



RINA

VALIDATION REPORT


Final


**“5.10 MW Wind Power Project by Shyam Metalics &
Energy Limited in Maharashtra, India”
in
India**

Report N°2012-IQ-45-MD

Revision N°1.1

VALIDATION REPORT

Project Title: 5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India		Country: India	Estimated CERs (tCO₂e): 8,513 annual average	
Client: Shyam Metalics & Energy Limited		Client contact: Mr. Sanjay Kumar Agarwal		
Report No.: 2012-IQ-MD-45		Revision: 1.1	Date of this report: 05/07/2013	
Approved by (Final Report – Decision Maker):  Roberto Cavanna			Date of approval: 23/07/2013	
Methodology				
Number: AMS-I.D	Version: 17 of 03/06/2011	Title: Grid connected renewable electricity generation	Scale Small	SS(s): 01
<p>RINA Services S.p.A. (RINA), commissioned by Shyam Metalics & Energy Limited has performed the validation of the project activity “5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India” in India, with regard to the relevant requirements for CDM activities.</p> <p>In conclusion, it is RINA’s opinion that the project activity “ 5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India” in India, as described in the PDD version 04 of 06/06/2013, meets all relevant requirements for CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “AMS-I.D”, “Grid connected renewable electricity generation”, version 17 of 03/06/2011.</p> <p>Hence, RINA requests the registration of the project as CDM project activity.</p>				

Work carried out by: Cyril Augustus Arokiasamy Champok Buragohain Karthika Varma	<input checked="" type="checkbox"/> No distribution without permission from the Client or organizational unit responsible <input type="checkbox"/> Strictly confidential <input type="checkbox"/> Unrestricted distribution
Work verified by (Final Report – AO Authorized officer signing for the DOE)  Laura Severino	Keywords: Climate Change, Kyoto Protocol, Clean Development Mechanism, Validation

VALIDATION REPORT

Abbreviations

BE	Baseline Emissions
BM	Build Margin
BRICS	Brazil, Russia, India, China and South Africa
CA	Chartered Accountant
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CEA	Central Electricity Authority
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CII	Confederation of Indian Industries
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact assessment
ER	Emission Reductions
FAR	Forward Action Request
GBI	Generation Based Incentive
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IREDA	Indian Renewable Energy Development Agency Ltd.
IRR	Internal Rate of Return
LoA	Letter of Approval
MERC	Maharashtra Electricity Regulatory Commission
MEDA	Maharashtra Energy Development Agency
MNRE	Ministry of New and Renewable Energy Sources
MoEF	Ministry of Environment and Forest
MoV	Means of Verification
MOC	Modalities of Communication Statement
MP	Monitoring Plan
MR	Monitoring Report
MSEDCL	Maharashtra State Electricity Distribution Company Limited
NEWNE	Northern, Eastern, Western and North-Eastern regional grids

VALIDATION REPORT

NGO	Non-governmental Organization
ODA	Official Development Assistance
O & M	Operation and Maintenance
OM	Operating Margin
PDD	Project Design Document
PE	Project Emission
PPA	Power Purchase Agreement
PP(s)	Project Participant(s)
RBI	Reserve Bank of India
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
SSC	Small Scale
UNFCCC	United Nations Framework Convention on Climate Change
WPI	Wholesale Price Index
WTG	Wind Turbine Generator

VALIDATION REPORT

Table of Contents		Page
1	INTRODUCTION	6
1.1	Objective	6
1.2	Scope	6
2	METHODOLOGY	6
2.1	Document Review	6
2.2	Follow-up actions	10
2.3	Resolution of outstanding issues	10
2.4	Internal quality control	13
2.5	Validation team and the technical reviewer(s)	13
3	VALIDATION FINDINGS	13
3.1	Approval and Participation	13
3.2	Modalities of communication	14
3.3	Project design document	14
3.4	Project Design	15
3.5	Application of selected baseline and monitoring methodology	16
3.6	Project boundary	17
3.7	Baseline scenario identification	19
3.8	Additionality	19
3.9	Prior consideration of the clean development mechanism	19
3.10	Identification of alternatives	20
3.11	Investment analysis	20
3.12	Barrier analysis	27
3.13	Common practice analysis	28
3.14	Conclusion	28
3.15	Monitoring Plan	28
3.16	Estimation of GHG emissions	30
3.17	Environmental Impacts	32
3.18	Local stakeholders consultation	32
4	COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS.....	32
5	VALIDATION OPINION	42

Appendix A: Validation Protocol

VALIDATION REPORT

1 INTRODUCTION

Shyam Metalics & Energy Limited has commissioned RINA to carry out the validation of the “5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India” project in India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the Validation is to have an independent evaluation of a project activity by a designated operational entity against the requirements of the CDM as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the project design document. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC requirements and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is to review the PDD against the UNFCCC criteria for CDM.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project activities and the subsequent decisions by the CDM Executive Board.

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

2 METHODOLOGY

Validation was conducted using RINA procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The validation consisted of the following three phases:

- Document review;
- Follow-up actions;
- The resolution of outstanding issues and the issuance of the final validation report.

The following sections outline each step in more detail.

2.1 Document Review

The PDD, version 04 of 06/06/2013 and previous versions 03 of 02/05/2013, version 02 of 05/12/2012 and version 01 of 21/05/2012 **/01/**, in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date of the project, the monitoring plan, the emission reduction calculations provided in the form of a spreadsheet (SMEL CER Sheet) version 01 of 21/05/2012 and version 02 (SMEL CER Sheet) of 05/12/2012 **/02/**, the financial analysis spreadsheet (SMEL IRR & Benchmark) version 01 of 21/05/2012, version 02 (SMEL IRR & Benchmark_Final) of 05/12/2012 and version 03 (SMEL IRR & Benchmark_6 June) of 06/06/2013 **/03/**, and additional documents **/01/ - /58/** were assessed as part of the validation. The following table lists the documentation that was reviewed during the validation.

VALIDATION REPORT

/01/	Shyam Metalics & Energy Limited: F-CDM-SSC-PDD for project activity “5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India” in India, version 01 of 21/05/2012, version 02 of 05/12/2012, version 03 of 02/05/2013 and version 04 of 06/06/2013.
/02/	Shyam Metalics & Energy Limited: Emission Reduction Calculation Sheet (SMEL CER Sheet) version 01 of 21/05/2012 and version 02 (SMEL CER Sheet) of 05/12/2012
/03/	Shyam Metalics & Energy Limited: Financial analysis spreadsheet (SMEL IRR & Benchmark) version 01 of 21/05/2012, version 02 (SMEL IRR & Benchmark_Final) of 05/12/2012 and version 03 (SMEL IRR & Benchmark_6 June) of 06/06/2013.
/04/	CDM Executive Board: Clean Development Mechanism Project Cycle Procedure, version 3.2 of 01/04/2013
/05/	CDM Executive Board: Clean Development Mechanism Project Standard, version 03.0 of 12/04/2013
/06/	CDM Executive Board: Clean Development Mechanism Validation and Verification Standard, version 03.0 of 23/11/2012
/07/	CDM Executive Board: Simplified baseline and monitoring methodology “AMS-I.D”, “Grid connected renewable electricity generation”, Version 17 of 03/06/2011.
/08/	CDM Executive Board: “Guidelines for completing the project design document form for small scale CDM project activities” version 01.1 of 01/04/2013.
/09/	CDM Executive Board: “Guidelines on assessment of de-bundling for SSC project activities” Version 03, Annex 13 of EB 54 dated 28/05/2010
/10/	CDM Executive Board: Methodological “tool to calculate the emission factor for an electricity system”, version 02.2.1 dated 29/09/2011, Annex 19 of EB 63
/11/	CDM Executive Board: Glossary of CDM terms, version 07.0, Annex 7, EB 70 dated 23/11/2012
/12/	UNFCCC: Status of ratification of the Kyoto Protocol, website “ http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php ” in English language retrieved on 26/09/2012
/13/	UNFCCC: Website indicating the list of DNAs “ http://cdm.unfccc.int/DNA/index.html ” in English language retrieved on 26/09/2012
/14/	CDM-Executive Board: Project Design Document Form for Small Scale CDM Project Activities (F-CDM-SSC-PDD) version 04.1 dated 11/04/2012
/15/	Central Electricity Authority (CEA): CO ₂ Baseline Database for the Indian Power Sector User Guide, Version 7.0, January 2012.
/16/	CDM Executive Board: “General guidelines for SSC CDM methodologies”, version 19, Annex 27 of EB 69 dated 13/09/2012.
/17/	CDM Executive Board: Guidelines on the demonstration of additionality of small-scale project activities, version 09, dated 20/07/2012, Annex 27, EB 68
/18/	CDM Executive Board: “Guidelines on the assessment of investment analysis”, version 05, annex 5, EB 62 dated 15/07/2011
/19/	CDM Executive Board: “Guidelines for the reporting and validation of plant load factors” version 01 annex 11 of EB 48 dated 17/07/ 2009.
/20/	MERC: Tariff order (Case No 39 of 2011) for renewable energy by MERC dated 29/04/2011
/21/	MSEDCL: Commissioning certificate issued to M/s Shyam Metalics & Energy Limited for two nos. of 850 kW WTG (location no. GJN-05 and GJN-07) at gut no. 151, 150 of village Rampur under taluka Jath in district Sangli dated 17/04/2012, for WTGs with location no GJ 41-N, GJ 09 N1 at village Malal and Rampur respectively dated 05/10/2012 and for WTGs with location no GJ-43N and GJ 47 at village Mallal dated 05/10/2012
/22/	MEDA approvals:

VALIDATION REPORT

	<p>a) MEDA: Approval letter issued to Shyam Metalics & Energy Limited for the machine no. Sangli/Mendhegiri/Gamesa/0.85 MW/D/11-12/3193-3194 dated 31/03/2012</p> <p>b) MEDA: Approval letter issued to Shyam Metalics & Energy Limited for the machine no. Sangli/Mendhegiri/Gamesa/0.85 MW/D/11-12/T-1479-1482 dated 28/03/2012</p> <p>c) MEDA: Approval letter issued to Shyam Metalics & Energy Limited for the machine no. Sangli/Mendhegiri/Gamesa/0.85 MW/D/12-13/3335 dated 18/09/2012</p> <p>d) MEDA: Approval letter issued to Shyam Metalics & Energy Limited for the machine no. Sangli/Mendhegiri/Gamesa/0.85 MW/D/12-13/3365 dated 28/09/2012</p>
/23/	Power Purchase Agreement (PPA) between Shyam Metalics & Energy Limited and Maharashtra State Electricity Distribution Company Limited for 1.7 MW (2*850 kW with location no. GJN 05 and GJN 07) wind power project at village Rampur, Taluka Jath in district Sangli dated 27/06/2012 and for 3.4 MW (4*850 kW WTGs with location number GJ 41-N (at village Malal) , GJ 09 N1 (at village Rampur), GJ-43N and GJ 47 (at village Mallal) dated 12/12/2012.
/24/	Shyam Metalics & Energy Limited: Local newspaper advertisement dated 05/05/2012, minutes of the stakeholder meeting, photographs taken during the stakeholder meeting dated 15/05/2012.
/25/	CDM Executive Board: "Simplified modalities and procedures for small-scale clean development mechanism project activities" Annex II of Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol dated 30/03/2006
/26/	Shyam Metalics & Energy Limited: Request for validation assessment of a greenhouse gases project activity proposed to RINA dated 12/07/2012
/27/	CDM-Executive Board: Modalities of communication statement (F-CDM-MOC), version 02.1 dated 16/03/2012
/28/	Ministry of Environment & Forest (MoEF); Notification under Environment (Protection) Rules, 1986, dated 14/09/2006 and further amendment on 01/12/2009
/29/	National CDM Authority, Ministry of Environment and Forests (Govt. of India): Host country approval process website " http://www.cdmindia.gov.in/detail_news.php?id=3 " in English language retrieved on 01/10/2012.
/30/	Shyam Metalics & Energy Limited: Modalities of Communication statement (F-CDM-MOC) dated 13/10/2012
/31/	Shyam Metalics & Energy Limited: Purchase order issued to Gamesa Wind Turbines Pvt. Ltd. for supply, development and erection and commissioning of 6 numbers of G58/850kW Gamesa make WTG at Jath wind site, Sangli district in state Maharashtra dated 26/12/2011
/32/	Gamesa Wind Turbines Pvt. Ltd.: Company profile; website ' http://wind-power.industry-focus.net/company-profiles-a-news/203-gamesa-wind-turbine-pvt-ltd.html ' in English language retrieved on 19/12/2012.
/33/	True Wind International Certification India: Report on determination of PLF for WTG of Shyam Metalics Energy Limited at Jath wind site in Sangli district, Maharashtra dated June 2011.
/34/	Shyam Metalics & Energy Limited: Account ledger copy showing advance payment released to Gamesa Wind Turbines Pvt. Ltd. dated 10/09/2011 against the letter of intent and payment released on 05/01/2012 against the purchase order dated 26/12/2012.
/35/	National CDM Authority, Ministry of Environment and Forests (Govt. of India): Host country approval process website " http://www.cdmindia.gov.in/detail_news.php?id=3 " in English language retrieved on 19/12/2012.
/36/	UNFCCC: Project Cycle Search; website ' http://cdm.unfccc.int/Projects/projsearch.html ' in English retrieved on 19/12/2012.
/37/	Shyam Metalics & Energy Limited: Copy of e-mail sent to UNFCCC & NCDMA for prior CDM consideration dated 06/03/2012
/38/	UNFCCC: Prior consideration of CDM website " http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html " in English language retrieved on 19/12/2012

VALIDATION REPORT

/39/	Fisher equation for converting real interest rate into nominal interest rate " http://en.wikipedia.org/wiki/Fisher equation " website in English language accessed on 19/12/2012.
/40/	Ministry of Environment and Forests; Govt. of India: Host country approval to "5.10 MW wind power project by Shyam Metalics & Energy Limited in Maharashtra, India" dated 26/12/2012.
/41/	Gensol Consultants Pvt. Ltd.: Certificate of employment status against Mr. Anmol Singh Jaggi (Director) and Mr. Ali Imran Naqvi (Head of operations) dated 19/12/2012.
/42/	Shyam Metalics and Energy Limited: Certificate of employment status against Mr. Sanjay Kumar Agarwal (Director) and Mr. Amit Debnath (Deputy Manager, Financial Analyst) dated 20/12/2012.
/43/	Gamesa: Characteristics and general operation for Gamesa G5X-850 kW 50Hz-60Hz WTG. dated 01/08/2011
/44/	RBI: Results of 15th Round (Q4:2010-11) of Survey of Professional Forecasters on Macroeconomic Indicators dated 25/05/2011.
/45/	BRICS: Joint Statistical Publication 2012; Web-link ' www.bricsindia.in/publication/chapter6.pdf ' in English retrieved on 10/06/2013.
/46/	RBI: Measurement of Inflation In India : Issues and Associated Challenges For The Conduct of Monetary Policy; Web-link ' http://www.rbi.org.in/scripts/PublicationReportDetails.aspx?UrlPage=&ID=594 ' in English language retrieved on 10/06/2013.
/47/	Gamesa: Offer for development, supply, erection and commissioning including operation and maintenance of WTGs (5.1 MW, 6 Nos, G58/850 kW, Jath, Maharashtra) dated 18/05/2011.
/48/	Shyam Metalics and Energy Limited: Extract of minutes of the Board meeting at registered office dated 25/07/2011.
/49/	IREDA: Operational guidelines for implementation of 'Generation based incentive (GBI)' for grid connected wind power projects dated 26/05/2010. Website: http://www.ireda.gov.in/forms/contentpage.aspx?lid=744 in English language accessed on 10/06/2013.
/50/	Operation and Maintenance agreement between M/s Shyam Metalics and Energy Limited and M/s Gamesa Wind Turbines Pvt. Ltd. dated 12/01/2012
/51/	Central Board of Excise and Customs; Service tax applicable from 24/02/2009 in India, website (http://www.servicetax.gov.in/st-proc-home.htm) in English language retrieved on 10/06/2013
/52/	Income Tax Department, Govt. of India: Table of rates at which depreciation is admissible effective from assessment year 2006-07, website " http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&schT=rul&csId=4a23cee1-1818-45d6-ab19-f155e08ed789&rNo=&sch=depreciation&title=Taxmann%20-%20Direct%20Tax%20Laws " in English language retrieved on 10/06/2013.
/53/	Companies Act 1956: Rates of depreciation under Companies Act, website " www.fastfacts.co.in/resources/DepCoAct.rtf " in English language retrieved on 10/06/2013.
/54/	CII: Union Budget 2011-12, An analysis; website " http://cii.in/WebCMS/Upload/UnionBudgetAnalysis2011-2012.pdf " in English language retrieved on 10/06/2013.
/55/	MNRE: State wise wind power installation and generation; website http://mnre.gov.in/file-manager/UserFiles/wp_installed.htm & http://mnre.gov.in/file-manager/UserFiles/wp8.htm accessed on 10/06/2013.
/56/	Central Electricity Authority; Notification for regulating the installation and operation of meters dated 17/03/2006, website " http://www.cea.nic.in/reports/regulation/meter_reg.pdf " in English retrieved on 10/06/2013.
/57/	Centre for Wind Energy Technology (CWET, an autonomous research and development institute under the Ministry of New and Renewable Energy, Govt. of India); Website " http://www.cwet.tn.nic.in/html/information_gi.html " in English language retrieved on

VALIDATION REPORT

	10/06/2013 in order to cross check the capital cost of wind farm.
/58/	Chartered Accountant (S.K.Patodi & Co.): Certificate of financing structure of the project 5.10 MW wind power project by Shyam Metals & Energy Limited dated 03/07/2013.

2.2 Follow-up actions

On 25/09/2012, RINA team visited Rampur and Malal village where the project activity is located to resolve questions and issues identified during the document review and to perform interviews with relevant stakeholders in the host country.

The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	25/09/2012	Mr. Suhaas Mathur (CDM Consultant and representative of project proponent)	Gensol Consultants Pvt. Ltd.	Project Description, CDM consideration, Baseline identification, Project Boundary. Project financing, Additionality, Baseline Calculation, etc.
/b/	25/09/2012	Mr. Amol Kumbhar (Senior Engineer)	Gamesa	Regulatory requirements, project status, Ownership details, Monitoring procedures & Calibration of meters, Operation and Maintenance, Data recording, Emergency procedures, etc.
/c/	25/09/2012	Mr. Kerappa Shripati Huwuali (Local villager)	Rampur Village	Mode of Invitation for stakeholders meeting, Stakeholders meeting consultation, advantages and disadvantages of the project, employment generation, etc.
/d/	25/09/2012	Mr. Abbas Shaikh (Local villager)	Rampur Village	
/e/	25/09/2012	Mr. Sachin Inamdar (Local villager)	Rampur Village	
/f/	25/09/2012	Mr. Maruti Mahadev Dhavare (Chairman, Rampur Sarva Seva Society)	Rampur Village	

2.3 Resolution of outstanding issues

The objective of this phase of the validation is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the project design.

To guarantee transparency a validation protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of validation and the results from validating the identified criteria. The validation protocol consists of four tables; the different columns in these tables are described in the figure below (see Figure 1). The completed validation protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.
- The CDM requirements have not been met.
- There is a risk that the emission reductions cannot be monitored or calculate.

VALIDATION REPORT

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration. CARs, CLs and FARs identified are included in the validation protocol in Appendix A of this report.

VALIDATION REPORT

Figure 1 Validation protocol tables

Validation Protocol, Table 1 – Mandatory requirement		
Requirement	Reference	Conclusion
The requirements the project must meet.	Makes reference to the documents where the answer to the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) if a requirement is not met. A request for clarification (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol, Table 2 – Requirement checklist				
Checklist Question	Ref.	MoV	Comments	Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in five different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR, CL and FAR see the definitions above. OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements.

Validation Protocol, Table 3 – Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
The CAR and/or CLs raised in table 2 are repeated here.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants to address the CARs and/or CLs.	The validation team's assessment and final conclusion of the CARs and/or CLs.

Validation Protocol, Table 4 – Forward Action Requests (if no FAR the table 4 is deleted)		
Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
The FAR raised in table 2 is repeated here.	Reference to the checklist question number in Table 2 where the FAR is explained.	Response by the project participants on how forward action request will be addressed prior to first verification.

VALIDATION REPORT

2.4 Internal quality control

All the revisions of the validation report before being submitted to the client were subjected to an independent internal technical review to confirm that all validation activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

2.5 Validation team and the technical reviewer(s)

The validation team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Country
Team Leader CDM	Arokiasamy Amalorpavanathan	Cyril Augustus	India
CDM Validator & technical expert	Buragohain	Champok	India
Financial Expert	Varma	Karthika	India
Technical Reviewer	Menon	Rekha	India

3 VALIDATION FINDINGS

The findings of the validation related to the project, as described in the PDD version 04 of 06/06/2013 and previous versions 03 of 02/05/2013, version 02 of 05/12/2012 and version 01 of 21/05/2012 **/01/**, are stated in the following sections.

The validation requirements, the means of validation and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

3.1 Approval and Participation

The project's host Party is India. The project is a unilateral project and hence the host country (India) is the only party involved in the project activity. India (Host Country) fulfils the requirements to participate in the CDM and ratified the Kyoto protocol on 26/08/2002 **/12/** and established as DNA National CDM Authority (NCDMA) under Ministry of Environment and Forest, Govt. of India **/13/** as per the participating requirements for CDM under the Kyoto Protocol. The project participant is Shyam Metals & Energy Limited from India, and is a private entity. The project participant is correctly listed in table A.4 of the PDD and the information is consistent with the contact details provided in Appendix 1 of the PDD **/01/**.

The DNA of India issued a Letter of Approval (LoA) on 26/12/2012, authorizing M/s Shyam Metals & Energy Limited as project participant and confirming that the project assists in achieving sustainable development **/40/**. The letter was received directly from the PP and refer to the precise project activity as said in the PDD **/01/**. The authenticity of the Letter of Approval has been confirmed by checking the original LoA. RINA considers the LoA is in accordance with paragraphs 39-42 of the CDM-VVS **/06/**

The project cost involves only equity; this is confirmed from the CA certificate **/58/**. Thus the proposed project does not involve any public funding from any Annex I Party, and the validation did not reveal any information that indicated that the project could be seen as a diversion of official development assistance (ODA) funding towards the host country.

Project participants	Shyam Metals & Energy Limited
Parties involved	India (Host Country)
APPROVAL	

VALIDATION REPORT

LoA received	Yes /40/
Date of LoA	26/12/2012
LoA received from	Directly from PP
Validation of authenticity	Verifying the original document /40/
Validity of LoA	Yes
PARTICIPATION	
Party is party to Kyoto Protocol	Yes
Voluntary participation	Yes
Project contribution to SD	Yes

3.2 Modalities of communication

The MoC dated 13/10/2012 **/30/** was provided by Shyam Metalics & Energy Limited with whom RINA has a contractual relationship confirmed by the request of services signed on 12/07/2012 **/26/**. The MoC is jointly signed by M/s Shyam Metalics & Energy Limited represented by Mr.Sanjay Kumar Agarwal and Mr. Amit Debnath and by M/s Gensol Consultants Private Limited represented by Mr. Anmol Singh Jaggi and Mr. Ali Imran Naqvi. The corporate identities of all signatories with signature are cross checked from authorization letters from respective company **/41/**, **/42/** and deemed considered appropriate.

RINA confirms that the MoC statement provided by the PP **/30/** is based on the currently valid form "Modalities of Communication Statement" (F-CDM-MOC) **/27/**, the information required by the form including its Annex 1 is correctly completed, and the PP authorized signatories signing the MoC correspond to the PP authorized signatories included in Annex 1.

In conclusion, RINA confirms that the MoC statement provided by the PP is in accordance with the requirements in para 53-55 as well it is in accordance with the requirements in para 60 of the CDM-VVS **/06/**.

3.3 Project design document

The PDD for the project activity "5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India" version 04 of 06/06/2013 and previous version 03 dated 02/05/2013, version 02 of 05/12/2013 and version 01 dated 21/05/2012**/01/** submitted by Shyam Metalics & Energy Limited have been the basis for the validation process.

RINA thus confirms that the latest PDD, version 04 **/01/** is based on the currently valid PDD template **/14/** and is completed in accordance with the applicable guidance document "Guidelines for completing the project design document form for small scale CDM project activities" (version 01.1) of 01/04/2013**/08/**.

The main changes between the PDD version 01 of 21/05/2012 published for GSC and the PDD version 04 of 06/06/2013 submitted for registration are the following:

Section of the PDD	Description and reason for changing the information in that section
A.2.4	The geographical coordinates of each WTG has been updated in the final version of the PDD.
B.3	The project boundary has been updated showing exact metering points in the final PDD.

VALIDATION REPORT

B.5	The equity IRR in the webhosted PDD was 9.20% which found to be 8.54% in the final PDD. This is since the project financing was found to be 100% equity during validation of the project activity and the O & M and GBI benefits were computed wrongly in the webhosted PDD.
B.7	The monitoring provisions were made transparent in the final PDD.

3.4 Project Design

Purpose and general description of the project activity:

The purpose of the project activity is to generate electricity from wind energy and export to NEWNE grid which replaces equivalent amount of electricity from fossil fuel dominated grid, as confirmed with the CEA database /15/. The project is an initiative by Shyam Metalics & Energy Limited and involves 6 Wind Turbine Generators (WTGs) each of 850 kW capacity in Jath wind site of Sangli district in Maharashtra state. The proposed total installed capacity of the project activity is 5.10 MW which is confirmed from the WTG purchase order /31/ and from interview with technology supplier at the WTG installation site.

Project location:

The project is located in Jath wind site of Sangli district in Maharashtra state. WTG wise location details are presented below:

Sl. No.	Location No	Survey No.	Village	Latitude (N)	Longitude (E)
1	GJN 47	19	Malal	17°00'57.82"	75°13'45.53"
2	GJ 09 N1	122	Rampur	17°00' 29.01"	75°10'23.35"
3	GJ 41	12	Malal	17°00' 55.74"	75°13'17.98"
4	GJ 43N	14	Malal	17°00'55.97"	75° 13'17.3"
5	GJN 5	151	Rampur	17°00'43.43"	75°09'29.04"
6	GJN 7	150	Rampur	17°00'35.58"	75°09'36.05"

WTG locations were checked by the validation team with GPS device during the site visit and are found to be correct with the commissioned WTGs. The other details such as village name, taluka name and district name of WTGs are checked with the commissioning certificates and MEDA approvals issued for the WTGs of the project activity and were found appropriate. /21/, / 22/.

Scenario existing prior to the implementation of the project activity:

In the absence of the project activity the equivalent amount of power would have been generated in the fossil fuel dominated NEWNE grid. This is evident from the electricity generation scenario of the host country that the NEWNE grid is dominated by fossil fuel based power plants /15/. Hence, it is confirmed that electricity equivalent to the project activity would have been generated in NEWNE grid of other power plants added to the NEWNE grid. The project is a Greenfield project and all WTGs are new which is evident from the purchase order copies /31/ and site visit observations.

Technology(ies) employed:

The technology supplier of the project activity is Gamesa Wind Turbines Pvt. Ltd. which is confirmed from the WTG purchase order released by PP /31/. The project involves Gamesa G5X-850 kW WTGs. The technology used in the project activity is indigenously available in India and there is no transfer of technology /32/. The estimated electricity generation from the project activity is 8,935 MWh per year with an effective PLF of 20%. The PLF has been verified by RINA against the independent third party report prepared by True Wind International Certification India /33/. RINA could confirm that the PLF considered by PP is reasonable and in line with the requirement of CDM EB "guideline for the reporting and validation of plant load factors" /19/

VALIDATION REPORT

Project implementation:

The starting date of the project activity is 10/09/2011, when project proponent released advance amount along with the letter of intent to the technology supplier Gamesa Wind Turbines Pvt. Ltd. for supplying 6 numbers of G58/850kW Gamesa make WTG at Jath wind site, Sangli district in state Maharashtra /34/. This is evident from the account ledger copy of Shyam Metalics & Energy Limited which reflects advance payment released on 10/09/2011. Hence, it is RINA's opinion that the starting date (date of issuance of letter of intent along with the payment to technology supplier) represents the real action to start the project activity, as it is the earliest date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity as per the Glossary of CDM Terms /11/. During the site visit on 25/09/2012, it was observed by the validation team that all the WTGs were erected and out of them two were commissioned. However, now all the WEGs are commissioned and are connected to the NEWNE grid. The commissioning of all WTGs is confirmed from the commissioning certificates issued MSEDCL /21/.

Crediting period and estimated Emission Reductions:

The expected operational lifetime of the project activity is 20 years and this has been confirmed from the technical specifications from the technology supplier /43/. A fixed crediting period of 10 years has been chosen for the project, starting from 15/07/2013, or the effective date of submission of the project activity for requesting registration to UNFCCC, whichever is later. The GHG emission reductions are estimated to be average 8,513 tCO₂e per year and 85,130 over the ten year crediting period.

Contribution to sustainable development:

The project activity contributes towards the sustainable development of the host country. In line with the host country approval requirements /35/ PP has obtained host country approval for the project activity /40/.

RINA was able to verify all the documented evidence listed above during the validation process and can confirm that data and considerations are complete and accurate. Moreover RINA confirms that the description of the proposed CDM project activity, as contained in the PDD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity

3.5 Application of selected baseline and monitoring methodology

The project correctly applies the approved baseline and monitoring methodology "AMS-I.D" "Grid connected renewable electricity generation", version 17 of 03/06/2011 /07/. The proposed project activity meets the criteria defined in the baseline methodology as described below:

- *Applicability criteria 1 & 2:*

The project activity involves electricity generation from wind energy and exporting to NEWNE grid. This has been confirmed during the site visit on 25/09/2012, from the commissioning certificates issued to Shyam Metalics & Energy Limited for 6 WTGs (of 850 kW capacity each) by MSEDCL /21/ and from the PPA copy /23/ which confirms that the generated electricity is exported to grid.

- *Applicability criteria 3:*

The project activity is a new project activity (green field project) and neither involves any replacement of existing installation nor any capacity addition to an existing system. This has been confirmed during the site visit on 25/09/2012 and from the WTG purchase order issued by Shyam Metalics & Energy Limited /31/.

- *Applicability criteria 4:*

The project activity is not a hydro power project and therefore, this criterion is not applicable to the project activity. The same is confirmed during the site visit on 25/09/2012.

VALIDATION REPORT

- *Applicability criteria 5:*
The project activity involves the installation of only wind mill (Greenfield project) and this has been confirmed from the copies of purchase orders **/31/**. In addition, during the site visit on 25/09/2012, the validation team confirmed that only wind turbines are installed and no other non renewable power generation equipments were installed at the site. The total installed capacity of the project activity is 5.10 MW which is below the limit of 15 MW.
- *Applicability criteria 6:*
This applicability condition is not applicable to the project activity since the project is not a combined heat and power project.
- *Applicability criteria 7:*
The project activity is not a capacity addition to an existing renewable power generation facility. This has been confirmed from the observations at site during the validation site visit.
- *Applicability criteria 8:*
The project activity is neither a retrofit project nor a replacement of existing system. This has been confirmed from the copy of WTG purchase orders issued by PP **/31/** and during the site visit on 25/09/2012 by the validation team. Therefore, this condition is not applicable to the project activity.

The PP is not involved with any other CDM project activity in the same category and within 1 km of the project boundary in last 2 years. This has been checked during the site visit and from the databank of UNFCCC **/36/**. Hence, the project activity is not a de-bundled component of a large scale project activity as per the "Guidelines on assessment of de-bundling for SSC project activities" version 03 of EB 54 dated 28/05/2010 **/09/**.

The project activity applies the following methodological tools:

- Methodological "tool to calculate the emission factor for an electricity system" version 02.2.1 of 29/09/2011 **/10/**.

RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology.

3.6 Project boundary

According to the approved baseline and monitoring methodology "AMS-I.D" "Grid connected renewable electricity generation", version 17 of 03/06/2011 **/07/** the project boundary includes "the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to". The generated electricity will be delivered to the NEWNE grid through the connected sub-station. In India, the grid is divided into two parts i.e. NEWNE and Southern Grid by Central Electricity Authority. The project activity falls under NEWNE grid **/15/** and the baseline for this project activity is a function of generation mix of the NEWNE grid. The selection of NEWNE grid as the grid system boundary for the project activity is in line with the methodology.

The project boundary has been confirmed from the on-site observation by the validation team.

Emissions sources included in the project boundary are shown in the table below:

	GHGs involved	Description
Baseline emissions	CO ₂	Net electricity delivered to the NEWNE grid by the project activity that would otherwise have been generated by the operation of grid-connected power plants and by the

VALIDATION REPORT

		addition of new generation sources into the grid.
Project emissions	N/A	The project activity does not have any project emission.
Leakage	N/A	The project activity does not have any leakage emission since there is no transfer of equipment to or from the project activity. The project activity is a new project activity which is confirmed from the purchase orders /31/ and commissioning certificates /21/ .

Emission sources which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction have not been identified. Furthermore, as this is a windmill project, assembling of parts is the main activity during erection and commissioning of the project. Hence, no emission is expected

By checking the information and the project site, RINA can confirm that the project boundary and emission sources described in the PDD are accurate and complete, and also that the selected sources and gases are justified for the proposed project activity.

VALIDATION REPORT

3.7 Baseline scenario identification

According to the approved baseline and monitoring methodology “AMS-I.D”, “Grid connected renewable electricity generation”, version 17 of 03/06/2011 /07/ “the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources”.

Since the approved methodology that is applied prescribes the baseline scenario, no further analysis is required, according to paragraph 115 of the CDM-VVS, version 03.0 /06/.

The baseline emissions are the product of net electricity supplied to the grid as a result of implementation of the project activity in a year multiplied by an emission factor (measured in ton CO₂e/MWh) calculated in transparent and conservative manner. The PP has considered the baseline in line with what is prescribed by the methodology. The emission factor is calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM). The grid emission factor has been calculated by using the CEA database version 7.0 of January 2012 /15/ and it is based on the “Tool to calculate the emission factor for an electricity system”, version 02.2.1, EB 63, Annex 19 /10/. According to the steps provided in the “Tool to calculate the emission factor for an electricity system” /10/, the weightage of OM and BM has been taken as 75:25 owing to their intermittent and non dispatchable nature. The combined margin emission factor for the NEWNE grid of India has been calculated to be 0.9528 tCO₂e/MWh and is fixed ex-ante for the entire fixed crediting period. The CM (Combined Margin) emission factor value has been calculated as per steps of the “Tool to calculate the emission factor for an electricity system”, version 02.2.1, EB 63, Annex 19 /10/ and relevant details sourced from the data published by the Central Electricity Authority (CEA), Government of India /15/. CEA has published a database of carbon dioxide emission factors for the power sector in India, based on detailed authenticated information obtained from CEA on all operating power stations in the country. RINA confirms that the CEA database version 07 /15/ used for the calculation of combined margin emission factor for the NEWNE grid of India was latest data available at the time of the commencement of validation, and is in line with the requirement of “Tool to calculate the emission factor for an electricity system” version 02.2.1, /10/ and is an official publication of the Government of India for the purpose of CDM baselines.

RINA was able to verify all the documented evidence such as CO₂ Baseline Database for the Indian Power Sector user guide version 07 /15/, applied methodology AMS-I.D version 17 of 03/06/2011 /07/, latest PDD, version 04 of 06/06/2013 /01/, and emission reduction calculation spreadsheet /02/ during the validation process and can confirm that:

All the assumptions and data used by the project participants are listed in the latest PDD, version 04 of 06/06/2013 /01/, including their references and sources; the approved baseline methodology “AMS-I.D”, version 17 of 03/06/2011 /07/ has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.8 Additionality

According to the ‘Guidelines on the demonstration of additionality of small-scale project activities’ /17/, PP has chosen the investment barrier to prove the additionality of the project activity. In doing so, PP has applied the “Guidelines on the assessment of investment analysis”, version 05 /18/. The opinion of RINA to the additionality of the proposed project is further explicitly explained in the following steps:

3.9 Prior consideration of the clean development mechanism

It has been demonstrated that CDM was seriously considered in accordance with the CDM project standard, version 03 /05/.

The starting date of the project activity is 10/09/2011, when the PP had issued letter of intent to Gamesa Wind Turbines Pvt. Ltd. for supplying 6 WTGs of 850 kW capacity each /34/, as it is the

VALIDATION REPORT

earliest date when the PP committed itself to expenditures related to the implementation of the project activity. The amount constitutes 15% of the total project cost and subsequent to this the purchase order was released on 26/12/2011 **/31/**. In line with the 'glossary of CDM terms' PP committed to expenditures related to the implementation of the project activity only when the letter of intent for procuring WTGs were released. This is further confirmed from the account ledger copy of Shyam Metals & Energy Limited clarifying the expenses incurred for the project activity **/34/**. RINA thus confirms that the starting date of the project activity is in line with the Glossary of CDM terms **/11/**, and is the first real action taken by PP to implement the project activity.

Since, the project start date is after 02/08/2008 and the identified start date is prior to 15/08/2012 when the PDD was published for global stakeholder consultation, the PP needs to demonstrate that the CDM was seriously considered in the decision to implement the project activity, that the benefits of CDM were a decisive factor in the decision to proceed with the project and that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation. To confirm the prior consideration of CDM, RINA noted that PP had duly sent a notification letter of prior CDM consideration to both the DNA of India and the UNFCCC secretariat of the commencement of the project activity and of their intention to seek CDM status, using the standardized form F-CDM-Prior Consideration. The notification letter to Indian DNA and to the UNFCCC secretariat was sent on 06/03/2012 **/37/** and the notification is available at UNFCCC website indicating receiving date of prior CDM consideration notification as 06/03/2012 **/38/**. Such notifications were made within six months of the project activity start date. Further it is also noted that the PP has been taking real actions to secure CDM status by way of applying to the DNA for host country approval **/40/** and engaging the DoE for validation **/26/** in parallel to the implementation of the project. It shall be noted that all the WTGs in the project are commissioned only after the validation site visit **/21/**.

In conclusion, RINA can confirm that the CDM was considered seriously in the decision to implement the project activity according to paragraph 107 of the CDM-VVS, version 03.0 **/06/**.

3.10 Identification of alternatives

As discussed in section 3.7, as per the approved baseline and monitoring methodology "AMS-I.D", "Grid connected renewable electricity generation", version 17 of 03/06/2011 **/07/**, "the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources". As per paragraph 11 of the selected methodology AMS-I.D version 17 **/07/**, the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$, expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor (measured in tCO_2e/MWh) calculated in a transparent and conservative manner. The project participant has also considered the baseline as MWh of electricity produced and it is in line with the methodology.

Since it is prescribed in the approved methodology no further analysis is required as per para 115 of the CDM-VVS **/06/**. The project proponent has justified the selection of the baseline scenario in line with the applied methodology and the same is deemed reasonable.

3.11 Investment analysis

Choice of approach:

VALIDATION REPORT

The PP has chosen to apply the benchmark analysis method and has identified post tax equity IRR as the most suitable financial indicator. The project cannot apply simple cost analysis since the project brings revenue from the sale of electricity; also investment comparison analysis cannot be applied as the alternative to the project activity is the electricity generated by new and existing grid connected power plants. Therefore, referring paragraph 19 of the investment analysis guideline **/18/** “if the alternative to the project activity is the supply of electricity from grid this is not to be considered an investment and a benchmark approach is considered appropriate”. Since the project proponent is demonstrating the financial unattractiveness of the project, the equity IRR is appropriate, as the project cost involves both equity and debt. Hence, equity IRR is considered by the PP and is appropriate for the project activity.

Benchmark selection:

In accordance to “guidelines on the assessment of investment analysis” **/18/** if the project could be developed by an entity other than the project participant, then the benchmark must be based on the parameters available in the market. The investment analysis guideline recommends country and project specific expected returns on equity in Appendix of the guideline **/18/**. The appendix also states that in situations when an investment analysis is carried out in nominal terms, the project participants can convert the real term values provided in the table to nominal values by adding the inflation forecast of the central bank of the host country for the duration of the crediting period. Since, the equity IRR is calculated in nominal terms considering MERC preferential tariff (which takes into account inflation) and O & M cost with inflation, PP considered default expected return on equity for energy industries (Group 1) applicable for India as 11.75% and referring the guideline, PP converted the real term interest applying fisher equation $((1 + \text{nominal interest rate}) = (1 + \text{real interest rate}) * (1 + \text{inflation rate}))$ **/39/** considering inflation rate of 5.4%, which is the mean Whole Price Index (WPI) as forecasted by Reserve Bank of India for 10 years period **/54/**. Accordingly, the resulted benchmark considering this approach arrived at a value of 17.78%.

Reserve Bank of India (RBI), is Central Bank of host country (India) and it is India's monetary authority. The RBI is supervisor of financial system, issuer of currency and manages foreign exchange reserves of the country. Thus the inflation forecast by RBI can be considered as reliable and authentic. RBI gives only two types of inflation forecast namely Wholesale Price Index (WPI) inflation forecast and Consumer Price Index-Industrial workers (CPI-IW) inflation forecast **/54/**.

Consumer Price Index for Industrial Workers (CPI-IW) measures change over time in prices of a fixed basket of goods and services consumed by Industrial Workers and it is an important indicator of the retail price situation in the country. The CPI-IW is mainly used for the determination of dearness allowance being paid to Central/State Government employees as also to the workers in the industrial sectors besides fixation and revision of minimum wages in scheduled employments. As CPI-IW is an indicator of retail prices of goods and services consumed by households, it is not relevant to the project activity **/45/**, **/46/**.

WPI inflation forecast is Wholesale Price Index inflation forecast. The Indian government has taken WPI as an indicator of the rate of inflation in the economy. Presently price levels for 435 commodities are being tracked through Wholesale Price Index in India. The commodities are grouped under Primary Articles; Fuel and Power and Manufactured Products. WPI inflation rate is the economic inflation rate for the whole country and there are no sector specific inflation forecast given by RBI in India. Since WPI inflation considers the wholesale price for power which would include power generated from all sources, this inflation forecast rate is most appropriate for the project activity. Thus the validation team considers that WPI inflation forecast as appropriate for the project activity **/44/**.

RINA verified all the above said documents and confirmed that the benchmark identified to compare the financial attractiveness of the project activity is appropriate.

Input Parameters:

VALIDATION REPORT

The validation team of RINA validated the input values and assumptions in the investment analysis by checking the original and other supportive documents as detailed below. It is noted that the values of the input values stated in the PDD are consistent with that of the financial calculation sheet and benchmark analysis sheet **/03/**. The lifetime of the WTGs are confirmed to be 20 years as per the technology supplier **/43/** and the investment analysis is done for the period of 20 years and hence is justified as per the guidelines on assessment of investment analysis **/18/**.

RINA has validated the input parameters used in the investment analysis and the following steps have been followed to assess the investment analysis.

- Assessment of the sources used for input parameters. All input parameters used in the financial analysis are taken from offer letter issued by technology provider **/47/** and third-party state electricity regulatory commission tariff order **/20/** available at the time of decision making and other third party sources i.e. PLF assessment report **/33/** etc. as described in the following table, and can thus considered information provided by independent source.
- Confirmation of the values in the PDD and investment analysis is fully consistent with the values provided in offer letter **/47/**, tariff order **/20/** and PLF assessment report **/33/**. RINA compared the input parameters for the financial analysis included in the PDD **/01/** and in the investment analysis spreadsheet **/03/** with the parameters stated in the documents used and was able to confirm that the values applied are consistent with the values stated in the offer letter mentioned in the following paragraphs.
- Assessment of the period between the time of the offer letter from technology supplier and the investment decision. The investment decision to proceed with the project activity was taken on 25/07/2011 **/48/** which was nearly two months from the date of offer letter received from M/s Gamesa, dated 18/05/2011 **/47/**; thus the time gap between offer letter and Board decision is sufficiently short and the value would not have materially changed.

Cross-check of the input parameters used in the financial analysis. The input parameters used in the financial analysis were cross-checked and all data sources used to cross-check were checked during the validation process. The following is carried out:

Parameter	Unit	Value	Source	Validation Assessment and cross checking
Capacity of each WTG	kW	850	As per the offer letter /47/	Verified against offer letter /47/ and cross verified against the actual Purchase Order /31/
No. of WTGs		6	As per the offer letter /47/	Verified against offer letter /47/ and cross verified against the actual Purchase Orders and erected WTGs at site /31/
Total capacity	kW	5100	As per the offer letter /47/	Verified against offer letter /47/ and cross checked with the actual Purchase Orders and erected WTGs at site /31/
Plant Load Factor	%	20.00%	Third Party PLF assessment Report /33/	Verified against the PLF assessment report prepared by M/s True Wind International Certification India dated June 2011/ 33/ . The report is prepared by third party and therefore, the PLF justification is in line with the requirement of "Guidelines for the reporting and validating of Plant Load Factors" version 01 of EB 48 dated 17/07/2009 /19/ . The indicative PLF in the report is 20.00% and was available at the time of investment decision on 25/07/2011 /48/ . In addition, the PLF recommended in MERC tariff order is also 20% /20/ . Hence, the PLF considered is appropriate.

VALIDATION REPORT

(1 million = 10 lacs)				
Project cost	INR million	345.00	As per offer letter /47/	The offer letter (proposal) from technology supplier M/s Gamesa Wind Turbines Pvt. Ltd. dated 18/05/2011 /47/ was available at the time of investment decision on 25/07/2011 /48/ . The validation team cross checked the purchase orders /31/ released by PP and found that 7.65% decrease is realized which has been discussed by PP in the sensitivity analysis argumentation in the PDD. The actual project cost is also cross checked from the CA certificate issued for the project activity /58/ . Therefore, there is no possibility of further decrease of project cost and hence any change in the IRR analysis as discussed in the sensitivity analysis. Therefore, project cost was found acceptable as per the offer letter.
Means of Finance				
Equity	INR Million	345.00 (100% of the project cost)	As per Board resolution /48/	The project is 100% equity finance. This is as per the decision taken at the board meeting and hence considered appropriate /48/ . Further, the CA certificate confirms that the project cost is 100% equity from project proponent /58/ .
Tariff (fixed for 20 years)	Rs./kWh	5.37	MERC tariff order /20/ .	The tariff order is the document through which the State (Maharashtra) Electricity Regulatory Commission determines the tariff rate applicable for wind power projects. The tariff order /20/ is a publicly available document and latest available at the time of investment decision /48/ . The tariff order determines the tariff based on wind zones. As per the offer letter from technology supplier the project falls under wind zone 1 of Maharashtra /47/ . Therefore, PP has considered tariff as per wind zone-1 of the state. It is to be noted that the tariff rate of wind zone-1 is the highest tariff rate compared to other wind zones in the state. Although, the tariff rate (Rs. 5.37/kWh) is fixed for 13 years as per the MERC tariff order /20/ , it is also evident from the tariff order (page number 58) that the levelled tariff (Rs. 5.37/kWh) is determined for 25 years. Further, the cost of generation goes down with time as all variable cost has been settled which is evident from the tariff order. Moreover, the validation team found that even after applying 5.4% inflation rate (which is forecast inflation rate for the host country for 10 years /44/) after 13 years over the tariff of previous year the IRR comes to 9.09% which is much below the benchmark. Hence, it is accepted by the validation team to apply the same tariff after

VALIDATION REPORT

				13 years until the end of the technical life (20 years). Hence, the tariff rate as per MERC tariff order /20/ is considered appropriate for the investment decision. Further, the validation team has cross checked the PPAs executed for the WTGs of the project activity and found the tariff rate to be same as considered at the time of investment decision for a period of 13 years /23/ .
Generation Base Incentive (GBI)	INR Million	31.62	IREDA /49/	Generation based incentive is crossed checked with the guideline laid down by IREDA for Grid Interactive Wind Power Projects and is applicable from 17/12/2009 /49/ . Incentive is available at Rs.0.5/kWh and can be availed for maximum 10 years and not less than 4 years. Cap of INR 6.2 million/MW with one year maximum disbursement of INR 1.55 million/MW. The guideline was available at the time of investment decision and found acceptable to the validation team.
Technical life of project activity	Years	20	As per technology supplier /43/	The technical life of WTG is 20 years as per the technical specifications form technology supplier M/s Gamesa Wind Turbines Pvt. Ltd. /43/ . Therefore, financial analysis carried for 20 years is acceptable.
O & M cost of WTGs	INR Million/year	5.29 (1.53% of total project cost)	As per offer letter /47/	The offer letter from technology supplier M/s Gamesa Wind Turbines Pvt. dated 18/05/2011 /47/ was available at the time of investment decision on 25/07/2011 /48/ which includes O & M cost as 0.8 INR million/WTG accounting 1.53% (for all WTGs) of the total project cost from 2 nd year onwards with 5% escalation from 3 rd year onwards. The validation team has cross checked the O & M agreement executed by PP with the technology supplier and found the O & M cost to be 0.8 INR million/WTG accounting 1.54% (for all WTGs) of the actual project cost from 3 rd year onwards with 5% annual escalation from fourth year /50/ . Since, with 100% reduction in O & M cost in the sensitivity analysis the IRR is below the benchmark, therefore, the O & M cost as per offer letter is acceptable by the validation team.
Service Tax on O&M expenses	Percent	10.3%	Directorate of Service Tax, Ministry of Finance, Govt. of India /51/	The service tax for calculating O & M cost is as per the applicable tax rate which was applicable at time of investment decision (25/07/2011). The validation team cross checked the source of the same /51/ and found acceptable.
Income Tax Depreciation Rate (Written Down Value basis)				
On Wind	Percent	15%	Income Tax	The project was meant to apply for

VALIDATION REPORT

Turbine Generators			Department, Govt. of India /52/	Generation Based Incentive (GBI), and as per the guideline on GBI /49/ , a project can't avail accelerated depreciation if GBI is sought. Therefore, 80% income tax depreciation was not considered which is normally applicable to wind mill projects. On the contrary, PP has considered 15% depreciation rate which is as per Income Tax Act, Govt. of India /52/ . Hence, accepted by the validation team.
Book Depreciation Rate (Straight Line Method basis)				
On Plant and machinery	Percent	5.28%	Companies Act 1956 /53/ .	The rate of depreciation 5.28% on plant and machinery is as per Companies Act 1956 /53/ available at the time of investment decision.
Net depreciation	Percent	90%	MERC tariff order /20/	Book depreciation has been written off up to 90% of the project cost as per Companies Act 1956 /53/ and tariff order /20/ which were available at the time of investment decision.
Income Tax				
Corporate tax rate	Percent	32.45%	CII, Union Budget 2011-12 /54/	The tax rate is cross checked and found to be correct which was applicable at the time of investment decision /54/ .
MAT	Percent	20.00%	CII, Union Budget 2011-12 /54/	The tax rate is cross checked and found to be correct which was applicable at the time of investment decision /54/ .
Salvage value	Percent	10%	MERC tariff order /20/ .	As per MERC tariff order, depreciation is allowed up to a maximum of 90% of the capital cost of the assets /20/ . And hence, salvage value considered (10%) at the time of investment decision is appropriate.

RINA thus confirm that all input data, assumptions used in the investment analysis were available at the time of investment decision. The validation team cross checked all data parameters against credible sources (where available public sources and third party reports) as discussed above and confirm that the values used in the PDD and investment analysis are consistent with the sources used for the input parameters.

Calculation and conclusion

The validation team further assessed the correctness of computations and documents carried out by the project participant. The assessment includes checking the data input taken from quotations/documents, adoption or correct accounting practice and arithmetical accuracy. The accounting principles adopted with respect to computation are found to be in order. The arithmetical accuracy is also found to be correct.

The guideline on investment analysis recommends country and project specific expected returns on equity in Appendix of the guideline **/18/**. The appendix also states that in situations when an investment analysis is carried out in nominal terms, the project participants can convert the real term values provided in the table to nominal values by adding the inflation forecast of the central bank of the host country for the duration of the crediting period. In the analysis of equity IRR, PP has considered the fixed electricity tariff (cash inflow) as per the MERC tariff order which takes into account the rate of inflation. Similarly, O & M cost accounts rate of inflation. Hence, the equity IRR is calculated in nominal terms. Accordingly, PP considered default expected return on equity for energy industries (Group 1) applicable for India as 11.75% and referring the guideline, PP converted the real term interest adding

VALIDATION REPORT

inflation rate of 5.40%, which is the mean Whole Price Index (WPI) as forecasted by Reserve Bank of India for 10 years period and was available at the time of investment decision /44/. Accordingly, the resulted benchmark arrived at 17.78%.

The equity IRR and benchmark calculations /03/ were provided in excel spreadsheet and verified. The assumptions used in the calculations were deemed to be correct and verified by RINA. The equity IRR of the project activity without CDM revenue is 8.54% which confirms that the proposed project activity in absence of CDM benefits as compared to benchmark of 17.78% is not financially attractive.

Sensitivity analysis

The Guidance on assessment of investment analysis /18/ requires that the investment analysis should contain a sensitivity analysis that supports the robustness of the conclusion arrived at by varying the critical assumptions to a reasonable variation ($\pm 10\%$). The project developer has identified the following parameters as the most critical assumptions.

- Project cost
- Tariff
- Plant Load Factor (generation)
- Operation and Maintenance (O & M) cost

Results of sensitivity analysis are presented below:

Based on Project Cost:

Variation	-10%	0%	+10%
Post tax equity IRR	9.83%	8.54%	7.46%

Based on tariff (Rs.5.37/kWh as per MERC tariff order):

Variation	-10%	0%	+10%
Post tax equity IRR	7.21%	8.54%	9.80%

Plant Load Factor (Generation):

Variation	-10%	0%	+10%
Post tax equity IRR	7.19%	8.54%	9.82%

O & M Cost:

Variation	-10%	0%	+10%
Post tax equity IRR	8.73%	8.54%	8.34%

The above analysis shows that the IRR does not cross the benchmark at $\pm 10\%$ variations of the above parameters. The following table reveals the changes/variations required to the parameters for the IRR to cross the benchmark.

Parameter	Changes/Variations	Possibility of the situation
Project Cost	Project cost decreases by 45.03%.	This is not a possible situation. Since, PP has placed the purchase order and the actual project cost is INR 318.60 million as per the purchase orders /31/. The actual project cost is also cross checked from the CA certificate issued for the project activity /58/. This represents the total actual cost including installation until commissioning of all WTGs. The project cost is 7.65% lower than that of offer letter price /31/. Hence, required variation to cross the benchmark is not possible.

VALIDATION REPORT

Tariff	Tariff increases by 78.40%	The tariff rate (Rs. 5.37/kWh) is fixed for 13 years as per the MERC tariff order /20/. However, it is also evident from the tariff order (page number 58) that the levellised tariff (Rs. 5.37/kWh) is determined for 25 years. The validation team found that even after applying 5.4% inflation rate (which is forecast inflation rate for the host country for 10 years /44/) after 13 years over the tariff of previous year the IRR comes to 9.09% which is much below the benchmark. Hence, it is considered appropriate to apply the same tariff after 13 years until the end of the technical life (20 years). Further, the validation team has cross checked the PPAs executed for all the WTGs and found that two WTGs accounting 1.7 MW was executed at a tariff of Rs.5.37/kWh and remaining other four WTGs accounting 3.4 MW were executed at a tariff of Rs.5.67/kWh /23/. With considering tariff of Rs.5.67/kWh for all WTGs the IRR comes to only 9.30% which is below the benchmark. Hence, further increase of 78.40% on this tariff is not a realistic scenario.
Plant Load Factor	PLF further increases by 76.79%	This is not a realistic scenario since, PP has conducted a third party PLF assessment study /33/ for the project activity and accordingly considered a PLF of 20.00% in the investment analysis which conforms to the PLF of MERC tariff order /20/ of 20%. Further, the validation team has cross checked MNRE data and found that maximum PLF achieved is 15.27% in over seven years since 2005-06 to 2011-12 /55/. Therefore, PLF increases by 76.79% is not possible scenario.
O & M Cost	O & M expenses reduced by 658.36%	As per the O & M agreement the O & M cost is Rs.8.00 lacs/WTG from 3 rd year with escalation of 5% per annum from 4 th year onwards over the previous year /50/. This results equity IRR to 8.57%. Therefore, a further reduction of 658.36% over of the offer letter price is not a possible scenario.

As shown above, the PP has carried out a fairly exhaustive sensitivity analysis which proves that the equity IRR does not cross the benchmark within the possible scenarios.

In conclusion, the result of the investment and sensitivity analysis have shown that the project is highly dependent on the CDM benefits and that without the income from CERs, the project activity is not financially attractive.

3.12 Barrier analysis

Project participant adopted only the investment analysis to demonstrate the additionality of the proposed project activity as per "Guidelines on the demonstration of additionality of small-scale project activities" /17/. Hence, the validation team has accepted the approach.

VALIDATION REPORT

3.13 Common practice analysis

Common practice analysis has not been used to demonstrate additionality. As per 'Guidelines on the demonstration of additionality of small-scale project activities' **/17/**, additionality can be demonstrated by any one of the four barriers listed. This project being a small scale project, Project participant has demonstrated additionality using investment barriers.

3.14 Conclusion

RINA can confirm that all data, rationales, assumptions, justifications and documentation provided by the project participants to support demonstration of additionality are credible and reliable.

By assessing the evidences presented and cross-checking the information contained in, RINA considers the reasonings for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered CDM project activity.

3.15 Monitoring Plan

The approved baseline and monitoring methodology "AMS-I.D", "Grid connected renewable electricity generation", version 17 of 03/06/2011 **/07/** has been applied.

The monitoring plan is in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions. RINA has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant to the project activity have been found in the plan.

RINA confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

Parameters determined ex-ante

The ex-ante parameters that are mentioned in the methodology are included in the PDD and are provided in compliance with the methodology:

	Data/parameter	Unit	Value applied	Assessment
1	Simple operating margin for NEWNE grid	tCO ₂ e/MWh	0.9842	The simple OM emission factor have been calculated using the Simple OM method as the low-cost/must run resources constitute less than 50% (for year 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11) /15/ . The ex-ante vintage data has been used for the OM calculation of the project. The PDD, version 01 /01/ was web-hosted for global stakeholder comments from 15/08/2012 to 13/09/2012 and the latest available data vintage was taken for the EF calculations. EF _{OM} for the most recent three years (2008-09, 2009-10 and 2010-11) and the weighted average is calculated to be 0.9842 tCO ₂ e/MWh /02/ . Hence, accepted by the validation team.

VALIDATION REPORT

2	Build margin for NEWNE grid	tCO ₂ e/MWh	0.8588	As per the “tool to calculate the emission factor for an electricity system” Version 02.2.1 /10/ , the build margin emissions factor is the generation-weighted average emission factor (tCO ₂ /MWh) of all power units <i>m</i> during the most recent year <i>y</i> for which electricity generation data is available. Hence, default value from CO ₂ Baseline Database for the Indian Power Sector User Guide, Version 7.0, January 2012 /15/ for the year 2010-11 has been considered. This was the latest available data at the start of validation of the project activity. Hence, accepted by the validation team.
3	Combined margin emission factor for NEWNE grid	tCO ₂ e/MWh	0.9528	Calculated considering 75% operating margin and 25% build margin as per the “tool to calculate the emission factor for an electricity system” /10/ .

Parameters monitored ex-post:

The ex-post parameters that are mentioned in the methodology are included in the PDD and are provided in compliance with the methodology, and they will be monitored during the crediting period:

	Parameter	Description/Assessment
1	Quantity of net electricity generation supplied by the project plant/unit to the grid in year <i>y</i> EG_{BL,y} (MWh/year)	The project WTGs along with other WTGs of the wind farm is connected to a main and check meter at the substation where continuous monitoring of total power import and export from all WTGs takes place. Main and check meter remains under the custody of state utility. State utility will take the joint meter reading (Gross export and import) on monthly basis in presence of representative of project participant (O & M provider) from the main energy meter installed at the substation. The O & M provider and the state utility carries out the apportioning and provides export (EG _{EXP,PA,y}) and import (EG _{IMP,PA,y}) data to the project participant for his WTGs. From this the net export of electricity to grid by the WTGs of the project proponent is calculated on monthly basis (EG _{BL,y} = EG _{EXP,PA,y} - EG _{IMP,PA,y}). PP does not have any role in the apportioning and hence procedure of apportioning is not outlined in the PDD. The EG _{BL,y} calculated as above is directly used for emission reduction calculation and on the same monthly net generation data, PP raises the invoice to MSEDCL. Hence, invoice raised and payment records can be used to cross check the amount of monthly net electricity export to grid. The monitoring frequency is continuous and readings are recorded on monthly basis, as required by the methodology /07/
2	The quantity of electricity delivered to the project plant/unit from the grid EG_{IMP,PA,y} (MWh/year)	The project WTGs along with other WTGs of the wind farm is connected to a main and check meter at the substation where continuous monitoring of total power import and export from all WTGs takes place. Main and check meter remains under the custody of state utility. O & M provider along with state utility takes the joint meter reading (Gross export and import) on monthly basis from the main energy meter installed at the substation. The O & M provider and the state utility carries out the apportioning and provides a copy of electricity generation report which includes gross export (EG _{EXP,PA,y}) and gross import (EG _{IMP,PA,y}) of electricity

VALIDATION REPORT

		from the WTGs of project participant.
3	The quantity of electricity supplied by the project plant/unit to the grid $EG_{EXP,PA,Y}$ (MWh/year)	The project WTGs along with other WTGs of the wind farm is connected to a main and check meter at the substation where continuous monitoring of total power import and export from all WTGs takes place. Main and check meter remains under the custody of state utility. O & M provider along with state utility takes the joint meter reading (Gross export and import) on monthly basis from the main energy meter installed at the substation. The O & M provider and the state utility carries out the apportioning and provides a copy of electricity generation report which includes gross export ($EG_{EXP,PA,Y}$) and gross import ($EG_{IMP,PA,Y}$) of electricity from the WTGs of project participant.

Management system and quality assurance

Electricity meter of 0.2S class accuracy shall be used. Main electricity meters at Sub-station will be calibrated as annually. The accuracy class of the energy meter is as per the CEA notification **/56/** and hence complies with the International Standards. Calibration records shall be maintained by state utility. The O & M of the project activity will be done by the technology supplier who has dedicated trained personnel to carry out the day to day operation and maintenance of the project activity so as to monitor the quantity of electricity supplied to the grid. In addition,

The operational and management structure implemented together by PP and the technology supplier is summarized below:

- The O & M team monitors continuous electricity generation from individual WTGs and compile so as to calculate the monthly electricity generation.
- The project manager maintains the data records received from O & M team.
- Final data management and invoicing against net electricity generation will be done by Project proponent.
- The data will be archived for 2 years after the end of the crediting period by the PP

RINA confirms that the monitoring plan mentioned in the PDD is in accordance with the requirements mentioned in the monitoring methodology and the local regulatory requirements of the state utility, as well the monitoring arrangements described in the monitoring plan are feasible within the project design. RINA is of the opinion that the monitoring plan will give opportunity for real measurement of achieved emissions reductions for 2 years after the crediting period.

3.16 Estimation of GHG emissions

The calculation and formulae as addressed in the approved baseline and monitoring methodology AMS-I.D, version 17 **/07/** have been applied.

$$ER_y = BE_y - PE_y - LE_y$$

The emission reductions ER_y by the project activity during the crediting period is the difference between the baseline emissions BE_y , project emissions PE_y and emissions due to leakage LE_y , as following:

Baseline Emissions:

The baseline emissions have been calculated as the product of the net electricity exported to NEWNE grid by the project activity (which is the sum of the individual net electricity exported to NEWNE grid by each of WEGs) and combined margin emission factor of the NEWNE grid.

$$BE_y = EG_{BL,y} * EF_{CO2,grid,y}$$

VALIDATION REPORT

CM (combined margin) emission factor for NEWNE grid of India has been calculated on the basis of sum of 75% of OM (operating margin) and 25% of BM (build margin).

$$EF_{CO_2,grid,y} = EF_{grid,CM,y} = 0.75 * EF_{grid,OM,y} + 0.25 * EF_{grid,BM,y}$$

The CM emission factor is calculated as 0.9528 tCO₂e/MWh as per the “Tool to calculate the emission factor for an electricity system” (Version 02.2.1, EB 63 Annex 19) /10/ and has been sourced from the Central Electricity Authority (CEA) CO₂ Baseline database /15/.

Consideration about EF_{OM}: The simple OM emission factor have been calculated using the Simple OM method as the low-cost/must run resources constitute less than 50% (for year 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11) /15/. The ex-ante vintage data has been used for the OM calculation of the project. The PDD, version 01 /01/ was web-hosted for global stakeholder comments from 15/08/2012 to 13/09/2012 and the latest available data vintage is taken for the EF calculations. EF_{OM} for the most recent three years (2008-09, 2009-10 and 2010-11) and the weighted average is calculated to be 0.9842 tCO₂e/MWh /02/. The calculated EF_{OM} is fixed ex-ante and will not be reviewed in the crediting period of the project activity.

Consideration about EF_{BM}: BM is calculated ex-ante based on the average emission intensity of 20% most recent capacity additions in the grid based on the net generation for the year 2010-2011. Consequently, the Build Margin emission factor is calculated to be 0.8588 tCO₂e/MWh. This is as per the “Tool to calculate the emission factor for an electricity system” (Version 02.2.1, EB 63 Annex 19) /10/.

CM (combined margin): The baseline emission factor (CM) is calculated as the average of the operating margin emission factor and the build margin emission factor where the weights W_{OM} and W_{BM}, by default, are 75% W_{OM} and 25% W_{BM}. The combined margin emission factor for NEWNE grid of India has been calculated to be 0.9528 tCO₂e/MWh, which is fixed ex-ante for the entire crediting period. PP has provided the baseline emission reduction sheet /02/ for the calculation of combined margin emission factor.

The validation team accepted the same as this follows the latest version of the database available to the project participant at the time of submission of PDD for validation. So, RINA is of the opinion that all the assumptions and data used by the PP discussed in the PDD are appropriate and conservative and same has been cross checked with the references and the sources provided by the PP in the PDD /01/.

Project Emissions:

As per the methodology AMS-I.D version 17 /07/, the project activity involves grid connected energy generation from renewable power plant. Therefore, it doesn't need to consider the project emissions. Also, it was verified that all the wind turbines are brand new and there is no transfer of equipment from or to other project activity through the purchase orders /31/. Hence, no leakage has been considered for this project activity.

Leakage:

Also, it was verified that all the wind turbines are new and there is no transfer of equipment from or to other project activity. Hence, no leakage has been considered for this project activity.

Emission Reductions:

The emission reduction ER_y by the proposed project activity during the crediting period is the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y) as follows,

The following is the formula used for the same,

$$ER_y = BE_y - PE_y - LE_y$$

ER_y -Emission reductions during the year y.

VALIDATION REPORT

BE_y -Baseline emissions during the year y.
PE_y -Project emissions during the year y.
LE_y - Leakage emissions during the year y.

Based on the above consideration the emission reductions from the project activity have determined to be 8,513 tCO₂e per year which is the average of 10 years crediting period, based on ex-ante fixed baseline emission factor of 0.9528 tCO₂e/MWh **/02/**

The validation team concludes that the project emissions, baseline emissions, leakage and emission reductions stated in the PDD **/01/** are appropriate and as per the methodology **/07/**. The validation team also confirms that the estimates provided in the PDD **/01/** are reasonable and the project participant has correctly applied the methodology. In summary RINA confirms that the emission reductions are correct, reasonable, and conservative..

3.17 Environmental Impacts

No significant adverse environmental impact is expected due to project activity, since the project is a renewable energy (wind energy) project with no project emissions. Furthermore, there is no mandatory legal requirement for carrying out EIA for wind energy projects in India, which was verified by the EIA notification of MoEF, dated 14/09/2006 (amendment on 01/12/2009) **/28/**.

RINA has verified all the statutory clearances which include permission from MEDA **/22/** and commissioning certificates **/21/**. The validation team concludes that all the clearances obtained are in accordance with the procedures required by the host party and no significant environmental impacts are expected from the project activity.

3.18 Local stakeholders consultation

Prior to the publication of the PDD version 01 **/01/** on the UNFCCC website from 15/08/2012 to 13/09/2012, the project proponent invited local stakeholders through public notice in local newspaper "Navshakti (Marathi)" on 05/05/2012 **/24/** and organized the local stakeholder consultation process on 15/05/2012 for the project activity. Gram Panchayat Members, local villagers, employees of the technology supplier were present at the meeting. RINA cross checked the attendance list of stakeholders' **/24/** and also interviewed some of the local stakeholders during site visit to confirm the consistency of the information provided in the PDD.

A summary of comments has been provided by PP and it is found that no adverse comment was received for the project activity **/24/**. This has also been verified by RINA validation team during site visit on 25/09/2012 by conducting a random stakeholder's meeting at the WTGs site. Further, the interviewees confirmed that there was no adverse comment about the project and this project will lead to employment generation and better environmental conditions. RINA considers the local stakeholder consultation carried out adequately and can confirm that the process is credible.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD version 01 of 21/05/2012 **/01/** was made publicly available on the CDM UNFCCC website and Parties, stakeholders and NGOs through the CDM website (<https://cdm.unfccc.int/Projects/Validation/DB/LOL6VY4SITYCX8GRKSR8JISPZ0IR3E/view.html>) invited to provide comments during a 30 days period from 15/08/2012 to 13/09/2012. Below comments as presented in **Table A**, were received during this period.

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
leo, leonarddecap@gmail.com	<ol style="list-style-type: none"> Is the project equipment purchased second hand equipment or sourced from cheap foreign sources? If yes, the issue must be probed by DOE since invoices will invariably be inflated and forged. Total project costs mentioned by PP will not be the same as originals. Hence no additionality. These facts must be probed in full by DOE by checking all documents and money transactions along with bank statements and certified accounts by a legally acceptable financial analyst. From DOE side which auditor has done marketing and business development for acquiring this business of validating this project? With whom he or she was co-ordinating at PP or CER buyer? The same person who has done the marketing and business development to acquire the business do validation or participate in any manner what so ever in the validation process? One cannot do like that. It is against the accreditation rules and norms followed since ages. 	<p>At first, I would like to thank Mr. leo for raising queries. I would like to compliment your acquaintance on the CDM process. Your concern for the project is really appreciable. The comments of such vigilant stakeholders is worth appraise as these enhance the transparency in the project.</p> <ol style="list-style-type: none"> Project equipment purchased from M/s. Gamesa Wind turbine Pvt Ltd are not second hand equipments. Techno commercial offers and purchase order raised by PP are provided to DOE for further verification. Following a fair practice, PP had called quotations from a number of DOEs in India. As the offer submitted by the DOE was most competitive, PP had finalized this DOE. PP was not approached by any personnel of the DOEs. 	<ol style="list-style-type: none"> It is evident from the purchase order copies the project equipments are not second hand. Further, from the commissioning certificates and site visit observations it is confirmed that the project equipments are newly purchased. Further the validation team has cross checked the ledger accounts copy which shows money released to the technology supplier. Hence, response is accepted and query is closed. The validation team would like to clarify that RINA was approached by PP for this project and no marketing was carried out by DOE. RINA has carried out the validation in line with CDM accreditation standard and RINA procedures. Query is closed.

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>DOE should send auditors from different offices or countries to do this validation audit. DOE must take care of impartiality and accreditation rules. Due to the targets set by the DOE managements auditors are doing marketing and meeting clients and giving promises that the project will be taken care. Is it acceptable and fair? This must be stopped. No auditor should do marketing. Only non-auditing staff should do marketing. DOE to ensure the same please.</p> <p>3. If applicable only: Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier. DOE to check the same through independent sources also. Once some bundles are non-additional and getting negative validation from a DOE, PP is rolling out the same project as an individual project which is not a CDM project at all. DOE to verify the same from independent sources and also take undertaking in the form of an affidavit from the PP's that any misrepresentation or false statement with respect this would</p>	<p>3. All the machines and equipments were never a part of any bundle of CDM project activity.</p>	<p>3. Not applicable for the project activity.</p> <p>4. All input values are cross checked with credible references and publicly available sources. Accordingly detailed discussion and conclusion is presented in the report. Response is accepted and query is closed.</p> <p>5. The project is a small scale wind power project and no DPR/feasibility report has been submitted for the same. The input values to demonstrate additionality is taken from the offer letter from technology supplier /47/, third party PLF report /33/ and MERC tariff order /20/. Hence, source of input values are considered credible and acceptable to the validation team. Response is accepted and query is closed.</p> <p>6. As discussed in above</p>

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>attract strict legal action from UNFCCC and DOE. Furthermore the registered project must be de-registered in case of any future findings contradicting the submissions made by the project owner.</p> <p>4. DOE to ensure that the PDD values are consistent and ensure that the CDM project is a genuine project</p> <p>5. DoE to check the Detailed Project Report and Feasibility Report which is submitted to the other agencies and Banks by Project owner and ensure that the values match with the DPR/FR submitted to DoE also.</p> <p>6. Careful study must be done so that the DPR/FR is not in different versions made and submitted with different purposes to different agencies, which is totally unacceptable, illegal and unethical</p> <p>7. DPR/FR values must be probed fully. DOE must take a written undertaking from the PP/Consultant about the list of parties to whom this DPR/FR is submitted and for what purposes. Then DOE should cross check</p>	<p>4. CDM project is a genuine project, All the relevant documents have been submitted to the DOE for verification.</p> <p>5. Project activity is a wind based energy generation project, All the parameters which are considered for investment analysis does not sourced from DPR/FR. Further, Important parameters like PLF, capacity, cost etc. can be cross checked from the mentioned document sources and can be justified with the applicable UN guidelines.</p> <p>6. No DPR/FR has been submitted to DOE and all the parameters sources have been mentioned in the IRR calculation sheet.</p> <p>7. No DPR/FR has been submitted to DOE and all the parameters sources have been mentioned in the IRR calculation sheet. All the</p>	<p>review DPR is not available for the project activity and credible documents, references have been checked for the project activity. Hence, response is accepted and query is closed.</p> <p>7. As discussed in above no DPR is submitted for the project activity. Hence, not applicable</p> <p>8. As discussed in above no DPR is submitted for the project activity. Hence, not applicable.</p> <p>9. As discussed in above no DPR is submitted for the project activity. Hence, not applicable.</p> <p>10. The baseline scenario of the project activity is in line with the applied methodology AMS-I.D, version 17. Hence, response is accepted and query is closed.</p> <p>11. The actual cost of the project is INR 31.86 crores as per</p>

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>with all the parties and confirm that the same DPR/FR is submitted to all the parties correctly without any changes. DOE must not accept any reports and undertakings from PP/Consultant. DOE must make independent evaluation and use totally different parties without informing the PP or Consultant to cross check the facts.</p> <p>8. DOE to write to the party who prepared the DPR/FR which is submitted to the banks and other agencies and the same is verified against the one submitted to the DOE by PP/Consultant</p> <p>9. DOE must not entertain this project any more if found the DPR/FR is tampered with at any point in time. PP can not give different DPR's and FR's. They must submit only the one given to Banks and other agencies while obtaining loans and decision making time.</p> <p>10. How is the base line defined in this project? Is Base line hypothetically defined with no proper evidences and proper justification? In such case, DOE cannot take the base line as</p>	<p>relevant documents have been submitted to the DOE for verification.</p> <p>8. No DPR/FR has been submitted to DOE and all the parameters sources have been mentioned in the IRR calculation sheet. All the relevant documents have been submitted to the DOE for verification.</p> <p>8. Project activity is a wind based energy generation project, All the parameters which are considered for investment analysis are not sourced from DPR/FR. Further, Important parameters like PLF, capacity, cost etc. can be cross checked from the mentioned document sources and can be justified with the applicable UN guidelines.</p> <p>9. Project activity is a wind based energy generation project, All the parameters which are considered for investment analysis does not sourced from DPR/FR. Further, Important parameters like PLF, capacity, cost etc. can be cross</p>	<p>the purchase order released by the project proponent. The offer letter was available with PP at the time of investment decision which states the project cost as INR 34.50 crores. Actual project cost is 7.65% less than the offer letter price which has been covered under sensitivity analysis. As per CWET the capital cost for find farm ranges between 4.5 crores to 6.85 crores per MW /57/. Hence, the cost of the project activity is found appropriate. Response is accepted and query is closed.</p> <p>12. As discussed in above no DPR is submitted for the project activity. Hence, not applicable.</p> <p>13. The project proponent has considered the project under CDM as per UNFCCC EB guidelines. It is evident from the UNFCCC website under</p>

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>suggested by the PDD. Please check that there are real emission reductions beyond the real and factual base line. It may so happen that this project qualifies for no CER's. DOE cannot assume values and things as giving by this PP. Whatever values are considered throughout the project in all documents including the real DPR (not the one prepared for CDM, the one given to the banks and others), they must be validated, verified and double checked. Do not ask PP for DPR. Ask the parties who have been given DPR by the PP. Get directly from the bank and others by each page of the DPR and Feasibility report signed. Such document can be considered as a real DPR or FR. UNFCCC CDM process cannot be degraded by fabricating and misinterpreting the project base line and additionality</p> <p>11. DOE to be more careful so that this is a genuine CDM project. What is the exact project cost? The project cost is covering what? Each value considered must be validated with proof. The</p>	<p>checked from the mentioned document sources and can be justified with the applicable UN guidelines.</p> <p>10. As per the applicable methodology, AMS 1D, the baseline scenario is that the 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 into the grid. This has been used by the PP.</p> <p>11. Project Cost is Rs. 345 Million, which is sourced from Techno commercial offer. Project cost includes supply of WTGs, transformer, tower, erection & commissioning of WTGs, transportation, insurance for transportation and transfer of</p>	<p>prior consideration section, the PP intimated within six months from the start date the intention of seeking CDM benefit for the project activity. Further, the board resolution also justifies the CDM consideration for the project activity. The additionality of the project activity is demonstrated using benchmark analysis. The equity IRR is 7.90% and the benchmark taken is 17.78%. The IRR and benchmark has been calculated as per the investment analysis guidelines i.e. EB 63 Annex 5. Since the IRR without CDM is less than benchmark, project without CDM is not viable. Further, the project involves only equity which is evident from board resolution copy. Hence, response is accepted and query is closed.</p>

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>machinery is second hand purchased or fresh and new from an OEM? In either case DOE to check all the quotations, proposals, purchase orders, invoices, way bills, transport bills, proof of payments like bank statements. DOE to check with banks by way of written confirmation the amount transacted, to whom the money is paid, when the money is paid, is the party paid is the correct party as shown in the purchase orders. It may so happen that the values, party names, dates are fabricated and misrepresented in this project. DOE should terminate their contract for this project immediately. This is the only way out to protect the value of CDM process. If the PP is purchasing second hand or second quality equipment and inflating the purchase order values and invoices, this must be probed thoroughly and real values to taken for additionality calculation. Then I'm sure the additionality is not there at all in such a situation.</p> <p>12. Project owner should show some undertaking letter from bank</p>	<p>development rights for land. TCO and POs are provided to DOE for verification.</p> <p>Project equipment purchased from M/s. Gamesa Wind turbine Pvt Ltd are not second hand equipments. Techno commercial offers from M/s. Gamesa Wind turbine Pvt Ltd and purchase order raised by PP are provided to DOE for further verification.</p> <p>12. Project activity is a wind based energy generation project, All the parameters which are considered for investment analysis are not</p>	<p>In summary, all comments are closed.</p>

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>manager to DoE stating that both DPR's are same. These kinds of letters should not be accepted and entertained by DoE at face value, but must be checked independently. While collecting the DPR/FR from banks and other agencies, all DPR/FR pages should be counter signed by Banks and other agencies so that the real DPR/FR given to other parties by the PP/Consultant is same as the one submitted to DOE.</p> <p>13. Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects? If not this project should be rejected right away by DOE by terminating the contract forthwith. If yes, where is the proof? What is the date of the evidence document from bank? Is this document printed now a days or earlier. DOE to independently check the</p>	<p>sourced from DPR/FR. Further, Important parameters like PLF, capacity, cost etc. can be cross checked from the mentioned document sources and can be justified with the applicable UN guidelines.</p> <p>13. PP has considered the CDM revenues while envisaging the project. This project is having a debt component and without CDM the project was not viable. However, it was discussed in the meeting of board of Directors on 25 July 2011 that the project's financial viability could be established only with the help of carbon benefits available to such environment-friendly projects. PP has applied for the loan. loan sanctioned letter dated 4 June 2012 from ICICI bank has been provided to DOE for further verification</p>	

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	<p>same. If the document is available from Bank it must be checked from all angles so that it is genuine and not forged and date changed by putting back dated. This is normally done, DOE to be aware of this please. Please check the communication the PP had during that time with banks, emails and postal receipts and the weights and dates mentioned on the receipts. Do not believe in courier bills and receipts since these can be cooked up easily. Insist on government owned postal service receipts only. If the project is fully equity project then on what basis the PP has invested full equity in to the project while considering the CDM revenue? DOE to check the same in detail and bring out the facts. Is there any past record of this PP to invest or not to invest at returns what he is talking about in this project? Proper evidences must be reviewed and digged out by the DOE and take decision on the project based on established facts. Do not ask documents from PP, DOE to collect the same from different sources to do</p>		

VALIDATION REPORT

TABLE A			
Details of the commenter	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	independent evaluation.		

VALIDATION REPORT

5 VALIDATION OPINION

RINA Services Spa (RINA) has performed validation of the project activity “5.10 MW Wind Power Project by Shyam Metals & Energy Limited in Maharashtra, India” in India, with regard to the relevant requirements for CDM activities.

The review of the project design document and the subsequent follow-up interviews have provided RINA with sufficient evidence to determine the fulfillment of the stated criteria.

The host Party is India fulfils the participation criteria and has approved the project and authorized the project participants M/s Shyam Metals & Energy Limited. The DNA from India confirmed that the project assists in achieving sustainable development.

The project correctly applies the approved baseline and monitoring methodology “AMS-I.D”, “Grid connected renewable electricity generation”, version 17 of 03/06/2011.

The project involves electricity generation through wind electric generators, thereby, results in reduction of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. The total emission reductions from the “5.10 MW Wind Power Project by Shyam Metals & Energy Limited in Maharashtra, India” are estimated to be on an average 8,513 tCO₂e per year over the selected 10 years fixed crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is RINA’s opinion that the project participants are able to implement the monitoring plan.

In conclusion, it is RINA’s opinion that the project activity “5.10 MW Wind Power Project by Shyam Metals & Energy Limited in Maharashtra, India” in India, as described in the PDD, version 04 of 06/06/2013, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “AMS-I.D”, “Grid connected renewable electricity generation”, version 17 of 03/06/2011.

RINA thus requests registration of the project as a CDM project activity..

APPENDIX A

VALIDATION PROTOCOL

TABLE 1 MANDATORY REQUIREMENTS

Requirement	Reference	Conclusion
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reductions commitment under Art. 3.	Kyoto Protocol Art.12.2	NA
2. The project shall assist non Annex I Parties contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2	OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved	Kyoto Protocol Art.12.5a CDM Modalities and Procedures §40a	CAR 1, OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art.12.2 CDM Modalities and Procedure §40	CAR 1, OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance (ODA) and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7 CDM Modalities and Procedures Appendix B §2	CL 2, OK
6. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities and Procedures §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedure §31b	NA
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedure §31b	NA
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	CDM Modalities and Procedure §43	CAR 9, CAR 10, CAR 11, CAR 12, CL 4, OK
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art.12.5b	CAR 8, CAR 13, CAR 14, CL 1, OK
12. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech Accords and shall not be a de-bundled component of a larger project activity.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK
13. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and use the simplified baseline and monitoring	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK

Requirement	Reference	Conclusion
methodology for that project category.		
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK
15. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30/45 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	CAR 19 , TABLE A, OK
17. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel.	CDM Modalities and Procedures §37e	OK
18. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §47	OK
19. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords, and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	CAR 15 , CAR 16 , OK

TABLE 2 REQUIREMENTS CHECKLIST

Checklist Question	Reference	MoV ¹	Comments	Conclusion
A Description of Project Activity				
A.1 Title of the project activity				
A.1.1.	Does the used project title clearly enable the reader to identify the unique CDM activity? Is there an indication of a revision number and the date of the revision.	/01/	DR As per the web-hosted PDD, the title of the project activity in the PDD is “5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India” version 1.0, dated 21/05/2012. However, the PP is requested to submit the Letter of Approval from host country DNA.	CAR-1 , OK
A.1.2	Does the project comply with the applicable requirements for completing the PDDs (latest version available)?	/01/08/	DR/ CC PP has used the latest project design document form for small scale project activities, version 04.1, dated 11/04/2012. However, the PDD is not transparent on the following as per the “Guidelines for completing the project design document form for small scale CDM project activities” (version 01), dated 02/03/2012”: PDD is also not transparent on whether project activity involves any technology transfer from any Annex 1 country or not. International standard of numbering for the values used in the PDD.	CAR-2 , OK
A.1.3	Does the PDD comply with the template available (latest version)?	/01/15/	DR The PDD complies the “Project Design Document Form for Small Scale CDM Project Activities (F-CDM-SSC-PDD)” version 04.1, dated 11/04/2012. This was the latest available template at the time of starting the validation.	OK
A.2 Description of the proposed project activity				
A.2.1	Does the PDD contain an accurate description of the project activity and provide the reader with a clear	/01/	DR/ CC As per the PDD, the purpose of the project activity is to generate electricity from Wind Energy and supply the same	CL-1 , OK

¹ MoV: DR document review, I interview, CC cross checking

Checklist Question	Reference	MoV ¹	Comments	Conclusion
understanding of the precise nature of the project activity and the technical aspects of its implementation? How was the design of the project assessed?			to NEWNE grid of India. The project involves 6 WTGs, each of 850 kW capacity totaling 5.10 MW at Jath wind site under Sangli district in Maharashtra state of India. During the site visit the validation team found that all 6 WTGs are installed and out of six 2 WTGs got commissioned. However, PP is requested to submit the following documents: <ol style="list-style-type: none"> 1. Offer letter from technology supplier and purchase order release by project proponent. 2. Power Purchase Agreement executed remaining two 4 WTGs which are yet to be commissioned. 3. Commissioning certificates of remaining 4 WTGs as and when commissioned. 4. Documentary evidence for technical specification and lifetime of WTGs. 	
A.2.2 Does the project activity involve alteration of existing installations? If yes, have the differences between pre-project and post-project activity been clearly described in the PDD?	/01/	DR/CC	The project activity is a Greenfield project. During the site visit, it was noted by the validation team that all WTGs are new and only two WTG got commissioned in the month of April 2012. Other 4 WTGs are yet to be commissioned. However, PP is requested to submit the following documents: <ol style="list-style-type: none"> 1. Offer letter from technology supplier and purchase order release by project proponent. 2. Power Purchase Agreement executed remaining two 4 WTGs which are yet to be commissioned. 3. Commissioning certificates of remaining 4 WTGs as and when commissioned. 4. Documentary evidence for technical specification and lifetime of WTGs 	CL-1 , OK
A.2.3 Is all information provided consistent and in compliance with the actual situation or planning?	/01/	DR	The information regarding the actual implementation status or planning of the project activity is not provided in the PDD transparently.	CAR-3 , OK
A.2.4 Does the project qualify as a small-scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/01/27/	DR	The project activity qualifies as small-scale CDM project since the total capacity of all the WTGs is 5.10 MW which is less than the stipulated capacity of 15 MW as per the small scale CDM project activity criteria defined in paragraph 6 (c)	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				of decision 17/CP.7 on the modalities and procedures for the CDM. Hence, the project activity qualifies under small scale CDM project activity.	
A.2.5	Is the small-scale project activity a debundled component of a larger project activity in accordance with the Guidelines on assessment of debundling for SSC project activities?	/01/08/	DR/ CC	The project involves 6 nos. of WTGs from M/s Shyam Metalics & Energy Limited. The total project capacity is 5.10 MW. The PP is not involved with any other CDM project activity in the same category and within 1 km of the project boundary in last 2 years. This has been checked during the site visit and from the databank of UNFCCC. Hence the project activity is not a de-bundled component of a large scale project activity as per the "Guidelines on assessment of de-bundling for SSC project activities" version 03 of EB 54 dated 28/05/2010	OK
A.3 Project participants					
A.3.1	Have the Parties and project participants participating in the project been listed in tabular form in Section A.4 and are they consistent with the information detailed in Annex 1 of the PDD?	/01/	DR	As per the table provided in section A.4 of the PDD, the host party involved is India and the project participant is M/s Shyam Metalics & Energy Limited. However, it is not clear from the PDD whether the project participant is a private entity or public entity.	CAR-4, OK
A.3.2	Do all participating Parties fulfil the participation requirements as follows: (a) Party has ratified the Kyoto Protocol (b) Party has a Designated National Authority (c) The assigned amount has been determined	/01/13/	DR/ CC	Since it is a unilateral project, the only party involved is India. India ratified the Kyoto Protocol on 26/08/2002 and is allowed to participate. India has a Designated National Authority (DNA) called National Clean Development Mechanism Authority (NCDMA) under Ministry of Environment and Forest, Govt. of India. There is no assigned amount determined for India.	OK
A.3.3	Have the letters of approval have been issued?	/01/	DR	The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1, OK
A.3.4	Do the letters of approval meet the following requirements? (a) LoA(s) is/are issued by the DNA (b) LoA confirms that the Party has ratified the Kyoto Protocol;	/01/	DR	The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1, OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
	(c) LoA confirms that participation is voluntary (d) The LoA confirms that the project contributes to the sustainable development of the Host Country? (e) The LoA is valid for the proposed project activity under validation (f) The LoA was received directly by the DNA or by the PP				
A.3.5	Indicate the means of validation employed to assess the authenticity	/01/	DR	Please refer to section A.3.3 of this protocol.	CAR-1, OK
A.3.6	Have all private/public project participants been authorized by a Party to the Kyoto Protocol?	/01/	DR	Please refer to section A.3.3 of this protocol.	CAR-1, OK
A.3.7	Are the entities included in the PDD those authorized as PPs?	/01/	DR	The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1, OK
A.3.8	Do the PP(s) listed in the PDD have a contract with RINA for the project validation?	/01/26/	DR/ CC	Yes; the PP (M/s Shyam Metalics & Energy Limited) has a contract with RINA for validation of the project "5.10 MW Wind Power Project by Shyam Metalics & Energy Limited in Maharashtra, India".	OK
A.4 Modalities of communication					
A.4.1	Does the MoC statement comply with the latest version of the Form F-CDM-MOC available?	/01/27/	DR	PP is requested to submit the latest version of the Modalities of Communication statement (F-CDM-MOC) and documentary evidence to check the authenticity of the signing authority.	CAR-5, OK
A.4.2	Does the MoC statement is correctly completed including Annex 1?	/01/27/	DR	Please refer to section A.4.1 above.	CAR-5, OK
A.4.3	Does the MoC statement identify all PPs and focal points?	/01/27/	DR	Please refer to section A.4.1 above.	CAR-5, OK
A.4.4	How the personal identities, the specimen signatures and the employment status is cross-checked?	/01/27/	DR	Please refer to section A.4.1 above.	CAR-5, OK
A.4.5	Is the official who submitted the MoC statement and the official who signed the written confirmation duly authorized to do so on behalf of the respective PPs?	/01/27/	DR	Please refer to section A.4.1 above.	CAR-5, OK
A.5 Technical description of the project					
A.5.1	Does the information provided on the location of the	/01/	DR	It was noticed during the site visit that all six WTGs were	CAR-6, CL-1,

Checklist Question	Reference	MoV ¹	Comments	Conclusion
project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)?			erected and two got commissioned. However, the PDD is not transparently described the project location with correct latitude and longitude of each WTG in degree, minute and second. Also, PP is requested to provide the following documents: 1. Offer letter from technology supplier and purchase order release by project proponent. 2. Power Purchase Agreement executed remaining two 4 WTGs which are yet to be commissioned. 3. Commissioning certificates of remaining 4 WTGs as and when commissioned. 4. Documentary evidence for technical specification and lifetime of WTGs	OK
A.5.2 Is the category(ies) of the project activity correctly identified?	/01/	DR	Yes; the projects falls under Sectoral Scope: 1 (Energy industries (renewable / non renewable sources) and correctly applies the methodology AMS-I.D version 17	OK
A.5.3 Does the project design engineering reflect current good practices? Would the technology result in a significantly better performance than any commonly used technologies in the host Country? Is any transfer of technology from any Annex I Party involved?	/01/	DR	The project involves electricity generation from Wind Energy. There is no GHG emissions associated with electricity generation from wind energy and therefore the project technology is a clean form of technology. Each WTG included in the project activity is of Gamesa (model G58) 850 kW capacity. The same is found consistent during the site visit by the validation team. However, PP is requested to provide documentary evidence for technical specifications of WTGs used in the project activity.	CL1, OK
A.5.4 What is the expected operational lifetime of the project activity? Is it reasonable?	/01/	DR	The expected operation lifetime of the project activity is 20 years as per the PDD. However, PP is requested to provide supporting documentary evidence for the same.	CL1, OK
A.6 Public funding				
A.6.1 Does the information on public funding provided conform to the actual situation or planning as presente by the PPs?	/01/	DR	As per the project PDD, the project activity does not involve any public funding. However, PP is requested to provide documentary evidence for the source of funding of the proposed project activity.	CL2, OK
A.6.2 If public funding from Parties included in Annex I is	/01/	DR	Please refer to section A.6.1 above.	CL2, OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion							
used for the project activity, have these Parties provided an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties?											
B. Baseline and monitoring methodology											
B.1 Methodology applied											
B.1.1	Does the project activity apply an approved methodology and the correct version thereof?	/01/ /07/	DR/ CC	The project activity correctly applies the approved methodology AMS-I.D “Grid connected renewable electricity generation”, version 17 of EB 61 dated 03/06/2011.	OK						
B.1.2	Is there any specific guidance, including the methodological tools provided by EB and has these guidance been applied?	/01/ /07/	DR/ CC	Yes; the following tools is correctly applied in the project activity as referred by the methodology: - Tool to calculate the emission factor for an electricity system, version 02.2.1, EB 63	OK						
B.1.3	How was it validated that the project activity complies with the applicability criteria?	/01/ /07/	DR/ CC	<table><tr><th>Applicability criteria</th><th>Project activity</th><th>Criteria is met?</th></tr><tr><td>This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a) Supplying electricity to a national or a regional grid; or b) Supplying electricity to an identified consumer</td><td>The project activity involves electricity generation from wind energy. This has been confirmed during the site visit on 25/09/2012. Two WTGs out of six has been commissioned and other 4 WTGs are yet to be commissioned until the day of the site visit.</td><td>Yes; However, PP is requested to provide copy of commissioning certificates and PPAs for the remaining WTGs.</td></tr></table>	Applicability criteria	Project activity	Criteria is met?	This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a) Supplying electricity to a national or a regional grid; or b) Supplying electricity to an identified consumer	The project activity involves electricity generation from wind energy. This has been confirmed during the site visit on 25/09/2012. Two WTGs out of six has been commissioned and other 4 WTGs are yet to be commissioned until the day of the site visit.	Yes; However, PP is requested to provide copy of commissioning certificates and PPAs for the remaining WTGs.	CL-1, OK
Applicability criteria	Project activity	Criteria is met?									
This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a) Supplying electricity to a national or a regional grid; or b) Supplying electricity to an identified consumer	The project activity involves electricity generation from wind energy. This has been confirmed during the site visit on 25/09/2012. Two WTGs out of six has been commissioned and other 4 WTGs are yet to be commissioned until the day of the site visit.	Yes; However, PP is requested to provide copy of commissioning certificates and PPAs for the remaining WTGs.									

Checklist Question		Reference	MoV ¹	Comments	Conclusion	
				facility via national/regional grid through a contractual arrangement such as wheeling.		
				<p>This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition; (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).</p>	<p>The project activity is a new project activity (Greenfield) and neither involves any replacement of existing installation nor any capacity addition to an existing system. This has been confirmed during the site visit on 25/09/2012. Moreover, only two WTGs out of six have been commissioned and other 4 WTGs are yet to be commissioned until the day of the site visit.</p>	Yes.
				Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this	<p>The project activity is not a hydro power project and therefore, this criterion is not applicable to the</p> <p>Not applicable to the project activity.</p>	

Checklist Question		Reference	MoV ¹	Comments		Conclusion
				methodology: <ul style="list-style-type: none"> The project activity is implemented in an existing reservoir with no change in the volume of reservoir; The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m²; The project activity results in new reservoirs and the 	project activity	

Checklist Question		Reference	MoV ¹	Comments			Conclusion
				power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.			
				If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,8 the capacity of the entire unit shall not exceed the limit of 15 MW	The project activity involves installation of only wind mill and this has been confirmed from copy of purchase order. In addition, during the site visit on 25/09/2012 the validation team confirmed that only wind turbines are installed and other non renewable power generation equipments were not installed at the site. The total installed capacity of the project activity is 5.10 MW which is below the limit of 15 MW. Thus the applicability	Yes.	

Checklist Question		Reference	MoV ¹	Comments			Conclusion
					condition is justified		
				Combined heat and power (co-generation) systems are not eligible under this category.	The project activity since the project is not a combined heat and power project.	Not applicable to the project activity.	
				In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The project activity is not a capacity addition to an existing renewable power generation facility. This has been confirmed from validation site visit.	Yes; However, PP is requested to provide copy of commissioning certificates and PPAs for the remaining WTGs.	
				In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	The project activity is neither a retrofit project nor a replacement of existing system. This has been confirmed during the site visit on 25/09/2012 by the validation team.	Not applicable to the project activity.	
B.1.4	Is the selected baseline one of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?	/01/ /07/	DR/ CC	Yes. The project proponent has chosen baseline scenario as per paragraph 10 of the approved simplified baseline methodology AMS-I.D version 17. The baseline is the electricity delivered to the grid by the project activity that			GL-1, OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				<p>otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources. However, PP is requested to provide following documents:</p> <ol style="list-style-type: none"> 1. Commissioning certificates of remaining 4 WTGs (since two WTGs are already commissioned) 2. Power Purchase Agreements of remaining 4 WTGs (since two WTGs are already commissioned and PPA is executed) 3. Approval from state nodal agency for setting up remaining 4 WTGs 	
B.2 Project boundary					
B.2.1	Is the project boundary are clearly defined and in accordance with the applied methodology?	/01/ /07/	DR/ CC	As per the methodology, the project boundary includes "the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to". However, the flow diagram of the project boundary is not representing the actual metering arrangement present on the site.	CAR-7, OK
B.2.2	What are the project's system boundaries (components and facilities used to mitigate GHGs)?	/01/ /07/	DR/ CC	<p>The system boundaries for the project activity are the 6 WTGs of 850 kW capacity each, the transmission lines and energy meters connected to WTGs for monitoring the quantity of electricity generation before exporting to grid. NEWNE regional grid has been considered for the purpose of baseline estimation. However, the flow diagram of the project boundary is not representing the actual metering arrangement present on the site.</p> <p>During the site visit on 25/09/2012 the validation team found that all WTGs are erected but only two WTGs got commissioned and rest are yet to be commissioned. The Jath substation where two WTGs are connected and other 4 shall be connected is equipped with a main meter and a check meter where metering of net energy export is monitored.</p>	CAR-7, OK
B.2.3	Which sources are identified for the project? Does the identified project boundary cover all possible sources linked to the project activity?	/01/ /07/	DR// CC	CO ₂ emission from the net electricity displaced in the NEWNE grid (baseline emissions) has been considered and this reflects clearly in the project boundary. The project	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			activity does not have any project or leakage emission. Moreover, the applied methodology AMS-I.D, version 17, does not require considering project emissions and leakage.	
B.2.4	/01/07/11/	DR	Yes; NEWNE grid is correctly identified as the relevant grid for the project activity in accordance with the latest version of the “tool to calculate the emission factor for an electricity system” version 2.2.1. The approach is also in line with the applied methodology.	OK
B.2.5	/01/	DR/I	The validation did not reveal any other emission sources, which may contribute to more than 1% to the estimated emission reductions of the project since this is only a windmill project which involves mainly the assembly of components at site and erection.	OK
B.3 Identification of the Baseline Scenario				
B.3.1	/01/07/11/	DR	<p>PP has selected the baseline scenario as per paragraph 10 of AMS-I.D, version 17 which states that “the baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid”. In addition, the grid emission factor has been calculated as per the “Tool to calculate the emission factor for an electricity system” and PP has referred to publicly available “CO₂ baseline database for Indian Power Sector” version 07 of January 2012, published by Central Electricity Authority, Govt. of India. However, PP is requested to provide following documents:</p> <ol style="list-style-type: none"> 1. Commissioning certificates of remaining 4 WTGs (since two WTGs are already commissioned) 2. Power Purchase Agreements of remaining 4 WTGs (since two WTGs are already commissioned and PPA is executed) 3. Approval from state nodal agency for setting up remaining 4 WTGs <p>In addition, PP is requested to clarify the following:</p>	CL-1, CAP-8, OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				<p>1. In step 3 (select of method to determine the OM) under section B.6.1 only three years data has been referred whereas as per the 'tool to calculate the emission factor for an electricity system' average of the five most recent years data has to be referred.</p> <p>2. Step 4 under section B.6.1 is not discussed thoroughly in line with the tool to calculate the emission factor for an electricity system'.</p>	
B.3.2	How have the other baseline scenarios been eliminated in order to determine the baseline?	/01/07/	DR	Methodology clearly prescribes the baseline; hence no other baseline scenarios are to be determined.	OK
B.3.3	What is the baseline scenario? Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/01/07/	DR	As stated in section B.4.1 above, the baseline scenario is the electricity delivered to the grid by the project activity that would have been generated by the operation of grid-connected power plants and by addition of new generation sources. It has been determined in accordance with the guidance in the applied simplified baseline methodology AMS-I.D., Version 17	OK
B.3.4	Has the baseline scenario been determined using conservative assumptions? Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies (E+ / E-), macro-economic trends and political aspirations?	/01/06/07/ /15/	DR/ CC	Since the approved methodology that is applied prescribes the baseline scenario, no further analysis is required, according to paragraph 115 of the CDM-VVS, version 02.0. However, PP has considered the values for Emission factor (EF) from Central electricity authority (CEA) data base, version 7, January, 2012 from Ministry of power, India. This is the latest version available at the time of submission of PDD to the DOE.	OK
B.4 Additionality					
B.4.1	What tool does the project use to assess additionality? Is this in line with the methodology?	/01/17/	DR/ CC	PP has discussed additionality of the project activity as per attachment A of Appendix B of the Simplified Modalities and Procedures for Small Scale CDM project activities (Version 08, 29/09/2011) and has selected Investment barrier to demonstrate the project additionality. This is in line with the methodology. However, PP is requested to refer the latest version of the additionality guideline in the PDD.	CAR-9, OK
B.4.2	What is the project additionality mainly based on?	/01/20/	DR/ CC	The PP has demonstrated the project additionality through the investment barrier. And in doing so, PP has referred to	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				the "Guidelines on the assessment of investment analysis" version 05, Annex 05 of EB 62 dated 15/07/2011. PP opted for benchmark analysis and has chosen equity IRR as the financial indicator.	
B.4.3 Prior consideration of CDM					
B.4.3.1	What is the starting date of the proposed project activity? Is it in accordance with the CDM Glossary of Terms?	/01/12/	DR/ CC	As per section C.1.1 of the PDD, the start date of the project activity is 26/12/2011 which is the date of releasing purchase order for supplying six WTGs from technology supplier. However, PP is requested to submit the copy of the purchase order to substantiate the start date as per the Glossary of CDM terms" version 06 dated 02/03/2012	CL-1, OK
B.4.3.2	Is the project activity a new project activity or existing project?	/01/12/	DR/ CC	The project is a new project activity since the start date is after 2 August 2008. However, please refer to section B.4.3.1 above.	CL-1, OK
B.4.3.3	For an existing project activity with a start date is prior the date of the PDD publication for GSC, what is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity?	/01/05/	DR/ CC	The project activity is a new project activity as discussed above. However, PP is requested to submit the copy of intimation to host country DNA and UNFCCC as per the "Clean Development Mechanism Project Standard", version 01.0.	CL-3, OK
B.4.3.4	Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status? Please specify the gap between the documented evidences.	/01/05/	DR/ CC	Please refer to section B.4.3.3 above.	CL-3, OK
B.4.4 Investment analysis					
B.4.4.1	What is the analysis method used to determine whether the proposed project activity is not (a) the most economically or financially attractive; or (b) economically or financially feasible, without the revenue from the sale of certified emission reductions?	/01/20/	DR/ CC	The PP has applied benchmark analysis method and calculated the post tax equity IRR for the project activity. As per the "guidance on the assessment of investment analysis" Annex 5 of EB 62, if the alternative to the project activity is the supply of electricity from a grid, this is not to be considered as investment and hence benchmark approach is considered appropriate and relevant to this project activity.	OK
B.4.4.2	What the financial indicator is used?	/01/20/	DR/ CC	Equity IRR (post tax) is chosen as financial indicator. The financial indicator is appropriate for the type of project activity as per the "guidelines on the assessment of	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				investment analysis" version 05; annex 5 of EB 62 dated 15/07/2011	
B.4.4.3	<p>If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the EB guidelines and it represents standard returns in the market?</p> <p>Is the benchmark suitable for the type of financial indicator presented?</p> <p>Is it ensured the any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity?</p>	/01/20/	DR/CC	<p>Yes; the benchmark is selected as per EB guideline "Guidelines on the assessment of the investment analysis" (Version 05, EB 62). In accordance to the guideline if the project could be developed by an entity other than the project participant, then the benchmark must be based on the parameters available in the market. Further, the investment analysis guideline also recommends country and project specific expected returns on equity in Appendix of the guideline. The appendix also states that in situations when an investment analysis is carried out in nominal terms, the project participants can convert the real term values provided in the table to nominal values by adding the inflation forecast of the central bank of the host country for the duration of the crediting period. Accordingly, PP also considered default expected return on equity for energy industries (Group 1) applicable for India as 11.75% and referring the guideline, PP converted the real term interest into nominal interest considering inflation rate as 6.30%. Accordingly, the resulted benchmark considering this approach arrived at a value of 18.79%. However, PP is requested to clarify the following:</p> <ol style="list-style-type: none"> 1. The appropriateness of the inflation rate stating how it is applicable to the project category and applicable at the time of decision making. 2. PP is requested to make it transparent in the PDD whether the investment analysis is carried out in nominal terms since the benchmark is converted to nominal terms as per the investment guideline. 3. The reference based on which the benchmark is converted to nominal term. 	CAR-10 , OK
B.4.4.4	<p>Is the investment analysis carried out in accordance with specific guidance from EB?</p> <p>Is the investment analysis complete and accurate?</p> <p>Is the investment analysis provided in a spreadsheet</p>	/01/20/	DR/CC	The investment analysis is carried out in accordance with EB guideline "Guidelines on the assessment of the investment analysis" (Version 05, EB 62). The investment analysis is provided in a spreadsheet.	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
version? Are all the formulas used readable and all relevant cell be viewable and unprotected?				
B.4.4.5 Cross-check the parameters used in the financial analysis against third party or publicly available sources (all parameters used as input values shall be cross-checked and assessed).	/01/03/19/	DR/ CC	<p>Input parameters used in the financial analysis are crossed checked against credible sources (third party or publicly available documents). However, PP is requested to clarify the following:</p> <ol style="list-style-type: none"> 1. Documentary evidence for the PLF considered in the IRR analysis in line with the "Guidelines for the reporting and validation of plant load factors" version 01 annex 11 of EB 48 dated 17/07/ 2009. Also clarify how this was applicable at the time of investment decision. 2. PP has considered preferential tariff as per MERC tariff order for wind zone-I. PP is requested to clarify how it can be ensured that the project location falls under wind zone –I and the PLF is considered for wind zone-I. 3. PP is requested to clarify the reason for not considering inflation in tariff for the life of the asset. 4. PP is requested to provide the source of interest rate considered in the IRR analysis along with the loan application and loan sanction letter. 5. Documentary evidence against the actual project cost and other input parameters incurred in the project activity. 6. Kindly provide the basis for considering 2 WTGs for GBI and basis for calculation of GBI income 7. Kindly provide the O&M contracts 8. Kindly provide the basis for the tax depreciation rates considered 9. Kindly provide the assessment year for which the tax rates have been considered <p>In addition the following are requested to explain:</p> <ol style="list-style-type: none"> 1. All input parameters with reference are not included 	CAR-11, CL 4, OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				transparently in the PDD. 2. Clarify the basis for considering CPI over WPI for inflation rate for benchmark calculation. 3. The first year calculation for revenue is taken for one day, kindly provide the basis for considering the expected commissioning date as 31/03/2012. The generation calculation for the last year is not understood. 4. The source for 40 installments for loan repayment is mentioned as per tariff order, the same could not be found in order	
B.4.4.6	Are the input values used in the investment analysis valid and applicable at the time of the investment decision taken by the PP?	/01/03/19/	DR/ CC	Please refer to section B.4.4.3 and B.4.4.5 above	CAR-11, CL 4, OK
B.4.4.7	Where applicable, the PFL has been defined ex-ante according to the applicable EB guideline?	/01/03/19/	DR/ CC	It is not clear from the PDD and the investment analysis worksheet how the PLF is considered is in line with the “Guidelines for the reporting and validation of plant load factors” version 01 annex 11 of EB 48 dated 17/07/ 2009	CL 4, OK
B.4.4.8	Does the time period of the investment analysis reflect the expected operation of the underlying project activity (technical lifetime)?	/01/03/	DR	Yes; the investment analysis is carried out for 20 years which is also the operational life of the project activity. However, PP is requested to provide documentary evidence for operational life of WTGs.	CL 1, OK
B.4.4.9	Does the fair value of the project activity assets is included at the end of the assessment period as a cashflow in the final year? Is the fair value calculated in accordance with local accounting regulations where available or international best practice?	/01/03/	DR	Yes; fair value is included at the end of the assessment period as cash inflow in the final year. However, PP is requested to provide the source of salvage value.	CAR-11, CL OK
B.4.4.10	Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the Host Country	/01/03/	DR	Please refer to section B.4.4.5 above.	CAR-11, CL 4, OK
B.4.4.11	Sensitivity analysis: have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified?	/01/03/20/	DR	Yes; the sensitivity analysis considers main parameters such as project cost, PLF (net generation), electricity tariff and O & M cost which either constitute 20% of cost or	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				revenue. This is in line with the "guidelines on the assessment of investment analysis" version 05, annex 5 of EB 62.	
B.4.4.11	Sensitivity analysis: is the range of variations is reasonable in the project activity? The main parameters can be changed for the different project category.	/01/	DR	PP is requested to justify the sensitivity range of $\pm 10\%$ with actual values of input parameters. Further, the PDD does not describe the required variations of key parameters to reach the benchmark and the possibility of happening the same.	CAR-12, OK
B.4.4.12	Have the key parameters been varied to reach the benchmark and the likelihood of this happening been justified to be small?	/01/	DR	Please refer to section B.4.4.11 above.	CAR-12, OK
B.4.5 Barrier analysis					
B.4.5.1	Are the barriers identified complimentary to a potential investment analysis?	/01/	DR	No other barrier other than investment barrier has been identified for the project activity. An investment analysis has been carried out to demonstrate the investment barrier and the requirement of CDM revenue for the project activity. This is in accordance with the Attachment A to Appendix B of the simplified modalities and procedure for small scale CDM project activities. However, please refer section B.4.1	CAR-9, OK
B.4.5.2	How were the investment barriers assessed to be real?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
	How were the technological barriers assessed to be real?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
B.4.5.3	How were the other barriers assessed to be real?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
B.4.5.4	Barriers due to prevailing practice (First of its kind): does the project apply measures currently covered in the framework (fuel and feedstock switch, switch of technology with or without change of energy source, methane destruction, methane formation avoidance)?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
B.4.5.5	Barriers due to prevailing practice (First of its kind): do the technologies deliver the same output and differ by at least of energy source/fuel, feed stock, size of installation?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
B.4.5.6	Barriers due to prevailing practice (First of its kind): does the applicable geographical area is in	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
	compliance with the definition as per the EB guideline?				
B.4.5.7	Is the project activity prevented by the identified barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
B.4.5.8	How the CDM can alleviate the identified barriers?	/01/	DR	Please refer to section B.4.5.1	CAR-9, OK
B.4.6 Common practice analysis					
B.4.6.1	Does the project apply measures currently covered in the framework (fuel and feedstock switch, switch of technology with or without change of energy source, methane destruction, methane formation avoidance)?	/01/	DR	Since, PP has demonstrated the additionality through investment analysis as per Attachment A to Appendix B of the simplified modalities and procedure for small scale CDM project activities; this is not applicable to the project activity. However, please refer section B.4.1	CAR-9, OK
B.4.6.2	Do the technologies deliver the same output and differ by at least of energy source/fuel, feed stock, size of installation, investment climate in the date of the investment decision, other features?	/01/	DR	Please refer to section B.4.6.1	CAR-9, OK
B.4.6.3	Does the applicable geographical area is in compliance with the definition as per the EB guideline?	/01/	DR	Please refer to section B.4.6.1	CAR-9, OK
B.4.6.4	How many similar non-CDM-projects exist in the region within the scope? (describe how the steps of the additionality tool have been applied)	/01/	DR	Please refer to section B.4.6.1	CAR-9, OK
B.4.6.5	What is the data source(s) used for the common practice analysis?	/01/	DR	Please refer to section B.4.6.1	CAR-9, OK
B.4.7 Conclusion					
B.4.7.1	What is the conclusion with regard to the additionality of the project activity?			The project additionality shall be concluded after satisfactory conclusion of CAR 9, CAR 10, CAR 11, CAR 12 and CL 4.	CAR-9, CAR-10, CAR-11, CAR-12, CL-4, OK
B.5 Algorithms and/or formulae used to determine emission reductions					
B.5.1 Baseline emissions					
B.5.1.1	Are the steps and equations applied to calculate the	/01/07/	DR	Yes. The baseline emission calculation in the PDD, version	CAR-8, CAR

Checklist Question	Reference	MoV ¹	Comments	Conclusion
baseline emissions in compliance with the requirements of selected baseline and monitoring methodology?			01 follows the paragraph 11 of AMS-I.D, version 17. And the calculation of emission factor is based on the "Tool to calculate the emission factor for an electricity system", version 02.2.1, annex 19 of EB 63 dated 29/09/2011. In addition, "CO ₂ baseline database for Indian power sector" version 07 of January 2012, published by Central Electricity Authority which is the latest available data at the time of PDD submission to the DOE is referred for estimating the grid emission factor. However, the emission reduction calculation steps are not transparently described in section B.6.1 of the PDD. In addition, please refer to section B.3.1 above.	43, OK
B.5.1.2 Have conservative assumptions been used when calculating the baseline emissions and are the uncertainty estimates properly addressed? Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/07/	DR/ CC	The baseline emissions are estimated in line with the approved methodology AMS-I.D, version 17. The net electricity generation is estimated considering a PLF of 20%. Further, "CO ₂ baseline database for Indian power sector" version 07 of January 2012, published by Central Electricity Authority which was the latest available data at the time of PDD submission to the DOE is referred for estimating the grid emission factor. However, it is not clear from the PDD and the investment analysis worksheet how the PLF is considered is in line with the "Guidelines for the reporting and validation of plant load factors" version 01 annex 11 of EB 48 dated 17/07/ 2009. In addition please refer to section B.5.1.1 above.	CAR-8, CAR-13, CL-4, OK
B.5.1.3 Baseline Emissions estimated (in case of different components applied please make them transparent).	/01/02/07/	DR/ CC	Baseline emissions estimated ex-ante is 8,088 tCO ₂ /year. However, please refer to section B.5.1.2 above.	CAR-8, CAR-13, CL-4, OK
B.5.2 Project emissions				
B.5.2.1 Are the steps and equations applied to calculate the project emissions in compliance with the requirements of selected baseline and monitoring methodology? Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/02/07/	DR/ CC	As per the paragraph 20 of AMS-I.D Version 17, the project activity does not require to calculate project emissions.	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
B.5.2.2	Have conservative assumptions been used when calculating the project emissions and are the uncertainty estimates properly addressed?	/01/02/07/	DR/ CC	Please refer to section B.5.2.1	OK
B.5.2.3	Project emissions estimated	/01/02/07/	DR/ CC	Project emissions are estimated as zero. Considering the project is a wind power project, this is in line with the methodology.	OK
B.5.3 Leakage					
B.5.3.1	Are the steps and equations applied to calculate the leakage in compliance with the requirements of selected baseline and monitoring methodology? Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/02/07/	DR/ CC	As per the paragraph 22 of AMS-I.D Version 17, leakage is to be considered if energy generating equipment is transferred from another activity. In this project activity the energy generating equipments (WTGs) are new equipments and not transferred from another activity. This has been confirmed during the site visit by the validation team. Hence, no leakage is considered for the project activity. However, the PDD is referring to paragraph 21 of the methodology for leakage estimation which is not in line with the methodology.	CAR-14 , OK
B.5.3.2	Have conservative assumptions been used when calculating the leakage and are the uncertainty estimates properly addressed?	/01/02/07/	DR/ CC	Please refer to section B.5.3.1	CAR-14 , OK
B.5.3.3	Leakage estimated	/01/02/07/	DR/ CC	Leakage emissions are estimated as zero. This is in line with the methodology. However, please refer to section B.5.3.1	CAR-14 , OK
B.5.4 Emission reductions					
B.5.4.1	Has the methodology been correctly applied to calculate the emission reductions and can this be replicated by the data provided in the PDD and supporting files to be submitted for registration?	/01/	DR	The methodology is applied correctly to calculate the emission reduction in the PDD. The baseline emission is estimated multiplying the net electricity supplied to the grid by the project activity with grid emission factor. Net electricity is estimated multiplying the installed capacity (5.10 MW) with PLF of the project activity and annual operating days. The grid emission factor is estimated ex-ante as per the "tool to calculate the emission factor for an electricity system" version 02.2.1 and publicly available "CO ₂ baseline database for Indian Power Sector" version 7 published by Central Electricity Authority. The project emission and leakage emission is not identified as per the	CAR-8 , CAR-13 , CL-1 , OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				applied methodology. However, PP is requested to substantiate the PLF as per the “Guidelines for the reporting and validating of Plant Load Factors” version 01 of EB 48 dated 17/07/2009. In addition, please refer to section B.3.1 and B.5.1.1 above.	
B.5.4.2	Are all the assumptions and data used by the project participants listed in the PDD including their references and sources?	/01/	DR	Please refer to section B.5.4.1 above	CAR-8, CAR-13, CL-1, OK
B.5.4.3	Is all the documentation used by the project participants as the basis for assumptions and source of data quoted and interpreted in the PDD?	/01/	DR	Please refer to section B.5.4.1 above	CAR-8, CAR-13, CL-1, OK
B.5.4.4	Emission Reductions estimated	/01/02/	DR/CC	Emission reductions estimated is 8,088 tCO2/year. However, please refer to section B.5.4.1 above.	CAR-8, CAR-13, CL-1, OK
B.6 Monitoring plan					
B.6.1 Parameters ex-ante					
B.6.1.1	Does the monitoring plan contain the list of all parameters required by the approved methodology and by the applicable methodological tool?	/01/07/	DR/CC	The monitoring plan in the PDD does not contain all parameters required by the approved methodology and the applicable methodological tool. This is further discussed in below sections.	CAR-15, OK
B.6.1.2	How were the parameters available at validation verified?	/01/07/11/	DR/CC	The following parameters were available at the time of validation: EF _{grid,OM,y} (Operating Margin emission factor): Operating margin emission factor is estimated as per the “tool to calculate the emission factor for an electricity system” and referring the publicly available data published by Central Electricity Authority in the “CO ₂ Baseline Database for the Indian Power Sector User Guide, Version 7.0, January 2012. This was the latest data available at time of start of validation. EF _{grid, BM, y} (Build Margin emission factor): Build margin emission factor is estimated as per the “tool to calculate the emission factor for an electricity system” and referring the publicly available data published by Central Electricity Authority in the “CO ₂ Baseline Database for the Indian	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				Power Sector User Guide, Version 7.0, January 2012. This was the latest data available at time of start of validation. Accordingly, the Combine margin emission factor ($EF_{grid, CM, y}$) is calculated in line with the tool.	
B.6.1.3	Which default data have been selected and applied?	/01/11/	DR/ CC	The following default values have been selected and applied: Weighting of operating margin emission factor (W_{OM}) as 75% and Weighting of build margin emission factor (W_{BM}) as 25%. This is as per the tool to calculate the emission factor for an electricity system, version 02.2.1.	OK
B.6.1.4	Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/07/	DR/ CC	Yes; the values used in the PDD and considered reasonable in the context of the project activity.	OK
B.6.2 Parameters ex-post					
B.6.2.1	Does the monitoring plan described in the PDD comply with the requirements of the methodology and the applicable methodological tool?	/01/07/11/	DR/ CC	The methodology requires monitoring of net electricity generation supplied by the project plant to the grid in a year. The grid emission factor is estimated ex-ante as per the procedures outlined in "tool to calculate the emission factor for an electricity system" version 02.2.1, of EB 63 dated 29/09/2011. However, the institutional arrangement for data handling and storage, calibration frequency of energy meter and apportioning procedure to be followed for net electricity export is not presented transparently in the PDD. Further, the monitoring section of the PDD mentions about Gujarat state and hydro power project. PP is requested to clarify this.	CAR-15, OK
B.6.2.2	Does the monitoring plan contain all necessary parameters and are they clearly described?	/01/07/	DR// CC	The PDD describes only one monitoring parameter $EG_{BL, y}$ (Quantity of net electricity supplied to grid by the project activity in year y). However, it was seen during the site visit by the validation team that gross export and gross import of electricity is also monitored and recorded. The same is not included as monitoring parameter in the PDD. Further the ownership details of meters are not described in the PDD. The calibration frequency of energy meter is not mentioned. It is not stated how the individual WTG generation shall be monitored.	CAR-15, OK
B.6.2.3	Is the measurement equipment described? Is the	/01/07/	DR//	Yes; energy meter is used for continuous monitoring of net	CAR-15, OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
accuracy of the measurement equipment addressed and deemed appropriate? Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?		CC	electricity generation. At the same time each WTG has inbuilt control panel which records continuous energy generation of individual WTGs. Further, individual WTGs are connected through SCADA software to monitor continuous generation from the central point. Energy meters installed at the substation is of 0.2 S accuracy class. However, calibration frequency of energy meter is not mentioned in the PDD.	
B.6.2.4 Is the monitoring and recording frequency adequate for all monitoring parameters? Is it in line with the monitoring methodology?	/01/07/	DR// CC	Please refer to section B.6.2.3 above.	CAR-15 , OK
B.6.2.5 How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design? Please confirm the ability of the project participants to implement the described monitoring plant.	/01/07/	DR// CC	The PDD is not transparent about the entity performing the operation and maintenance of the project activity. Since two WTGs are commissioned, it was seen during the site visit that the technology provider (Gamesa) is performing the O & M. As per discussions with technology supplier at site gross electricity exported to grid and gross electricity imported from grid are to be monitored both in main energy meter and check meter installed at the Jath substation. However, the meters are connected to a number of WTGs including the project WTGs. Based on the monthly joint meter readings by representatives of state utility and representatives of O & M personnel apportioning will be done by state utility and sharing certificate of net electricity export to grid shall be issued to each WTG owner. The sharing certificate issued by state utility will automatically consider the apportioning procedure. The net electricity export can be cross checked from the invoice raised by PP. In addition, each WTG has inbuilt control panel which provides continuous generation details electronically and this shall be recorded on daily basis. On the event of meter failure the control panel readings can be referred to estimate the electricity generation. Hence, the monitoring procedures described in the PDD are considered feasible. However, please refer to section B.6.2.1, B.6.2.2, B.6.2.3 above.	CAR-15 , OK
B.6.3 Management/Quality Assurance/Quality Control				

Checklist Question		Reference	MoV ¹	Comments	Conclusion
B.6.3.1	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/01/07/	DR// CC	Day to day record handling ((including what records to keep, storage area of records and how to process performance documentation) procedures are not included in the PDD	CAR-46, OK
B.6.3.2	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/01/07/	DR// CC	Gross quantity of electricity exported to grid is continuously monitored in the main and check meter installed at the substation. The main meter remains under the custody of state utility. Monthly joint meter reading is taken by state utility and representatives of O & M personnel from the main meter. Since main meter is connected to number of WTGs including the project WTGs; therefore, the apportioning is done entirely by state utility and share certificate is issued to each WTG owner. The share certificate reflects the net quantity of electricity exported to grid by the project WTGs. The net quantity of electricity export to grid from the share certificate will be used directly to quantify the emission reductions achieved from the project activity. From copies of invoices raised by PP to state utility for electricity export can be used to cross check the net electricity export by the project activity.	OK
B.6.3.3	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/01/07/	DR// CC	Yes; all the data recorded under the monitoring plan will be kept till 2 year after the end of crediting period. This is in line with the methodology.	OK
C.1 Crediting period					
C.1.1	What is the expected crediting starting date of the proposed project activity? Does the crediting period start eight week after the request for registration?	/01/	DR	As per the section C.2.2 of the PDD, the expected starting date of crediting period is 01/12/2012 or date of registration of the project activity with UNFCCC whichever is later. However the date is not realistic considering the length of validation of the project activity. Therefore, PP is requested to consider a realistic start date for the first crediting period	CAR-47, OK
C.1.2	What is the length of the crediting period? Is it clearly defined and reasonable?	/01/	DR	The PP has considered fixed crediting period of 10 years which is reasonable and appropriate.	OK
D.1 Environmental impacts					
D.1.1	Has an analysis of the environment impacts of the project activity been undertaken? Is it clearly and sufficiently described in the PDD?	/01/28/	DR	As per the notification of Ministry of Environment and Forest (MoEF), Govt. of India, dated 14/09/2006 and further amendment on 01/12/2009, wind power projects don't fall	CAR-48, OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				under the purview of Environmental Impact Assessment notification. However, PP is requested to make the reference of EIA transparently in the PDD and transparently explain in the PDD the environmental analysis carried out for the project activity as required by the paragraph 63 of CDM project standard.	
D.1.2	Will the project create any adverse environmental effects? Are transboundary environmental impacts considered in the analysis?	/01/28/	DR	Please refer to section D.1.1 above.	CAR-18 , OK
D.1.3	Is the analysis of the environmental impacts required by the legislation of the host Country? If yes, has the EIA has been approved by local Government? Does the approval contain any conditions that need monitoring?	/01/28/	DR	As per the notification of Ministry of Environment and Forest (MoEF), Govt. of India, dated 01/12/2009, wind power projects don't fall under the purview of Environmental Impact Assessment notification.	OK
D.1.4	Is it the project in line with the current environmental legislation in the host Country?	/01/28/	DR	The project is in line with the current environment legislation in the host country (India). Please refer to section D.1.1	CAR-18 , OK
D.1.5	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/01/28/	DR	The monitoring of sustainable development indicators are not warranted by the legislation in the host country.	OK
D.1.6	Are the sustainable development indicators in line with stated national priorities in the host country?	/01/29/	DR	Yes; the sustainable development indicators stated in the PDD are in line with stated national priorities in the host country.	OK
E.1 Local stakeholder consultation					
E.1.1	Are the local stakeholders be invited by the PP prior to the publication of the PDD to the UNFCCC website?	/01/	DR/I	The publication of PDD to the UNFCCC website for global stakeholder consultation was from 15/08/2012 to 13/09/2012. Local Stakeholder Consultation was conducted on 15/05/2012, prior to the publication of PDD for webhosting. The validation team interviewed some of the local stakeholders during the site visit and found that the stakeholder meeting was organized by the PP and they participated in the meeting.	OK
E.1.2	Area the stakeholders invited be considered as regards commenting the proposed project activity?	/01/26/	DR/I/CC	From the list of attendees and copy of invitation letters it is evident that the stakeholders who attended the meeting were from local village, gram panchayat and people who are engaged in operation & maintenance of the WTGs and are relevant to the project activity.	OK
E.1.3	Is the summary of the comments received from the	/01/26/	DR/I/	The summary of comments received during the stakeholder	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
stakeholders, provided in the PDD complete?		CC	meeting is presented in section E.2 of the PDD. It is also evident from the minutes of the stakeholder meeting and confirmed that no adverse comments were received. Further, during the site visit by the validation team while interviewing local stakeholders no negative comment was noted.	
E.1.4 Has due account been taken by the project participants of any stakeholder comments received?	/01/26/	DR// CC	Please refer to section E.1.3	OK
E.1.5 If a stakeholder consultation process is required by regulations/laws in the host Country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/01/29/	DR/ CC	Stakeholder consultation is not required as per the regulation/law in the host country.	OK

TABLE 3 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
CAR 1: PP is requested to submit the Letter of Approval from host country DNA.	A.1.1	PP has applied to host country DNA for host country approval. The same would be submitted to the DOE upon its receipt. 2nd Response: HCA has been submitted to DOE.	The letter of approval from host DNA is not yet submitted. CAR is open. 2 nd Review: PP has submitted host country approval letter dated 26/12/2012 for the project activity. Response is accepted and CAR is closed.
CAR 2: The PDD is not transparent on the following as per the "Guidelines for completing the project design document form for small scale CDM project activities" (version 01), dated 02/03/2012": a) PDD is also not transparent on whether project activity involves any technology transfer from any Annex 1 country or not.	A.1.2	The PDD is now updated as per the "Guidelines for completing the project design document form for small scale CDM project activities" (version 01). Required correction for technology transfer has been incorporated in the revised PDD. International standard of numbering is	The project technology is supplied by Gamesa Wind Turbines Pvt. Ltd. which is based in the host country and therefore the project activity does not involve any transfer of technology. Further, the PDD is revised with international numbering standards. Hence, response is accepted and CAR is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
b) International standard of numbering for the values used in the PDD.		now incorporated in the revised PDD.	
CAR 3: The information regarding the actual implementation status or planning of the project activity is not provided in the PDD transparently.	A.2.3	The information regarding the actual project implementation status of the project activity has now been incorporated in the chronology of parallel serious CDM actions in section B.5 of the revised PDD.	Actual project implementation status in parallel to CDM project activity has been incorporated in section B.5 of the revised PDD. Hence, response is accepted and CAR is closed .
CAR 4: It is not clear from the PDD whether the project participant is a private entity or public entity.	A.3.1	Project participant is a private entity. Section A.4. has been updated now in the revised PDD	PDD is revised and updated. Response is accepted and CAR is closed .
CAR 5: PP is requested to submit the latest version of the Modalities of Communication statement (F-CDM-MOC) and documentary evidence to check the authenticity of the signing authority.	A.4.1, A.4.2, A.4.3, A.4.4, A.4.5	The latest version of the Modalities of Communication statement is being submitted to the DOE. 2 nd Response: Passports of Mr. Ali Imran Naqvi and Mr. Anmol Singh Jaggi have been submitted to DOE to verify the authenticity.	Modalities of Communication statement in its latest version has been submitted by PP and authenticity of signatory from Shyam Metals & Energy Limited is also provided. However, authenticity of signatories from Gensol Consultants Private Limited has not been provided. Hence, CAR is open . 2 nd Review: Personal identify along with corporate identity of all signatories in the MoC statement has been provided. Hence response is accepted and CAR is closed .
CAR 6: The PDD is not transparently described the project location with correct latitude and longitude of each WTG in degree, minute and second	A.5.1	The geo-coordinates have now been presented in degree-minute-second format in the revised PDD.	The geo-coordinates against individual WTG has been presented correctly in the revised PDD. Hence, response is accepted and CAR is closed .
CAR 7: The flow diagram of the project boundary is not representing the actual metering arrangement present on the site	B.2.1, B.2.2	The project boundary has been revised to reflect actual metering arrangement present on the site.	The project boundary has been corrected in line with the applied methodology and actual project on-site scenario. Hence, response is accepted and CAR is closed .
CAR 8: PP is requested to clarify the following: 1. In step 3 (select of method to determine	B.3.1, B.5.1.1, B.5.1.2, B.5.1.3, B.5.4.1	1. Step 3 (select of method to determine the OM) under section B.6.1 has been updated now in the revised PDD. Notably,	PP has revised the PDD to calculate the grid emission factor in line with the 'tool to calculate the emission factor for an

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
<p>the OM) under section B.6.1 only three years data has been referred whereas as per the 'tool to calculate the emission factor for an electricity system' average of the five most recent years data has to be referred.</p> <p>2. Step 4 under section B.6.1 is not discussed thoroughly in line with the tool to calculate the emission factor for an electricity system'.</p>		<p>the simple OM method (Option a) can only be used if low-cost/must-run resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production. For this purpose, average of the five most recent years has been used for examining the possibility of using simple OM method and based on the data this method has been adopted to determine the average operating margin. That apart, however, a data vintage of 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, has been used for the calculation of emission factor ex-ante, in line with the requirements laid down by the Tool.</p> <p>2.Step 4 under section B.6.1 is now updated and discussed thoroughly in the revised PDD and is now in line with the tool to calculate the emission factor for an electricity system'.</p>	<p>electricity system'. All steps are described transparently in the revised PDD and officially published CEA data based has been referred. Hence, response is accepted and CAR is closed.</p>
<p>CAR 9: PP is requested to refer the latest version of the additionality guideline in the PDD.</p>	<p>B.4.1, B.4.5.1, B.4.5.2, B.4.5.3, B.4.5.4, B.4.5.5, B.4.5.6, B.4.5.7, B.4.5.8, B.4.6.1, B.4.6.2, B.4.6.3, B.4.6.4, B.4.6.5</p>	<p>Latest version of the additionality guideline has been incorporated in the revised PDD</p>	<p>The project is a small-scale project activity and accordingly, the 'guidelines on the demonstration of additionality of small-scale project activities', version 09 has been applied. Response is accepted and CAR is closed.</p>
<p>CAR 10: PP is requested to clarify the following: 1. The appropriateness of the inflation rate</p>	<p>B.4.4.3</p>	<p>1. According to paragraph 7 of the Appendix to EB 62, Annex 5, <i>"In situations where an investment analysis is carried out in nominal terms, project</i></p>	<p>1. As per the investment analysis guideline inflation forecast of the central bank of the host country for the duration of the crediting</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
<p>stating how it is applicable to the project category and applicable at the time of decision making.</p> <p>2. PP is requested to make it transparent in the PDD whether the investment analysis is carried out in nominal terms since the benchmark is converted to nominal terms as per the investment guideline.</p> <p>3. The reference based on which the benchmark is converted to nominal terms.</p>		<p><i>participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used."</i></p> <p>It appears from the above guideline that first source of adopting inflation should be forecasts made by the central bank of the host country for the length of the crediting period. However, the RBI, the central bank of India, make forecasts for a maximum period of 10 years. Moreover, inflation rates are embodied into forms: Wholesale Price Index (WPI) and Consumer Price Index (CPI). Moreover, RBI does not have an official inflation target (http://in.reuters.com/article/2011/05/09/idINIndia-56867720110509).</p> <p>Given the fact RBI has no inflation projections for a period of 20 years, neither does it have any official target inflation rate, the only alternative remaining with the PP is the average forecasted inflation rate for the host</p>	<p>period shall be used as first preference. However, PP has not discussed the same in conservative side when RBI publishes results of survey of professional forecasters on a quarterly basis. Kindly clarify.</p> <p>2. PP has considered the fixed electricity tariff (cash inflow) as per the MERC tariff order which takes into account the rate of inflation. Similarly, O & M cost accounts rate of inflation. Hence, the equity IRR is calculated in nominal terms. This is made transparent in the revised PDD.</p> <p>3. Fischer equation is followed to convert real term interest into nominal terms. The same is described and followed in the investment analysis worksheet. Hence, query is closed.</p> <p>PP is requested to prove response to the open issue. Hence, the CAR is open.</p> <p>2nd Review: PP has revised the benchmark calculation worksheet and central bank of India (BRI) inflation has been used. Response is accepted and CAR is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>country published by the IMF for the next five years after the start of the project activity. According to IMF, this figure is 4.7678% (http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/weorept.aspx?pr.x=59&pr.y=9&sy=2009&ey=2016&scsm=1&ssd=1&sort=country&ds=.&br=1&c=534&s=PCPI%2CPCPIPC&grp=0&a=1). Hence, PP deems it appropriate to use this in the benchmark estimation.</p> <p>2. The IRR used in the investment analysis is nominal in nature. It should be noted that financial statements and tax obligations are mentioned in nominal terms. As per noted finance scholar, Aswath Damodaran,, "<i>Investment analyses can be done in terms of real or nominal cash flows.....Given a choice, I would rather do the analysis in nominal terms, since taxes and financial statements are usually based upon nominal results.</i>" He also notes that nominal cash flows should be discounted with nominal rates and real values should be discounted with real rates, and, in the end, the returns are identical (http://people.stern.nyu.edu/adamodar/pdfiles/ovhds/ch5.pdf This fact has also be confirmed by a noted faculty of Babson College, USA, Mr Michael Goldstein, in his paper titled " CAPITAL BUDGETING: Real vs. Nominal" (http://www.google.co.in/url?sa=t&rct=j&q=capital%20budgeting%3A%20%20real%20</p>	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>20vs.%20nominal%20%20babson&source=web&cd=1&ved=0CE8QFjAA&url=http%3A%2F%2Ffaculty.babson.edu%2Fgoldstein%2Fteaching%2FMOD%2520C%2FCapital%2520Budgeting%2520and%2520Real%2520v%2520Nominal.doc&ei=nP_rT5G_OYfjrAfz7vTFBQ&usg=AFQjCNFkP34LYgdW2JVPwRQzH5P1yZuAZQ).</p> <p>An relevant extract from the Goldstein's paper is being presented below:</p> <p>"To change a number from real to nominal, you merely multiply by one plus the inflation rate raised to the number of years away from zero that the cash flow occurs. So, to get the nominal value of a real cash flow that occurs in date T, you calculate:</p> $\text{Nominal}_T = \text{Real}_T * (1+\text{inflation})^T$ <p>The amazing thing is that regardless of whether you change all of the numbers to real and then discount at the real rate, or change all of the numbers to nominal and discount at the nominal rate, you will still get the same answer, provided that you calculated everything correctly (and that each cash flow is of the same risk).</p> <p>Why does this work? Well, imagine that we will make \$100 overall cash flow every year for three years in real terms. If we discount them back at the real rate r, we would get:</p> $\text{PV} = \frac{100}{(1+r)} + \frac{100}{(1+r)^2} + \frac{100}{(1+r)^3}$	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>Now, imagine that we have inflation i per year. Then we would need to discount each nominal cash flow by the nominal rate n. We would need to recalculate our nominal cash flows using the rule above that nominal cash flows equal real cash flows times $(1+i)^T$:</p> $PV = \frac{100(1+i)}{(1+n)} + \frac{100(1+i)^2}{(1+n)^2} + \frac{100(1+i)^3}{(1+n)^3}$ <p>Now, if we remember that $(1+\text{nominal rate})=(1+\text{real rate})(1+\text{inflation rate})$, we get:</p> $(1+n)=(1+r)(1+i)$ <p>so, by substitution, we get:</p> $PV = \frac{100(1+i)}{[(1+r)(1+i)]} + \frac{100(1+i)^2}{[(1+r)(1+i)]^2} + \frac{100(1+i)^3}{[(1+r)(1+i)]^3}$ <p>which equals,</p> $PV = \frac{100(1+i)}{(1+r)(1+i)} + \frac{100(1+i)^2}{(1+r)^2(1+i)^2}$	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		$\frac{100(1+i)^3}{(1+r)^3(1+i)^3}$ <p>and since the $(1+i)$ cancels, we get</p> $PV = \frac{100}{(1+r)} + \frac{100}{(1+r)^2} + \frac{100}{(1+r)^3}$ <p>which is the same thing with which we started, i.e., discounting real cash flows at the real rate. So, as you can see, discounting nominal cash flows at the nominal rate is mathematically equal to discounting real cash flows at the real rate."</p> <p>Moreover, market interest rates are nominal values that already contain a premium for anticipated inflation https://docs.google.com/viewer?a=v&q=c&ache:UpLzXCiLBLoJ:www.aaec.ttu.edu/faculty/phijohns/aaec%25203302/lecture/notes/INFLATION%2520AND%2520CAPITAL%2520BUDGETING.ppt+nominal+real+cash+flows+edu+ppt&hl=en&gl=in&pid=bl&srcid=ADGEESjVz6E7Lgm7ZoukpPI178w7JHNMvovBEKgsbepvhlXOMNIHbE9FYsVgE7GGf-NzMRD6QZdgLaPXGAlzjdAjbXWSc8uv3sI2oNEa7j-hQV0oY6YGTuR3QOJ6s7sq6hjCtf-wFyn&sig=AHIEtbSuyhKA8psfTFkB4fMbnkiWz-DVHA). The interest rates used for the investment analysis of this project</p>	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>activity are, therefore, nominal in nature. It has been mentioned in the PDD that the investment analysis is nominal in nature.</p> <p>3. The formula for nominal rate of return (R) is $(1+r)*(1+q)-1$, where 'r' stands for real rate of return and 'q' stands for inflation. The real value has been converted to nominal value using the famous Fisher's Equation which is frequently used in financial mathematics and economics. This equation provides better approximation of the nominal interest rates than simply adding inflation rate to real interest rates.</p> <p>Fisher's equation can be accessed through the following links: http://en.wikipedia.org/wiki/Fisher_equation http://tfsfrd.tamu.edu/tdss/Basic/rates.htm</p> <p>2nd Response:</p> <p>1. PP has now used WPI inflation Over next ten years from RBI in the revised IRR Sheet.</p>	
<p>CAR 11:</p> <ol style="list-style-type: none"> 1. All input parameters with reference are not included transparently in the PDD. 2. Clarify the basis for considering CPI over WPI for inflation rate for benchmark calculation. 3. The first year calculation for revenue is taken for one day, kindly provide the basis for considering the expected 	<p>B.4.4.5, B.4.4.10</p> <p>B.4.4.6,</p>	<p>1. Now all the input parameters have been incorporated in the revised PDD.</p> <p>2. IMF's five year forecasts have now been used instead of CPI or WPI, in compliance with the EB 62, Annex 5</p> <p>3. PP has now corrected its commissioning date. It has now been, appropriately, sourced from the techno-commercial offer supplied by Gamesa.</p>	<p>1. Please note that PLF, book depreciation rate, tax depreciation rate and salvage value are not mentioned in the input parameters table.</p> <p>2. Please refer the open issue in CAR 10 above and accordingly provide the justification of inflation chosen.</p> <p>3. As per the offer letter, under Delivery schedule, it is mentioned that</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
<p>commissioning date as 31/03/2012. The generation calculation for the last year is not understood.</p> <p>4. The source for 40 installments for loan repayment is mentioned as per tariff order, the same could not be found in order</p>		<p>Meanwhile, the calculations for last year's generation have been corrected.</p> <p>4. Given the fact that the PP had decided to go with 100% equity, debt has been discounted from the investment analysis.</p> <p>2nd Response:</p> <p>1. PLF, book depreciation rate, tax depreciation rate and salvage value are now mentioned in the input parameters table in the revised PDD.</p> <p>2. PP has now taken WPI inflation rate.</p> <p>3. At the decision making PP has assumed that he will be giving the PO within few days. On the basis of this assumption PP has taken 6 Months from the decision making.</p>	<p>commissioning will be effected within 6 months from the date of receipt of confirmed PO with advance. Kindly clarify the basis for the expected commissioning date at the time of decision making. Kindly explain.</p> <p>4. Since the project is financed by 100% equity as per the board resolution, the loan query has been resolved.</p> <p>However, PP is requested to respond to the open queries. CAR is open.</p> <p>2nd Review:</p> <p>Input values along with source have been provided in the revised PDD and IRR worksheet. Further, WPI inflation rate provided by RBI has been used for benchmark calculation. Response is accepted and CAR is closed.</p>
<p>CAR 12:</p> <p>PP is requested to justify the sensitivity range of $\pm 10\%$ with actual values of input parameters. Further, the PDD does not describe the required variations of key parameters to reach the benchmark and the possibility of happening the same.</p>	B.4.4.11	<p>Justification for sensitivity analysis using actual parameters has been incorporated in the revised PDD.</p> <p>Further, now the description for variation of key parameters to reach the benchmark and the possibility of happening the same have been incorporated in the revised PDD.</p> <p>2nd Response:</p> <p>Actual PLF calculation sheets along with the JMRs have been submitted to DOE, accordingly, PDD has been updated with the corrected data.</p>	<p>The revised PDD mentions the required variations of key parameters to reach the benchmark and the possibility of happening of the same.</p> <p>However, please note in the actual values table, PLF is assumed at 22% whereas the PLF in IRR calculation is 20%. Also, foot note 24 mentions average for 2010-11 and 2011-12, but no figure has been mentioned, kindly clarify the same. CAR is open.</p> <p>2nd Review:</p> <p>PLF is assumed as per third party report and is in line with the EB guideline. All footnotes in the revised PDD has been correctly updated. Response is accepted</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
			and CAR is closed.
CAR 13: The emission reduction calculation steps are not transparently described in section B.6.1 of the PDD	B.5.1.1, B.5.1.2, B.5.1.3, B.5.4.1	Emission reduction calculation steps have been revised now in section B.6.1 of the revised PDD.	The revised PDD transparently describes the relevant steps to calculate emission reductions in line with the applied methodology. Hence, CAR is closed.
CAR 14: The PDD is referring to paragraph 21 of the methodology for leakage estimation which is not in line with the methodology.	B.5.3.1, B.5.3.2	Correction has been done in section B.6.1.	Corrections have been done in the revised PDD. Hence, CAR is closed.
CAR 15: The institutional arrangement for data handling and storage, calibration frequency of energy meter and apportioning procedure to be followed for net electricity export is not presented transparently in the PDD. Further, the monitoring section of the PDD mentions about Gujarat state and hydro power project. PP is requested to clarify this. It was seen during the site visit by the validation team that gross export and gross import of electricity is also monitored and recorded. The same is not included as monitoring parameter in the PDD. Further the ownership details of meters are not described in the PDD. The calibration frequency of energy meter is not mentioned. It is not stated how the individual WTG generation shall be monitored. The PDD is not transparent about the entity performing the operation and maintenance of the project activity.	B.6.1.1, B.6.2.1, B.6.2.2, B.6.2.3, B.6.2.4, B.6.2.5	<p>The institutional arrangement for data handling and storage, calibration frequency of energy meter and apportioning procedure to be followed for net electricity export has been added in section B.7.1 and B.7.3</p> <p>The typographical errors relating to reference of Gujarat state and hydro project have been removed.</p> <p>The information about calibration of meters and ownership of meters has been added in the PDD.</p> <p>Parameter for gross generation has been included in the PDD.</p> <p>The calculation of individual WTG generation, export and import has been comprehensively explained in section B.7.3.</p> <p>The information about entity performing O&M of the project activity has been included in the PDD.</p> <p>2nd Response: Accuracy class of meters, calibration frequency is now mentioned for EG Bly in</p>	<p>EG_{BL,y} is a calculated parameter with continuous monitoring. However measurement procedures of the relevant parameters are not explained transparently. Accuracy class of meters, calibration frequency is not mentioned.</p> <p>EG_{GROSS,PA} is not explained transparently. Record keeping procedures, cross checking procedures etc. are not explained. CAR is open.</p> <p>-----</p> <p>2nd Review: Monitoring provisions are updated in the revised PDD in line with the applied monitoring methodology. Response is accepted and CAR is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>the revised PDD.</p> <p>EG_{GROSS,PA} is now explained transparently.</p> <p>Record keeping procedures, cross checking procedures etc. are explained in the revised PDD.</p>	
<p>CAR 16:</p> <p>Day to day record handling ((including what records to keep, storage area of records and how to process performance documentation) procedures are not included in the PDD</p>	B.6.3.1	Record handling procedure is now incorporated in the revised PDD.	The record handling procedures are transparently explained in section B.7.3 of the revised PDD. Hence, CAR is closed.
<p>CAR 17:</p> <p>As per the section C.2.2 of the PDD, the expected starting date of crediting period is 01/12/2012 or date of registration of the project activity with UNFCCC whichever is later. However the date is not realistic considering the length of validation of the project activity. Therefore, PP is requested to consider a realistic start date for the first crediting period</p>	C.1.1	<p>The start date of crediting period is rectified in the revised PDD and now a realistic start date has been considered.</p> <p>2nd Response:</p> <p>Start date of the crediting period has been revised in the revised PDD.</p>	<p>Kindly revise the start date of crediting period to a realistic date. CAR is open.</p> <p>2nd Review:</p> <p>The start date of crediting period is assumed in the revised PDD to be 30/06/2013 or the effective date of submission of project activity for request for registration at UNFCCC. Hence, response is accepted and CAR is closed.</p>
<p>CAR 18:</p> <p>PP is requested to make the reference of EIA transparently in the PDD and transparently explain in the PDD the environmental analysis carried out for the project activity as required by the paragraph 63 of CDM project standard.</p>	D.1.1, D.1.2, D.1.4	As per the Schedule annexed to the notification dated January 19, 2009 , issued by Ministry of Environment and Forests (MoEF - Government of India), read with Amendments to this notification, dated December 1 2009 - 39 activities are required to undertake environmental impact assessment studies. As per these notifications, EIA need not to be conducted for the projects of capacity less than 25 MW. Since the capacity of the project is 5.10 MW, the project activity doesn't call for EIA study. Moreover, the proposed project activity does not fall under the specified categories, therefore	<p>Requirements of paragraph 63 of CDM standard is not met in the PDD. CAR is open.</p> <p>2nd Review:</p> <p>It is stated that the project being a wind power generation project does not lead to any negative impact on environment. This is also evident from the host country EIA notification which does not mandate EIA for wind power projects. Hence, response is accepted and CAR is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>EIA is not required for. Also, the project activity, i.e., electricity generation from wind, is a clean and green source of power which will result in no negative impact on environment. Thus, no EIA was conducted.</p> <p>The same has been incorporated into the revised PDD.</p> <p>2nd Response:</p> <p>Since the capacity of the project is 5.10 MW, the project activity doesn't call for EIA study. Moreover, the proposed project activity does not fall under the specified categories, therefore EIA is not required for. Also, the project activity, i.e., electricity generation from wind, is a clean and green source of power which will result in no negative impact on environment. Thus no EIA was conducted.</p>	
<p>CAR 19:</p> <p>PP is requested to respond to each of the queries raised during the global stakeholder consultation period as detailed in Table A:</p>	Table A	All the queries raised by global stakeholders are responded adequately.	Table A has been discussed in section 4 of this report. Hence, CAR is closed .
<p>CL 1:</p> <p>PP is requested to submit the following documents:</p> <ol style="list-style-type: none"> 1. Offer letter from technology supplier and purchase order release by project proponent. 2. Power Purchase Agreement executed remaining two 4 WTGs which are yet to be commissioned. 3. Commissioning certificates of remaining 4 WTGs as and when commissioned. 	A.2.1, A.2.2, A.5.1, A.5.3, A.5.4, B.1.3, B.1.4, B.4.3.1, B.4.3.2, B.4.4.8, B.5.4.1	<ol style="list-style-type: none"> 1. Offer letter and purchase orders are being submitted to the DOE. 2. PPAs for remaining four WTGs are yet to be signed. 3. Commissioning certificates are being submitted to the DOE. 4. Supporting document for technical specification and lifetime of WTGs are being submitted to the DOE. 	<ol style="list-style-type: none"> 1. Offer letter submitted by technology supplier has been submitted. 2. PP is requested to submit the remaining PPAs. 3. Commissioning certificates are submitted for all the WTGs in the project activity. 4. Technical specifications of G58/850 kW Gamesa wind turbine has been provided which is from the technology supplier.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
4. Documentary evidence for technical specification and lifetime of WTGs		2nd Response: 2. Remaining PPAs have been submitted to DOE.	CL is open. <hr/> 2nd Review: PPAs for the project WTGs are submitted and the applicable tariff has been discussed in the additionality section of the report. Hence, response is accepted and CL is closed.
CL 2: PP is requested to clarify with documentary evidence the source of funding for this proposed project activity	A.6.1, A.6.2	The PP has planned to execute this project totally through internal resources (100% equity). This has been spelt out in the board resolution. Moreover, ledgers for the expenditure incurred so far towards the project cost has been attached for reference.	The project activity is funded 100% from equity. Further, company ledger accounts have been cross checked for the payment released to the technology supplier. Hence, response is accepted and CL is closed.
CL 3: PP is requested to submit the copy of intimation to host country DNA and UNFCCC as per the "Clean Development Mechanism Project Standard", version 01.0.	B.4.3.3, B.4.3.4	The email communication for prior intimation with DNA and UNFCCC is being submitted to DOE. <hr/> 2nd response: Now the start date has been corrected in the revised PDD.	E-mail copy dated 06/03/2012 for prior CDM intimation to UNFCCC and NCDMA has been submitted along with acknowledgement e-mail from UNFCCC and NCDMA. Further the UNFCCC webpage shows the date of intimation as 06/03/2012. However, it was seen from the ledger accounts copy that advance payment to technology supplier was released on 10/09/2011 along with the LOI. PP is requested to clarify why the same date has not been considered as start date of the project activity. Hence, CL is open. <hr/> 2nd Review: The start date of the project activity is 10/09/2011 when PP issued the letter of intent for procuring 6 WTGs from the technology supplier. The amount released along with the letter of intent constitute 15% of the total project cost which is significant enough to commit PP towards

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
			the start of the project activity. Hence, start date is in line with the CDM glossary of terms and accepted by the validation team. CL 3 closed.
<p>CL 4: PP is requested to clarify the following:</p> <ol style="list-style-type: none"> 1. Documentary evidence for the PLF considered in the IRR analysis in line with the "Guidelines for the reporting and validation of plant load factors" version 01 annex 11 of EB 48 dated 17/07/ 2009. Also clarify how this was applicable at the time of investment decision. 2. PP has considered preferential tariff as per MERC tariff order for wind zone-I. PP is requested to clarify how it can be ensured that the project location falls under wind zone –I and the PLF is considered for wind zone-I. 3. PP is requested to clarify the reason for not considering inflation in tariff for the life of the asset. 4. PP is requested to provide the source of interest rate considered in the IRR analysis along with the loan application and loan sanction letter. 5. Documentary evidence against the actual project cost and other input parameters incurred in the project activity. 6. Kindly provide the basis for considering 2 WTGs for GBI and basis for calculation of GBI income 7. Kindly provide the O&M contracts 8. Kindly provide the basis for the tax depreciation rates considered 	<p>B.4.4.5, B.4.4.10, B.5.1.3</p> <p>B.4.4.7, B.5.1.2,</p>	<p>1. Third Party PLF study report is being submitted to DOE. As per 'Guidelines for the reporting and validation of plant load factors' version 01 annex 11 of EB 48 dated 17/07/ 2009, "The plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following options: (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants(e.g. an engineering company);" Thus, the third party PLF study report is in conformity with the above guidelines. This PLF study was conducted in June 2011, and thus the PLF study was available at the time of investment decision, hence it is applicable.</p> <p>2. This becomes clear from the offer letter provided by Gamesa, wherein it has mentioned in para 4.3 that the particular wind park falls in wind zone 1. Moreover, this can be cross-checked through the invoice raised by the PP to MSEDCL, and duly stamped by the latter, mentions a tariff of Rs 5.37/kWh, which is the tariff for</p>	<ol style="list-style-type: none"> 1. Verified the third party PLF report dated June 2011 which provides the PLF at 20%. Since the third party report was available at the time of decision making, the same has been accepted. 2. The offer letter from technology supplier dated 18/05/2011 mention wind site as zone 1 of MERC tariff order. Further the PLF report also indicates wind zone 1. Hence, PLF considered is appropriate respective to wind zone. Response is accepted. 3. Verified from the MERC tariff order that the yearly tariff rate are considered on a reducing basis and hence a constant tariff for the whole life of the asset is conservative and hence, accepted. 4. Since the project is financed 100% from equity contribution, loan is not applicable for the project activity. 5. The purchase order against the project cost is provided. Further, ledger account of the company shows partial amount released to the technology supplier. Hence, response is accepted. 6. Please note though GBI has been

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
9. Kindly provide the assessment year for which the tax rates have been considered		<p>wind zone 1, as mentioned on page # 32 of the MERC tariff order dated April 29, 2011. The invoice is being submitted to the DOE as proof for wind zone 1 project activity.</p> <p>3. MERC in its tariff order has not envisaged any escalation in tariffs, once fixed through the PPA. Consequently, the PPA does not provide for any such escalation factor in the tariff. That apart, another important to consider here is that the tariff has been specified for a period of 13 years from commercial operation date of the plant; however, it is unlikely that the tariff would increase. To support this assertion, PP would like to maintain that for such plants, after completion of 13 years, the debt servicing will have been fully met and cost of the project will have been recovered. Therefore, the tariff would mostly seek to cover O & M expenses, which will have increased by that time, marginally though. Notably, the cost of generation for the 13th year in the tariff estimation table on page 58 of the tariff order is Rs 3.29 per unit. Thus, it only possible that the tariff would be revised downwards and not upwards. Considering the above factors, the tariff is unlikely to be allowed to rise beyond the tariff already contracted by the PP with MSEDCL. It is for this reason that tariff was kept constant.</p> <p>4. Given the fact that the PP had decided to go with 100% equity, debt has been</p>	<p>calculated the same has not been included in the total revenue, kindly clarify and the GBI calculation is done for only 1WTG. Also, kindly provide the necessary evidence that the GBI has been applied for. Query is open.</p> <p>7. The O&M contracts have been received.</p> <p>8. Ensured that the tax depreciation rates have been considered as per the income tax act and hence accepted.</p> <p>9. Ensured that the tax rates have been updated in the revised IRR calculation sheet and hence accepted.</p> <p>PP is requested to respond to the open query. CL is open.</p> <hr/> <p>2nd Review:</p> <p>The IRR worksheet has been revised and supporting evidences were provided. The revised IRR worksheet conforms to the accounting practice of the host country and EB guidelines. Response is accepted and CL is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>discounted from the investment analysis.</p> <p>5. Purchase orders are being provided as the documentary evidence against the actual project cost. Additionally, the following documents for input parameters are being submitted to DOE:</p> <p>--Project cost: Offer letter from Gamesa</p> <p>--PLF: Third-party PLF study</p> <p>--O&M Cost: Offer letter from Gamesa</p> <p>--Escalation in O&M: Offer letter from Gamesa</p> <p>--Tariff as per wind zone 1: MERC tariff order dated 29/4/11 and Offer letter from Gamesa</p> <p>--Equity: Board resolution</p> <p>--Expected commissioning date: Offer letter from Gamesa</p> <p>--Capacity of machines: Offer letter from Gamesa</p> <p>--No. of machines availing GBI benefit: Board resolution</p> <p>For other input parameters, source URLs have been provided in the IRR excel sheets.</p> <p>6. PP had decided to avail GBI benefits for all the six machines, which has now been incorporated into the financial analysis. The board resolution is being provided to support this.</p> <p>7. O&M contract for all 6 six machines is being submitted to DOE.</p>	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
		<p>8. The tax depreciation rate has now been correctly as 15%, having been sourced from New Appendix I in the Income Tax Rules, 1962. More specifically, in this new appendix, under Part A - Tangible Assets and Heading III in the <i>Tangible Assets</i>, point number (1) should be noted. The appropriateness of the tax rate can be verified from the fact that after discontinuing 80% accelerated depreciation from 2012-13, the Indian government has restricted the depreciation for wind mills to 15%: http://law.incometaxindia.gov.in/DITTaxmann/Notifications/IncomeTaxAct/2010/Notification15_2012.htm</p> <p>10. Given the fact that it was assumed that the project would be commissioned in January 2012, the assessment year for the tax rates is, then, 2012-13, which implies the financial year of 2011-12. The same has been incorporated in the revised IRR sheet.</p> <hr/> <p>2nd Response:</p> <p>6. PP had decided to avail GBI benefits for all the six machines, which has now been incorporated in the revised IRR sheets. However, in actual, PP has taken the GBI benefits for two machines, necessary evidence that has been submitted to DOE.</p>	

TABLE 4 FORWARD ACTION REQUEST

Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
FAR 1		



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

A. Cyril Augustus Arokiasamy

We declare that Mr/Mrs/Ms:

è qualificato come¹:
is qualified as:

**CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP,
GS-VAL, GS-VER, GS-TL, SCS-VAL, SCS-VER, SCS-TL
VCS-TEC, JI-TEC**

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 2.2, 3.1, 4.5, 4.10, 5.1, 11.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation from fossil fuel and biomass including thermal electricity from solar	1
1.2	Energy generation from renewable energy sources	1
2.2	Heat Distribution	2
3.1	Energy Demand	3
4.5	Rubber and Plastics	4
4.10	Fuel switching and/or energy efficiency and/or waste heat/gas/pressure recovered and utilization for power generation at manufacturing industries	4
5.1	Chemical process industries	5
11.1	Chemical process industries	11
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	30-06-2010	-
9	31-05-2013	Annual Revision

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Champok Buragohain

è qualificato come¹:
is qualified as:

CDM/VCS/GS/JI/SCS-TEC, CDM-VAL, CDM-TL

per le seguenti aree tecniche:
for the following technical areas:

1.2, 2.1, 13.2, 15.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable energy sources	1
2.1	Electricity distribution	2
13.2	Animal Waste Management	13
15.2	Animal Waste Management	15

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19-01-2011	-
5	13-03-2013	Extension to qualification as TL

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Karthika Varma

è qualificato come¹:
is qualified as:

CDM-FIN-EXP

per le seguenti aree tecniche:
for the following technical areas:

-

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
-	-	-

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	20-10-2010	-
2	01-06-2012	Annual revision

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Rekha Menon

è qualificato come¹:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP,
VCS-TEC, VCS-VAL, VCS-VER, VCS-TL,
GS-TEC, GS-VAL, GS-VER, GS-TL,
SCS-TEC, SCS-VAL, SCS-VER, SCS-TL
JI-TEC

per le seguenti aree tecniche:
for the following technical areas:

1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable energy sources	1
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	06-03-2008	-
7	01-06-2012	Annual revision

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports