Monitoring report form for CDM project activity
(Version 07.0)

Complete this form in accordance with the instructions attached at the end of this form.

MONITORING REPORT	
Title of the project activity	Jepirachi Wind Power Project
UNFCCC reference number of the project activity	0194
Version number of the PDD applicable to this monitoring report	9
Version number of this monitoring report	03.0
Completion date of this monitoring report	12/09/2019
Monitoring period number	3rd monitoring period
Duration of this monitoring period	01/01/2018 – 30/01/2018 (both days included)
Monitoring report number for this monitoring period	Not applicable
Project participants	**Colombia:** Empresas Públicas de Medellín; **Finland:** Fortum Corporation, Government of Finland - Ministry of Foreign Affairs of Finland; **France:** GDF SUEZ; **Germany:** RWE Power AG; **Japan:** Chubu Electric Power Co., Inc, The Chugoku Electric Power Co., Inc, Kyushu Electric Power Co., Inc, Mitsubishi Corporation, Shikoku Electric Power Co., Inc, Tohoku Electric Power Co., Inc, The Tokyo Electric Power Co., Inc, Japan International Cooperation Agency (JICA), Mitsui & Co., Ltd; **Netherlands:** Electrabel N.V., Netherlands' Ministry of Infrastructure and the Environment (IenM); Netherlands' Ministry of Economic Affairs, Agriculture and Innovation (EL&I) **Norway:** Norsk Hydro ASA, Government of Norway - Ministry of Foreign Affairs, Statoil ASA; **United Kingdom of Great Britain and Northern Ireland:** BP Alternative Energy International Ltd, Deutsche Bank AG; **Sweden:** Government of Sweden – Swedish Energy Agency; **Bilateral and Multilateral Funds:** Prototype Carbon Fund (PCF) **–** Managing Company: International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF).

Host Party	Colombia	
Applied methodologies and standardized baselines	ACM0002 "Grid-connected electricity generation from renewable sources" (version 12.1.0)	
Sectoral scopes	1: Energy Industries (renewable/ non-renewable sources)	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	0 tCO_2e	647 tCO_2e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	2,106 tCO_2e	

SECTION A. Description of project activity

A.1. General description of project activity

The project consists of the development of a wind based generation facility with a nominal power capacity rated at 19.5 MW, located in Wayuu Indigenous Territory in the Northeastern region of the Atlantic Colombian coast, within the Municipality of Uribia in the Department of Guajira.

Since commissioning in January 2004, and up till the end of 2017, the wind generators had delivered 433,641 MWh to the Colombian National Interconnected System (SIN) under a preferential dispatching scheme.

Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations.

The estimated amount of GHG emission reduction to achieve by the implementation of the project activity from January 1st to January 30th 2018 was 2,106 tCO_2. The estimated total emission reductions for the second crediting period (2011 – 2018) was 179,416 tCO_2.

The project contributes to the sustainable development of Colombia in various ways. First, it demonstrates at a commercial level, the potential for wind based generation in the region thereby facilitating future investments to capture the relatively large wind power potential (estimated at over 5 GW). Second, it increases the share of renewable energy in the national grid, thereby contributing to the national private expertise in the installation and operation of such technology. These indirect benefits may stimulate further the development of the renewable option in the Colombian power system. Third, as the project sits in land belonging to a very poor indigenous community, it contributes to the development of this community through the support of community-driven projects financed by a system of transfers and compensation agreed to by the project sponsor. Finally, the project also contributes to an increase in economic activity during the construction period, injecting $21 million in the Colombian economy.

A.2. Location of project activity

Country: Colombia.
Department: La Guajira.
Area between Cabo de la Vela and Puerto Bolivar, within municipality of Uribia near Kasiwolin, Arutkajuy and Medialuna Comunities.

The Wayuu Indigenous Territory covers some 10,675 km^2 which was established through Resolution 015/1984 and amended by Resolution 28/1994 to protect the local indigenous population, and represents 51% of a sparsely populated area of the Department of La Guajira, in Colombia.

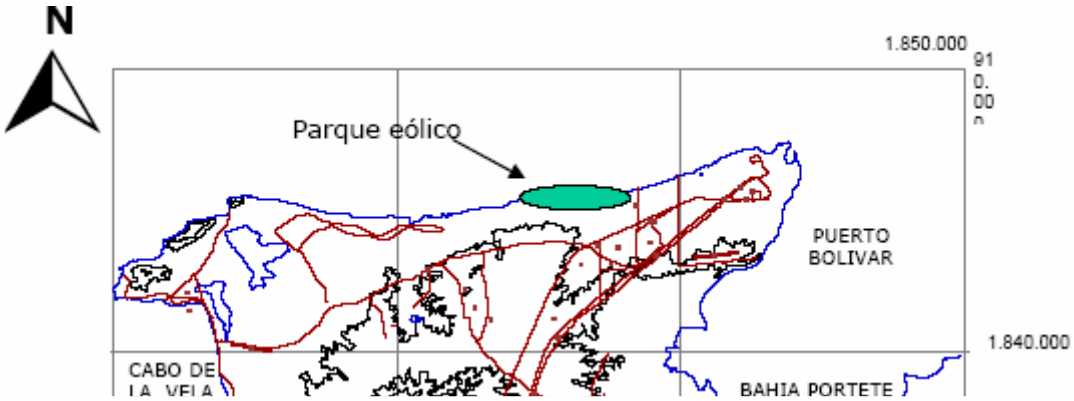

Figure 1. Location of Jepirachi Wind Project

The project is located in the following geographical coordinates: 12.2472 N latitude – 71.9973 W longitude within the Wayuu Indigenous Territory in the North-eastern region of the Atlantic Colombian coast, in the area between *Cabo de la Vela* and *Puerto Bolivar*, within the region of Uribia in the Department of Guajira.

The topographic characteristics of the area provide the necessary conditions to maximize the power generation potential of the wind farm, that is, a regime of high and constant wind. Otherwise, the area has very low population density, and it is semi-arid with sparse vegetation.

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Colombia (host)	Empresas Públicas de Medellín (public entity)	No
France	GDF SUEZ (private entity)	Yes
Finland	Government of Finland - Ministry of Foreign Affairs of Finland (public entity); Fortum Corporation (public entity)	Yes
Germany	RWE Power AG (private entity)	Yes
Japan	Chubu Electric Power Co. Inc (public entity); The Chugoku Electric Power Co. Inc (public entity); Kyushu Electric Power Co. Inc. (public entity); Mitsubishi Corporation (public entity); Tohoku Electric Power Co. Inc. (public entity); The Tokyo Electric Power Co. Inc. (public entity); Shikoku Electric Power Co. Inc (public entity); Japan International Cooperation Agency (JICA) (private entity); Mitsui & Co. Ltd. (private entity)	Yes
Netherlands	Netherlands' Ministry of Infrastructure and the Environment (IenM) (public entity); Electrabel N.V. (private entity); Netherlands' Ministry of Economic Affairs, Agriculture and Innovation (EL&I) (public entity)	Yes
Norway	Government of Norway – Ministry of Foreign Affairs (public entity); Norsk Hydro ASA (public entity); Statoil ASA (public entity)	Yes
Sweden	Government of Sweden - Swedish Energy Agency	Yes

	(public entity)	
United Kingdom of Great Britain and Northern Ireland	Deutsche Bank AG (private entity); BP Alternative Energy International Ltd (private entity)	Yes
Bilateral and Multilateral Funds	Prototype Carbon Fund (PCF) Managing Company: International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF)	Yes

A.4. References to applied methodologies and standardized baselines

The ACM0002 "Grid-connected electricity generation from renewable sources" (version 12.1.0) is chosen as the most relevant to the project activity.

This methodology, as applied in this project activity, also refers to the latest approved version of the following Tools:

(i) "Tool to calculate the emission factor for an electricity system" (version 2).

A.5. Crediting period type and duration

The second 7-year renewable crediting period started on 31/01/2011 and ended on 30/01/2018.

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The project contributes to transfer of technology, as it was the first wind power generation facility to operate in Colombia on a commercial basis. All equipment utilized in the project is proven technology that has been successfully applied in similar projects in other regions of the world. Following a bidding process conducted during the summer of 2003, the nominal power capacity of 19.5 MW is supplied by a total of 15 wind generators with a rated capacity of 1.3 MW each, manufactured by Nordex (N60/1300). Table 1 provides all technical information for Jepirachi wind turbines.

Table 1. Technical characteristics of wind turbines for Jepirachi.

Rotor 1300 kW	
Type	3-bladed, horizontal axis, upwind
Rotor Diameter	60 m
Swept Area	2,828 m^3
RPM	19.2/12.8 rpm
Cut in-cut-out-wind	3-4/25 m/s
Nominal Output at velocity	15 m/s
Design conditions in terms of velocity	70 m/s (IEC)
Lifetime of turbine[1]	20 years
Years of operation	15 years 3 months. From January 2004 to nowadays
Blades	

[1] Nordex Energy. Nordex N-60. Technical description.

Manufacturer	LM Dinamarca
Blade Length	29 m
Material	Glass fibre reinforced plastic/epoxy resin
Lightning Protection	Included, receptor in blade tips
Generator	
Nominal Power	1300/250 kW
Type	Asynchronous, liquid cooled
Synchronous speed	1500 / 1000 rpm
Efficiency at 75% load	96.5%
Lifetime of generator	20 years[2]
Years of operation	15 years 3 months. From January 2004 to nowadays
Control	
Tipo	Micro-processor
Connection	Via soft power controller
Remote communication	Included
Towers	
Type	Tubular (cone-shaped)
Hub heights	60 m
Corrosion Protection	Sandblasted and painted with 250 mg epoxy paint

Net electricity generation is continuously measured, hourly registered and monthly recorded by electronic electricity meters. The values are cross-checked with the generation measured in terminals and *vs* SCADA (Supervisory Control And Data Acquisition) system. To ensure reliability, there are three main and three backup energy meters, located in panel TM 1 at the substation of energy in the area of the Wind Park.

The meters are bi-directional and therefore measure the net balance of the quantity of electricity supplied by the project plant to the grid and the quantity of electricity delivered to the project plant from the grid.

Calibration of meters follow national standards and are in accordance with the calibration instructive specified in Colombian standard NTC 4856 for electricity metering devices.

In the baseline situation, the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin.

The spatial extent of project boundary includes the project site and all power plants of the electricity system that the project connects. The project is linked to the Colombian national grid, therefore, all power plants providing electricity to the Colombian grid system are included in the project boundary.

[2] "EPM Assets lifetime ranges".

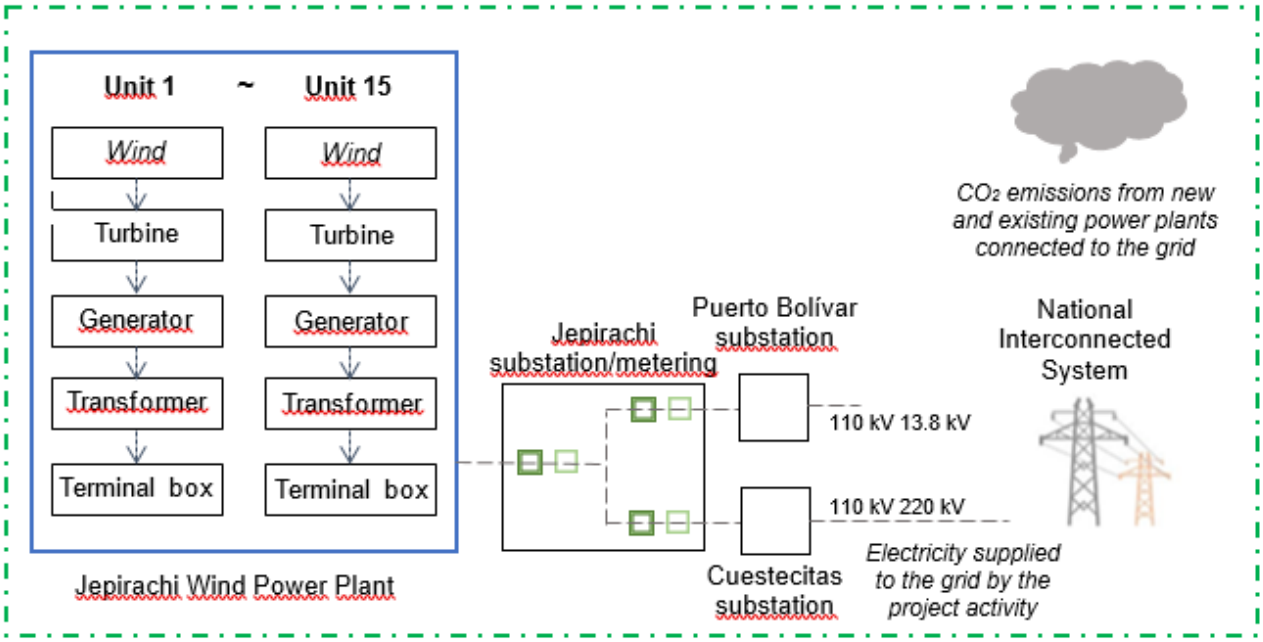

Figure 2. Project boundary.

Project operation during this monitoring period

Jepirachi wind power plant real availability

Month	Jepirachi availability
January	25.5%

The necessary components for the electricity generation in a wind farm are subject to preventive, predictive and corrective maintenance, which determine the unavailable hours of the equipment.

The real availability of the Jepírachi Wind Power Project is understood as the total time over a given period, for this case monthly, during which the wind turbines of the wind farm were in service or "available" for electricity generation under normal operating conditions, independent whether or not wind conditions favored the movement of the wind turbines.

The amount of net electricity generation supplied to the grid in this 3rd monitoring period (01/01/2018 to 30/01/2018) was 1,458 MWh. It was below the expected value (4,743 MWh), mainly due to operation downtimes (stolen cables) and also due to the return of an ancient community (the third in the region), which resulted in discussions between communities which have led to continuing operations shutdowns, particularly during 2017. Little by little, each one of the 15 units were entering to operation on 2018.

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

There were no temporary deviations from registered monitoring plan or applied methodology during the current monitoring period.

B.2.2. Corrections

There were no corrections from registered project activity/monitoring plan or applied methodology during the current monitoring period.

B.2.3. Changes to the start date of the crediting period

There were no corrections from registered monitoring plan or applied methodology during the current monitoring period.

B.2.4. Inclusion of monitoring plan

Not applicable.

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

This is not applicable.

B.2.6. Changes to project design

There are no changes to project design of registered project activity.

B.2.7. Changes specific to afforestation or reforestation project activity

This is not applicable.

SECTION C. Description of monitoring system

The monitoring plan is based on i) recording electricity generation of Jepirachi wind power plant and ii) obtaining the data required to calculate the grid emission factor: electricity generation and fuel consumption of all power plants serving the interconnected national system.

Considering the project boundary and that the combined margin CO_2 emission factor is determined *ex-ante*, the electricity generation is the only parameter to be monitored in order to calculate emissions reduction.

Electricity Generation
The following scheme (Figure 3) shows the power plant, the substation and the metering points:

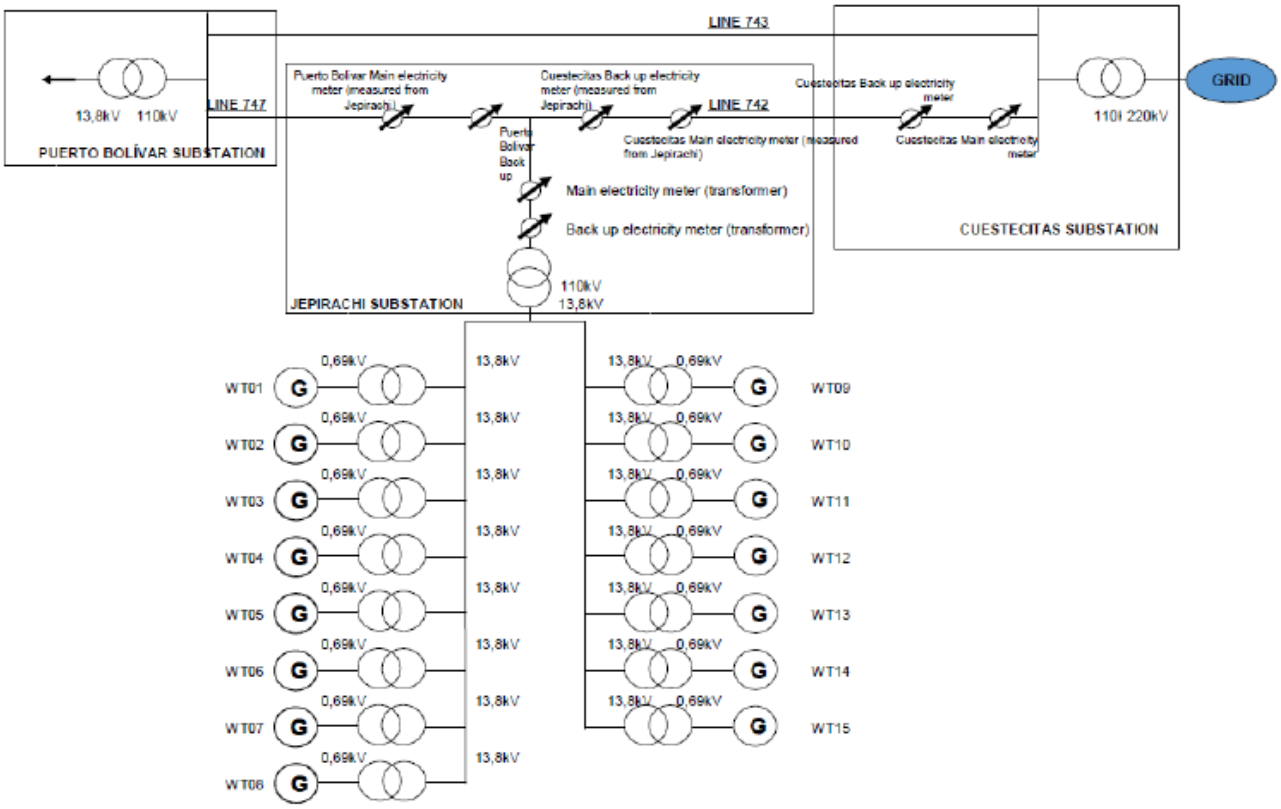

Figure 3. Jepirachi Electricity Generation Scheme

The *Dirección Pequeñas Centrales Generación Energía* under the *Vicepresidencia Generación Energía*, is in charge of the operation and maintenance of Jepirachi wind power project. Monitoring procedures can be implemented on site or remote, using tele-measurement technology. The *Equipo de Medida* (Measurements Team) of "Empresas Públicas de Medellín" (EPM) is in charge of taking the measurements. The Measurements Team is responsible for reporting to *XM Compañía de Expertos en Mercados S.A. E.S.P.* (XM), the operator of the National Dispatch Center, on the Generation Boundaries, the boundaries between the agents and the large energy clients supplied by EPM.

Following Colombian regulations, the electricity generation from each power plant connected to the grid will be monitored on site, using metering equipment located at the commercial frontier. which will be located in the substation at the end of the 115 kV, 0.7 km transmission line connecting Jepirachi wind power system with the national interconnected system. In the case of Jepirachi, the energy meters are read via the MV-90i software every 24 hours and uploaded in the GCE-*Grandes Clientes de Energía* software.

Once the information is uploaded, a file is created (cr41/mes/día.txt) and sent to XM.

Electricity generation is measured by electronic electricity meters. To ensure reliability, there are three main and three backup energy meters, located in panel TM 1 at the substation of energy in the area of the Wind Park. The values are cross-checked with the generation measured in terminals and vs. SCADA (Supervisory Control And Data Acquisition) system.

The meters are bi-directional and therefore measure the net balance of the quantity of electricity supplied by the project plant to the grid and the quantity of electricity delivered to the project plant from the grid.

Calibration of meters follow national standards and are in accordance with the calibration instructive specified in Colombian standard NTC 4856 for electricity metering devices. The calibration frequency is in accordance with Energy and Gas Regulation Committee -CREG- (Comisión de Regulación de Energía y Gas, CREG, by its acronym in Spanish).

Electronic Electricity Meters:

Electricity meters at measurement point #1: Transformador Jepírachi	
Main	**Backup**
Serial: PT-0809A455-01 Accuracy class: IEC 60687 1A 0.2S	Serial: PS-0511A080-01 Accuracy class: IEC 60687 1A 0.2S
Electricity meters at measurement point #2: Puerto Bolívar	
Main	**Backup**
Serial: PS-0511A082-01 Accuracy class: IEC 60687 1A 0.2S	Serial: PS-0511A083-01 Accuracy class: IEC 60687 1A 0.2S
Electricity meters at measurement point #3: Cuestecitas	
Main	**Backup**
Serial: PS-0511A084-01 Accuracy class: EC 60687 1A 0.2S	Serial: PS-0511A085-01 Accuracy class IEC 60687 1A 0.2S

Environmental Management Plan

It is important to note that this environmental management plan was not included as part of the monitoring plan in the PDD. This is an independent initiative taken by EPM that contributes to sustainable development of the region.

Jepirachi wind power project applies an environmental management plan that includes actions towards mitigating the negative impacts on environment during construction and operation of the plants. In addition, EPM developed a discretionary environmental management plan that involves physical-biotic and social aspects to protect natural resources and to promote a sustainable development of the wind power project. The plan consists of:

Management of Environmental Impacts in operation:

EPM is undertaking a monitoring environmental plan, which involves physical-biotic and social aspects to protect natural resources and to promote a sustainable development. The purpose of the environmental monitoring plan is to verify the results of the environmental management plan and to do corrections if is necessary, in special programs as impact of birds with wind mills or electrics wire conductions, survival of cactus experimental plantation and reestablishment of vegetation, landscape perception, noise impact, job creation and sustainability of compensation actions (houses, desalinization plant).

EPM has developed different actions for his social responsibility for developing areas where the projects are located. They are focused in organizational strengthening for local institutions, such as cultural events, promotion of education actions, health campaigns, and monetary support for the Wayuu Festival and supply of scholar kits and books. EPM supports other projects institutions as rural electrification and aqueduct, for local communities of the wind park.

The project company is aware of his social responsibility and contributes to social programs for benefits in the community. Additionally, of the compensations plan for social impact, EPM address

his activities toward the join and participation of local and regional governmental agencies for developing social programs in order to improve the quality of life of the indigenous communities in the influence area of the Jepirachi Wind Park. In addition, EPM consider the participation of the communities' leaders and authorities in different events and situations such as meetings for program coordination, institutional agreements, and joint definition of projects, based in communitarian self-management.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	$EF_{grid,CM,y}$
Unit	tCO_2/MWh
Description	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" (version 2).
Source of data	Ex-ante calculations
Value(s) applied	0.4441 tCO_2/MWh
Choice of data or measurement methods and procedures	As per the "Tool to calculate the emission factor for an electricity system" (version 2). As suggested by the tool, the relative weight for EF_{OM} and EF_{BM} should be 0.75 and 0.25, respectively as it is a wind power project with intermittent generation and dispatching potential. This is in accordance with the methodology ACM0002 (version 12.1.0).
Purpose of data/parameter	Calculation of baseline emissions
Additional comments	As per the "Tool to calculate the emission factor for an electricity system" (version 2). The operating margin is reassessed according to the afore-mentioned tool. $\boldsymbol{EF_{grid,CM,y}}$ is calculated ex-ante and will be used throughout the crediting period.

D.2. Data and parameters monitored

Data/Parameter	EG_y
Unit	MWh/year
Description	Quantity of net electricity supplied by the project plant/unit to the grid in year *y*
Measured/calculated/ default	Measured. Net generation is continuously measured, hourly registered and monthly recorded with the following electricity meters located at three metering points. The meters are bi-directional and therefore measure the net balance of the quantity of electricity supplied by the project plant to the grid and the quantity of electricity delivered to the project plant from the grid (as given in the methodology).
Source of data	Empresas Públicas de Medellín (EPM).
Value(s) of monitored parameter	See table in Section E.1. for details.

<table>
<tr><td>Monitoring equipment</td><td>
<table>
<tr><th colspan="2">Plant</th><th>Serial N°</th><th>Calibration Date</th></tr>
<tr><td rowspan="2">Point #1: Transformador Jepirachi</td><td>Main</td><td>PT-0809A455-01</td><td>20/12/2017
03/12/2018</td></tr>
<tr><td>Back up</td><td>PS-0511A080-01</td><td>19/12/2017
04/12/2018</td></tr>
<tr><td rowspan="2">Point #2: Puerto Bolivar</td><td>Main</td><td>PS-0511A082-01</td><td>19/12/2017
04/12/2018</td></tr>
<tr><td>Back up</td><td>PS-0511A083-01</td><td>18/12/2017
04/12/2018</td></tr>
<tr><td rowspan="2">Point #3: Puerto Cuestecitas</td><td>Main</td><td>PS-0511A084-01</td><td>21/12/2017
03/12/2018</td></tr>
<tr><td>Back up</td><td>PS-0511A085-01</td><td>20/12/2017
03/12/2018</td></tr>
</table>
</td></tr>
<tr><td>Measuring/reading/recording frequency</td><td>Hourly measurements and monthly recording.</td></tr>
<tr><td>Calculation method
(if applicable)</td><td>Not applicable.</td></tr>
<tr><td>QA/QC procedures</td><td>Calibration tasks follow national standards and are in accordance with the calibration instructive specified in Colombian standard NTC 4856 for electricity metering devices. The calibration frequency is in accordance with Energy and Gas Regulation Committee -CREG- (Comisión de Regulación de Energía y Gas, CREG, by its acronym in Spanish).
EPM has adopted its own procedure based on the Colombian technical norm NTC-ISO-IEC 17025 and NTC 4856, under a procedure which is carried out to verify that the meters are working properly with the corresponding accuracy. They are also checked for alarms.
To cross check the metering, the electricity generated will be also measured at the plant substation, correcting the measure taking into account the transmission losses, estimated based on the technical specifications of the transmission line. Data will be archived for the crediting period plus two years.
All data collected as part of the monitoring process is archived electronically and kept at least for two years after the end of the last crediting period.</td></tr>
<tr><td>Purpose of data/parameter</td><td>Calculation of yearly emissions</td></tr>
<tr><td>Additional comments</td><td>All metering devices used to monitor and measure data follow rules that have been summarized in resolution number 025 of 1995, from CREG. This resolution specifies the technical characteristics measurement, telecommunications and back-up equipment to meet installation, testing, certification, operation and maintenance procedures.</td></tr>
</table>

D.3. Implementation of sampling plan

There is no sampling involved in the monitoring of the proposed project activity.

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

According to the applied methodology, baseline emissions are calculated as follow:

$$BEy\,(tCO_2/yr) = EGy\,(MWh/yr) \times EFy\,(tCO_2/MWh) \qquad \text{Equation (1)}$$

Where:

BEy: Baseline emissions in year *y* (t CO_2/yr)

EGy: 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/yr)

EFy: 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" (t CO_2/MWh)

In the project activity *EGy* is the project net electricity generation and *EFy*, is the grid emission factor calculated as the weighted average of the Operating Margin emission factor (EF_{OMy}) and the Build Margin emission factor (EF_{BMy}).

Electricity Generation (*EGy*)

Table 2: Net Electricity Generation during the Monitoring Period

Year	Month	Jepirachi Net Electricity Generation (MWh)
2018	January 1st - 30th	1,458.12

The monthly electricity generation data are presented in the "2018 Jan 1 – 30 Jepirachi monitoring ER v2.xls". It can also be found in the web of XM through NEON system: http://informacioninteligente10.xm.com.co/pages/default.aspx

Emission Factor (EF*y*)

As per the registered PDD for the second crediting period, the grid emission factor is determined once at the validation stage, thus no monitoring or recalculation of the emissions factor during the crediting period is required.

Emission factor calculation (applies from January 1st to January 30th):

- *Operating Margin (OM):* 0.4853 tCO_2/MWh
- *Build Margin (BM):* 0.3206 tCO_2/MWh
- *Combined Margin (CM):* EFy, is the grid emission factor (combined margin emission factor) calculated as the weighted average of the Operating Margin emission factor ($EF_{OM,y}$) and the Build Margin emission factor ($EF_{BM,y}$), as follows:

$$EFy = w_{OM} \times EF_{OM,y} + w_{BM} \times EF_{BM,y} \quad \text{Equation (2)}$$

The relative weights according to the default value provided by the methodology are 0.75 for w_{OM} and 0.25 for w_{BM}.

EF_y = 0.75 x 0.4853 tCO_2/MWh + 0.25 x 0.3206 tCO_2/MWh = **0.4441 tCO_2e/MWh**

Emissions reduction calculation:

$ERy = EGy \times EFy$

$ERy_{January\ 1st\ to\ January\ 30th}$ = 1,458 MWh x 0.4441 tCO_2e/MWh = **647 tCO_2e**

Please note that the value applied for $EG_{2018\ January\ 1\text{-}30}$ was rounded down.

E.2. Calculation of project emissions or actual net removals

No project emissions are considered in the present project activity.

E.3. Calculation of leakage emissions

No leakage emissions are considered in the present project activity.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO_2e)	Project GHG emissions or actual net GHG removals (t CO_2e)	Leakage GHG emissions (t CO_2e)	GHG emission reductions or net anthropogenic GHG removals (t CO_2e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	647	0	0	0	647	647

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO_2e)	Amount estimated ex ante for this monitoring period in the PDD (t CO_2e)
647	2,106

E.5.1. Explanation of calculation of "amount estimated ex ante for this monitoring period in the PDD"

The amount of emissions estimated ex ante for this monitoring period (in the actual PDD) was calculated as follow:

$$ER_{2018\ January\ 1\text{-}30\ (tCO2/yr)} = EG_{2018\ January\ 1\text{-}30}\ (MWh/yr)\ \ x\ \ EF_{2018}\ (tCO_2/MWh) \qquad \text{Equation (1)}$$

Where:

$ER_{2018\ January\ 1\text{-}30}$: Amount of emissions estimated ex ante for 2018 January 1st to January 30th (t CO_2/yr)

$EG_{2018\ January\ 1\text{-}30}$: Quantity of net electricity generation estimated ex ante and supplied as a result of the implementation of the CDM Project activity in year 2018 January 1st to January 30th (MWh/yr)

$EF_{2018\ January\ 1\text{-}30}$: 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" (t CO_2/MWh)

In the project activity $EG_{2018\ January\ 1\text{-}30}$ is the project net electricity generation supplied by the Jepirachi wind power project during the quoted period. The value applied (according to section B.7.1 in PDD version 9) for $EG_{2018\ January\ 1\text{-}30}$ is **4,743 MWh**[3] (rounded down average of the historical data from 2015 to 2017), which correspond to the last three years of the second crediting period).

$EF_{2018\ January\ 1\text{-}30}$ is the grid emission factor calculated as the weighted average of the Operating Margin emission factor ($EF_{OM\ 2018}$) and the Build Margin emission factor ($EF_{BM\ 2018}$), corresponding to the second crediting period. See the explanation about how it was obtained in section E.1 "Emission Factor (EF_y)". The value applied (according to section B.6.2 in PDD version 9) for EF_{2018} is **0.4441 t CO_2/MWh**.

So:

$$BE_{\ 2018\ January\ 1\text{-}30\ (tCO2/yr)} = 4,743\ (MWh/yr)\ x\ 0.4441\ (tCO_2/MWh)$$
$$BE_{\ 2018\ January\ 1\text{-}30\ (tCO2/yr)} = 2,106\ tCO_2/yr$$

[3] It was calculated as follows: an annual generation of 57,709 MWh is divided by 365 days, and then multiplied by 30 days (corresponding to the days between January 1st to January 30th).

E.6. Remarks on increase in achieved emission reductions

The actual emission reductions during the monitoring period are lower than the ones anticipated ex-ante in the CDM-PDD hence there is no need of explanation of any increase.

E.7. Remarks on scale of small-scale project activity

This is not applicable.

Document information

Version	*Date*	*Description*
07.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: • Ensure consistency with version 01.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.

Version	*Date*	*Description*
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.

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