

VALIDATION REPORT

for the GHG Project

Wind Energy Project in Samana, Gujarat and Saundatti, Karnataka



Document Prepared By: URS Verification Private Limited (URS)

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Summary:

A brief description of the validation and the project:

The M/s. CLP Wind Farms (India) Private Limited has commissioned URS Verification Private Limited (URS) for the validation of GHG project: “Wind Energy Project in Samana, Gujarat and Saundatti, Karnataka”, with regard to the relevant requirements of the VCS Guidelines/ VCSA Rules for project activities, as well as criteria for consistent project operations, monitoring and reporting. This project activity consist of implementation of Wind Turbine Generators for converting wind energy to electrical energy and supply it to the respective regional grids (NEWNE and Southern) of India. In this way the project activity reduces the GHG emissions which would have been generated by the fossil fuel dominated power grid of India.

The purpose and scope of validation:

The purpose of a validation is to have an independent third party assess the project design. In particular, the project’s baseline, monitoring plan, and the project’s compliance with relevant VCS 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 VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Verified Carbon Units (VCUs).

The validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria (see below) and decisions by the VCS Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation employed a rules-based approach, focusing on the identification of significant risks for project implementation and the generation of VCUs. The validation is not meant to provide any consulting towards the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The method and criteria used for validation:

The validation consists of the following three phases:

- I) a desk review of the PD

- II) on-site visit and follow-up interviews with project stakeholders
- III) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Any findings, restrictions of uncertainties related to the validation:

There are no restrictions of uncertainties related to this validation. There were 5 CARs and 7 CLs were raised which were closed satisfactorily. The details of the findings (CARs & CLs) are provided in section 2.5.

Summary of the validation conclusion:

In summary, the validation team considers that the underlying reason of GHG project cycle and investment analysis is sufficiently evidenced. Thus it is the validation team's opinion that the "Wind Energy Project in Samana, Gujarat and Saundatti, Karnataka", as described in the PD version 03 dated 19/06/2012 meets all the relevant VCSA requirements for the VCS project and relevant criteria of India and correctly applies the baseline and monitoring methodology ACM0002., Version 13.0.0 The validation team of URS thus recommends the proposed project to be registered as a VCS project activity with the VCSA.

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1 INTRODUCTION

1.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant VCS 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 VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Verified Carbon Units (VCUs).

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria (see below) and decisions by the VCS Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation employed a rules-based approach, focusing on the identification of significant risks for project implementation and the generation of VCUs. The validation is not meant to provide any consulting towards the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The items covered in the validation are described below:

- VCS version 3.2 standard
- To meet the requirements of VCS version 3.3 guidelines requirements, in particular,
- Project country requirements / criteria
- VCS Project Description
- Project design
- Project boundaries and predicted VCS project GHG emissions
- Project baseline
- Baseline methodology
- Baseline GHG emissions
- Monitoring Plan
- Monitoring methodology
- Indicators/data to be monitored and reported

- Responsibilities
- Project additionality
- Background investigation and follow up interviews
- Draft validation reporting with CARs, CLs & FARs, if any
- Final validation reporting.

The information included in the VCS-PD and the supporting documents were reviewed against the requirements and criteria mentioned above. URS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of VCUUs. The validation is based on the information made available to URS and on the contract conditions.

1.3 Level of assurance

The validation report is based on VCS PD, supporting documents made available to the validation team and information collected through performing interviews and during the on-site assessment. The validation opinion is assured provided the credibility of all above.

1.4 Summary Description of the Project

The project activity involves the implementation of grid connected wind power project of 53.6 MW (= 9.6 MW at Samana site in Gujarat and 44 MW at Saundatti site in Karnataka) capacity located in Gujarat and Karnataka state of India respectively. This project activity reduces the GHG emissions which would have been generated by the fossil fuel dominated NEWNE and Southern Grid of India. Moreover, the location of the project activity site, as mentioned in the PD /2/ was cross-checked during on site visit by the validation team. The first WTG machine of project activity was commissioned on 23rd June 2010 which is considered as VCS start date; the same is verified through reviewing the commissioning certificate of first commissioned WTG. /7/

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation was executed in the following steps:

- VCS PD (version 01, dated 07/05/2012)
- On-site visit (11/06/2012 – 12/06/2012)
- Issue of corrective action requests (CARs) and clarification requests (CLs) and the draft validation report and protocol
- Desk review of revised and final PD (version 03, 19/06/2012)
- Review of CARs & CLs
- Issue of the final validation report and protocol

2.2 Document Review

/1/	VCS PD, version 01 dated 07/05/2012
/2/	VCS PD [final version], version 03 dated 19/06/2012
/3/	Spread sheets for IRR and emission reduction calculations & Grid Emission Factor corresponds to /1/ for both sites.
/4/	Spread sheets for IRR and emission reduction calculations & Grid Emission Factor corresponds to /2/ for both sites.
/5/	Proof for "Right of use":
	a. Purchase Order issued by PP to Enercon (India) Limited, b. Power Purchase Agreement between M/s. CLP Wind Farms (India) Pvt. Ltd. and Gujarat Urja Vikas Nigam Limited dated 22/02/2010
/6/	Validation contract in between URS Verification Pvt. Ltd. and CLP for this project activity, dated 30/05/2012.
/7/	Proof of starting date of VCS project activity i.e. commissioning report dated 23-June-2010 when the first 20 WTGs in the project activity were commissioned at Saundatti site in Karnataka
/8/	a. Proof of the investment decision of this project activity: Board Note of the Samana project site, dated 25/06/2007 b. Proof of the investment decision of this project activity: Board Note of the Saundatti project site, dated 24/09/2007
	a) purchase orders for the Samana sub-project were placed on 17-Aug-2007 and for the Saundatti sub-project were placed on 11-Dec-2007 including lease agreement for land with M/s. Enercon (India) Limited, b) O&M agreement between CLP Wind Farms India Private Limited and Enercon (India) Limited, dated 27/11/2008 for Samana site and 19/11/2007 for Saundatti site
/10/	Proof of Conformity of PLF as per Annex 11, EB 48, i.e. Hydro Tasmania Consulting (HTC) Wind Assessment Report dated 27.06.2007 for Samana Site HTC Wind Assessment Report dated 08.11.2007 for Saundatti Site
/11/	Power Purchase Agreement between M/s. CLP Wind Farms(India) Pvt. Ltd. and Bangalore Electricity Supply Company Limited (BESCOM) dated 13/08/2008

/12/	a) Letter of Invitation for local stakeholder consultation process, dated 01/10/2007 and 24/02/2009 for Samana & Saundatti site respectively b) Minutes of Meeting of local stakeholder consultation, dated 25/10/2007 and 12/03/2009 for Samana & Saundatti site respectively
/13/	Proof of Operational and management structure for implementation and monitoring of project activity
/14/	a) Commissioning Approval from Chief Electrical Inspector to Government of Karnataka, dated 18/06/2010 b) Permission for setting up of Wind Farm at Taluk Kalavad by Gujarat Energy Development Agency, dated 05/03/2010
/15/	Proof of the company name: "Certificate of Incorporation", dated 29/07/2008 as per the Companies Act, 1956 (No. 1 of 1956),
/16/	a) Wind Turbine Brochure: Technical specifications for key equipment (including proof for capacity and Make & life time provided by the equipment manufacturer, ENERCON India Ltd.) b) Statement of Compliance for Wind Turbines from Certification Centre GmbH, dated 21/03/2007
/17/	a) Meter details installed at the plant site along with proof containing information on sr. no., accuracy class issued by Paschim Gujarat Vij Co. Ltd. b) Meter details installed at the plant site along with proof containing information on sr. no., accuracy class issued by Karnataka Power Transmission Corporation Limited
/18/	Monitoring Training plan of CLP Wind Farms (India) Pvt. Ltd
/19/	Key photographs of the current site activities along with photographs of the name plates of generating equipments
/20/	Commissioning Certificates of all WTGs of both sites (Samana & Saundatti), refer Appendix I
/21/	SLD (Single Line Diagram) of the Electricity System showing from the Electricity generator point to the injection point (final metering point) to the grid for both points
/22/	Proof for Expected insurance charges i.e. Quotation for insurance premium dated 03 May 2007
/23/	Offer Letter from Enercon (India) Limited dated 27 March 2007 for Samana Site

/24/	Offer Letter from Enercon (India) Limited dated 21 June 2007 for Saundatti site
/25/	1. GERC Tariff Order dated 11 Aug 2006 (http://geda.gujarat.gov.in/policy_files/wind_final_order.pdf) 2. Karnataka Tariff of Renewable Sources of Energy dated 18 Jan 2005 (http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc)
/26/	Loan Interest rate i.e. RBI Prime Lending Rate (http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/78814.pdf)
/27/	Extract of PP's Annual Reports for last three years: 2008-09, 2009-10, 2010-11
/28/	Lay out drawing of the Project activity
/29/	Proof of operation life time of the project activity, issued by DEWI-OCC Offshore and Certification Centre(this is a wind energy industry form the basis for the technical & scientific support), dated 07 March 2007 [http://www.dewi-occ.de/]
/30/	Declaration from PP stating that the project will be withdrawn from VCS Registry if the project gets registered with UNFCCC CDM program and not claim any credit under VCS Registry from the date of registration with UNFCCC, dated 07/06/2012
/31/	Declarations states that PP stating no intention of creating and trading of another form of environmental credits out of VERs would be created from this given project (Cp para 1.13 of VCS PD template), dated 07/06/2012
/32/	Baseline and monitoring methodology: "Consolidated Baseline Methodology for grid connected electricity generation from renewable sources" Reference: ACM0002, Version 13.0.0 (EB 67), Annex 13, Sectoral scope: 01 http://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT, retrieved on 19/06/2012
/33/	Tool to calculate the emission factor for an electricity system, version 02.2.1,EB 63 Annex 19, http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf retrieved on 19/06/2012
/34/	Tool for the demonstration and assessment of additionality, version 6.0.0, EB 65 Annex 21, http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.0.0.pdf

	retrieved on 19/06/2012
/35/	Carbon dioxide database version-07 published by Central Electricity Authority. http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm , retrieved on 18/06/2012, Website Language: English
/36/	http://envfor.nic.in/legis/eia/so1533.pdf - EIA notification from MoEF dated 14/09/2006. http://moef.nic.in/downloads/rules-and-regulations/3067.pdf - Amendment of EIA notification dated 01/12/ 2009
/37/	http://www.cea.nic.in/e&c/regulations/notified_regulations/Metering_Regulations.pdf - Extract of CERC 2006 for testing of Monitoring requirement.
/38/	Medium-term forecast of Central Bank of host country i.e. RBI (Link: http://rbi.org.in/scripts/NotificationUser.aspx?Id=3445&Mode=0)
/39/	Guidelines on the assessment of investment analysis, version 5, EB 62 Annex 05
/40/	UNFCCC website : http://cdm.unfccc.int/index.html
/41/	VCS website: http://www.v-c-s.org/
/42/	As per prevailing tax rates for FY 07-08 (http://www.servicetax.gov.in/st-proc-home.htm)
/43/	Schedule XIV of the Companies Act, 1956 (Referred from "Guide to the Companies Act" by A.Ramaiya, Seventeenth Edition)
/44/	Appendix IA of Income Tax Act Rules (http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&schT=rul&csId=4a23cee1-1818-45d6-ab19-f155e08ed789&rNo=&sch=&title=Taxmann-Direct Tax Laws)
/45/	Income Tax Act for FY 07-08 08 Income Tax Act for FY 07-08 (Page 3 of http://www.incometaxindia.gov.in/Archive/Filing_Your_Tax_Return.pdf)
/46/	Report on Geographical Co-ordinates of WTGs by ENERCON India Ltd, dated 20/06/2012
/47/	E-mail communication from PP on Commercially Sensitive Information, dated 22/06/2012

2.3 Interviews

On 11th, 12th, June 2012 the validation team visited the site office of the CLP Wind Farms (India) Private Limited and Enercon India Pvt. Ltd. Representative of the project participant were interviewed to confirm the stated information and to resolve issues identified in the document review. As of 11th and 12th June 2012 all WEGs were commissioned, and hence the interview were conducted at the project participant's on site. During the interview, the relevant documents including Land clearance approval /9/, PPA /11/ were provided and assessed. The information about this project was confirmed from these documents. Based on the above mentioned reasons and the fact that the project is a Greenfield project and all relevant documents were available, URS conducted a physical site visit for this project as part of the validation process. URS can confirm the project design, operation and monitoring plan and all baseline scenario information based on the interviews and document verification. The main topics of the interviews are summarized in the table below. The main topics of the interviews are summarized in the table below section.

2.4 Site Inspections

Sr. No	Date	Name	Designation/ Organization	Topic
1	11/06/2012 to 12/06/2012	Mr. Naman Sanghvi	Project Manager/ CLP India	Project Design, Project Implementation schedule
2	11/06/2012	Mr. Sajil P	Site in charge/ ENERCON	Monitoring & Metering system, O&M activities
3	11/06/2012	Mr. Jignesh Fuldu	Assistant site in charge/ ENERCON	Monitoring & Metering system, O&M activities
4	12/06/2012	Mr. Prasanna Inamdar	Panchayat Committee Member/Village in Karnataka	Local stakeholder process
5	11/06/2012	Mr. Basawaraj Sakri	Villager/Village in Gujarat	Local stakeholder process

On 11/06/2012 and 12/06/2012 the validation team performed validation onsite inspection with the project proponent of the project activity.

During this visit, as well as earlier and after, interviews with the project proponent, the consultant, project stakeholders and with local authorities were carried out to confirm selected information and to resolve issues identified in the document review.

2.5 Resolution of Any Material Discrepancy

The material discrepancies (corrective actions, clarifications or other findings) raised by the validation team during the validation process are described in the following table:

Summary of Findings	CARs	CLs	FAR
	05	07	Nil

<u>Date:</u>	12/06/2012	<u>Raised by:</u>	Validation Team		
<u>Type of Finding</u>	CAR	<u>S. No. of Finding</u>	01	REFERENCE	VCS PD
Details of the <u>Finding</u>:		12/06/2012			
PP is requested to include exact location of the project activity in section 1.9 of VCS PD which includes name of Host Party, Region/State/Province, City/Town/Community, for transparency purpose for both the sites. Also Latitude and longitude of individual WTGs of Saundatti site in Karnataka is not provided in Deg, Min, Sec. format . PP is requested to provide the supporting documents/evidences for the geographical co-ordinates of all the WTGs.					
Project Participant Response			15/06/2012		
Section 1.9 of the VCS PD has been revised to include the name of the Host Party, State and Village/Taluk for Samana and Saundatti sites. The latitudes and longitudes of individual WTGs of Saundatti site in Karnataka have also been revised to the Degree, Minute, Second format. Supportive document is provided to DOE for the geographical co-ordinates of all the WTGs.					
Documents/ information provided by the Project Participant:					
Letter of Declaration from PP on the geo-graphical co-ordinates of WTGs					
Reasoning for acceptance or non-acceptance:			19/06/2012		

PP has revised the PD with the location of WTGs in Taluka – Kalavad, District – Jamnagar in Gujarat State and Katamalli Village in Belgaum District of Karnataka State. PP has provided the supporting document (Letter of Declaration) for the latitude & longitude of the WTGs. The locations of the WTGs were cross verified by the validation team with the Google Earth and site inspection of WTGs. The same was found to be correct. Hence this CAR is closed out.	
Close out by Lead Assessor	19/06/2012

<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CAR	<u>S. No. of Finding</u>	02	REFERENCE	VCS PD
Details of the <u>Finding</u>:			12/06/2012		
PP is requested to include generation and step level of electricity generation in section 1.8 of the VCS PD for both the sites.					
Project Participant Response			15/06/2012		
The generation and step level of electricity generation have been mentioned in section 1.8 of the VCS PD for both the sites.					
Documents/ information provided by the Project Participant:					
Power Purchase Agreement					
Reasoning for acceptance			19/06/2012		
PP has revised the section 1.8 of the VCS PD. The validation team verified the electricity generation and step level of voltage at both the sites by site inspection and found it to be satisfactory. Hence this CAR is closed out.					
Close out by Lead Assessor			19/06/2012		

Date:	12/06/2012	Raised by:		Validation Team	
Type of Finding	CAR	S. No. of Finding	03	REFERENCE	VCS PD,
Details of the Finding:			12/06/2012		
PP is requested to include dates of investment decisions for both sites of project activity in section 2.5 of VCS PD.					
Project Participant Response			15/06/2012		
The investment decision for the Samana sub-project was taken on 25 Jun 2007 and for the Saundatti sub-project was taken on 24 Sep 2007. The same have been mentioned in section 2.5 of the revised VCS PD.					
Documents/ information provided by the Project Participant:					
Board Note for Samana & Saundatti projects					
Reasoning for acceptance:			19/06/2012		
PP has revised the VCS PD and the same is found to be correct. The validation team has cross verified this with the Board Note for the Samana & Saundatti projects and also discussed the investment decision for the projects and found it to be satisfactory.					
Close out by Lead Assessor			19/06/2012		

Date:	12/06/2012	Raised by:		Validation Team	
Type of Finding	CAR	S. No. of Finding	04	REFERENCE	VCS PD
Details of the Finding:			12/06/2012		
PP need to include source of "VCU Sale Price" and "INR: USD Exchange Rate" provided in input parameter sheet of spreadsheet /3/ selected at the time of investment decisions.					
Project Participant Response			15/06/2012		

The spreadsheets for both sub-projects are being revised to include the source of “VCU Sale Price” and “INR: USD Exchange Rate” as available at the time of respective investment decisions.	
Documents/ information provided by the Project Participant:	
Financial IRR spreadsheet	
Reasoning for acceptance:	19/06/2012
PP has revised the IRR spreadsheet with the appropriate web links for the VCU Sale price & USD Exchange Rate. The validation team cross verified the web links and found it to be correct. Hence this CAR is closed out.	
Close out by Lead Assessor	19/06/2012

<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CAR	<u>S. No. of Finding</u>	05	REFERENCE	VCS PD
Details of the <u>Finding</u>:			12/06/2012		
PP has not provided emergency procedures in section 4.3 of VCS PD in case of failure of monitoring equipments.					
Project Participant Response			15/06/2012		
The Samana site has four main meters installed at the grid interconnection point in the substation maintained by Enercon (India) Limited. In case any meter becomes defective, the load would be switched to the other operational meters so that there is no lapse in recording of electricity generation data. The Saundatti site has two main and two check meters installed at the grid interconnection point in the substation. In case a main meter becomes defective, the readings of the check meter would be used for the purpose of billing and calculation of emission reductions. The same has been included in section 4.3 of the VCS PD.					
Documents/ information provided by the Project Participant:					
Meter Details					
Reasoning for acceptance:			16/06/2012		

PP has revised the section 4.3 of the VCS PD. The validation verified the monitoring procedures of the project on site inspection and periodical calibration of the meters. The same was found to be correct. Hence this CAR is closed out.

Close out by Lead Assessor	16/06/2012
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<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	06	REFERENCE	VCS PD
<u>Details of the Finding:</u>			12/06/2012		
In the section 2.5 of the PD in common practice analysis the start date of the project activity is 06 July 2007, however the project start date in section 1.5 is 23 June 2010. PP is requested to clarify the inconsistency in the project start date.					
Project Participant Response			12/06/2012		

Section 3.15.1 of the VCS Standard Version 3.2 states that “*Additionality shall be demonstrated and assessed in accordance with the requirements set out in the methodology applied to the project*”.

The applied methodology ACM0002 Version 13.0.0 requires the demonstration of additionality (including common practice analysis) to be conducted as per the CDM Methodological Tool “Demonstration and assessment of additionality” Version 06.0.0.

This tool requires an analysis of projects that have started commercial operation before the start date of the project. It may be noted that the Glossary of CDM terms Version 06 states that, “*the starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins*”. Therefore, in the context of the project activity this is the date of signing of purchase orders with the WTG supplier for the purchase and installation of the WTGs at Samana Site i.e. 06 July 2007 and the analysis was conducted based on plants commissioned on this date.

Under section 1.5 of the VCS PD template, the project start date was considered in accordance with section 3.8.1 of the VCS Standard Version 3, which states “*The project start date is the date on which the project began generating GHG emission reductions or removals*”. Accordingly, the project start date has been considered as 23 June 2010 when the first WTG in the project activity was commissioned at Saundatti site in Karnataka.

The same has also been clarified in section 1.5 of the VCS PD.

Documents/ information provided by the Project Participant:

- Board Note
- Purchase Orders
- Commissioning Certificates

Reasoning for acceptance or non-acceptance:

16/06/2012

PP has revised the section 1.5 of the VCS PD. The validation team verified the Board Note, Purchase Orders and Commissioning Certificates of the WTGs. As per the Glossary of CDM Terms version 06, EB 66 Annex 63 the project start date is the earliest date at which either the implementation or construction or real action of a CDM project activity. In this case the PP has taken decision prior to the project start date and the same is correct.

However as per the VCS Standard Version 3, 1 February 2012, v3.2 the start date of the project activity is the date on which the project began generating GHG emission reductions or removals. Hence the start date of the project activity 23 June 2012 is in accordance with the VCS standard as on this date the WTGs were commissioned and started generating GHG emission reductions.

Hence this CL is closed out.

Close out by Lead Assessor	16/06/2012
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<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	07	REFERENCE	VCS PD
Details of the <u>Finding</u>:			12/06/2012		
PP is requested to provide the sources/reference documents for determining the “N _{all} ” of the project activity in common practice analysis.					
Project Participant Response			15/06/2012		
An excel sheet along with supporting documents for common practice analysis is being submitted.					
Documents/ information provided by the Project Participant:					
Excel sheet along with supporting documents for common practice analysis is being submitted.					
Reasoning for acceptance:			15/06/2012		
PP has provided the description in section 2.5 of the revised VCS PD for the determination of N _{all} of the project activity. The validation verified the same from the excel sheet and web links provided in the sheet and found to be satisfactory. Hence this CL is closed out.					
Close out by Lead Assessor			16/06/2012		

<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	08	REFERENCE	VCS PD
Details of the <u>Finding</u>:			12/06/2012		
PP to clarify means of invitation for the local stakeholders in section 6 of VCS PD.					
Project Participant Response			15/06/2012		

The local stakeholders were invited through personal invitation letters that were sent more than two weeks in advance of the meeting. The same has been mentioned in section 6 of the revised VCS PD.	
Documents/ information provided by the Project Participant:	
- Local stakeholders invitation letter - Stakeholder minutes of meeting & summary - List of Attendees	
Reasoning for acceptance:	15/06/2012
PP has revised the VCS PD and provided the supporting documents for the stakeholders meeting. The invitation letter was sent to local stakeholder on 01/10/2007 and the meeting was conducted on 25/10/2007 for the WTGs at Samana Site. In case of Saundatti site the letter of invitation for local stakeholder was sent on 24/02/2009 and meeting was conducted on 12/03/2009. The validation team verified that the local stakeholder consultation was performed by project proponent and found it to be correct. Hence this CL is closed out.	
Close out by Lead Assessor	16/06/2012

<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	09	REFERENCE	VCS PD
Details of the <u>Finding</u>:			12/06/2012		
PP to clarify why the amount outstanding in IRR spreadsheet of Interest sheet, from the year 11 to 14 is constant.					
Project Participant Response			15/06/2012		
The IRR sheet has been revised and the amount outstanding figure is corrected. As this was editorial change and same has been revised.					
Documents/ information provided by the Project Participant:					
Revised IRR spreadsheet					
Reasoning for acceptance:			16/06/2012		

PP has revised the IRR sheet and the IRR has been changed for Samana site from 5.41% to 6.44% and for Saundatti site the IRR is changed from 5.47% to 6.50%, same is found to be correct.	
Close out by Lead Assessor	16/06/2012

<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	10	REFERENCE	VCS PD
Details of the <u>Finding</u>:			12/06/2012		
The offer letters and the purchase orders does not belong to CLP but issued in the name of GEPC. PP to clarify the same.					
Project Participant Response			19/06/2012		
Projects was offered to Gujarat Paguthan Energy Corporation Private Limited (GPEC) now renamed as CLP India Private Limited and Board of GPEC has approved the project with consideration to form an SPV for these projects. Subsequently, CLP Wind Farm (India) Private Limited (CLP WF) was formed to develop these projects. Please refer Board decision for the investment and amended agreements for transfer of title from GPEC to CLP WF.					
Documents/ information provided by the Project Participant:					
Board approval for investment in project activity Certificate of Incorporation for CLP India Private Limited Certificate of Incorporation for CLP WF					
Reasoning for acceptance:			20/06/2012		
PP has provide the supporting evidences for the change in name of company, the same has been verified to be correct. Hence this CL is closed.					
Close out by Lead Assessor			20/06/2012		

<u>Date:</u>	12/06/2012	<u>Raised by:</u>	Validation Team		
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	11	REFERENCE	VCS PD

Details of the <u>Finding</u>:	12/06/2012
The WTG unique identification numbers and the commissioning dates of the WTGs are not matching with the submitted commissioning certificates of the WTGs, please clarify the same.	
Project Participant Response	19/06/2012
Typo error is rectified in the updated VCS PD	
Documents/ information provided by the Project Participant:	
Revised VCS PD	
Reasoning for acceptance:	20/06/2012
The same has been found to be correct, hence this CL is closed.	
Close out by Lead Assessor	20/06/2012
Reasoning for acceptance:	20/06/2012
PP has provided the supporting documents, and the same has been found to be correct.	
Close out by Lead Assessor	20/06/2012

<u>Date:</u>	12/06/2012	<u>Raised by:</u>		Validation Team	
<u>Type of Finding</u>	CL	<u>S. No. of Finding</u>	12	REFERENCE	VCS PD
<u>Details of the Finding:</u>			12/06/2012		
For PLF determination, the third party need to be contracted by the PP as per para 3 (b) of EB 48 Annex 11, PP to justify that M/s. HTC was contracted by CLP for the determination of PLF of the project activity.					
<u>Project Participant Response</u>			19/06/2012		
Roaring 40's (CLP's wind resource development venture) appointed HTC and same can be validated through their contract dated 16/04/2007 for Samana project. Roaring 40's is now renamed as CLP Wind Farms (Khandke) Private Limited and it is 100% subsidiary of CLP India Private Limited (erstwhile GPEC)					
<u>Documents/ information provided by the Project Participant:</u>					

Contract with HTC Certificate of Incorporation of CLP Wind Farms (Khandke) Private Limited	
Reasoning for acceptance:	20/06/2012
PP has provided the supporting documents, and the same has been found to be correct.	
Close out by Lead Assessor	20/06/2012

3 VALIDATION FINDINGS

3.1 Project Design

Project scope, type, technologies and measures implemented, and eligibility of the project:

The project activity involves the implementation of the grid connected wind power project with a total installed capacity of 53.6 MW (67 x 0.8 MW rated), Make – Enercon Model E-53, Wind Turbine Generators (WTGs) /9/. The project activity includes two sub-projects i.e. installation of 12 Wind Turbine Generators (WTGs) at Samana site in Gujarat and 55 WTGs at Saundatti site in Karnataka. The WTGs have an individual capacity of 800 kW and are supplied by Enercon (India) Ltd. The same has been verified by the documents provided by the PP such as purchase orders /9/, and technical specifications of the WTGs is provided by the manufacturer. The exact locations of both the sites are provided below. The geographical coordinates of individual WTGs along with their date of commissioning of Saundatti and Samana sites are provided in Appendix 1 of this report.

The installed capacity of the power plant i.e. 53.6 MW are not expected to undergo any change within the crediting period the same is confirmed by validation team during on site visit interview.

The implementation detail of project activity is provided in below table:

Site	No. of WTGs	Capacity of each WTG (MW)	Total Installed capacity (MW)	Grid
Samana	12	0.8 MW	9.6	NEWNE
Saundatti	55	0.8 MW	44	South
TOTAL	67	-	53.6	-

The verified details of key equipments implemented under the project activity are illustrated below:

E-53 Technical Specifications

- Rated capacity : 800 kW

- Rotor diameter : 52.9 m
- Tower height : 72-74 m steel/concrete
- Turbine concept : Gearless, variable speed, variable pitch control

Rotor

- Type : Upwind rotor with active pitch control
- Direction of rotation : Clockwise
- Number of blades : 3
- Swept area : 2,198 meter².
- Blade material : Fibreglass (epoxy resin), integrated lightning protection
- Rotation speed : Variable, 12-29 rpm
- Pitch Control : Enercon (India) Limited blade pitch system, one independent pitching system per rotor blade with allocated emergency supply.

The above technical description is verified by validation team during on site visit as well as document review i.e. purchase order/9/ and manufacturer's technical specification /16/.

The technology being used in the project activity is indigenously available and is deemed to represent current good practice and state-of-the-art technology.

The electricity generated by the project activity is being supplied to the NEWNE and Southern grid of India. PPAs for each wind mill has already been signed separately between Gujarat Urja Vikas Nigam Ltd (GUVNL) & Bangalore Electricity Supply Company Limited (BESCL) and CLP Wind Farms (India) Private Limited for Gujarat and Karnataka site respectively for a period of 20 years for the export of electricity to the grid/11/. The estimated net electricity supplied figure works out as 20,995.2 MWh for Gujarat site and 95,587.86 MWh for Karnataka site per operational year. The project will result in total emission reductions of 105,736 tCO₂e per annum. The operation and maintenance of the project would be done by Enercon as per the operational and maintenance agreement /9/ with PP. Expected project operational lifetime is of 20 years which is verified from the proof of operational lifetime of the project activity /29/.

At the Samana site, the WTGs are connected to several Vacuum Circuit Breakers through step-up transformers (400V to 33kV) which through feeders lead up to four step-up transformers (33kV to 220kV). The transmission lines ultimately lead up to the Sadodar substation maintained by Enercon (India) Limited where metering of net electricity supplied to grid takes place. The same is verified by validation team during onsite visit.

Similarly, at the Saundatti site, the WTGs are connected to several Vacuum Circuit Breakers through step-up transformers (400V to 33kV) which through six feeders lead up to two step-up transformers (33kV to 110kV). The transmission lines ultimately lead up to the Saundatti substation maintained by Enercon (India) Limited where metering of net electricity supplied to grid takes place. The same is verified by validation team during onsite visit.

The PLF of the project activity has been taken as 24.97% for Samana site and 24.80% for Saundatti site which is based on the Wind Assessment Report dated 08 Nov. 2007 for Saundatti site and dated 27 June 2007 for Samana site /10/ prepared by M/s. Hydro Tasmania Consulting

(HTC) (a third party engineering consultancy contracted by the PP). This is in line with the requirement of § 3 (b) of annex 11 of EB 48 and is deemed to be realistic. The net electricity supplied to the grid will be calculated ex-post by the difference of measured export and measured import of electricity directly by meter as described in the monitoring plan of the PD.

This grid connected wind power plant has obtained all local and sectoral statutory clearances as specified under Indian Electricity Act 2003 i.e. Commissioning Certificates of Samana and Saundatti sites and NOC provided by KSEB and GEDA and hence confirmed that project has got all statutory clearances required to install the project including infrastructure clearance provided by Gujarat and Karnataka state electricity boards/14/ .

Project proponent: CLP Wind Farms (India) Private Limited is the project proponent for this project activity. This has been verified from the PPAs /11/, Purchase orders /9/ and commissioning certificates /20/ and hence the Right of use of PP for this project activity is also confirmed by these document review /5/.

Project start date: The first 20 WTGs of the project activity was commissioned on 23 June 2010 at Saundatti site in Karnataka , which is considered as VCS project start date; the same is verified through commissioning report /7/.

Project crediting period:

The project crediting period is of 10 years which can be renewed for 2 times.

Project scale and estimated GHG emission reductions or removals:

The GHG emission reductions of this project activity is 105,736 tCO₂e per year hence comes under “Projects” scale as per version 3.2 of VCS standard.

Project activities:

This project activity is not a multiple project activities.

Project location:

The latitude and longitude of the project activity are as mentioned in the VCS PD /2/ and this was cross-checked from Google earth and Report on Geographical co-ordinates of WTGs by ENERCON India Ltd./46/ Moreover, the location of the project activity site (postal address as well as geo coordinates), as mentioned in the VCS PD /2/ was further cross-checked during on site visit by the Validation team.

The first sub-project consisting of 12 WTGs is located at the Samana site in Gujarat.

Site:	Samana
Taluk:	Kalavad, Jamjodhpar, Upleta
District:	Jamnagar, Rajkot
State:	Gujarat

Host Party: India

The second sub-project consisting of 55 WTGs is located at the Saundatti site in Karnataka.

Site: Saundatti

Villages: Katamalli, Hooli, Vatnal, Gorbala, Basidoni, Mallapur, Goravanakolla, Haletorgal

District: Belgaum

State: Karnataka

Host Party: India

Project compliance with applicable laws, statutes and other regulatory frameworks:

A letter /14/ provided by Government of India and infrastructure clearance provided by the state Governments of Gujarat and Karnataka have been verified by validation team to check the compliance with respective state Government regulations and based on this document review i.e. Commissioning Certificates of Samana and Saundatti sites /20/ and NoC provided by KSEB and GEDA /14/ and hence confirmed that project has got all statutory clearances required to install the project including commissioning approval & permission provided by Gujarat and Karnataka state electricity boards respectively /14a//14b/ .

Ownership and other programs:

- **Right of use:**

Purchase orders /9/, establishing ownership rights including commissioning certificate /20/ were reviewed by validation team as rights of use accorded to the project proponent and it is found to be acceptable .

- **Emissions trading programs and other binding limits:**

The part of project activity has applied for registration under CDM and is currently under validation as a two separate project activity However the PP has provided the letter of declaration if the project get registered under CDM then they will not claim any VCS benefits. Hence no double counting *applies for this project as per declarations provided by PP /30/, /31/.*

Participation under other GHG programs: *The part of project activity has applied for registration under CDM and is currently under validation as a two separate project activity. Apart from CDM, it has neither applied nor been rejected under any other GHG program. This was cross checked through the back ground investigation (<http://cdm.unfccc.int/Projects/Validation/DB/UTY2YY69RTQ04NJW0ZRHKU5VSCZAGV/view.html> and <http://cdm.unfccc.int/Projects/Validation/DB/V3VLCQGE9AP9TX41VS9FJI8UKLMBOA/vi>*

[ew.html](#)) /30/ as well the declaration given by the PP. mentions that project has not created any other environmental Credits /31/.

▪ **Other forms of environmental credit sought or received:**

The declaration given by the PP mentions that project has not created any other environmental Credits /30/.

▪ **Rejection by other GHG programs:**

The part of project activity has applied for registration under CDM and is currently under validation as a two separate project activity. Apart from CDM, it has neither applied nor been rejected under any other GHG program. This project is not participating under other GHG programs . This was cross checked through the back ground investigation (<http://cdm.unfccc.int/Projects/Validation/DB/UTY2YY69RTQ04NJW0ZRHKU5VSCZAGV/view.htm>) and (<http://cdm.unfccc.int/Projects/Validation/DB/V3VLCQGE9AP9TX41VS9FJ18UKLMBOA/view.html>) /30/ as well the declaration given by the PP.

Apart from above this project is not rejected under other GHG programmes which was cross checked through the above back ground investigation as well the declaration given by the PP which mentions that project has not created any other environmental *credits* /31/.

Additional information relevant to the project

- **Eligibility criteria for grouped projects**
This is not a group project activity.
- **Leakage management for AFOLU projects**
This is not a AFOLU project activity.
- **Commercially sensitive information**
There is no Commercially sensitive information in this project activity.As same has been confirmed from PP through e-mail communication/47/.
- **Any further information**
There is no further information required presented here.

3.2 Application of Methodology

3.2.1 Title and Reference

Methodology Details	Description
Title of the baseline and monitoring methodology	ACM0002 version 13.0.0: "Consolidated Baseline Methodology for grid connected electricity generation from renewable sources" EB 67, annex 13
Reference	http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html
Sectoral scope	1: Energy industries (renewable - / non-renewable sources)

3.2.2 Applicability

The project activity applied the approved baseline and monitoring methodology ACM0002, Version 13.0.0: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources",/32/, which also refers to the use of latest version of the "Tool to calculate the emission factor for electricity an electricity system" version 02.2.1 /33/.

The methodology is applicable to the grid connected renewable power generation project activities involving electricity capacity additions that include installation of wind power plant/unit. The validation team has reviewed the design and technical specification of the project activity, connection to the electricity system and definition of the project boundary as published by the appropriate authority of the host country. The project applicability was confirmed against each condition in the approved consolidated methodology ACM0002, Version 13.0.0 and the "Tool to calculate the emission factor for an electricity system", Version 02.2.1 referred to in the approved methodology. The summary of the applicability criteria is listed below:

Applicability criteria as per methodology /32/	Means of Validation
The project activity is grid connected renewable power generation project and meets the applicability conditions of the chosen methodology as demonstrated below: <i>This methodology is applicable to grid-connected renewable power generation</i>	The project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant) and has been checked from the document review /9/. Furthermore, the electricity generated by the project activity will be supplied to the NEWNE and southern grid (project electricity generation system as per the delineation of CEA /35/) and this has been checked from the Power Purchase Agreement /11/ signed between the PP and respective State electricity board which explicitly mention that the generated electricity from the project activity will be sold to

<i>project activities that:</i> (a) <i>install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant);</i> (b) <i>involve a capacity addition;</i> (c) <i>involve a retrofit of (an) existing plant(s); or</i> (d) <i>involve a replacement of (an) existing plant(s).</i>	the respective State electricity board.
The methodology is applicable under the following conditions: <i>The project activity is the installation, or modification/retrofit of a, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;</i>	The project activity is the installation of a greenfield wind power plant. Hence, the applicability criterion is satisfied, the same has been checked from the document review /9/ and from the onsite visit.
In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition	The project activity is not a capacity addition, retrofit or replacement of an existing power plant. Hence, this applicability criterion is not required to be satisfied.

projects which use Option 2: on page 10 to calculate the parameter $EG_{PJ,y}$: the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	
• In case of hydro power plants, at least one of the following conditions must apply: • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m² after the implementation of the project activity; or • The project activity results in new single or	The present VCS GHG project is not a hydro power plant; hence this paragraph is not applicable for the subject project case.

multiple reservoirs and the power density of each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m² after the implementation of the project activity.	
In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m² all the following conditions must apply: • The power density calculated for the entire project activity using equation 5 is greater than 4 W/m²; • Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project¹ that collectively constitute the generation capacity of the combined power plant; • Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; • Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4 W/m², is lower than 15 MW; • Total installed capacity of	The present VCS GHG project is not a hydro power plant; hence this paragraph is not applicable for the subject project case.

the power units, which are driven using water from reservoirs with power density lower than 4 W/m ² , is less than 10% of the total installed capacity of the project activity from multiple reservoirs.	
The methodology is not applicable to the following: - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; - Biomass fired power plants; - Hydro power plant that result in new single reservoir or in the increase in existing single reservoir where the power density of the reservoir is less than 4 W/m².	The present VCS GHG project is not a hydro power plant; hence this paragraph is not applicable for the subject project case. The project activity does not involve switching from fossil fuels to renewable energy sources. Hence, the applicability criterion is satisfied. The project activity is not a biomass fired power plant. Hence, the applicability criterion is satisfied. The project activity is not a hydro power plant. Hence, the applicability criterion is satisfied.

Thus the validation team confirms that the project participant correctly applied the approved CDM methodology /32/ to the project activity.

3.2.3 Project Boundary

Project activity boundary is delineated as physical and geographical boundary of the wind power plant and is adequately described in the VCS PD /1//2/. The project's system boundary includes WTGs, metering at sub-station & , all power plants connected to the regional grid.

The validation team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology /32/ and can be seen in the Table below. Hence a clarification of revision to or deviation from the approved methodology /32/ is not requested.

Source		Gas	Included?	Justification by validation team
Baseline	CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO ₂	Yes	This is the main emission source because the as this emission of CO ₂ due to Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected fossil fuel based power plants and by the addition of new generation sources .
		CH ₄	No	This gas is not applicable to this wind project activity.
		N ₂ O	No	This gas is not applicable to this wind project activity.
Project Activity	For geothermal power plants, fugitive emissions of CH ₄ and CO ₂ from non-condensable gases contained in geothermal steam.	CO ₂	No	The project activity is a wind power project and not a geothermal project. Thus, these emission sources are not applicable to the proposed project.
		CH ₄	No	
		N ₂ O	No	
	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO ₂	No	The project activity is a wind power project and not a geothermal project. Thus, these emission sources are not applicable to the proposed project.
		CH ₄	No	
		N ₂ O	No	
	For hydro power plants, emissions of CH ₄ from the reservoir.	CO ₂	No	The project activity is a wind power project and not a hydro power project. Thus, these emission sources are not applicable to the proposed project.
		CH ₄	No	
		N ₂ O	No	

3.2.4 Baseline Scenario

The identified baseline scenario for the project activity, in line with the methodology ACM0002 version 13.0.0 /32/, is the equivalent electricity that would have been generated, in absence of the project activity, by the operation of the grid-connected fossil fuel based power plants belonging to the NEWNE and Southern grid.

As per methodology (p4) baseline is as follows:

“If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

- Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

Determination of Baseline Emission

In line with baseline scenario under the applied methodology ACM0002 version 13.0.0 /32/, is calculated as the product of electrical energy $E_{GBL,y}$ (Quantity of net electricity supplied to grid) expressed in MWh of electricity produced by the wind Power plant multiplied by the grid emission factor in accordance with ACM0002 version 13.0.0 /32/.

According to ACM0002 version 13.0.0 /32/, the emission factor can be calculated in a transparent and conservative manner as follows:

The grid emission factor of for teh project activity has been calculated ex-ante as per the “Tool to calculate the emission factor for an electricity system. The combined margin emission factor for NEWNE grid of India has been calculated to be 0.9528 tCO₂e / MWh and combined margin emission factor for Southern grid of India has been calculated to be 0.8969 tCO₂e / MWh. This has been calculated using the Central Electricity Authority CO₂ Baseline Database version 7 /35/. Central electricity Authority (CEA) (under Ministry of Power, Government of India) have worked out baseline emission factor for two regional grids in India and made them publicly available. The data from CO₂ Baseline Database for the Indian Power Sector Version 7.0 /35/ is the most recent data at the time of submission of VCS-PD for validation by PP on 05.06.2012 (Cp p5 of tool to calculate emission factor of an electricity system, version 02.2.1 /33/). Validation team has checked the calculation of the combined margin grid emission factor and confirmed that the applied value of the emission factor follows the tool /33/. And the values of OM and BM incorporated in the PD /2/ is taken from publically available CO₂ baseline emission database for the Indian Power Sector i.e. by CEA (Govt of India) /35/.

Nevertheless, following steps to demonstrate the calculation of combined margin emission factor in accordance with “Tool to calculate emission factor of an electricity system”, version 02.2.1.

Step 1 - Identify the relevant electricity systems

In line with the requirements specified in the tool /33/, the PP has used a regional grid definition as applicable for large countries like India having layered electricity dispatch systems. The Indian power system is divided in two grids, the Northern, Eastern, Western and North- Eastern (NEWNE) Grid and Southern Grid. The project activity is partially situated in the state of Gujarat, which is connected to NEWNE Grid and partially in the state of Karnataka hence for the purpose of estimation of baseline emission factor the consideration of NEWNE grid for the project activity implemented in Samana, Gujarat and south Grid for the project activity implemented in Saundatti, Karnataka is appropriate and correct.

Step 2 – Choose whether to include off-grid power plants in the project electricity system (optional);

The tool gives an option to include off-grid power plants in the project electricity system. CEA in its database for the Indian Power Sector User Guide - Version 7.0 /35/ has considered only grid power plants for the analysis and the same is found to be in line with tool for validation team.

Step 3 – Select a method to determine the operating margin (OM);

Simple OM method, out of the four methods provided in the tool /33/ for calculating the operating margin ($EF_{grid,OM,y}$) is selected. The tool /33/ specifies that the simple OM method can only be used if the 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. The Simple OM method selected is justified and appropriate as the average proportion of low-cost/must run resources is less than 50% and the same is validated from User guide of CEA database , version 7. The ex-ante option for determining the simple OM is opted by the PP.

Step 4 – Calculate the operating margin emission factor according to the selected method;

The PP has considered the national published data (CEA database, ver. 07 /35/) for simple OM .The simple OM emission factor calculated by the CEA is the generation weighted average CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must power plants (User Guide – CO₂ Baseline Database, ver-7 for the Indian power sector /35/).

The value of simple operating margin for each year and the data for the calculation of EF grid, simple OM,y is published by the CEA /35/ and is publically available. However, validation team has carried checked the published value of simple OM from the data available in CEA, version 7 /35/ and found that PP has rightly calculated the generation weighted average value and this is in line with the tool /33/ .

Hence, $EF_{gridOM} = 0.9842tCO_2/MWh$ for NEWNE grid and $0.9513 tCO_2/MWh$ for South grid

Hence validation team confirms that the PP has rightly followed the CEA database version 07 /35/ and the EF_{gridOM} for the both grid is based on three year generation weighted average is in conformity with the tool to calculate emission factor, version 02.2.1 /33/.

Step 5 – Calculate the build margin (BM) emission factor;

Option (b) the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently have been considered by CEA and the same has been selected in the VCS PD /2/.

Validation team checked independently and confirm that the selection of the options is correct. This conclusion has been made based on the analyzing both the options, and it was found that the set of power as per option (b) comprises of larger annual generation and hence confirm the requirement of the tool /33/. In validating this step, validation team further confirms that:

- (i) the identified power capacity additions comprise 20% of the system generation for the year under consideration.
- (ii) none of the considered power capacity additions considered under (i) above have been built more than ten years earlier.

PP has fixed the Build Margin emission factor as ex-ante for the whole crediting period.

The PP has considered the national published data (CEA database, ver 07 /35/) for BM.

The CEA database /35/ provides a BM value for the NEWNE grid as 0.8587 tCO₂/MWh and 0.7338 tCO₂/MWh for Southern grid . As part of validation of Step 6 of the tool /33/, Validation team has checked the BM for the year 2010-11 and found the same correct and in line with the tool.

Step 6 of the tool /33/ requires calculation of the combined margin emission factor as per the following equation:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM}$$

$EF_{grid,CM,y} = EF_{CO_2,grid,y} = 0.9528$ tCO₂/MWh for Samana site and 0.8969 tCO₂/MWh for Saundatti site

According to the tool /33/ on selecting alternative weights, the default weights applicable for solar and wind projects are $W_{OM} = 0.75$ and $W_{BM} = 0.25$ for the first and subsequent crediting period have been applied. The combined margin emission factor has been calculated as; $EF_y = 0.9528$ tCO₂/MWh for Samana site and 0.8969 tCO₂/MWh for Saundatti site (The official published data for simple OM and BM is considered for calculation of CM). The CM for the first crediting period is fixed ex-ante. Hence the validation team confirms that the PP has correctly calculated the combined margin grid emission factor and is in line with the tool to calculate emission factor, version 02.2.1 /33/.

Table A-3: Assessment of assumptions used in Baseline Emissions

Parameter	Value Applied	Unit	Source of Information	Validator Conclusion
BASELINE EMISSIONS				
Rated Installed Capacity of the plant	53.6	MW	Technical Specification as mentioned in PO issued by PP	Cross checked with technical specification provided by the manufacturer as mentioned in the PO issued by PP /9/ and found correct.
Plant Load Factor	24.97 for Samana site and Saundatti site 24.80	%	Third party Project Report	As per the report by third party contracted by the PP /10/, in line with EB 48 annex 11 requirements.
Combined margin for the Southern grid	0.9528 tCO ₂ /MWh for Samana site and 0.8969 tCO ₂ /MWh for Saundatti site	tCO ₂ /MWh	Baseline Carbon Dioxide Emission Database Version 7.0, from CEA data base / 35/	Cross checked with the Baseline Carbon Dioxide Emission Database Version 7.0, from CEA data base /35/ and found OK.

3.2.5 Additionality

Investment analysis

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

- determining the suitability of the benchmark applied for the type of financial indicator presented;
- conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters;
- cross-checking the parameters against third-party or publicly available sources as the details with reference and weblinks has been provided in the IRR sheet and VCS PD;

- d) reviewing annual financial reports related to the project participant;
- e) assessing the correctness of computations carried out and documented; and
- f) subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.

Suitability of financial indicator and benchmark:

The project proponent has chosen equity IRR to demonstrate the additionality of the project. Additionality Tool (Ver. 06.0) permits the use of financial indicator, viz. IRR, for demonstrating the additionality using benchmark analysis. The tool permits the use of either project IRR or equity IRR. The project developer has chosen to demonstrate the financial unattractiveness of the project through equity IRR. Since the project proponent is demonstrating the financial unattractiveness of the project, equity IRR is appropriate, as it is often used by the project developers to make a decision on investing in the project.

Accordingly, the cost of equity is being determined as the value provided in Appendix of the EB 62, Annex 5. However, as per paragraph 7 of the appendix to the guidelines, the default values provided in the appendix are real term values that can be converted to nominal values by adding the inflation rate.

The default value for expected return on equity for energy industry in India in real term rates as per appendix to the Guidelines on the assessment of investment analysis is 11.75%. The medium-term inflation forecast from Reserve Bank of India which is the central bank of the host country is 4.25%.

Therefore, the expected return on equity in nominal terms is $11.75\% + 4.25\% = 16.00\%$.

IRR Analysis

As such, selection of equity IRR as financial indicator to demonstrate the additionality of the project is appropriate and conforms to the Additionality Tool.

Additionality tool (ver.06.0) states that the discount rates and benchmarks shall be derived from "Government/official approved benchmark, where such benchmarks are used for investment decisions", among others. However, it is imperative that the benchmark selected should be suitable for the type of financial indicator presented. The proponent has chosen the benchmark in accordance with the Appendix A of Guidelines on the assessment of investment analysis i.e. expected return on equity to reflect private investment and / or project type. The input parameters selected for the *expected return on equity* calculations were also checked and found to be OK. Accordingly, the cost of equity is being determined as the value provided in Guidelines on the assessment of investment analysis. However, as per paragraph 7 of the appendix to the guidelines, the default values provided in the appendix of Guidelines on the assessment of investment analysis, EB 62 Annex 5 are real term values that can be converted to nominal values by adding the inflation rate.

The default value for expected return on equity for energy industry in India in real term rates as per appendix to the Guidelines on the assessment of investment analysis is 11.75%.

PP has considered the medium-term inflation forecast from Reserve Bank of India which is the central bank of the host country is 4.25% /38/.

During assessments of the validity of the calculation the sources from which the default value for expected return on equity / 39/ as well as the medium-term inflation forecast from Reserve Bank of India is derived are analysed and verified /38/. Both, the validity of input parameters as well as the arithmetical validity of the computation is confirmed by the validation team. In order to comply with the requirements of EB 62, Annex 5, para. 13 the PP correctly taken average of medium-term inflation forecast from Reserve Bank. The availability and validity of the information used in input parameters has been assessed against EB 62, Annex 5, para. 6. By this means the validation team concludes that the benchmark calculation is correct with regards to the formulae used and its input parameters.

Finally, the benchmark chosen is suitable for the type of financial indicator selected, what is sought to be compared is the expected return on investment (equity IRR) with the default value for expected return on equity for energy industry in India in real term rates as per appendix to the Guidelines on the assessment of investment analysis is 11.75% and the medium-term inflation forecast from Reserve Bank of India which is the central bank of the host country is 4.25%. Therefore, the benchmark selected by the project developer is appropriate and conforms to the Additionality Tool. The project proponent has also demonstrated that the expected return from the project activity i.e. equity IRR is lower than determined benchmark (16%) for both the sites.

Parameters and assumptions used:

The three important parameters, which determine the IRR of the project, are project cost, financing pattern, and profitability estimates. The project cost includes, WEG cost, financing cost and other costs. The financing cost consists of upfront and syndication fees payable to the bank as a percentage of debt for project along with interest during construction and the other cost corresponds to costs of legal due diligence, technical due diligence and other costs associated with implementation of the project. All the constituents of the project cost are based on the quotations and detailed estimation, whereas the financing cost is calculated based on the bank term loan sheet and other costs are audited and certified by a third party. Tax rate is as per the service tax rate applicable at that time and mentioned in as per prevailing tax rates for FY 07-08. The financing debt equity ratio is 70:30 /25/, which is accepted financing pattern for wind power projects. The profitability estimates of the project, which forms the basis for IRR calculation is based on installed capacity, plant load factor, power tariff, O&M cost, insurance cost, interest, depreciation, taxation. The installed capacity is a computed figures based on the number of WEGs installed and the capacity thereof.

For Gujarat state, the PLF works out to 24.97% as per the third party PLF assessment report by HTC/10/ and hence it is appropriate. This complies with the requirements of the Guidelines for the reporting and validation of plant load factors (EB48, Annex 11). Power tariff i.e. Rs.3.37/kWh is based on PPA, which is in line with the tariff recommended by GERC for wind power projects.

O&M cost and insurance cost are based on Quotation for insurance premium dated 03 May 2007 /22/ .

For Karnataka, the PLF works out to 24.80% as per the third party PLF assessment report by HTChence it is acceptable/25/. This complies with the requirements of the Guidelines for the reporting and validation of plant load factors (EB48, Annex 11). Power tariff i.e. Rs.3.40/kWh is based on PPA /11/, which is in line with the tariff recommended by KERC for wind power projects. O&M cost and insurance cost are based on Quotation for insurance premium dated 03 May 2007 /22/ . Interest is based on detailed computation forming part of the worksheet. The project proponent has adopted Income Tax Act stipulated WDV (written down value) depreciation for income tax calculation, which are accepted accounting methods. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules. In computing the income tax liability, the project developer has taken into account the accelerated depreciation (80%), which the wind turbines are eligible and the Tax holiday (u/s 80IA of the Income Tax Act, 1961), which the infrastructure projects (under which the project activity falls) are entitled for the 10 consecutive years out of the first 15 years. The tax rate assumed corresponds to the tax rate prevailing at the time of taking decision.

Cross checking parameters:

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

Financial reports of project proponent:

URS requisitioned the statement of accounts /27/ of the project participant for the 3 financials years i.e. FY 2008-09, 2009-10 and 2010-11. None of the input values taken in the computation can be based on the annual statement of accounts, as the PP is engaged in an activity, which is different from the present activity of the firm.

Assessment of correctness of computation:

The assessment involves checking the data input taken from quotation/documents, adoption of correct accounting principle and arithmetical accuracy. URS checked the quotation/ documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted with respect to the computation of interest during construction, block of assets, prorata expenses and tax computation are found to be in order. The arithmetical accuracy is also found to be correct. The principle adopted by the project proponent for computing IRR is in conformity with the "Guidance on the Assessment of Investment Analysis" version 5 as contained in annex 5 to EB 62 report. IRR has been computed for 20 years. In computing the IRR, the project proponent has taken into account profit after tax and depreciation. From the total, the repayment of term loan has been deducted, which is the accepted accounting principle, in as much as the repayment of term loan is made out of cash flow, i.e., profit after tax and depreciation. In the calculation of the total investment costs, have been considered as the net

cash outflow, which is as per annex 5 to EB 62. Based on the above, the project IRR for CLP amounts to 6.44% and 6.50% for Gujarat (Samana site) and Karnataka (Saundatti site) respectively against the benchmark of 16%. In the above background, URS is convinced that the project is additional and not a business-as-usual scenario. However, this conclusion was checked by subjecting the critical assumptions to reasonable variations.

Sensitivity analysis:	IRR	Benchmark
The Guidance on assessment of investment analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation ($\pm 10\%$). The project proponent has identified Energy Generation, Project Cost, O & M cost as well as the electricity tariff in Gujarat & Karnataka as the most critical assumptions. Since the electricity tariff paid for electricity from WTGs at the Gujarat site is fixed as per the PPA the validation team verified that it is not appropriate to incorporate this tariff in the sensitivity analysis. Accordingly, the sensitivity analysis has been conducted to analyze the impact of change in (a) capital cost by 10%, (b) net generation by 10%, (c) operation & maintenance (O&M) cost by 10% and d) the tariff paid at the Gujarat & Karnataka sites by 10%. The profitability of meeting or crossing the required benchmark has been further analysed as follows: The sensitivity analysis reveals that even under more favorable conditions, the IRR would not cross the benchmark value of 16% as given in the following table: Parameters	CLP 6.44% (Gujarat) 6.50% (Karnataka)	16%

The results of the sensitivity analysis for Samana sub-project are detailed below:

Base case	6.44%		Comments
Variable	Decrease	Increase	

Parameter	10%	10%	
Energy Generation	3.80%	9.09%	The energy generation has been determined based on the analysis conducted by third party engineering consultants, Hydro Tasmania. Any significant increase in energy generation is not envisaged, however, even in the extreme case of an increase of 10% in energy generation, it can be observed that the IRR does not cross the benchmark.
Project Cost	8.85%	4.50%	The project cost primarily comprises of the cost of civil works and plant and machinery which is unlikely to decrease significantly. Even with a decrease of 10% in the project cost, it can be observed that the IRR does not cross the benchmark.
Tariff	3.80%	9.09%	The Tariff has been fixed as per the GERC Tariff Order dated 11 Aug 2006. The project proponent has also signed a Power Purchase Agreement with GUVNL for this purpose and any change in the tariff is unlikely.
O&M Cost	6.92%	5.96%	The variation in the cost of Operations and Maintenance does not affect the Equity IRR by a significant margin due to its low value.

The results of the sensitivity analysis for Saundatti sub-project are detailed below:

Base case	6.50%		Comments
Variable Parameter	Decrease	Increase	
	10%	10%	
Energy Generation	3.85%	9.16%	The energy generation has been determined based on the analysis conducted by third party engineering consultants, Hydro Tasmania. Any significant increase in energy generation is not envisaged, however, even in the extreme case of an increase of 10% in energy generation, it can be observed that the IRR does not cross the benchmark.
Project Cost	8.92%	4.56%	The project cost primarily comprises of the cost of civil works and plant and machinery which is unlikely to decrease significantly. Even with a

Base case	6.50%		Comments
Variable Parameter	Decrease	Increase	
	10%	10%	
			decrease of 10% in the project cost, it can be observed that the IRR does not cross the benchmark.
Tariff	3.85%	9.16%	The Tariff has been fixed as per the Karnataka Tariff Order for Renewable Sources of Energy dated 18 Jan 2005. The project proponent has also signed a Power Purchase Agreement for this purpose and any change in the tariff is unlikely.
O&M Cost	6.98%	6.02%	The variation in the cost of Operations and Maintenance does not affect the Equity IRR by a significant margin due to its low value.

Also the sensitivity analysis carried out as per the EB 62 annex 05 Guidelines on assessment of investment analysis, the values of IRR do not cross the benchmark (equity IRR). The validation team therefore concurs with the project participant that the project activity is additional since it is not financially viable without the benefits from carbon finance.

Barrier analysis

Barrier analysis has not been chosen to demonstrate additionality of the proposed VCS project activity in the PD.

Common practice analysis

The project proponent has chosen India as the geographical region for common practice analysis. As per the guidelines of EB65 annex 21 India is an appropriate geographical region. Thus the validation team has been convinced that the chosen geographical region for the common practice analysis is appropriate in the context of the proposed project activity. The PP correctly excluded the projects after taking +/- 50% of the project capacity (i.e. from 26.8 MW to 80.4 MW) as well as projects registered. Excluding projects due to non-comparable installed capacity is deemed appropriate considering lower transaction costs and economies of scale for projects of larger scale. As per para 47 of the guideline, step 2 of the guideline, N_{all} is arrived by taking output range of 26.8 MW to 80.4 MW, based on which, thermal, hydro, biomass & wind projects and others have been considered. N_{all} comes out to be 379. This was checked from the websites of central electricity authority, ministry of new and renewable energy and EAI publication.

As per para 47 of the guideline, step 3 of the guideline N_{all} and N_{diff} is arrived and found to be 371 and 370 respectively and $N_{all}-N_{diff}$ is less than 1. Now the factor F is calculated which comes out to be 0.0026 which is less than 0.2 and hence the project activity is not a common practice in the region. The spreadsheet is also submitted by project proponent and was checked by the validation team and found to be satisfactory, hence accepted by the validation team.

Summary

Based on the above description of assessment of investment analysis and common practice analysis and the arguments put forth by PP as explained in the PD /2/, Validator is of the opinion that the proposed project activity qualifies the all the steps of tool for the demonstration and assessment of additionality and thus not a business as usual. Hence emission reductions created the proposed project activity are additional to what would have been generated in the absence of proposed project activity.

3.2.6 Quantification of GHG Emission Reductions and Removals

The GHG emissions reduction calculations are transparently calculated based on appropriate assumptions regarding the expected amount of electricity generated have been used to forecast emission reductions.

According to the applied methodology the emission reductions (ER_y) by the project activity during the crediting period is the difference between the baseline emissions (BE_y) and sum of emissions arising from project emissions (PE_y), which is expressed as follows:

$$ER_y = BE_y - PE_y$$

Quantification of baseline emissions

The baseline emissions are equal to the emission reductions due to the project activity. According to the applied meth, the baseline emissions are demonstrated in PD and are calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

- BE_y = Baseline emissions in year y (tCO₂/yr)
- $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VCS project activity in year y (MWh/yr)
- $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ for greenfield plants

$$EG_{PJ,y} = EG_{facility,y} \quad (1)$$

Where:

- $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VCS project activity in year y (MWh/yr)
- $EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

$EG_{facility,y}$ is the quantity of net electricity generation supplied by the project plant/unit to the grid. It shall be determined as a difference between (i) quantity of electricity supplied by the project plant/unit to the grid and quantity of electricity delivered to the project plant/unit from the grid.

$EF_{CO_2,grid,y}$ in this case is taken as Combined margin CO_2 emissions factor for grid connected power generation in year y .

$EG_{BL,y}$ is estimated as 20,995.2 MWh for Samana site and 95,587.86 MWh for Saundatti site.

Quantification of project emissions

Project activity emissions

According to the chosen baseline methodology ACM0002 Version 13.0.0, project emissions are accounted for as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

- PE_y = Project emissions in year y (tCO₂e)
- $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO₂)
- $PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂e)
- $PE_{HP,y}$ = Project emissions from reservoirs of hydro power plants in year y (tCO₂e)

Since, the project activity is a wind power project, there are no project emissions from fossil fuel consumption, release of non-condensable gases or water reservoirs.

Hence, $PE_y = 0$

Quantification of leakage

The main emissions potentially giving rise to leakage in the context of electricity sector projects are emissions arising from activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). According to ACM0002 Version 13.0.0, these emission sources are neglected and therefore no leakage emissions are required to be considered.

Summary of GHG emission reductions or removals

So emission reduction is direct multiplication of quantity of net electricity supplied to the grid as a result of the implementation of the VCS project in year y (MWh) (export-import figure) and the grid emission factor.

The emissions reductions due to the project activity were estimated ex-ante to be 105,736 tCO₂e per year in the VCS PD /2/ and calculated as follows:

$$ER_y = EG_{NEWNE, facility, y} \times EF_{NEWNE, grid, CM, y} + EG_{South, facility, y} \times EF_{South, grid, CM, y}$$

$$= 20,995.2 \times 0.9528 + 95,587.86 \times 0.8969 = 105,736 \text{ tCO}_2\text{e (rounded down value)}$$

Uncertainties associated with the calculation of emissions

No uncertainties associated with the calculation of emissions are found

3.2.7 Methodology Deviations

No methodology deviations applied to this GHG project.

3.2.8 Monitoring Plan

Data and parameters available at validation

The project adopts the ex-ante calculation of emission factor of the grid. The OM and BM are calculated as fixed factors for the first renewable crediting period by choosing data vintage based on ex-ante Indian Power Sector CO₂ emission baseline database published by CEA /35/.

The parameters for determining the GHG emissions reductions have been clearly demonstrated in section 4.1 and 4.2 of the VCS PD /2/. The combined margin emission factor for 0.9528 tCO₂/MWh for Samana site and 0.8969 tCO₂/MWh for Saundatti site.

The validation team has verified the value used against the sources and conclude that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the parameters are real, measurable and conservative.

Data and parameters monitored at the Samana site, Gujarat

a) Quantity of electricity generated by i^{th} WTG = $EG_{Samana, WTG, i}$

The WTGs is having in-built LCS meter which continuously records the electricity generated by the turbine.

b) Quantity of net electricity generation supplied by the project activity to the grid in year y = $EG_{NEWNE, facility, y}$

The quantity of electricity generated by i^{th} WTG at Samana site is measured and recorded by the LCS meter at the WTG controller end.

Net electricity generated by the wind farm is monitored using a main meter at the grid interconnection point in the substation maintained by Enercon (India) Limited. There are numerous WTGs apart from those included in this project that are connected to the main meter. The net electricity delivered by the Samana sub-project would be calculated by proportionally dividing the

metered net generation among the connected WTGs on the basis of the pro-rata readings taken at the WTG controller end.

The net electricity supplied by the wind farm to the NEWNE grid is determined as the difference between the quantity of electricity supplied by the wind farm to the grid and the quantity of electricity delivered to the wind farm from the grid.

Joint meter readings for the net energy generation by the wind farm are taken in the presence of Enercon (India) Limited and grid officials every month.

Data and parameters monitored at the Saundatti site, Karnataka

c) Quantity of electricity generated by i^{th} WTG = $EG_{\text{Saundatti,WTG},i}$

The WTGs is having in-built LCS meter which continuously records the electricity generated by the turbine.

d) Quantity of net electricity generation supplied by the project activity to the grid in year y = $EG_{\text{south,facility},y}$

The VCS PD /2/ has mentioned this monitoring parameter. The monitoring plan related to electricity metering consists of two parameters monitoring representing metering of net electricity at the evacuation point to the grid by dedicated meters (LCS) at each WTG. The quantity of net electricity supplied to the grid in year y will be calculated as difference of exported and imported electricity which are directly metered in an export-import meter. The second parameter is Quantity of electricity generated by *each* WTG which is used to calculate the electricity generated by using generation data and apportioned the same by using JMR reports given by respective electricity boards for the project activity ER calculations. The export and import will be measured continuously and recorded monthly.

Applicability and eligibility of monitoring equipment and procedures

Steps undertaken to assess the monitoring plan

Compliance of the monitoring plan with the approved methodology

The project applies monitoring methodology ACM0002 v 13.0.0. "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", as per the methodology, Monitoring shall consist of metering the electricity generated by the renewable technology installed by the project proponent. All the wind mills are located in Gujarat and Karnataka states of India, and form a part of one wind farm. As verified during the site visit, monitored parameter $EG_{\text{facility},y}$ i.e. net power supplied to the grid is measured by main meter and check meters installed at the substation jointly by representatives of substation and PP. Accuracy, calibration, periodical testing and maintenance procedures of monitoring equipment are clearly mentioned in the section 4 of PD /2/. Validation team has reviewed the same and is convinced that the same is adequate and will lead to correct measurement of the net electricity exported to the grid. Also the BESCO and GSEB are a State governmental body of Karnataka and Gujarat respectively and JMR issued by BESCO and GSEB is used for commercial purpose and can be considered as authentic and correct. URS has validated the same by referring JMR issued by them. All the wind

mills of project activity are falling under same 2 wind farms so measurement and monitoring procedures for delivering net export of power to the grid remains same for all WEG and is verified during site visit.

According to the VCS PD /2/, the project's monitoring plan outlines the followings:-

- Monitoring parameters: the monitoring parameter of the project includes quantity of net electricity supplied to the grid in year y (= Total export – Total import) by the project activity.
- Operational and management structure: management structure is illustrated for the VCS project monitoring;
- Monitoring Equipment and Relative Location: metering equipment to monitor export and import of electricity (to calculate Quantity of net electricity supplied to the grid in year y by the project activity);
- Quality Control and Data Archive: arrangement of meter calibration; archiving of the data collected during monitoring; and collection of monitored data and report preparation.

Quantity of net electricity supplied to the grid in year y is monitored as per the requirement of the monitoring methodology /32/ applied for the project activity.

Implementation of the Monitoring Plan

According to document review in the VCS PD /1//2/ and on-site interviews with the representatives of the PP, detailed monitoring procedures, monitoring structure, management team, monitoring items and functions are clearly demonstrated in the PD which will enable subsequent verification of the project's emission reductions in line with the applied methodology. The validation team confirms that, the specific uncertainty levels, methods and associated accuracy level of measurement instruments and calibration procedures used for various parameters and variables are identified in the VCS PD /2/, along with detailed quality assurance and quality control procedures. The calibration of meters will be done once in 3 years which confirms the accuracy class and the method and frequency of calibration of the electricity meter to the national standards /37/. The calibration of LCS meter is not required due to auto calibration facility of these kind of meters, the same is verified by validation team from the clarification given by WTG manufacturer /17/. All the monitored data will be archived until 2 years after the crediting period to facilitate cross-checking during the crediting period.

3.3 Environmental Impact

The project activity is a 53.6 MW Wind power plant. Validation team based on document review, using official source i.e. EIA Notification of MoEF dated 14/09/2006 and its amendment on 01/12/2009 /36/ and using sectoral expertise concluded that India does not require prior environmental clearance for grid connected wind project.

There is no adverse environmental impacts from the project activity and the proposed GHG project contributes to generation of renewable electricity and is expected to benefit the economic development of the region. Thus the project activity is expected to have only beneficial impacts on the environment.

3.4 Comments by stakeholders

A Local Stakeholders meeting was carried out at Samana site, Gujarat held in Jamnagar on Thursday, 25th of October 2007 and for Saundatti site, Karnataka was held in Hubli on 12th March 2009. The validation team noted that all the relevant stakeholders were appropriately identified by the PP. The meeting was well attended, by various stakeholders, including Representatives from Gram Panchayat (mostly village heads - Sarpanches), local residents, and representatives of Equipment suppliers. The PP has utilized personal invitations to invite these stakeholders. Stakeholders were directly asked to comment on the project through in an open meeting among local stakeholders /12/. A summary of the comments /12/ received and a note on how due account was taken of the concerns raised in the above public consultation are included in VCS PD /2/. This also states that appropriate immediate responses were provided to them. From the background of the stakeholders, it was reasonably believed that the general attitude of the local residents, who were likely to be affected by the project, was positive towards the project and same has been verified from the onsite visit interviews with the local stakeholders. Validation team reviewed all relevant information (as explained above) of local stakeholder consultation meeting and confirms that the process for conducting the local stakeholders meeting is adequate and credible.

During the on site visit, representatives from the local community were interviewed, name of some of the local villagers who were interviewed by validation team is specified in section 2.4 of this report . In general, the interviewees showed adequate understanding of the nature of the project and felt that there would be no adverse impacts on the environment arising from the project activity. The interviewees also considered that the local economy would be benefited from the project activity.

4 VALIDATION CONCLUSION

The project proponent is M/s CLP Wind Farms (India) Private Limited from India. By generating renewable electricity which will displace fossil fuel based grid electricity, the project results in the reductions 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 have occurred in the absence of the project activity.

The project is likely to result in an average emission reduction of 105,736 t CO2e per annum over the crediting period of ten years. The emission reduction forecast has been checked and is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring methodology has been correctly applied. The monitoring plan makes sufficient provision for monitoring relevant project and baseline emission indicators. Detailed responsibilities and authorities for project management, monitoring and reporting and QA/QC procedures have also been addressed.

In summary, the validation team considers that the underlying reason of GHG project cycle, and investment analysis sufficiently evidenced. Thus it is the validation team's opinion that the "Wind Energy Project in Samana, Gujarat and Saundatti, Karnataka", as described in the PD version 03 dated 21/06/2012 meets all the relevant VCSA requirements for the VCS project and relevant criteria of India and correctly applies the baseline and monitoring methodology ACM0002, Version 13.0.0. The validation team of URS verification Private Limited (URS) thus recommends the proposed project to be registered as a VCS project activity with the VCSA.

Date: 22/06/2012


MUKESH SINGHAL

MANAGING DIRECTOR

URS Verification Private Limited.



Appendix 1

Geological Coordinates of individual WTGs along with their date of commissioning of Samana site

S. No.	Unique Identification No.	GEDA Ref No.	Latitude	Longitude	Date of Commissioning
1	CLPSM-38	EIL/800/09-10/1615	22° 06' 20.1" N	70° 20' 13.1" E	12-Jul-10
2	CLPSM-39	EIL/800/09-10/1616	22° 03' 00.8" N	70° 04' 21.9" E	12-Jul-10
3	CLPSM-40	EIL/800/09-10/1695	22° 05' 45.4" N	70° 05' 46.2" E	28-Jan-11
4	CLPSM-44	EIL/800/09-10/1696	22° 05' 35.8" N	70° 05' 53.6" E	28-Jan-11
5	CLPSM-45	EIL/800/09-10/1697	22° 05' 27.8" N	70° 05' 46.6" E	28-Jan-11
6	CLPSM-47	EIL/800/09-10/1699	22° 05' 13.5" N	70° 05' 44.2" E	28-Jan-11
7	CLPSM-48	EIL/800/09-10/1700	22° 05' 04.8" N	70° 05' 40.8" E	28-Jan-11
8	CLPSM-49	EIL/800/09-10/1701	22° 04' 57.9" N	70° 05' 42.1" E	28-Jan-11
9	CLPSM-46	EIL/800/09-10/1698	22° 05' 22.0" N	70° 05' 44.3" E	31-Jan-11
10	CLPSM-50	EIL/800/09-10/1702	22° 05' 05.5" N	70° 05' 09.2" E	31-Jan-11
11	CLPSM-51	EIL/800/09-10/1703	22° 05' 00.0" N	70° 05' 06.9" E	31-Jan-11
12	CLPSM-53	EIL/800/09-10/1704	22° 04' 51.6" N	70° 05' 04.3" E	31-Jan-11

Geological Coordinates of individual WTGs along with their date of commissioning of Saundatti site

S. No.	Unique Identification No.	CEIG Ref. No.	Latitude	Longitude	Date of Commissioning
1	CLPSN-36	CLP-40	15° 47' 40.6" N	75° 09' 56.9" E	23-Jun-10
2	CLPSN-37	CLP-41	15° 47' 46.2" N	75° 09' 54.9" E	23-Jun-10
3	CLPSN-38	CLP-43	15° 48' 01.1" N	75° 09' 57.5" E	23-Jun-10
4	CLPSN-39	CLP-51	15° 49' 56.4" N	75° 11' 29.8" E	23-Jun-10
5	CLPSN-40	CLP-52	15° 50' 04.2" N	75° 11' 30.6" E	23-Jun-10
6	CLPSN-41	CLP-53	15° 50' 11.7" N	75° 11' 31.6" E	23-Jun-10
7	CLPSN-42	CLP-54	15° 50' 19.2" N	75° 11' 34.2" E	23-Jun-10
8	CLPSN-43	CLP-55	15° 50' 26.5" N	75° 11' 35.6" E	23-Jun-10
9	CLPSN-44	CLP-56	15° 50' 35.7" N	75° 11' 40.9" E	23-Jun-10
10	CLPSN-45	CLP-65	15° 50' 42.6" N	75° 11' 32.3" E	23-Jun-10
11	CLPSN-46	CLP-66	15° 50' 48.6" N	75° 11' 32.8" E	23-Jun-10
12	CLPSN-47	CLP-67	15° 50' 55.9" N	75° 11' 29.8" E	23-Jun-10
13	CLPSN-48	CLP-68	15° 51' 02.2" N	75° 11' 28.6" E	23-Jun-10
14	CLPSN-49	CLP-69	15° 51' 08.8" N	75° 11' 27.2" E	23-Jun-10
15	CLPSN-50	CLP-59	15° 50' 58.8" N	75° 11' 45.5" E	23-Jun-10
16	CLPSN-51	CLP-60	15° 51' 04.7" N	75° 11' 44.1" E	23-Jun-10
17	CLPSN-52	CLP-61	15° 51' 09.9" N	75° 11' 41.7" E	23-Jun-10
18	CLPSN-53	CLP-62	15° 51' 19.1" N	75° 11' 47.5" E	23-Jun-10
19	CLPSN-54	CLP-63	15° 51' 27.9" N	75° 11' 53.0" E	23-Jun-10
20	CLPSN-55	CLP-64	15° 51' 34.7" N	75° 11' 52.0" E	23-Jun-10

21	CLPSN-56	CLP – 58	15° 50' 51.7" N	75° 11' 47.4" E	03-Aug-10
22	CLPSN-57	CLP – 70	15° 51' 24.3" N	75° 12' 21.2" E	03-Aug-10
23	CLPSN-58	CLP – 71	15° 51' 17.9" N	75° 12' 34.6" E	03-Aug-10
24	CLPSN-59	CLP – 72	15° 51' 25.7" N	75° 12' 35.4" E	03-Aug-10
25	CLPSN-60	CLP – 73	15° 51' 32.0" N	75° 12' 34.2" E	03-Aug-10
26	CLPSN-61	CLP – 74	15° 51' 38.2" N	75° 12' 31.3" E	03-Aug-10
27	CLPSN-62	CLP – 75	15° 51' 46.8" N	75° 12' 36.6" E	03-Aug-10
28	CLPSN-63	CLP – 76	15° 51' 55.1" N	75° 12' 39.8" E	03-Aug-10
29	CLPSN-64	CLP – 77	15° 52' 03.0" N	75° 12' 42.8" E	03-Aug-10
30	CLPSN-65	CLP – 79	15° 51' 31.9" N	75° 13' 42.2" E	03-Aug-10
31	CLPSN-66	CLP – 80	15° 51' 38.3" N	75° 13' 40.6" E	03-Aug-10
32	CLPSN-67	CLP – 81	15° 51' 44.0" N	75° 13' 37.6" E	03-Aug-10
33	CLPSN-68	CLP – 82	15° 51' 50.3" N	75° 13' 35.1" E	03-Aug-10
34	CLPSN-69	CLP – 83	15° 51' 56.6" N	75° 13' 34.2" E	03-Aug-10
35	CLPSN-70	CLP – 84	15° 52' 02.1" N	75° 13' 29.8" E	03-Aug-10
36	CLPSN-71	CLP – 85	15° 52' 08.5" N	75° 13' 29.0" E	03-Aug-10
37	CLPSN-72	CLP – 86	15° 52' 15.4" N	75° 13' 29.2" E	03-Aug-10
38	CLPSN-73	CLP-92	15° 52' 22.9" N	75° 13' 40.0" E	03-Aug-10
39	CLPSN-74	CLP-91	15° 52' 18.3" N	75° 13' 46.5" E	03-Aug-10
40	CLPSN-75	CLP-90	15° 52' 13.4" N	75° 13' 51.8" E	03-Aug-10
41	CLPSN-76	CLP-95	15° 52' 42.3" N	75° 13' 42.6" E	15-Sep-10
42	CLPSN-77	CLP-96	15° 52' 51.0" N	75° 13' 44.7" E	15-Sep-10

43	CLPSN-78	CLP-97	15° 52' 56.5" N	75° 13' 44.3" E	15-Sep-10
44	CLPSN-79	CLP-98	15° 53' 03.1" N	75° 13' 46.0" E	15-Sep-10
45	CLPSN-80	CLP-99	15° 53' 10.3" N	75° 13' 46.1" E	15-Sep-10
46	CLPSN-81	CLP-57	15° 50' 45.3" N	75° 11' 49.2" E	15-Sep-10
47	CLPSN-82	CLP-103	15° 53' 19.3" N	75° 14' 02.9" E	03-Dec-10
48	CLPSN-83	CLP-102	15° 53' 12.6" N	75° 14' 05.0" E	03-Dec-10
49	CLPSN-84	CLP-2	15° 49' 15.8" N	75° 06' 31.1" E	03-Dec-10
50	CLPSN-85	CLP-3	15° 49' 23.5" N	75° 06' 47.8" E	03-Dec-10
51	CLPSN-86	CLP-4	15° 49' 17.1" N	75° 06' 49.1" E	03-Dec-10
52	CLPSN-87	CLP-5	15° 49' 10.4" N	75° 06' 49.8" E	03-Dec-10
53	CLPSN-88	CLP-8	15° 48' 50.9" N	75° 06' 48.4" E	03-Dec-10
54	CLPSN-89	CLP-9	15° 48' 43.7" N	75° 06' 46.6" E	03-Dec-10
55	CLPSN-90	CLP-10	15° 48' 46.3" N	75° 06' 40.2" E	03-Dec-10