



VALIDATION REPORT

GUJARAT PAGUTHAN ENERGY CORPORATION
PRIVATE LIMITED

WIND BASED RENEWABLE ENERGY PROJECT
IN GUJARAT

Report No: 53202408 – 08/68

Date: 2009-12-14

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Client: Gujarat Paguthan Energy Corporation Private Limited	Client ref.: Mr. Rajiv Ranjan Mishra , Managing Director
Summary:	☒ positive validation opinion ☐ negative validation opinion
The Gujarat Paguthan Energy Corporation Private Limited (GPECPL) has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "Wind based renewable energy project in Gujarat", with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), and the relevant decisions by COP/MOP and CDM Executive Board. The purpose of this project activity is to generate electricity using renewable sources (wind) and export it to the connected state grid, thereby displacing the grid generated electricity. In the course of the validation 13 Corrective Action Requests (CARs), 04 Clarification Requests (CRs) were raised and successfully closed. The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria. In detail the conclusions can be summarised as follows: - The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM project activity approval has been obtained from National CDM Authority as DNA of India vide the Letter of Approval (HCA) F.No.4/4/2009-CCC, dated 17/04/2009. - The project additionality is sufficiently justified in the PDD. - The monitoring plan is transparent and adequate. - The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,071,730 t CO₂e is most likely to be achieved within the 10 years (fixed) crediting period. The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.	

Report No.: 53202408-08/68	Subject Group: Climate Protection
Report title: <i>Wind based renewable energy project in Gujarat</i>	
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Indexing terms

Climate protection
Kyoto Protocol
CDM
Validation

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Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Energy Authority
CER	Certified Emission Reduction
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
CR	Clarification Request
DNA	Designated National Authority
E&Y	Ernst & Young Ltd
EB	CDM Executive Board
EIA	Environmental Impact Assessment
EIL	Enercon (India) Limited
GHG	Greenhouse gas(es)
GERC	Gujarat Electricity Regulatory Commission
GPECPL	Gujarat Paguthan Energy Corporation Private Limited
GETCO	Gujarat Electricity Transmission Corporation Limited
GUVNL	Gujarat Urja Vidyut Nigam Limited
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
kW	Kilowatt
kWh	Kilowatt hour
M	Meter
m/s	meter/second
MU	Million Units (of electricity)
MW	Megawatt
MWh	Megawatt hour
ODA	Official Development Assistance
PDD	Project Design Document
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
WEG	Wind Electric Generator

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1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability criteria

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual^{VVM}, carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 1, EB 44).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP can not be held liable by any entity for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Wind based renewable energy project in Gujarat		
Project size	☒ Large Scale ☐ Small Scale		
Project Scope <i>(according to UNFCCC sectoral scope numbers for CDM)</i>	☒	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☐	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)
	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☐	13	Waste handling and disposal
	☐	14	Afforestation and Reforestation
	☐	15	Agriculture
Applied Methodology	ACM0002 Ver. 08		
Crediting period	☐ Renewable Crediting Period (7 y) ☒ Fixed Crediting Period (10 y)		
Start of crediting period ¹	2008-06-30		

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	India	Gujarat Paguthan Energy Corporation Private Limited
Other involved party/ies	-	-

¹ As per the published PDD (version 1)

2.3 Project Location

The details of the project location are given in table 2-3:

Table 2-3: Project Location

No.	Project Location
Host Country	India
Region:	Gujarat, Western India
Project location address:	Kalavad and Jamjodhpar Taluk Jamnagar district
Latitude:	22°05'16.1"N (WEG ID No. 1)
Longitude:	70°21'35.5"E (WEG ID No. 1)

2.4 Technical Project Description

The project activity involves setting up sixty three (63) Wind Electric Generators with an aggregated installed capacity of 50.4 MW. The generated electricity will be sold to the grid of Gujarat Electricity Transmission Corporation Limited (GETCO) (interconnected with western regional grid of India) under Power purchase agreement^{/PPA/}.

The project encompasses 63 large 800 kW Wind Electric Generators with a hub height of 72-73 meters in the state of Gujarat. The project activity is executed in a phased manner during 12 April 08 to 12 March 09^{/CC/}. The project exports an average of 118,975.6 MWh of net electricity per year– based on a net plant load factor of 26.95%. The plant load factor is provided by the equipment supplier and the same is stated in the facilitation agreement, which is part of documents submitted to the bank while applying for project finance. Since the used PLF is presented for loan application to the bank this is complying the requirements of EB 48 Annex 11. The estimated net generation figure is derived from guaranteed gross generation of 2877.26 MWh per WEG after applying park efficiency 94.69%, machine availability 98%, grid availability 98%, Density Correction Factor (DCF) 94%, Transmission losses 4%, Annual Variation Factor (AVF) 7% and Other Uncertainty Factor (OUF) 14%.^{/XCS/SD/}.

This project is intended to reduce CO₂ emissions to the extent of electricity displaced from the regional grid. The estimated amount of emission reductions over the chosen 10-years “fixed crediting period” is **1,071,730 tCO₂** (acc. to the PDD) from 1st of December 2009 to 30th of November 2019.

The technical key data are provided in table 2-4 below

Table 2-4: Technical data of the project activity

Parameter	Unit	Value
Manufacturer	-	Enercon India Ltd
Type and Model	-	Enercon-E-53
Nominal electrical output	kW	800 for each WEG -Total 63 WEGs
Rotor diameter	M	53
No. of rotor blade	-	3
Hub Height	M	75
Cut out wind speed	m/s	24
Cut in wind speed	m/s	3
Class of Machine	-	Enercon gearless

3 METHODOLOGY AND VALIDATION SEQUENCE

3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- A desk review of the PDD^{/PDD/} submitted by the client and additional supporting documents with the use of customised validation protocol^{/CPM/} according to the Validation and Verification Manual^{/VVM/},
- Validation planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation.

The sequence of the validation is given in the table 3.1 below:

Table 3.1: Validation sequence

Topic	Time
Assignment of validation	07 Feb 2008
Submission of PDD for global stakeholder commenting process	11 Mar 08 - 09 Apr 08
On-site visit	10 Apr 2008
Draft reporting finalised	07 May 2008
Technical review on draft reporting finalised	-
Final reporting finalised	24 Aug 2009
Technical review on final reporting finalised	08 Sept 2009

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 3 additional team members, were appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Sectoral competence	Technical competence	Host country Competence	Controlling competence
☒ Mr. ☐ Ms.	Pankaj Patel	TUV India Pvt. Ltd.	TL	A	x	x	x	x
☒ Mr. ☐ Ms.	Archak Pattanaik	TUV India Pvt. Ltd.	TM	E	x	x	x	-
☒ Mr. ☐ Ms.	Srikanth Meesa	TUV India Pvt. Ltd.	TM	E	x	x	x	-
☒ Mr. ☐ Ms.	Abhishek Kumar Srivastava	TUV India Pvt. Ltd.	TM	T	-	-	x	-
☐ Mr. ☒ Ms.	Alexandra Nebel	TNC Germany	TR	E	x	x	-	-
☒ Mr. ☐ Ms.	Rainer Winter	TNC Germany	FA	SA	x	x	-	x

¹⁾ TL : Team Leader; TM : Team Member, TR: Technical review; FA: Final approval

²⁾ GHG Auditor Status: A : Assessor; E : Expert; SA: Senior Assessor; T : Trainee; TE Technical Expert

Certificates of appointment for the above mentioned team members are enclosed in annex 6 of this report.

3.4 Consideration of Public Stakeholder Comments

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments were received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

3.5 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements that a CDM project is expected to meet;
- It ensures a transparent validation process where the validating entity will document how a particular requirement has been validated and the result of the determination.

The validation protocol as described in Figure 1.

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	Validation Team Comment	Reference	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CR or FAR (see below) is raised. The assessment refers to the draft validation stage.</i>	<i>In case a corrective action or a clarification the final assessment at the final validation stage is given.</i>

Figure 1: Validation protocol tables

The completed validation protocol is enclosed in Annex 1 to this report.

3.6 Review of Documents

The published PDD (version 1) and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Follow-up Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives Project consultant	- Chronological description of Project with documents of key steps - Technical details of the project realisation- project feasibility, designing, engineering, operational life

Interviewed Persons / Entities	Interview topics
	time - Host Country Approval - Post registration involvement of Annex-I Party - Statutory / Approval procedures and status - Quality and environmental management system - Monitoring and measurement equipment- Power Generation & Metering system for all locations of the project activity. - Financial aspects - Crediting period - Project activity starting date - CER allocation /ownership - Sustainable development issues - Analysis of local stake holder consultation - Roles & responsibilities of the staff members w.r.t project management, monitoring and reporting - QC testing and calibration procedures - Editorial aspects of PDD - Methodology selection aspects - Base line study, project emissions, leakage and additionality - Details of emission reduction calculation

A comprehensive list of all interviewed persons is part of section 7 'References'.

3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive validation opinion).

4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised:

Table 4-1: Summary of CARs, CLs and FARs issued

Validation topic ¹⁾	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) - Project specification - Technical project description - Participation - Contribution to sustainable development - PDD editorial aspects - Technology to be employed	3	-	-
Project Baseline, Additionality and Monitoring Plan (B) - Application of the Methodology - Project Boundary - Baseline identification - Calculation of GHG emission reductions - Project emissions - Baseline emissions - Leakage - Additionality determination - Monitoring Methodology - Monitoring Plan - Project management planning	9	3	-
Duration of the Project / Crediting Period (C)	1	-	-
Environmental impacts (D)	-	-	-
Stakeholder Comments (E)		1	-
SUM	13	4	-

¹⁾ The letters in brackets refer to the validation protocol

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below.

	Finding A1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The unique identification (latitude and longitude) of each of 63 WEGs are to be included in section A.4.1.4 of the PDD.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The required coordinates have been referenced in the section A.4.1.4 and included in Appendix 1 of the revised version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The longitude and latitude of each WEG is stated in the PDD and were found appropriate.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

	Finding A2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. Include the web link for the provided statement "GEPC is one of the largest.....five star safety, health and environment (SHE) management system in the PDD section A.2. 2. The provided footnote web link 1 is not referring to wind power density of Kalavad. Hence provide the appropriate web link in PDD section A.4.1.4.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The web link for the same has been provided in the revised version of the PDD. 2. The web page is no longer available due to website updation. Due to lack of evidence this information removed from the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. The web link in section A.2 is provided and found to be appropriate 2. The unavailable web link along with the concerned information has been removed by the PP, as it was neither required nor critical for the proposed project activity assessment. The CAR is closed successfully.		

	Finding A2
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

	Finding A3
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Description on how environmentally safe and sound technology is used, and technology transfer is missing in section A.4.3 of the PDD. Cp PDD guidelines.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The same has been incorporated in the updated version of the PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The relevant description has been provided. There is no technology transfer involved in the proposed project activity.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

	Finding B1
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The description provided on what will happen in the absence of the project activity is more relevant in section B.5 rather than B.4 Hence it needs to be revised. Cp PDD guidelines.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Both the sections B.4 and B.5 have been suitably revised in the updated version 03 of the PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Necessary correction has been done. The CAR has been closed successfully.

Finding B1	
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding B2			
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The reference of the baseline scenario chosen in the section B.4. of the PDD is not stated. Include all the reference web links for the information provided in sections B.4, B.5 of PDD or submit the evidence to DOE. The information is also to be updated wherever it is appropriate.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The baseline selected for the project activity is as per the applied methodology ACM0002 and the same has been provided in the updated version of the PDD. The web-links for all the information provided in the section B.4 and B.5 have been provided in the updated version of the PDD (Version 03).		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Necessary references have been provided. The CAR has been closed successfully.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

	Finding B3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. The evidence w.r.t. the seriousness of the incentive from CDM consideration is to be provided. Cp PDD guidelines. 2. Moreover the chronology table should include the description about First commissioning, first day of operation, permission of setting up 63 WEGs or 50, 4 MW		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. In accordance with “Guidance on the Demonstration And Assessment of Prior Consideration of the CDM”, EB 41, Annex 46, the project proponents are required to demonstrate that the CDM was seriously considered in the decision to implement the project activity. The PDD describes in detail regarding the steps taken by GPECL and its parent company CLP before the start date of the project activity to proceed with the project only after serious consideration of CDM benefits. In the meeting of the Board of Directors of the company held on 25 th June 2007, the approval was granted to implement the project activity in light of the discussions with respect to the influence of CDM revenues on the returns of the project. Furthermore, the Board authorised its key personnel by means of a specific board resolution to undertake all acts and deeds related to initiating the work for registering the project as CDM project Further, the PDD also describes in detail the steps taken by the project proponent to secure CDM status along with the implementation of the project. The project proponent started discussions with the CDM consultants for the proposed project activity much before the start date of the project. The communications are available for justification. 2. The details with respect to commissioning of all WEGs and the GEDA permissions have already been submitted to TÜV Nord with documentary evidences. However, the required information has now been incorporated in the chronology table in the revised PDD.		

	Finding B3
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Evidences against each event have been provided and assessed during the course of validation. It was found that CDM revenue was seriously considered in order to proceed with the project at the time of decision making. 2. The first and last WEG commissioning and all the permissions of setting up 50.4 MW wind farm are incorporated in the section B.5 of the revised PDD. The same has been checked and found to be in line with the commissioning reports and govt. approvals already submitted to the DOE.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

	Finding B4
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	A consolidated CAR has been raised: 1. GPEC is one of the Independent Power Producers (IPPs), who has PPA with the state utility (GUVNL) is stated in sub-step 4a of the PDD. Justify the statement w.r.t to the common practice analysis. 2. Post tax equity IRR (8.8%) given vide page 17 is at variance with the equity IRR arrived at in the worksheet. (8.25%). 3. The CERC benchmark is stated as 16% vide page No. 16 while it is stated as 14% in page No.17 and needs to be corrected. 4. All the figures given in the table in page No. 17 under sensitivity analysis have to be reconciled with the figures arrived at in the worksheet. 5. The chosen benchmark of 14 % ROE in accordance with CERC tariff order is not acceptable to compare with the corresponding financial indicator as per EB40 para 40. Hence the appropriate benchmark is to be used to demonstrate the investment analysis.

	Finding B4
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The statement concerning PPA has been removed from the common practice analysis in the updated PDD (Version 03). The common practice analysis is justified in section B.5 of the PDD. 2. The IRR provided in the updated PDD has been revised and made in line with work sheet. 3. The discrepancy has been corrected. Further kindly note that the 16% benchmark has been established by the CERC at national level whereas the 14% benchmark is provided by GERC (at regional level). Now the benchmark is completely revised as per the guidance on investment analysis. Annex 45 EB 41. 4. All the figures in the table providing sensitivity analysis have been reconciled with the figures in the work sheet and the same is reflected in the updated version of the PDD. 5. The benchmark has been revised from the return on equity referred from the GERC Tariff Order to “<i>Government bond rates increased by a suitable risk premium to reflect private investment and / or project type</i>” in accordance with para 6(a) sub step 2b of the Additionality tool. Capital Asset Pricing Model (CAPM) has been used to calculate the same. As per CAPM, the required return on equity investment is the return of a risk-free security plus beta times the difference between the market return and the risk-free return. The rates offered on Government Securities have been taken to represent the risk free return. Stock index has been used to represent the market return. Detailed explanation along with results of the calculations and analysis has been presented in section B.5 of the revised PDD (Version 03).
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The revised benchmark is in accordance with EB guidance para 10, Annex 45 of EB 41. The benchmark is found to be appropriate and well justified in the PDD.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

General	Finding B5		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	A consolidated CAR has been raised: 1. When an agreement has been entered into with the supplier for O&M, the O&M contingency, asset management fee and inflation on asset management fee at 10% are not acceptable. 2. Accelerated depreciation has been provided not only on WEGs but also on 'other assets'. Confirm that accelerated depreciation is available on all assets. If not correct, the WDV depreciation may be corrected accordingly after eliminating 'other assets' and prorata share of 'financing cost' therefore. Moreover confirm that the depreciation rate of 5.28% is available not only on plant and machinery, but also on 'other assets'. If it incorrect, civil works and other assets should be segregated together with the prorata financing cost thereon and depreciation amount be replaced with the correct amount. 3. As equity IRR has been chosen to demonstrate the additionality, the objective of providing project IRR may be clarified.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The O&M contingency fees along with the Asset management fees have been excluded from the project costs. Further, only the O&M fees now used are only the minimum fees needed for internal administrative and employee expenses required by GPEC for the operation of the project. This is the expense incurred as cost to the company for the employees management structure required for the project. Further, the inflation in fees has been reduced from 10% to 8% on the basis of the prevailing rate at the time of decision making for investment in the proposed project activity for conservativeness. 2. The major asset for a typical wind project is Wind Energy Generator (WEG) and associated accessories and all other costs are incurred to set up the WEGs. Hence, all these costs would ultimately allocated to the WEG and the total Asset Block, which will include cost of WEG and other costs, will get depreciation benefit in the books as well as tax purposes. The computation is accordingly done in the IRR sheet. 3. The project IRR has been excluded from the analysis.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Necessary corrections and justifications have been provided. The CAR points are closed properly.		

General	Finding B5
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

General	Finding B6
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Break up of 'other cost' of Rs.82.17 million and 'financing cost' of Rs. 98.89 million is required.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The 'other cost' mentioned in the worksheet consists of various expenses like due diligence, appointment of legal and technical consultants, payment of upfront fees, security creation etc for setting up a project and these costs are estimates towards these expenses. This involved the engagement of various technical and legal consultants like Trilegal, HTC, NORTON ROSE, Khaitan & Co, IFC, ADB and IDBI. Further, the expenses under 'other costs' have been revised from Rs.82.17 million to Rs.24.37 million after the exclusion of Stamp duties, Overheads, Security and trustee fees, construction management fee, initial insurance, working capital margin, O&M contingency and Asset management fees paid to Roaring 40's. The certificate for the same has been submitted to the DOE. Further the financing costs have been revised from Rs. 98.89 million to Rs. 91.83 million. It includes the IDC and the upfront and syndication fees payable to the bank.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Necessary break up has been provided in the excel sheet and the PDD. The break up has been certified by chartered accountant and the copy of the same has been submitted to the DOE. The CL has been closed successfully.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

General	Finding B7		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In PDD section B.5 1. The total value of the installed capacity shown in the table 7: state-wise wind power potential and installed capacity is to be corrected. 2. Include the web link or the evidence to DOE on the provided data “....shortfall of 8381 MU...wind power....shortfall in generating capacity. Refer pg no19 of the PDD. 3. The total power generated in Gujarat is to be updated in sub-step 4a of the PDD and provide the evidence to DOE.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The total value of installed capacity in table 7 has been revised in the updated version of the PDD. 2. The source of the data has been incorporated in the revised version of the PDD. 3. The argument using the total power generated has been removed from sub-step 4a and the same is reflected in the revised version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The required corrections have been carried out and all related information is provided to the DOE. All the CAR points are closed properly.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

General	Finding B8		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In pg no: 19 of the PDD it is stated “.... the state (Gujarat) is not the most favoured destination for investment in wind power projects” From the provided data in pg no :19 it is clear that the state stands in the 4th position in WEGs installed out of 25 states in India. Hence clarification is required.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	In India, wind power potential has been estimated by various studies only in 10 states out of the 25. Out of these 10 states, specific wind power policies exist in only 6 states. Thus out of the 6 eligible states having wind power potential along with wind energy specific policies Gujarat stands at 4 th position and is thus not a favoured destination for investment in wind power projects.		

General	Finding B8
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Though there are 25 major states India, only 6 states have the wind power potential due to various geographical and climatic conditions. Since out of 6 eligible states, Gujarat comes at 4th position the clarification for not so favourable for wind machine installation is convincing to the validation Team.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

General	Finding B9
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It is clearly stated that EG_y exported, imported, EG_{WEG} and EG_{VCB} will also be monitored during the crediting period in section B.7.1 of the PDD. Clarify the importance and relevancy of their monitoring.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The monitoring plan for the project has been revised and only one parameter i.e. EG_y will be monitored as has been reflected in the updated version of the PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Irrelevant parameters have been removed from the section B.7.1 of the PDD. The revised monitoring plan found to be adequate and complying to the applied methodology.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

General	Finding B10
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The operational and management structure that the project operator will implement in order to monitor the emission reductions is to be included in the PDD section B.7.2. Cp PDD guidelines.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The operational and management structure implemented by the project proponent has been defined in the section B.7.2 of the revised version of the PDD.

General	Finding B10
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	OK. The necessary information has been incorporated in the PDD and found to be adequate.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

General	Finding B11
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. The calculation of the EFOM needs to be revised as per the "Tool to calculate the emission factor for an electricity system". There it says that the simple OM is calculated as "a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation". Also clearly mention about the difference in grid structure at the time of PDD web-hosting and at present. 2. With reference to sections A.4.4 and B.6.3. and B.6.4. of PDD, the total estimated amount of ER which is conservative (rounding down) should be provided in proper manner of comma usage in the PDD.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The calculation of emission factor has been revised in accordance with the tool to calculate the emission factor for an electricity system. Please note that the data on net generation as well as absolute emissions has been referred from CEA User Database Version 3.0 and not 4.0, since Version 3.0 was available and applied when the project was uploaded for GSP. The revised Combined Margin Emission Factor is calculated as 0.9008 tCO₂/MWh and the same has been applied in the revised PDD. 2. The required revision has been incorporated in the revised PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. The EF has been revised to 3 year generation weighted average (based on the data from CEA data base version 3.0) which is in accordance with tool to calculate emission factor for an electricity system. The same has been reflected in the revised PDD. 2. The revision made is checked and found to be conservative as the total estimated ER is rounded down.

General	Finding B11
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

General	Finding B12
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	PP needs to use units prescribed by international standard. Cp EB 41 Annex 12, Part I paragraph 18.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The units have been revised to MWh in both the section B.5 Sub step 2c as well as in section B.6.3.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The units have been checked and found to be changed according to the EB 41 Annex 12.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

General	Finding C1
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Crediting period start date stated as 30 th June 2008 is un-realistic because as per Para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The crediting period start date has been updated and the same is reflected in the updated version of the PDD (Version 03).
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	OK. The date has been revised to a realistic one.

General	Finding C1
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

General	Finding E1
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Clarify why during the local stakeholder consultation the project has been mentioned to implement 100 MW, which differs a lot from 50.4 MW.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	GPEC had executed Facilitation Agreement (FA) with Enercon (India) Limited for entire project of 100.80 MW at Samana Wind Farms which was intended to be set up in two Phases of 50.40 MW each. The Phase I of 50.40 MW was proposed to be set up predominantly on revenue/private land and the Phase II of 50.40 MW was to be set up on predominantly forest land. Accordingly, the local stakeholder consultation took place for the entire project of 100.80 MW in October 2007. During this period, GPEC had also started receiving approvals in order to facilitate the setting of 50.40 MW Phase I of the project. In 2008, restructuring happened at GPEC and it was intended to transfer all the wind assets to its subsidiary. However, as GPEC had received few of required approvals in its name and it would have taken lot of time to transfer such approvals to its subsidiary, GPEC went ahead with the execution of 50.40 MW Phase I and transferred only 50.40 MW Phase II of the project to its subsidiary, CLP Wind Farms (India) Private Limited.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The clarification is assessed and same argument had been found during project participant interview during site visit. The proposed project activity is complying with the requirements. Moreover CLP Wind Farms (India) Private Limited has already engaged TÜV NORD for Phase II of 50.40 MW.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

5 VALIDATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Participation

LOA

India as a non Annex I party meets all relevant participation requirements. In the Host Country Approval^{/HCA/} ref no. 4/4/2009-CCC dt. 2009-04-17, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of Gujarat Paguthan Energy Corporation Private Limited (GPECPL) as project participant in the CDM project activity.

An Annex-I party will be identified by the project participants in due time, as per the post registration involvement by Annex I party provisions (no. 57) made in 18th EB meeting.

This type of project activity is in line with sustainable development policies^{/HCA/} of the country and national regulation / policy on Environmental Protection. A scanned copy of the original HCA was submitted by the project participant to the DOE during the validation and the same was verified stating precisely same project title as in hosted PDD. Nevertheless in the Host Country Approval it is stated that the project participant (PP) has to comply with the following conditions:

- GPECPL shall not sell the CERs to any agency/ company/ organization which purchases the CERs using ODA Funds
- GPECPL shall inform the national CDM Authority regarding all transaction details of CERs including the name and address of the party to which CERs were sold within 30 days of transfer of the CERs
- GPECPL shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- GPECPL shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project
- All transaction shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP
- This approval is not transferable. The authority reserves the right to revoke this Host Country Approval if the conditions stipulated in this approval are not complied with to the satisfaction of the National CDM Authority.

Project Participants

India as a non Annex I party meets all relevant participation requirements. In the Host Country Approval^{/HCA/} dt. 2009-04-17, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of Gujarat Paguthan Energy Corporation Private Limited (GPECL) as project participant in the CDM project activity.

An Annex-I party will be identified by the project participants in due time, as per the post registration involvement by Annex I party provisions (no. 57) made in 18th EB meeting.

5.1.2 Contribution to Sustainable Development

The issued host country approval^{/HCA/} confirms the contribution to sustainable development of India from the proposed project activity.

5.1.3 PDD editorial Aspects

The proposed project activity has been described in latest PDD template (CDM PDD ver 03) according to the latest PDD guidelines (Annex 12, EB 41).

5.1.4 Technology to be employed

The project is a Greenfield project activity. In the PDD section A.2 and A.4.3, technical aspects of the proposed project activity are described. The description is found to be in accordance with the latest PDD guidelines and found to be complete and accurate. There is no technology transfer involved in the proposed project activity. Moreover as the wind turbines harness renewable sources of energy viz. wind power for electricity generation, the technology employed is environmentally safe and sound.

5.1.5 Small Scale Projects

The proposed project activity is large scale project activity.

5.2 Project Baseline, Additionality and Monitoring Plan

5.2.1 Application of the Methodology

The selected baseline methodology is the approved baseline methodology “consolidated baseline methodology for grid-connected electricity generation from renewable sources” (ACM0002 Ver.08). The applied methodology is valid till 26th October 2009.

The selected baseline methodology, i.e., ACM0002 is correctly applied to this type of wind project.

5.2.2 Project Boundary

As required by the applied methodology and latest PDD guidelines project boundaries are described and depicted correctly in the PDD. Carbon dioxide is the only gas taken into account for the baseline emission which complies with the applied methodology and also it is conservative. There are no other sources affected by the project. Project boundary description complies with the requirements.

5.2.3 Baseline Identification

The selected baseline methodology is the approved baseline methodology “consolidated baseline methodology for grid-connected electricity generation from renewable sources” (ACM0002 Ver.08).

The selected baseline methodology, i.e., ACM0002 is correctly applied to this type of wind project. The baseline scenario under the adopted methodology ACM0002 is *“Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.*

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions are calculated by multiplying the electricity baseline emission factor or grid emission factor (EF_y) and the electricity exported to the western grid (EG_y) minus the baseline electricity supplied to the grid (EG_{baseline}). As it is new power plant the baseline electricity supplied to the grid (EG_{baseline}) is zero. The grid emission factor (EF_y) is estimated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) factors. In this case the Combined Margin (weighted average of Simple Operating Margin and Build Margin) is estimated based on three years average (04-05, 05-06, 06-07) of Simple Operating Margin and Build Margin of current year (06-07) in line with steps of tool to calculate the emission factor for an electricity system (ver. 01.1). Both the value of Simple Operating Margin and Build Margin are selected under ex-ante approach. The grid boundary w.r.t the connected state grid is western Regional Grid of India.

In accordance with of tool to calculate the emission factor for an electricity system (ver 01.1), ‘Dispatch Data Analysis’ is the first methodological choice out of four options of calculating OM emission factor. Nevertheless the “Dispatch data analysis operating margin” is ruled out in India due to lack of necessary dispatch data of the grids and simple OM is applied to calculate the OM emission factor. The same fact is

also considered by the Central Electricity Authority ^{/cea/} {Ref the user guide for CO₂ Baseline Database for the Indian Power Sector (version 03, December 2007)}.

Out of other 3 options of calculating OM, GPECL has rightly selected simple OM emission factor calculation as the share of low cost / must run resources of the selected grid over the three most recent years (2004-05, 2005-06, 2006-07) is < 50% of the gross grid generation^{/cea/}.

In accordance with ACM0002 weight factors of $w_{OM} = 0.75$ and $w_{BM} = 0.25$ has been used and the resultant grid emission factor (EF_y) works out as 900,8 tCO₂/GWh. The calculation of EF_y is current and publicly available and published by the Central Electricity Authority on its web-site^{/cea/}. The validation team is convinced of the result of the emission coefficient calculation^{/CBD/}. It is deemed to be adequate and transparent.

The annual net exportable power generation is estimated to 118,976 MWh.

Altogether the project activity reduces emissions of **1,071,730** tCO_{2e} over the ten year fixed crediting period.

Relevant national & sectoral policies have been considered such as decisions of the Maharashtra Electricity Regulatory Commission and the energy policy of the Government of India. The project is also in line with New Renewable Energy Policies. Nevertheless, CAR B1 and CAR B2 had to be raised and were successfully closed (ref Annex: Validation Protocol - Table A-1).

In addition to ACM0002 for baseline emission and steps of Additionality Tool (Ver 05.2 which is valid as per is applied.

5.2.4 Calculation of GHG Emission Reductions

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO₂) emissions by generating electricity from a renewable energy wind project, which would be exported to the western grid.

There are no GHG emissions arising from the project being a wind project. Hence, the project emissions are zero. As per the methodology ACM0002, there are no emissions related to leakage in this project.

The calculations of the baseline emission and emission reduction are documented in section B.6.3 of PDD. For assessment please refer to section 5.2.3 of this report.

Acc. to the final PDD the project is expected to reduce emissions of **1,071,730** tCO_{2e} over a 10 year fixed crediting period.

5.2.5 Additionality Determination

Consideration of CDM in decision making

The project developer has stated the start date of the project activity is 6th July, 2007^{/SD/} and has submitted a copy of the facilitation agreement between the WEG supplier M/s Enercon (India) Limited and GPECPL. The project developer has not undertaken any construction or any real action on the implementation of the project activity prior to this date. Since the *real action of the project activity* had begun on 6th July, 2007^{/SD/}, as per Glossary of CDM terms (Version 04), this date has been treated as the start date of the project activity. The PDD was web-hosted for public comments on 11th March, 2008, i.e., after the start date of the project activity.

Since the start date of the project activity was prior to the date of the publication of PDD for global stake holders' consultation, the project developer was asked to demonstrate the serious consideration of CDM while taking the decision to implement the project activity as required by Annex 46 of EB 41.

Project participant submitted proof of the initial discussion with the consultant on 22nd June 2007 and a copy of the board meeting resolution for investing in the project activity^{/MD/} dated 25th June, 2007, wherein the top management of the participant, which are the competent and authorized personnel to take a decision on setting up of this project activity, had taken into account the CDM benefits while approving the project, indicating that the project is not financially attractive without CDM benefits. The project developer also informed the Validation Team during the personal interview that the financial unattractiveness of the project was the basis on which the board of directors decided to seek CDM benefits in order to go ahead with the project.

As regards demonstration of continuing and real action were taken to secure CDM status for the project in parallel with its implementation, the project developer submitted documentary evidences relating to the discussion with the consultant and appointment of the consultant dated 18th August 2007^{/CM/} followed by the stakeholder consultation 25th October 2007^{/LSC/}. The project was under commissioning even after the global stake holder consultation end date 9th April 2008. The project was completely commissioned by 12 March 2009^{/CC/}. Thus it is quite evident that continuous and real actions were taken to secure the CDM status.

Since the fulfillment of both the conditions stipulated vide Annex 46 of EB 41 have been demonstrated with documentary evidence, Validation Team concludes that *there was a prior consideration of CDM and the CDM benefits were considered necessary in the decision to undertake the project as a CDM project activity.*

Application of methodology / methodological tools

The project is a large scale project. Hence, the Additionality Tool (Ver 05.2) applies to the project activity. Therefore, in accordance with ACM0002, the additionality was demonstrated based on the valid version of the "Tool for demonstration and

assessment of additionality (Ver 05.2)". For the above reasons, this approach has been assessed to be appropriate for the assessment of additionality for this project activity.

Alternatives

The project developer has considered two alternatives for the project activity, viz.,

- i) the proposed project activity not undertaken as a CDM project activity;
- ii) no project activity, in which case equivalent amount of energy would be produced by the project grid electricity system through its currently running power plants and by new capacity addition to the grid (which are mostly thermal), i.e., continuation of current situation.

Having regard to the fact that the project activity under consideration is a wind power project, TÜV is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

Having regard to the fact that the project activity under consideration is a wind power project, TÜV is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- the Electricity Act 2003 does not restrict or empower any authority to restrict the fuel choice for power generation;
- the applicable environmental regulations do not restrict the use of wind energy; and
- there is no legal requirement on the choice of a particular technology.

However, of the two alternatives identified, alternative (i) cannot be considered realistic as further analysis in the following paragraph reveals that it is not economically feasible option. Hence, alternative (ii) alone could be justified as realistic, credible and plausible alternative to the PP. However, this alternative would result in higher GHG emissions.

Investment analysis

Project proponent has demonstrated through the investment analysis that the financial returns of the project activity are insufficient to justify the required investment. TÜV has adopted a six-pronged strategy to ascertain the veracity of the conclusion drawn by the project proponent, viz.

- a) determining the suitability of the benchmark applied for the type of financial indicator presented;
- b) conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters;

- c) cross-checking the parameters against third-party or publicly available sources;
- d) reviewing annual financial reports related to the project participant;
- e) assessing the correctness of computations carried out and documented; and
- f) subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.

Suitability of financial indicator and benchmark: The project proponent has chosen equity IRR to demonstrate the additionality of the project. Additionality Tool (Ver. 05.2) permits the use of financial indicator, viz., IRR, for demonstrating the additionality using benchmark analysis. The tool permits the use of either project IRR or equity IRR². The project developer has chosen to demonstrate the financial unattractiveness of the project through equity IRR. Since the project proponent is demonstrating the financial unattractiveness of the project, equity IRR is appropriate, as it is often used by the project developers to make a decision on investing in the project. As such, selection of equity IRR as financial indicator to demonstrate the additionality of the project is appropriate and conforms to the Additionality Tool.

Additionality tool (ver.05.2) states that the discount rates and benchmarks shall be derived from "Government/official approved benchmark, where such benchmarks are used for investment decisions"³, among others. However, it is imperative that the benchmark selected should be suitable for the type of financial indicator presented. The proponent has chosen the benchmark in accordance with para 6(a) sub step 2b of the Additionality tool i.e. Government bond rates increased by a suitable risk premium to reflect private investment and / or project type

Finally, the benchmark chosen is suitable for the type of financial indicator selected, what is sought to be compared is the expected return on equity (Equity IRR) with minimum return on equity required to make the project viable taking market risks into account. Therefore, the benchmark selected by the project developer is appropriate and conforms to the Additionality Tool.

The project proponent has also demonstrated that the expected return from the project activity i.e. Equity IRR (9.71%) is not only lower than determined benchmark (15.06%) but also lower than the term loan interest rate (14%), the commercial lending rate.

Parameters and assumptions used: The three important parameters, which determine the equity IRR of the project, are project cost, financing pattern, and profitability estimates. The project cost includes, WEG cost, financing cost and other costs. The financing cost consists of upfront and syndication fees payable to the

² Tool for the demonstration and assessment of additionality (Version 05.2) p.6

³ Tool for the demonstration and assessment of additionality (Version 05.2) p.7

bank as a percentage of debt for project along with interest during construction and the other cost corresponds to costs of legal due diligence, technical due diligence and other costs associated with implementation of the project.

All the constituents of the project cost are based on the quotations and detailed estimation, which forms part of the facilitation agreement, whereas the financing cost is calculated based on the bank term loan sheet and other costs are audited and certified by a third party. Tax rate is as per the service tax rate applicable at that time. Front end fee payable to the banks is based on the sanction letter issued by the banks. The financing pattern yields a gearing of 70:30, which is normally accepted financing pattern for wind power projects. The profitability estimates of the project, which forms the basis for equity IRR calculation is based on installed capacity, capacity utilization factor (CUF), power tariff, O&M cost, insurance cost, interest, depreciation, taxation. The installed capacity is a computed figures based on the number of WEGs installed and the capacity thereof.

The CUF works out to 26.95%, in contrast to 23% recommended by GERC in its order and hence it is conservative. Power tariff i.e. Rs.3.37/kWh is based on PPA, which is in line with the tariff recommended by GERC for wind power projects. O&M cost and insurance cost are based on O&M contract and quotation for insurance premium and insurance policy received by the project proponent.

Interest is based on detailed computation forming part of the worksheet. The project proponent has adopted Companies Act recommended straight line depreciation for computing book profit and Income Tax Act stipulated WDV depreciation for income tax calculation, which are accepted accounting methods. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules. In computing the income tax liability, the project developer has taken into account the accelerated depreciation (80%), which the wind turbines are eligible and the Tax holiday (u/s 80IA of the Income Tax Act, 1961), which the infrastructure projects (under which the project activity falls) are entitled for the 10 consecutive years out of the first 15 years. The tax rate assumed corresponds to the tax rate prevailing at the time of taking decision.

c) Cross checking parameters: The cost of WEGs, power evacuation costs, O&M cost, insurance costs, interest costs, depreciation and tax rate have been cross checked with quotations, purchase orders, loan sanction letters, Companies Act, Income Tax Act, PPA entered into by the project proponent with the Utility and the GERC order. The input costs considered appear to be in order.

d) Financial reports of project participant: TUV requisitioned the statement of accounts^{/IRR/} of the project participant for the financials years 2005-06, 2006-07 and 2007-08. None of the input values taken in the computation can be based on the annual statement of accounts, as the PP is engaged in an activity, which is different from the present activity of the firm.

e) Assessment of correctness of computation: The assessment involves checking the data input taken from quotation/documents, adoption of correct accounting principle

and arithmetical accuracy. TUV checked the quotation/ documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted with respect to the computation of interest during construction, block of assets, prorata expenses and tax computation are found to be in order. The arithmetical accuracy is also found to be correct.

The principle adopted by the project proponent for computing equity IRR is in conformity with the “Guidance on the Assessment of Investment Analysis” issued by EB. IRR has been computed for 20 years. In computing the equity IRR, the project proponent has taken into account profit after tax and depreciation. From the total, the repayment of term loan has been deducted, which is the accepted accounting principle, in as much as the repayment of term loan is made out of cash flow, i.e., profit after tax and depreciation. In the calculation only that portion of investment costs, which is financed by equity, have been considered as the net cash outflow, which is as per the Guidance issued by EB. Based on the above, the equity IRR of the project works out to 9.71% in contrast to the benchmark of 15.06%. It is even lower than the term loan interest rate of 11.25%. In the above background, TUV is convinced that the project is additional and not a business-as-usual scenario. However, this conclusion was checked by subjecting the critical assumptions to reasonable variations.

- g) Sensitivity analysis: The Guidance 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 ($\pm 10\%$). The project proponent has identified PLF and capital cost as the most critical assumptions. Accordingly, sensitivity analysis has been conducted to analyse the impact of a change in (a) capital cost by 10% and (b) PLF by 10% on the profitability of the project activity. The sensitivity analysis reveals that even under more favorable conditions, the IRR would not cross the benchmark value of 15.06% as given in the following table:

Parameters	Equity IRR	Benchmark
Base Case	9.71%	
Increase in PLF by 10%	12.92%	
Reduction in capital cost by 10%	10.37%	
Benchmark		15.06%

TUV carried out its own independent assessment, which reveals that the project would become *non additional* only if

- PLF goes up by 16.8%
- Capital cost goes down by 16.5%

TUV considers that such a reduction in capital cost or hike in PLF is highly unrealistic and unlikely to happen for the following reasons:

PLF: The PLF considered in projections is 26.95%, as against 23% recommended by

GERC and 20.2% as observed by GERC based on the data collected from the region where the wind mills are located. A 16.8% hike in PLF would mean achieving a PLF of 31.48%, is not the case even in Tamil Nadu. TUV agrees with the project proponent and is convinced that achievement of such a high PLF is not possible.

Capital cost: As stated above, the cost taken into computation is based on quotations. Orders have already been placed. The cost, therefore, represents firm cost and as such the question of any reduction in the cost, that too by as much as 16.5% is highly unrealistic. TUV agrees with the argument put forth by the project Proponent.

The individual arguments presented in the PDD to justify the additionality are as well as the assessment of the validation team is summarized in table 5-1.

Nevertheless, Finding B4–B7 were raised and successfully closed (ref. section 4: Validation Findings).

Common practice analysis

The project proponent has chosen the state of Gujarat as the geographical region for common practice analysis. As per the criteria provided in page 4 & 5 of “Combined tool to identify the baseline scenario and demonstrate additionality” ver. 02.2, the state of Gujarat can be an appropriate geographical region as the framework conditions vary significantly among the various states of the India e.g. each state of India is differing from each other in potential for wind power generation⁴. Moreover each potential state has its own policy for wind electricity generation⁵. Moreover the number of wind farms installed⁶ in the state of Gujarat far exceeds the minimum number (10) of similar facilities stipulated by “Combined tool to identify the baseline scenario and demonstrate additionality” as one of the criterion for the geographical region appropriate for the above analysis. Thus the validation team has been convinced that the chosen geographical region for the common practice analysis is appropriate in the context of the proposed project activity.

At the time of investment decision making for the proposed project activity, the wind power capacity contributes only 6.42% of total installed capacity in the state of Gujarat, which clearly demonstrates that wind power generation is not widely practiced in Gujarat as assessed by DOE through the web search⁷. Moreover, in Gujarat most of the wind projects installed are for captive consumption⁸. Further, most of the investors have gone for small size wind farms less than 15 MW as assessed by the DOE^{ADD}. However there are few large scale wind power projects (7) already installed or being installed are either seeking or already taken the carbon benefits and hence excluded from the common practice analysis as described in the PDD and crosschecked by the validation team through UNFCCC web site^{unfccc}. Thus it is concluded that power generation by harnessing wind energy is not widely observed and commonly carried out in the region in question i.e. Gujarat state of

⁴ <http://www.inwea.org/imgs/wpd.jpg>

⁵ <http://www.inwea.org/regulatorydev.htm>

⁶ <http://www.geda.org.in/pdf/wind/Windfarms-PowerGeneration.pdf>

⁷ Annual Report 2006-07 Ministry of Power : Central Electricity Authority July 2007 ;Annexure 10B

⁸ GETCO Tariff Order dated 6th May 2006

India. In view of point c of para 118 of VVM the essential distinction between the similar activities widely practiced and commonly observed in the region and proposed project activity is not described as no similar project could be identified not being a CDM registered or requesting project.

In the view of the above discussion and guidelines provided in VVM para 118 and 119, it is concluded that the proposed project activity, which is a large scale independent power producer (IPP) is not a common practice in the state of Gujarat.

Summary

The demonstration of additionality is summarised here below in the table 5-1

Table 5-1: Additionality assessment

Step ¹⁾	Argument PP	Assessment of the validation team	
1a	Project Alternatives Alternative 1 - The proposed project activity not undertaken as a CDM project activity. Alternative 2 - No project activity and equivalent amount of energy would have been produced by the project grid electricity system through its currently running power plants and by new capacity addition to the grid i.e. Continuation of current situation.	The alternatives presented are assessed to be appropriate and out of the two, second one could be justified as a realistic and credible alternative to the PP.	☒ step passed ☐ step not passed ☐ not applicable
	1b All the above alternatives are in compliance with all applicable legal and regulatory requirements.	All alternatives are in line with the national regulations.	
2a	Option III: benchmark analysis is selected for the investment	In accordance with the Additionality Tool, the option III is selected and deemed to be appropriate.	☒ step passed ☐ step not passed ☐ not applicable (step 2 or 3 has to be passed)
2b	The financial indicator "Equity IRR" is chosen and correspondingly the benchmark is taken as government bond rates increased by suitable risk premium to demonstrate the benchmark analysis as per guidance on investment analysis.	The identification of the financial indicator is OK.	

Step 1)	Argument PP	Assessment of the validation team	
2c	The IRR for the proposed project activity without CDM revenues was computed for a period of 20 years, corresponding to the lifetime of the 50.4 MW wind farm based on the assumptions presented in the PDD. The Equity IRR calculated is 9.71% which is lesser than the benchmark 15.06%	The identification of the benchmark is appropriate as per the para 10, Annex 45 of EB 41	
2d	The project activity has been found sensitive to the following parameter: The results of the sensitivity analysis conducted confirm that the post-tax project IRR for the project activity without CDM revenues is lower than that which would make the project economically attractive for the investors, under circumstances which could bring about variations in the critical factor used for the IRR computations.	The project revenue is sensitive to the electricity generated (PLF) and the capital cost as both of them constitute more than 20% of the total project cost or total project revenues. Hence the sensitivity analysis has been carried out for these two variables.	
4 a	As per the additionality tool, similar projects are those that rely on a broadly similar technology, scale and take place in a similar regulatory environment. This is explained detailed in section B.5 of the PDD. The large scale installations are not a common practice in Gujarat which are above 15 MW. All the large projects are seeking CDM or carbon credits, which demonstrate the projects are not financially viable without CDM.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not decisive ☒ Argument justified / significant The DOE confirms that the provided logic is appropriate as per the additionality tool. Validation team has assessed that there are hardly 6-7 large scale (>15 MW) in the state of Gujarat. Moreover they are seeking carbon credits. The validation team has verified the wind power directory and found that the provided explanation in the PDD is appropriate.	

Step 1)	Argument PP	Assessment of the validation team	
4 b	As discussed above the project activity is not a common practice being followed in the region. Due to the unattractive returns associated with the project activity, it is being carried out only after taking CDM revenues into consideration.	☐ Argument justified not ☐ Argument convincing not ☐ Argument justified but not decisive ☒ Argument justified / significant	☒ step passed ☐ step not passed ☐ not applicable
Assessment of the validation team		☒ project is additional ☐ project is not additional	

5.2.6 Monitoring Methodology

The project applies the monitoring methodology ACM0002 Version 08, for grid-connected electricity generation from renewable sources.

5.2.7 Monitoring Plan

This methodology stipulates that monitoring shall consist of metering the electricity supplied by the project activity to the grid (ex-post) by the renewable technology. In this case the net electricity generated by GPECPL wind farm will be monitored and reported by GEDA in its share certificate on the basis of the metering done at the bulk main meter connected to the incoming feeder of GETCO and the meters installed at the VCB metering yard. Data monitoring for electricity exported and electricity imported takes place at the VCB metering yard and GETCO meter at the substation. The electricity metered at the GETCO meter is proportionally divided among the customers connected to the meter on the basis of the pro-rata readings taken at the VCB end. The procedure to monitor the electricity export and import is explained in section B.7 of the PDD and was assessed to be appropriate.

Calibration, periodical testing and maintenance procedures of monitoring equipment are clearly mentioned in the section B.7.2 as per QA/QC procedure of PDD.

The OM and BM are calculated as fixed for renewable crediting period by choosing data vintage/cea/ based on ex-ante monitoring published by CEA. Hence data needed to recalculate OM and BM does not apply. According to the monitoring plan of the PDD this requirement is fulfilled.

All the monitored data will be archived electronically for a period of 2 years after the crediting period.

5.2.8 Project Management Planning

The GPECPL has formed a structured project management team to ensure proper operation and continuous monitoring of proposed project activity. GPECPL has also entered into a comprehensive Operation and Maintenance agreement with the Enercon (India) Limited, which is also the manufacturer of WEGs. All the personnel are qualified and trained for the type of work. Moreover the project site is certified to quality management system ^{/ISO/}. From whole the assessment during site visit and desk review by the DOE, the project management planning is found to be adequate and appropriate for type of project monitoring.

Nevertheless a CAR (Finding B10) has been raised and successfully closed

5.2.9 Crediting Period

The intended crediting period of the project is 1st December 2009 to 30th November 2019 (fixed).

The starting date of the crediting period is 01/12/2009 or the date of registration of the project with UNFCCC.

In the context of starting date of the crediting period finding C1 was raised and successfully closed (ref Annex-A1: Validation Protocol).

5.2.10 Environmental Impacts

Social & environmental impacts of the project have been sufficiently addressed. No adverse environmental impacts as well as trans-boundary impacts have been envisaged from this project activity. Environmental Impact Assessment (EIA) is not required for this type of project activity as per the rules and regulations of host country (India).

5.2.11 Comments by Local Stakeholders

Stakeholders have been directly asked to comment on the project through an open meeting among local stakeholders, project participant (GPECPL); local authorities during 25th October 2007 ^{/LSC/}.

No adverse comments were received and this is addressed in the PDD.

A summary of the comments received and a note (through meeting) on how due account was taken of the concerns raised in the above public consultation are included in PDD. All comments are positive in nature.

6 VALIDATION OPINION

Gujarat Paguthan Energy Corporation Private Limited (GPECPL) has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: “Wind based renewable energy project in Gujarat” with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board.

In the course of the pre-validation 13 Corrective Action Requests (CARs) and 4 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of India vide the Letter of Approval (HCA) dated 17 April’ 09.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 1,071,730 tCO₂e are most likely to be achieved within the 10 years (fixed) crediting period.

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

Baroda, 2009-12-14



Pankaj Patel
TÜV NORD JI/CDM CP
Validation Team Leader

Essen, 2009-12-14



Rainer Winter
TÜV NORD JI/CDM CP
Final Approval

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/ADD/	List of large scale wind projects till 31 st March 2007 in Gujarat, which are similar to the project to demonstrate the common practice analysis.
/CA/	Companies Act, 1988 w.e.f 2 nd April 1987 : Schedule XIV rates of Depreciation
/CC/	Commissioning Certificates of 10 WEGs out of 63 in chronological order : • 2X0.8 kW Wind Electric Generator in respect of M/s GPECPL at village Makrani, Sanosara, Tal- kalavad, Dist- Jamnager on 16-06-08 • 8X0.8 kW Wind Electric Generator in respect of M/s GPECPL at village Machharda, Tal- kalavad, Dist- Jamnager on 19-06-08
/CM/	• Release of action plan on climate change in “Our Manifesto on Air Quality & Climate Change” • Proof of Initial discussions with CDM consultants for project activity dated 22nd June 2007 • Proof of appointment of consultant dated 18th August 2007 • Proof of Commissioning certificates
/PPA/	• Wind Energy Purchase Agreement between GPEC and Gujarat Electricity Transmission Corporation Limited (GETCO) dated 14th October 2008 for 49.6 MW • Wind Energy Purchase Agreement between GPEC and Dakshin Gujarat Vij Company Limited (DGVCL) dated 24rd September 2008 for 0.8 MW
/GRD/	Proof of grid connection: Latest Electricity bill dated 26 th April 2009
/HCA/	Host Country Approval dated 17 th April 2009 - “Wind based renewable energy Project in Gujarat”
/IRR/	• Internal Return Rate Calculation Sheet. • IDBI sanctioned loan letter dated 4th December 2007 • Proof of Other costs : Third party audit certificate form the Chartered Accountant dated 16 December 2008 • Proof of Insurance costs • Financial reports (statement of accounts) for the years 2006-07,

Reference	Document
	2007-08 and 2008-09 Bloomberg snapshots for Beta values
/ISO/	ISO 9001: 2000 certificate for the project site.
/ITA/	Income Tax Act
/ITR/	Income Tax Rules : Appendix 1 (Effective from assessment year 2006-07 onwards)
/LSC/	Proof of local stakeholder consultation 1. Invitation letter sent to the local stakeholders. (dated 01 October 2007). 2. Consent from the villagers 3. Minutes of the Meeting of the local stakeholders' consultation held on 25th October 2007.
/MD/	Certified true copy of the resolutions passed by the Board of Directors of the Company in its meeting dated 25 th June, 2007.
/MOC/	Modalities of Communication dated 19 th May 2009
/O& M/	Warranty Operations & Maintenance Agreement between GPEC and Enercon India dated 6 th July 2007.
/PDD/	Project Design Document for the proposed project activity.
/PO/	Purchase Order for ex-factory supply of 63 Enercon E-53 WEGs, rated at 800 kW for Phase-I dated 17 th August 2007.
/SC/	• Permission Letter of Grid Connection from Gujarat Energy Transmission Corporation Limited for 100 MW wind project at village Samana, Tal. – Kalavad, Jamjodhpur, Dist. Jamnager dated 26th June 2007. • Permission from Gujarat Energy Development Agency (GEDA) for setting up of 0.8 MW windfarm at village Narinana, Dist : Jamnagar dated 11 February 2008 • Permission for Gujarat Energy Development Agency (GEDA) setting up of 12.8 MW windfarm at village: Bodi, Dist : Jamnagar dated 11 February 2008
/SD/	• Facilitation Agreement between Gujarat Paguthan Energy Corporation Private Limited and Enercon (India) Limited dated 6th July 2007.

Reference	Document
	• Proof of expected operational lifetime 20 Years, page 53 of the above agreement
/TD/	• Technical Specifications of - 800 kW Wind Electric Generator Model E53 • Micro Siting for the 63 WEGs of GPECL at Samana site.
/XCS/	Excel sheet for CER calculation.

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM2/	ACM0002: Consolidated methodology for grid connected electricity generation from renewable sources (Version 07, EB 36)
/AT/	Tool for the demonstration and assessment of additionality (ver. 05.2, EB - 39)
/CBD/	CO ₂ Baseline Database for Indian Power Sector -User Guide, Ver 03 dated December 2007 published by CEA. T
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/GCP/	UNFCCC: Guidelines for completing CDM-PDD and CDM-NM
/IPCC-GP/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
/IPPC-RM/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
/MT/	• Tool to calculate the emission factor for an electricity system”. (Ver 01.1), EB 39 • Guidance on the Assessment of Investment Analysis (Version 02), EB 41
/VVM/	Validation and Verification Manual (Version 1, Annex 3; EB 44)

Table 7-3: Websites used

Reference	Link	Organisation
/cea/	www.cea.nic.in	Central Electricity Authority
/clp/	www.clpgroup.com/	CLP Group
/dna-i/	http://cdmindia.nic.in/	Indian DNA
/cd4cdm/	www.cd4cdm.org	UNEP Riso Centre
/gerc/	http://www.gercin.org/	GERC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/unfccc/	http://cdm.unfccc.int	UNFCCC
/wpi/	www.windpowerindia.com	Wind Power India

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Peyush Tandon	CLP Power India Private Limited, DGM-Business Development
/IM01/	V	☒ Mr. ☐ Ms.	Samir Ashta	CLP Power India Private Limited, Chief Financial Officer
/IM01/	V	☒ Mr. ☐ Ms.	Lalit Prakash	Site Incharge, Enercon India Limited
/IM02/	V	☒ Mr. ☐ Ms.	Manpreet Singh	Consultant, Ernst & Young
/IM02/	V	☒ Mr. ☐ Ms.	Atin Prakash	Associate Consultant, Ernst & Young

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Validation Protocol
- A2:** Assessment of Baseline Identification
- A3:** Assessment of Financial Parameters
- A4:** Assessment of Barrier analysis
- A5:** Outcome of the GSCP
- A6:** Appointment certificates of the team members

ANNEX 1: VALIDATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
A. General Description of Project Activity				
A.1. Approval <i>The written approval of the parties involved is a mandatory requirement</i>				
A.1.1. Has the project provided written approvals of all parties involved? <i>Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.</i> <i>Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA</i>	Yes, the project has provided the written approval from the all the parties involved including host country. Letter of approval vide ref. no. 4/4/2009-CCC dated 17 April 2009 has been received and the copy of the letter is provided to the DOE by the project participant. ^{/HCA/} The HCA is pending	/HCA/	~~Not~~ OK	OK
A.1.2. Are the approvals issued from organisations listed as DNAs on the UNFCCC CDM website? <i>Indicate the means of validation employed to assess the authenticity</i>	Yes, the host country approval is issued from Ministry of Environment and Forest, India which is among the listed organisations as DNAs on the UNFCCC CDM website. DOE has done the web search to assess the authenticity of DNA.	/HCA/ /moef/ /unfccc/	~~Not~~ OK	OK
A.1.3. Do the written approvals confirm that the	The HCA states that Government of India has ratified the	/HCA/	~~Not~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
corresponding party is a Party to the Kyoto Protocol?	Kyoto protocol.		OK	
A.1.4. Do the written approvals confirm that the participation is voluntary?	Yes, the HCA confirms the approval of voluntary participation in the proposed project activity.	/HCA/	~~Not~~ OK	OK
A.1.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country?	Yes, the HCA confirms that project contributes to sustainable development of the host country.	/HCA/	~~Not~~ OK	OK
A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration?	Yes, the HCA refers precisely the project title as in the PDD submitted for registration.	/HCA/	~~Not~~ OK	OK
A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6?	No. the written approval ^{/HCA/} is not unconditional with regard to A.1.3 to A.1.6.	/HCA/	~~Not~~ OK	OK
A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other?	Yes, same project participants are listed in PDD and approved by HCA.	/PDD/ /HCA/	~~Not~~ OK	OK
A.1.9. Are all project participants listed in the PDD approved at least by one Party involved? <i>Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.</i> <i>Describe the means of validation employed to draw this conclusion.</i>	Yes, project participant GPECL has been approved by host party India. India is a party to the Kyoto Protocol as confirmed by host country approval. DOE has done the web search to assess the authenticity of DNA. Moreover the copy of the letter is provided to the DOE by the project participant. ^{/HCA/}	/PDD/ /HCA/ /unfccc/	~~Not~~ OK	OK
A.1.10. Are any other project participants approved but	No other participant is listed in the PDD.	/PDD/	~~Not~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
not listed in the PDD?		/HCA	OK	
A.2. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>				
A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development? <i>Contain a statement confirming whether the letter of approval by the DNA of the host party confirmed the contribution of the project to the sustainable development of the Host Party.</i>	Yes, the HCA states that proposed project contributes to sustainable development of India.	/HCA/	Not OK	OK
A.2.2. Will the project create other environmental or social benefits than GHG emission reductions? <i>Describe the other positive aspects not related to GHG emission reduction on the environment</i>	Yes, the project create other environmental or social benefits than GHG emission reductions as described below: - The project will create the employment opportunity in the region. - The project will improve the availability of electricity in the local region. - Project will also encourage the gearless synchronous generator based WEGs for generation which is comparable with best practices in the renewable wind based energy sector anywhere in the world.	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
A.3. PDD editorial aspects <i>The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.</i>				
A.3.1. Has the latest version of the PDD form been applied?	Yes, the latest version (03) of PDD form has been applied to describe the project.	/PDD/ /UNFCCC/	OK	
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)?	The PDD is duly filled in accordance with the latest guidance. However the following CAR was raised and successfully closed; The unique identification (latitude and longitude) of each of 63 WEGs are to be included in section A.4.1.4 of the PDD. Include the web link for the provided statement “GEPC is one of the largest.....fivestar safety, health and environment (SHE) management system in the PDD section A.2. The provided footnote web link 1 is not referring to wind power density of Kalavad. Hence provide the appropriate web link in PDD section A.4.1.4.	/PDD/ (A.4.1.4) /PDD/	Findin g-A1 Findin g-A2	OK OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
A.4. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.</i>				
A.4.1. Does the PDD contain a clear, accurate and complete project description? <i>The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.</i> <i>Pl. consider esp. chapters A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.</i> <i>Describe the process undertaken to validate the accuracy and completeness of the project description.</i> <i>Contain the DOE's opinion on the accuracy and completeness of the project description.</i>	Yes, the PDD contain a clear, accurate and complete project description. The submitted PDD is assessed against the CDM PDD Form ver.03, CDM PDD guidelines ver.07 and approved methodology ACM 0002 ver.08 and found to be accurate and complete. However following CAR was raised and successfully closed: However description on how environmentally safe and sound technology is used, and technology transfer is missing in section A.4.3 of the PDD. Cp PDD guidelines.	/PDD/ (A.4.3)	Findin g-A3	OK
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description	As assessed during site visit, project was being implemented as described in the PDD.	/PDD/ (A.2)	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? <i>Describe the steps taken to validate this issue.</i>	There is no alteration of the existing installation as found during site visit.	/PDD/ /A.2/ /IM/	OK	
A.4.4. Does the project design engineering reflect current good practices? <i>Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.</i>	The project activity entails the installation of 0.80 MW WEGs of reputed manufacturers Enercon (India) Limited. ^{/PO/} Equipment specifications were verified and the project design engineering found to be as per the good practices of the wind sector at the time decision making.	/PDD/ (A.4.2) /PO/	OK	
A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country? <i>Describe the process undertaken to assess the state of the art technology.</i>	The WEGs installed are designed with gearless turbines ^{/TD/} which are better than the commonly used technology used in the host country. It is one of the most advanced technologies from the reputed manufacturer M/s Enercon (India) Limited. The DOE has undertaken web search as well as applied professional experience for the above assessment. However pl. refer to A.4.1	/PDD/ (A.4.3) /TD/	Not OK	OK
A.4.6. Does the project make provisions for meeting training and maintenance needs? <i>Describe the process undertaken to assess the maintenance and training needs.</i>	The GPEC had an O&M agreement with Enercon (India) Limited which also includes the training provisions. ^{/O&M/} The O&M agreement was verified and found to be	/PDD/ (B.7.2.) /O&M/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	adequately addressing maintenance and training needs.			
A.5. Small scale project activity <i>It is assessed whether the project qualifies as small-scale CDM project activity</i>				
A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? <i>Describe the steps taken to validate this issue.</i>	The project is large scale project activity.		n.a.	
A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? <i>Describe the steps taken to validate this issue. Check, if applicable the expiry dates of the applied methodology.</i>	Pl. refer to A.5.1		n.a.	
A.5.3. Is the small scale project activity not a debundled component of a larger project activity? <i>Describe the steps taken to validate this issue. Pl refer to the Compendium of guidance on debundling (EB 36, Annex 27).</i>	Pl. refer to A.5.1		n.a.	
B. Project Baseline, Additionality and Monitoring Plan				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.1. Application of the Methodology				
B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof? <i>Describe the steps taken to validate this issue.</i>	The project activity applies the approved and valid methodology ACM0002, version 08, Sectoral Scope: 01, EB 44. The DOE has done web search and found that used version is valid till 26 th October 2009.	/PDD/ (B.1., B.4.) /unfccc/	OK	
B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website? <i>Describe the steps taken to validate this issue.</i>	Yes, the DOE has done the web search and found that applied CDM methodology is identical with the version available on the UNFCCC website.	/PDD/ (B.1., B.4.) /unfccc/	OK	
B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled? <i>Describe for <u>each</u> applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.</i>	The project activity fulfils the applicability criteria under ACM0002, which is described in section B.2 of the PDD. The project also fulfills the applicability criteria for tool to calculate emission factor for an electricity system.	/PDD/ (B.2.) /ACM000 2/	OK	
B.1.4. Is the project in accordance to every other stipulation or requirement mentioned in all sections of the methodology? <i>Describe the steps taken to check whether the proposed</i>	Yes, the project is in accordance to every other stipulation or requirement mentioned in all sections of the methodology.	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>project activity meets <u>all the other possible stipulations and /or limitations</u> mentioned in all sections of the approved methodology selected.</i>				
B.2. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project</i>				
B.2.1. Are the project's spatial boundaries (geographical) clearly defined? <i>Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i>	Yes, the project's spatial boundaries (geographical) are clearly defined. The project boundary includes WEGs connected to the substation and from substation the generated electricity will be exported to the grid as described in the PDD section B.3. The longitude and latitude of each WEG is transparently stated in section Appendix 1 of the PDD. The documentary evidence were verified and cross checked with the project participant. ^{/PPA/IM/} However following CAR was raised and closed successfully: The unique identification (latitude and longitude) of each of 63 WEGs are to be included in section A.4.1.4 of the PDD.	/PDD/ (B.3)	~~Finding A1~~	OK
B.2.2. Are all sources and GHGs included in the	Yes, all sources and GHG's included in the project boundary	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
project boundary as required in the applied methodology? <i>Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i>	as prescribed by the applied methodology. The only GHG emission in the absence of the project activity is CO ₂ .			
B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified? <i>Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.</i>	Yes, section B.3 of PDD adequately explains and justifies the exclusion or inclusion of source or gas from/in the project boundary. The only GHG emission in the absence of the project activity is CO ₂ .	/PDD/ (B.3)	OK	
B.3. Baseline Identification <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>				
B.3.1. What possible baseline scenarios have been considered? <i>Fill in all alternatives in table A-2.</i>	The alternatives stated in the PDD section B.5 are 1. The proposed project activity not undertaken as a CDM project activity 2. Continuation of the current situation	/PDD/ (B.4)	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.3.2. Is the list of alternatives complete? <i>Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration</i>	☒ All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted. ☐ The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued	OK		
B.3.3. What has been identified as the baseline scenario? <i>Describe the chosen BL scenario</i>	The baseline scenario for the project activity is “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”. However, the description provided on what will happen in the absence of the project activity is more relevant in section B.5 rather than B.4 Hence it needs to be revised. Cp PDD guidelines.	/PDD/ (B.4)	Finding B1	OK
B.3.4. Has the baseline scenario been determined according to the methodology? <i>Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools.</i>	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. ☒ The determination has been carried out as per the applied methodology. ☐ The following CARs / CLs have been identified with respect to the selection of the baseline scenario:	/PDD/ (B.4)	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>Please refer to table A-2.</i>				
B.3.5. Has any plausible alternative scenario been excluded? <i>Describe how it is validated that no plausible alternative scenario has been excluded.</i>	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. ☒ No plausible baseline scenario has been excluded. ☐ The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued:	/PDD/ (B.4)	OK	
B.3.6. Has the baseline scenario been determined using conservative assumptions where possible? <i>Describe whether the choice of the identified baseline scenario is reasonable by validating the <u>key assumptions, calculations and rationales</u> used in the PDD. Describe whether these are <u>conservatively interpreted</u> in the PDD.</i>	☒ The baseline scenario has been determined using conservative assumptions where possible. Please refer to comments in table A-2 and sections B.3.2 to B.3.5 above. ☐ The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative	/PDD/ (B.4)	OK	
B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? <i>Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).</i>	Relevant national / state level circumstances relevant to the baseline are described in PDD section B.5/SC/. The description found to comply with EB 22 annex 3 (regarding E+ and E- policies).	/PDD/ (B.5)	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced? <i>Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.</i>	Yes, the baseline scenario determination is compatible with the available data and all literature and sources are clearly and correctly referenced. Nevertheless the following CAR was raised and successfully closed; The reference of the baseline scenario chosen in the section B.4. of the PDD is not stated. Include all the reference web links for the information provided in sections B.4, B.5 of PDD or submit the evidence to DOE. The information is also to be updated wherever it is appropriate.	/PDD/ (B.4, B.5)	Findin g-B2	OK
B.4. Additionality Determination <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>				
B.4.1. Methodology				
B.4.1.1. Did the additionality justification follow the requirements of the applied methodology and/or methodological tools? <i>Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools.</i>	Yes, The methodology requires use of the “Tool for the demonstration and assessment of additionality”. Version 05.2, EB 39 and same has been used for additionality demonstration. Pl. refer to the Table 5-1 for additionality assessment.	/PDD/ (B.5), /AT/	OK	
B.4.2. Consideration of CDM before project start				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4.2.1. Is the project starting date reported in accordance with the CDM glossary of terms? <i>Describe the steps taken to validate this issue.</i>	The starting date for the proposed project activity is that when the facilitation Agreement between Gujarat Paguthan Energy Corporation Private Limited and Enercon (India) Limited happened which is 6 th July 2007. Since this is the earliest date on which PP has committed finance towards proposed project activity therefore it is taken as start date of project activity. The above consideration for the starting date of the proposed project activity depicts the financial closure and hence complies with the definition provided in CDM glossary of terms, ver.04.	/SD/	OK	
B.4.2.2. In case the project start date is before commencing of validation, was the incentive from the CDM seriously considered and are details given in the PDD? <i>Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i>	Evidence for the consideration of CDM benefit before opting for project activity has been provided by GPECL. ^{/MD/} However, the following CAR was raised and successfully closed. The evidence w.r.t. the seriousness of the incentive from CDM consideration is to be provided. Cp PDD guidelines.	/PDD/ (B.5.) /MD/	Finding-B3	OK
B.4.2.3. How and when was the decision to proceed with the project taken? <i>Describe the steps taken to validate the starting date.</i>	On 25 th June 2007, board of directors has decided to invest in this project during board meeting. The PP has provided the certified true copy of resolutions ^{/MD/} passed by the board of directors to the DOE.	/MD/	OK	
B.4.2.4. Is the project start date consistent with the available evidences? <i>Describe the evidence assessed regarding the prior</i>	Yes. Pl. refer to B.4.2.1	/PDD/ /SD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i>				
B.4.2.5. Was the decision to proceed with the project taken by a person which has the authority to do so? <i>Describe the steps taken to validate this issue.</i>	Yes, the board of directors of GPECL has decided to proceed with the project, which is the sole authority to take decision on such projects. The certified true copy of the board resolution was verified and authenticity of the board members was confirmed from the “statement of accounts”.	/PDD/ /MD/ /IRR/	OK	
B.4.2.6. How was the CDM involved in the decision making process? <i>Describe the steps taken to validate this issue.</i>	Yes, the CER revenue was involved in the decision making process as stated in certified true copy of resolutions ^{/MD/} passed by the board of directors to the DOE. However pl. refer to B.4.2.2	/PDD/ /MD/	~~Not OK~~	OK
B.4.2.7. Can the CDM involvement in the decision assessed as serious? <i>Describe whether or not the project would have been undertaken without the incentive of the CDM.</i>	Yes, CDM has been a decisive factor in the decision making process to proceed with the project. This is clearly evident from the chronology of events described in the section B.5 of the PPD that continuous and real actions were taken to secure CDM status for the project in parallel with its implementation. Cp para 5(b), Annex 46 EB41. Pl. refer to B.4.2.2 (Finding B3)	/PDD/ /CM/	Finding B3	OK
B.4.3. Identification of alternatives Step 1 (in case of SSC projects pl. skip steps 1 and 2)				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4.3.1. Have all realistic alternatives been identified to the project? <i>Describe whether the list of alternatives is complete. Describe how it is validated that the alternatives are realistic.</i>	The alternatives stated in the PDD section B.5 are 1. The proposed project activity not undertaken as a CDM project activity 2. Continuation of the current situation. In the context of proposed project activity the list of alternatives are complete. Moreover alternatives are realistic. Also refer to Table A-2 for Assessment of Baseline Identification.	/PDD/ (B.5)	OK	
B.4.3.2. Contains the list of alternatives at least the status-quo situation and the project not undertaken as a CDM project? <i>Describe the steps taken to validate this issue.</i>	Yes, both the alternatives have been selected for analysis as described in the PDD. Refer to Table A-2	/PDD/ (B.5)	OK	
B.4.3.3. Do all identified alternatives comply with applicable regulation? <i>Describe the steps taken to validate this issue. Refer to the regulations.</i>	Yes, both the alternatives comply with applicability regulations. Refer to Table A-2	/PDD/ (B.5)	OK	
B.4.4. Investment analysis Step 2 <i>In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide additional details of the the calculation parameters..</i>				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4.4.1. Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)? <i>Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.</i>	Benchmark analysis has been chosen for the demonstration of investment analysis. The same analysis had been chosen at the time of decision making to proceed with the project, and so it is the appropriate analysis for investment analysis. However a consolidated CAR was raised and successfully closed. 1. GPEC is one of the Independent Power Producers (IPPs), who has PPA with the state utility (GUVNL) is stated in sub-step 4a of the PDD. Justify the statement w.r.t to the common practice analysis. 2. Post tax equity IRR (8.8%) given vide page 17 is at variance with the equity IRR arrived at in the worksheet. (8.25%). 3. The CERC benchmark is stated as 16% vide page No. 16 while it is stated as 14% in page No.17 and needs to be corrected. 4. All the figures given in the table in page No. 17 under sensitivity analysis have to be reconciled with the figures arrived at in the worksheet. 5. The chosen benchmark of 14 % ROE in accordance with CERC tariff order is not acceptable to compare with the corresponding financial indicator as per EB40	/PDD/ (B.5) /IRR/	~~Finding~~ B4	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	para 40. Hence the appropriate benchmark is to be used to demonstrate the investment analysis.			
B.4.4.2. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation? <i>Describe the steps taken to validate this issue.</i>	Yes, clear, viewable and unprotected excel spread sheet has been provided for the investment calculation. The all supporting documentary evidences have been verified for the assumptions taken for the investment calculation. However following consolidated CAR was raised and successfully closed; ○ When an agreement has been entered into with the supplier for O&M, the O&M contingency, asset management fee and inflation on asset management fee at 10% are not acceptable. ○ Accelerated depreciation has been provided not only on WEGs but also on 'other assets'. Confirm that accelerated depreciation is available on all assets. If not correct, the WDV depreciation may be corrected accordingly after eliminating 'other assets' and prorata share of 'financing cost' therefore. ○ Confirm that the depreciation rate of 5.28% is available not only on plant and machinery, but also on 'other assets'. If it incorrect, civil works and other assets should be segregated together with the prorata financing cost thereon and depreciation amount be replaced with the correct	/PDD/ (B.5) /IRR/	Finding B5	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	amount. As equity IRR has been chosen to demonstrate the additionality, the objective of providing project IRR may be clarified. Moreover a clarification has been raised: Break up of 'other cost' of Rs.82.17 million and 'financing cost' of Rs. 98.89 million is required.		Findin g-B6	OK
B.4.4.3. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash inflow) included? <i>Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.</i>	Yes, 20 years period has been chosen for investment analysis, which reasonably reflects the technical life time of the wind turbine generators. The chosen technical life time of the proposed project activity is supported by the supplier specification. Facilitation Agreement between Gujarat Paguthan Energy Corporation Private Limited and Enercon (India) Limited dated 6th July 2007^{/SD/}	/PDD/ /IRR/ /SD/	OK	
B.4.4.4. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice? <i>State the accounting regulations applied for calculating the</i>	Since the technical life time provided by the supplier is identical to the period mentioned in the PPA and the same time period (20 years) is chosen for the investment analysis the fair value of assets need not be considered. Cp para 3	/PDD/ (B.5) /IRR/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.</i>	Annex 45 EB 41.			
B.4.4.5. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?	Pl. refer to B.4.4.4	/PDD/ (B.5) /IRR/	OK	
B.4.4.6. Are depreciation and other non-cash related items added back to net profits for the purpose to calculate the financial indicator?	Depreciation and other non-cash related items are added back to net profits for the purpose to calculate the financial indicator. Pl. refer to B.4.4.2	/PDD/ (B.5) /IRR/	~~Not~~ OK	OK
B.4.4.7. Is taxation excluded in the investment analysis or is the benchmark intended for post tax comparisons?	The benchmark intended for post tax comparisons Pl. refer to B.4.4.1	/PDD/ (B.5) /IRR/	~~Not~~ OK	OK
B.4.4.8. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?	Pl. refer to B.4.4.1 & B.4.4.2 Also refer Table A-3	/PDD/ (B.5) /IRR/	~~Not~~ OK	OK
B.4.4.9. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR?	Pl. refer to B.4.4.2	/PDD/ (B.5) /IRR/	~~Not~~ OK	OK
B.4.4.10. In case of equity IRR: Is the part of the	Pl. refer to B.4.4.2	/PDD/	~~Not~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow?		(B.5) /IRR/	~~OK~~	
B.4.4.11. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)?	Pl. refer to B.4.4.2	/PDD/ (B.5) /IRR/	~~Not OK~~	OK
B.4.4.12. Is the benchmark value suitable for the project activity?	Pl. refer to B.4.4.2	/PDD/ (B.5) /IRR/	~~Not OK~~	OK
B.4.4.13. Is it ensured that the project cannot be developed by other developers than the PP?	The type of project can be developed by other developers also.	/PDD/	OK	
B.4.4.14. Was the benchmark consistently used in the past for similar projects with similar risks?	Pl. refer to B.4.4.1	/PDD/ (B.5) /IRR/	~~Not OK~~	OK
B.4.5. Barrier analysis Step 3 or SSC additionality assessment				
B.4.5.1. Are there any barriers given which have a clear and definable impact on the	No barrier was envisaged rather than less return in proposed project. Investment analysis, therefore, has been chosen to	/PDD/ (B.5)	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
profitability of the project?	demonstrate the additionality.	/IRR/		
B.4.5.2. How is it justified and evidenced that the barriers given in the PDD are real?	Pl. refer to B.4.5.1	/PDD/ (B.5) /IRR/	OK	
B.4.5.3. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity?	Pl. refer to B.4.5.1	/PDD/ (B.5) /IRR/	OK	
B.4.6. Common practice analysis Step 4 (in case of SSC projects skip this step)				
B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type?	The defined region for common practice analysis is Gujarat, which is one of the major states of India and is appropriate for the common practice analysis. Cp page 9, 4 & 5 “Combined tool to identify the baseline scenario and demonstrate additionality” ver. 02.2 However following consolidated CAR was raised and successfully closed: In PDD section B.5 The total value of the installed capacity shown in the table 7: state-wise wind power potential and installed capacity is to be corrected.	/PDD/ (B.5)	Finding B7	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	• Include the web link or the evidence to DOE on the provided data “....shortfall of 8381 MU...wind power....shortfall in generating capacity. Refer pg no19 of the PDD. • The total power generated in Gujarat is to be updated in sub-step 4a of the PDD and provide the evidence to DOE. Moreover a clarification has been raised: In pg no: 19 of the PDD it is stated “.... the state (Gujarat) is not the most favoured destination for investment in wind power projects” From the provided data in pg no :19 it is clear that the state stands in the 4th position in WEGs installed out of 25 states in India. Hence clarification is required.		Findin g-B8	OK
B.4.6.2. To what extent similar projects have been undertaken in the relevant region?	Pl. refer to B.4.6.1	/PDD/ (B.5)	Not Ok	OK
B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed?	Pl. refer to B.4.6.1	/PDD/ (B.5)	Not Ok	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.5. Ex-Ante Calculation of GHG Emission Reductions <i>It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.</i>				
B.5.1. Are the equations applied correctly according to the applied approved methodology? <i>Describe clearly the steps taken to assess whether The methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions.</i>	☒ The equations applied for calculation are correctly applied according to the approved methodology. ☐ The following mistakes have been identified in this context:	/PDD/ (B.6)	OK	
B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)? <i>Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant</i>	There are no such methodological choices allowed by ACM0002 ver. 08.	/PDD/ (B.6.1)	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>methodological choices.</i>				
B.5.3. Have conservative assumptions been used when calculating the project emissions? <i>Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.</i>	As per the applied methodology, there is no project emissions involved in this proposed project activity.	/PDD/ (B.6) /ACM2/	OK	
B.5.4. Are all data and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions? <i>Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.</i>	Yes, the emission factor of western grid (NEWNE) is taken as ex-ante fixed parameter, which is suitable for the proposed project activity. The data has been taken from CO₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority, Version 3.0. The document was assessed and found authentic and suitable for the project activity. However pl. refer to finding B11	/PDD/ (B.6.2) /cea/	Finding B11.	OK
B.5.5. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable? <i>Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity</i>	☒ All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative. ☐ The following mistakes have been identified in this context:	/PDD/ (B.6) /cea/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.5.6. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change. <i>Describe the steps taken to validate this issue.</i>	Yes, as assessed during the course of validation, the emission reductions generated by the project will be real, measurable and give long-term benefits related to the mitigation of climate change.	/PDD/ (B.6) /cea/	OK	
B.6. Monitoring of Emission Reductions <i>It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.</i>				
B.6.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan? <i>Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.</i> <i>Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.</i> <i>In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.</i>	Yes, all the monitoring parameters required by the applied methodology are contained by the monitoring plan in B.7.1 of the PDD. Also all relevant ex-ante parameters are identified in the B.6.2 of the PDD and found to be appropriate. However one clarification was requested and closed successfully; It is clearly stated that $EG_{y \text{ exported, imported}}$, EG_{WEG} and EG_{VCB} will also be monitored during the crediting period in section B.7.1 of the PDD. Clarify the importance and relevancy of their monitoring.	/PDD/ (B.7.1) (B.6.2)	~~Finding B9~~	OK
B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan in accordance with the requirements of the applied methodology? <i>Assess whether the provided information for all parameters</i>	The means of monitoring of the parameters are clearly and transparently described. The parameter i.e. EG_y , i.e. the net electricity exported to the GETCO will be determined by using electricity exported and imported	/PDD/ (B.7) /ACM2/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
w.r.t. a) Label (name of the data / parameter) b) data unit c) description d) source of data e) measurement equipment / method / procedure f) monitoring frequency g) QA/QC procedures are appropriately described and in compliance with the requirements of the methodology..	to/from the grid. DOE has assessed all the parameters and found them described adequately in the PDD as per the requirement of methodology and PDD guidelines.			
B.6.3. Have all equations necessary for ex-post emission reduction calculation been described clearly and in line with the methodology? <i>Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.</i> <i>Please consider that additional equations might be necessary to calculate auxiliary parameters.</i>	Yes, all the equations as required by the methodology for ex-post emission reduction calculation been described clearly and are in line with the methodology.	/PDD/ (B.6.3)	OK	
B.6.4. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity? <i>Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl.</i>	DOE has assessed the monitoring arrangement as described in the monitoring plan, which verified with drawing of meters Moreover the monitoring mechanism was crosschecked with project participant during interview. The monitoring plan found to be sufficient and realistic.	/PDD/ (B.7.2) /IM/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.</i>				
B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activity can be reported ex-post and verified? <i>Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.</i>	Yes, QA/QC procedures for data capture and calculation of ER achieved from the project is appropriately described in the section B.7.2 of the PDD. Energy meters of accuracy class 0.2s/0.5s will be used. All the involved energy meters will be calibrated annually. The data collected will be electronically archived for two years after the end of crediting period. GPECPL has signed the O&M contract with EIL, which will ensure proper operation, maintenance and monitoring of the wind turbines. GPECPL has developed a Project Team to and relevant organisation structure to monitor and review the performance of turbines and generation of power. The data measurement and processing is as per the quality management system - ISO 9001:2000. /ISO/ procedures. However following CAR was raised and successfully closed. The operational and management structure that the project operator will implement in order to monitor the emission reductions is to be included in the PDD section B.7.2. Cp PDD guidelines.	/PDD/ (B.7.2) /ISO/	Findin g-B10	OK
B.6.6. Are procedures identified for data	Pl. refer to B.6.5	/PDD/	Not	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
management? <i>Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation</i> <i>Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.</i>		(B.7.2)	OK	
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
C.1. Is the project's starting date clearly defined and evidenced? <i>Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".</i>	PI. refer to B.4.2.1	/PDD/ (C.2.2.1)	~~Finding B10~~	OK
C.2. Is the project's operational lifetime clearly defined and evidenced? <i>Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).</i> <i>Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.</i>	Yes, project operational life time is defined as 20 years, which is assessed and found appropriate by the DOE. PI. also refer to B.4.4.3	/PDD/ (C.1.2)	OK	
C.3. Is the start of the crediting period clearly defined and reasonable? <i>Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.</i>	Following CAR was raised and closed; Crediting period start date stated as 30th June 2008 is unrealistic because as per Para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project.	/PDD/ (C.2.2.1)	~~Finding C1~~	OK
D. Environmental Impacts <i>Documentation on the analysis of the environmental</i>				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.</i>				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? <i>Check the host party regulations, regarding EIA.</i>	No. there is no host party requirements for EIA for wind energy projects in India.	/PDD/ (D.1)	OK	
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved? <i>Check the EIA and its approval, if applicable.</i>	Pl. refer to D.1.1	/PDD/ (D.1)	OK	
D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation? <i>Check the PDD (section D). Check whether the project will create any adverse environmental effects.</i> <i>Check the relevant national environmental legislation.</i>	Pl. refer to D.1.1	/PDD/ (D.1)	OK	
D.1.4. Are transboundary environmental impacts considered in the analysis? <i>Check the documents and local official sources / expertise regarding transboundary environmental impacts.</i>	No transboundary impact has been envisaged from this proposed project activity. However pl. refer to D.1.1	/PDD/ (D.1)	OK	
E. Stakeholder Comments <i>The DOE should ensure that stakeholder comments</i>				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
<i>have been invited with appropriate media and that due account has been taken of any comments received.</i>				
E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD? <i>Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.</i>	Yes, relevant stakeholder groups (local villagers, Local Government authorities) have been consulted^{/LSC/} prior to publication of PDD on 25th October 2007. However pl. refer to finding E1.	/PDD/ (E.1)	Findin g E1	OK
E.2. Can the local stakeholder consultation process be assessed as adequate? <i>Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.</i> <i>Please consider the following requirements in this context:</i> <i>(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited;</i> <i>(b) The summary of the comments received as provided in the PDD is complete;</i> <i>(c) The project participants have taken due account of any comments received and have described this process in the PDD.</i>	Yes, stakeholder consultation process is assessed during validation procedure. PP has provided all relevant documents^{/LSC/} for assessment. Moreover during site visit DOE personnel has also taken interview of involved personnel. No adverse comment has been received. As assessed stakeholder consultation meeting was found to be adequate.	/PDD/ (E.1) /LSC/	OK	

ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

Table A-2: Assessment of Baseline Identification

☐	Baseline is not identified
☒	Assessment of baseline see below

Baseline Alternatives identified	Inline with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	DOE Assessment	
					Appropriateness of elimination	Assessment of validation team (results and means of assessment)
The proposed project activity not undertaken as a CDM project activity	☒	☒	Proposed project activity is not attractive option without CDM revenue as concluded by investment analysis in section B.5 of PDD.	/IRR/	☒	The investment analysis has been assessed by the validation team and found appropriate in the context of the proposed project activity.
Continuation of the current situation	☒	☐	This alternative is not facing any type of barrier.	/ADD/	☐	Continuation of the current situation i.e. import of power from the western grid in the absence of the proposed project activity is the only baseline scenario applicable as per the applied methodology.

ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

Table A-3: Assessment of Financial Parameters

☐	No financial parameters are used for additionality justification						
☒	Assessment of all financial parameters see below						
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Total investment	2664.54	Million Rupees	Facilitation Agreement	/SD/	☒	☒	The total investment consists of WEG costs, other costs and financing costs. The cost is based on the quotations and detailed estimation, which forms part of the facilitation agreement. The values are found correct and valid.
Equity /Debt ratio	30:70	ratio	IDBI sanction loan letter	/IRR/	☒	☒	The ratio is derived from the proposed loan component and project cost. The applied value is valid and reasonable.
Project lifetime	20	Years	Facilitation Agreement	/SD/	☒	☒	The value is provided by the manufacturer and in general the life of WEGs in India is 20 years. Also the lifetime is further supported by the PPA. ^{/PPA/}
Annual O&M costs for the 2 nd year of operation (2009-10)	0.45	Million Rupees/ WEG	O & M Agreement	/O&M/	☒	☒	The O&M cost is mentioned in the Warranty operation and maintenance agreement between GPECPL and EIL. The applied value

							is valid and appropriate
Escalation in annual O&M costs	5	%	O & M Agreement	/O&M/	☒	☒	The O&M cost is mentioned in the Warranty operation and maintenance agreement between GPECL and EIL. The applied value is valid and appropriate
Tariff	3.37	Rs	Power Purchase Agreement	/GERC/ /PPA/	☒	☒	The tariff is based on GERC order and also the PPA which is entered into by the project developer with GETCO. The tariff is fixed for 20 years. The value is valid and reasonable.
Cost of WEGs	2548.35	Million Rupees	Facilitation Agreement	/SD/	☒	☒	This is a part of facilitation agreement and found to be reasonable and valid.
Other Costs	24.37	Million Rupees	Certificate from the chartered accountant	/IRR/	☒	☒	Certificate from CA is provided to the DOE to prove the expenses incurred to wards the other costs and the value found to be reasonable and valid.
Financing costs	91.83	Million Rupees	IDBI Loan Term Sheet	/IRR/	☒	☒	This includes the interest during construction and upfront and syndication fees payable to the bank. The above values are all calculated as per the IDBI loan term sheet. The applied value is valid and reasonable.
Net PLF	26.59	%	Facilitation Agreement	/SD/	☒	☒	The net PLF is provided by the equipment supplier and same value is stated in the facilitation agreement, which is part of documents submitted to the bank while applying the project activity for project financing. The value, is quite conservative and reasonable. Since the used PLF is presented for loan application to the bank this is complying the requirements of EB 48 Annex 11.

Interest rate	14	%	Sanction Loan Letter	/IRR/	☒	☒	The interest rate is based on the rate at which the project activity is borrowing. The applied value is valid and reasonable.
Insurance expenses	14	%	Insurance Letter	/IRR/	☒	☒	The insurance values are based on the rate is based insurances taken for the project activity. The applied value is valid and reasonable.
Book Depreciation Rate (Straight Line Method basis) on civil works and plant & machinery	5.28	%	Company Law Schedule XIV	/CA/	☒	☒	The value is based on Schedule XIV of Company's Act. Can be accessed at http://www.vakilno1.com/bareacts/companiesact/SCHEDULE%20659%20-%20674/sCXIV%20-%20672.htm The applied value is valid and reasonable.
Depreciation Rate (Written Down Value basis) on civil works and plant and machinery	10.00/ 25.00	%	Income Tax Rules, Appendix I	/ITR/	☒	☒	As per Income Tax Rules, Appendix I http://law.incometaxindia.gov.in/TaxmannDit/DitTaxmann/IncomeTaxRules/Rules2005/Appi.htm The same is verified and found correct
Income Tax rate	30	%	Finance Act, 2005-06	/ITA/	☒	☒	http://indiabudget.nic.in/ub2005-06/bh/bh1.pdf (P.12) The same has been verified and found correct
Minimum Alternate Tax	7.50	%	Finance Act, 2005-06	/ITA/	☒	☒	http://www.indialiaison.com/taxrate.htm The same has been verified and found correct
Surcharge	10	%	Finance Act, 2005-06	/ITA/	☒	☒	http://indiabudget.nic.in/ub2005-06/bh/bh1.pdf (P.12)The same has been verified and found correct
Cess	2	%	Finance Act, 2005-06	/ITA/	☒	☒	http://indiabudget.nic.in/ub2005-06/bh/bh1.pdf (P.12)The same has been verified and found correct

ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

Table A-4: Assessment of Barrier Analysis

☒	No barrier parameters are used for additionality justification			
☐	Assessment of barriers see below			
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			☒	
			☒	
			☒	
			☒	
			☒	
			☒	
			☒	
			☒	

ANNEX 5: OUTCOME OF THE GSCP

Table A-5: Outcome of the Global Stakeholder Consultation Process

☒	No comments were received during the global stakeholder consultation period					
☐	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:					
Comment No.:	Comment by:	Inserted on:	Subject	Comment *)	Response validation team *)	Conclusion (incl. CARs CLs or FARs)

*) In case clarifications have been requested by the validation team corresponding rows shall be added

ANNEX 6: APPOINTMENT CERTIFICATES OF TEAM MEMBERS



CERTIFICATE OF APPOINTMENT

Mr. Pankaj Patel
born on 1961-07-20
satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Assessor

The present appointment will terminate on 2010-06-29
Certification registration No. 06 05 02 - 31

Essen, 2007-06-30



Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Archak Pattanaik
born on 1976-06-10
satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Expert

For the following scopes: 1, 2, 3, 4, 5, 9, 13
The present appointment will terminate on 2011-12-15
Certification registration No. 08 12 02 - 72

Essen, 2008-12-16



Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Srikanth Meesa
born on 1982-12-30
satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Expert

For the following scopes: 1, 4
The present appointment will terminate on 2011-06-11
Certification registration No. 08 06 01 - 48

Essen, 2008-06-12



Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Rainer Winter

born on 1963-02-21

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2010-07-05
Certification registration No. 04 02 154-03

Essen, 2007-07-06

Deputy of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Ms. Alexandra Nebel

born on 1980-07-25

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Expert

For the following scopes: 1, 14, 15

The present appointment will terminate on 2012-02-03
Certification registration No. 09 02 01 - 95

Essen, 2009-02-04


Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH