MONITORING REPORT
PERALTA I WIND POWER PROJECT

Document prepared by Atlantica Sustainable Infrastructure Plc

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity encompasses the development (construction and O&M) of an onshore wind farm located at 280 km North from Montevideo, near the village of Peralta, Department of Tacuarembó (Uruguay). This wind farm consists of 25 wind turbines with 2 MW each, resulting in total installed capacity of 50 MW. The purpose of the project activity is to generate renewable electricity to the national grid of Uruguay. Generated electricity is dispatched to a first power substation located in the wind farm and then dispatched to a power substation called “Cuchilla Peralta” (owned by UTE and where generated electricity is measured) located at 50 m from the first substation. From there generated electricity is transmitted through a 30 km transmission line with 150kV voltage to the “Rincón de Bonete B” power station and then to the “Rincón the Bonete” power station where generated electricity is finally dispatched to the grid.

The Peralta I wind farm started its commercial operation on 13-May-2014. During the monitoring period from 01-November-2015 to 31-August-2020, total GHG emissions reductions achieved by the project activity amounted to**335,673** tCO_2, as a result of displacement the electricity generated in fossil fuel fired power plants of the grid.

Please refer to registered CDM-PDD section A.2 for further details.

1.2 Sectoral Scope and Project Type

Sectoral scope 1. VCS sectoral scope: Energy (renewable/non-renewable).

Approved consolidated baseline methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”; Version 13.0.0

The project activity is not a grouped project.

1.3 Project Proponent

Organization name	Palmatir S.A.
Contact person	Juan Ignacio Morán
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1.4 Other Entities Involved in the Project

Organization name	Atlantica Sustainable Infrastructure Plc
Role in the Project	Consultant
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Title	Business Development Intern - LATAM
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1.5 Project Start Date

The project has moved its start date, in order to adapt to the actual start date of commercial operation to 13-May-2014. This is the date of commencement for the commercial operation of the project.

1.6 Project Crediting Period

The first crediting period of the project runs from 13-May-2014 to 12-May-2024. The crediting period lasts 10 years and is renewable at most twice.

The last VCS crediting period will end at the date when the last CDM crediting period of the project activity expires as per paragraph 3.8.3 of the VCS Standard (version 3.5. This means, VCS crediting period will end on 31st Oct 2034).

1.7 Project Location

The Peralta I wind farm is located in the Peralta community, Region of Tacuarembó, Uruguay. The project activity is located 280 km north from Montevideo, going along the national road nº. 5. The nearest population centre is the "Caserío Cuchilla de Peralta" located approximately 12 km Northeast of the area of the entrepreneurship.

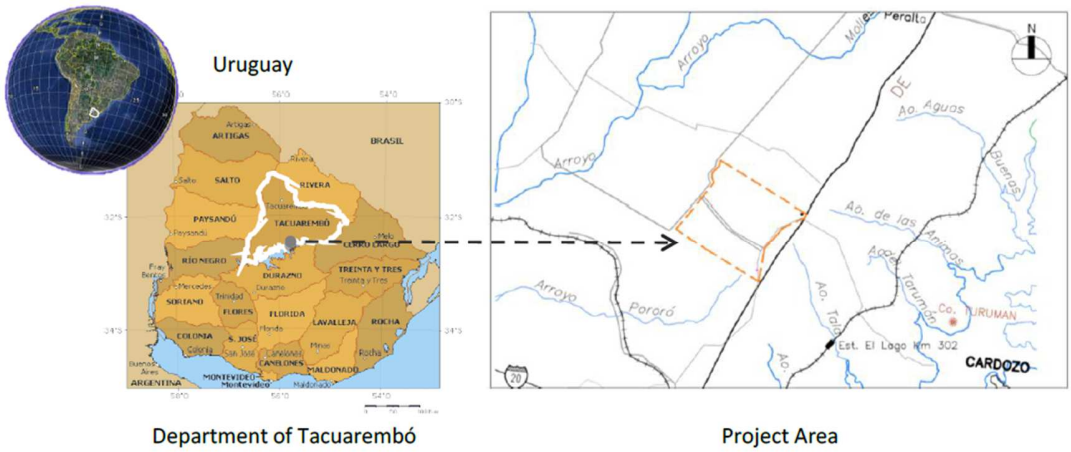

Figure 1: Location of project activity

The GPS coordinates of the project are the following:

Geographic coordinates	Decimal degrees	Longitude: 56.432097 W	Latitude: 32.570942 S
UTM Coordinates	X (East): 553306.78	Y (North): 6396134.61	Zone: 21

The Peralta I wind farm is located in the patterns No. 8,508, 11,088, 11,089, 12,501, 12,502 and 12,503, corresponding to the 10th Judicial Division of the Department of Tacuarembó. The coordinates in decimal degrees and the location of each turbine are the following:

Wind turbine reference	Decimal coordinates	
	Latitude S	Longitude W
1	32.57224516	56.4251441
2	32.57531186	56.42311105
3	32.57751306	56.42709207
4	32.56456084	56.43737914
5	32.56733033	56.4354018
6	32.57078844	56.43411244
7	32.57541122	56.43305003
8	32.57960646	56.43120182
9	32.58560836	56.43792959
10	32.58861001	56.43945583
11	32.59329735	56.44072663
12	32.59640163	56.44099505
13	32.60036957	56.44074663
14	32.58190941	56.44798891
15	32.58870331	56.45036595
16	32.5932179	56.45341784
17	32.56224453	56.45005865
18	32.56815572	56.45067239
19	32.57375923	56.45313108
20	32.57876039	56.45607314
21	32.55897022	56.46050642

22	32.5646878	56.46226176
23	32.5690062	56.46591117
24	32.57482583	56.47048958
25	32.58030896	56.47445261

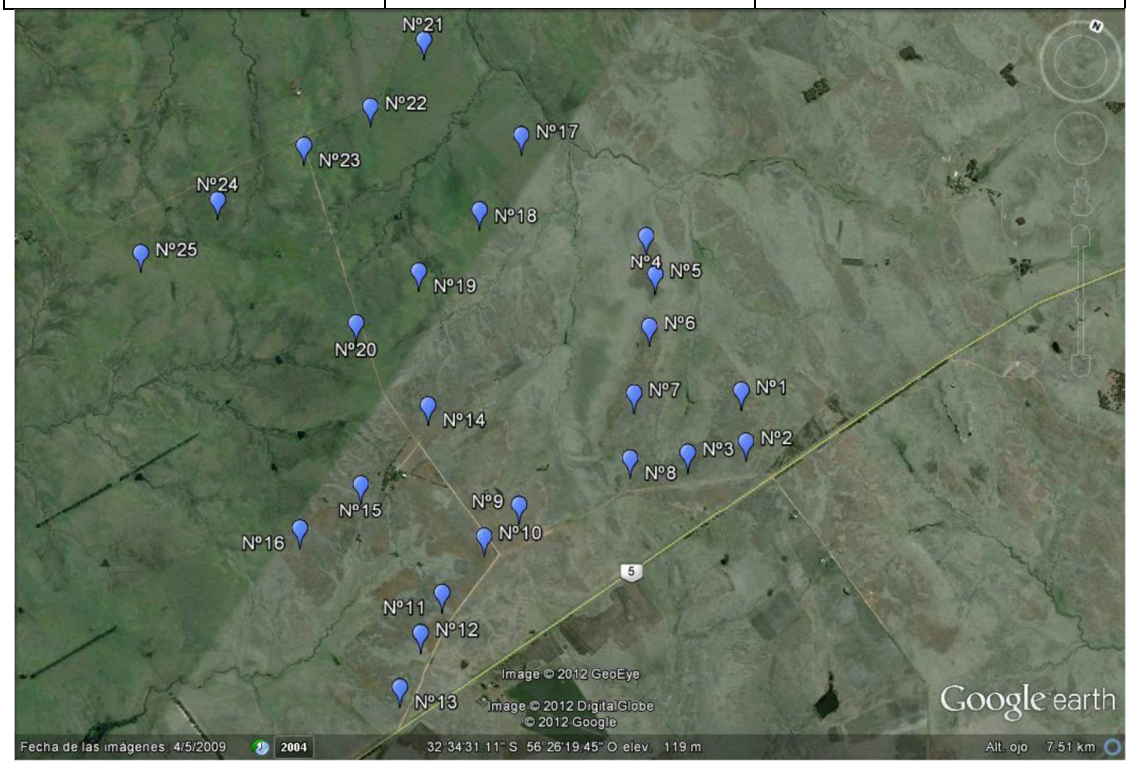

Figure 2: Specific location of the turbines

1.8 Title and Reference of Methodology

The project uses the UNFCCC approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources --- Version 13.0.0".

The project uses the following UNFCCC tools, also referred in the methodology:

- "Tool to calculate the emission factor for an electricity system --- Version 02.2.1"
- "Tool for the demonstration and assessment of additionality --- Version 06.1.0"

1.9 Participation under other GHG Programs

The project is registered under the CDM scheme as a CDM project in UNFCCC on 28-December-2012 with reference 9336 "Peralta I Wind Power Project".

https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356676150.11/view

No CERs have been claimed under the CDM scheme for this project since its registration in UNFCCC.

1.10 Other Forms of Credit

Emissions Trading Programs and Other Binding Limits: The project does not reduce GHG emissions from activities that are included in an emission-trading program or any other mechanism that includes GHG allowance trading. There is no national program or cap, applicable to this project. The project does not use its GHG emission reductions and removals for compliance, under any such programs or mechanisms.

Uruguay is not an Annex I country of the Kyoto protocol, so it is not participating in the Assigned Amount Unit (AAU) markets. Also, the country has not implemented a national emission rights market.

Other Forms of Environmental Credit: The Project is a renewable energy generation project. It discharges no emission during the operation period; thus, the project doesn't fall into categories that create GHG emissions primarily for the purpose of its subsequent removal or destruction.

The Project has not created another form of environmental credit, now or in the future. This has been verified by the DOE.

1.11 Sustainable Development

The project positively contributes to the sustainable development of the host country in several ways,

- Reducing greenhouse gas emissions by replacing fossil fuel-based power generation.
- By contributing to the reduction of pollutants such as sulphur dioxide, nitrogen oxides and particles resulting from the use of fossil fuels for electricity generation.
- By contributing to Uruguay´s energy independence from Argentina and Brazil, by taking advantage of its renewable wind resource.
- By creating of a new source of employment.
- By helping to diversify the power mix of the national grid system: in March 2011, 72.71% of annual total generation came from hydropower plants, 26.65% from thermal power plants and the rest, 0.64% from wind power.

- By developing experience in wind power and therefore reducing barriers related to this technology.
- By employing a non-conventional technology, the project activity contributes to technology transfer.
- In addition, the project has created local “know-how” related to the installation and operation of wind turbines.

2 SAFEGUARDS

2.1 No Net Harm

- Noise emissions: The noise limits are within the values approved by DINAMA authority.
- Impact on Birds and Mammals flying: To minimize the risks of nesting in the project area, dead trees and bushes are constantly removed. In addition, a monitoring plan for birds and mammals killed or damaged by the turbines has been established.
- Social perception: No concerns have been identified.
- Contingencies: To minimize the risks, a preventative scheduled maintenance of the wind turbines is on-going. In addition, there have been established special areas for the storage of all kinds of residues and their management is carried out by authorized agents.
- Environmental impacts: No negative impacts have been identified.

2.2 Local Stakeholder Consultation

The promoter of the project held two stakeholders meetings, the one in the Capital, Montevideo on the 14-November-2011 at La Cumparsita 1473, Rambla Sur, Montevideo, and the second one in Peralta, the nearest town to the project on 16-November-2011 at Escuela N° 67, Ruta 5 km. 290, Peralta, Tacuarembó, Uruguay.

Local and national authorities, local residents and entrepreneurs attended to the event.

Both meetings began with the distribution of a summary document of the project that included a brief description of the CDM and requirements established by the DNA for these meetings. Subsequently, a presentation of the CDM project was conducted. This presentation was previously submitted to the Climate Change Unit (DNA) for their information.

The presentation ended with a space for public questions and opinions were collected and submitted to the DNA for the application for national approval letter.

Within the public's concerns and the points raised were:

- Questions and concerns about the impact on employment generation for the project.

- Concerns about recruitment and training local staff workshop in the catchment area of the park.

- Consultations on the location of sites and the location of the mills.

All the questions were explained and solved and no objections to the project were recorded.

The wind farm has a sign at the entrance that includes phone number, email and postal address in order to receive any complaint or suggestion raised by local stakeholders. Regular follow-up of these communication channels is ongoing.

No objections to the project have been received so far.

2.3 AFOLU-Specific Safeguards

N/A. Non AFOLU project.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Peralta I Wind Power Project started its commercial operations on 13-May-2014. The carbon crediting period and therefore the monitoring starts on 13-May-2014, when the plant finished starting tests and commenced electricity generation. At the time of starting the commercial operations, the project was fully operational.

During the monitoring period (01-11-2015 to 31-08-2020), the project has operated continuously and with no major issues.

Curtailments

97% of Uruguay's electricity comes from renewable sources. Because of this and given that there is no active cross-border market (only occasional interchanges), electricity generation in the country tends to exceed demand (especially during night time). Therefore, the need for power curtailments is very difficult to avoid. In addition, as it is more expensive to restart a thermal power plant once it has stopped than to limit the production of a wind farm. Power curtailments are mainly directed towards renewable energy plants.

Power curtailments in Uruguay are defined in the Decree 59-015 dated 17th February 2015[1] and they are implemented as follows (in the case of Peralta I).

Peralta I wind farm has a communication link via ethernet from the wind farm server to the SCADA that UTE uses to regulate power generation nationwide. In this regard, UTE is able to set remotely the power output (from 1 MWh to 50 MWh) they need from Peralta I at every single time. Once UTE has selected a determined value, the wind farm internal PLC chooses automatically the most suitable wind turbines and sets them on a live basis to operate at the best speed in order to achieve the desired power objective. This process is based on a specific algorithm that optimizes all the parameters (wind direction and velocity, temperature, humidity, pressure, etc) to reach the power goal in the most efficient manner. Total energy curtailments during the monitoring period represent 13.33% of all the electricity generated by the wind farm. In other words, without power curtailments the project would have achieve generation of 13.33% more electricity. Nevertheless, the occurred power curtailments have not been used to calculate GHG emissions, so they have no impact in the results.

3.2 Deviations

2.3.1 Methodology Deviations

No deviations have taken place in the project from the methodology.

[1] https://www.impo.com.uy/bases/decretos/59-2015

2.3.2 Project Description Deviations

No deviations are applicable for the present Monitoring Report.

The following project description deviations have been detected in previous monitoring periods:

- Start date has been changed from the PDD to adapt to the real start date of the project on the 13-May-2014. This is the date when full commercial operation started in the farm.

These changes have no impact in the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the project remains in compliance with the applied methodology.

3.3 Grouped Projects

The proposed project activity is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor of the grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" version 02.2.1
Source of data	Despacho Nacional de Cargas (UTE) and ADME
Value applied	0.519
Justification of choice of data or description of measurement methods and procedures applied	The Combined Margin emission factor is calculated ex ante, as described in section B.6.1. / B.6.2/ B.6.3 of the PDD
Purpose of Data	Calculation of baseline emissions
Comments	

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{facility,y}$
Data unit	MWh

Description	The following parameters shall be measured: (i) The quantity of electricity supplied by the project plant/unit to the grid; and (ii) The quantity of electricity delivered to the project plant/unit from the grid
Source of data	The electricity is measured through a bidirectional main meter and a bidirectional backup meter owned by UTE. They are located at the connection position UTE within walking distance to the substation project. The measurements have been cross checked with records of sold electricity. Additionally, there is a record of the energy generated by a SCADA.
Description of measurement methods and procedures to be applied	The quantity of electricity supplied by the project plant/unit to the grid and from the grid is measured. Directly measured during the crediting period by SCADA system and records of sold of UTE. This data is archived electronically as per internal procedures, for 2 years after the end of the last crediting period or the last issuance of credits, whichever occurs later.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording.
Value monitored	$EG_{facility,2015}$ = 25,403.504 MWh $EG_{facility,2016}$ = 144,155.149 MWh $EG_{facility,2017}$ = 113,666.701 MWh $EG_{facility,2018}$ = 134,756.596 MWh $EG_{facility,2019}$ = 131,100.082 MWh $EG_{facility,2020}$ = 97,687.908 MWh
Monitoring equipment	Bidirectional main meter and a bidirectional backup meter owned by UTE. The meters are both SL7000 type (manufacturer: ACTARIS), with serial numbers 46033991 (accuracy of 0.2 S) and 65005113 (accuracy of 0.2S) respectively, and both have been calibrated on 07/02/2014, 02/03/2016, 07/03/2018, and 24/09/2020. Next calibration to be performed on 25-09-2022.
QA/QC procedures to be applied	Data measured by UTE-meters have been cross-checked with the records from the electronic supervisory system of the wind farm and records for sold of electricity.

Purpose of the data	Calculation of baseline emissions
Calculation method	Continuous reading (Monthly reported) Net generation= Energy exported - Energy imported
Comments	These data are used to calculate direct emission reductions. Records of sales to the grid and other records are used to ensure consistency.

4.3 Monitoring Plan

Monitoring tasks have been implemented according to the monitoring plan in order to ensure that the real, measurable and long-term greenhouse gas (GHG) emission reduction for the proposed project is monitored and reported.

The applied methodology is ACM0002 for monitoring the emission reductions due to the project activity, according to the applicability criteria.

- A monitoring plan has been implemented to guarantee the accurate and transparent determination of avoided emissions. In accordance with the methodology, monitoring consists of metering the electricity generated by the renewable technology.
- All data collected as part of monitoring are archived electronically and is kept at least for 2 years after the end of the last crediting period or the last issuance of credits, whichever occurs later.
- All measurements are conducted with calibrated measurement equipment according to relevant industry standards Commercial Measurements System by URSEA (URSEA Decision No. 14002 of 27-November-2002)[2].
- The farm features a "Supervisory Control and Data Acquisition" (SCADA)[3]. This computer-based system monitors and controls the farm remotely, providing communication with field devices (standalone controllers) and controlling the process of automatically by specialized software.
- This system controls all the aspects of the wind farm:

[2] http://www.adme.com.uy/normativa/pdf/resoluciones/res_smec_2014_002.pdf

http://www.adme.com.uy/normativa/resoluciones.php

[3] http://www.gamesacorp.com/recursos/doc/productos-servicios/operacion-y-mantenimiento/ingles/gamesa-windnet-english.pdf

- Monitor and Control wind farm devices, including wind turbines;
- Advanced reporting options such as Report;
- Generator and Information Manager for downtime categorization;
- Remote alarm and event management via an intelligent event manager;
- A sharp, clear view of trends through the Gamesa;
- Trend Viewer;
- Power manager solution for grid code requirements: active, reactive and apparent power management,
- Wind farm device integration, including meteorological mast, substation.
- Status and alarm messages via SMS and e-mail;
- Remote Web client with a friendly, intuitive user interface; and,
- Includes Gamesa SMP, the CMS solution by Gamesa.

Monitoring Management Structure

In order to ensure that the project is well organized in terms of reliable data collection and gathering during the full crediting period, the organization of the monitoring team is established with clear roles and responsibilities assigned to all staff involved in the CDM project.

The project owner has trained the relevant personnel before the project operation. The training is commensurate with the work being done. The evidence of this received training has been submitted to the VVB.

The Country Manager holds the overall responsibility for the monitoring process, but as indicated below parts of the process are delegated. The first step is the measurement of the electrical energy supplied from the grid and reporting of daily operations, which are carried out by the plant operation staff.

There is a monitoring officer who is responsible for verification of the measurement, collection of sales receipts, collection of billing receipts of the power supplied by the grid to the wind farm and the calculation of the emissions reductions. The monitoring officer prepares operational reports of the project activity, reviews the daily operation of the wind farm station including operating periods, power delivered to the grid, equipment defects, etc. Finally, the monitoring reports are reviewed by the Country Manager.

In summary, the monitoring plan of the project is executed by the project owner, under the supervision of the CDM project consultant in accordance with the requirements of the applicable methodology and the EB on monitoring and verification to ensure that the emission reductions are monitored, recorded and reported accurately.

Monitoring equipment and installation

Given that the emission factor is calculated ex-ante, and referring to the Monitoring Methodology ACM0002, the only data monitored is the quantity of net electricity supplied to the grid by the wind project in every year.

The electricity generated is measured both by the project sponsor through the "Supervisory Control and Data Acquisition". Two electricity meters are installed by UTE: the main meter and a backup meter, as shown in the connection diagram below. Both are bidirectional.

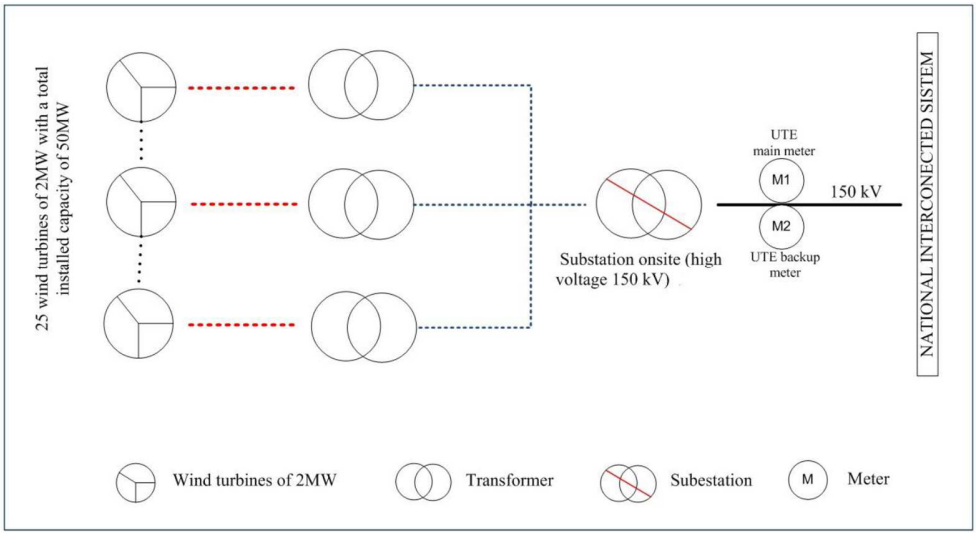

Figure 3: Grid connection diagram

Electricity meters are both SL7000 type, with an accuracy of 0.2S. The Operation Manual of the electricity meters has been submitted to the VVB as evidence. In this document we can verify this accuracy class.

The grid connection diagram indicates the principles for positioning of metering instruments that are used in the monitoring of emission reductions.

The equipment used to monitor the electricity production is provided by certified entities by UTE and calibration is conducted according to the national requirements. The laboratory certificate of these calibrations of UTE has been submitted with certificate numbers 180670 and 180673 both dated on 24-September-2020.

The regulatory body (URSEA) established regulations for the Measurement System Commercial, SMEC[4]. This is applied to systems measurement for all commercial transactions between market players in the injection or withdrawal nodes of energy of UTE. It also establishes the requirements that have the facilities to measure energy, enabling conditions and penalties.

The SMEC is managed by the Electricity Market Management (ADME).

Calibration is performed according to the standard IEC 62053-22[5] for static active meters.

Data recording and archiving

Electricity supplied by the project to the grid is monitored using a calibrated electricity meter. A main and a backup meter is installed for metering the electricity supplied to the grid. Monthly records have been taken.

On the other hand, UTE has installed electronic meters that measure the data in a continuous way. Data is recorded at UTE´s Distribution Management Centre. Project owner has access to the Distribution Management Centre through a key provided by ADME.

Measurements can be cross checked with sale receipts for electricity and/or with the information published in the official web site of the operation coordinator of the National Interconnected System.

The project participants archive all data collected as part of monitoring during the monitoring period plus two years.

Quality assurance and Quality control

The quality of data generated by this project is maintained through the development of an overarching monitoring system including procedures used to double check data, for staff training, meter calibration, accreditation of the facility completing calibration and the adherence to the relevant standards. All metering equipment to be used for the monitoring is appropriately maintained, calibrated, and checked at regular intervals in line with the requirements of IEC 62053-22:2003 (Electricity metering equipment (a.c.) – Particular requirements – Part 11: Electromechanical meters for active energy (classes 0,5, 1 and 2)). The sponsor is responsible for calibrating the SMEC meters every 2 years as defined by national decree of law. Next calibration to be performed on 25-09-2022.

[4] Is managed by the Electricity Market Management (ADME)

[5] Norma IEC 62053-22 (2003): Static meters for active energy

Calibration date for 2020 has been moved from March to September due to Covid-19.

Procedures on how to deal with erroneous measurements

Windnet control system (SCADA) is interconnected to all those involved in real time (UTE, Gamesa control service and the project owner's control) and enables the identification of potential emergencies real time and can act accordingly.

Data measured by UTE-meters can be cross-checked with the records from the electronic supervisory system of the wind farm and records of sold electricity. Apart from this, consistency is guaranteed by cross checking the main and the backup meter readings with the invoice records for sold electricity. In case of inconsistency, the main meter readings, which are managed by the grid company (UTE), are to be used for emission reductions calculation. Conservative values between both readings are considered for emission reduction calculation.

If any error is detected, the party owning the meter, shall repair recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.

Management structure in order to monitor emission reductions

The monitoring of the emission reductions is carried out according to the scheme shown in Figure below.

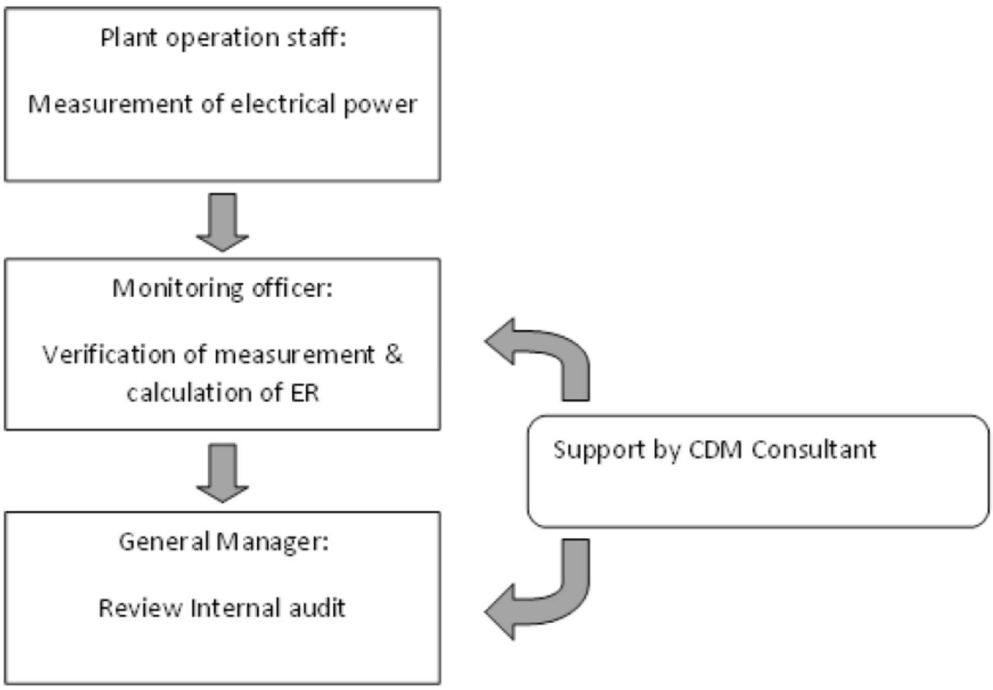

Figure 4: Management structure for monitoring

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emission is calculated as the product of electrical energy baseline $EG_{PJ,y}$ expressed in MWh, produced by the renewable generating unit and multiplied by the grid emission factor:

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

Where:

BE_y: Baseline Emission in year y (tCO_2).

$EG_{PJ,y}$: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh).

$EF_{grid,CM,y}$: Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the Tool to calculate the emission factor for an electricity system (tCO_2/MWh).

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for (a) Greenfield plants, (b) retrofits and replacements, and (c) capacity additions. These cases are described next:

Due to the fact that the project involves the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity (Case (a) Greenfield plant), then:

$EG_{PJ,y} = EG_{facility,y}$

Where:

$EG_{PJ,y}$: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh).

$EG_{facility,y}$: Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh).

The net electricity generation as a result of the project activity to the grid is calculated based on monthly records from meter M1 measurements and is the output from the difference between the exported energy (or the gross energy generation) and the imported energy (or the energy consumed by the project). The results are presented in the following table (the hourly generation from the SMEC meter has been submitted for crosscheck to the VVB):

Year	Month	Net electricity generation (MWh)
2015	November	*13,972.870*
2015	December	*11,430.634*
2016	January	*12,350.411*
2016	February	*8,945.558**
2016	March	*12,873.093**
2016	April	*14,805.284*
2016	May	*9,176.550*
2016	June	*9,949.524*
2016	July	*11,757.704*

2016	August	*12,407.865*
2016	September	*14,380.603*
2016	October	*16,471.007*
2016	November	*10,767.230*
2016	December	*10,270.321*
2017	January	*10,457.601*
2017	February	*6,276.971*
2017	March	*10,040.683*
2017	April	*10,251.943*
2017	May	*9,636.180*
2017	June	*6,679.958*
2017	July	*11,990.276*
2017	August	*8,344.746*
2017	September	*7,122.383*
2017	October	*10,922.064*
2017	November	*10,953.241*
2017	December	*10,990.655*
2018	January	*11,194.788*
2018	February	*11,056.132*
2018	March	*9,527.105**
2018	April	*11,391.942*
2018	May	*11,328.810*
2018	June	*9,882.137*
2018	July	*14,557.424*
2018	August	*15,136.429*
2018	September	*12,508.335*

2018	October	*8,272.768*
2018	November	*9,985.265*
2018	December	*9,915.461*
2019	January	*10,609.832*
2019	February	*7,871.997*
2019	March	*10,496.389*
2019	April	*8,822.559*
2019	May	*10,384.227*
2019	June	*12,178.262*
2019	July	*12,812.972*
2019	August	*14,071.133*
2019	September	*9,880.756*
2019	October	*12,973.720*
2019	November	*10,802.535*
2019	December	*10,195.700*
2020	January	*10,495.491*
2020	February	*10,719.209*
2020	March	*11,340.101**
2020	April	*12,734.070**
2020	May	*13,680.702**
2020	June	*11,306.059**
2020	July	*13,392.044**
2020	August	*14,020.231**

Due to calibration date postponement, the maximum error factor of UTE measurers has been applied, thus imports of electricity have been increased by 2% and exports have been decreased by 2%.

The total electricity supplied by the project during the monitoring period is **646,769.939 MWh.**

$EG_{PJ,2015} = EG_{facility,2015} = 25,403.504$ MWh

$EG_{PJ,2016} = EG_{facility,2016} = 144,155.149$ MWh

$EG_{PJ,2017} = EG_{facility,2017} = 113,666.701$ MWh

$EG_{PJ,2018} = EG_{facility,2018} = 134,756.596$ MWh

$EG_{PJ,2019} = EG_{facility,2019} = 131,100.082$ MWh

$EG_{PJ,2020} = EG_{facility,2020} = 97,687.908$ MWh

Calculation of $EF_{grid,CM,y}$

Calculation of $EF_{grid,CM,y}$ was made ex-ante for the project at validation time. Value obtained was 0.519 with data obtained from Despacho Nacional de Cargas (UTE) /UTE's Annual Report, 2008, 2009 & 2010 and ADME.

5.2 Project Emissions

For most renewable energy project activities, the project emissions are neglected. Following the methodology, as the project is a new wind power plant without fossil fuel consumption, it does not lead to any GHG emissions and therefore project emissions are considered equal to zero.

$PEy = 0\ tCO_2$.

5.3 Leakage

Following the applied methodology, no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transportation). These emissions sources are neglected.

5.4 Net GHG Emission Reductions and Removals

The net GHG emission reduction is calculated following the guidance of the methodology ACM0002, as follows:

$ER_y = BE_y - PE_y$

Where:

ER_y: Emission reduction in year y (tCO_2)

BE_y: Baseline Emission in year y (tCO_2)

PE_y: Project emission in year y (tCO_2)

ERy = BEy - 0

Year	Baseline emissions or removals (*tCO_2*)	Project emissions or removals (*tCO_2*)	Leakage emissions (*tCO_2*)	Net GHG emission reductions or removals (*tCO_2*)
Nov 2015 - Dec 2015	13,184	0	0	13,184
Jan 2016 - Dec **2016**	74,816	0	0	74,816
Jan 2017 - Dec 2017	58,993	0	0	58,993
Jan 2018 - Dec 2018	69,938	0	0	69,938
Jan 2019 - Dec 2019	68,040	0	0	68,040
Jan 2020 - Aug 2020	50,700	0	0	50,700
Total	**335,673**	**0**	**0**	**335,673**

APPENDICES

No appendices have been required.