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Validation Report

VALIDATION OF THE CDM-PROJECT: SOLAR THERMAL POWER PROJECT AT KUTCCH DISTRICT IN GUJARAT

REPORT NO. 600500574

28 December 2012

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South Asia

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Subject: Validation of the CDM Project Solar Thermal Power project at Kutcch District in Gujarat

Accredited TÜV SÜD Unit:

TÜV SÜD South Asia Pvt. Ltd.
Environmental Technology
Carbon Management Service
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Project Participant(s) and client:

Cargo Solar Power (Gujarat) Private Limited
Asaf Ali Road,
Jindal House, 1/9B
New Delhi
110002
India

Project Site(s):

Latitude : 22.3686° N to 22.3799° N
Longitude : 70.6922° E to 70.7083° E
Village: Khanpar, District: Kutch, Gujarat, India

Applied Methodology / Version: ACM0002 / Version 12.3.0

Scope(s): 1
Technical Area(s): 1.2

First PDD Version (GSP):

PDD version date: 13-06-2011
Version No.: 01
Starting Date of GSP 15-06-2011

Final PDD version:

PDD version date: 28-12-2012
Version No.: 06

Estimated Annual Emission Reduction: 111,204 tCO_2e

Assessment Team Leader:

Nikunj Agarwal

Assessment Team Member:

Supratik Dutta
V. Vijayanand

Technical Expert:

Technical Review:

Wu, Caiyang (Cathy)

South Asia

Summary of the Validation Opinion:

☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Therefore, TÜV SÜD recommends the project for registration by the CDM Executive Board if the letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.

☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. Therefore, TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board of this decision.

Abbreviations

ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
DPR	Detailed Project Report
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	GreenHouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD South Asia Pvt Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

The objective of the validation process is to provide an independent assessment by a third party, a Designated Operational Entity (DOE), of a proposed project activity. The assessment involves the evaluation of the project basis and design identified in the Project Design Document (PDD) using the defined criteria outlined by the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and results in a conclusion by the executing DOE on whether or not a project activity is valid to be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed project activity rests with the CDM-EB and the Parties involved.

The project addressed in this validation report has been submitted under the following project title:

Solar Thermal Power project at Kutcch District in Gujarat

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities, the scope is set by:

- The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Decisions and specific guidance outlined by the EB which are published under http://cdm.unfccc.int
- Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Baselines and monitoring methodologies (including GHG inventories)
- Management systems and auditing methods
- Environmental issues relevant to the applicable sectoral scope
- Applicable environmental and social impacts and aspects of CDM project activity
- Sector specific technologies and their applications
- Current technical and operational knowledge of the specific sectoral scope and information on best practice

The validation process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

Once TÜV SÜD receives the PDD, it is made publicly available on the UNFCCC website and on TÜV SÜD's website, which initiates a 30 days global stakeholder consultation process (GSP). In special circumstances, such as when a project design changes, the GSP may need to be repeated. Information on the PDDs is presented on page 1 of this report.

The purpose of a validation is to demonstrate compliance or non-compliance of the project with all stated and valid CDM requirements. Additionally, the purpose of validation is to enable the registration of CDM projects, which is only a part of the total CDM project cycle.

2 VALIDATION METHODOLOGY

The project assessment is based on the "Clean Development Mechanism Validation and Verification Manual" and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM project activity are appointed. Once the project is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified, and the preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB "Environment and Energy" before being submitted to the CDM-EB.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. TÜV SÜD has developed a methodology-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 validation protocol serves the following purposes:

- To organize the details and provision of clarifications on the requirements of which a CDM project is expected to meet
- To elucidate how a particular requirement has been validated as well as to document the results of the validation and any adjustments made to the project design document.

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

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	**Reference**	**Comments**	**PDD in GSP**	**Final PDD**
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then sub-divided. The lowest level constitutes a checklist question /	*The section gives reference to documents in which the answer to the checklist question or item is found in case the comment*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is used to explain the conclusions reached. In some cases sub-checklists are applied indicating yes/no decisions on the compliance with*	*The section is used to present conclusions based on the assessment of the first PDD version. The PDD is either acceptable based on evidence provided (☑) or a* ***Corrective Action Request (CAR)*** *is issued due to non-compliance with the checklist question (See below).* ***Clarification Request (CR)*** *is used when the validation team has identified a need for further clarification.* ***Forward***	*Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the*

criterion.	*refers to documents other than the PDD.*	*the stated criterion. Any **Request** has to be substantiated within this column.*	***Action Request** is issued to highlight issues related to project implementation that require review during the first verification.*	*documentation.*

Validation Protocol Table 2: Resolution of Clarification and Corrective Action Requests			
Clarifications and corrective action requests	**Ref. to table 1**	**Summary of project owner response**	**Validation team conclusion**
If the conclusions from table 1 are either a Corrective Action, a Clarification or a Forward action Request, these should be listed in this section.	*Reference to the checklist question number in Table 1 where the issue is explained.*	*The responses given by the managing entity and/or other project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the discussion on and revision to PoA documentation together with the validation team's responses and final conclusions. The conclusions should be reflected in Table 1, under "Final".*

In case it is found that the project activity does not meet the CDM requirements, more detailed information on this decision is presented in Table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	**Id. of CAR/CR**	**Explanation of the Conclusion for Denial**
Referenced request if final conclusions from table 2 resulted in a denial.	*Identifier of the Request.*	*Detailed explanation of why the project is considered non-compliant with a criterion and a clear reference to the criterion*

The completed validation protocol is enclosed in Annex 1.

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "Environment and Energy".

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Validator (V);
- Validator Trainee (T);
- Technical Experts (TE).

It is required that the sectoral scope(s) and the technical area(s) linked to the methodology and project have to be covered by the assessment team.

Assessment Team:

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect	Host country experience
Nikunj Agarwal	**ATL**	**☑**	**☑ (1.2)**	☑	**☑**
Supratik Dutta	V	☑	☑ (1.2)	☑	☑
V. Vijayanand	V	☑	☑ (1.2)	☑	☑

Validation team on site :

- Supratik Dutta

Technical Reviewer:

- Wu, Caiyang (Cathy)

2.2 Review of Documents

The PDD for the GSP was submitted to the DOE in June 2011. The PDD and additional background documents related to the project design and baseline have been reviewed 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 as an initial step of the validation process. A complete list of all documents and evidence material reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

During 10/08/2011 to 11/08/2011, TÜV SÜD performed interviews, telephone conferences, and physical site inspections with project stakeholders to confirm relevant information, and to resolve issues identified in the first document review. The following table provides a list of all persons interviewed in this process.

Persons Interviewed:

Name	Organisation
Biswas Kumar	Project Manager (Cargo Solar Power (Gujarat) Private Limited)
Japan Mukhalyor	Trainee Engineer (Cargo Solar Power (Gujarat) Private Limited)
M. P. Prajapati	Project Manager (Cargo Solar Power (Gujarat) Private Limited)
Jignesh Jadav	Asst. Manager (Cargo Solar Power (Gujarat) Private Limited)
Karsan Bhai	Stakeholder
Raju Bhai	Stakeholder
Manpreet Singh	CDM Consultant
Apurba Mitra	CDM Consultant

2.4 Cross-check

During the validation process the team has made reference to available information related to similar projects or technologies as the CDM project activity. Project documentation has also been reviewed against the approved methodology/ies applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD`s conclusion on the project design. The CARs and CRs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in the validation protocol in Annex 1.

The final PDD version submitted December 2012 serves as the basis for the final assessment presented. Additional changes to the project during the validation process are not considered to be significant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

2.6 Internal Quality Control

Internal quality control is the final step of the validation process and is conducted by the CB “Environment and Energy” which checks the final documentation, which includes the final validation report and all necessary documents. The completion of the quality control indicates that each submitted report has been approved by the CB Committee. In projects where one of the CB Committee members is part of the assessment team, the approval is given by the rest of the committee.

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

3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2 of this report.

3.1 Approval

The project participants is Cargo Solar Power (Gujarat) Private Limited.The host Party India meet the requirements to participate in the CDM.

The DNA of the India issued a LoA [IRL# 5] on 27 December 2012 authorizing Cargo Solar Power (Gujarat) Private Limited as a project participant. TÜV SÜD received this letter (referenced as No.4/15/2012-CCC) from the project participant directly and considers the provided letter as authentic.

Furthermore, after checking the provided LoA, TÜV SÜD confirms that letter refer to the precise proposed CDM project activity title in line with the title in the PDD “Solar Thermal Power project at Kutcch District in Gujarat”. The Indian LoA confirms that proposed CDM project activity contributes to the sustainable development of India (host country). Based on the information given in the letter, TUV SUD considers the approval as unconditional with respect of thses items.

LoA has been issued by the respective Party DNA - Ministry of Environment and Forests, Govt. of India.The LoA does not refer to a specific version of the PDD or validation report.

TÜV SÜD considers that the requirements of VVM (§§ 45-48) have been met..

3.2 Participation

The participants of the project activity have been approved by the corresponding Parties, which is confirmed by the issued LoAs.

The means of validation used are similar to the ones described in Section 3.1, specifically in regard to the approval process of the project activity.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC.

The most recent version of the PDD form was used.

TÜV SÜD considers that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information was provided by the participants in the applicable PDD sections. Completeness was assessed through the protocol included in Annex 1.

3.4 Project description

The following description of the project as per PDD was verified during the on-site audit:

In the project activity, the incoming sun radiation is tracked by parabolic trough solar field which concentrate the energy towards absorber. Then concentrated solar radiation energy heats up the Heat Transfer Fluid (HTF) temperature upto 400^{0}C so that steam heat exchanger is able to generate steam which is used in turn to drive a conventional turbine generator. The power plant

operates as per rankine systems principle. Project activity has the thermal storage system which can allow electricity output even if the sun isn't shining .

The main subsystems of the power plant are as follows:

- Solar Collectors Field
- Salt Storage Tanks
- Heat Transfer Fluid (HTF) system
- Power Block
- Water System

In any solar electricity generation project, insolation is an important factor to understand how much sunlight (or solar radiation) a place gets. In the project activity, during the hours of insolation, electricity generation and charging the thermal storage system are same time, to do this, heat transfer fluid (i.e. oil) heat from the solar field is transferred to the thermal storage medium, a molten-salt fluid which collects the thermal load, passing the heated salt from the cold –salt tank to a hot salt tank in which this thermal load is stored. During the lower insolation when the intensity of the sun radiation decreases, that time salt of the hot tank will pass through the heat exchanger. In heat exchanger, heat will be exchanged from hot salt to oil. Heated oil then passes through the water and generates the steam which will be used for producing power. When salt will reach into the cold salt tank after passing through the heat exchanger, the temperature of the heat stored molten salt will cool down to 292ºC. The CSP plant will take the salts out of the cold tank and heat them up again when the sun is shinning.With this system, the plant can produce electricity in lower insolation and after sunset.

The solar steam generator consists of re-heater and super heater - evaporator – pre heater train and steam turbine of 25 MW.

The plant has designed so that in normal operation electricity is generated from a solar-only power source.

The net electricity of the project activity would be 117,217 (MWh) which has been checked by DOE with DPR [IRL# 10] and found correct.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity confirmed in the following ways:

- A review and cross check of data and information [refer annex 2: IRL# 10, 19, 20, 27, 43, 44].
- An on-site visit with relevant stakeholder and personnel with knowledge of the project in attendance. Also, further cross checks through additional interviews were conducted.
- A review of information related to similar projects or technologies which CDM project activity has been cross checked from Ministry of New and Renewable Energy (http://mnre.gov.in/file-manager/UserFiles/powerplants_241111.pdf) to validate the accuracy and completeness of the project description.

In conclusion, TÜV SÜD confirms that the project description, as included in the PDD, is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology ACM0002 Version 12.3.0 has been demonstrated below.

Applicability Criteria	Project Case (as per PDD)	Auditor's Conclusion
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.	The proposed project activity is a solar thermal power plant utilising energy from the sun to generate electricity.	The project is a solar thermal power project hence applicable to this category. ☑ Applicability is justified [IRL# 10, 19,41, 43, 44]
In the case of capacity additions, retrofits or replacements (except for power capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity	The proposed project activity is Greenfield project and not a capacity addition.	The project activity is a Greenfield project and does not involve the addition of renewable energy generation units at an existing site hence this is not applicable. ☑ Applicability is justified [IRL# 10, 19,41, 42, 43, 44]
In case of hydro power plants, at least one of the following conditions must apply: • The project activity is implemented in an existing or multiple reservoirs, with no change in the volume of any of the reservoirs; or • The project activity is implemented in an existing re-	The proposed project activity is not a hydro power plant.	The project activity is not hydro power based electricity generation system hence this is not applicable. ☑ Applicability is justified [IRL# 10, 19,41, 43, 44]

servoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project • Emissions section, is greater than 4 W/m^2; or after the implementation of the project activity; or • The project activity results in new single or multiple reservoirs and the power density of the power plant each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m2 after the implementation of the project activity.		
In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m2 after the implementation of the project activity all of the following conditions must apply: • The power density calculated for the entire project activity using equation 5 is greater than 4 W/m2; • All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant; • The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; • The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m2,	The proposed project activity is not a hydro power plant.	The project activity is not hydro power based electricity generation system hence this is not applicable. ☑ Applicability is justified [IRL# 10, 19,41, 43, 44]

is lower than 15 MW; • The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs.		
The methodology is not applicable to the following: • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; • Biomass fired power plants; • Hydro power plants that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the new reservoirs or in the increase in existing reservoirs where the power density of the power plant reservoir is less than 4 W/m2.	The project activity is a Greenfield solar thermal power project and does not involve any sort of fuel switching.	The project activity is a Greenfield project and does not involve fossil fuels to renewable source hence this is not applicable. ☑ Applicability is justified [IRL# 10, 19,41, 42, 43, 44]
In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The proposed project activity is a Greenfield project and not a capacity addition, retrofit or replacement.	The project activity is a Greenfield project and does not involve retrofits, replacements, or capacity additions units at an existing site hence this is not applicable. ☑ Applicability is justified [IRL# 10, 19,41, 42, 43, 44]

The assessment was carried out for each applicability criterion and included, among other checks, a compliance check of the local project setting with the applicability conditions in regard to baseline

setting and eligible project measures. This assessment also included the review of secondary sources to demonstrate the compliance with applicability conditions.

The methodology-specific protocol, included in Annex 1, documents the assessment process. The results of the compliance check as well as relevant evidence are detailed in the protocol and the information reference list.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources, not addressed by the applied methodology and expected to contribute more than 1% of the overall expected average annual emission reductions, have not been identified.

3.5.2 Project boundary

The project boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the project.

The Project boundary includes the physical and geographical site of all power plants connected physically to the North-East-West-North East (NEWNE) grid. The project boundary is as per the methodology and the same has been validated based on the document review and on-site visit

Relevant documents assessed to confirm the project boundary are the following:

- Detailed project report [IRL# 10]
- Prefeasibility study report [IRL# 44]
- Power purchase agreement with Gujarat Urja Vikas Nigam Limited [IRL#19, 40, 41]

Therefore, TÜV SÜD confirms that the identified boundary, the selected sources, and gases as documented in the PDD are justified for the project activity and are fully in line with the requirements set by the applied methodology.

3.5.3 Baseline identification

The PDD defines the following baseline scenario:

The baseline scenario equals the scenario prior to the implementation of this project activity. This scenario simply involves the continued electricity import from the North-East-West-North East (NEWNE) which predominantly consists of carbon intensive fossil fuel energy sources.

All alternatives required in the methodology/additionality tool were considered and then, the most plausible alternative is identified as “Equivalent annual electricity supplied by NEWNE”. The explanation and justification for each alternative is appropriate and evidenced.

For grid emission factor, project proponent has referred ‘CO2 Baseline Database for the Indian Power Sector’ version. 06, published by Central Electricity Authority (CEA), ministry of power, government of India. The weblink for the same is

http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm

The information presented in the PDD has been validated by an initial document review of all data. Further confirmation has been made based on the on-site visit and a review of information from similar projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was verified against credible sources, such as the following:

- Detailed project report [IRL# 10, 43, 44]

- Web site of Ministry of New and Renewable Energy, Government of India. (http://mnre.gov.in/file-manager/UserFiles/powerplants_241111.pdf). MNRE is the government of India agency who is responsible for the development of renewable power in India.
- ACM0002 (Version 12.3.0), clearly determining the baseline for this project type

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions used for project activity calculations, TÜV SÜD considers that the identified baseline scenario is reasonable.

Taking the definition of the baseline scenario into account, TÜV SÜD confirms that all relevant CDM requirements, including relevant and/or sectoral policies and circumstances, have been identified correctly in the project PDD.

A verifiable description of the baseline scenario has been included in the PDD.

In regard to item 86 of VVM, TÜV SÜD confirms the following statements:

(a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;

(b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;

(c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable;

(d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;

(e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario, and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.5.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions, and emission reductions. Corresponding calculations have been carried out based on calculation spreadsheets. The parameters and equations presented in the PDD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology and respective tools. An equation comparison has been made to ensure consistency between all the formulae presented in the calculation files and in the PDD, methodology, and tools.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked.

Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation and references reviewed and the results of the interviews.

The baseline methodology has been applied correctly according to requirements.

The estimate of the baseline emissions are considered correct as the calculations have been reproduced by the audit team with the attainment of the same results.

Detailed information on the verification of the parameters used in the equations is found in Annex 1. The algorithms for the determination of the baseline, project, and leakage are discussed in the following sections.

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3.5.4.1 Baseline Emissions

The calculation of the baseline emissions is done as per ACM0002, version 12.3.0. The emission factor of the grid is calculated as per as per "Tool to calculate the emission factor for an electricity system"
The baseline emission factor of the North-East-West-North East (NEWNE) grid used for calculation of emission reductions has been referred from Carbon Dioxide baseline database (version 06) published by Central Electricity Authority (CEA), Ministry of Power, Government of India. The CEA Database version 06 has been applied since it was current at the time of commencement of the validation

http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm. The tool determines the CO_2 emission factor for the displacement of electricity generated by power plants in an electricity system by calculating the operating margin, build margin and combined margin. The tool is applicable for project activities that substitutes electricity from the grid. The CEA publishes on an annual basis the General Review and the Performance Review of Thermal Power Stations that have been the data sources used by the most CDM project developers. The database for baseline estimation issued by the CEA has been developed consistently with the availability of data in India. The database is an official publication of the Government of India for the purpose of CDM baselines.

TUV SUD confirmed that the PP applied the calculations specified in the step-wise approach of the tool to the publicly available database and confirmed that the OM & BM reported in the database as correct. Thus the combined margin emission factor of 0.9487 tCO_2/MWh for the North-East-West-North East (NEWNE) grid is deemed to be correct.

3.5.4.2 Project Emissions

According to the applied methodology, PE=0

3.5.4.3 Leakage Emissions

According to the applied methodology, LE=0

3.5.4.4 Emission Reductions

In summary, the calculation of the baseline emissions and the emission reductions are considered correct.

3.6 Additionality

The additionality of the project has been presented in the PDD in a step-wise manner applying the latest version of the "Tool for the Demonstration and Assessment of Additionality" (Version 6.0). It has been demonstrated that the emission reductions due to the project activity are additional to any that would have occurred in the absence of the project activity.

The approach used in the PDD has been assessed initially through the document review, during which the following documents were reviewed:

- Pre-feasibility report [IRL# 44]
- Technical and evaluation report for a 25 MW CSP plant with thermal storage in Gujarat [IRL# 43]
- IRR calculation sheet [IRL# 45]

On site, the additionality was discussed principally with Mr. Biswas Kumar, Project Manager of Cargo Solar Power (Gujarat) Private Limited and documents have been reviewed (see Annex 2).

Finally, the data, rationales, assumptions, justifications, and documentation provided have been verified using local knowledge as well as sectoral and financial expertise. This information was also confirmed through the following documentation:

- Minutes of the board meeting for CDM consideration for the project activity [IRL# 27]

- Detailed Project Report [IRL# 10, 34]
- Power Purchase Agreement [IRL# 19, 40, 41]

Based on the aforementioned approach, TÜV SÜD confirms that the documentation provided is appropriate for this project.

3.6.1 Prior consideration of the clean development mechanism

The starting date of the project activity is determined by project proponent based on the appointment of Lauren as EPCM contractor. In order to corroborate this information, the assessment team has reviewed the appointment order [IRL# 8] signed between Cargo Solar Power (Gujarat) Private Limited and Lauren CCL Engineers Private Limited.

The starting date of the project has been determined to be 22/03/2011 which is after 02 August 2008, but before the GSP. The DNA and UNFCCC confirm through the document/links [IRL #17, 18] that the PPs have informed the entities about the commencement of the project activity. Therefore, it is confirmed that the project complies with the requirements regarding prior consideration of the CDM. The PPs presented the following information to the assessment team:

- Intimation to the UNFCCC and MoEF
- Appointment of CDM Consultant
- Supplemental PPA for change of name to its SPV
- Order copy of DOE
- Technical Evaluation Report by Sun to Market Solutions, S.L.
- Finalization of Detailed Project Report for project activity
- Minutes of the board meeting for CDM consideration for the project activity
- Letter of appointment of Lauren as EPC contractor

The original documents presented have been reviewed and verified based on interviews with with Mr. Biswas Kumar (Project Manager) of Cargo Solar Power (Gujarat) Private Limited. Therefore, the documents are considered appropriate to confirm the prior consideration of the CDM. Additionally, in order to confirm that the PPs have taken real actions to continue the activity as CDM, activities have been reviewed against the documents provided to the DOE and a timeline of events is shown in the table below:

Timeline of Project Activity

Activity	Document	Auditor conclusion
Intimation to the UNFCCC and MoEF	Prior to consideration form and email sent to Designated National Agency (DNA) [IRL# 17] Prior to consideration form and email sent to UNFCCC [IRL# 18] These documents indicate that project proponent has considered CDM revenue for the project activity as per UNFCCC	Verified, prior to consideration of the CDM before inception of the project activity. ☑

Activity	Document	Auditor conclusion
	requirements.	
Appointment of CDM Consultant	Agreement copy with CDM consultant, dated 07.07.2010 [IRL # 49] The contract made with CDM consultant could be accepted.	Verified. The evidence considered as proof for on-going, CDM related activity. ☑
Supplemental PPA for change of name to its SPV	Supplemental Power Purchase Agreement (PPA) between Gujarat Urja Vikas Nigam Limited and Solar Power project developers for change of name from M/s Cargo Motors Private Limited to M/s Cargo Solar Power Gujarat Pvt. Ltd., dated 24.12.2010 [IRL # 41] This document has shows change of the project proponent's name from M/s Cargo Motors Private Limited to M/s Cargo Solar Power Gujarat Pvt. Ltd.	Verified. The evidence considered as proof for on-going, CDM related activity. ☑
Technical Evaluation Report by Sun to Market Solutions, S.L.	Technical and evaluation report for a 25 MW CSP plant with thermal storage in Gujarat, prepared by Sun To Market Solution (S2M), S.L. [IRL# 43] The final technical evolution report submitted to project proponent could be accepted.	Verified. The evidence considered as proof for on-going, CDM related activity. ☑
Finalization of Detailed Project Report for project activity	Detailed Project Report (DPR) of the project activity submitted by KPMG [IRL# 10] The final detailed project report submitted to project proponent could be accepted.	Verified. The evidence considered as proof for on-going, CDM related activity. ☑
Board Resolution for CDM consideration for the project activity	Minutes of Board meeting dated 21.03.2011 [IRL # 27] This document indicates the Cargo Solar Power (Gujarat) Private Limited decision to consider CDM benefits of the project activity and hence could be accepted.	Verified, early & serious consideration of CDM before inception of the project activity. ☑

Activity	Document	Auditor conclusion
Appointment of Lauren as EPC contractor (Project Start Date)	Appointment letter, dated 22.03.2011 [IRL# 48] The letter could be accepted as it shows the starting date of the project	Verified starting date of the project activity. ☑

This confirms that the project complies with the requirements to demonstrate the prior consideration of the CDM.

3.6.2 Identifications of alternatives

The output of the project is Electricity.

The list of alternatives to supply the above mentioned outputs presented in the PDD includes the implementation of the project activity without registration as a CDM project. The remaining alternatives presented include all plausible scenarios taking into account the local and sectoral situations for the mentioned outputs. The list of alternatives is considered complete.

3.6.3 Investment analysis

According to "Tool for the demonstration and assessment of additionality", Version 06.0.0, EB65, PP uses the investment analysis to demonstrate the additionality.

The financial returns on the proposed project are insufficient to justify the investment. This was demonstrated by applying the benchmark analysis.

The project participant has applied the estimated project IRR from weighted average costs of capital (WACC) model as the benchmark, which is considered appropriate according to paragraph 12 of the "Guidelines on the assessment of investment analysis" Version 05,

WACC has been calculated as per below formula

WACC= {D/(V)}*{1-T/100}*Cost of Debt (R_D) + {E/(V)}*Cost of Equity (R_E)

Where

D- Value of the debt

E- Value of the equity

V- Value of the equity + Value of the debt

T- Corporate tax rate

R_D- Cost of Debt

R_E- Cost of Equity

DOE has checked the input values applied in the above WACC calculation formula as per below

Particulars	Value	Auditor Conclusion
Value of Debt (D)	70:30	The debt and equity ratio of 70:30 maintains in India for the

and Equity (E)		financing of power projects. It has been checked by DOE from Central Electricity Regulatory Commission (CERC) (Terms & Conditions for the determination of Tariff) Regulations (http://cercind.gov.in/2009/Whats-New/tariff-pdf/CERC-(Terms-and-Conditions-of-Tariff)-Regulations-2009-14.pdf) and IREDA's norms for financing renewable energy projects (http://www.ireda.gov.in/pdf/Annexure%20A%20(Interest%20Rate%20and%20etc.).pdf) and realized that this ratio can be accepted in the project as project activity is also new power generation project.
Corporate tax rate (T)	19.93%	As per PDD, the power projects in India typically pay MAT owing to tax exemption as per the provisions of the Section 80IA of the Income Tax Act. Accordingly the marginal tax rate has been considered as 19.93% (MAT rate for the year 2010-11) and as the loan tenure of the project is 10 years so this value can be accepted. Further, it has been checked and confirmed by DOE with India Government tax rate and found applied value is correct.
Cost of Debt (R_D)	13% & 10.41% (post tax cost of debt)	According to the PDD, the cost of the debt is 13% and same is sourced from the interest rate SBI Benchmark Prime Lending Rate 2010-2011(%)-(http://www.statebankofindia.com/user.htm?action=print_section&lang=0&id=0,16). As the loan tenure of the project is 10 years therefore power project will pay MAT owing to tax exemption as per the provisions of the Section 80IA of the Income Tax Act. As per that applicable tax rate 19.93 % has been considered (as per marginal tax rate for 20101-11) in arriving at the post tax cost of debt. Hence the cost of debt works out as 10.41%. The validation team checked and confirmed that value is valid as this is the latest loan information at the time of investment decision.
Cost of Equity (R_E)	17.25%	According to the B.5 of the PDD, in approach (A), as per paragraph 15 of "Guidelines on the Assessment of Investment Analysis" (version 05), project proponent has chosen default return on equity values as provided in Appendix A of the guidance. However, the default value of the expected return on equity for the energy industry in India in real term rates as per appendix to the Guidelines on the assessment of investment analysis is 11.75%. But as the investment analysis is being carried out in nominal terms therefore default values converted to nominal value after adding the inflation rate. The long-term inflation forecast from Reserve Bank of India

		which is the central bank of the host country is 5.5%[*].Therefore, the nominal after tax expected return on equity in India is calculated as 11.75% + 5.5% = 17.25% In (B) approach, the cost of equity for investment in power generation sector is derived by applying the Capital Asset Pricing Model (CAPM) and results is 22.10% The following formula has been used to calculate the CAPM: $R_i = R_f + \beta (R_m - R_f)$ Where, R_i = Rate of return on equity; R_f = Risk-free rate of return; β = Beta or systematic risk for this type of equity investment coefficient reflecting the volatility (risk) of the stock relative to the market; R_m = Expected market returns $R_m - R_f$ = Market risk premium; • Rate of return on the government bonds / securities at the time of investment decision (2010-2011). The average for 2010-2011 i.e 7.94% has been taken into account*. It was checked (http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/06MD240111F.pdf) and considered appropriate. • The beta value (β) has been taken as the 8.5 year average (2003- 16 March 2011) of 7 listed companies in the power sector. The value taken is 0.90 has been checked with Bombay Stock Exchange (BSE) web link (www.bseindia.com/stockinfo/stockprc.aspx). The value of beta is considered appropriate. • Expected Market return (R_m) has been derived from Bombay Stock Exchange (BSE) 500 Index since July 2003 till 16 March 2011 i.e. before the start date of project activity. (BSE, www.bseindia.com/stockinfo/indices.aspx) and considered to be appropriate. It has been calculated as 23.65%. The risk premium has been calculated as 15.71%. This is considered to be appropriate considering that the market risk premium has been calculated as the difference between market return and risk free return The expected rate of return on equity has been calculated with the above defined and calculated values as 22.10%.

[*] Table A.7 of http://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/IEPR1717PF051.pdf

		From the above analysis, the expected return on equity from approach (A) is found to be conservative. Hence, the expected Return on Equity is taken as 17.25%.

PP has calculated Weighted Average Cost of Capital as **12.46%** considering the risk premium associated with power projects. WACC as a benchmark for the proposed project activity is justified and acceptable in view of the fact that the project activity is being setup partially through equity and partially through long term debt sourced from financial institutions. In order to evaluate the financial viability of the project, the project developer is required to assess the expected minimum returns on debt as well as equity components of the total investment. It is reasonable to assume that no investment would have been done on this type of project if the rate of return was lower than this benchmark.

TUV-SUD was convinced of the appropriateness of the calculated benchmark. The Weighted Average Cost of Capital (WACC) has been chosen as the benchmark for assessment against the project IRR..

The project IRR without CDM revenue has been estimated to be 8.20%; which shows that the proposed project is financially not viable without CDM revenue. The values used in the IRR calculation have been verified with the Detailed Project Report (Chapter 10 and 12) [IRL# 10, 34], Technical and evalution report [IRL# 43], power purchase agreement [IRL# 19, 40, 41], GERC order [IRL# 13] and prefeasibility study report [IRL# 44]. The investment analysis has been performed for 27 years considering capital expenditure, energy generation; tariff, working capital, depreciation rates & taxation of the power plant. All the taxes and tax incentives are confirmed to be applied correctly and as per the Indian Income Tax Act [IRL# 12].

TUV-SUD was able to verify the key inputs used from the Detailed Project Report for the financial analysis according to Para 109 and 111 of the VVM, version 1.2 in following manner. As per para 111 of the VVM, it was confirmed with the minutes of the board meeting [IRL# 27] that the DPR was the basis of the decision to proceed with the investment in the project [IRL# 10, 34].

Also, inflation rate has not been considered in the O&M costs. The escalation rate of 5% considered in O&M costs is the standard escalation rate provided in the GERC Tariff Order dated 29/01/2010 [IRL# 13]. This escalation is a contractual obligation for the project proponent when entering into a contract with a party to provide O&M services for the project.

Following the guidelines on the assessment of investment analysis (EB62, Annex 5), the input values for the investment and benchmark analysis have been validated as follows:

Particulars	Details	**Source**	**Auditor Conclusion**
Installed Capacity (MW)	25	Purchase Order	☑ This is verified from DPR
Hours of thermal storage (Hrs)	9	DPR	☑ This is verified from Technical and evaluation report prepared by Sun To Market Solution (S2M), S.L
Equipment life (Yrs.)	25	DPR	☑ Figure verified with the

			DPR
Electricity Amount (MWh)	129880	Technical and evaluation report prepared by Sun To Market Solution (S2M), S.L	☑ Figure cross verified with DPR
Auxiliary Consumption amount (%)	9.75%	Technical and evaluation report prepared by Sun To Market Solution (S2M), S.L	☑ Figure verified with DPR
Capacity Utilization Factor of the solar thermal power plant with storage (%)	59.306	Calculated	☑ The gross electricity generation of the project activity has been estimated by S2M Solutions (a third party contracted by project proponent) and PLF of the project has been back-calculated using the gross generation value therefore PLF considered in the project activity is in line with criteria 3 (b) of "Guidelines for reporting and verification of Plant Load Factors (version. 01)". Figure verified with DPR and GERC order.
O&M Expenses as % of project cost	1	GERC Order dated 29/01/2009	☑ Figure verified with DPR
Yearly Increase on O &M Cost	5%	GERC Order dated 29/01/2009	☑ Figure verified with DPR
Insurance Charge:	0.35%	GERC Order dated 29/01/2009	☑ Figure verified with DPR
Interest on Term Loan	13%	DPR	☑ Figure verified with Table A.7 of http://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/IEPR1717PF051.pdf
Loan Repayment Tenor (Yrs.)	10-12	DPR	☑ Figure verified with DPR

Tariff -Solar Thermal (First 12 years) (INR/kWh)	11	Power Purchase Agreement	☑ Checked and verified
Tariff -Solar Thermal (13 to 25 years) (INR/kWh)	4	Power Purchase Agreement	☑ Checked and verified
Working Capital - O&M Expenses (No. of Months)	1	GERC Order dated 29/01/2009, Page 22	☑ Figure verified with DPR
Working Capital – Receivables (No. of Months)	1	GERC Order dated 29/01/2009, Page 22	☑ Figure verified with DPR
Interest on Working Capital	12%	GERC Order dated 29/01/2009	☑ Figure verified with DPR
Book Depreciation Rate	5.28%	As per The Companies Act, Schedule XIV: http://asa-in-dia.com/asa/Depreciation%20Rates%20Companies%20Act.pdf	☑ Checked and verified
Income Tax Depreciation Rate	15%	As per Income Tax Act: http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&schT=rul&csId=4a23cee1-1818-45d6-ab19-f155e08ed789&rNo=&sch=&title=Taxmann - Direct Tax Laws	☑ Checked and verified
MAT (Taxation)	19.93%	As per Income Tax Act (http://www.incometaxindi-apr.gov.in/incometaxindiacr/contents/forms2010/pamphets/COMPA-NIES_2012_13.htm)	☑ Checked and verified
Corporate Tax Rate	33.22%	As per Income Tax Act (http://www.incometaxindi-di-apr.gov.in/incometaxindiacr/contents/forms2010/pamphets/COM	☑ Checked and verified

		PA-NIES_2012_13.htm)	
Emission Factor (tCO2/MWh)	0.9487	CEA Version 6	☑ Checked and verified
CER price Euro/Ton	16		☑ Checked and verified
Exchange rate Euro=INR	65		☑ Checked and verified
Incentives			
Tax holiday / years	10	As per Income Tax Act	☑ Checked and verified

Project cost and finance assumption considered for this project activity:

Cost of the project	INRCr	Source	Audit Conclusion
Power Block			
Steam Turbine	47.77	Purchase Order to Nuovo Pignone S.P.S. [IRL# 20]	Figures cross verified with DPR [IRL#10, 34]
Solar Steam Generator	12.68	Thermal systems (HYD) Pvt. Ltd. dated 10.03.2011 [IRL#39]	Figures cross verified with DPR [IRL#10, 34]
Civil works for Power Block	5.77	EPC Proposal from Lauren dated 15.02.2011 [IRL#39]	Figures cross verified with DPR [IRL#10, 34]
Others			
Total - Power Block	**66.22**	**Calculated**	
Solar Block			
Hydraulic Equipment	52.70	Offers from Weber-Hydraulik Gmbh dated 02.02.2011 [IRL#39]	Figures cross verified with DPR [IRL#10, 34]
Mirror Structure	113.00	Email from Shrijee Mirrors [IRL#39]	
Swivel Joints			
Foundations for Mirrors Structures			
Assemblies			
Receiver Tubes and related items	65.47	Siemens Concentrated Solar Power Ltd. Quotation dated 06.03.2011 [IRL#39]	
Solar Mirrors	69.00	Saint Gobain Quotation dated 12.11.2010 for 134,400 mirrors of 2.4 m2 each @ 30 €/m2 [IRL#39]	
Pipes and Valves	14.41	EPC Proposal from Lauren dated 15.02.2011 [IRL#39]	
Insulation	8.86		
HTF - First filling	34.4		
HTF -Others	28.18		
Total - Solar Block	**386.0**	**Calculated**	
Salt Storage			
Salt Cost	84.95	Haifa Chemicals Offer dated	Figures cross veri-

		11.02.2011 [IRL#39]	fied with DPR [IRL#10, 34]
Non-Salt Cost	44	Based on data of similar operational plant in Spain provided by technical consultant [IRL#39]	
Total salt storage cost	**128.95**	**Calculated**	
Others			
EPCM Fees	54.28	LoA with Lauren CCL Engineers Pvt. Ltd. [IRL#39]	Figures cross verified with DPR [IRL#10, 34]
Control and Instrumentation	4.46	EPC Proposal from Lauren dated 15.02.2011 [IRL#39]	
Cost of Spare Parts	12.16	EPC Proposal from Lauren dated 15.02.2011 [IRL#39]	
Cost of water transmission from creek to site	7.5	Jain Irrigation Systems Ltd. Offer dated 04.02.2011 [IRL#39]	
Civil Works - Common Area	4.58	EPC Proposal from Lauren dated 15.02.2011 [IRL#39]	
Total Others	78.4	Calculated	
Total Capital Cost	**659.60**	**Calculated**	

Project IRR is calculated is 8.20% without CDM revenue as compared to benchmark determined for the project activity is 12.46%. It has been confirmed that IRR calculation has been determined as per guidelines " Guidelines on the Assessment of Investment Analysis" Version 05.

Sensitivity Analysis: The Guidelines on assessment of investment analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation (± 10%). The project developer has identified generation and project cost as the most critical assumptions. Accordingly, sensitivity analysis has been conducted to analyse the impact of a change in (a) generation cost by 10%and (b) project cost by 10% on the profitability of the project activity. The sensitivity analysis calculation has been demonstrated in the IRR spread sheet and would not cross the benchmark value of the project activity.

Base case	**8.20%**			
Benchmark	**12.46%**			
Variable Parameter	**-10%**	**0%**	**+10%**	**Comments**
Energy Generation	06.62%	08.20%	9.70%	The energy generation has been referred from Technical and evaluation report prepared by Sun To Market Solution (S2M), S.L of the project activity. The capacity utilization factor has been considered 59.306% (The gross electricity generation of the project activity has been estimated by S2M Solutions (a third party contracted by project proponent) and PLF of the project has been back-calculated using

				gross generation value therefore PLF considered in the project activity is in line with criteria 3 (b) of "Guidelines for reporting and verification of Plant Load Factors (version. 01)".) and figure seems consistent in line with GERC Order dated 29/01/2009. However, an extreme case of an increase of 10% in generation amount has also been considered for the analysis. But the sensitivity analysis demonstrates that the project IRR is still below the benchmark of 12.46%. DOE agrees with the argument put forth by the project proponent.
Capital cost	10.39%	8.20%	6.31%	The project IRR does not cross the benchmark of 10.39% even with 10% increase in capital cost.
Tariff rate	6.62%	8.20%	9.70%	The project IRR does not cross the benchmark of 10.39% even with 10% increase in tariff rate.
O&M Cost	8.38%	8.20%	8.01%	The variation in the cost of Operations and Maintenance does not affect the Project IRR by a significant margin due to its low value.

The sensitivity analysis was analyzed in detail and TÜV SÜD confirms that the underlying assumptions, parameters and chosen values are appropriate and that the calculations have been performed correctly.

The financial calculation has been further verified by Detailed Project Report [IRL# 10, 34] as well as project proponent has been submitted Board Resolution for CDM consideration for the project activity [IRL# 27] which confirming that board has sanctioned the project activity after considered CDM revenue. All the calculation files were checked and no mistakes have been found. Hence it can be confirmed that the calculations are correct.

The financial calculations have been verified and no mistakes have been found.

3.6.4 Barrier analysis

Other barriers are not applied in the project activity

3.6.5 Common practice analysis

The region for the common practice analysis has been defined as India. Project proponent has been verified the common practice analysis according to the paragraph 47 of the methodological tool "Demonstration and assessment of additionality" version 06.0.0.

In accordance with guideline, the common practice was determined through following 4 steps:

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.

In step 1, Projects from the region with similar size i.e. 12.5 – 37.5 MW (–50% and 50% of the proposed project) and with the same technology have been correctly identified.

Step 2: Identify all plants that deliver the same output or capacity

The region for the common practice analysis has been defined as India. According to the guidance, need to identify the similar capacity of the plant in the India. Hence for the proposed project activity, this will include all the power plants in the range from 12.5 MW to 37.5 MW commissioned in India before the start date of the proposed project activity i.e. 22 March 2011 and use technologies different from solar photovoltaic technology for power generation as will be used by the proposed project activity. It has been understood as per the MNRE report on MW size grid connected solar power plants in India (http://mnre.gov.in/file-manager/UserFiles/powerplants_241111.pdf), as on 22 March 2011, there was no solar power plant installed in India in the range of 12.5 MW to 37.5 MW capacity.

According to the UNFCCC website (IRL 91) also, no solar power plant CDM project within range from 12.5 MW to 37.5 MW are in operation in India. So, N_{all} can be excluded for this plant according to the Demonstration and assessment of additionality (version 06.0.0).

As per above analysis, , $N_{all} = 0$

Step 3: identify plants that apply different technologies

As N_{all} is equal or zero according to the above analysis therfore this step is not applicable.

Step 4: Calculate the factor

$$F = 1 - \frac{N_{diff}}{N_{all}} \quad = \frac{N_{all} - N_{diff}}{N_{all}}$$

As mentioned above, in India there was no solar power plant installed in India in the range of 12.5 MW to 37.5 MW capacities.

Therefore, $(N_{all} – N_{diff}) = 0$

and $F = (N_{all} – N_{diff})/N_{all} = 0$

As the factor F is less than 0.2 and N_{all}-N_{diff} is less than 3, it is confirmed that the proposed CDM activity is not a common practice in the defined region.

3.7 Monitoring plan

The monitoring plan presented in the PDD complies with the requirements of the applicable methodology. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. The information provided and a physical inspection has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the PPs. Specifically; these

points include the location of meters, data management, and the quality assurance and quality control procedures to be implemented in the context of the project. The major parameters quantity of net electricity generation supplied by the project plant/unit of the grid in year *y* electricity would be monitored and this information has been discussed and verified during site audit.

The net electricity would be calculated after deducting the total import electricity amount from the total export electricity amount and the same would be measured by main and check meter. The main and check meter would be installed at the grid interconnection point.

The net electricity generation supplied to the grid is recorded in the joint meter reading sheet. Monitoring meters will be calibrated once in a three year as per Power Purchase Agreement (IRL 19) or more frequently if required as per manufacturer specifications. Further, according Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, section 18.1 (page 12) (http://www.cea.nic.in/reports/regulation/meter_reg.pdf), recommend to do the calibration of meters once in a five years so project proponent approach on the calibration frequency seems more conservative and can be accepted.

The net electricity supplied to the grid amount would be checked with the actual invoices sent by project owners to the grid company. For further cross checking purposes, net electricity supplied to the grid amount can be cross checked with gross electricity generation and auxiliary electricity consumption amount of the power plant which will be recorded in plant log books.

Therefore, the PPs will be able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified.

3.8 Sustainable development

The LoA of the host country presented a statement that the project contributes to the sustainable development of the host party.

3.9 Local stakeholder consultation

The relevant local stakeholders have been invited via invitation letter to the stakeholders. The evidence of these invitations is given by IRL 23. The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders. Team local expertise has confirmed that the communication method used to invite the stakeholders is appropriate. The summary of comments presented in the PDD has been verified with the documentation of the stakeholder consultation and has been found to be complete.

Comments presented by the local stakeholders have been taken into account by the PP and has been verified with information obtained during interviews.

Hence, the local stakeholder consultation has been performed adequately according to the CDM requirements.

3.10 Environmental impacts

The project participants have not undertaken an environmental impact as it is not required as per the EIA notification of the ministry of the Environment and Forest, India (http://envfor.nic.in/legis/eia/so1533.pdf). PP has consent to establishment from the Gujarat Pollution Control Board [IRL#38] which are the mandatory requirements as per local and national compliances. The documents [IRL# 38] confirm the correctness of the approach used by the PP. Hence the PP followed the requirements of the host country regarding the environmental impacts.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on the UNFCCC website and invited comments by affected Parties, stakeholders, and non-governmental organisations during a 30 day period.

All key information gathered is presented in the table below.

GSP Comments

website: http://cdm.unfccc.int/Projects/Validation/DB/3KXEYDG1MYZOCQLSDONVIR1Z2QDU4G/view.html	
Starting date of the global stakeholder consultation process: 15/06/2011	
Comment submitted by: 1) SUD 2) Mahesh Pandya Environmental Engineer Paryavaran mitra 502, Raj Avenue, Bhaikaka nagar road Thaltej, Ahmedabad – 380059 India Telefax - 079-26851321/1801 Submitted by: paryavaranmitra 3) Karthikeyan	**Issues raised:** All project relevant comments received during 30 days global stake holder process has been considered under Clarification Request No (CR) 1, CR 10, CR 13, and CR 17 under Table 2 of Annex-2 of the validation report.
Response by TÜV SÜD: All project relevant comments received during 30 days global stake holder process has been assessed by DOE under Clarification Request No (CR) 1, CR 10, CR 13, and CR 17 under Table 2 of Annex-2 of the validation report.	

South Asia

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Solar Thermal Power project at Kutcch District in Gujarat

Standard auditing techniques have been used for the validation of the project. A methodology-specific protocol for the project has been prepared to conduct the validation process in a transparent and comprehensive manner.

The review of the project design documentation, subsequent follow-up interviews, and further verification of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In the opinion of TÜV SÜD, the project meets all relevant UNFCCC requirements for the CDM if the underlying assumptions do not change. TÜV SÜD recommends the project for registration by the CDM Executive Board.

An analysis, as provided by the applied methodology, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are additional to any that would occur in the absence of the project activity. Considering that the project will be implemented as designed, the project is likely to achieve the estimated amount of emission reductions of 111, 204 tCO_2e and a total estimated of 778,429 tCO_2e for the first seven-year crediting period as specified within the final PDD version.

The validation has been performed following the requirements of the latest version of the CDM VVM and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM project cycle. Based on the work described in this report, nothing has come to our attention that causes us to believe that any project component or issue has not been covered by the validation process.

Pune, 28/12/2012

Certification Body “Environment and Energy”
TÜV SÜD South Asia Pvt Ltd

South Asia

Annex 1

Validation Protocol

Table 1 Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	2	The project title has mentioned in the PDD as "Solar Thermal Power project at the Kutch District in Gujarat"- It enables to identify the project activity.	☑	☑
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	2	Yes, the PDD submitted for GSP is version 01 and is dated 13/06/2011, which is clearly indicated.	☑	☑
A.1.3.	Is this consistent with the time line of the project's history?	2	Yes, it is consistent with the timeline of the project activity.	☑	☑
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	2,10, 28	**Corrective Action Request No 1** Project description should indicate the current status and electricity amount of the project activity.	CAR	☑
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	2,10, 44	**Clarification Request No 1** The following comments were received during 30 days GSP period a) Why this location has been chosen for this project? b) Will this project have an impact on temperature in the surrounding area? c) What would be impact of negative environmental conditions of area upon project? What would be alternatives in that case? d) How many skilled/unskilled people from the surrounding area will be employed in this project during commissioning and operation? Does PP plan to conduct training programs for local youth for skill improvement?	CR	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			e) Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier f) Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects? g) DOE must take a written undertaking from the PP/Consultant about the list of parties to whom this DPR/FR is submitted and for what purposes. Then DOE should cross check with all the parties and confirm that the same DPR/FR is submitted to all the parties correctly without any changes. Project Proponent needs to provide the justification on all above points.		
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	2,10, 44	Yes, the information provided by proofs is consistent with information presented in the PDD. Further, please refer to CR in section A.2.3.	CR	☑
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	2,10, 44	Information within the PDD is consistent.	☑	☑
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	2, 25	Yes, the form required for the indication of project participants is correctly applied	☑	☑
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	2,25	Participation of the listed entities was confirmed during the on-site audit. The participant can be evidenced by MoC.	☑	☑
A.3.3.	Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in	2, 25	The participant information is consistent with Annex-1 of the PDD.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	particular annex 1)?				
A.4. Technical description of the project activity					
A.4.1.	*Location of the project activity*				
A.4.1.1.	Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	2,40, 42	Yes, location of the project is correctly mentioned in the PDD as validated during the on-site audit.	☑	☑
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	2,10, 19, 20, 44	The following documents have been checked which demonstrate that the project proponent can implement the project at the site – Power purchase agreement (PPA), Detailed Project Report (DPR) ,Pre feasibility report and LOA of Lauran as EPC contractor	☑	☑
A.4.2.	*Category(ies) of project activity*				
A.4.2.1.	To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	2	Yes, the project falls into scope 1, energy industries (renewable sources). The category is correctly identified and indicated in A.4.2 of the PDD.	☑	☑
A.4.3.	*Technology to be employed by the project activity*				
A.4.3.1.	Does the technical design of the project activity reflect current good practices?	2,10, 44	**Clarification Request No 2** From the description give in section A.4.3., it is not clearly defined about what would be the project backup system during non-sunny days for heat supply in the process? Is it any fossil fuel based heat backup system (boiler, heat exchanger.etc) will be added in the process of the project activity? Also, diagram of the project activity is not transparently describing how storage tank and solar heater is receiving heat from solar field? Project proponent needs to clarify the above points in the PDD.	CR	☑
A.4.3.2.	Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its im-	2,10, 44	Project proponent needs to see CR in section A.4.3.1	CR	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	pact on the greenhouse gas balance?				
A.4.3.3.	Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	2,30	**Clarification Request No 3** Is it any technology transfer from annex-I-countries to the project activity? Also, Is it possible to be substituted by other technology within the project period Project proponent needs to clarify the above points in the PDD with supportive.	CR	☑
A.4.3.4.	Is the technology implemented by the project activity environmentally safe?	2, 10, 30, 44	It is expected that the technology implemented will be environmentally safe.	☑	☑
A.4.3.5.	Is the information provided in compliance with actual situation or planning?	2,28	Project proponent needs to see the CR comment in section A.2.1.	CR	☑
A.4.3.6.	Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	2,10	The common practice for electricity generation is still coal-fired power plant. Hence, the project definitely would result in a better performance than the common practice.	☑	☑
A.4.3.7.	Is the project technology likely to be substituted by other or more efficient technologies within the project period?	2, 10, 30	It is not likely that the key technology applied will be substituted by other or more efficient technologies.	☑	☑
A.4.3.8.	Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	2,46	**Clarification Request No 4** Project proponent needs to provide the operation and training manual of the project activity.	CR	☑
A.4.3.9.	Is information available on the demand and requirements for training and main-	2,46	Project proponent needs to refer CR in section A.4.3.8.	CR	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	tenance?				
A.4.3.10.	Is a schedule available for the implementation of the project and are there any risks for delays?	2, 46	Project proponent needs to refer CR in section A.4.3.8.	CR	☑
A.4.4.	*Estimated amount of emission reductions over the chosen crediting period*				
A.4.4.1.	Is the form required for the indication of projected emission reductions correctly applied?	2, 46, 47	Yes. The form is correctly applied according to the table in section A.4.4.	☑	☑
A.4.4.2.	Are the figures provided consistent with other data presented in the PDD?	2, 46, 47	Yes, the figures provided are consistent with others presented in the PDD. However, **Clarification Request No 5** The submitted spreadsheet ER amount is not matching with ER amount mentioned in the table of section A.4.4. Project proponent needs to clarify the reason.	CR	☑
A.4.5.	*Public funding of the project activity*				
A.4.5.1.	Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	2,30	**Clarification Request No 6** Provide the supporting documents to show that there is no public funding in the project activity.	CR	☑
A.4.5.2.	Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	2,30	Project proponent needs to refer CR in section A.4.5.1	CR	☑
B. Application of a baseline and monitoring methodology					
B.1. Title and reference of the approved baseline and monitoring methodology					
B.1.1.	Are reference number, version number,	2	Yes, the baseline and monitoring methodology ACM0002 "Con-	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	and title of the baseline and monitoring methodology clearly indicated?		solidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.3.0 is indicated.		
B.1.2.	Is the applied version the most recent one and / or is this version still applicable?	2	Yes, ACM0002 version 12.3.0. was applied in the GSP PDD, which is the most recent one, and still applicable	☑	☑
B.1.3.	If the baseline and monitoring methodology, applied in the original PDD, was withdrawn after the registration of the CDM project activity and replaced by a consolidated methodology: Is the latest approved version of the respective consolidated methodology used?	2	Not Applicable	☑	☑
B.1.4.	In the case the registered CDM project activity does not meet the applicability criteria of the options provided in B.1.2. or B.1.3., due to their revision or due to the update of the baseline: Have the project participants either selected another applicable approved methodology or request, through the DOE, a deviation from an approved methodology for the purpose of renewal of the crediting period?	2	Not Applicable	☑	☑
B.1.5.	Does the methodology refer to the following tools with its latest approved versions: - Tool to calculate the emission factor for an electricity system - Tool for the demonstration and assessment of additionality - Combined tool to identify the baseline	2	The proposed project refers to the following tools 1) Tool to calculate the Emission Factor of an electricity system, version 02.2.0 2) Tool for the demonstration and assessment of additionality, version 06.0 3) Combined tool to identify the baseline scenario and demonstrate additionality, version.5.0.0	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
scenario and demonstrate additionality (only applicable for retrofit and/or replacement of existing grid-connected renewable power plants/unit(s) - Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion				
B.2. Justification of the choice of the methodology and why it is applicable to the project activity				
B.2.1. Is the applied methodology considered the most appropriate one?	2,3	Yes, the methodology ACM0002 ver.12.3.0 is exactly applicable for solar thermal project.		☑
Fill in the required amount of sub checklists for applicability criteria as given by the methodology applied and comment at least every line answered with "No"				
Criterion1: The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit..	2,3	Applicability checklist: Criterion discussed in the PDD? Yes; Compliance provable? No; Evidences provided in the PDD? No; Compliance verified? No **Clarification Request No 7** Project proponent needs to indicate the supportive evidence name in the PDD to verify the all methodology criteria's of the project activity.	CR	☑
B.2.2. Criterion 2 (In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 11 of ACM0002 ver.12.3.0 to calcu-	2,3	Applicability checklist: Criterion discussed in the PDD? Yes; Compliance provable? No; Evidences provided in the PDD? No; Compliance verified? No	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
late the parameter $EG_{PJ,y}$)): - the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;		Project proponent needs to refer CR in section B.2.2.		
B.2.3. Criterion 3 (in the case of hydro plants, at least one of the following conditions must apply): -The project activity is implemented in an existing or multiple reservoirs, with no change in the volume of reservoirs or -The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir of the project activity, as per definitions given in the Project or - Emissions section, is greater than 4 W/m2 after the implementation of the project activity; or - The project activity results in new single	2,3	Applicability checklist: Yes / No Criterion discussed in the PDD? NA Compliance provable? NA Evidences provided in the PDD? NA Compliance verified? NA Not applicable as proposed project is not hydro power plant.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	or multiple reservoirs and the power density of the power plant each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m2 after the implementation of the project activity.				
B.2.4.	Criterion 4: In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m2 after the implementation of the project activity all of the following conditions must apply: - The power density calculated for the entire project activity using equation 5 is greater than 4 W/m2; - All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant; - The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; - The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m2, is lower than 15 MW;	2,3	Applicability checklist: Yes / No Criterion discussed in the PDD? NA Compliance provable? NA Evidences provided in the PDD? NA Compliance verified? NA Not applicable as proposed project is not hydro power plant.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
- The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs				
B.2.5. Criterion 5: The methodology is not applicable to the following: - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site - Biomass fired power plants - Hydro power plants that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the new reservoirs or in the increase in existing reservoirs where the power density of the power plant reservoir is less than 4 W/m	2,3	Applicability checklist: Yes / No Criterion discussed in the PDD? NA Compliance provable? NA Evidences provided in the PDD? NA Compliance verified? NA Proposed project is a Greenfield solar thermal power plant and not involved any fuel switching activities.	☑	☑
B.2.6. Criterion 6 (In the case of retrofits, replacements, or capacity additions): - the most plausible baseline scenario is "the continuation of the current situation, i.e. to use the power	2,3	Applicability checklist: Yes / No Criterion discussed in the PDD? NA Compliance provable? NA Evidences provided in the PDD? NA Compliance verified? NA	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".		Not applicable as proposed project is not hydro power plant		
B.3. Description of the sources and gases included in the project boundary				
Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with "No"				
B.3.1. Source: Fugitive Emissions from non-condensable gases contained in geo-thermal steam (geothermal power plants only) Gas(es): CO_2, CH_4 Type: Project Emissions	2, 10	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? NA Inclusion / exclusion justified? NA Explanation / Justification sufficient? NA Consistency with monitoring plan? NA Not applicable as proposed project is a Greenfield solar thermal power plant	☑	☑
B.3.2. Source: Emissions from combustion of fossil fuels for electricity generation (for geothermal and solar power plants only) Gas(es): CO_2 Type: Project Emissions	2, 10	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes	☑	☑
B.3.3. Source: Emissions from the reservoir (hydro pow-er plants only) Gas(es): , CH_4	2, 10	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? NA Inclusion / exclusion justified? NA	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Type: Project Emissions		Explanation / Justification sufficient? NA Consistency with monitoring plan? NA Not applicable as proposed project is a Greenfield solar thermal power plant		
B.3.4. Source: Emissions from electricity generation in fossil fuel fired power plants that is displaced due to the project activity Gas(es): CO_2 Type: Baseline Emissions	2, 10	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes The project activity will be connected with the NEWNE grid.	☑	☑
B.3.5. Source: Emissions from electricity generation in fossil fuel fired power plants of any connected electricity system Gas(es): CO_2 Type: Baseline Emissions	2,10	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes The project activity will be connected with the NEWNE grid.	☑	☑
B.3.6. Source: Emissions from electricity generation in fossil fuel fired power plants of imported electricity (project electricity consumption) Gas(es): CO_2	2, 10	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes The project activity will be connected with the NEWNE grid.	☑	☑
B.3.7. Do the spatial and technological boundaries as verified on-site comply with the	2,10	Yes, the verified results comply with the discussion within the PDD. However,	CAR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
discussion provided by the PDD?		**Corrective Action Request No 2** Project proponent need to include a flow diagram in section B.3 of the PDD where emission sources and gases together with monitoring variables shall be clearly represented in the diagram.		
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario				
B.4.1. Is it clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to?	2,3	Yes, it is clearly described in chapter B.6.1 that the baseline emission factor is calculated reflected in the combined margin (CM) calculations: described in the "Tool to calculate the emission factor for an electricity system". (version 02.2)" .	☑	☑
B.4.2. In case of: - retrofit or replacement of existing grid connected renewable power plant - or capacity addition to an existing hydro or geothermal power plant: Is data available to determine the historic production level?	2,3	Not Applicable	☑	☑
B.4.3. In case of any modification or retrofit of existing facilities: Have conservative assumptions been applied in order to estimate the point in time when the existing equipment needs to be replaced?	2,3	Not Applicable	☑	☑
Changes required for methodology implementation in 2nd and 3rd crediting periods				
B.4.4. Has the continued validity of the baseline	2,3	Not Applicable	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	been correctly assessed?				
B.4.5.	Have new relevant national and/or sectoral policies and circumstances on the baseline been taken into account (including relevant EB guidance)?	2,3	Not Applicable	☑	☑
B.4.6.	Has the baseline been updated with new data?	2,3	Not Applicable	☑	☑
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):					
B.5.1.	Is the realisation of the project activity based on an approved, a proposed new methodology or especially on ACM0002?	2	As per PDD, the realization of the project activity is based on an approved methodology ACM0002.	☑	☑
B.5.2.	In case the project activity started before the validation activity, how is demonstrated that the CDM was seriously taken into account for the decision to start the project?	2,10 ,27, 46	Project activity is still not commissioned. However, **Corrective Action Request No 3** Project proponent needs to include the date of the DPR submission and board meeting where CDM was seriously considered for the project in the project timeline table (page 13 of the PDD) of the project activity. Also, submit the complete minutes of the board meeting. **Clarification Request No 8** The expected commissioning date of the project is January 2013. However, as per article 5.2 of the power purchase agreement, the tariff rate of the PPA is valid if project will be commissioned before 31st December 2011 then how the tariff rate of the PPA applied in the investment calculation is valid? Project proponent needs to clarify? **Clarification Request No 9** How Plant Load Factor (PLF) of the project activity has been calculated as per Annex-11 of EB 48? Clarify.	CAR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.5.3. In case the project activity is the retrofit or replacement of existing grid-connected renewable project, does the step-wise procedure was applied and presented in the PDD, including Step 1: Identification of credible and realistic alternative scenarios Step 2: Barrier Analysis Step 3: Investment analysis?	2,19	As per description given in the PDD, project activity is the green field project.	☑	☑
Step 1 – Identification of alternatives to the project activity				
B.5.4. Are alternative scenarios defined that provide outputs or services comparable with the proposed CDM project activity?	2, 7, 16,21	**Clarification Request No 10** PDD stated "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". Project proponent needs to indicate the document/weblink name in the PDD to support this statement. **Clarification Request No 11** A comment was submitted during the 30-day GSP which mentioned "base line defined in this project? Is Base line hypothetically defined with no proper evidences and proper justification?" Project proponent give their justification on this point.	CR	☑
B.5.5. Can be the list of alternatives considered to be complete, why? Is the scenario project activity without being registered as CDM project included?	2,10	Yes, according to the methodology, electricity generated by the existing generation mix in the grid considered the baseline scenario of the project activity.	☑	☑
B.5.6. In case several different facilities,	2,10	Project proponent needs to see section B.5.5	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
technologies, outputs or services are present in the project, are separately alternative scenarios for each of them included? Have realistic combinations been considered as project scenario?				
B.5.7. In case the project activity is the retrofit or replacement of existing grid-connected renewable project, are following options considered? P1: The project activity not implemented as a CDM project; P2: The continuation of the current situation, i.e. to use all power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance. The additional power generated under the project would be generated in existing and new grid-connected power plants in the electricity system; P3: All other plausible and credible alternatives to the project activity that provide an increase in the power generated at the site, which are technically feasible to implement. This includes, inter alia, different levels of replacement and/or retrofit at the power plant/unit(s). Only alternatives available to project participants should be taken into account.	2,10	Not applicable as proposed project is a Greenfield solar thermal power plant	☑	☑
B.5.8. Describe why the alternative scenarios are credible and realistic (technology, practices, services, status of	2,10	Project proponent needs to see the section B.5.5	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
implementation)?				
B.5.9. Do the alternative scenarios comply with mandatory laws and regulations?	2,10	Project proponent needs to refer CR in section B.5.4.	CR	☑
B.5.10. If a scenario does not comply with the mandatory laws and regulations, it is clearly demonstrate that the law and/or regulation is systematically not enforced in the country?	2,10	Project proponent needs to refer CR in section B.5.4.	CR	☑
Step 2 – Investment analysis (could be optional if step 3 is used)				
B.5.11. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	2,8, 9,10 , 11, 12, 19, 21, 34, 36, 37, 39, 45	Project activity is using step 2 (Investment analysis) to demonstrate the additionality of the project.	☑	☑
B.5.12. In case of Option I (simple cost analysis): Is it demonstrated that the activity and the alternatives identified in step 1 produce no economic benefits other than CDM income? Is the project activity more costly than at least one alternative?	2	Not applicable. The simple cost analysis does not apply as the proposed project not only obtains CDM revenue but also revenue through electricity sales.	☑	☑
B.5.13. In case of Option II (investment comparison analysis): Is the most	2,46	IRR has been chosen	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost) and reflects this indicator no economical and financial attractiveness or feasibility at all?				
B.5.14.	In case of use of IRR, it is clearly demonstrated why is equity of project IRR used?	2,46	Project IRR has been chosen	☑	☑
B.5.15.	In case of Option III (benchmark analysis): Is the most suitable financial/economic indicator clearly identified (project or equity IRR)?	2,8, 9,10 , 11, 12, 19, 21, 34, 36, 37, 39, 45	**Clarification Request No 12** PDD stated "The prime lending rate of the major nationalized bank in India at the time of investment was 13%." Project proponent needs to indicate the supportive document name for this statement in the PDD. **Clarification Request No 13** Project proponent needs to clarify the supportive document name to verify the details mentioned for the Beta value **Clarification Request No 14** The following comments were received during 30 days GSP period 1) The investment decision must have been taken before April 2010 because as per publicly available information, the PPA was signed in April 2010. In 2009-10, MAT rate was not 19.93% as assumed in calculating post tax cost of debt. 2) BSE 500 has been selected as independent variable. There is no explanation as to why BSE 500 has been selected and how it is conservative. Why can't BSE Sensex or NIFTY and S&P 500 be selected? It is not known where from Beta has been downloaded or whether it has been calculated. The PDD does not provide any information on the duration or return interval used for computing beta. It is not clear how is arithmetic mean	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		considered appropriate for computing industry beta. Finally, by selecting the duration, return interval and companies in such a manner, the consultant has arrived at a beta, which will give the required benchmark to make the project additional. No wonder, the consultant has arrived at a return of ~22% on equity in contrast to 14% recommended by GERC. Annex 13, EB 61 states, the cost of equity should be determined by (a) selecting the values provided in Appendix A; or (b) by calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors. On what basis it is claimed that the calculation represents best financial practice. If this return is the result of best financial practice, then what about the return recommended by EB. 3) The cost of the project is stated to be 80025 lakhs, which results in the cost of Rs.30 cr./MW. GERC has recommended Rs.13 cr/MW for solar thermal power projects and the projected cost is two and half times more than the cost recommended by GERC. DOE should check the purchase order and should go by purchase order and not by quotation. Moreover, the PP has taken all input parameters based on GERC tariff order. It is not clear why the PP should adopt GERC recommendation, when it must have got these information from machinery supplier, insurance company, bank etc. The additionality demonstration is not convincing 4) In salvage value, only 10% of the project cost is taken into account. Atleast, that is what the PDD states. There is no explanation as to why the land cost is not taken into consideration, particularly when the land acquired must be substantial and the price of land is bound to appreciate in the		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		next 25 years. 5) Why should this project require working capital? Does the company invest in raw material? If not how the working capital can be justified? 6) Since the company is not availing accelerated depreciation it should be eligible for generation based incentive 7) Moreover, it should also be ensured that the PP does not avail REC and in case it is availed the REC income should be taken into account in financial indicator calculation. Project proponent needs to provide the justification on all above points. **<u>Clarification Request No 15</u>** Project proponent needs to provide the breakup the capital cost and supportive documents to verify the each cost which considered under the total capital cost of the project. Also, ensure that all finacial values used in the investment calculation is in line with its reference documents. **<u>Corrective Action Request No 4</u>** Project proponent needs to add the investment calculation of the project activity in the PDD.		
B.5.16. How is it demonstrated that the	2,8,	See CAR and CR in section B.5.15	CAR	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	financial/economic analysis (benchmark) represents standard returns in the market, considers the specific risk of the project type, but is not linked to the subjective profitability expectation or risk profile of a particular project developer (Option II and Option III)?	9,10, 11, 12, 19, 21, 34, 36, 37, 39, 45		CR	
B.5.17.	In case of company internal benchmark, is it clearly demonstrate that there is only one potential project developer and that the benchmark has been consistently used in the past (Option II and Option III)?	2,8, 9,10, 11, 12, 19, 21, 34, 36, 37, 39, 45	See CAR and CR in section B.5.15	CAR CR	☑
B.5.18.	In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives (Option II) and the project activity (Option?	2,8, 9,10, 11, 12, 19, 21, 34, 36,	See CAR and CR in section B.5.15	CAR CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
	37, 39, 45			
B.5.19. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	2,8, 9,10 , 11, 12, 19, 21, 34, 36, 37, 39, 45	See CAR and CR in section B.5.15	CAR CR	☑
B.5.20. Are all assumptions and input data clearly presented, documented, evidenced and consistent with the rest of the PDD?	2,8, 9,10 , 11, 12, 19, 21, 34, 36, 37, 39, 45	See CAR and CR in section B.5.15	CAR CR	☑
B.5.21. Does the sensitivity analysis shows that the conclusion of financial/economical attractiveness is robust to reasonable variations in the critical assumptions?	2,8, 9,10 , 11, 12,	See CAR and CR in section B.5.15	CAR CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
	19, 21, 34, 36, 37, 39, 45			
B.5.22. How is demonstrate that this variations have been adequately taken (range is adequate)?	2,8, 9,10 , 11, 12, 19, 21, 34, 36, 37, 39, 45	See CAR and CR in section B.5.21	CAR CR	☑
Step 3 – Barriers analysis				
B.5.23. Is a complete list of barriers developed that prevent the implementation of the proposed project and the different alternatives to occur?	2	Not Applicable	☑	☑
B.5.24. Is transparent and documented evidence provided on the existence and significance of these barriers?	2	Not Applicable	☑	☑
B.5.25. Is it transparently shown that the execution of at least one of the alternatives is not prevented by the	2	Not Applicable	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
identified barriers?				
B.5.26. How is confirmed that the CDM does alleviate the barriers presented?	2	Not Applicable	☑	☑
Step 4 – Common practice analysis (is to complement based on the information given in step1 and reinforce step2 / step3)				
B.5.27. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD?	2, 14, 27	**Clarification Request No 16** PDD stated "This analysis showed that there are no large scale solar thermal power projects commissioned in the state of Gujarat or in India comparable to the proposed project activity." Project proponent needs to indicate the supportive document name to verify this statement in the PDD. Also, PDD stated "The project activity under consideration is a large scale project activity with a proposed installed capacity of 50 MW." However, project capacity is 25 MW according to the submitted document of the project activity. Project proponent needs to clarify. Further PDD stated "Project activities implemented post the investment decision for the project activity i.e. post April 2010," Project proponent needs to provide the supportive to verify the statement.	CR	☑
B.5.28. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component?	2, 14, 27	Project proponent needs to see CR in section B.5.27	CR	
B.6. Emissions reductions				
B.6.1. Explanation of methodological choices				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by	2,3	The calculation of the emission reduction is applied according to the step describe in ACM0002. (version 12.3.0)	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	the proposed project activity?				
B.6.1.2.	Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	2,3	Yes, the justification has also been discussed and demonstrated in the PDD based on the options provided in the applied methodology.	☑	☑
B.6.1.3.	Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2,3	**Corrective Action Request No 5** The formula of project emission mentioned in the PDD is not in line with applied methodology. Also, as per project description given in section A.4.3, no fossil fuel system or equipment is present in the process of the project activity then why fossil fuel parameters has been considered in the emission reduction calculation? Project proponent needs to clarify.	CAR	☑
B.6.1.4.	Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2,3	All the formulae used for baseline emission are in compliance with the one in the defined methodology ACM0002, version 12.3.0.	☑	☑
B.6.1.5.	Is the choice of options to determine the emissions factor (OM, BM) justified in a suitable and transparent manner?	2,3	The justification is demonstrated in the PDD. Referring to the latest data from the Central Electricity Authority (CEA), the combined margin emission factor of grid is taken.	☑	☑
B.6.1.6.	Are the six steps as defined per the “Tool for calculation of emission factor for electrical systems” correctly applied by the project participants?	2,3	Yes, these six steps as defined as per the “Tool for calculation of emission factor for electrical systems”, version 02.2 are correctly applied.	☑	☑
B.6.1.7.	In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?	2, 46	The default weights (OM 0.75 and BM 0.25) for solar power projects are used.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.1.8. In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?	2, 46	Not Applicable	☑	☑
B.6.1.9. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2, 46	No leakage is considered according to the methodology ACM0002, version 12.3.0	☑	☑
Tool to calculate project or leakage CO2 emissions from fossil fuel combustion				
B.6.1.10. Is the formula required for the determination of CO2 project emissions from fossil fuel combustion correctly presented, enabling a complete identification of parameter to be used and / or monitored	2, 46	Project proponent needs to refer CAR comment in B.6.1.3.	CAR	☑
B.6.1.11. Is option A (preferred approach) or option B chosen for the determination of the CO2 emission coefficient COEFi,y and is COEFi,y correctly determined?	2, 46	Project proponent needs to refer CAR comment in B.6.1.3.	CAR	☑
B.6.1.12. Are formulae required for the determination of emission reductions correctly presented?	2, 46	Project proponent needs to refer CAR comment in B.6.1.3.	CAR	
B.6.2. Data and parameters that are available at validation				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the	2, 46	The list of parameters presented in chapter B.6.2 are considered to be complete with regard to the requirements of the applied methodology ACM0002, version 12.3.0 and "Tool for calculation of	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
applied methodology?		emission factor for electrical systems", version 02.2		
B.6.2.2. Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	2, 46	The ex-ante calculation of emission factors is chosen.	☑	☑
Fill in the required amount of sub checklists for monitoring parameter and comment any line answered with "No"				
B.6.2.3. Parameter Title: GWP_{CH4} Global warming potential of methane valid for the relevant commitment period (tCO2/tCH4)	2, 46	Not Applicable	☑	☑
B.6.2.4. Parameter Title: $EG_{historical}$ (only applicable to retrofit of an existing grid-connected renewable power plant/unit) Average of historical electricity delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh/yr)	2, 46	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑
B.6.2.5. Parameter Title: σ historical (only applicable to retrofit of an existing grid-connected renewable power plant) B.6.2.6. Standard deviation of the historical net electricity generation delivered to the grid by the existing renewable energy plant that was operational at the project site prior to the implementation of the project activity.	2, 46	Project activity is the green field solar thermal power plant, hence not applicable Project activity is the green field solar thermal power plant, hence not applicable	☑ ☑	☑ ☑
B.6.2.7. Parameter Title: $DATE_{BaselineRetrofit}$ (only	2,	Project activity is the green field solar thermal power plant, hence	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
applicable to retrofit of an existing grid-connected renewable power plant/unit) Point in time when the existing equipment would need to be replaced in the absence of the project activity	3,46	not applicable		
B.6.2.8. Parameter Title: $DATE_{hist}$ (only applicable to retrofit and replacement of an existing grid-connected renewable power plant) Point in time from which the time span of historical data for retrofit or replacement activity may start.	2, 3,46	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑
B.6.2.9. Parameter Title: EF_{Res} (only applicable to hydro-power plants with reservoir) Default emission factor for emissions from reservoirs (90 kgCO2e/MWh)	2, 3,46	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑
B.6.2.10. Parameter Title: CAP_{BL} (W) (only applicable to modification/retrofit of an existing grid-connected renewable power plant/unit) Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero.	2, 3,46	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.2.11. Parameter Title: A_{BL} (only applicable to hydropower plant projects with reservoir) Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2). For new reservoirs, this value is zero (m^2).	2, 3, 46	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑
Calculation of the Emission Factor				
B.6.2.12. Parameter Title: Emission factor of the grid (EF_{CM} in tCO_2/MWh)	2,3, 46	Data Checklist: Title in line with methodology? Yes; Data unit correctly expressed? Yes; Appropriate description of parameter? Yes; Source clearly referenced? Yes; Correct value provided? Yes; Has this value been verified? Yes; Choice of data correctly justified? Yes; Measurement method correctly described? Yes	☑	☑
B.6.2.13. Parameter Title: Operating margin (EF_{OM} in tCO_2/MWh) emission factor of the grid	2,3, 46	Data Checklist: Title in line with methodology? Yes; Data unit correctly expressed? Yes; Appropriate description? Yes; Source clearly referenced? Yes; Correct value provided? Yes; Has this value been verified? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Choice of data correctly justified? Yes Measurement method correctly described? Yes		
B.6.2.14. Parameter Title: Build margin (EF_{BM}intCO2/MWh) emission factor of the grid	2,3, 46	Data Checklist: Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes	☑	☑
B.6.2.15. Parameter Title: $FC_{i,m,y}$, $FC_{i,y}$, $FC_{i,j,y}$, $FC_{i,k,y}$, $FC_{i,n,y}$ and $FC_{i,n,h}$ Amount of fossil fuel type i consumed by power plant / unit m,j,k or n (or in the project electricity system in case of $FC_{i,y}$) in year y or hour h (mass or volume unit)	2,3, 46	Data Checklist: Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided? No Has this value been verified? No Choice of data correctly justified? No Measurement method correctly described? No Project proponent needs to refer CR comment in section B.6.3.1	CR	☑
B.6.2.16. Parameter Title: $NCV_{i,y}$ Net calorific value (energy content) of fossil fuel type i in year y (GJ / mass or volume unit)	2,3, 46	Data Checklist: Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct value provided? No Has this value been verified? No Choice of data correctly justified? No Measurement method correctly described? No		
B.6.2.17. Parameter Title: $EF_{CO2,i,y}$ and $EF_{CO2,m,i,y}$ CO2 emission factor of fossil fuel type i in year y (tCO2/GJ)	2,3, 46	Data Checklist: Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided? No Has this value been verified? No Choice of data correctly justified? No Measurement method correctly described? No	CR	☑
B.6.2.18. Parameter Title: $EG_{m,y}$, EG_y, $EG_{j,y}$, $EG_{k,y}$ and $EG_{n,h}$ Net electricity generated and delivered to the grid by power plant / unit m,j,k or n (or in the project electricity system in case of EGy) in year y or hour h (MWh)	2,3, 46	Data Checklist: Yes / No Title in line with methodology? NA Data unit correctly expressed? NA Appropriate description of parameter? NA Source clearly referenced? NA Correct value provided? NA Has this value been verified? NA Choice of data correctly justified? NA Measurement method correctly described? NA	☑	☑
B.6.2.19. Parameter Title: $EG_{PJ,h}$ Electricity displaced by the project activity	2, 3,46	Data Checklist: Yes / No Title in line with methodology? NA	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
in hour h of year y (in MWh) (only applicable for the dispatch data OM)		Data unit correctly expressed? NA Appropriate description of parameter? NA Source clearly referenced? NA Correct value provided? NA Has this value been verified? NA Choice of data correctly justified? NA Measurement method correctly described? NA		
B.6.2.20. Parameter Title: $\eta_{m,y}$ Average net energy conversion efficiency of power unit m in year y	2,3, 46	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑
Parameter Title: A_{PJ} (only applicable to hydropower plant projects with reservoir)Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.	2,3	Project activity is the green field solar thermal power plant, hence not applicable	☑	☑
B.6.2.21. Parameter Title: fraction of time with low costs /must run plant at the margin (for simple adjusted OM only)	2,3	Data Checklist — Yes / No Title in line with methodology? NA Data unit correctly expressed? NA Appropriate description of parameter? NA Source clearly referenced? NA Correct value provided? NA Has this value been verified? NA Choice of data correctly justified? NA Measurement method correctly described? NA	☑	☑
B.6.3. Ex-ante calculation of emission reductions				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	2,3	Yes, the emission reduction is determined by deducting the project emission and leakage from baseline emission. The same is adopted for the future monitoring.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	2,3	Yes, the GHG calculations are documented in a complete and transparent manner. The latest issued CEA emission factors are used, which is the latest available for the PP at the commencement of the validation.	☑	☑
B.6.3.3. Is the calculation of the operating margin and build margin emission factors documented electronically in a spreadsheet with the relevant information as defined per the "Tool for calculation of emission factor for electrical systems"? Has this spreadsheet been submitted to the validation team?	2,3	The calculation of the operating margin and build margin emission factors is documented electronically in a spreadsheet, based on the "Tool for calculation of emission factor for electrical systems" version 02.2 And emission factor calculation spreadsheet has been submitted to the validation team.	☑	☑
B.6.3.4. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	2,3	See section B.6.3.3.	☑	☑
B.6.4. Summary of the ex-ante estimation of emission reductions				
B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	2,3	Yes, the project definitely will result in fewer GHG emissions than the baseline scenario.	☑	☑
B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	2,3	Yes, required form is correctly applied.	☑	☑
B.6.4.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	2,3	Yes, the expected lifetime of the project is expected to be 25 yrs and renewable crediting period has been taken. Therefore, the yearly emission reduction and total emission reduction in table under section B.6.4 is in line.	☑	☑
B.6.4.4. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	2,3	See section A.4.4.2	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.7.1. Data and parameters monitored				
B.7.1.1. Is the list of parameters presented by chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	2,3	**Corrective Action Request No 6** Include all applicable parameter from the list provided in applicable methodology. **Corrective Action Request No 7** It is unclear in the project activity diagram which voltage side of the transmission line will be equipped with the monitoring meter. Who is responsible of the meter (project proponent or the grid company)? All information shall be provided in a transparent manner.	CAR	☑
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with "No"				
B.7.1.2. Parameter Title: $EG_{facility,y}$ Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)	2,3	Monitoring Checklist: Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided for estimation? Yes Has this value been verified? Yes Measurement method correctly described? Yes Correct reference to standards? Yes Indication of accuracy provided? Yes QA/QC procedures described? Yes QA/QC procedures appropriate? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.7.1.3. Parameter Title: $EG_{PJ,add,y}$ Quantity of net electricity generation supplied in the grid in year y by the project plant/unit that has been added under the project activity (MWh/yr)	2,3	Monitoring Checklist: Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided for estimation? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No Project proponent needs to refer CAR above	**CAR**	
B.7.1.4. Parameter Title: TEGy Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (in MWh/yr).	2,3	Monitoring Checklist: Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided for estimation? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No Project proponent needs to refer CAR above	**CAR**	☑
B.7.1.5. Parameter Title: $EF_{grid,CM,y}$ Combined margin CO2 emission	2,3	Monitoring Checklist: Yes / No Title in line with methodology? NA Data unit correctly expressed? NA	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO2/MWh)</td><td></td><td><table><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table>Not applicable, as this protocol refers to the ex-ante determination of CM.</td><td></td><td></td></tr>
<tr><td>B.7.1.6. Parameter Title: $PE_{FF,y}$
Project emissions from fossil fuel consumption in year y (tCO_2/yr). Calculated as per the “Tool to calculate project or leakage CO_2 emissions from fossil fuel combustions”.</td><td>2,3</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>Project proponent needs to refer CR and CAR above</td><td>CAR
CR</td><td>☑</td></tr>
<tr><td>B.7.1.7. Parameter Title: Cap_{PJ} (only applicable to hydropower plant projects)
Installed capacity of the hydro pow-</td><td>2,3</td><td>Not Applicable</td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
er plant after the implementation of the project activity (W).				
B.7.1.8. Parameter Title: A_{PJ} (only applicable to hydropower plant projects with reservoir) Area of the reservoir measured in the surface of the water, after the implementation of the project ctivety, when the reservoir is full (m^2).	2,3	Not Applicable	☑	☑
B.7.1.9. Parameter Title: $w_{Steam,CO2,y}$ Average mass fraction of CO_2 in the produced steam tCO2/t steam in year y (for geothermal power power projects only)	2,3	Not Applicable	☑	☑
B.7.1.10. Parameter Title: $w_{Steam,CH4,y}$ Average mass fraction of CH_4 in the produced steam (tCH4/t steam) in year y. for geothermal power projects only)	2,3	Not Applicable	☑	☑
B.7.1.11. Parameter Title: $M_{Steam,y}$ Quantity of steam produced during the year y (t steam/yr). (for geothermal power projects only)	2,3	Not Applicable	☑	☑
Parameters related to the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”				
B.7.1.12. Parameter Title: Quantity of fuel type i combusted in process j during the year y	2,3	Monitoring Checklist: Yes / No Title in line with methodology?: No	CAR CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Fci,j,y		Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided for estimation? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No Project proponent needs to refer CAR and CR above		
B.7.1.13. Parameter title: Weighted average mass fraction of carbon in fuel type i in year y $W_{C,I,y}$	2,3	Monitoring Checklist — Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided for estimation? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No Project proponent needs to refer CAR and CR above	CAR CR	☑
B.7.1.14. Parameter title: Weighted average density of fuel type i in year y $\rho_{i,y}$	2,3	Monitoring Checklist — Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No	CAR CR	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Source clearly referenced?</td><td>No</td></tr>
<tr><td>Correct value provided for estimation?</td><td>No</td></tr>
<tr><td>Has this value been verified</td><td>No</td></tr>
<tr><td>Measurement method correctly described?</td><td>No</td></tr>
<tr><td>Correct reference to standards?</td><td>No</td></tr>
<tr><td>Indication of accuracy provided?</td><td>No</td></tr>
<tr><td>QA/QC procedures described?</td><td>No</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>No</td></tr>
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Project proponent needs to refer CAR and CR above</td><td></td><td></td></tr>
<tr><td>B.7.1.15. Parameter title:
Weighted average net calorific value of fuel type i in year y
NCVi,y</td><td>2,3</td><td>
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<tr><td>Title in line with methodology?</td><td>No</td></tr>
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<tr><td>QA/QC procedures appropriate?</td><td>No</td></tr>
</table>
Project proponent needs to refer CAR and CR above</td><td>CAR
CR</td><td>☑</td></tr>
<tr><td>B.7.1.16. Parameter title:
Weighted average CO2 emission factor of fuel type i in year y
$EF_{CO2,i,y}$</td><td>2,3</td><td>
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<tr><td>Title in line with methodology?</td><td>No</td></tr>
<tr><td>Data unit correctly expressed?</td><td>No</td></tr>
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<tr><td>Source clearly referenced?</td><td>No</td></tr>
</table></td><td>CAR
CR</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct value provided for estimation? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No Project proponent needs to refer CAR and CR above		
B.7.2. Description of the monitoring plan				
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisoned situation?	2,3	**Corrective Action Request No 8** Project proponent needs to strengthen the description on roles and responsibilities for ensuring accurate data monitoring, collection, transfer, and reporting needs to be developed. The description should also have the process of calibration of measuring equipments, data adjustments, internal audits & emergency preparedness leading to data losses.	CAR	☑
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	2,3	See section B.7.2.1	CAR	☑
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	2,3	See section B.7.2.1	CAR	☑
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisoned monitoring provisions?	2,3	Not Applicable	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)					
B.8.1.	Is there any indication of a date when the baseline was determined?	2,3	Yes, date has been mentioned in the PDD	☑	☑
B.8.2.	Is this consistent with the time line of the PDD history?	2,3	Yes	☑	
B.8.3.	Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	2,3	Yes. The responsible person is the project participant.	☑	☑
B.8.4.	Is information provided whether this person / entity is also considered a project participant?	2,3	Yes	☑	☑
C. Duration of the project activity / crediting period					
C.1. Duration of the project activity					
C.1.1.	Are the project's starting date and operational lifetime clearly defined and reasonable?	2,48	The starting date of the project activity is 22/03/2011 as mentioned in the PDD. Same has been verified with appointment of Lauren as EPC contract.	☑	☑
C.2. Choice of the crediting period and related information					
C.2.1.	Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of	2	7 years with potential for 2 renewals is chosen as the crediting period.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	max. 10 years)?				
D. Environmental impacts					
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts					
D.1.1.	Has the analysis of the environmental impacts of the project activity been sufficiently described?	2,16	**<u>Clarification Request No 17</u>** As per the office memorandum issued by MoEF for solar Thermal Power Plants, Solar Power Projects are not covered by the provisions of EIA notification, 2006. This needs to be clarified in the PDD. Also, PDD stated "the project proponent has conducted an environment impact assessment study which clearly establishes that there are no significant impacts of the project activity on the environment."... However, project proponent has not been submitted any such report to verify the statement during site audit. Project proponent needs to clarify.	CR	☑
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	2,16	No EIA study is required for Solar Thermal Power Plant in India. However, Pls. refer CR comment in section D.1.1.	CR	☑
D.1.3.	Will the project create any adverse environmental effects?	2,16	Project is not expect to create any adverse environmental effects	☑	☑
D.1.4.	Were transboundary environmental impacts identified in the analysis?	2,16	No trans boundary environment impacts are anticipated.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
D.2.1.	Have the identified environmental impacts been addressed in the project design sufficiently?	2,16	Pls. refer CR comment in section D.1.1.	CR	☑
D.2.2.	Does the project comply with environmental legislation in the host country?	2,16	Yes	☑	☑
E. Stakeholders' comments					
E.1. Brief description how comments by local stakeholders have been invited and compiled					
E.1.1.	Have relevant stakeholders been consulted?	2,22, 23	A meeting with stakeholder representative was conducted on 1st December 2010 where project proponent described the various aspects of CDM project activity. **Clarification Request No 18** A comment was submitted during the 30-day GSP which mentioned: "List of the stakeholders is not attached with PDD" Project proponent needs to clarify	☑	☑
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	2,22, 23	Yes, stakeholders has been invited through invitation letter and placing invitation notices in the nearby villages	☑	☑
E.1.3.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	2,22, 23	Yes, stakeholder consultation process has been carried out in accordance with regulation/laws of the host country.	☑	☑
E.1.4.	Is the undertaken stakeholder process	2,22,	Yes.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	that was carried out described in a complete and transparent manner?	23			
E.2. Summary of the comments received					
E.2.1.	Is a summary of the stakeholder comments received provided?	2,22, 23	Yes. Section E.2. provides a summary of stakeholder comments received. However, Project proponent needs to refer CR comment in section E.1.1	CR	☑
E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	2,22, 23	No negative comments have been received from the stakeholders and same has been verified by DOE with minutes of stakeholder meeting.	☑	☑
F. Annexes 1 – 4					
Annex 1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	2,25	Yes, it is consistent	☑	☑
F.1.2.	Is the information on all private participants and directly involved Parties presented?	2,25	The information of the project proponent has been clearly presented	☑	☑
Annex 2: Information regarding public funding					
F.1.3.	Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	2,25	Project proponent needs to refer CR comments in section A.2.2.	CR	☑
F.1.4.	If necessary: Is an affirmation available	2,25	Project proponent needs to refer section F.1.3.	CR	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	that any such funding from Annex-I-countries does not result in a diversion of ODA?				
Annex 3: Baseline information					
F.1.5.	If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	2,25	No other information in Annex 3	☑	☑
F.1.6.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	2,25	See section B.6	☑	☑
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	2,25	See section B.6	☑	☑
Annex 4: Monitoring information					
F.1.8.	If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	2	No other information presented in Annex 4	☑	☑
F.1.9.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	2	See section B.7.2	☑	☑
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	2	See section B.7.2	☑	☑

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Corrective Action Request No 1 Project description should indicate the current status and electricity amount of the project activity.	A.2.1.	The project status and annual electricity quantity has now been included in the project description under section A.2 of the revised PDD.	Project proponent has been clarified that the expected commissioning date of the project is December 2012. Same has been verified with the latest implementation schedule of the project activity. This issue is now resolved. [IRL# 28] ☑
Corrective Action Request No 2 Project proponent need to include a flow diagram in section B.3 of the PDD where emission sources and gases together with monitoring variables shall be clearly represented in the diagram.	B.3.7	A flow diagram has been included in section B.3 that shows the emission sources and gases within the project boundary. It also shows the electrical meter (main and check meter) installed at the grid interconnection point for monitoring of net electricity supplied to grid (EGfacility,y).	Project proponent has included a flow diagram in section B.3 of the PDD where emission sources and gases together with monitoring variables are present. Including this, electrical (main and check) meters would be installed at the grid connection point and the same is now clarified in section B.7.1. of the PDD also. Same has been checked and confirmed by DOE with PDD. [IRL# 3, 46]

			☑
Corrective Action Request No 3 Project proponent needs to include the date of the DPR submission and board meeting where CDM was seriously considered for the project in the project timeline table (page 13 of the PDD) of the project activity. Also, submit the complete minutes of the board meeting.	B.5.2.	The DPR was finalized and received by CSPPL on 14 March 2011. The email communication from consultant regarding this is being provided. This was followed by the decision to implement the project activity considering CDM benefits taken in the meeting of the Board of Directors on 21 March 2011. The minutes of meeting of the Board of Directors are being submitted. The same has also been included in section B.5 of the revised PDD.	The final DPR has been submitted by the consultant on 14 March 2011 and the same has been verified with the mail communications between project proponents and consultant of the DPR. Further, submitted the minutes of the board meeting where the project was approved by the board members after considering CDM fund. This issue is now resolved. [IRL# 27, 31] ☑
Corrective Action Request No 4 Project proponent needs to add the investment calculation of the project activity in the PDD.	B.5.15	The quotations provided by the suppliers are confidential in nature and cannot be made publicly available in the PDD but are being provided to DOE to facilitate validation to the DOE and UNFCCC. DOE may please keep the same as confidential. Also, the sensitivity analysis has changed due to a revision in the project cost calculation as per the quotations available with the PP at the time of investment decision. Further, It may be noted that the EB has clarified in paragraph 88 and 89 of its sixty-fifth meeting report (http://cdm.unfccc.int/UserManagement/FileStorage/T7UE2AMI6SY4OBHQ3KN08VXJWL5D1C) that project participants must apply version 6.0.0 of the Methodological tool	Project proponent has added investment calculation in the revised PDD. The IRR of the project activity has been justified as EB guidelines and also provided supportive to verify the values. [IRL# 39, 45, 46] ☑

		"Demonstration and assessment of additionality" only in project activities seeking validation after the publication of the revised tool on the UNFCCC CDM website i.e. after 25 Nov 2011. PDDs of project activities with previous version of the tool can be submitted for registration up to 25 July 2012, in accordance with paragraph 36 of the "Procedure for the submission and consideration of requests for revision of approved baseline and monitoring methodologies and tools for large scale CDM project activities". .	
Corrective Action Request No 5 The formula of project emission mentioned in the PDD is not in line with applied methodology. Also, as per project description given in section A.4.3, no fossil fuel system or equipment is present in the process of the project activity then why fossil fuel parameters has been considered in the emission reduction calculation? Project proponent needs to clarify.	B.6.1.3.	Further, the parameters for calculation of project emissions from fossil fuel usage (if any) in the project have been removed since in accordance with the state solar policy, auxiliary fossil fuels cannot be used in the project activity. The Solar Power Policy – 2009 by Energy and Petrochemicals Department, Government of Gujarat states in paragraph 6 under Resolution heading that "No fossil fuel viz: coal, gas, lignite, naphtha, wood etc. shall be allowed to be used in a Solar Thermal Power Project." The document is being provided. In case there is a change in the policy in the future, we are keeping a provision for calculation of project emissions if any arising from the project by using the latest version of the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion".	According solar policy-2009 "No fossil fuel viz: coal, gas, lignite, naphtha, wood etc. shall be allowed to be used in a Solar Thermal Power Project." Therefore no project emission will be arising from the project activity. However, in case there is any change in the government policy or fossil fuel is used in the process in future then same emission will be calculated according to the latest version of the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion". This issue is now closed. [IRL# 2, 21, 46]

		.	☑
Corrective Action Request No 6 Include all applicable parameter from the list provided in applicable methodology.	B.7.1.2.	The relevant parameters with respect to the project activity type have all been included in accordance with the applicable methodology ACM0002, Version 12.30.	All the applicable parameters have now been included in the revised PDD. This issue is now resolved. [IRL# 3, 46] ☑
Corrective Action Request No 7 It is unclear in the project activity diagram which voltage side of the transmission line will be equipped with the monitoring meter. Who is responsible of the meter (project proponent or the grid company)? All information shall be provided in a transparent manner.	B.7.1.1	The diagram in section A.4.3 has been revised to indicate the voltage side of the transmission line where main/check meters would be installed. Further, section B.7.2 has also been revised to include entities responsible for installation and maintenance of main/check meters.	Project proponent has now indicated the voltage side of the transmission line where main/check meters would be installed in the project activity diagram in section A.4.3 and B.7 of the PDD. Same has been checked and confirmed by DOE with PDD. This issue is now resolved. [IRL# 3, 46] ☑
Corrective Action Request No 8 Project proponent needs to strengthen the description on roles and responsibilities for ensuring accurate data monitoring, collection, transfer, and reporting needs to be developed. The description should also have the process of calibration of measuring equipments, data adjustments, internal audits & emergency	B.7.2.1.	The description on roles and responsibilities has been detailed in the revised PDD.	Project proponent has now revised the description of the monitoring plan in the revised PDD according to the comment. This issue is now resolved. [IRL# 46] ☑

preparedness leading to data losses.			
<u>Clarification Request No 1</u> The following comments were received during 30 days GSP period a) Why this location has been chosen for this project? b) Will this project have impact on temperature in surrounding area? c) What would be impact of negative environmental conditions of area upon project? What would be alternatives in that case? d) How many skilled/unskilled people from surrounding area will be employed at this project during commissioning and operation? Does PP plan to conduct training programs for local youth for skill improvement? e) Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier f) Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects?	A.2.2	a) The location has been chosen after detailed evaluation of the characteristics of the site. The proposed land area is barren and unfit for agricultural or other livelihood activities. Further, there is no habitation in the area and hence there has been no requirement for rehabilitation of anyone. The land has been found to have high potential to generate solar power. b) The project will not have any impact on the temperature in the area since this is a solar power project utilizing the already available solar radiation in the surrounding region to generate electricity. Fossil fuels are not being used to generate electricity. c) No negative environmental conditions have been observed in the area to have any material impact on the project activity. d) An assessment of skilled/unskilled personnel available in the surrounding region will be done to ascertain their availability and quality of service. The PP does have plans for skill development of the local youth in the surrounding area upon successful commissioning of the project. They are committed to hire and provide training to youth in the area. e) The machines and equipment for the project activity are all new and are not a part of any bundled CDM activity envisaged and developed earlier. f) The PP has considered CDM revenues since the inception of the project. Documentary evidences to demonstrate the same have already been submitted to the DOE. The project activity does have a loan com-	a) The site for project activity has been chosen after the detail evaluation of the land and location as per the requirements of the project activity. It has been understood by DOE during on site visit that land is barren and unfit for the agriculture as well as there has been no habitation in the land. [IRL # 46] b) There are no impacts on temperature in surrounding area due to project activity. This has been checked with pre-feasibility study report. [IRL # 44] c) There are no negative environmental effects in project area due to the project activity. This has been checked with pre-feasibility study report. [IRL # 44] d) Project proponent has plans to involve local skilled/unskilled em-

g) DOE must take a written undertaking from the PP/Consultant about the list of parties to whom this DPR/FR is submitted and for what purposes. Then DOE should cross check with all the parties and confirm that the same DPR/FR is submitted to all the parties correctly without any changes. Project proponent needs to provide the justification on all above points.		ponent and the Bankers have been submitted the DPR as well as financials after incorporation of CDM revenues. The loan is yet to be finalized. g) The same DPR has been submitted to the financial institutions approached by the project proponent and an undertaking in this regard is being submitted as Attachment 11. <u>PP Response:</u> The details regarding land chosen for project activity are provided on page 48 of the submitted DPR, extracts of which are submitted as Attachment 19. Additionally, all aspects related to environment impacts of the project activity and its contribution to sustainable development are checked by the National CDM Authority while granting Host Country Approval (Refer: <u>http://cdmindia.gov.in/approval_process.php</u>). The project activity cannot be submitted for request for registration without this approval.	ployee based on their qualifications and suitable in the requirement of Job. Same has been understood by DOE during on site visit. e) All equipments involved in the project will be new and same has been checked with DPR, PPA and purchase order of steam turbine. [IRL # 10,19, 20] f) Project proponent has considered CDM fund from the starting date of the project and the same has been checked by DOE with board minutes. Also, as bank communications submitted to DOE, it is understood that banker for loan still not decided for project activity. [IRL # 27, 32] This issue is now resolved. ☑
<u>Clarification Request No 2</u> From the description give in section A.4.3., it is not clearly defined about what	A.4.3.1.	The project activity is proposed to have salt based storage arrangement for generation during night and on non-sunny days. At present, the state power policy does not	Project proponent has salt based storage arrangement for non-sunny days for heat

would be the project backup system during non-sunny days for heat supply in the process? Is it any fossil fuel based heat backup system (boiler, heat exchanger.etc) will be added in the process of the project activity? Also, diagram of the project activity is not transparently describing how storage tank and solar heater is receiving heat from solar field? Project proponent needs to clarify the above points in the PDD.		allow implementation of any fossil fuel based back-up/auxiliary fuel firing system and hence no such arrangement has been provided under section A.4.3. of the PDD. The diagram has been modified as required to clearly depict the project equipments.	supply in the process. It is checked with technical and evaluation report for project activity. There are no fossil fuel based system will be involved in the process as according to the solar policy-2009, fossil fuels cannot be used in the solar thermal power plant. The diagram in section A.4.3 has been revised to include the incident energy on the solar field and the electrical output energy at the turbine. The diagram now also includes the location of the electrical meter installed at the grid interconnection point for monitoring of net electricity supplied to the grid. Apart from above, a flow diagram has been included in section B.3 that shows the emission sources and gases within the project boundary. It also shows the electrical meter installed at the grid interconnection point for monitoring of net electricity supplied to the grid (EGfacility, y). This issue is now resolved.

			[IRL # 21, 43] ☑
<u>Clarification Request No 3</u> Is it any technology transfer from annex-I-countries to the project activity? Also, Is it possible to be substituted by other technology within the project period Project proponent needs to clarify the above points in the PDD with supportive.	A.4.3.3.	There is no technology transfer involved in the proposed project activity. The project equipment may however be purchased from vendors/suppliers from Annex I countries. The equipment has an operational lifetime of 25 years and hence will not be substituted within the project crediting period. The same has been included under section A.4.3 of the revised PDD. PP has placed the purchase order for the Steam Turbine Generator, major equipment in the project activity, with Nuovo Pignone S.P.A. but there is no technology transfer involved in it. Further, a self-declaration is being submitted that that no project technology will be transferred from Annex-I country.	There is no technology transfer from Annex-I country in the project activity. This has been checked by DOE with submitted purchase order for steam turbine. Also, a self declaration has been submitted by the project proponent to DOE. [IRL # 20, 30] This issue is now resolved. ☑
<u>Clarification Request No 4</u> Project proponent needs to provide the operation and training manual of the project activity.	A.4.3.8.	The project is only in its inception stage as of now. The operation and training manual will be prepared once the project equipment/technology is finalized and the project commissioning happens.	Project proponent will be prepared the operation and training manual after commissioning the plant. This issue is now closed. ☑
<u>Clarification Request No 5</u> The submitted spreadsheet ER amount is not matching with ER amount mentioned in the table of section A.4.4. Project proponent needs to clarify the reason.	A.4.4.2	The ER amount in the PDD has been revised with the ER amount provided in the emission reduction calculation sheet. There was a calculation error in multiplication of net generation and the emission factor due to which the emission reductions were over estimated in the webhosted PDD.	Project proponent has submitted revised ER spread sheet and also provided supportive to verify the values used in the calculation of the emission reduction. This issue is now resolved.

			[IRL# 43, 47] ☑
Clarification Request No 6 Provide the supporting documents to show that there is no public funding in the project activity.	A.4.5.1.	An undertaking is being provided to ascertain that there is no diversion of official development assistance to the proposed project activity	Project proponent has submitted undertaking where they confirmed that no public funding will be involved in the project. This issue is now closed. [IRL# 30] ☑
Clarification Request No 7 Project proponent needs to indicate the supportive evidence name in the PDD to verify the all methodology criteria's of the project activity.	B.2.2.	Most of the applicability conditions can be verified from the Detailed Project Report submitted to the DOE. The same has been mentioned in the revised PDD in the footnote.	Project proponent has submitted DPR, Pre-feasibility report, technical evaluation report to verify the applicability conditions of the project activity. This issue is now closed. [IRL# 10, 43,44] ☑
Clarification Request No 8 The expected commissioning date of the project is January 2013. However, as per article 5.2 of the power purchase agreement, the tariff rate of the PPA is valid if project will be commissioned before 31st December 2011 then how tariff rate of the PPA applied in the investment calculation is valid? Project proponent needs to clarify?	B.5.2.	Due to the complex nature of the project activity and lack of any prior experience in implementation of such a technology, the project proponent has sought an extension of at least 12 months in the commissioning date from GERC. Further, the tariff rate in the PPA is in accordance with GERC Tariff order which will still remain applicable even if a new PPA is signed or the same PPA revised. The letter to Energy & Petrochemicals Department, Government of Gujarat providing the status of project execu-	Project proponent has submitted power purchase agreement and according to the article 5 of the same in case there are any delay, in commissioning of the project from the mentioned commissioning date in PPA then lower tariff rate between currently fixed PPA and GERC tariff order will be considered

		tion and delays that make it impossible for the PP to execute the project as per the deadline of 31st December 2011 has been provided earlier as Attachment 2. Further, the Power Purchase Agreement is being provided as Attachment 15. It can be observed in Article 5 of the PPA that the tariff has been fixed as per GERC Tariff order and in case the commissioning of the project gets delayed then the tariff applicable at that point of time as determined in the GERC Tariff Order or the tariff that was fixed initially in the PPA, whichever is lower, would be applicable. Therefore, the use of tariff currently fixed in the PPA is conservative for the purpose of IRR calculation.	in the project.PPA tariff rate is conservative and same has been considered in the IRR calculation. This issue is now closed. [IRL # 13, 19, 45] ☑
Clarification Request No 9 How Plant Load Factor (PLF) of the project activity has been calculated as per Annex-11 of EB 48? Clarify.	B.5.	The gross electricity generation has been estimated in the DNI Study prepared by S2M Solutions (a third party contracted by project proponent). This gross electricity generation has been used to calculate the Plant Load Factor (PLF) and therefore complies with the "Guidelines for reporting and verification of Plant Load Factors" Version 01 option 3 (b).	It has been verified that the project proponent has taken gross electricity generation amount of the project activity from DNI Study prepared by S2M Solutions (a third party contracted by project proponent) which is in line with the "Guidelines for reporting and verification of Plant Load Factors" Version 01 option 3 (b). This issue is now resolved. [IRL# 43, 46, 51] ☑
Clarification Request No 10 PDD stated "There is no governmental body or EB policy which requires a par-	B.5.4	The statement was inferred from Part III – Generation of Electricity of the Electricity Act, 2003 which states that "*Any generating company may establish, operate and*	Project proponent has included a power ministry weblink of the host country and

ticular kind of fuel to be chosen and there is no legal requirement to which the above alternative does not conform". Project proponent needs to indicate the document/weblink name in the PDD to support this statement.		*maintain a generating station without obtaining a licence under this Act if it complies with the technical standards relating to connectivity with the grid referred to in clause (b) of section 73."* Source: http://www.powermin.nic.in/acts_notification/electricity_act2003/generation_electricity.htm. The same has been included in the revised PDD.	the same can be verified from this weblink to verify the statement. This issue is now closed. ☑
Clarification Request No 11 A comment was submitted during the 30-day GSP which mentioned "base line defined in this project? Is Base line hypothetically defined with no proper evidences and proper justification?" Project proponent give their justification on this point.	B.5.4.	Since the project activity is grid connected electricity generation using solar power, the baseline of the project is pre-defined in the approved baseline and monitoring methodology ACM 0002 applicable to the proposed project as being - *"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".* Further, in absence of the proposed project activity i.e. in the baseline, similar quantum of electricity would have been generated in the power plants already operational and those planned to be added to the regional/national electricity grid. It is hereby clarified that this is usually the baseline scenario for grid connected power plants implemented by independent power producers who have a no project option and do not have a definite need of the service/output ex-	Grid electricity has been identified as a baseline of the project activity and same has justified in line with applied methodology. This issue is now closed. This issue is now closed. [IRL# 3] ☑

		pected from the project activity.	
Clarification Request No 12 PDD stated "The prime lending rate of the major nationalized bank in India at the time of investment was 13%." Project proponent needs to indicate the supportive document name for this statement in the PDD.	B.5.15.	A screenshot of the document accessed from the SBI website is being submitted to the DOE as a part of the benchmark calculation sheet to support the corresponding value provided in the PDD. The IRR computed in the investment analysis section of the PDD is the nominal rate of return i.e. based on future cash flows that do not take inflation into consideration. According to paragraph 7 of the appendix to the Guidelines on the assessment of investment analysis, the default values provided in the appendix are real term values that can be converted to nominal values by adding the inflation rate. Therefore the long-term inflation forecast from Reserve Bank of India which is the central bank of the host country (5.5% - Reference: Table A.7 of http://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/IEPR1717PF051.pdf) was added to the default real term rate for energy industry in India (11.75%) to obtain the expected nominal return on equity as 17.25%. This is conservative as compared to value of 22.10% calculated using the CAPM model. Hence, the benchmark calculation is being revised in the PDD as per the conservative calculation explained above.	Project proponent has justified benchmark of the project activity as per "GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS" (version.5) This issue is now closed. [IRL# 2, 47] ☑
Clarification Request No 13 Project proponent needs to clarify the supportive document name to verify the details mentioned for the Beta value	B.5.15.	The beta values have been calculated for individual companies using regression analysis against the BSE 500 stock market index. The calculation sheet for the same has been submitted to the DOE. Further, the data to calculate the same is available on the BSE 500 index website - http://www.bseindia.com/about/abindices/bse500.asp	This issue is now closed. ☑
Clarification Request No 14	B.5.15.	1) According to the CDM modalities and procedures and	1) Project proponent could

1) The investment decision must have been taken before April 2010 because as per publicly available information, the PPA was signed in April 2010. In 2009-10, MAT rate was not 19.93% as assumed in calculating post tax cost of debt. 2) BSE 500 has been selected as independent variable. There is no explanation as to why BSE 500 has been selected and how it is conservative. Why can't BSE Sensex or NIFTY and S&P 500 be selected? It is not known where from Beta has been downloaded or whether it has been calculated. The PDD does not provide any information on the duration or return interval used for computing beta. It is not clear how is arithmetic mean considered appropriate for computing industry beta. Finally, by selecting the duration, return interval and companies in such a manner, the consultant has arrived at a beta, which will give the required benchmark to make the project additional. No wonder, the consultant has arrived at a return of ~22% on equity in contrast to 14% recommended by GERC. Annex 13, EB 61 states, the cost of equity should be determined by (a) selecting the values provided in Appendix A; or (b) by calculating the cost of equity using best financial practices, based on data		associated glossary of CDM terms, the investment decision is referred as being the decision to proceed with the implementation of the project activity which can only be made after detailed assessment of available technologies, its costs, availability etc. Particularly in the case of solar power in India, the technology is not indigenously available, it was important to ascertain costs of importing various equipments and ensuring availability of quality contractors. There was no requirement for submission of Detailed Project Reports/Feasibility reports as a criterion for PPA signing. The project proponent appointed S2M for conducting the feasibility assessment of the project and appointed KPMG to prepare the DPR. The Technical Evaluation Report was finalized on 21 Feb 2011 and the DPR on 14 Mar 2011. It was only possible to take the final decision to invest in the project activity based on these documents as is clear from the minutes of the meeting of the Board of Directors on 21 March 2011. During that time, the applicable MAT rate was 19.93% (Reference: http://taxguru.in/direct-tax-code/mat-is-no-more-minimum-alternate-tax.html). 2) With a view to eliminating the unsystematic risk associated with the projects totally, index containing 500 companies has been taken to represent the market return. A period starting since 1999 to 2011 has been considered to remove the impact of short term volatility. Selection of BSE 500 represent a more robust and efficient face of the market. BSE-500 Index is a broad-based Index constituting 500 companies across 20	take decision about implementation after detail evalution of the PFR and DPR Also,, according to the CDM modalities and procedures and associated glossary of CDM terms, the investment decision is referred as being the decision to proceed with the implementation of the project activity. In this case, project proponent has taken investment and implementation decision for project activity after submission of the DPR and PFR which seems in line with UNFCCC guideline. Further, there were no requirement for submission of the DPR or project proponent has to be taken implementation decision before signing PPA. Hence, implementation decision has taken appropriately in the project. 2) Project proponent has

sources which can be clearly validated by the DOE, while properly justifying all underlying factors. On what basis it is claimed that the calculation represents best financial practice. If this return is the result of best financial practice, then what about the return recommended by EB. 3) The cost of the project is stated to be 80025 lakhs, which results in the cost of Rs.30 cr./MW. GERC has recommended Rs.13 cr/MW for solar thermal power projects and the projected cost is two and half times more than the cost recommended by GERC. DOE should check the purchase order and should go by purchase order and not by quotation. Moreover, the PP has taken all input parameters based on GERC tariff order. It is not clear why the PP should adopt GERC recommendation, when it must have got these information from machinery supplier, insurance company, bank etc. The additionality demonstration is not convincing 4) In salvage value, only 10% of the project cost is taken into account. At least, that is what the PDD states. There is no explanation as to why the land cost is not taken into consideration, particularly when the land acquired must be substantial and the price of land is bound to appreciate in the next		sectors listed at the Exchange, representing approximately 93% of the total market capitalization on BSE and covers all 20 major industries of the economy. The BSE - 500 index is scientifically calculated and the 500 companies are selected based on market capitalization, liquidity and balanced industry representation. Thus, this is the largest quantum of data (500 companies) available among all the other indices and provides the most comprehensive view of the Indian Capital Market. The beta values have been calculated for individual companies using regression analysis against the BSE 500 stock market index. The calculation sheet for the same has been submitted to the DOE. The beta values have been calculated for power generating companies either from the period when the Electricity Act, 2003 came in to force or the date of listing of the company on the index if it falls after June 2003. This has been done because the Electricity Act after its enforcement, changed the entire regulatory environment for power companies in India hence drastically changing the business scenario for the Indian power generating sector. The impact on private sector IPP can be seen from the following article discussing the impact of EA 2003: Page 4 (http://www.crisil.com/youngthoughtleader/winners/07-Grover-NM.PDF). Arithmetic mean is considered to be more appropriate than geometric mean for computing beta values for computation of equity risk premium. The article written	justified the investment analysis as per "Guidelines on the assessment of Investment Analysis Version 05 (EB 62, Annex 5)". 3) It has been understood after going through the submitted documents that as project activity has thermal storage therefore cost of the project activity is higher as compare normal solar project. As well as project utilization has also been increased from 59.31 to non solar project 25% due to the addition of the thermal storage. 4) Salvage value has now been considered 10% in the investment analysis. DOE has agreed with project proponent response. Project proponent is not eligible for generation based incentive. Same has been justified by project proponent in the response. Project proponent is not eligible for REC income. Same

25 years. 5) Why should this project require working capital? Does the company invest in raw material? If not how the working capital can be justified? 6) Since the company is not availing accelerated depreciation it should be eligible for generation based incentive 7) Moreover, it should also be ensured that the PP does not avail REC and in case it is availed the REC income should be taken into account in financial indicator calculation. Project proponent needs to provide the justification on all above points.		by Michael W. Barad[1] confirms this fact wherein he argues in favour of arithmetic mean rather than geometric mean. He explains that arithmetic means are appropriate for creating a forward looking equity risk premium while geometric means are used in purely historical analysis. It may also be noted that the EB in its 40th meeting paragraph 40 has discredited the use of return on equity published in tariff orders as benchmarks since this value is used in tariff determination of CDM as well as for non-CDM projects[2]. Guidelines on the assessment of Investment Analysis Version 05 (EB 62, Annex 5) Paragraph 15 states that "the cost of equity should be determined by (a) selecting the values provided in Appendix A; or (b) by calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors." The cost of equity has been calculated using the Capital Asset Pricing Model (CAPM) which represents the best financial practices. The model is very commonly used in corporate finance for pricing a portfolio or even an individual security. It describes the relationship between risk and expected return which is used in the pricing of risky securities and portfolios. All input values used in the calculations are based on publically	has been justified by project proponent in the response This issue is now closed. [IRL# 39, 45, 46] ☑

[1] https://corporate.morningstar.com/ib/documents/MethodologyDocuments/IBBAssociates/IntnlRiskPremium.pdf
[2] http://cdm.unfccc.int/EB/040/eb40rep.pdf

		available and reliable data sources. Further, it may be noted that the returns provided in the Appendix A of the Guidelines on the assessment of Investment Analysis are real rates of return whereas the returns computed in the investment analysis section of the PDD are nominal rates of return and therefore they cannot be compared. 3) The project activity is still under implementation therefore most of the costs are based on quotations received from technology suppliers as the purchase orders/contracts have not been executed. These costs have also been deemed appropriate and consequently incorporated in the Detailed Project Report. The cost of the project is substantially different from the cost recommended in the GERC tariff order due to the fact that the proposed project activity includes thermal storage as well. The inclusion of thermal storage in solar thermal plants implies increase in the size of solar field and addition of storage tanks for molten salt storage. This substantially increases the project cost, however, it also results in a substantial increase in the energy generation from the project activity. This can also be confirmed from the fact that the project activity has considered 59.31% as the Capacity Utilization Factor which is only 25% in the GERC Tariff Order. It is being clarified that some of the assumptions such as O&M expenses have been taken from the GERC tariff order because the project proponent has not yet placed any orders/contracts or received any quotations for these components. Therefore, with lack of	

		more reliable data, the tariff order prepared by the Gujarat Electricity Regulatory Commission has been referred which considers the inputs from various other project developers to arrive at one value that is used for tariff determination. 4) The salvage value has been revised to include the entire cost of land along with 10% of the total project cost. 5) A project activity does not require working capital solely for meeting its raw material requirement. Working capital is required for the operational liquidity of the plant – where expenses such payment of salaries and wages of employees, operation & maintenance expenses and administrative expenses among others have to be incurred even before the company receives its payment from the utility for electricity generation for the month. Therefore, working capital forms an essential part of any project activity. As per the recommendations of the GERC order for tariff determination, the following components were considered under working capital: a. Receivables equivalent to one month's energy charges for sale of electricity b. One month's cost on operations and maintenance 6) Generation based incentive is applicable only for a maximum cumulative capacity of 10 MW of Grid interactive solar thermal power generation projects in a State. (http://mnre.gov.in/pdf/guidelines_stpg.pdf). Further, since the proposed project activity is already availing feed in tariff as per the terms of PPA, the pro-	

		ject is not eligible for GBI. 7) The project proponent has availed of a preferential tariff for the sale of electricity from the state electricity utility Gujarat Urja Vikas Nigam Limited. Therefore as per Regulation 5 (b) of the Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2009[3] it is not eligible for the REC Mechanism.	
Clarification Request No 15 Project proponent needs to provide the breakup the capital cost and supportive documents to verify the each cost which considered under the total capital cost of the project. Also, ensure that all finacial values used in the investment calculation is in line with its reference documents.	B.5.15	The breakup of capital cost and the corresponding supporting documents are being submitted to the DOE. The financial values in the supporting documents are in line with the investment calculations.	Project proponent has submitted breakup of capital cost in spread sheet and also provided supportive to verify the breakup details. This issue is now closed. [IRL# 39, 45] ☑
Clarification Request No 16 PDD stated "This analysis showed that there is no large scale solar thermal power projects commissioned in the state of Gujarat or in India comparable to the proposed project activity." Project proponent needs to indicate the supportive document name to verify this statement in the PDD.	B.5.27.	To date, there is no large scale grid-connected solar thermal power project under operation in the host country. The same can be referred from the latest MNRE annual report which mentions the installed capacity from all renewable energy generation sources - http://www.mnre.gov.in/annual_report.htm. Further, the list of all grid-connected solar power plants operational in India as on 31st July 2011 is also provided on the MNRE website (http://www.mnre.gov.in/pdf/MW-size-Grid-Solar-	Project proponent has provided link http://www.mnre.gov.in/annual_report.htm which clearly showing that there are no large scale power project commissioned in the Gujarat state during CDM

[3] http://www.nldc.in/docs/REC/2(a)CERC_Regulation_on_Renewable_Energy_Certificates_REC.pdf

Also, PDD stated "The project activity under consideration is a large scale project activity with a proposed installed capacity of 50 MW." However, project capacity is 25 MW according to the submitted document of the project activity. Project proponent needs to clarify. Further PDD stated "Project activities implemented post the investment decision for the project activity i.e. post April 2010," Project proponent needs to provide the supportive to verify the statement.		Power-Plants-in-India.pdf). It can be verified that from this list that there is no large scale solar thermal power project under operation in the host country. The typographical error of 50 MW has been corrected to 25 MW in the revised PDD. The statement has been modified as March 2011 is the investment decision date.	consideration time. Also, capacity of the project has been corrected from 50 MW to 25 MW in the revised PDD. This issue is now closed. [IRL# 16, 46] ☑
Clarification Request No 17 As per the office memorandum issued by MoEF for solar Thermal Power Plants, Solar Power Projects are not covered by the provisions of EIA notification, 2006. This needs to be clarified in the PDD. Also, PDD stated "the project proponent has conducted an environment impact assessment study which clearly establishes that there are no significant impacts of the project activity on the environment.".. However, project proponent has not been submitted any such report to verify the statement during site audit. Project proponent needs to clarify.	D.1.1.	The same has been clarified in section D of the revised PDD. Since, EIA is not required; project participant had conducted a preliminary environment impact assessment which has been shown to the DOE. The statement however is now being removed from the PDD since it is not adding any value to the section.	Project proponent has now been clarified that no EIA study is required for Solar power project. Also, though project proponent has conducted pre feasibility environment impact assessment study but as statement has been removed from the revised PDD therefore this issue no longer relevant for the project. This issue is now closed. [IRL# 16, 46] ☑
Clarification Request No 18 A comment was submitted during the	E.1.1.	The attendance records for the stakeholder meeting have been added in section E.2 of the PDD.	Project proponent needs has added attendance records of

30-day GSP which mentioned: "List of the stakeholders is not attached with PDD" Project proponent needs to clarify			the stakeholder meeting in section E.2 of the revised PDD. This issue is now closed. [IRL# 22, 23, 46] ☑

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

South Asia

Annex 2

Information Reference List

IRL No.	Document or Type of Information	Date of document
1	PDD for GSP http://cdm.unfccc.int/Projects/Validation/DB/3KXEYDG1MYZOCQLSDONVIR1Z2QDU4G/view.html	13-06-2011
2	UNFCCC homepage: http://cdm.unfccc.int	--
3	Approved consolidated baseline and monitoring methodology ACM0002, Version.12.3.0	--
4	On-site interviews and inspections of the project site of the "Solar Thermal Power project at Kutcch District in Gujarat " by TUV SÜD validation team, Conducted on August 10-11, 2011 Validation team on site : Supratik Dutta TUV SUD South Asia Interviewed persons : Manpreet Singh CDM Consultant Apurba Mitra CDM Consultant Biswas Kumar Project Manager (Cargo Solar Power (Gujarat) Private Limited) Japan Mukhalyor Trainee Engineer (Cargo Solar Power (Gujarat) Private Limited) M. P. Prajapati Project Manager (Cargo Solar Power (Gujarat) Private Limited) Jignesh Jadav Asst. Manager (Cargo Solar Power (Gujarat) Private Limited) Karsan Bhai Stakeholder Raju Bhai Stakeholder	
5	Host Country Approval (HCA) from Ministry of Environment and Forests, India; authorizing Cargo Solar Power (Gujarat) Private Limited as project participants of the project	27.12.2012
6	Ministry of Environment & Forest, Government of India (National CDM authority) guideline on large scale CDM project http://www.cdmindia.gov.in/detail_news.php?id=3	Last assessed on March 2012
7	Power ministry notification (PART III) on generating company and requirement for setting up generating station http://www.powermin.nic.in/acts_notification/electricity_act2003/generation_electricity.htm	Last assessed on March 2012
8	Several regulations and orders refer this as the normative debt equity ratio for power projects e.g. CERC (Terms & Conditions for the determination of Tariff) Regulations, IREDA's norms for financing renewable energy projects (http://www.ireda.in/pdf/Financing%20Norms.pdf)	Last assessed on March 2012

IRL No.	Document or Type of Information	Date of document
9	Reserve Bank Of India (RBI) results of 15th Round (Q4:2010-11) of survey of professional forecasters on macroeconomic indicator http://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/IEPR1717PF051.pdf	Last assessed on March 2012
10	Detailed Project Report (DPR) of the project activity, dated on 14.03.2010	Submitted on August 2011
11	An article of corporate Finance Theory and Practice, Dr. Aswath Damodaran	Submitted on August 2011
12	Government India tax rate http://www.incometaxindiapr.gov.in/incometaxindiacr/contents/forms2010/pamphets/COMPANIES_2012_13.htm	Last assessed on March 2012
13	Gujarat Electricity Regulatory Commission order on "Determination of tariff for Procurement of Power by the Distribution Licensees and others from Solar Energy Projects"	Submitted on September 2011
14	MNRE report on MW size grid connected solar power plants in India http://mnre.gov.in/file-manager/UserFiles/powerplants_241111.pdf	Last assessed on December 2012
15	CO_2 Baseline Database for the Indian Power Sector – CEA, Version 06 http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm	Last assessed on March 2012
16	Government India notification on Environment Impact Assessment (EIA) http://moef.nic.in/downloads/rules-and-regulations/3067.pdf	Last assessed on March 2012
17	Prior to consideration form and email sent to Designated National Agency (DNA)	11.06.2010
18	Prior to consideration form and email sent to UNFCCC	18.06.2010
19	Power Purchase Agreement (PPA) between project proponent and Gujarat Urja Vikas Nigam Limited	30.04.2010
20	Purchase Order of the Steam turbine	31.03.2011
21	Solar Power Policy 2009 and its amendments, Government of Gujarat	Submitted on October 2011
22	Stakeholder meeting register and attendance sheet	01.12.2010
23	Stakeholder Invitation letter	Submitted on October

IRL No.	Document or Type of Information	Date of document
		2011
24	Consultant appointment for CDM project	07.07.2010
25	Modalities of Communication Form	01.11.2011
26	Project proponents undertaking on financial closure still not done	14.10.2011
27	The board has passed resolution on CDM was seriously considered for the project activity	21.03.2011
28	Implementation schedule of the project activity	Submitted on October 2011
29	GEDA letter to project proponent to complete the PPA before 31.03.2010	Submitted on December 2011
30	Project Proponent undertaking for ODA funding and new equipments	01.08.2011
31	Email regarding the final Project DPR has been submitted by KPMG (DPR consultant)	14.03.2011
32	Emails between SBI bank and project proponent on project funding	Submitted on December 2011
33	Project Proponent letter to Energy & Petrochemical department, Government of Gujarat on project status	03.05.2011
34	Extract of the DPR on project capital cost	Submitted on December 2011
35	List of equipment for project activity submitted by DPR consultant	Submitted on December 2011
36	Non salt cost	Submitted on December 2011
37	Chartered Accountant confirmation letter(P. Khandelwal & Associates, ICAI registration no. 006574c, member no. 076291) on land cost of the project	10.01.2012
38	Consent to establishment from Gujarat Pollution Control Board	10.12.2012
39	Project capital cost supportive	Submitted on January 2012
40	Amendment of the Power Purchase Agreement (PPA)	22.12.2010

IRL No.	Document or Type of Information	Date of document
41	Supplemental Power Purchase Agreement (PPA) between Gujarat Urja Vikas Nigam Limited and Solar Power project developers for change of name from M/s Cargo Motors Private Limited to M/s Cargo Solar Power (Gujarat) Pvt. Ltd.	24.12.2010
42	Letter of capacity allocation letter from Government of Gujarat	01.09.2009
43	Technical and evaluation report for a 25 MW CSP plant with thermal storage in Gujarat, prepared by Sun To Market Solution (S2M), S.L.	Submitted on 21.02.2011
44	Prefeasibility study report for the project activity, prepared by Consulting Engineers Group Limited	Submitted on January 2012
45	Final IRR sheet	Submitted on May 2012
46	Final PDD (Version 06)	28.12.2012
47	Final emission reduction spreadsheet	28.12.2012
48	Appointment of Lauren as EPCM contractor for 25 MW Solar Thermal project with thermal storage in Kutch, Gujarat, India	22.03.2011
49	CDM consultant appointment	07.07.2010
50	BSE Stock Exchange www.bseindia.com	Last assessed on March 2012
51	Guidelines for the reporting and validation of plant load factors, version.01, EB 48	---
52	Guidelines on the Assessment of Investment Analysis (Version 05)	---
53	Demonstration and assessment of additionality (Version 06.0.0)	---
54	Tool to calculate the Emission Factor of an electricity system (Version 02.2.0)	---

South Asia

Annex 3

Appointment Certificates

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD
South Asia

CERTIFICATE OF APPOINTMENT

Mr. Agarwal, Nikunj fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	22.03.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		22.03.12	22.03.12	22.03.12	22.03.12	1.1,1.2, 3.1, 4.10, 13.1,13.2, 15.2

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	22.03.12					
Further countries						
Financial Expertise						
Date	22.03.2012					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	22.03.12
13.1_Waste handling and disposal	22.03.12
3.1_Energy demand	22.03.12
13.2_15.2_Animal waste management	22.03.12
1.1_4.10_Thermal energy generation..	23.11.12

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0001/001.

Date	Signature
23.11.2012	

IS-CMS-CB-POG-01/05, version 02

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD South Asia

CERTIFICATE OF APPOINTMENT

Mr. Dutta, Supratik fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	07.04.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		07.04.12	07.04.12			1.2

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	07.04.12					
Further countries						
Financial Expertise						
Date	07.04.12					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	07.04.12

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0012/001.

Date	Signature
21.11.2012: Extension of Validity	

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD
South Asia

CERTIFICATE OF APPOINTMENT

Mr. V. Vijayanand fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	30.03.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		30.03.12	30.03.12			1.2

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	30.03.12					
Further countries						
Financial Expertise						
Date	30.03.12					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	30.03.12

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0047/001.

Date	Signature
21.11.2012: Extension of Validity	

IS-CMS-CB-POG-01/05, version 02

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD South Asia

CERTIFICATE OF APPOINTMENT

Ms. Wu, Caiyang (Cathy) fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	23.03.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		23.03.12	23.03.12	23.03.12	23.03.12	1.2, 2.2, 3.1, 13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	23.03.12				23.03.12	
Further countries						
Financial Expertise						
Date	23.03.12					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	23.03.12
2.2_Heat distribution	23.03.12
3.1_Energy demand	23.03.12
13.1_Waste handling and disposal	23.03.12

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy".of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0053/001.

Date	Signature
21.11.2012: Extension of Validity	

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