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Validation Report

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Service

Validation:

Validation beginning/end:

Project name:

VCS 2007.1 validation

16.07.2009 / 17.11.2009

Grouped Wind Power Project in India, "Mitcon III"



Report number:

UNFCCC scope:

Methodology:

Scale:

P27829

1

ACM0002

Large

Team of auditors/assessors
(cf. page 10):

Technical review:

Lead: Dr. Silvio Leonardi

Oliver Stankiewicz

Approved

Lead auditor/assessor:

Technical review:

Date

Signature

17.11.2009

A handwritten signature in black ink, appearing to read 'S. Leonardi'.

17.11.2009

A handwritten signature in black ink, appearing to read 'O. Stankiewicz'.

Summary:

SQS has performed a validation of the project's approach as outlined in the PD being part of the VCS validation process. SQS used the CDM consolidated methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10)" including the therein referenced tools "Tool to calculate the emission factor for an electricity system" (Version 01.1), and "Tool for the determination and assessment of additionality" (Version 05.2) as the project-criteria for the validation. Moreover, this validation was performed on the basis of VCS 2007.1, as well as further criteria given to provide for consistent project operations, monitoring, and reporting (VCS program guidelines (2008), ISO 14064-2 and -3).

The (desk-)review of the PD, the additional information gathered during the subsequent on-site audit and the satisfaction of corrective action and clarification requests has provided SQS with sufficient evidence to be able to determine the fulfilment of stated criteria.

In our opinion, the project's approach, as outlined in the VCS PD, is consistent with the methodology mentioned. The project correctly applies the approved CDM baseline, additionality and monitoring principles.

By generating electricity from wind power the grouped project activity results in reduction of greenhouse gas emissions that are real, measurable, and give long-term benefits to the mitigation of climate change.

An analysis of the additionality test demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project.

The total emission reduction from the grouped project is estimated to be 1'228'871 metric tonnes CO_{2e} over the entire crediting period of 10 years. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved, given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been implemented and will be monitored by the local project manager.

In summary, it is SQS's opinion that the project „Grouped Wind Power Project in India“, as described in the VCS PD of November 13th 2009, meets all relevant VCS 2007.1 requirements and correctly applies the CDM consolidated methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IEE	Initial Environmental Examination
IPCC	Intergovernmental Panel on Climate Change
LFG	Landfill Gas
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N ₂ O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PD	Project Description
SQS	The Swiss Association for Quality and Management Systems (validator)
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator

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1 Introduction

South Pole Carbon Asset Management Ltd. (hereafter called “Southpolecarbon”) has commissioned SQS to perform the validation of the “Grouped Wind Power Project in India” (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of the specifications of the Voluntary Carbon Standard 2007.1, as well as criteria given by the VCS program guidelines that provide the basis for consistent project operation, monitoring and reporting, validation and verification.

The validation has been carried out respecting and following not only the applicable VCS standard and guidelines but also the requirements of ISO 14064-3:2007; the necessary professional care has been taken by all assessment team members, and professional judgement has lead the team regarding materiality and level of assurance. Redundant statements have been omitted in this report (including its attached protocol) as far as possible; however, all proofs of this validation are kept archived at SQS.

1.1 Objective

The purpose of the validation is to have an independent third party assessment of the project description. In particular, the project's baseline, monitoring plan, and the project's compliance with the VCS 2007.1 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 certified voluntary emission reduction (VCUs).

The VCS program requires for GHG emission reduction projects the fulfilment of the following principles:

- Real; ex-post verification of emission reduction
- Measurable; ex-ante validation of emission reduction
- Permanent; i.e. adequate safeguards must ensure that the risk of reversal of emission reduction is minimized
- Additional; ex-ante validation of true additional emission reductions
- Independently verified; ex-post verification at a reasonable level of assurance
- Transparent; public disclosure of sufficient and appropriate GHG related information
- Conservative; i.e. to ensure that the GHG emission reductions or removals are not over-estimated

1.2 Scope

The validation scope is defined as an independent and objective review of the project description (PD). The PD is reviewed against the criteria stated in the VCS 2007.1 including the actual version of the approved baseline and monitoring methodology

ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10, EB 47)

As well as therein referenced tools

- “Tool to calculate the emission factor for an electricity system” (Version 01.1, EB35)
- “Tool for the determination and assessment of additionality” (Version 05.2, EB 39)

The validation team has employed a risk-based approach, focusing on the identification of significant risks that may substantially affect the project's GHG emission reductions, i.e. risks associated with the assumptions made and GHG information used.

The purpose of this validation report is its use for the registration of the project. Hence, SQS cannot be held liable by any party for decisions made based on the validation, which will go beyond the purpose mentioned.

1.3 VCS project description

The project is a grouped project activity that generates renewable electricity from wind power, in India. The generated renewable electricity will displace an equivalent amount of carbon intensive electricity from the Northern, Eastern, Western and Northeastern Grid (NEWNE) as well as the Southern Grid in India. The grouped project will lead to an annual average reduction of 130,195 t CO_{2e} over the crediting period. The grouped projects consist of 68.875 MW grid-connected and 6.025 MW captive renewable electricity generations with an aggregate capacity of 74.9 MW.

The project is a grouped project of 72 projects having installed WTG capacities ranging from 0.225 to 1.5 MW. There is a total of 111 WTGs in five states of India. - According to UNFCCC definitions and Voluntary Carbon Standard (VCS 2007.1), the project belongs to Large-Scale projects activities. Its UNFCCC-scope is 1 "Energy industries (renewable)" and it is based on the approved methodology "ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10, EB 47)".

The main purpose of the project activity is:

- to generate electrical energy through sustainable means using natural wind power resources.
- to utilize the generated electricity output for selling it to the state electricity utilities and for captive use as the case may be.
- to contribute to climate change mitigation efforts.

Apart from generating renewable electricity, the project has also been conceived for the following:

- To enhance the propagation of commercialisation of wind turbines in the region.
- To contribute to the sustainable development of the region.
- To reduce the prevalent regulatory risks for this project through revenues from emission trade.

1.4 Level of assurance

SQS, by the chosen validation method, can provide a reasonable level of assurance that the state of generation of VCU's by the project found and reported during the validation process corresponds to reality. The term *reasonable* is to be understood according to the definition in ISO14064-3, A.2.3 and guarantees that the greenhouse gas assertion is materially correct. This level of assurance has been agreed between Southpolecarbon and SQS.

2 Methodology

The validation consisted of the following four phases:

- I Desk review of the project design documents
- II On-site audit and interviews with the project participants
- III Resolution of outstanding issues (CARs, CLs) and issuance of the final validation report and opinion

Due to the nature of a grouped project activity, the following sampling procedure has been adopted in order to validate the whole project:

The total of 111 installed WTGs was divided into the following categories:

- 1. location in the states of Gujarat, Rajasthan, Maharashtra, Karnataka, and Tamilnadu
- 2.1 connected to the Northern, Eastern, Western and Northeastern Grid (NEWNE); states of Gujarat, Maharashtra, and Rajasthan
- 2.2 connected to the Southern Grid; state of Karnataka, and Tamilnadu
- 3. technologies of the WTGs with capacities of 0.225, 0.25, 0.35, 0.5, 0.6, 0.75, 0.85, 1.25, and 1.5 MW
- 4. commissioning year (2004 – 2008)

According to the VCS program guidelines 2007.1 and to the IAF guide to ISO/IEC guide 66:1999, the minimum sampling number of the grouped project shall be rounded($\sqrt{x}$); with 111 WTGs = 11. Taken into account all above sub-groups, the following 14 WTGs were selected as samples:

Serial Number	Capacity (MW)	Technology	Commissioning	Identification	State	Grid
20	0.6	Suzlon	2006	K-308	Maharashtra	NEWNE
21	0.6	Suzlon	2006	K-322	Maharashtra	NEWNE
22	0.6	Suzlon	2006	K-317	Maharashtra	NEWNE
41	1.5	Suzlon	2007	K-340	Maharashtra	NEWNE
45	1.25	Suzlon	2004	K-06	Maharashtra	NEWNE
46	1.25	Suzlon	2005	K-12	Maharashtra	NEWNE
56	0.5	NEPC	2004	497	Tamilnadu	Southern
81	1.25	Suzlon	2006	G-123	Tamilnadu	Southern
85	0.25	Pioneer Wincon	2005	401	Tamilnadu	Southern
86	0.25	Pioneer Wincon	2005	400	Tamilnadu	Southern
87	0.6	Suzlon	2008	SEL/600/07-08/0906	Gujarat	NEWNE
88	0.6	Suzlon	2008	SEL/600/07-08/0922	Gujarat	NEWNE
89	1.25	Suzlon	2007	SEL/1250/06-07/0237	Gujarat	NEWNE
90	0.6	Suzlon	2008	SEL/600/07-08/0904	Gujarat	NEWNE

Out of these samples, the following sites have been inspected during the on site visit: serial number 56, 85, 86, 87, 88, 89, and 90.

The Indian company Mitcon Consultancy Services Ltd. (hereafter called “Mitcon”) acts as the local manager for this grouped project. Mitcon is an ISO 9001 certified company and runs the central GHG information system, thereby controlling and monitoring the operation of all WTGs.

The following sections outline steps I - III in more detail.

2.1 Desk Review

The following documents have been assessed during the validation:

A) Documents being available before and in preparation of the on-site audit:

Nr.	Document
A.1	Southpolecarbon, VCS Project Description, of 23 rd July 2009, including - Annex B: Technical Specification - Annex C: Baseline Data - Annex D: Contact Information
A.2	Voluntary Carbon Standard (VCS) Specification, Ver. 2007.1, November 18 th 2008
A.3	Voluntary Carbon Standard (VCS) Program Guidelines, Ver. 2007.1, November 18 th 2008
A.3	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10, EB 47)"
A.4	CDM Executive Board: "Tool to calculate the emission factor for an electricity system" (Version 01.1, EB35)
A.5	CDM Executive Board: "Tool for the determination and assessment of additionality" (Version 05.2, EB 39)

B) Documents handed over during the on-site audit:

Nr.	Document
B.1	Southpolecarbon, VCS Project Description, of July 23 rd 2009, including - Annex A: VCU Declaration Letters
B.1	Sets of documents with respect to (for all 72 promoters, 111 WTGs respectively): • Commissioning certificate • Clearance for commissioning • Purchase orders for WTG including erection and installation • Invitation letter for stakeholder consultation • Loan sanction letter • Real estate property (partially in local language) • Insurance policy • Purchase agreement between project promoter and state electricity company • Contracted administrative expenses • Letters of all project promoters giving evidence of i) additional purpose of the project, ii) no legal requirements to implement the project, and iii) no other claims for credits.
B.2	Xls-file with official, regional grid emission factors
B.3	Xls-file with emission reduction calculation
B.4	Xls-file with IRR-calculations for all WTGs
B.5	Xls-file with stock data of BSE-500 companies
B.6	Xls-file with stock data of power generating companies (Tata Power, Reliance Energy, Gujarat Industries)

B.7	Pdf-file "TERI wind energy information 2005/2006"
B.8	Documents with tariff-information for all relevant states
B.9	MAT-tax rate references (3 pdf-documents)

C) Documents sent after the on-site audit:

Nr.	Document
C.1	Proofs of title (emission reduction purchase agreements) for all 72 project promoters
C.2	Proof of contracting a DOE prior to November 19 th 2008
C.3	Southpolecarbon, revised VCS Project Description, of November 2 nd 2009, including - Annex A: VCU Declaration Letters - Annex B: Technical Specification - Annex C: Baseline Data - Annex D: Contact Information
C.x	Evidences for resolution of CARs and CLs (see Validation protocol)

All documents have been archived by SQS; they will be kept secure and in a retrievable manner for at least two years after the end of the project crediting period, i.e. until the end of the year 2018.

2.2 On-site Audit/Interviews

The on-site audit and interviews were done according to an agreed audit-plan. It included site visits in

- Gujarat: September 13th – 15th
- Tamilnadu: September 22nd – 23rd

as well as at Mitcon's head office in

- Pune (Maharashtra): September 16th

The following table lists the names, affiliated company, and function/role of the persons interviewed on-site:

Name	Company	Function/Role
Pradeep Bavadekar	Mitcon	MD
Kishor Deshmukh	Mitcon	Senior consultant
V Logesh	Green Tech	Manager O&M
Bhushan Pachpande	Mitcon	Chief consultant
Vijabhai Patel	Mitcon	Project consultant
Ramesh Pindariya	Suzlon	Senior manager O&M
E Prabhakaran	Reva Powers	Senior manager O&M
Chandra Singh	Mitcon	Chief consultant finance (IRR-calculations)
Sophie Tison	Southpolecarbon	Implementation manager
Deepak Zade	Mitcon	Exec. Vize President

2.3 Resolution of Outstanding Issues

The objective of this phase of the validation will be to resolve any outstanding issues which need to be clarified prior to SQS's positive final conclusion on the project design. Findings established during the

validation can either be seen as a non-fulfilment of VCS criteria or as a risk to the fulfilment of project objectives.

Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) VCS and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

A clarification request (CL) may be used where additional information is needed to fully clarify an issue.

In order to ensure transparency and for organizational reasons take into account respectively, the corrective or clarifying information and measures, a validation protocol was established for the project (see Appendix A). The protocol shows in a transparent manner the criteria (requirements), the means of validation and the results from validating the identified issues including any resulting CARs and CLs.

2.4 Internal Quality Control

The draft validation report, including the validation findings, underwent a technical review before being submitted to the project participants. The final validation report will undergo another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with SQS's qualification scheme.

2.5 Validation Team

The following matrix shows the names and roles of the members of the validation team

Name	Country	Responsibilities							
		Lead / on-site visit	Formal	Legal	Financial	Team member (techn.)	Local expertise	Additional Expert	Technical Review
Ms. Arianna Bisaz	Switzerland		●			●			
Mr. Michael Gassner	Switzerland		●			●		●	
Dr. Silvio Leonardi	Switzerland	●		●	●	●	●		●
Mr. Oliver Stankiewicz	Switzerland				●	●		●	●

Certificates of competence for each validation team member are included in Appendix A to this report.

3 Validation Findings

3.1 Participation Requirements, Eligibility

Requirement	Finding	Conclusion
The project started after January 1 st 2002	The project started on March 14 th 2004	OK
The crediting period starts after March 28 th 2006 and there is no forward crediting	The crediting period starts on April 1 st 2006	OK
A VCS VCS PD is developed in accordance to ISO 14064-2.	The VCS PD is provided. The validation findings are included in this report	OK
There is a sufficient proof of title/GHG credit ownership	There are evidences for all windmills, project promoters respectively, that Southpolecarbon owns the generated electricity. Signed purchase agreements have been submitted.	OK
A VCS program approved methodology has been applied	The approved methodology ACM0002 was applied.	OK

3.2 Project design

The project activity (111 windmills connected to regional grids; cf. 1.3) is located in India, at identified locations in the states of Gujarat, Karnataka, Maharashtra, Rajasthan, and Tamilnadu. All erected windmills contribute to this bundled project.

The key parameters of this project are stipulated in chapters 1.4 “A brief description of the project”, 1.5 “Project location including geographic and physical information allowing the unique identification and delineation of the specific extent of the project”, and Annex B “Technical Specification” of the PD.

In summary: the project will yield energy supply to regional grids through the use of wind power as a source of renewable energy.

The project is described transparently, extensively and sufficiently in the PD.

In the course of the validation (preparatory desk review, on-site audit, follow-up and final evaluation (including the resolution of outstanding requests, as well as technical review) the description of the project including all additional documents submitted was found to be accurate and adequate in order to fulfill the requirements of VCS. There is a sufficient justification of the choice and application of the approved methodologies used (cf. 1.2). – Thus, the project is fully eligible under the VCS-program.

The project is expected to have an operational lifetime of 10+ years (renewable one time). The starting date of the crediting period is April 1st 2006.

The proofs of title have been shown for all 72 project promoters; South Pole Carbon Asset Management Ltd. has the full ownership of all project activities.

The relevant findings of this validation (e.g. corrective actions and clarifications requests including their resolutions) are summarized in Table 1 of the attached protocol.

The fulfilment of all VCS-principles has been checked sufficiently: see section L of the attached protocol.

3.3 Baseline Determination

The project applies the approved baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10, EB 47)”, including the tools “Tool to calculate the emission factor for an electricity system” (Version 01.1, EB35), and “Tool for the determination and assessment of additionality” (Version 05.2, EB 39).

Baseline emissions include only CO₂ emissions from electricity generation as stated by the Indian government, the state electricity authorities respectively: all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants.

The quantity of net electricity generation that is produced as a result of the implementation of the project activities comes out of newly installed grid-connected windmills, i.e. Greenfield renewable energy power plants.

The project satisfies all criteria of the above mentioned, CDM-approved methodology. In particular, the project applied the baseline methodology correctly and justifiably.

3.4 Additionality

The additionality of the project is demonstrated by applying an investment barrier analysis for the project activities. (And the applicable legal restrictions for India allow the operation of the windmills.)

The setting of the baseline scenario is appropriate and could be reproduced fully; all referenced baseline data are publicly available and have been checked (for all project samples; see chapter 2).

The Excel calculation spreadsheets for all 111 windmills / 72 project promoters were explained in detail during the on-site audit and have been submitted. The calculations were checked for all project samples and found to be correct.

The financial indicator chosen to show evidence for additionality of the project is the IRR. The IRR-analysis - including state-specific benchmarks and sensitivity analysis – (chapter 2.5 of PD) were done correctly and in full compliance with all referenced data (verified for all project samples). It was shown that the project IRRs are significantly below the benchmarks. The IRRs taking into account VCU-revenues revealed that most of the project activities are still below the benchmarks (for the comparisons with VCU-revenues, a prize of 2 Euros per VCU, i.e. tonne of CO_{2e}, was used.); project promoters have given evidence for further barriers when having decided to invest (cf. CLs 14 and 16). – Thus, sufficient evidence has been provided and validated in order to proof true additionality.

3.5 Monitoring Plan

The project uses the approved monitoring methodology according to the underlying methodology ACM0002, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10, EB 47)”.

3.5.1 Parameters determined ex-ante

The following parameter was determined ex-ante and verified at validation:

- The emission factors for grid electricity ($EF_{grid,CM,y}$) of both the NEWNE and the Southern Grid

The two factors were calculated in accordance with the Methodological Tool, “Tool to calculate the emission factor for an electricity system” (version 01.1), using the baseline CO₂ emission database (version 4) of the Central Electricity Authority of India.

3.5.2 Parameters monitored and determined ex post

The following parameter is monitored and determined ex post:

- The net electricity generated and delivered to the grid by WEG (EG_y)

O&M staff makes daily meter readings at the WEGs' control units that may be cross-checked with the recorded data at the Central Monitoring Stations (CMS) run by the EPC and O&M contractors. All project promoters have direct access to the monitored operation data (EG, wind speed, operating hours) via CMS from the date of commissioning.

The CMS data per windmill and project promoter is cross-checked with the monthly bills of the State Electricity Boards (SEB); the latter data are used to calculate the EG_y.

The monitoring method, including the equipments used, as well as the frequency of the meter readings, controls and calibrations are in accordance with the stipulated monitoring methodology of ACM002.

3.5.3 Management System and Quality Assurance

There is a monitoring organization with defined competences; the personnel is responsible for all data acquisition, monitoring and recording. The roles and responsibilities of the monitoring organization are provided in the PD.

The accuracy of the instruments and their calibration period as well as the measurement and registration periods are described clearly in the PD.

All relevant documentation will be stored and available until two years after the end of the crediting period.

As mentioned in chapter 2, the ISO 9001 certified company Mitcon acts as the local manager for this grouped project and runs the central GHG information system.

The system of quality assurance is found to be according to the requirements of the applied methodology.

3.6 Calculation of GHG Emission Reductions

The formulas to calculate the emission reductions are in accordance with ACM002. The formulas, parameters and values are applied correctly and transparently. The project activity claims emission reductions from the substitution of fossil fuel generated electricity with wind power generated electricity.

The baseline emissions are calculated using the emission factors of the two grids, which are calculated according to the "Tool to calculate the emission factor for an electricity system (version 01.1)" times the produced electricity. The generated electricity by the project activities are taken from the SEB-bills cross-checked with the recorded CMS-data.

According to the methodology there is no leakage that has to be taken into account.

The grouped project activity will not lead to any greenhouse gas emissions, and there are neither sinks nor reservoirs to be considered.

The estimated emission reductions per year are 122,887 t CO₂ (no other greenhouse gases considered).

The assumptions and any uncertainties are addressed in a conservative manner.

3.7 Environmental Impacts

The government of India, i.e. its Ministry of Environment and Forests, has issued the Environmental Impact Assessment Notification - with a list of project categories that require an EIA for their environmental clearance. There is no need for such an EIA for wind power projects; this kind of project is thought to have no negative impact on the environment.

3.8 Stakeholder Comments

Public stakeholder (among local villagers and technology suppliers) consultations were held with all project promoters for all project sites. The invitation letters were either sent or published in local newspapers. The meetings were held in English and/or local language, i.e. Hindi, Marathi, Tamil, Gujarati, and Kannada.

Copies of the invitations, agenda and minutes of the meetings, and signed attendance sheets were submitted for the validation. All dates of these stakeholder meetings (including venue and time) are listed in the PD. - No negative comments or questions have been received.

The local stakeholder consultation process is deemed appropriate and in line with the national and VCS requirements.

3.9 Suggestions

- One of several cross-checks revealed that the accumulated O&M costs and administrative expenses over the project's lifetime (20 years) will equal approximately 56 % of the investments for the WTGs (data derived from the sample; range = 42 – 73 %). Thus, there are considerable activities with respect to operation, maintenance and administration. It should be assured that these activities, their impacts on environment and society respectively, are in line with the overall project aim, i.e. to contribute to a true and additional sustainable development (as shown and proven for the project purpose). Therefore, a clear policy that guides the management, operation and maintenance of this project would help not only to reduce environmental impacts below the business-as-usual level, but also to increase the awareness of social responsibility. – A policy could be stipulated that clearly commits all project-actors to increase their positive impacts on environment and society. N.B. the deployment of such a policy should be monitored.
- Whenever the WEGs need an oil-change, the proper disposal of the used oil and lubricants should be assured. Records of all waste-disposal should be kept.

4. Validation Conclusion

SQS has performed a validation of the project's approach as outlined in the PD being part of the VCS validation process. SQS used the CDM consolidated methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10)" including the therein referenced tools "Tool to calculate the emission factor for an electricity system" (Version 01.1), and "Tool for the determination and assessment of additionality" (Version 05.2) as the project-criteria for the validation. Moreover, this validation was performed on the basis of VCS 2007.1, as well as further criteria given to provide for consistent project operations, monitoring, and reporting (VCS program guidelines (2008), ISO 14064-2 and -3).

The (desk-)review of the PD, the additional information gathered during the subsequent on-site audit and the satisfaction of corrective actions and clarification requests has provided SQS with sufficient evidence in order to be able to determine the fulfilment of stated criteria.

In our opinion, the project's approach, as outlined in the VCS PD, is consistent with the methodology mentioned. The project correctly applies the approved CDM baseline, additionality and monitoring principles.

By generating electricity from wind power the grouped project activity results in reductions of greenhouse gas emissions that are real, measurable, and give long-term benefits to the mitigation of climate change.

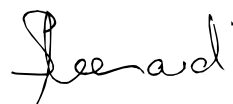
An analysis of the additionality test demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project.

The total emission reductions from the grouped project are estimated to be 1'228'871 metric tonnes CO_{2e} over the entire crediting period of 10 years. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been implemented and will be monitored by the local project manager.

In summary, it is SQS's opinion that the project „Grouped Wind Power Project in India“, as described in the VCS PD of November 13th 2009, meets all relevant VCS 2007.1 requirements and correctly applies the CDM consolidated methodology ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

Validator Signature



Dr. Silvio Leonardi

Reviewer Signature



Oliver Stankiewicz

Appendix A: Certificates of Competence

Audit team member's statement of competence

Name Arianna Bisaz

Climate auditor for:

Validation / verification	X
Methodological expertise	X
Local expertise	☐

Role in present project:

Lead auditor	☐
Team member (technical)	X
Financial expert	☐
Legal expert	☐
Technical reviewer	☐

Scopes of expertise:

1. Energy industries	X
2. Energy distribution	☐
3. Energy demand	☐
4. Manufacturing	☐
5. Chemical production	☐
6. Construction	☐
7. Transport	☐
8. Mining/mineral production	☐
9. Metal production	☐
10. Fugitive emissions from fuels	☐
11. Fugitive emissions from Production and consumption of halo-carbons and sulphur hexafluoride	☐
12. Solvent use	☐
13. Waste handling and disposal	☐
14. Afforestation and Reforestation	X
15. Agriculture	☐

Audit team member's statement of competence

Name Michael Gassner

Climate auditor for:

Validation / verification	☒
Methodological expertise	☒
Local expertise	☐

Role in present project:

Lead auditor	☐
Team member (technical)	☒
Financial expert	☐
Legal expert	☐
Technical reviewer	☐

Scopes of expertise:

1. Energy industries	☒
2. Energy distribution	☒
3. Energy demand	☒
4. Manufacturing	☐
5. Chemical production	☐
6. Construction	☐
7. Transport	☒
8. Mining/mineral production	☐
9. Metal production	☐
10. Fugitive emissions from fuels	☐
11. Fugitive emissions from Production and consumption of halo-carbons and sulphur hexafluoride	☐
12. Solvent use	☐
13. Waste handling and disposal	☒
14. Afforestation and Reforestation	☒
15. Agriculture	☒

Audit team member's statement of competence

Name Silvio Leonardi

Climate auditor for:

Validation / verification	X
Methodological expertise	X
Local expertise	X

Role in present project:

Lead auditor	X
Team member (technical)	☐
Financial expert	X
Legal expert	X
Technical reviewer	☐

Scopes of expertise:

1. Energy industries	X
2. Energy distribution	X
3. Energy demand	X
4. Manufacturing	☐
5. Chemical production	X
6. Construction	☐
7. Transport	☐
8. Mining/mineral production	☐
9. Metal production	☐
10. Fugitive emissions from fuels	☐
11. Fugitive emissions from Production and consumption of halo-carbons and sulphur hexafluoride	☐
12. Solvent use	☐
13. Waste handling and disposal	X
14. Afforestation and Reforestation	X
15. Agriculture	X

Audit team member's statement of competence

Name Oliver Stankiewicz

Climate auditor for:

Validation / verification	X
Methodological expertise	X
Local expertise	☐

Role in present project:

Lead auditor	☐
Team member (technical)	X
Financial expert	☐
Legal expert	☐
Technical reviewer	X

Scopes of expertise:

1. Energy industries	X
2. Energy distribution	X
3. Energy demand	X
4. Manufacturing	☐
5. Chemical production	X
6. Construction	☐
7. Transport	☐
8. Mining/mineral production	☐
9. Metal production	☐
10. Fugitive emissions from fuels	☐
11. Fugitive emissions from Production and consumption of halo-carbons and sulphur hexafluoride	☐
12. Solvent use	☐
13. Waste handling and disposal	X
14. Afforestation and Reforestation	X
15. Agriculture	X

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Appendix B: Protocol

For validation of GHG Reduction projects against the voluntary carbon standard (VCS)

Scope

- All 6 Kyoto Protocol GHGs
- All technologies supported by an approved VCS Program methodology, incl. AFOLU project types as set out on www.v-c-s.org
- Any approved GHG Programs
- Project category which is/are part of an approved GHG Program
- Project methodologies, not part of an approved GHG Program, when approved under the VCS Program through the double approval process
- Excluded from the scope are:
 - Project(s) that can reasonably be assumed to have generated GHG emissions primarily for the purpose of their subsequent reduction, removal or destruction
 - Project(s) that have created another form of environmental credit (e.g. renewable energy certificates) unless they provide a letter from the program operator that the credit has not been used and has been cancelled.

Normative References

- [1] The Voluntary Carbon Standard (VCS) 2007.1 (18 November 2008)
- [2] Voluntary Carbon Standard Program Guidelines 2007.1 (18 November 2008)
- [3] ISO 14064-2:2006 – Specification with guidance at project level for quantification, monitoring and reporting of GHG emission reductions or removal enhancements
- [4] ISO 14064-3:2006 – Specification with guidance for the validation and verification of GHG assertions
- [5] ISO 14065-2:2007– Requirements for GHG validation and verification bodies for use in accreditation or other forms of recognition
- [6] GHG Protocol for Project Accounting, 2005, Chapter 7 guidance related to additionality test 1 common practice
- [7] ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 10, EB 47)”
- [8] CDM Executive Board: “Tool to calculate the emission factor for an electricity system” (Version 01.1, EB35)
- [9] CDM Executive Board: “Tool for the determination and assessment of additionality” (Version 05.2, EB 39)

*This validation protocol must be seen in conjunction with the Voluntary Carbon Standard (VCS) and the VCS Validation Report template.
The entries in the checklist should be adjusted and amended as appropriate to prepare for the validation of a particular project.*

Checklist 1 VCS Program specific requirements			
REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. Are the VCS PD (project description), monitoring reports, validation and verification reports and other documents required in English?	[1], Chapter 3	Y	
2. Have the GHG emission reductions already occurred and been verified (no forward crediting of voluntary carbon units - VCUs)?	[1], Chapter 3	Ongoing	
In case of AFOLU (agriculture, forestry and other land use) projects: continue with questions 3 to 7			
3. Has the latest version of the "Tool for AFOLU methodological issues" for the determination of project type and land eligibility, project boundary, carbon pools, baseline, leakage and net project GHG benefits, been correctly applied by the project proponent?	[1], Chapter 3		www.v-c-s.org
4. Have potential negative environmental, social and economic impacts been identified and steps been taken to mitigate them prior the generation of VCUs?	[1], Chapter 3		
5. Have potential negative environmental, social and economic impacts been identified and steps been taken to mitigate them prior the generation of VCUs?	[1], Chapter 3		
6. Is there documented evidence provided in the VCS PD, that no ARR (afforestation, reforestation and revegetation) or ALM (agricultural land mgt.) project areas were cleared of native ecosystems within 10 years period prior to the proposed project start date?	[1], Chapter 3		
7. Has the risk of non-permanence been analysed and adequate buffer of non-tradeable AFOLU carbon credits been established, using the latest version of and correctly applying the "Tool for AFOLU non-permanence risk analysis and buffer determination"?	[1], Chapter 3		www.v-c-s.org
In case the following are used under the VCS Program: new methodologies, risk assessment to determine buffer of non-tradeable AFOLU carbon credits, IFM (improved forest mgt.) & REDD (reduced emissions from deforestation and degradation) market leakage assessments, new tools and additionality performance standards:			
8. Have the above undergone double approval process by two different validators or verifiers (1 st one appointed by project proponent, 2 nd one appointed by VCS secretariat on behalf of the VCS board) accredited for the VCS program?	[1], Chapter 3		
9. Has there been unanimous agreement between the validators or verifiers completing the 1 st and 2 nd assessment?	[1], Chapter 3		

* MoV = Means of Validation, DR= Document Review, I= Interview

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Checklist 2 Project level requirements				
CHECKLIST QUESTION	Ref.	MoV*	Draft Concl	Final Concl
A. General requirements				
A.1. Has an approved VCS program methodology or a methodology from an approved GHG program been applied (see annex...)?	[7], [8], [9]	DR	☐	Y
Comment:	[7] CDM ACM0002 Consolidated methodology for grid-connected electricity generation from renewable sources, Version 10 [8] CDM Tool to calculate the emission factor for an electricity system, Version 01.1 [9] CDM Tool for the determination and assessment of additionality, Version 05.2			
A.2. Have (if any) limitations in application by time or geography of approved (VCS Program, other approved GHG program) methodologies been taken into consideration?			☐	NA
Comment:				
Project start date				
In case of validation/verification against VCS version 1 (VCS v1)				
A.3. Has the validation of the project been completed or contracted before 19 November 2007?			☐	☐
Comment:				
A.4. For contracts entered in before 19 November 2007: Has the validation been completed before 19 May 2008 and has any proof been provided of contracting prior to 19 November 2007?			☐	☐
Comment:				
A.5. In case the project has been validated under VCS v1: Has the project been grandfathered into VCS 2007.1?			☐	☐
Comment:				
A.6. Has the verification of the project for that specific single monitoring period been completed or contracted before 19 November 2007?			☐	☐
Comment:				
A.7. Has it been ensured, that future monitoring periods be verified against VCS 2007.1?			☐	☐
Comment:				

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A.8.	In case of projects validated against VCS v1, but not having contracted a verifier for that specific single monitoring period by 19 November 2007: Has it been assured the project will be verified against VCS 2007.1?			☐	☐
Comment:					
In case of validation/verification against VCS 2007.1 and non-AFOLU projects					
A.9.	Is the project start date after 1 January 2002?		DR	☐	Y
Comment:	Project start date is 14 March 2004				
A.10.	Is the project crediting start date after 28 March 2006?		DR	☐	Y
Comment:	Crediting period start date is 1 April 2006				
A.11.	Is there any proof that the project validation shall be completed within two years of the projects start date or has been contracted or completed before 19 November 2008?		DR	CAR.7	Y
Comment:	Proof: placement of order for the validation of the project by TÜV-Nord; signed by Southpole-carbon on 7 Nov. 2008				
A.12.	In case of validation contracts entered into before 19 November 2008: Is there any credible demonstration, that the project validation shall be completed by 19 November 2009 and is there any proof provided of contracting prior to 19 November 2008?		DR	☐	Y
Comment:	Cf. A.11.				
In case validation/verification against VCS 2007.1 and AFOLU projects with start date earlier than 1 January 2002					
A.13.	Is the project crediting start date after 28 March 2006?			☐	☐
Comment:					
A.14.	Is there any credible demonstration, that the project validation and verification will be completed by 1 October 2010?			☐	☐
Comment:					
A.15.	Is there any verifiable proof that the project was designed and implemented as a climate change mitigation project right from its inception?			☐	☐
Comment:					

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A.16. Did the project apply an externally reviewed methodology and engage an independent carbon-monitoring expert to assess and quantify the project's baseline scenario and net emissions reductions or removals, prior to 1 January 2002?			☐	☐
Comment:				
A.17. In case of a proposed methodology not approved by the VCS Program: Has the methodology been approved through the double approval process?			☐	☐
Comment:				
A.18. In case of projects included in an emission trading program or taking place in a jurisdiction or sector with binding GHG emission limits: Has any evidence been provided that the GHG reductions/removals have or will not be used in the emission trading program or for compliance with binding GHG emission limits? (e.g. 1) by a letter from the program operator or designated national authority confirming that the emission reductions have been cancelled from the program or national cap; 2) by giving evidence of purchase and cancellation of GHG allowances equivalent to the GHG emission reductions generated by the project related to the program or national cap)			☐	☐
Comment:				
A.19. Is it sure, that the project proponent does not claim GHG credits from one project under more than one GHG program?			☐	☐
Comment:				
In case of projects rejected by other GHG programs due to procedural or eligibility requirements, where the GHG program applied has been approved by the VCS board.				
A.20. Does the VCS PD state all GHG programs, which the project has applied for credits and why the project was rejected?			☐	☐
Comment:				
A.21. Have all actual rejection document(s) incl. any additional explanations been provided?			☐	☐
Comment:				

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A.22.	Is the project validated against VCS 2007.1?			☐	☐
Comment:					
In case of projects rejected by other GHG programs due to procedural or eligibility requirements, where the GHG program applied has NOT been approved by the VCS board.					
A.23.	Does the project methodology comply with a VCS Program methodology or has it been approved through the double approval process?			☐	☐
Comment:					
A.24.	Does the VCS PD state all GHG programs, which the project has applied for credits and why the project was rejected?			☐	☐
Comment:					
A.25.	Have all actual rejection document(s) incl. any additional explanations been provided?			☐	☐
Comment:					
A.26.	Is the project validated against VCS 2007.1?			☐	☐
Comment:					
Project crediting period					
A.27.	Is the project crediting start date after 28 March 2006?		DR	☐	Y
Comment:	Cf. A.10.				
B. Methodology deviations (if any)					
B.1.	What is the impact of any methodology deviations on the conservativeness of baseline scenario(s), additionality determination, included GHG sources/sinks/reservoirs and on criteria and procedures to quantify data leading to GHG reductions?			☐	NA
Comment:					
B.2.	Do the deviations lead to an increase of data accuracy?			☐	NA
Comment:					

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C. Methodology revisions (if any)				
C.1.	In case of VCS Program methodologies: Have any revisions been approved through the double approval process?		☐	NA
Comment:				
C.2.	In case of other GHG program methodologies: Have any revisions been approved as per the requirements of the applicable GHG program?		☐	☐
Comment:				
D. Standards and factors				
D.1.	Are they publicly available from reputable and recognised sources (e.g. IPCC, published government data)?	DR, I	☐	Y
Comment:	All sources are referenced in PD			
D.2.	Have they been reviewed as part of their publication by a recognised competent organization?	DR	☐	Y
Comment:	Official date published by state authority			
E. Grouped projects				
E.1.	Does the VCS PD include a description of the central GHG information system and controls associated with the project and its monitoring?	DR, I	☐	Y
Comment:	The central GHG information system is operated by the local project manager, i.e. Mitcon. The company is certified according to ISO 9001; the information system was audited during the on-site visit at the head office of Mitcon in Pune.			
E.2.	Does the central GHG information system and controls includes items identified in ISO 14064-3:2006, clause 4.5?	DR, I	☐	Y
Comment:	a) selection and management of the GHG data and information; b) processes for collecting, processing, consolidating and reporting GHG data and information; c) systems and processes that ensure the accuracy of the GHG data and information; d) design and maintenance of the GHG information system; e) systems and processes that support the GHG information system; f) results of previous assessments, if available and appropriate. All items are included in the central GHG information system.			

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F. Content of the VCS PD														
F.1.	Is there any statement whether the project has applied for GHG credits through any other GHG program and the success of any of these applications?		DR, I	☐ Y										
Comment:	No application for any other GHG credits.													
F.2.	In case above is yes: Does the VCS PD include proof of registration and does the GHG program operator provide a written guarantee (incl. in the VCS PD) that any GHG reductions shall not have been previously retired within the operator's GHG program and that the reductions shall be cancelled so that they cannot be longer used within the operator's GHG program and hence shall only be accounted for under a VCS registry?		☐	NA										
Comment:														
F.3.	Does the VCS PD contain one of the following Proof of Title?		DR	CAR.4 Y										
	<table border="1"> <thead> <tr> <th>Checklist Proof of Title</th> <th>Yes/No</th> </tr> </thead> <tbody> <tr> <td>Legislative right</td> <td></td> </tr> <tr> <td>Right under local common law</td> <td></td> </tr> <tr> <td>Ownership of the plant, equipment and/or process generating the GHG reductions</td> <td></td> </tr> <tr> <td>Contractual arrangement with the owner of the plant, equipment or process that grants all reductions to the proponent</td> <td>Y</td> </tr> </tbody> </table>	Checklist Proof of Title	Yes/No	Legislative right		Right under local common law		Ownership of the plant, equipment and/or process generating the GHG reductions		Contractual arrangement with the owner of the plant, equipment or process that grants all reductions to the proponent	Y			
Checklist Proof of Title	Yes/No													
Legislative right														
Right under local common law														
Ownership of the plant, equipment and/or process generating the GHG reductions														
Contractual arrangement with the owner of the plant, equipment or process that grants all reductions to the proponent	Y													
Comment:	All contracts with all project promoters submitted by Southpolecarbon. The proofs consisted of: Infrastructure clearance, commissioning clearance, land document, and purchase order.													
F.4.	Does the project description meet content and layout requirements of the most recent VCS PD template?		DR	☐ Y										
Comment:														
F.5.	Have project title, purpose(s) and objective(s) been specified?		DR, I	☐ Y										
Comment:														

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F.6.	Has the type of GHG project been specified?		DR	☐	Y
Comment:					
F.7.	Has the project location incl. geographic and physical information allowing unique identification and delineation of the project's specific extent been accurately specified?		DR	CL.6	Y
Comment:	Revised PD of 27 October 2009				
F.8.	Have the conditions prior to project initiation been described?		DR	☐	Y
Comment:					
F.9.	Has a description been given of how the project will achieve GHG reductions and /or removal enhancements?		DR, I	☐	Y
Comment:					
F.10.	Have project technologies, products, services and the expected level of activity been described?		DR, I	☐	Y
Comment:					
F.11.	Have the aggregated GHG reductions and removal enhancements likely to occur from the project been stated in tonnes of CO2-Eq.		DR	CAR.9	Y
Comment:	Tables 1.3 and 4.4 in final PD corrected				
F.12.	Have risks that may substantially affect the project's GHG reductions been identified?		DR, I	☐	Y
Comment:					
F.13.	Have roles and responsibilities, incl. contact information of the project proponent, other project participants, and relevant regulator(s) and/or administrators of any GHG program(s) to which the project subscribes been included?		DR, I	☐	Y
Comment:					

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F.14. Has any information relevant for the eligibility of the project under a GHG program and quantification of GHG reductions incl. legislative, technical, economic, sectoral, socio-cultural, environmental, geographic, site-specific and temporal information been included?			DR, I	☐	Y
Checklist Eligibility Test	Yes/No				
legislative	Y				
technical	Y				
economic	Y				
sectoral	Y				
socio-cultural	Y				
environmental	Y				
geographic	Y				
site-specific	Y				
temporal	Y				
Comment:					
F.15. Has a summary of an environmental impact assessment been included (if required by applicable legislation or regulation)?				☐	NA
Comment:					
F.16. Have any relevant outcomes from stakeholder consultations and mechanisms for on-going communication been included?			DR, I	CAR.2	NA
Comment:	Proofs of ex-ante stakeholder consultations have been submitted for all project promoters. There were no relevant outcomes from stakeholder consultations.				
F.17. Does the PD include a chronological plan for the date of initiating project activities, date of project termination, monitoring and reporting frequency, project period incl. relevant project activities in each step of the project cycle?			DR, I	☐	Y
Comment:					
F.18. Does the PD include relevant local laws and regulations related to the project and demonstration of compliance with them?				☐	Y
Comment:					

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F.19. Does any information requested as commercially sensitive meets the following definition?: <i>Trade secrets, financial, commercial, scientific, technical or other information whose disclosure could reasonably be expected to result in a material financial loss or gain, prejudice the outcome of contractual or other negotiations or otherwise damage or enrich the person or entity to which the information relates.</i>			☐	N								
Comment:	There is no commercially sensitive data in the PD.											
F.20. In case of AFOLU project excl. ALM projects: Does the VCS PD include a project risk analysis prepared in accordance with the most recent version of the "Tool for AFOLU non-permanence risk analysis and buffer determination" and "guidance for agriculture, forestry and other land use projects (2007.1, 2008)"?			☐	☐								
Comment:												
G. Additonality												
G.1. Which test has been used to demonstrate additonality?		DR, I	☐	☐								
<table border="1"> <thead> <tr> <th>Checklist Additonality test</th> <th>Yes/No</th> </tr> </thead> <tbody> <tr> <td>Project test</td> <td>Y</td> </tr> <tr> <td>Performance test</td> <td></td> </tr> <tr> <td>Technology test</td> <td></td> </tr> </tbody> </table>	Checklist Additonality test	Yes/No	Project test	Y	Performance test		Technology test					
Checklist Additonality test	Yes/No											
Project test	Y											
Performance test												
Technology test												
Comment:												

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G.2.	In case project test is used: Have the following requirements been met?		DR, I	CL.12	Y								
<table border="1"> <thead> <tr> <th>Checklist project test requirements</th> <th>Yes/No</th> </tr> </thead> <tbody> <tr> <td><u>Regulatory surplus</u>: project is not mandated by any enforced law, statute or other regulatory framework</td> <td>Y</td> </tr> <tr> <td>One (or) more distinctive barrier(s): – <u>Investment barrier</u>: Project faces capital or investment return constraints that can be overcome by the additional revenues generated by the VCUs. – <u>Technological barrier</u>: Project faces technology-related barriers to its implementation. – <u>Institutional barrier</u>: Project faces financial, organizational, cultural or social barriers that the VCU revenue stream can help overcome. </td> <td>Y</td> </tr> <tr> <td><u>Common practice</u>: Project type is not common practice in sector/region, compared with projects that have received no carbon finance. If it is common practice, barriers have to be identified. Demonstration that project is not common practice shall be based on [6].</td> <td>Y</td> </tr> </tbody> </table>						Checklist project test requirements	Yes/No	<u>Regulatory surplus</u> : project is not mandated by any enforced law, statute or other regulatory framework	Y	One (or) more distinctive barrier(s): – <u>Investment barrier</u>: Project faces capital or investment return constraints that can be overcome by the additional revenues generated by the VCUs. – <u>Technological barrier</u>: Project faces technology-related barriers to its implementation. – <u>Institutional barrier</u>: Project faces financial, organizational, cultural or social barriers that the VCU revenue stream can help overcome.	Y	<u>Common practice</u> : Project type is not common practice in sector/region, compared with projects that have received no carbon finance. If it is common practice, barriers have to be identified. Demonstration that project is not common practice shall be based on [6].	Y
Checklist project test requirements	Yes/No												
<u>Regulatory surplus</u> : project is not mandated by any enforced law, statute or other regulatory framework	Y												
One (or) more distinctive barrier(s): – <u>Investment barrier</u>: Project faces capital or investment return constraints that can be overcome by the additional revenues generated by the VCUs. – <u>Technological barrier</u>: Project faces technology-related barriers to its implementation. – <u>Institutional barrier</u>: Project faces financial, organizational, cultural or social barriers that the VCU revenue stream can help overcome.	Y												
<u>Common practice</u> : Project type is not common practice in sector/region, compared with projects that have received no carbon finance. If it is common practice, barriers have to be identified. Demonstration that project is not common practice shall be based on [6].	Y												
Comment:	Corrected calculation-sheets for all project promoters submitted by Southpolecarbon.												
G.3.	In case performance test is used: Have the following requirements been met?			☐	☐								
<table border="1"> <thead> <tr> <th>Checklist performance test requirements</th> <th>Yes/No</th> </tr> </thead> <tbody> <tr> <td><u>Regulatory surplus</u>: project is not mandated by any enforced law, statute or other regulatory framework</td> <td></td> </tr> <tr> <td><u>Performance standard</u>: Emission generated per unit of project output shall be below the level that has been approved by the VCS program for the product, service, sector or industry (level defined to ensure that project is not business-as-usual). (15/06/2009: currently no performance standard additional methodologies have been approved)</td> <td></td> </tr> </tbody> </table>						Checklist performance test requirements	Yes/No	<u>Regulatory surplus</u> : project is not mandated by any enforced law, statute or other regulatory framework		<u>Performance standard</u> : Emission generated per unit of project output shall be below the level that has been approved by the VCS program for the product, service, sector or industry (level defined to ensure that project is not business-as-usual). (15/06/2009: currently no performance standard additional methodologies have been approved)			
Checklist performance test requirements	Yes/No												
<u>Regulatory surplus</u> : project is not mandated by any enforced law, statute or other regulatory framework													
<u>Performance standard</u> : Emission generated per unit of project output shall be below the level that has been approved by the VCS program for the product, service, sector or industry (level defined to ensure that project is not business-as-usual). (15/06/2009: currently no performance standard additional methodologies have been approved)													
Comment:													

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G.4.	In case technology test is used: Have the following requirements been met?			☐	☐
Checklist technology test requirements		Yes/No			
<u>Regulatory surplus</u> : project is not mandated by any enforced law, statute or other regulatory framework					
<u>Technology additionality</u> : project and its location is contained in the list of project types and applicable areas approved as being additional by the VCS Program (15/06/2009: currently no project types approved under the positive technology list)					
Comment:					
H. Baseline					
H.1.	Has the most conservative baseline scenario been selected based on the requirements in the applicable VCS methodology?		DR, I	CAR.3	Y
Comment:	Table "Baseline Scenario" in PD has been completed with Southern regional grid.				
H.2.	Does the baseline set out the geographic scope as applicable to the project?		DR	☐	Y
Comment:					
H.3.	Does the project proponent credibly demonstrate compliance with all relevant regulations, legislation and project approvals (e.g. environmental permits)?		DR, I	☐	Y
Comment:					
I. Monitoring					
I.1.	Is there any credible proof that the project has established and maintains criteria and procedures for obtaining, recording, compiling and analysing data and information for quantifying and reporting GHG emission reductions/removals relevant for the project and baseline scenario (e.g. GHG information system)?		DR, I	☐	Y
Comment:					
I.2.	Are the monitoring criteria and procedures applied on a regular basis during project implementation?		DR, I	☐	Y
Comment:					

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I.3.	Do the monitoring procedures include the purpose of monitoring?		DR, I	☐	Y
Comment:					
I.4.	Do the monitoring procedures include types of data and information to be reported incl. units of measurement?		DR	☐	Y
Comment:					
I.5.	Do the monitoring procedures include the origin of data?		DR	☐	Y
Comment:					
I.6.	Do the monitoring procedures include monitoring methodologies incl. estimation, modelling, measurement or calculation approaches?		DR	☐	Y
Comment:					
I.7.	Do the monitoring procedures include times and periods, considering the needs of intended users?		DR, I	☐	Y
Comment:					
I.8.	Do the monitoring procedures include monitoring roles and responsibilities?		DR, I	☐	Y
Comment:					
I.9.	Do the monitoring procedures include GHG information management systems, incl. the location and retention of stored data?		DR, I	☐	Y
Comment:					
I.10.	In case measurement and monitoring equipment is used: Is it ensured that the equipment is calibrated acc. to current good practice?		DR, I	☐	Y
Comment:	Proofs of use of calibrated monitoring equipment shown during on site audit.				
J. Monitoring reports for the GHG project					
J.1.	Do the monitoring reports include all the monitoring data, calculations, estimations, conversion factors and other standard factors as defined in the monitoring clause of the applied VCS Program methodology and set out in the VCS PD?			☐	☐
Comment:					

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K. Records relating to the project				
K.1.	Are all documents and records kept in a secure and retrievable manner for at least two years after the end of the project crediting period?		DR, I	☐ Y
Comment:				
L. Principles The application of the following principles is fundamental to ensure GHG-related information is a true and fair account.				
L.1.	Relevance: have the GHG sources/sinks/reservoirs, data and methodologies been selected appropriately to the needs of the intended user?		DR, I	☐ Y
Comment:				
L.2.	Completeness: have all relevant GHG emissions/removals and all relevant information to support criteria and procedures been included?		DR, I	☐ Y
Comment:				
L.3.	Consistency: Are meaningful comparisons in GHG-related information made possible?		DR, I	☐ Y
Comment:				
L.4.	Accuracy: Have bias and uncertainties been reduced as far as practical?		DR, I	☐ Y
Comment:				
L.5.	Transparency: Has sufficient and appropriate GHG-related information been disclosed, allowing making decisions with reasonable confidence?		DR, I	☐ Y
Comment:				
L.6.	Conservativeness: Have conservative assumptions, values and procedures been used (no overestimation of GHG emission reductions/removal enhancements)?		DR, I	☐ Y
Comment:				

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M. Project specific issues Not assignable to checklist 1 or checklist 2 (chapters A – L) of this protocol				
M.1.	Average plant loading factors are missing in tables “sensitivity analysis”		DR, I	CAR.1 OK
Comment:	PLFs have been added in final PD.			
M.2.	Information about the “Power Portfolio” of power generation companies is missing in section 2.5 of PD		DR, I	CL.1 OK
Comment:	Relevant information has been added in final PD.			
M.3.	Information about the “New Portfolio” of power generation companies is missing in section 2.5 of PD		DR, I	CL.2 OK
Comment:	Relevant information has been added in final PD.			
M.4.	Information about MAT is missing in section 2.5, B of PD		DR, I	CL.3 OK
Comment:	Relevant information has been added in final PD.			
M.5.	A list of abbreviations is missing.		DR, I	CL.4 OK
Comment:	A list of abbreviations has been added in final PD.			
M.6.	The comments on “social well being” and “economic well being” have to be amended.		DR, I	CL.5 OK
Comment:	The relevant comments have been completed.			
M.7.	Source of reference for “Energy act 2003” is missing.		DR, I	CL.7 OK
Comment:	Relevant information has been added in final PD.			
M.8.	Clarification of “para 6 b” (page 20 of draft PD) is needed.		DR, I	CL.8 OK
Comment:	Relevant information has been added in final PD.			
M.9.	Paragraph “Thus in view of ...” needs to be moved at the appropriate place.		DR, I	CL.9 OK
Comment:	Paragraph was removed in final PD.			
M.10.	Table “Specification of Suzlon mak WEGs” has to be corrected (1500 kW instead of 1250 kW in last column).		DR, I	CL.10 OK
Comment:	Table has been corrected in final PD.			

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M.11. Copies of original (by grid authorities) "statements showing the energy generated by the windmill for the period ..." have to be submitted.		DR, I	CAR.5	OK
Comment:	Copies have been submitted by Southpolecarbon.			
M.12. Document-package for all windmills is needed, containing the following information: basic and reference documents, xls-sheets		DR, I	CL.11	OK
Comment:	All documentation has been submitted by Southpolecarbon.			
M.13. "operation period in months" in finance xls-sheets have to be corrected.		DR, I	CL.12	OK
Comment:	Corrections have been done and the revised xls-sheets submitted.			
M.14. The options chosen for the calculations of OM and BM have to be documented in the PD		DR, I	CAR.8	OK
Comment:	Relevant information has been added in final PD.			

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TABLE 1 RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS

Draft report clarifications and corrective action requests by validation team		Ref. to checklist 2	Final validation team conclusion
CAR.1	Average plant loading factors are missing in tables "sensitivity analysis"	M.1	OK
Comment / project owner response	The average PLF is added to Sensitivity tables in PD		
CAR.2	Proofs of ex-ante stakeholder consultations needed	F.16	OK
Comment / project owner response	Proofs of ex-ante stakeholder consultations have been submitted for all project promoters. There were no relevant outcomes from stakeholder consultations.		
CAR.3	Southern Grid has to be added to table "Baseline Scenario"	H.1	OK
Comment / project owner response	Table "Baseline Scenario" in PD has been completed with Southern regional grid.		
CAR.4	Proofs of titles have to be submitted	F.3	OK
Comment / project owner response	All contracts with all project promoters have been submitted.		
CAR.5	Copies of original (by grid authorities) "statements showing the energy generated by the windmill for the period ..." have to be submitted	M.11	OK
Comment / project owner response	Copies of all reports/bills by the official electricity authorities have been submitted.		
CAR.6	Copy of TNEB report "statement showing the energy generated by the windmill for the period ..." for windmill # 56. (equal evidence for all windmills)	Cf. CAR.5	OK
Comment / project owner response	Cf. CAR.5		
CAR.7	Proof of contracting a validator prior to 19 Nov 2008 (VCS 2007.1, 5.2.1)	A.11	OK
Comment / project owner response	Proof (cf. A.11) has been submitted		
CAR.8	Grid emission factors: The options chosen for the calculations of OM and BM have to be documented in the PD (as required by the "Tool to calculate the emission factor for an electricity system")	M.14	OK
Comment / project owner response	Relevant information has been added in final PD.		

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Draft report clarifications and corrective action requests by validation team		Ref. to checklist 2	Final validation team conclusion
CAR.9	The total and average of table 1.3 (and 4.4) are not correct:	F.11	OK
Comment / project owner response	Tables in final PD have been corrected.		
CL.1.	Information about the "Power Portfolio" of power generation companies is missing in section 2.5 of PD	M.2	OK
Comment / project owner response	Relevant information has been added in final PD.		
CL.2.	Information about the "New Portfolio" of power generation companies is missing in section 2.5 of PD	M.3	OK
Comment / project owner response	Relevant information has been added in final PD.		
CL.3.	Information about MAT is missing in section 2.5, B of PD	M.4	OK
Comment / project owner response	Relevant information has been added in final PD.		
CL.4.	A list of abbreviations is missing	M.5	OK
Comment / project owner response	A list of abbreviations has been added in final PD.		
CL.5.	The comments on "social well being" and "economic well being" have to be amended	M.6	OK
Comment / project owner response	Relevant information has been added in final PD.		
CL.6.	An unique notification system for geographic site locations has to be used	F.7	OK
Comment / project owner response	Corrections have been done in final PD.		
CL.7.	Source of reference for "Energy act 2003" is missing	M.7	OK
Comment / project owner response	Relevant information has been added in final PD.		
CL.8.	Clarification of "para 6 b" (page 20 of draft PD) is needed	M.8	OK
Comment / project owner response	Relevant information has been added in final PD.		
CL.9.	Paragraph "Thus in view of ..." needs to be moved at the appropriate place	M.9	OK
Comment / project owner response	Paragraph was removed in final PD.		

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Draft report clarifications and corrective action requests by validation team		Ref. to checklist 2	Final validation team conclusion
CL.10.	Table "Specification of Suzlon mak WEGs" has to be corrected (1500 kW instead of 1250 kW in last column)	M.10	OK
Comment / project owner response		Table has been corrected in final PD.	
CL11.	Document-package for all windmills is needed, containing the following information: basic and reference documents, xls-sheets	M.12	OK
Comment / project owner response		All documentation has been submitted.	
CL.12.	"operation period in months" in finance xls-sheets have to be corrected	G.2, M.13	OK
Comment / project owner response		Corrections have been done and the revised xls-sheets submitted.	
CL.13.	Identify those windmills that have captive use of the produced energy	M.14	OK
Comment / project owner response		Information added in revised PD	
CL.14.	Evidence for management decisions by investors taking into account VER-revenues is missing	Technical Review	OK
Comment / project owner response		Given the complexity of the project with 72 different investors, project proponents would like to refer to explanations provided in CL16 in order to address CL14. Since such evidences do not represent explicit requirements of VCS2007.1, project proponents feel that CL16 provides sufficient information.	
CL.15.	Evidence for Greenfield justification of CPP-WTGs is missing.	Technical Review	OK
Comment / project owner response		According to applicability conditions of ACM0002, Version10, "Greenfield projects" are defined as the installation of a "new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity". Copies of purchase orders for the CPP-WTGs have been submitted to the DOE during the validation process in order to confirm that all wind turbines represent new power generation units. The nature and content of purchase orders provide evidence that the projects do not fall into the category of "retrofit projects". For the wind turbine units connected to the grid (see also Table 1 in Section 1.4) representing more than 90% of all turbines covered by the project activity, electricity output will be measured, as per monitoring plan, in such a way that the electricity exports to the grid and resulting emission reductions can be determined in a clear and unambiguous manner. This applies also to cases where a turbine is added to an existing wind farm. Therefore, the provisions for "capacity addition" of ACM0002 are met in such cases (see page 10 of ACM0002) since "in the case of wind, solar, wave or tidal power plants, it is assumed that the addition of new capacity does not significantly affect the electricity generated by existing plant(s) or unit(s). In this case, the electricity fed into the grid by the added power plant(s) or unit(s) could be directly metered and used to determine EG." Given the fact that 10 out 111 units, as per Table 1 in Section 1.4 of the PD, are oper-	

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Draft report clarifications and corrective action requests by validation team		Ref. to checklist 2	Final validation team conclusion
	ated as captive power plants, some of these turbines might be replacing old captive generation equipments. In such a case, these turbines would fall into the category of "replacement of an existing plant", which would require a different approach for determination of baseline emissions. In order to rule out this scenario, project proponents have collected electricity invoices from all captive electricity consumers that receive electricity from these 10 wind turbines. The provided invoices, dated prior to commissioning of the individual wind turbines, confirm that the captive consumer of electricity was connected to the grid. Hence, the baseline situation for all wind turbines under the project activity would be always the national grid. Section 1.7 of the VCS PD has been revised in the lines of this explanation as follows: "The project is a Greenfield project: all the wind farms are new wind farms installed at a site where there was no power generated prior to project implementation. Out of the 111 turbines, 101 are connected to the grid. The remaining ones, as per Table 1.4 of the PD, are captive power plants. Prior to commissioning of the 10 captive plants, the consumers that receive the electricity from these turbines were connected to the grid. Documentation has been submitted to the DOE during validation. Therefore, the baseline of the project activity is always the Grid (NEWNE and Southern Grids) as further explained in section 2.3 of the PD."		
CL.16.	The investment analysis revealed project IRRs significantly lower than the benchmark. Explain the rationale of the investment decision.	Technical Review	OK
Comment / project owner response	The rationale of the investment decision is summarized below, making a distinction between primary and secondary considerations by project owners: Primary consideration: - Revenues from carbon credits were expected to make a significant contribution towards the financial feasibility of the projects - The IRRs incl. VER revenues shown in the PDDs are significantly lower than the IRRs expected by the investors because the VER price used was and is way below market prices. - Venturing into new business of power generation to satisfy electricity need as well as to diversify their existing business. Secondary considerations: - Investment in a wind power project is considered as a safe and long-term investment in a promising new sector (renewable energy) - Considering the environmental responsibility to mitigate the GHG emissions. - Creation of socio-economical value in an economically underdeveloped area. In addition to comments above, project proponents would also like to clarify the following: As per Step 2.c of the "Tool for the demonstration and assessment of additionality", Version 5.2, project proponents shall demonstrate that the project activity is not financially attractive, by demonstrating that the IRR of the project without consideration of carbon credits is below the applicable benchmark. This condition is met for all projects, ensuring compliance with additionality requirements. It should be noted that the "IRR with carbon revenues" provided in the PDD is based on the lowest possible VCU price, which is reflected as floor price in the Emission Reduction Purchase Agreements between South Pole and project owners. This price does not reflect neither the expectations by project owners, when they made the decision to invest and go ahead with the project, nor a fixed purchase price. Given the volatility and		

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	the difficult predictability of VER prices and the fact that this floor price is a sensitive commercial information, project proponents have removed the respective information from the PDD. This is in line with VCS and CDM guidelines, which do not require the demonstration of the IRR with fictive carbon prices. Further background information about the perception of carbon markets in India around the time of investment decision: According to available VER market reports, VER prices for renewable energy projects prior to 2005 covered a very broad range from 5 USD up to 35 USD per t of CO₂ reduced (see also the report "Exploring the Market for 'Development Carbon' through the voluntary and retail sectors", available at http://www.iied.org/pubs/pdfs/15502IIED.pdf). Similar variations have also been observed in CER prices over the period 2004 to 2008 (Source: pointcarbon/World Bank). Since the very beginning, the Indian carbon market was characterized by a very large share of unilateral projects, where project developers implement the projects bearing the transaction costs and taking the implementation risk, hoping to fetch the best possible price on the market at a later stage (see http://enviroscope.iges.or.jp/modules/envirolib/upload/984/attach/india_final.pdf, and http://www.icfi.com/Markets/Climate-Change/doc_files/cdm-china-india.pdf). This rather "bullish" attitude is very common among project developers in India, which combined with lack of transparency about VER and CER prices in the early days of the carbon market, created rather optimistic conditions for investment in renewable energy projects eligible under GHG reduction schemes. Many investors in such small-scale projects intended to apply for CDM, but realised at a later stage that given the high transaction costs for CDM registration, VER markets would provide a better solution for their needs, which also applies to project owners under this grouped project.	

All documented proofs of evidence have been archived by SQS; they will be kept in a secure and retrievable manner for at least two years after the end of the project crediting period, i.e. until the end of the year 2018.

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