



Verification and certification report form for GS project activities

VERIFICATION AND CERTIFICATION REPORT

Title of the project activity	Enercon Wind Farm (Hindustan) Ltd in Rajasthan
GS Reference number of the project activity	GS 2483
Version number of the verification and certification report	1.1 Aa
Completion date of the verification and certification report	24/10/2016
Monitoring period number and duration of this monitoring period	2 nd Monitoring period Duration: 01/09/2013 to 31/05/2016 (both days included)
Version number of monitoring report to which this report applies	Version 2 of 30/09/2016
Crediting period of the project activity corresponding to this monitoring period	15/03/2010 to 14/03/2020
Project participant(s)	Wind World (India) Limited (Previously Enercon (India) Limited)
Host Party	India
Sectoral scope(s), selected methodology(ies)	01: Energy Industries (Renewable-/non-renewable sources) ACM0002 ver. 6 - Consolidated methodology for grid-connected electricity generation from renewable sources
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	261,038 tCO _{2e}
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	175,184 tCO _{2e}
Name of DOE	RINA Services S.p.A. (RINA)
Name, position and signature of the approver of the verification and certification report	Laura Severino – Sector Manager Sustainability, Environment & Climate Change 

SECTION A. Executive summary

Purpose and general description and location of the project

The purpose of the project is to generate electricity from wind energy and export to grid; thereby replacing equivalent amount of grid electricity which is dominated by fossil fuel fired power plants. The project activity consists of 75 WECs (800 kW each) of Enercon make E-48 totaling to a capacity of 60 MW, in Jaisalmer district, Rajasthan state of India connected to NEWNE grid of India.

Scope of verification

Verification is the periodic independent review and ex-post determination by a DOE of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period. Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified. The objective of this verification is to verify and certify emission reductions reported for the 'Enercon Wind Farm (Hindustan) Ltd in Rajasthan' for the period 01/09/2013 to 31/05/2016.

The scope of the verification is to verify that:

- The project activity has been implemented and operated in accordance with the registered PDD or any approved revised PDD;
- The monitoring plan, including compliance with any guidance provided by the Board regarding deviations from the provisions of a registered plan and/or methodology;
- The data and calculation of GHG emission reductions have been assessed to correctly support the emission reductions being claimed.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified.

Verification process

Verification is conducted using RINA procedures in line with the GS requirements and requirements specified in the CDM Validation and Verification Standard available at the time of the verification starts, and applying standard auditing techniques. RINA assesses and determines that the implementation and operation of the project activity, and steps taken to report emission reductions comply with the GS criteria. The verification assessment involved a document review of relevant documentation and the on-site visit.

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

Conclusion

RINA commissioned by Wind World (India) Limited is performing the verification of the emission reductions reported for the project activity 'Enercon Wind Farm (Hindustan) Ltd in Rajasthan', GS Registration Reference No. 2483 (UNFCCC reference no. 1168) for the monitoring period 01/09/2013 to 31/05/2016, with regard to the relevant GS requirements and principles for project activities. The project was validated by DNV (validation report N^o 2014-0077) and it was registered on 19/06/2014.

The GHG emission reductions are calculated on the basis of the approved methodology ACM0002, 'Consolidated methodology for grid-connected electricity generation from renewable sources', version 06 of 27/08/2007 and the monitoring plan included in the registered PDD version 12 of 14/11/2013. In our opinion the GHG emission reductions reported for the project in the monitoring report version 2 of 30/09/2016 are fairly stated.

SECTION B. Verification team, technical reviewer and approver**B.1. Verification team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader & Technical Expert (TA 1.2)	IR	Menon	Rekha	RINA India	√			√
2.	Verifier	IR	Buragohain	Champak	RINA India	√	√	√	√

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer TA 1.2	IR	Valoroso	Rita	RINA Central Office
2.	Approver	IR	Severino	Laura	RINA Central Office

SECTION C. Application of materiality**C.1. Consideration of materiality in planning the verification**

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions (which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording).	Low	Being 2 nd verification in GS and 6 th successful verification in CDM, the project proponent is familiar with monitoring procedures and data reporting in line with the registered PDD and previous verification and certification reports. Hence, the risk level is low.	During the site visit, the verification team will interview the staffs of the CDM team and check all records to confirm whether the monitoring plan have been well implemented. 100% of the data shall be cross checked with monthly generation reports and invoices.
2.	Undue reliance on a poorly designed information system, which may have few effective quality controls.	Low	Being 2 nd verification in GS and 6 th successful verification in CDM, the project proponent has already established a well-organized monitoring team, monitoring plan, including data collection procedure and QA/QC procedure consistent with registered monitoring plan. Hence, the risk level is low.	The major parameters used for determining the project's baseline emissions are the measurement of electricity export (gross) and electricity import from grid according to the monitoring plan is recorded monthly. The team will review the whole data set of the monthly report, and crosschecked against relevant invoices.
3.	Manual adjustment of otherwise automatically recorded activity levels.	Low	As detailed in section C.2 below, the data of the main monitoring parameters are	The monitoring parameters are monitored in calibrated energy meters are recorded monthly

			taken from calibrated meters (energy meter) and can be verified from totalizer values. The monitoring equipments are calibrated according to national standards and rules. Hence, the risk level is low.	joint meter readings. The team will cross check reported values from monthly joint meter reading records.
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C.2. Consideration of materiality in conducting the verification

>> For the project activity 100% data was available for verification. The data which directly affect emission reduction calculations being gross electricity generation and electricity consumption from grid are monitored and measured by calibrated energy meters, hence 100% verifiable. No significant reporting risks to the materiality of the verification were envisaged while planning for the verification and were not identified during the verification process

During the course of the verification, the team reviewed the whole data set of the monthly records for all parameters and cross-check against invoices. The data reported in the monitoring report are consistent with monthly records, and the emission reductions are correctly calculated.

In conclusion, the verification team confirms the data set to be free from material error.

SECTION D. Means of verification

D.1. Desk review

The monitoring report, version 01 of 19/07/2016 and version 2 of 30/09/2016 **/01/**, the emission reduction calculations provided in the form of a spreadsheet 'ER sheet_09 Apr 2015.xls' covering period 01/09/2013 to 31/01/2015 and 'ER sheet.xls' covering period 01/02/2015 to 31/05/2016 **/02/** were assessed as part of the verification. In addition the Project Design Document (PDD) **/03/** in particular the baseline estimations and the monitoring plan, the previous verification report (1st verification) dated 03/03/2015 **/05/** and the GS validation report, revision 03 of 29/09/2014 **/04/** for the project were reviewed.

The list of all documents reviewed are referenced during the verification is available in Appendix 3 below.

D.2. On-site inspection

Duration of on-site inspection: 23/09/2016 to 23/09/2016				
No.	Activity performed on-site	Site location	Date	Team member
1.	During the on-site assessment of the project RINA assessed the implementation and operation of the proposed project activity, the monitoring equipment and systems, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. There were no hindrances or barriers that were faced by the verification team while carrying out the site visits all equipment and processes of the project activity were accessible.	Kita and Pithodai Ki Dhani village, in Jaisalmer District of Rajasthan state in India	23/09/2016	Champak Buragohain

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Kumar	Jeetendra	Wind World India Limited (Asst. Engineer)	23/09/2016	Project implementation and operation. Management of the electricity meter and data collection. Monitoring plan and monitoring parameters. Management of the meter devices & calibration. Quality Control, Calibration records etc. Preparation of the Monitoring Report (MR), calculation of the ERs.	Champak Buragohain
2.	Agarwal	Kartik	Wind World India Limited (Engineer)			
3.	Joshi	Poorvi	Wind World India Limited (Dy. Manager)			
4.	Kumar	Jamin	Wind World India Limited (Security Guard)		Sustainable development activities. Job creation etc.	

D.4. Sampling approach

>> N/A

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CR	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	-	-
Compliance of the project implementation with the registered PDD	-	-	-
Post-registration changes	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	1	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	-	1	-
Others (monitoring of GS sustainable development parameters)	-	-	-
Total	0	2	0

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Comparing the monitoring report /01/ with the information details included as required by GS and registered PDD and GS passport.
Findings	N/A
Conclusion	Gold Standard does not provide any specific monitoring report template. PP has used developed a template incorporating all required details as per GS rules and registered PDD and GS passport and hence accepted by RINA.

E.2. Remaining forward action requests from validation and/or previous verification

>> Based on the review of validation report /04/, two FARs found raised during the validation which were closed during previous verification /05/. Further, GS issuance review for the previous verification does not refer any FAR to be addressed /11/.

E.3. Compliance of the project implementation with the registered project design document

Means of verification	Actual implementation of the registered project activity: RINA has performed a site visit to verify the real implementation of the project against the description in its registered CDM PDD /03/ and found that the project implementation is in accordance with the registered PDD /03/. The project activity consists of 75 WECs (800 kW each) of Enercon make E-48 at Jaisalmer district of Rajasthan, India, totaling to a capacity of 60 MW. The generated electricity is evacuated to RRVPNL grid sub-station. The first WEC was commissioned on 26/11/2006 and the last WEC was commissioned on 25/12/2006 as confirmed from the last verification report /04/. The same was also cross checked during the site visit and confirmed to be in order. The quantum of energy exported to the grid and imported from the grid is confirmed from the Join meter reading reports issued to the PP /13/; this is in line with the registered PDD /03/. During the site visit, no changes have been observed or identified which may impact the additionality as there was no change in the installed capacity, no addition of component nor extension of technology, no addition nor removal of project sites; no change has been observed or identified that may impact the scale of the project activity or applicability of baseline and monitoring methodology ACM0002, version 06 /08/. The net electricity generation by the project plant from 01/02/2015 to 31/05/2016, was taken into consideration.
Findings	N/A
Conclusion	RINA is able to confirm that the implementation and operation of the project during this second monitoring period is consistent with the registered PDD; the information provided in the MR is also in accordance with the description of the registered PDD. RINA through the on-site inspection assessed that all physical features (technology, project equipment, monitoring and metering equipment) of the project activity are in place and the project participants have operated the project activity as per the registered PDD and registered PDD.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

>>N/A

E.4.2. Corrections

>>N/A

E.4.3. Changes to the start date of the crediting period

>>N/A

E.4.4. Inclusion of a monitoring plan to a registered project activity

>>N/A

E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

>>N/A

E.4.6. Changes to the project design of a registered project activity

>> N/A

E.4.7. Types of changes specific to afforestation and reforestation project activities

>>N/A

E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	During this monitoring period, the validated and registered monitoring plan was found to be in accordance with the applied methodology, ACM0002 version 06 /10/.
Findings	N/A
Conclusion	RINA confirms that the approved monitoring plan is in accordance with the approved methodology and applicable methodological tools.

E.6. Compliance of monitoring activities with the registered monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered monitoring plan. The following tables describe for each parameter which is to be measured according to the monitoring plan and how RINA has verified that the actual monitoring complies with the monitoring plan and that data have been assessed to correctly support the emission reductions being claimed

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation	
	EF_{OM,y} , Operating margin CO ₂ emission factor of the grid in year y	As per registered PDD conforming to CO ₂ Baseline Database for the Indian Power Sector, CEA /03/, /04/		The value is ex-ante fixed for crediting period of 10 years as per the registered PDD /03/, which has been justified and validated by validation DOE /04/ to follow the applied methodology and tool and already approved by EB.	
			2002 – 03		0.9993 tCO ₂ /MW h
			2003 – 04		0.9869 tCO ₂ /MW h
		2004 – 05	0.9756 tCO ₂ /MW h		
	EF_{BM,y} , Build margin CO ₂ emission factor of the grid in year y	As per registered PDD conforming to CO ₂ Baseline Database for the Indian Power Sector, CEA /03/, /04/	0.5335 tCO ₂ /MWh	The value is ex-ante fixed for crediting period of 10 years as per the registered PDD /03/, which has been justified and validated by validation DOE /04/ to follow the applied methodology and tool and already approved by EB.	

	$EF_{CM,y}$, CO ₂ emission factor of the grid in year y As per registered PDD conforming to CO ₂ Baseline Database for the Indian Power Sector, CEA /03/, /04/	0.87387 tCO ₂ /MWh	The value is ex-ante fixed for crediting period of 10 years as per the registered PDD /03/, which has been justified and validated by validation DOE /04/ to follow the applied methodology and tool and already approved by EB.
Findings	N/A		
Conclusion	RINA confirms that the parameters listed above are fixed ex ante and used for baseline and project emissions calculation in accordance with the applied methodology and methodological tool and that they are the same used at the validation stage and in the previous verifications.		

E.6.2. Data and parameters monitored

Means of verification	Data/Parameter	Assessment
	Data Unit	EG _y ; MWh
	Description	Net electricity supplied to the grid by the project
	Source of data to be used	Electricity supplied to the grid as per monthly breakup sheet prepared by Wind World (India) Limited and the same will be cross verified by the tariff invoices raised to RRVNL/Ajmer & Jaipur DISCOM (State Utility) /13/, /14/
	Value of monitored parameter for the monitoring period	101,866.091 MWh for the period 01/09/2013 to 31/01/2015 /22/; 98,604.443 MWh for the period 01/02/2015 to 31/05/2016
	Monitoring equipment	The value is calculated, so there is no monitoring equipment.
	Accuracy of the monitoring equipment	Not applicable
	Measuring/Reading/Recording frequency	Monthly recording.
	Calculation method (if applicable)	Monthly joint meter reading records gross export ($\sum_{project} E_{WEC,export}$) and gross import ($\sum_{project} E_{WEC,import}$) from project WECs and accordingly the net electricity supplied by the project is calculated. $(EG_y = \sum_{project} E_{WEC,export} - \sum_{project} E_{WEC,import})$
	Data/Parameter	Assessment
	Data Unit	E _{JMR,Export} ; MWh
	Description	Gross Electricity exported (at substation point), as recorded by the main meter & backup meter at the Akal substation. This data represents the total gross electricity exported by all the WECs (project and non-project) at substation point
	Source of data to be used	Export value from Joint meter reading taken at Substation in the presence of representatives

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		of WWIL and state utility /13/									
Value of monitored parameter for the monitoring period		754,063.530 MWh for the period 01/09/2013 to 31/01/2015 /22/; 751,293.525 MWh for the period 01/02/2015 to 31/05/2016									
Monitoring equipment		A common (Main and check) meter is installed at the sub-station as per below details: <table><tr><td>Meter</td><td>Make</td><td>Serial No.</td></tr><tr><td>Main Meter</td><td>L&T</td><td>11068579</td></tr><tr><td>Check Meter</td><td>L&T</td><td>11068580</td></tr></table>	Meter	Make	Serial No.	Main Meter	L&T	11068579	Check Meter	L&T	11068580
Meter	Make	Serial No.									
Main Meter	L&T	11068579									
Check Meter	L&T	11068580									
Accuracy of the monitoring equipment		Both the meters are of accuracy class 0.2S as confirmed during site visit and from calibration certificates /15/, /16/, /17/, /18/.									
Measuring/Reading/Recording frequency		Measured continuously and recorded monthly.									
Calcualtion method (if applicable)		Not applicable									

Data/Parameter	Assessment									
Data Unit	E _{JMR,Import} ; MWh									
Description	Gross Electricity imported (at substation point), as recorded by the main meter at the Akal Substation. This data represents the total gross electricity imported by all the WECs (project and non-project) at substation point									
Source of data to be used	Import value from Joint meter reading taken at Substation in the presence of representatives of WWIL and state utility /13/									
Value of monitored parameter for the monitoring period	650.668 MWh for the period 01/09/2013 to 31/01/2015 /22/; 805.067 MWh for the period 01/02/2015 to 31/05/2016									
Monitoring equipment	A common (Main and check) meter is installed at the sub-station as per below details: <table><tr><td>Meter</td><td>Make</td><td>Serial No.</td></tr><tr><td>Main Meter</td><td>L&T</td><td>11068579</td></tr><tr><td>Check Meter</td><td>L&T</td><td>11068580</td></tr></table>	Meter	Make	Serial No.	Main Meter	L&T	11068579	Check Meter	L&T	11068580
Meter	Make	Serial No.								
Main Meter	L&T	11068579								
Check Meter	L&T	11068580								
Accuracy of the monitoring equipment	Both the meters are of accuracy class 0.2S as confirmed during site visit and from calibration certificates /15/, /16/, /17/, /18/.									
Measuring/Reading/Recording frequency	Measured continuously and recorded monthly.									
Calcualtion method (if applicable)	Not applicable									

Data/Parameter	Assessment
Data Unit	E _{Controller,Export,i} ; MWh
Description	Gross Electricity export (at WEC point at the site) by a WEC (project or non-project), as measured at the LCS meter. Each WEC has exclusive LCS meter that records gross electricity export from the WEC (project or non-project). This represents gross electricity export by individual WEC (at WEC point at the site)

		where i is any WEC between 1 to j+k j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation. k is any WEC between 76 to 290 of the non-project connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.	
	Source of data to be used	This reading is monitored continuously by the online monitoring station (online monitoring station is located at the project site where all the data [historical and instantaneous] from the LCS meters of all WECs is retrieved) at the project site /02/	
	Value of monitored parameter for the monitoring period	106,521.247 MWh for the period 01/09/2013 to 31/01/2015 /22/; 103,168.954 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period). This value is not used in the ER calculation.	
	Monitoring equipment	LCS inbuilt meter in each WEC.	
	Accuracy of the monitoring equipment	LCS meter in WEC is inbuilt and does not require calibration. No accuracy is specified. This is in line with the registered PDD and validation report /03/, /05/.	
	Measuring/Reading/Recording frequency	Measured continuously and recorded monthly.	
	Calculation method (if applicable)	Not applicable	
	Data/Parameter	Assessment	
	Data Unit	$\sum E_{\text{Controller.Export},i}$; MWh	
	Description	Summation of gross electricity exported (at WEC point at the site) by all the WECs (project and non-project) connected to the main meter at the substation, measured at the LCS meter of each WEC. This is summation of gross electricity exported by the WECs (at WEC point at the site) including WECs of the project and non-project. where i is any WEC between 1 to j+k j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation. k is any WEC between 76 to 290 of the non-project connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.	
	Source of data to be used	This reading is monitored continuously by the online monitoring station (online monitoring station is located at the project site where all the data [historical and instantaneous] from the LCS meters of all WECs is retrieved) at the project site /02/	

	Value of monitored parameter for the monitoring period	788,162.877 MWh for the period 01/09/2013 to 31/01/2015 /22/; 785,164.819 MWh for the period 01/02/2015 to 31/05/2016. (Total project and non-project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.
	Monitoring equipment	LCS inbuilt meter in each WEC.
	Accuracy of the monitoring equipment	LCS meter in WEC is inbuilt and does not require calibration. No accuracy is specified. This is in line with the registered PDD and validation report /03/, /05/.
	Measuring/Reading/Recording frequency	Measured continuously and recorded monthly.
	Calculation method (if applicable)	Not applicable
	Data/Parameter	Assessment
	Data Unit	$E_{WEC, Export, j}$ MWh
	Description	Gross Electricity exported (at substation point) by an individual WEC (j of the project activity) to the grid that is connected to main meter & backup meter at Akal substation. Where j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.
	Source of data to be used	Calculated as per procedure in registered PDD /03/.
	Value of monitored parameter for the monitoring period	101,967.810 MWh for the period 01/09/2013 to 31/01/2015 /22/; 98,740.753 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.
	Monitoring equipment	Not Applicable since the parameter is calculated.
	Accuracy of the monitoring equipment	Not Applicable since the parameter is calculated. This is in line with the registered PDD and validation report /03/, /05/.
	Measuring/Reading/Recording frequency	Recorded monthly.
	Calculation method (if applicable)	Calculated as described below: Summation of electricity generated by the project activity WECs recorded at respective LCS meters- $E_{Controller, Export}$ Joint meter reading for gross export electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR, Export}$ Joint meter reading for gross import electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR, Import}$ Gross electricity exported by project and non project WECs connected to the sub-station main meter as per LCS meter reading-

	$\sum E_{Controller,Export}$ Considering above, $E_{ExportMultificationFactor} = \frac{E_{JMR,Export}}{\sum E_{Controller,Export}}$ is calculated and accordingly, $E_{WEC,Export} = E_{ExportMultificationFactor} * E_{controller,Export}$ The above calculation is done by O& M provider and forms part of the JMR. The value is directlt taken from monthly JMR readings /12/. The same is also cross checked from monthly invoice and found to be correct /13/.																		
	<table><tr><th>Data/Parameter</th><th>Assessment</th></tr><tr><td>Data Unit</td><td>$E_{WEC,Import,j}$ MWh</td></tr><tr><td>Description</td><td>Gross Electricity imported (at substation point) by an individual WEC of the project activity to the grid that is connected to main meter & backup meter at Akal substation. Where j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.</td></tr><tr><td>Source of data to be used</td><td>Calculated as per procedure in registered PDD /03/.</td></tr><tr><td>Value of monitored parameter for the monitoring period</td><td>88.581 MWh for the period 01/09/2013 to 31/01/2015 /22/; 101.135 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.</td></tr><tr><td>Monitoring equipment</td><td>Not Applicable since the parameter is calculated.</td></tr><tr><td>Accuracy of the monitoring equipment</td><td>Not Applicable since the parameter is calculated. This is in line with the registered PDD and validation report /03/, /05/.</td></tr><tr><td>Measuring/Reading/Recording frequency</td><td>Recorded monthly.</td></tr><tr><td>Calcualtion method (if applicable)</td><td>Calculated as described below: Summation of electricity generated by the project activity WECs recorded at respective LCS meters- $E_{Controller,Export}$ Joint meter reading for gross export electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Export}$ Joint meter reading for gross import electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Import}$ Gross electricity exported by project and non project WECs connected to the sub-station main meter as per LCS meter reading- $\sum E_{Controller,Export}$ Considering above, </td></tr></table>	Data/Parameter	Assessment	Data Unit	$E_{WEC,Import,j}$ MWh	Description	Gross Electricity imported (at substation point) by an individual WEC of the project activity to the grid that is connected to main meter & backup meter at Akal substation. Where j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.	Source of data to be used	Calculated as per procedure in registered PDD /03/.	Value of monitored parameter for the monitoring period	88.581 MWh for the period 01/09/2013 to 31/01/2015 /22/; 101.135 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.	Monitoring equipment	Not Applicable since the parameter is calculated.	Accuracy of the monitoring equipment	Not Applicable since the parameter is calculated. This is in line with the registered PDD and validation report /03/, /05/.	Measuring/Reading/Recording frequency	Recorded monthly.	Calcualtion method (if applicable)	Calculated as described below: Summation of electricity generated by the project activity WECs recorded at respective LCS meters- $E_{Controller,Export}$ Joint meter reading for gross export electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Export}$ Joint meter reading for gross import electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Import}$ Gross electricity exported by project and non project WECs connected to the sub-station main meter as per LCS meter reading- $\sum E_{Controller,Export}$ Considering above,
Data/Parameter	Assessment																		
Data Unit	$E_{WEC,Import,j}$ MWh																		
Description	Gross Electricity imported (at substation point) by an individual WEC of the project activity to the grid that is connected to main meter & backup meter at Akal substation. Where j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.																		
Source of data to be used	Calculated as per procedure in registered PDD /03/.																		
Value of monitored parameter for the monitoring period	88.581 MWh for the period 01/09/2013 to 31/01/2015 /22/; 101.135 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.																		
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Accuracy of the monitoring equipment	Not Applicable since the parameter is calculated. This is in line with the registered PDD and validation report /03/, /05/.																		
Measuring/Reading/Recording frequency	Recorded monthly.																		
Calcualtion method (if applicable)	Calculated as described below: Summation of electricity generated by the project activity WECs recorded at respective LCS meters- $E_{Controller,Export}$ Joint meter reading for gross export electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Export}$ Joint meter reading for gross import electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Import}$ Gross electricity exported by project and non project WECs connected to the sub-station main meter as per LCS meter reading- $\sum E_{Controller,Export}$ Considering above,																		

		$E_{\text{ImportMultificationFactor}} = \frac{E_{\text{JMR, Import}}}{\sum E_{\text{Controller, Export}}}$ is calculated and accordingly, $E_{\text{WEC, Import}} = E_{\text{ImportMultificationFactor}} * E_{\text{controller, Export}}$ The above calculation is done by O& M provider and forms part of the JMR. The value is directly taken from monthly JMR readings /12/. The same is also cross checked from monthly invoice and found to be correct /13/.	
	Data/Parameter	Assessment	
	Data Unit	$\sum_{\text{project}} E_{\text{WEC, export}}$; MWh	
	Description	Summation of gross electricity exported (at substation point) by all the WECs of the project activity. Where j is any WEC between 1 to 75 of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation.	
	Source of data to be used	Calculated since this is summation of $E_{\text{WEC, Export, j}}$. Calculation of $E_{\text{WEC, Export, j}}$ is explained above.	
	Value of monitored parameter for the monitoring period	101,967.810 MWh for the period 01/09/2013 to 31/01/2015 /22/; 98,740.753 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.	
	Monitoring equipment	Not Applicable since the parameter is calculated.	
	Accuracy of the monitoring equipment	Not Applicable since the parameter is calculated. This is in line with the registered PDD and validation report /03/, /05/.	
	Measuring/Reading/Recording frequency	Recorded monthly.	
	Calculation method (if applicable)	Calculated as described below: Summation of electricity generated by the project activity WECs recorded at respective LCS meters- $E_{\text{Controller, Export}}$ Joint meter reading for gross export electricity as recorded at the main meter at substation for project and non project WECs- $E_{\text{JMR, Export}}$ Joint meter reading for gross import electricity as recorded at the main meter at substation for project and non project WECs- $E_{\text{JMR, Import}}$ Gross electricity exported by project and non project WECs connected to the sub-station main meter as per LCS meter reading- $\sum E_{\text{Controller, Export}}$ Considering above,	

		$E_{ExportMultificationFactor} = \frac{E_{JMR,Export}}{\sum E_{Controller,Export}}$ is calculated and accordingly, $E_{WEC,Export} = E_{ExportMultificationFactor} * E_{controller,Export}$ The above calculation is done by O& M provider and forms part of the JMR. The value is directly taken from monthly JMR readings /12/. The same is also cross checked from monthly invoice and found to be correct /13/.	
	Data/Parameter	Assessment	
	Data Unit	$\sum_{project} E_{WEC,Import}$; MWh	
	Description	Summation of electricity imported (at substation point) by all the WECs of the project activity. Where, j is any value between 1 to 75 representing WECs of the project activity connected to main meter & backup meter at Akal substation and secondary backup meter at Bhu substation	
	Source of data to be used	Calculated since this is summation of $E_{WEC,Import,j}$. Calculation of $E_{WEC,Import,j}$ is explained above.	
	Value of monitored parameter for the monitoring period	88.581 MWh for the period 01/09/2013 to 31/01/2015 /22/; 101.135 MWh for the period 01/02/2015 to 31/05/2016. (Total project WEC generation during the monitoring period) /02/. This value is not used in the ER calculation.	
	Monitoring equipment	Not Applicable since the parameter is calculated.	
	Accuracy of the monitoring equipment	Not Applicable since the parameter is calculated. This is in line with the registered PDD and validation report /03/, /05/.	
	Measuring/Reading/Recording frequency	Recorded monthly.	
	Calculation method (if applicable)	Calculated as described below: Summation of electricity generated by the project activity WECs recorded at respective LCS meters- $E_{Controller,Export}$ Joint meter reading for gross export electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Export}$ Joint meter reading for gross import electricity as recorded at the main meter at substation for project and non project WECs- $E_{JMR,Import}$ Gross electricity exported by project and non project WECs connected to the sub-station main meter as per LCS meter reading- $\sum E_{Controller,Export}$ Considering above,	

		$E_{\text{ImportMultificationFactor}} = \frac{E_{\text{JMR, Import}}}{\sum E_{\text{Controller, Export}}}$ is calculated and accordingly, $E_{\text{WEC, Import}} = E_{\text{ImportMultificationFactor}} * E_{\text{controller, Export}}$ The above calculation is done by O& M provider and forms part of the JMR. The value is directly taken from monthly JMR readings /12/. The same is also cross checked from monthly invoice and found to be correct /13/.	
Findings	N/A		
Conclusion	RINA confirms: - that all the parameters listed in the registered monitoring plan have been completely monitored - The responsibilities and authorities for monitoring and reporting are in accordance with those stated in the approved revised monitoring plan; - The monitoring results are consistently recorded as per the approved frequency; - Quality assurance and quality control procedure have been applied in accordance with the approved revised monitoring plan		

E.6.3. Implementation of sampling plan

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Data/Parameter	Assessment											
	Data Unit	E _{JMR,Export} ; MWh											
	Description	Gross Electricity exported (at substation point), as recorded by the main meter & backup meter at the Akal substation. This data represents the total gross electricity exported by all the WECs (project and non-project) at substation point											
	Monitoring equipment	A common (Main and check) meter is installed at the sub-station as per below details: <table><tr><td>Meter</td><td>Make</td><td>Serial No.</td></tr><tr><td>Main Meter</td><td>L&T</td><td>11068579</td></tr><tr><td>Check Meter</td><td>L&T</td><td>11068580</td></tr></table>			Meter	Make	Serial No.	Main Meter	L&T	11068579	Check Meter	L&T	11068580
	Meter	Make	Serial No.										
	Main Meter	L&T	11068579										
	Check Meter	L&T	11068580										
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Both the energy meter is calibrated once in a year. This is in line with the registered PDD and validation report /03/, /05/.												
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	The monitoring period is from 01/02/2015 to 31/05/2016. Both the main meter and check meter was calibrated on 14/02/2015 (with validity until 14/02/2016) and on 09/04/2016 (with validity until 08/04/2017) /15/, /16/, /17/, /18/. There has been a delay in calibration for the period (01/02/2015 to 14/02/2015 and from 15/02/2016 to 09/04/2016). PP has applied maximum error factor on the measured value as per VVS paragraph 395 for the delayed duration.												
Calibration certificates													

		<table border="1"> <tr> <th>Meter no.</th><th>Calibration details</th></tr> <tr> <td>11068579 (main meter)</td><td> a) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /15/. b) Calibration certificate by Yadav Measurements dated 09/04/2016 </td></tr> <tr> <td>11068580 (check meter)</td><td> a) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /17/. b) Calibration certificate by Yadav Measurements dated 09/04/2016 </td></tr> </table>	Meter no.	Calibration details	11068579 (main meter)	a) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /15/. b) Calibration certificate by Yadav Measurements dated 09/04/2016	11068580 (check meter)	a) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /17/. b) Calibration certificate by Yadav Measurements dated 09/04/2016		
Meter no.	Calibration details									
11068579 (main meter)	a) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /15/. b) Calibration certificate by Yadav Measurements dated 09/04/2016									
11068580 (check meter)	a) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /17/. b) Calibration certificate by Yadav Measurements dated 09/04/2016									
Does the calibration of meters have been done by an accredited person or institution?	Yes. C&I Calibrations Pvt. Ltd. and Yadav Measurements are accredited by NABL/15/, /16/, /17/, /18/.									
Data/Parameter	Assessment									
Data Unit	E _{JMR,Import} ; MWh									
Description	Gross Electricity imported (at substation point), as recorded by the main meter at the Akal Substation. This data represents the total gross electricity imported by all the WECs (project and non-project) at substation point									
Monitoring equipment	A common (Main and check) meter is installed at the sub-station as per below details: <table border="1"> <tr> <th>Meter</th><th>Make</th><th>Serial No.</th></tr> <tr> <td>Main Meter</td><td>L&T</td><td>11068579</td></tr> <tr> <td>Check Meter</td><td>L&T</td><td>11068580</td></tr> </table>	Meter	Make	Serial No.	Main Meter	L&T	11068579	Check Meter	L&T	11068580
Meter	Make	Serial No.								
Main Meter	L&T	11068579								
Check Meter	L&T	11068580								
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Both the energy meter is calibrated once in a year. This is in line with the registered PDD and validation report /03/, /05/.									
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	The monitoring period is from 01/02/2015 to 31/05/2016. Both the main meter and check meter was calibrated on 14/02/2015 (with validity until 14/02/2016) and on 09/04/2016 (with validity until 08/04/2017) /15/, /16/, /17/, /18/. There has been a delay in calibration for the period (01/02/2015 to 14/02/2015 and from 15/02/2016 to 09/04/2016). PP has applied maximum error factor on the measured value as per VVS paragraph 395 for the delayed duration.									
Calibration certificates	<table border="1"> <tr> <th>Meter no.</th><th>Calibration details</th></tr> <tr> <td>11068579 (main meter)</td><td> c) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /15/. d) Calibration certificate </td></tr> </table>	Meter no.	Calibration details	11068579 (main meter)	c) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /15/. d) Calibration certificate					
Meter no.	Calibration details									
11068579 (main meter)	c) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /15/. d) Calibration certificate									

			by Yadav Measurements dated 09/04/2016 /16/
		11068580 (check meter)	c) Calibration certificate by C&I Calibrations Pvt. Ltd dated 14/02/2015 /17/. d) Calibration certificate by Yadav Measurements dated 09/04/2016 /18/
	Does the calibration of meters have be done by an accredited person or institution?	Yes. C&I Calibrations Pvt. Ltd. is accredited by NABL /15/, /16/, /17/, 18/.	
Findings	CAR 01 was raised for delayed calibration and the adjustment of measured data as per project standard to which PP has applied maximum error of the instrument on the measured value (both export and import) which is in line with paragraph 395 of VVS version 09. Hence, CAR was closed.		
Conclusion	RINA confirms that all applicable monitoring and measuring equipments have been calibrated by accredited agencies as per defined frequency of registered monitoring plan in consistent with applied methodology and appropriately maintained. About the delay in calibration RINA confirms that the maximum permissible error has been applied in a conservative manner adjusting all the measured values taken during the period between the scheduled and the new calibration of the electricity meter.		

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	According to the applied methodology “ACM0002”, “Consolidated methodology for grid-connected electricity generation from renewable sources”, version 06 /08/, and the registered PDD /03/ the Baseline emissions (BE_y) is calculated as the product between $EG_{BL,y}$ and $EF_{CO_2,grid,y}$. $BE_y = EG_y \times EF_y$ Where, EG_y = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh). EF_y = CO_2 emission factor of the grid in year y ($t\ CO_2/MWh$). This is fixed ex-ante to be 0.87387 tCO_2/MWh as verified from registered PDD and validation report /03/, /05/. The net electricity supplied to grid by the project WECs (EG_y) is calculated from as the difference of gross export ($\sum_{project} E_{WEC,export}$) and gross import ($\sum_{project} E_{WEC,import}$). Gross electricity export ($\sum_{project} E_{WEC,export}$) and gross electricity import ($\sum_{project} E_{WEC,import}$) are calculated from monthly reading at calibrated common energy meter at sub-station which monitor continuously electricity export ($E_{JMR,Export}$) and import ($E_{JMR,Import}$) from project and non-project WECs. $E_{JMR,Export}$ and $E_{JMR,Import}$ (Joint meter reading) is taken on monthly basis by state utility in presence of representative of project proponent and accordingly gross export and gross import by project WECs are calculated and provided in JMR copy /13/. RINA has cross checked monthly JMR copies /13/ and found that reported gross export and gross import for the project WECs are consistent in the MR. Net electricity exported (EG_y) by the project WECs as recorded in monthly JMR /13/ for the project WECs is used in emission reduction calculations /02/. Further,
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	electricity generation of individual WEC ($E_{\text{Controller, Export}}$) as recorded in control panel of individual WEC is monitored in central monitoring station on continuous basis and recorded monthly /02/. These are (gross export and gross import) then transferred to excel spread sheets /02/ which have been used for emission reduction calculations. Further, the monthly generation export to grid data have been cross checked with the invoices raised to DISCOM /14/. The net electricity supplied by the project activity during the current monitoring period is 98,604.443 MWh (corrected value considering delayed calibration) for the period 01/02/2015 to 31/05/2016 and 101,866.091 MWh for the period 01/09/2013 to 31/01/2015 /01/,/02/. This is also cross checked from monthly JMR copies and invoices raised to state utility /12/, /13/, /22/. The resulting baseline emissions of reductions of 175,184 tCO₂e after multiplying with the grid emission factor fixed <i>ex-ante</i> at 0.87387 tCO₂/MWh /01/,/02/.
Findings	N/A
Conclusion	RINA confirms that baseline emissions have been appropriately calculated and are consistent with site visit observations, the applied methodology, registered PDD and the previous verification reports /01/, /02/, /03/, /04/, /05/, /10/, /22/.

E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	As per registered PDD and applied methodology, project emissions due to import of grid electricity is already accounted in arriving net electricity export to grid. Hence project emission is accounted to be zero.
Findings	N/A
Conclusion	N/A

E.8.3. Calculation of leakage GHG emissions

Means of verification	As per registered PDD and applied methodology, leakage emissions (L_y) for the monitoring period is accounted as zero.
Findings	N/A
Conclusion	N/A

E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The emission reduction is the calculated as below: $ER_y = BE_y - PE_y - LE_y$ Where, ER_y is the total emission reductions of the project activity during the year y in tCO_{2e}; BE_y is the baseline emissions for the project activity during the year y in tCO_{2e}; PE_y is the emissions for the project activity during the year y in tCO_{2e}; LE_y is the leakage emissions for the project activity during the year y in tCO_{2e}. BE_y for the monitoring period is 175,184 tCO_{2e} tCO₂ as detailed in section E.8.1 above. PE_y and LE_y is zero for the monitoring period as described in section E.8.2 and E.8.3 above. Therefore, the emission reductions achieved for the monitoring period is 175,184 tCO_{2e} tCO₂
Findings	CAR 02 was raised for delayed calibration and the adjustment of measured data as per project standard to which PP has applied maximum error of the instrument on the measured value (both export and import) which is in line with paragraph 395 of VVS version 09. Hence, CAR was closed.
Conclusion	The data presented in the monitoring report /01/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed above. RINA confirms: - All the data and parameters were monitored in accordance with the approved revised monitoring plan; - The data reported in the emission reductions calculation spreadsheet were

	cross-checked with the raw data and the values reported in the monitoring report were verified against the data presented in the spreadsheet; - The calculation of emission reductions have been carried out in accordance with the formulae and methods described in the approved revised monitoring plan, the applied methodology and methodological tool; - Emission factor and default values have been applied in the calculation in accordance to the registered PDD.
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E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The emission reductions from the project for the monitoring period as reported in the monitoring report revision 2.0 of 30/09/2016 /01/ is equivalent to 175,184 tCO _{2e} . The reported emission reductions are 36.96% lower than the estimated emission reduction of 277,879 tCO _{2e} for the period as per the revised PDD /03/.
Findings	N/A
Conclusion	The actual emission reductions are 36.96% lower than the expectations stated in the registered PDD.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	NA	175,184 tCO ₂
Findings	N/A	
Conclusion	The actual monitoring period does not fall into the first commitment period.	

E.8.8. Assessment of the sustainability parameters

Means of verification	Data variable	Source of Data	Reported value for the project period
	Quality of employment	Company employment details, training records /20/,/21/	Five trainings organized during the monitoring period
	Assessment		
	The company has employed 35 technical staff, 59 security guard and 10 contracted labors at project site who also take care of this project activity. The quality of employment is verified for the monitoring period (01/09/2013 to 31/05/2016) from training records related to health and safety /21/ keeping safeguard in place and healthcare facilities provided to its staff /21/. Hence, as verified from company records and interview at site the quality of employment is monitored covering the monitoring period.		
	Data variable	Source of Data	Reported value for the project period
	Access to affordable and clean energy services	Monthly electricity generation records /13/,/14/,/19/, /22/	200,505.709 MWh
	Assessment		
	During the current monitoring period, total of 200,505.709 MWh (101,866.091		

	MWh from 01/09/2013 to 31/01/2015 and 98,639.618 MWh from 01/02/2015 to 31/05/2016) was supplied to the grid using wind energy. The value of 101,866.091 MWh from 01/09/2013 to 31/01/2015 has been verified during the verification of CER issuance and verified from the project webpage of UNFCCC /19/ and 98,639.618 MWh from 01/02/2015 to 31/05/2016 is verified from monthly joint meter readings and invoice copies /13/, /14/.		
	Data variable	Source of Data	Reported value for the project period
	Livelihood of poor	Company employment records /20/	104 employment generation
	Assessment		
	The company has employed 35 technical staff, 59 security guard and 10 contracted labors at project site who also take care of this project activity. The employment details are checked from company employee database and attendance records at site. Also during site visit, DOE interviewed company staff and confirms the details presented in MR to be correct. Hence, as verified from company records and interview at site the livelihood of the poor is improved from employment generation at the project site.		
	Data variable	Source of Data	Reported value for the project period
	Human and institutional capacity	Company corporate social responsibility records /23/	Monetary support for village welfare
	Assessment		
	During the monitoring period the project participant took initiative related to health and education, clean drinking water facility in nearby areas of the project site. It has been verified from donation records provided for village welfare during the monitoring period /23/. The same was also confirmed from interview at site. Hence, as verified from company records and interview at site the human and institution capacity development initiatives were taken by project participant during the monitoring period.		
Data variable	Source of Data	Reported value for the project period	
Quantitative employment and income generation	Company employment details, /20/	104 employment generation	
Assessment			
The company has employed 35 technical staff, 59 security guard and 10 contracted labors at project site who also take care of this project activity. The employment details are checked from company employee database and attendance records at site. Also during site visit, DOE interviewed company staff and confirms the details presented in MR to be correct. Hence, as verified from company records and interview at site the project results in employment and income generation.			
Findings	N/A		
Conclusion	RINA confirms that monitoring of all the sustainable development monitoring parameters during this monitoring period is in line with registered GS passport and are consistent with site visit observations and the previous verification report /01/, /05/, /24/.		

SECTION F. Internal quality control

The draft final verification report before being submitted to the client is subjected to an independent technical review to confirm that all validation activities has been completed according to the pertinent RINA's procedures. The technical review is performed by a technical reviewer(s) qualified in accordance with the RINA's qualification procedure.

SECTION G. Verification opinion

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity 'Enercon Wind Farm (Hindustan) Ltd in Rajasthan, GS Registration Reference No. 2483 for the period 01/09/2013 to 31/05/2016, with regard to the relevant GS requirements and principles. The project participants are responsible for the preparation for the collection of data in accordance with the monitoring plan and the reporting emission reductions from the project. It is RINA's responsibility to express an independent verification opinion on the reported emission reductions from the project and does not express any opinion on the selected baseline scenario or on the validated and registered PDD. Based on documented evidences and corroborated by an on-site assessment RINA can confirm that: (i) the project has been implemented and operated as per the registered PDD; (ii) the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable GS requirements and principles; (iii) the monitoring is in place as per the applied baseline and monitoring methodology; (iv) the monitoring complies with the registered monitoring plan; (v) the monitoring plan in the registered PDD is as per the applied baseline and monitoring methodology.

SECTION H. Certification statement

It is RINA's opinion that the GHG emission reductions stated in the monitoring report version 02.0 of 30/09/2016 for the project activity 'Enercon Wind Farm (Hindustan) Ltd in Rajasthan' in India, for the period 01/09/2013 to 31/05/2016 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology ACM0006 version 6. Hence RINA is able to certify that the emission reductions from the project during the monitoring period 01/09/2013 to 31/05/2016 amount to 175,184 tCO₂e.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

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

Rekha Menon

è qualificato come¹:
is qualified as:

CDM-TEC, -VAL, -VER, -TL

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

1.2, 2.1, 13.1, 13.2, 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Energy Demand	2
13.1	Solid Waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

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

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	06-03-2008	-
10	22-12-2014	Update qualification according to AS ver.6.0

Il Resp. QPT
Head of QPT

¹ Legend:

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

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

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

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

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RINA

**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

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

Champak Buragohain

è qualificato come¹:
is qualified as:

CDM -TEC, -VAL, -VER, -TL

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

1.2, 2.1, 13.1, 13.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Electricity distribution	2
13.1	Solid waste and wastewater	13
13.2	Manure	13

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

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19-01-2011	-
10	22-12-2014	Updated according to AS ver 6.0

Il Resp. QPT
Head of QPT

¹ Legend:

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

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

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

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RINA

**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

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

Rita Valoroso

è qualificato come/1:
is qualified as:

CDM -TEC, -VAL, -VER, -TL
TECHNICAL REVIEWER

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

1.2, 3.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
3.1	Energy demand	3
13.1	Solid Waste and waste water	13

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

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	18-01-10	-
10	06/04/2016	Update qualification TA 3.1

Il Resp. QPT
Head of QPT

Rita Valoroso

¹ Legend:

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

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

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

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

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Wind World India Ltd.	Monitoring report for project activity “Enercon Wind Farm (Hindustan) Ltd in Rajasthan” in India	Version 1.0 of 19/07/2016	PP
2	Wind World India Ltd.	‘ER sheet_09 Apr 2015.xls’ covering period 01/09/2013 to 31/01/2015 ‘ER sheet.xls’ covering period 01/02/2015 to 31/05/2016	Version 2.0 of 09/04/2015 Version 01 of 19/07/2016	PP
3	Wind World India Ltd.	Registered PDD for project activity “Enercon Wind Farm (Hindustan) Ltd in Rajasthan” in India	Version 02 of 20/08/2014	PP
4	DNV	Validation report “Enercon Wind Farm (Hindustan) Ltd in Rajasthan” in India,	Revision 03 of 29/09/2014	PP
5	Earthhood	Verification report (1 st verification) for the project activity ‘Enercon Wind Farm (Hindustan) Ltd in Rajasthan’ for the period 01/07/2012 to 31/08/2013	Revision 2.1 of 03/03/2015	PP
6	The Gold Standard	Gold Standard Requirements	version 2.2 of 01/06/2012	Publicly available
7	The Gold Standard	Gold Standard Toolkit	version 2.2 of 01/06/2012	Publicly available
8	CDM Executive Board	Clean Development Mechanism Project Standard	Version 09, 20/02/2015	Publicly available
9	CDM Executive Board	Clean Development Mechanism validation and verification standard	Version 09, 20/02/2015	Publicly available
10	CDM Executive Board	Baseline and monitoring methodology “ACM0002” “Consolidated methodology for grid-connected electricity generation from renewable sources”	version 6.0 of 27/08/2007	Publicly available
11	Gold Standard Foundation	GS issuance review final round	Dated 11/03/2015	PP
12	UNFCCC	Guideline: Application of materiality in verifications	Version 02, Annex 11, EB 82 dated 20/02/2015	Publicly available
13	RVPNL	Joint Energy Meter Reading (monthly generation records) at main/bulk HT meter of RVPNL connected with 220 KV GSS BHU and main metering at 400 KV GSS AKAL from the month of February 2015 to May 2016	Monthly joint meter readings	PP
14	Enercon Wind Farms (Hindustan) Pvt. Ltd.	Monthly invoices raised to Ajmer DISCOM for net electricity export to grid for the period February 2015 to May 2016.	Monthly invoices	PP
15	C&I Calibrations Pvt. Ltd.	Calibration certificate issued to M/s Wind World India Limited for energy meter Sr. No. 11068579	No. C&IJ/CAL/S/15-02/093	PP

		dated 14/02/2015 with validity until 14/02/2016		
16	Yadav Measurements	Calibration certificate issued to M/s Wind World India Limited for energy meter Sr. No. 11068579 dated 09/04/2016 with validity until 08/08/2017	YMPL/280072/75502	PP
17	C&I Calibrations Pvt. Ltd.	Calibration certificate issued to M/s Wind World India Limited for energy meter Sr. No. 11068580 dated 14/02/2015 with validity until 14/02/2016	C&IJ/CAL/S/15-02/094	PP
18	Yadav Measurements	Calibration certificate issued to M/s Wind World India Limited for energy meter Sr. No. 11068580 dated 09/04/2016 with validity until 08/08/2017	YMPL/280072/75503	PP
19	UNFCCC	Project 1168 : Enercon Wind Farm (Hindustan) Ltd in Rajasthan	http://cdm.unfccc.int/Projects/DB/SGS-UKL1181742063.57/view	Publicly available
20	Wind World India Ltd.	Employment records of the company at project site	Employment records	PP
21	Wind World India Ltd.	Trainings related to health and safety conducted on October 2013, December 2013, September 2014, October 2014 and March 2016.	Training records, attendance sheet	PP
22	RINA	6 th Verification/Certification report (2015-IQ-16-MD) for the project activity "Enercon Wind Farm (Hindustan) Ltd in Rajasthan" in India	Revision 1.1Aa of 24/04/2015	DOE
23	Wind World India Ltd.	Donations provided for village welfare dated June 2013, July 2013, February 2014 and December 2015	Company CSR records	PP
24	Wind World India Ltd.	GS passport for the project 'Enercon Wind Farm (Hindustan) Ltd in Rajasthan" in India	Version 03 of 23/09/2014	PP

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	N/A	Section no.	E.2	Date: DD/MM/YYYY
Description of FAR				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 2. CR from this verification

CR	N/A	Section no.		Date:
Description of CAR				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 3. CAR from this verification

CAR ID	01	Section no.	E.1	Date: 28/09/2016
Description of CAR				
a) As per UNFCCC webpage the PRC accepted on 01/3/2012, 14/01/2013 and 21/03/2014 is related to revision in monitoring plan whereas the MR includes PRC under change in design also. Further, reference of PRC approved on 21/03/2014 is not provided. As per MR completion guideline 'In cases where the changes have been approved by the Board prior to the submission of the request for issuance, confirm the date of approval and reference number'. b) From page no. 26 of the MR, UNFCCC logo and template is used whereas rest of the MR does not refer the same.				
Project participant response				Date: 30/09/2016
a) The date of the approval has been incorporated in the MR. b) UNFCCC logo has been removed from rest of the pages from the MR				
Documentation provided by project participant				
<i>Revised MR</i>				
DOE assessment				Date: 30/09/2016
The necessary corrections have been done in the revised MR. Hence, CAR is closed.				

CAR ID	02	Section no.	E.7	Date: 28/09/2016
Description of CAR				
a) There has been delay in calibration for the period (01/02/2015 to 14/02/2015 and from 15/02/2016 to 09/04/2016 for both main and check meters. It is not transparent in MR and ER sheet how the delay in calibration is adjusted with the measured values as per project standard. b) The calibration certificate for the back-up meter (Sr. No. RJB00050) is not provided for the year 2016				
Project participant response				Date: 23/09/2016
1. Error Factor has been applied for the months Feb 2015, Feb 2016, Mar 2016 & Apr 2016. The same has been incorporated in the MR & ER sheet. 2. The back-up meter (Sr. No. RJB00050) has been replaced by new meter 15197055. The same has been incorporated in the revised MR.				
Documentation provided by project participant				
<i>Revised MR and ER sheet</i>				
DOE assessment				Date: 30/09/2016
PP has applied maximum error of the instrument on the measured value (both export and import) which is in line with paragraph 395 of VVS version 09. Also the meter replacement details and calibration records of new meter is provided. MR is made transparent. Hence, CAR was closed.				

Table 4. FAR from this verification

FAR ID	N/A	Section No.	Date: DD/MM/YYYY
Description of FAR			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

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Document information

Version	Date	Description
01.0	10/06/2016	Initial publication.