/08/2016
32	Purchase order signed dated 19/12/2016
33	Third party PLF report dated 16/06/2016