	Project design document form (Version 12.0)
BASIC INFORMATION	
Title of the project activity	Burgos Wind Project
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the PDD	02
Completion date of the PDD	05/11/2022
Project participants	EDC Burgos Wind Power Corporation
Host Party	Philippines
Applied methodologies and standardized baselines	**Applied Methodologies:** ACM0002 (version 20.0): "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" **Standardized baseline**: Not Applicable
Sectoral scopes	1: Energy Industries (renewable - /non-renewable sources)
Estimated amount of annual average GHG emission reductions	251,519 tCO_2e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

>>

Burgos Wind Project is a 150MW capacity Green field wind power project located in Burgos, Ilocos Norte, Philippines. The project is located in Barangays Saoit, Nagsurot, and Poblacion (all in Burgos, Ilocos Norte). The EDC Burgos Wind Power Corporation ("EBWPC" or "Project Participant"), a Special Purpose Vehicle (SPV), 100% owned by Energy Development Corporation (EDC), is the project owner. The project aims to generate electricity using wind resources and to sell generated electricity to the Luzon-Visayas grid (hereinafter referred to the "Grid").

The total installed capacity of the project activity is 150MW. The project was commissioned on 05/11/2014, and has been in operation since then. The expected net generation of the project would be 367,920 MWh per year. The estimated greenhouse gas (GHG) emission reductions from the project would be 251,519 tCO_2e per year. The Project Activity is a Greenfield project as there was no renewable energy power plant being operated at the project site prior to implementation of the project activity.

In the absence of the project activity, the equivalent amount of electricity would have been generated by the operation of grid connected fossil fuel-based power plants. The project activity reduces the greenhouse gas emissions by generation of electricity from renewable and clean energy source, hydro. The main greenhouse gas that is prevented from being emitted into atmosphere is CO_2 which would have otherwise been emitted from the fossil fuel fired power plants that are connected to the grid.

Project is already registered as a CDM project with reference number 7980[1]. This PDD corresponds to the second crediting period from 11/11/2021 until 10/11/2028.

The Project Activity has strong sustainable development benefits particularly in relation to development of the host community and the provision of clean and reliable power to the grid.

Contributions of the Project Activity to Sustainable Development

The project activity contributes positively to the sustainable development framework of the municipality, the province and the country in general. It has many economic, environmental, and social benefits.

Environmental dimension

- The Project Activity is in compliance with environmental policies and standards, as evidenced by the Environmental Compliance Certificate (the "ECC"). It has no adverse effects on land-use and no hazardous water to dispose of. It promotes sustainable use of natural resources.
- By utilizing clean, renewable and sustainable energy resource, the Project Activity results in eliminating pollutants discharged to the environment.
- By potentially reducing the possibility of new power plants that operate on fossil fuels, the Project Activity avoids additional pollutants and greenhouse gas emissions from such power plants.

Economic dimension

- The host communities benefit economically from the Project Activity as the Local Government Units (LGUs) experience an increase in revenues through the payment of government fees, taxes and royalty share.

[1] https://cdm.unfccc.int/Projects/DB/BVQI1351770646.99/view

- As conditioned under the ECC issued for the Project Activity, the PP supports agricultural based livelihood projects based on the skills and resources available in the community to increase economic activity in the area.
- It promotes fuel diversification and reduces dependence on fossil fuels for electricity generation. Hence, it reduces fossil fuel consumption and enhances energy security and sufficiency.
- It creates direct and indirect employment opportunities both during construction (completed) and operational phases of the Project Activity.
- It stimulates economic activity in the region through employee's spending.
- It promotes the growth of the renewable energy industry in the country.

Social dimension

- The Project Activity spurs the creation of economic opportunities in the community.
- It results in generation of employment opportunities for both skilled and unskilled labour during construction as well as operation phase.
- It also provides training in partnership with universities and government-accredited training facilities in the host Communities. The PP intends to provide skills training to members of the host communities who will then be targeted for employment during the construction and operation phases of the Project Activity.
- Information, Education and Communication (IEC) activities to be implemented which will be an important tool to ensure a good feedback mechanism, creating an atmosphere of trust between the Project Activity and the local community. Frequent consultations with the community through IEC activities will be conducted.

A.2. Location of project activity

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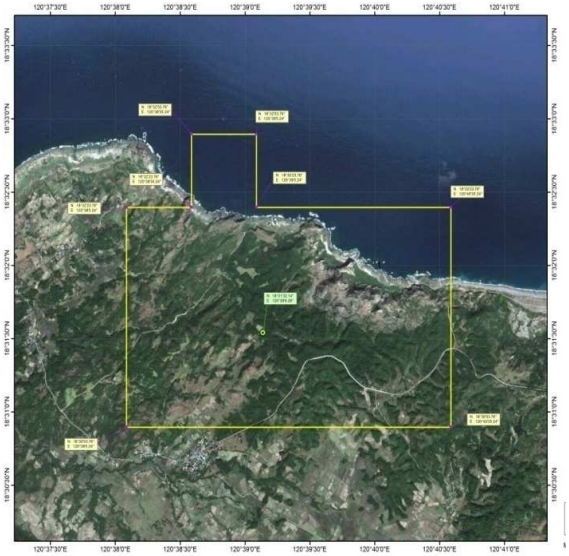
The Project Activity is located in the barangays of (a) Saoit, (b) Nagsurot, and (c) Poblacion (all in Burgos, Ilocos Norte), Philippines. The geographical coordinates of project site are

Centre	Latitude: 18°31'32.14" N and Longitude: 120° 39'8.28" E
Corners	Latitude: 18°33'00"N and Longitude: 120°38'30"E Latitude: 18°33'00"N and Longitude: 120°39'00"E Latitude: 18°32'30"N and Longitude: 120°39'00"E Latitude: 18°32'30"N and Longitude: 120°40'30"E Latitude: 18°31'00"N and Longitude: 120°40'30"E Latitude: 18°31'00"N and Longitude: 120°38'00"E Latitude: 18°32'30"N and Longitude: 120°38'00"E Latitude: 18°32'30"N and Longitude: 120°38'30"E



A.3. Technologies/measures

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The Project Activity is a Greenfield project activity that involved the development of 150MW wind farm composed of wind turbine generators (WTGs) (with rated capacities of 3MW each) supplied by Vestas (WTG manufacturers). The electricity from the Project Activity is conveyed via a 115 kV Transmission Line (T/L) to the NGCP Substation in Laoag City to enable connection to the grid. The average expected life of WTGs is 20 years. The WTGs are expected to operate at a load factor of 28%.

Specifically, the Project Activity has the following components:

- 618 hectares Wind farm, consisting of wind turbine towers, access roads and underground cables;
- 250 sq. m. Control Center/Office Facility;
- A 34.5 /115 kV Substation (in Burgos) and Control Center at the Wind farm site; and 115 kV Transmission Line (T/L).

The T/L will be a single circuit type and will use aluminium stranded, steel-cored cable for its conductor material. The right-of-way requirements will consist of a 30-m. wide easement and some 225 sq. m. to 441 sq. m. of land per tower for the T/L tower foundations. The height of each T/L tower is about 75 meters (hub height) with 90 m blade diameter.

The details of commissioning for each WTG are as below

COD	**WTG numbers**
01/11/2014	C01,C08,C15,C23,C24,C25,C27,C31,C33,C37,C38,C42,C47
31/10/2014	C03,C06,C07,C20,C22,C29,C34,C44,C45
02/11/2014	C10,C11,C14,C26,C28,C32,C36,C40,C46,C48,C49,C50,C12
03/11/2014	C35,C02,C09,C13,C17,C18,C19,C21,C30,C39,C41
04/11/2014	C04,C43,C05
05/11/2014	C16

Brief description of the installed technology and equipment's:

Power	
Rated power	3,000.0 kW
Cut-in wind speed	4.0 m/s
Rated wind speed	15.0 m/s
Cut-out wind speed	25.0 m/s
Rotor	
Diameter	90.0 m
Swept area	6,362.0 m²
Number of blades	3
Rotor speed	max: 18.4 U/min
Tip speed	87 m/s
Generator	
Type	Asynchronous
Number	1
Voltage	1,000.0 V
Grid connection	Opti Speed
Grid frequency	50 Hz

The Project Activity being the second wind power plant in Philippines as well as in the Luzon-Visayas grid, contributes significantly to the country's knowledge base in terms of wind power plant operation. This transfer of technology and expertise provides the local staff with the necessary skills to operate a utility scale wind farm.

A.4. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Philippines (host)	EDC Burgos Wind Power Corporation (Private entity)	No

A.5. Public funding of project activity

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No public fund is used for this project activity.

A.6. History of project activity

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The proposed CDM project activity is already registered as a CDM project with reference number 7980[2] but not included as a component project activity (CPA) in a registered CDM programme of activities (PoA).

The proposed CDM project activity is not a project activity that has been deregistered.

The proposed CDM project activity is not a CPA that has been excluded from a registered CDM PoA.

There is not a registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired exists in the same geographical location as the proposed CDM project activity.

This PDD corresponds to the second crediting period from 11/11/2021 until 10/11/2028.

A.7. Debundling

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Not applicable.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines

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Applied methodology:

Version 20.0 of ACM0002: "Grid-connected electricity generation from renewable sources"[3]

Related tools:

- Version 07.0 of the "Tool to calculate the emission factor for an electricity system"[4]
- Version 06.0.0 of the "Tool for the demonstration and assessment of additionality"[5]
- Version 3.0.1 of the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" [6]

[2] https://cdm.unfccc.int/Projects/DB/BVQI1351770646.99/view

[3] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.0.0.pdf

[6] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf

B.2. Applicability of methodologies and standardized baselines

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The Project Activity meets the relevant applicability conditions of the applied CDM methodology as demonstrated below. None of these have changed post CDM registration.

Applicability Condition	Applicability to the project activity
This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s)	The Project Activity is a Greenfield grid connected power generation project. It is connected to the Luzon-Visayas grid and no renewable power plant was operated at project site prior to the implementation of the Project Activity.
The methodology is applicable under the following conditions: (a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	• The Project Activity is the installation of a Greenfield wind power plant. • The Project Activity is not a capacity addition project.
In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m^2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m^2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m^2, all of the	This condition is not applicable as the Project Activity is not a hydro power plant.

following conditions shall apply: a. The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m^2; b. Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; c. Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	
In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity	This condition is not applicable as the Project Activity is not a hydro power plant.
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	This condition is not applicable since the Project Activity doesn't involve fuel switch or biomass fired plant or hydro power project.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	This condition is not applicable as the Project Activity is a Greenfield project.

B.3. Project boundary, sources and greenhouse gases (GHGs)

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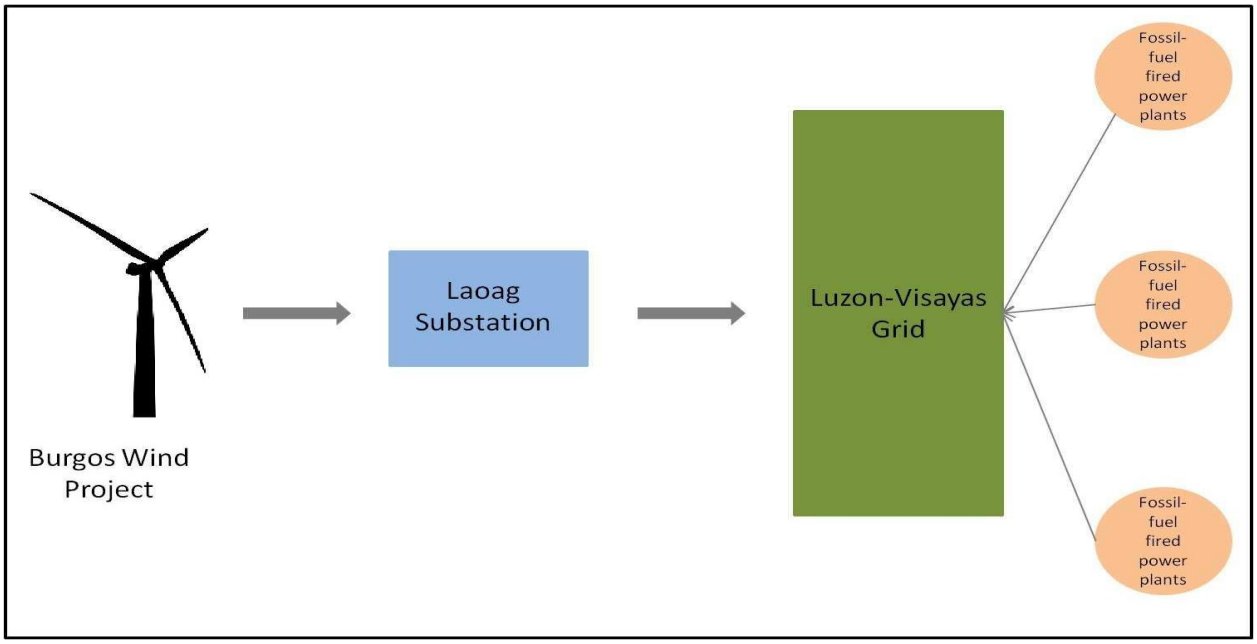
Emission sources included in or excluded from the Project boundary

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Source 1: CO_2e emissions from electricity generation in fossil fuel fired power plants that are displaced due to the Project Activity	CO_2e	Yes	Main emission source
		CH_4	No	Main emission source
		N_2O	No	Main emission source
Project scenario	Source 1: CO_2 emissions from electricity generation in the Project plant	CO_2e	No	The Project Activity is a renewable energy project; no GHG emission.
		CH_4	No	
		N_2O	No	

The greenhouse gases emissions within the project activity boundaries are associated to the baseline, produced from electricity generation in fossil fuel-fired power plants connected to the Luzon-Visayas grid. The project activity will supply zero-emissions electricity to the grid, thus avoiding greenhouse gases emission by displacing the dispatch of thermoelectric power plants. As it is shown in the figure below there are no greenhouse gas emissions associated with the project activity.



B.4. Establishment and description of baseline scenario

>>

CDM project standard for project activities, version 03.0[7], item 10 – renewal of crediting period, paragraph 283, says that *"The project participants shall demonstrate the validity of the original baseline or update it in accordance with paragraphs 284-287 below"*

284. To demonstrate the validity of the original baseline or its update, the project participants are ***not required to re-assess the baseline scenario****. Instead, the project participants shall assess the GHG emission reductions or net anthropogenic GHG removals that would have resulted from that scenario";*

285. The project participants shall assess and incorporate the impact of national and/or sectoral policies and circumstances, existing at the time of requesting renewal of crediting period, on the current baseline GHG emissions, without reassessing the baseline scenario.

286. The requirements contained in paragraph 285 above are not applicable to a registered CDM project activity applying the valid version of an applicable approved standardized baseline that standardizes baseline scenario in accordance with paragraph 282 above.

Burgos Wind Project is a registered CDM project Therefore, the reassessment of the baseline scenario is not required.

287. If data and parameters used for determining the original baseline, that were determined ex ante and not monitored during the crediting period, are no longer valid, the project participants shall update such data and parameters in accordance with the "Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period".

According to ACM0002, if the project activity is the installation of a new grid-connected renewable power plant, the baseline scenario is defined as the following:

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

Hence, Thus, the baseline scenario of the proposed project is the delivery of equivalent amount of annual power output from the Luzon-Visayas grid to which the proposed project is also connected.

The stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period is conducted following methodological tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (Version 03.0.1, EB 66, Annex 47). The tool consists of two steps. The first step provides

[7] https://cdm.unfccc.int/filestorage/e/x/t/extfile-20210921115752581-reg_stan04_v03.0.pdf/reg_stan04_v03.0?t=OER8cmtwZGJpfDCvUXZ9FxUyFwjwuh3iUnl1

an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.

Step 1: Assess the validity of the current baseline for the next crediting period

The "Procedures for the renewal of the crediting period of a registered CDM project activity" approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following sub-steps:

The validity of the current baseline is assessed using the following sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

According to the registered PDD, in the absence of the project activity, electricity which will be supplied to the national grid would come from fossil fuel power plants. The generation of electricity by burning fossil fuels result in CO_2 emission into the atmosphere. Hence, the baseline scenario of the project is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected fossil fuel power plants and by the addition of new generation sources.

There are no relevant changes in legislation in Philippines which can affect the project activity. Thus, it can be concluded that the current baseline scenario is in compliance with relevant mandatory national and sectoral policies.

Step 1.2: Assess the impact of circumstances

There is no impact of circumstances existing at the time of requesting renewal of crediting period on the current baseline emissions.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

This sub-step should only be applied if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

Since the baseline scenario identified during the validation of the project activity was electricity generation in power plants that are displaced due to the project activity and was not the continuation of use of the current equipment(s). This sub-step is not applicable for this project activity.

Step 1.4: Assessment of the validity of the data and parameter.

"*Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the*

implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity".

In the registered PDD, the grid emission factor was calculated as per the combined margin approach described in the "Tool to calculate the emission factor for an electricity system" version 02.2.1. The grid emission factor was calculated as the weighted average of OM & BM; and was fixed ex-ante for the entire crediting period. Since the emission factors that were determined at the start of the first crediting period are not valid anymore, the data and parameters have been updated for the second crediting period.

The OM and BM was obtained from official data provided by host country DNA of Philippines, Department of Energy[8]. This is the most recent data available during the validation of renewal of crediting period. Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period as per step 2.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline.

The current baseline scenario is still valid.

Step 2.2: Update the data and parameters.

As mentioned in step 1.4, all parameters regarding the grid emission factor are updated in the second crediting period.

Calculation Emission Factor

For 2nd crediting period, the emission factor is calculated using the lasted national data. The published data by the host country DNA of Philippines, Department of Energy refers to 2015-2017 National Grid Emission Factor (NGEF)[9], which is the latest data available, hence same is used.

Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors according to the procedure prescribed in the "Tool to calculate the emission factor for an electricity system" version 07.0. The data for calculation of the grid emission factor is sourced from Philippines DNA (DOE website) which is the latest available data. The combined margin of the Luzon-Visayas Grid used for the project activity is as follows:

Parameter	Value (tCO_2/MWh)	Nomenclature	Source
$EF_{grid,CM,y}$	0.684	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25)
$EF_{grid,OM,y}$	0.712	Operating margin, CO_2 emission factor for the project electricity system in year y	The data are obtained from Department of Energy[10]
$EF_{grid,BM,y}$	0.598	Build margin CO_2 emission factor for the project electricity system in year y	

[8] https://www.doe.gov.ph/electric-power/2015-2017-national-grid-emission-factor-ngef

[9] https://www.doe.gov.ph/electric-power/2015-2017-national-grid-emission-factor-ngef

[10] https://www.doe.gov.ph/electric-power/2015-2017-national-grid-emission-factor-ngef

Thus, the emission factor for the project is calculated to be **$EF_{grid,CM,y}$ = 0.684 tCO_2e/MWh**. The emission factor shall be fixed ex-ante for the entire second crediting period.

B.5. Demonstration of additionality

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As per CDM Project Standard for project activities, version 03.0, Para 281: "*For renewal of crediting period of a registered CDM project activity, the project participants are not required to reassess the additionality of the project activity nor update the section of the PDD relating to additionality*."

Burgos Wind Project is a registered CDM project. Therefore, the reassessment of the additionality is not required for renewing of crediting period. The following sections therefore are kept the same with the registered PDD.

The chronology of event provided in the PDD at registration is updated below for post – registration events.

Chronology of events leading to CDM project implementation

Date	*Events*
13-02-2009	*Issuance of Invitation to Tender.*
14-09-2009	*Wind Energy Service Contract between EDC and the Philippine Department of Energy (DOE)*
05-10-2009	*The Letter of Intent for the Project Activity (dated 5 October 2009) was submitted to the DNA*
19-11-2009	*"Prior consideration" submitted for the Project Activity to the UNFCCC and the host country DNA*
07-04-2010	*Stakeholders Consultation Meeting conducted for the Project Activity*
12-04-2010	*The Sangguniang Bayan of Burgos, Ilocos Norte issued a resolution endorsing the Project Activity*
13-04-2010	*EDC Burgos Wind Power Corporation was registered with the Securities and Exchange Commission, Philippines*
24-05-2010	*EDC Board Resolution authorizing the assignment and transfer to EDC Burgos Wind Power Corporation of all the permits and licenses relating to the establishment and operation of the Project Activity.*
28-06-2010	*Board Resolution passed to proceed with the CDM registration process and to generate additional CDM revenues from the Project Activity as agreed during the board meeting on 31/05/2010.*
16-06-2010	*Submission of PDD for the Project Activity to Philippines DNA.*
23-05-2011	*Letter to the Department of Energy requesting for a meeting to discuss the CDM registration process status for the Project Activity.*
03-06-2011	*Meeting with representatives of the Department of Energy.*
28-11-2011	*Host Country approval issued for the project activity*
05-11-2012	*CDM registration to 86MW capacity project activity*
01-03-2013	*Award of Engineering, Procurement and Commissioning (EPC) contract to 'Vestas' for 87 MW*
16-05-2013	*Approval from the DOE for 87 MW project capacity*
21-06-2013	*Application submitted to the DOE to increase of project capacity to 150MW*
03-12-2013	*Approval from the DOE for increased project capacity up to 150MW*
14-03-2014	*Commercial proposal from 'Vestas' for increasing project capacity to 150MW*
24-04-2014	*Addendum to existing EPC contract with 'Vestas' to increase the capacity of project activity*
11-05-2014	*Commissioning date for project activity*

11-11-2014	*Start of Commercial Operations*
17-04-2015	*Tariff approval on the basis of the "Renewable Energy Payment Agreement (REPA 0006)" entered with the 'National Transmission Corporation' which is the 'Power Purchase Agreement (PPA)' for the project activity signed on 20/02/2015 which is effective from 17/04/2015 as per letter CCM6-CMD- 2015-04-014 from the National Transmission Corporation. The REPA 0006 (or PPA) was issued on 17/04/2015 after obtaining the 'Certificate of Compliance (COC)' that was issued by the "Energy Regulatory Commission (ERC)" on 13/04/2015.*

The following steps from the methodological tool "Demonstration and assessment of additionality (version 07.0)", hereinafter referred as "additionality tool" are used. The additionality demonstration steps below are repeated from those used at CDM registration and the relevant input information are updated.

Step 1. Identification of alternatives to the Project activity consistent with current laws and regulations

Sub-step 1a. Define alternatives to the Project activity
In line with section B.4 above, following plausible and realistic alternatives were available to the PP to potentially deliver comparable level of service (i.e., electricity expected from the Project Activity).

Alternative 1: The proposed project activity without being registered as a CDM project activity

Alternative 2: Continuation of current situation, i.e., existing units connected to the power plant would continue supplying of electricity to the grid at historical levels and electricity expected from the CDM project activity to be supplied by existing power plants connected to the grid and new capacity additions to the grid.

Sub-step 1b. Consistency with mandatory laws and regulations
The identified alternatives are in compliance with all applicable legal and regulatory requirements.

Step 2. Investment Analysis
The objective of the investment analysis is to demonstrate that the project activity is not:
(a) The most economically or financially attractive; or
(b) Economically or financially feasible, without the revenue from the sale of CERs.

The investment analysis described below has used the approach as in Step 2 (a) above.

Sub-step 2a. Determine appropriate analysis method
The CDM project activity will generate financial benefits other than CDM related income, which will be in the form of sale of electricity to the grid; therefore, the simple cost analysis (Option I) cannot be used. Since Option I is not applicable, additionality tool allows use of either the "investment comparison analysis" (Option II) or the "benchmark analysis" (Option III) for performing the investment analysis.

As per para 19 of "Guidance on the assessment of investment analysis (Annex 5, EB 62)", if an alternative to the Project Activity is "supply of electricity from a grid", then a benchmark approach is considered appropriate. Therefore, Option III, as per the "additionality tool", has been used.

Sub-step 2b – Option III. Apply benchmark analysis
Para 28 of the additionality tool provides requirement for identifying a suitable financial/economic indicator for the project type and decision context.

PP, with its 50% investment in the project and balance borrowing, is taking the risk on the equity committed in the Project Activity. Therefore, Equity IRR ("EIRR") has been taken as a suitable financial indicator for performing the benchmark analysis for this Project Activity.

The EIRR is compared with the benchmark return on equity ("ROE") which is the return that the PP expects to earn on its equity from investment in a power generation project in Philippines.

The "Guidance on the Assessment of Investment Analysis" (version 05, EB 62) provides default value for real benchmark ROE for energy industries in Philippines. By adjusting it for the target inflation set by the Philippine's government, a nominal benchmark ROE is calculated for comparing with the EIRR for the Project Activity (as EIRR is calculated in nominal terms).

Using the approach mentioned above, the benchmark ROE is 16.75%. This is based on the default real ROE of 12.75%, adjusted for average annual inflation of 4%. The average annual inflation rate is based on the target inflation set by Philippines up till 2014[11] and is similar to International Monetary Fund ("IMF") estimate of inflation up to 2016[12].

Sub-step 2c. Calculation and comparison of financial indicators

The EIRR for the Project Activity (i.e., Alternative 1) is 1.98% The assumptions used in the analysis are provided in Table below.

Cost and revenue items used in EIRR calculation

Capital Investment and Financing Structure	Value	Data Source
Total project cost for 150 MW (in PhilippinePesos or "PhP")	Php 18,876.35 million	Proposals received for the project activity (EPC and civil cost is based on the middle value among the five proposals received for the projectactivity). The additional project cost due to increase in capacity has been added to the project cost at CDM registration. Such additional costs are taken from contracts awarded to various contractors post CDM registration.
Debt: Equity ratio	50:50	Same criteria is used as was at CDM registration. Default debt: equity ratio since the financing arrangement for the project activity not yet finalised at CDM registration (this is in line with "Guidance on the assessment of investment analysis (Annex 5, EB 62)"
Cost of Debt	10%	Indicative terms sheet received from BDO Bank, Philippines.
Debt repayment tenure	11 years	Indicative terms sheet received from BDO Bank, Philippines.
Revenue Item	**Value**	**Data Source**
Electricity Tariff[13]	4.5794 PhP/kWh (estimated to escalate at 4% per annum)	Weighted Average, National Power Corporation (NPC) TOU Rates http://www.napocor.gov.ph/Power%20Rates /eff_tou_rates_for_luzon_grid.htm

[11] Medium-Term Inflation Target for the Philippines, http://www.bsp.gov.ph/downloads/EcoNews/EN10-05.pdf

[12] World Economic Outlook Database, September 2011, Philippines, Inflation, average consumer prices (percent change), www.imf.org

[13] The NPC has since revised the tariff downwards in 2013 and the new rate (4.3648 PhP/kWh) is published on the website (www.napocor.gov.ph/PowerRates/eff_rates_for_luzon_grid.htm). However, in the updated PDD, the higher tariff rate used for CDM registration has been retained.

		Escalation is based on the expected inflation rate.
Exchange rate PhP to USD	47.6372 PhP/USD	Average for Year 2009- Central Bank of Philippines. http://www.bsp.gov.ph/statistics/statistics_key.asp
Installed capacity	150 MW	Name plate capacity for 50 WTG rated at 3MW each
Load Factor	28%	Energy Yield Assessment (EYA) study report by Parsons Brinckerhoff, 9-May-2014 based on revised wind farm layout for 150MW capacity; this is an updated assessment subsequent to the load factor assessment performed by Parsons Brinckerhoff in 2009 for lower capacity before CDM registration
Capital Investment and Financing Structure	**Value**	**Data Source**
Days of operations during the year	365 days	Number of days during the year
Operating Cost Item	**Value**	**Data Source**
Annual Operation and Maintenance (O&M) costs	PhP 334.35 million per annum (estimated to escalate at 4% per annum)	Proposal received for the project activity as used at CDM registration; all relevant additional costs as a result of updated capacity has been added to the costs used at CDM registration. Escalation is based on the expected inflation rate.
Annual insurance	PhP 70.96% million per annum (estimated to escalate at 4% per annum)	Escalation based on report from an Insurance Advisory Firm – Jardine Lloyd Thompson (JLT). Escalation is based on the expected inflation rate.
Annual administration and managementcosts	PhP 120.77million per annum (estimated to escalate at 4% per annum)	Estimated annual cost based on projected organisation structure for the project activity updated for the a50 MW capacity. Escalation is based on the expected inflation rate.
Other cost	PhP 2.57 million per annum (estimated to escalate at 4% per annum)	Estimated annual cost of livelihood and social development expenses. Escalation is based on the expected inflation rate.
Taxes	**Value**	**Data Source**
Real Property Tax (RPT)	1.50%	Philippines Renewable Energy Act of 2008, RA9513
Government Share	1%	
Corporate income tax	10% (tax holiday for 7 years)	
Local business tax-head office	0.195%	The Local Government Code, Philippines
Local business tax-project site	0.350%	
Others	**Value**	**Data Source**
Rate of depreciation	5% straight line method.	Expected life if the turbines is 20 years.

Comparison of EIRR for Alternative 1 with benchmark

Particulars	EIRR for the Project Activity	Benchmark ROE
Financial indicator	1.98%	16.75%

The Project Activity specific EIRR is 1.98%, this is lower than the benchmark. Therefore, it can be concluded that the project activity is not financially or economically the most attractive, given that Alternative 2, which is the baseline scenario, has no capital investments for the existing power plants connected to the grid, but only operating costs and revenues until end of lifetime for individual power plants. This is further confirmed using sensitivity analysis in sub-step 2d.

Sub-step 2d. Sensitivity analysis

Following sub-steps are followed for conducting the sensitivity analysis: Sub-step 2b-1: Identification of Sensitivity variables Sensitivity analysis was completed to demonstrate how variations in key parameters (updated list after CDM registration) affect the EIRR of the Project Activity. Following are the project parameters which constitute either 20% of the total capital cost (for capital items) or 20% of total sales (for revenue and expenditure items) and which were subjected to variations in values for sensitivity assessment.

PP has not performed a sensitivity on the installed capacity of the project activity, as the final capacity of 150 MW was already decided and approved by the relevant regulators and the possibility of any changes is unlikely.

Parameters subject to variation for sensitivity analysis

Name of the project parameter	Explanation why the project parameter is subject to sensitivity analysis
Electricity tariff rate	The tar-iff rate has a direct impact (i.e., 100% of total sales) on therevenue generated from the Project Activity.
Total project cost	This parameter impacts the initial capital outlay for the Project Activity (i.e., 100% of capital cost). It also impacts the annual claim for depreciation which represents more than 20% of total sales.
Rate of interest on commercial loan	Rate of interest impacts the annual interest cost which represents morethan 20% of total sales.
Capacity factor	The capacity factor has a direct impact (i.e., 100% of total sales) on therevenue generated from the Project Activity.
Operating cost	Operation and Maintenance, annual insurance, administration and management and other cost together contribute more than 20% of total sales.

As stated above, the following parameter was included at CDM registration, but is no longersubject to variation in the post-registration scenario:

Installed capacity: 150MW was the final design capacity based on which the EPC contract wasawarded and is no longer subject to variation.

Sub-step 2b-2: Results of sensitivity analysis

Sensitivity analysis has been performed by applying a range of ±10% as provided in Table below.

Sensitivity analysis on EIRR

Parameters	Project Activity specific "EIRR"	Sensitivity (+10%)	Sensitivity (-10%)
Electricity Tariff	1.98%	3.94%	(-)0.12%
Total project cost	1.98%	0.70%	3.47%
Rate of interest on commercial loan	1.98%	1.60%	2.37%
Capacity factor	1.98%	3.94%	(-)0.12%
Operation and Maintenance cost	1.98%	1.57%	2.39%

It is, therefore, evident from the sensitivity analysis results in Table 7 that the EIRR values for the Project Activity without CDM (Alternative 1) are below the benchmark within reasonable variations in the key parameters. Hence, the estimated EIRR for Alternative 1 is robust within reasonable variations of key parameters. Thus, applying Sub-step 2(a) mentioned above which draws upon para 22(a) of the "additionality tool", it is concluded that the proposed Project Activity is not economically or financially attractive.

Additionally, without any capital investments, Alternative 2 is economically or financially more attractive than implementation of Project Activity (i.e., Alternative 1).

(a) Step 4. Common practice analysis

To credibly complement the investment analysis (Step 2) performed above, the common practice analysis has been performed below to demonstrate that the proposed project type (technology or practice) has not already defused in the power generation sector of the Philippines as a whole. The following sub-steps are followed to demonstrate that the Project Activity is not a common practice.

(b) Sub-step 4a- Analyse other activities similar to the proposed project activity

The objective of sub-step 4a is to demonstrate that the proposed project activity is not a common technological option within the relevant sector in the Philippines and that similar activity are not widely observed and commonly carried out. Further, the tool requires the PP to provide documented evidence and wherever possible quantitative information to substantiate the aforesaid requirement.

In EB 65, the CDM Executive Board introduced a new framework for demonstrating common practice for certain specific measures (Annex-21, EB 65). This new framework is more rigorous compared to the existing common practice analysis as it imposes absolute cap on the number of plants[8] that could be similar to the Project Activity. Even though the Project Activity is not among the measures currently covered under the framework it has used this framework in orderto undergo a more rigorous common practice assessment.

Following the aforesaid framework, PP is able to meet with the requirements of sub-step 4a and provide necessary documented evidence and quantitative information to demonstrate that the Project Activity is not a common technological option within the relevant sector in the Philippines.

Following steps are followed for performing the common practice analysis:

<u>Sub-step 4a-1: Calculating the applicable output range as +/- 50% of the design output/capacityof the proposed project activity</u>

Capacity range is 75 MW ≤ 150 MW ≤ 225 MW

Sub-step 4a-2: Identifying[14] all plants (N_{all}) that deliver the same output within the range calculated in Sub-Step 4a-1, as the proposed project activity and has started commercial operation before the start date of the project.

Plants that deliver the same output capacity within the range

Grid	N_{al}
National Grid	There are 22 plants (refer to Appendix-1 for list of plants) in the host country that deliver the same capacity within the range calculated in Sub-step 1. $N_{all,NG}$ = 22.

Sub-step 4a-3: Within the plants identified in Sub-Step 4a-2, identify those that apply technologies different than the one in the proposed project activity (N_{diff}).

Note: The technology differs at least on one of the following: energy source/fuel, feed stock, size of installation (power capacity), investment climate in the date of the investment decision (e.g. access to technology, subsidies/other financial flows, promotional policies, legal regulations), other features (e.g. unit cost of output by at least 20%).

Calculation of N_{diff}

Grid	N_{diff}
National Grid	There are 22 plants in the host country that apply different technology thanthe one in the Project Activity. $N_{diff, NG}$ = 22.

Sub-step 4a-4: Calculate F = 1- (N_{diff}/N_{all}).

Calculation of F

Grid	F
National Grid	F_{NG} = 1- ($N_{diff,NG}/N_{all,NG}$) F_{NG} = 1- (22/22) F_{NG} = 0

Sub-step 4a-5: The proposed project is a common practice if F > 0.2 and N_{all}-N_{diff} >3

(c) Table 9: Common Practice Assessment

Grid	Assessment
National Grid	F_{NG} = 0, thus F_{NG} < 0.2
	$N_{all, NG}$-$N_{diff, NG}$ =0, thus $N_{all, NG}$-$N_{diff, NG}$ <3 Therefore, the Project Activity is not a common practice since F_{NG} < 0.2 nd $N_{all,NG}$-$N_{diff,NG}$< 3

Hence, it is concluded that the Project Activity is not a common practice.

[14] http:/www.doe.gov.ph/sites/default/files/pdf/electric_power/existing_power_plants/2011_power_plants_luzon.pdf, for Luzon regionand similarly for power plants for all other grids in the national grid, namely, Mindanao, Visayas and Visayas sub-grid

(i) Sub-step 4b: Discuss any similar Options that are occurring

Sub-step 4 b is not applicable since activities similar to the Project Activity are not widely observed (as demonstrated in Sub-step 4a).

Based on the assessment performed above, it is demonstrated that the Project Activity is additional to what would have happened in its absence (i.e., the baseline scenario).

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

>>

Baseline emissions

As per equation number (11) on page 16 of the baseline and monitoring methodology, baseline emissions are calculated as follows:

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

where:

BE_y : Baseline emissions in year y (tCO_2/year)

$EG_{PJ,y}$: 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/year)

$EF_{grid,CM,y}$: Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of "TOOL07: Tool to calculate the emission factor for an electricity system" (t CO_2/MWh)

Calculation of $EG_{PJ,y}$

As per the baseline and monitoring methodology, if the Project Activity is 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, then

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

(Equation number (12) on page 16 of the baseline and monitoring methodology)

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/yr)

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

Calculation of $EG_{facility,y}$ for ex-ante estimation of CERs in the PDD

$EG_{facility,y}$ is a monitored parameter; however for the purpose of estimating emission reductions ex-ante in the PDD, it is calculated as:

$EG_{facility,y} = Cap * N\ hour * LF$

where:

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

Cap: Capacity of the project plant/unit (MW)

N hour: Number of operating hours of project plant/unit in year y (hours)

LF: Load factor of the project plant/unit (%)

Calculation Emission Factor
The emission factor for the project is calculated to be **$EF_{grid,CM,\ y}$ = 0.684 tCO_2e/MWh**. The emission factor shall be fixed ex-ante for the entire second crediting period.

Project emissions
As per the baseline and monitoring methodology there are no project emissions from wind-based electricity generation projects, $PE_y = 0$.

Leakages
As per ACM0002, no leakage emissions are applicable, $LE_y = 0$.

Emission Reductions
Emission reductions (ER) are calculated as follows:
$ER_y = BE_y - PE_y - LE_y$

where:
ER_y : Emission reduction in year y (tCO_2e/year)
BE_y : Baseline emissions in year y (tCO_2e /year)
PE_y : Project emissions in year y (tCO_2e/year)
LE_y : Leakage emissions in year y (tCO_2e/year)

B.6.2. Data and parameters fixed ex ante

Data/Parameter	Cap
Data unit	MW
Description	Capacity of Wind Power Plant
Source of data	Design Value
Value(s) applied	150
--Choice of data or measurement methods and procedures	Nameplate capacity
Purpose of data	The data is used in the ex-ante calculation of net electricity generation supplied by the Project Activity to the grid
Additional comment	This is fixed ex-ante for the entire crediting period

Data/Parameter	N_{hour}
Data unit	Hours
Description	Number of operating hours of wind-based power plant
Source of data	Estimated for ex-ante estimation of CERs
Value(s) applied	8,760
--Choice of data or measurement methods and procedures	Calculation
Purpose of data	The data is used in the ex-ante calculation of net electricity generation supplied by the wind based power plant to the grid.
Additional comment	This is fixed ex-ante for the entire crediting period

Data/Parameter	LF
Data unit	%
Description	Load factor of the wind-based power plant
Source of data	EYA report by Parsons Brinckerhoff
Value(s) applied	28
--Choice of data or measurement methods and procedures	Estimation (Refer source of data)
Purpose of data	The data is used in the ex-ante calculation of net electricity generation supplied by the wind-based power plant to the grid
Additional comment	This is fixed ex-ante for the entire crediting period

Data/Parameter	$EF_{grid,CM,y}$
Data 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”

Source of data	The data for calculation of the grid emission factor is sourced from Philippines DNA (DOE website) which is the latest available data[15]
Value(s) applied	0.684
--Choice of data or measurement methods and procedures	Estimation
Purpose of data	Calculation of combined margin is based on ex-ante data vintage.
Additional comment	This is fixed ex-ante for the entire crediting period

B.6.3. Ex ante calculation of emission reductions

>>

Baseline Emissions

As mentioned in section B.6.1., the baseline emissions are calculated as follow:

$EG_{facility,y}$ = Cap * N hour * LF = 150 MW * 8,760 hours/year * 28% = 367,920 MWh/year

The baseline emissions are calculated as follows:

$BE_y = EG_{facility,y} * EF_{grid,CM,y}$ = 367,920 MWh/year * 0.684 tCO_2/MWh =251,519 tCO_2/year

Project emissions

As explained in section B.6.1., PE_y= 0

Emission Reductions

As explained in section B.6.1, emission reductions are calculated as follows:

$ER_y = BE_y - PE_y$ = 251,519 tCO_2/year – 0 tCO_2e/year = 251,519 tCO_2/year

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
2021-22	251,519	0	0	251,519
2022-23	251,519	0	0	251,519
2023-24	251,519	0	0	251,519
2024-25	251,519	0	0	251,519
2025-26	251,519	0	0	251,519
2026-27	251,519	0	0	251,519
2027-28	251,519	0	0	251,519
Total	1,760,635	0	0	1.760,635
Total number of crediting years	7			
Annual average over the crediting period	251,519	0	0	251,519

[15] https://www.doe.gov.ph/electric-power/2015-2017-national-grid-emission-factor-ngef

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

<table>
<tr><td>Data/Parameter</td><td>$EG_{facility,y}$</td></tr>
<tr><td>Data unit</td><td>MWh/yr</td></tr>
<tr><td>Description</td><td>Quantity of net electricity generation supplied by the project plant/unit to the grid in year y</td></tr>
<tr><td>Source of data</td><td>Electricity meter at wind farm substation</td></tr>
<tr><td>Value(s) applied</td><td>367,920</td></tr>
<tr><td>Measurement methods and procedures</td><td>The parameter is a calculated using the difference of export and import value measured from the electricity meter.

The NGCP provides records of 15 minutes dispatch to the grid, which is used for hourly aggregation and also monthly aggregation (for monthly billing).

Meter Details

<table>
<tr><th>Substation</th><th>Type Meter</th><th>Serial Number</th><th>Make</th><th>Accuracy Class</th></tr>
<tr><td rowspan="2">Burgos Substation</td><td>Main</td><td>194702911</td><td>AMETEK</td><td>0.2s</td></tr>
<tr><td>Alternate</td><td>194703025</td><td>AMETEK</td><td>0.2s</td></tr>
<tr><td rowspan="2">Laoag Substation</td><td>Main</td><td>134421343</td><td>AMETEK</td><td>0.2s</td></tr>
<tr><td>Alternate</td><td>15946702</td><td>AMETEK</td><td>0.2s</td></tr>
</table>

The electricity supplied to the grid is measured at the wind farm substation (Burgos substation) and also at Laoag substation. Each substation involves one main and one check meter, both of which are owned and operated by NGCP. The meters mentioned above are available at the time of RCP PDD preperation and may subject for replacement during the course of second crediting period The meters are bi-directional, and record electricity supplied to the grid by the project activity as well as electricity delivered from the grid to the Project Activity. NGCP provides the meter data from their main meter on a monthly basis and these are crosschecked against the raised invoice</td></tr>
<tr><td>Monitoring frequency</td><td>Hourly
The NGCP provides records of 15 minutes dispatch to the grid, which is used for hourly aggregation and also monthly aggregation (for monthly billing).</td></tr>
<tr><td>QA/QC procedures</td><td>As per registered PDD, the accuracy class of the meters will be at least as per IEC 687 Class 0.2 / ANSI 12.20 Class 0.3 or better. The meters will be subject to annual calibration. This is in line with the requirements under the “Metering standards and procedures” under the Wholesale Electricity Spot Market Metering Manual, Philippines. Meter records on net generation will be cross checked with invoices for sale of electricity. The NGCP owns 0.2 accuracy class meters installed both at the Burgos wind farm substation and the Laoag substations.

The plant operator records the electricity delivered to the grid on hourly basis. Similarly, in the event of shutdown or emergency, the electricity consumption received from the grid is also monitored and recorded.

Operating reports are developed on daily as well as on monthly basis, containing electricity data which is submitted to the concerned group as well as the management.</td></tr>
<tr><td>Purpose of data</td><td>Baseline emission calculation</td></tr>
<tr><td>Additional comment</td><td>Data will be archived for 2 years from the end of the crediting period or the last request for issuance whichever is later.</td></tr>
</table>

B.7.2. Sampling plan

>>
No Sampling is used for the monitoring parameters

B.7.3. Other elements of monitoring plan

>>
The monitoring processes followed for data collection are as follows.

Metering of electricity supplied to the grid
The Project Activity is connected to the grid through a 43km 115kV transmission line spanning from the wind farm substation in Burgos to NGCP's Laoag substation.

The electricity supplied to the grid is measured at the wind farm substation by three meters. The first two are the main and alternate meters, both of which are owned and operated by NGCP. The third is EBWPC's own meter. The meters are bi-directional, and record electricity supplied to the grid by the project activity as well as electricity delivered from the grid to the Project Activity.

NGCP provides the meter data from their main meter on a monthly basis and these are crosschecked against the values recorded by the project participant's own meter at the wind farm substation.

Dealing with erroneous meter readings
In case of meter error, NGCP will provide data based on their established procedures as required by the Energy Regulatory Commission for the issuance of a Certificate of Authority.

Accuracy class of the meters is as per IEC 687 Class 0.2 / ANSI 12.20 Class 0.3 or better. The main and alternate meters at the Burgos windfarm and Laog substation are calibrated annually by a qualified entity according to national regulations.

Apportioning data in case of mismatch between billing cycle and verification period
At the end of each month, NGCP provides daily data on net electricity exports from the project activity. Therefore, in case of a mismatch between the monthly billing cycle and the verification period, electricity exports pertaining to those days which are not covered within the verification period will be excluded and not considered for emission reduction calculations.

Data recording procedure
Meter data are downloaded from the meters and saved electronically. All relevant data are archived electronically, and backed up regularly. Records will be kept for the full crediting period, plus two years after the end of the crediting period or the last issuance of CERs for this Project Activity whichever occurs later. The Monitoring Plan has been developed to ensure that the project has robust data collection, processing and archiving procedures.

Emergency procedure
The PP has implemented an Emergency Procedure in the plant, for which a detailed manual has been developed. The manual contains instructions on how to handle an emergency situation in the plant, and measures to be taken to ensure that there is no unintended leakage emissions from the system. All the plant operators have been familiarised on the procedure.

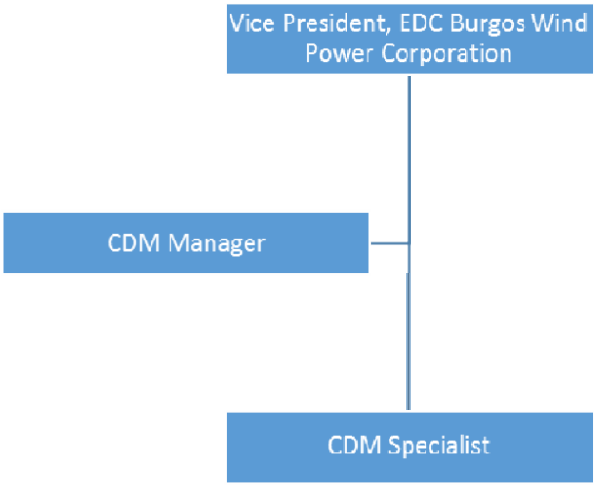
Monitoring Organisation
The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data would rest with the COO of the Company. A team of experienced personnel in various disciplines will assist the Shift Engineering Superintendents in plant operation, measurements and management. The primary responsibility of the team is to measure, monitor, record and report the

information on various data items to the Engineer-in-Charge, in accordance with the applicable standards.

The responsibility of review, storage and archiving of information in good condition would lie with the COO. The COO would undertake periodic verifications and onsite inspections to ensure the quality of the data collected by the team and initiate steps in case of any abnormal conditions. An internal verification report would be prepared for review by the COO, which would be later submitted for verification by an independent entity (DOE).

The team including the Engineer-in-Charge would be appointed by the COO in advance before the start of project operations. The Engineer-in-Charge would report to the COO and seeks guidance in case of conflicts or difficulties in order to maintain the monitoring organisation in good spirit.

The PP is well aware of the importance of having a good operational and management team in order to execute a well-defined monitoring plan (MP) for the Project Activity. The monitoring plan (MP) has been determined in accordance with the baseline and monitoring methodology. The MP ensures that monitoring and thus ER calculation during the crediting period is clear, consistent, complete and accurate. A CDM Monitoring Team has been established for monitoring and reporting. The figure below outlines the operational and management structure that the Project Activity has implemented for the monitoring and emission reduction calculations.



Organizational Structure for Monitoring Activity

The roles and responsibilities performed by the team members are as below:

Role	Responsibility description
CDM Specialist	• ***Data collection:*** Collect the data on the monitoring parameters as per themonitoring plan. • ***Data aggregation and emission reduction calculations****:* Data is aggregated for the year and used in emission reduction calculations. • ***Verification:*** Coordinate with the DOE during verification.
CDM Manager (ContractsAdministration Manager)	• Review and confirm the raw data collected, aggregated and emission reduction calculations done by the CDM specialist. • Assist the CDM specialist during verification.
Vice President	• Responsible for reporting the following to the management • Estimated emission reductions during the monitoringperiod • Outcome of the verification and status of issuance ofCERs

An internal training was conducted for the plant engineers and technicians to ensure that data monitoring and archiving tasks are implemented properly and according to the procedures andrequirements as set in the registered PDD.

Quality assurance and quality control

All measurements are conducted with calibrated measurement equipment. The PP is responsible for the quality assurance and quality control for recording, maintaining and archiving all the data by appointing relevant personnel to carry out the system analysis, equipment calibration and overall maintenance on a regular basis throughout the crediting period.

SECTION C. Start date, crediting period type and duration

C.1. Start date of project activity

>>
01/06/2013 (defined as the date when the first construction contract was signed)
This is the earliest contract signed by the project owner to commit for the project's expenditures

C.2. Expected operational lifetime of project activity

>>

20 years and 0 months
Even though a renewable crediting period up to 21 years is selected for the project activity, since the operational life is up to 20 years, the project activity will claim emission reductions only up to 20 years

C.3. Crediting period of project activity

C.3.1. Type of crediting period

>>
Renewable crediting period of 7 years 00 Months have been opted for the project activity. This is the second crediting period of the project activity.

C.3.2. Start date of crediting period

>>
Renewed start date of crediting period: 11/11/2021

C.3.3. Duration of crediting period

>>
7 years 00 months

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

>>
An Environmental Performance Report and Management Plan was prepared for this project activity and submitted to the Philippine Department of Environment and Natural Resources – Environmental Management Bureau

D.2. Environmental impact assessment

>>
None of the environmental impacts are considered significant. The Sangguniang Bayan of Burgos, Ilocos Norte issued a resolution in April 12, 2010 endorsing the implementation and operation of the project activity. The Department of Environment and Natural Resources of Philippines issued an environmental clearance certificate (ECC) in September 6, 2010 certifying that the Project Activity is in compliance with the applicable Environmental Laws in Philippines.

SECTION E. Local stakeholder consultation

E.1. Modalities for local stakeholder consultation

>>
The CDM stakeholder consultation meeting was conducted on April 7, 2010 from 10:00 am to 11:40 am at the Burgos Central Elementary School in Burgos, Ilocos Norte, Philippines.

Invitation letter were sent to selective list of stakeholders and confirmations for receipt of such invitation by the respective stakeholder were also collected. The invitations were also sent to Local Government Units (LGUs), particularly the “barangay captains” and “kagawads” from every host community of Burgos, Ilocos Norte.

Representatives from various government agencies were present during the meeting including the Department of Environment and Natural Resources (DENR), Provincial Environment National Resource Office (PENRO), Municipal office of Planning and Development, the Office of the Municipal Engineers and the Department of Education. In all, there were a total of 82 attendees for the stakeholder meeting.

Summary of Proceedings:
The program started at 10:00 AM with the Moderator introducing the attendees to the Project Activity and acknowledging the presence of the LGU officials and resource persons.

Welcome Remarks
Burgos Municipal Mayor Crescente Garcia formally welcomed the participants to the consultation meeting. He echoed the sentiment of the Burgos LGU and residents about the long-delayed construction of the Burgos Wind Project (BWP) and that they hope that the resource persons from EDC will finally communicate some good news about the much-awaited wind farm, as it will surely help the municipality. He also said that a similar project in Pagudpud is already underway.

Project Description

Update on the Project Activity

The Project Manager, Mr. Reman Chua opened by issuing an apology on behalf of EDC for the continued delay of the Project Activity. He went on to share with the participants the circumstances surrounding EDC's privatization, and gave some background information as well about First Gen's (EDC's parent company) and the Lopez Group's business interests, particularly in power generation that focuses on renewable and clean energy such as hydro, geothermal, natural gas and now wind.

Mr. Chua reiterated the crucialness of CDM revenues for the implementation and operation of the Project Activity.

Clean Development Mechanism (CDM):
Ms. Mila Jude informed the participants on the background and history of CDM and how the mechanism will work for the Project Activity. In closing, she explained to the participants that the stakeholder consultation activity is one of the requirements for CDM registration. The registration and final approval of the application will emanate from the Executive Board of the UNFCCC based in Bonn, Germany.

Sustainable Development Benefits
Ms. Cristy Cala presented the various sustainable development contributions of the Project Activity. Some of the contributions which were presented include:

- Reduced reliance on imported fossil fuels
- Mitigation of climate change/GHG emissions.

Open Forum
After the presentations there was an open forum to discuss the comments and issues raised. Details of the open forum are summarized in Section E.2 below.

Closing Remarks
Vice Mayor Benjamin Campañano delivered the closing remarks. He said he is still hopeful that the Project Activity that they have long been waiting for will start soon.

E.2. Summary of comments received

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Below is the summary of the questions/comments received during the stakeholder meeting and the responses provided for the same.

S No.	Question/Comment	Responses provided
1.	Mayor Garcia inquired about the requirements for CDM registration and the role that the LGU or the Sangguniang Bayan will carry out in the registration process, considering that the LGU already has an Environment Code and various ordinances relating to. He asked further if such requirements for registration will not come in conflict with such local regulations.	Ms. Jude replied that one requirement is the Project Design Document (PDD), and part of this is the stakeholders' consultation. She said that the stakeholders' endorsement of the Project Activity is an important requirement before it is registered with the CDM Executive Board. Ms. Sylvia Araneta, President of Seedlinks, added that there is another document called the Sustainable Development Benefits Description (SDBD), which includes, among others, a description of the host LGU's demographics and socio-economic profile, as well as the expected impacts of the Project Activity to the LGU.

2.	Mayor Garcia also inquired about the use of oil or petroleum-based products for the Project, and if oil products will indeed be used to run the wind turbines.	Mr. Chua said the wind turbines would require a periodic changing of oil, particularly lubricants for the nacelle, but the process (of changing/using oil or lubricant) will be carried out as prescribed by the manufacturer. He gave the assurance that EDC will do this in a clean way, including the disposal of the oil, in compliance with applicable local codes for the disposal of wastes.
3.	Mr. Garcia brought up the issue of noise pollution produced by wind turbines. He shared his observation of the wind turbines of North Wind Power, which produce annoying sounds. He inquired whether such annoying sounds will scare the livestock grazing in the area away.	Mr. Medrano admitted that the turbines might cause temporary or short-term annoyance or disturbance, but the farm animals will eventually be able to adjust. He added that the Project will ensure compliance with the required decibel levels. Mr. Chua also shared that the National Pollution Control Law of the Philippines has an existing requirement for noise level compliance, and this law has a standard on the required noise level for wind projects. Since this compliance is provided for in the law, the Project Activity will certainly comply with the standards. He stressed that EDC's minimum requirement in all its power projects are in full compliance with relevant laws, regulations and permits.
4.	Mayor Garcia echoed the concern of the pasture association and inquired whether the planned fencing of the spring inside the wind farm area be scrapped so that the livestock can freely access it.	Mr. Leo Ongco explained that the spring area is not within the Project Activity contract area as it has already been allocated for ecotourism purposes. He said EDC recognizes that the area is needed by the livestock and it has not actually been closed or fenced. Mr. Medrano added that the concern is well noted and EDC will meet with the persons concerned. This was seconded by Mr. Chua, who committed that EDC will coordinate with the pasture group and with the parties responsible for the pasture area to come up with an agreement, especially regarding the access of farm animals to the water source inside the ecotourism area.
5.	Mr. Arucan asked to be enlightened on reports that EDC is offering new lease contracts to the lot owners, and if it is true that EDC is giving lump sum payments to the lot owners which are good for 25 years.	Mr. Reman Chua confirmed that they are actually approaching the lot owners and are negotiating with them the new lease contracts. The reason for this is that they want to extend the period of the lease until 2034 (because of the service contract). Mr. Chua also confirmed that they are, indeed, offering lump sum payments for the lease agreement for 25 years. This is because we want to compensate them fully instead of paying them every year, which is a waste of time.

E.3. Consideration of comments received

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EDC has taken account of all the comments received, as per the table above. EDC has a CSR division both based in Manila as well as in Ilocos Norte. They make themselves very accessible to the host communities. Continuous consultations with the host barangays are being done on a regular basis to keep the host communities abreast with the development of the Project Activity and to address all issues and concerns.

SECTION F. Approval and authorization

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Issue date for HCA from Philippines DNA and Number: WES 2009-09-004, Dated 28 Nov 2011[16]

[16] https://cdm.unfccc.int/Projects/DB/BVQI1351770646.99/view

Appendix 1. Contact information of project participants

Organization name	EDC Burgos Wind Power Corporation (EBWPC)
Country	Philippines
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E-mail	carpio.pg@energy.com.ph
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Contact person	Philip G. Carpio

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Fax	-
E-mail	po.lc@energy.com.ph
Website	-
Contact person	Liza Po

Appendix 2. Affirmation regarding public funding

No public funding was used for this Project Activity.

Appendix 3. Applicability of methodologies and standardized baselines

Please refer section B.2

Appendix 4. Further background information on ex ante calculation of emission reductions

Appendix 5. Not Applicable**Further background information on monitoring plan**

Not Applicable

Appendix 6. Summary report of comments received from local stakeholders

Please refer Section E.2

Appendix 7. Summary of post registration changes

Not Applicable

Annex 1: List of power plants considered for common practice analysis

Sr. No.	Plant Name	Plant Type	Installed Capacity (MW)
1	SUBIC DPP	Diesel	116.0
2	Bacman	Geothermal	130.0
3	Pantabangan-Masiway	Hydro	132.0
4	Ambuklao	Hydro	105.0
5	Binga	Hydro	100.0
6	Casecnan (NIA)	Hydro	165.0
7	Toledo Power Corp (Sangi Sta)	Coal	88.8
8	Cebu TPP (Salcon)	Coal	106.8
9	PEDC Coal	Coal	164.0
10	KEPCO Coal	Coal	200.0
11	Panay Power Corp	Diesel	94.9
12	Palinpinon GPP	Geothermal	192.4
13	Leyte GPP	Geothermal	112.5
14	CEDC Coal	Coal	246.0
15	TMI 2	Diesel	100.0
16	TMI 1	Diesel	100.0
17	WMPC	Diesel	113.0
18	MT Apo	Geothermal	108.5
19	AGUS 1	Hydro	80.0
20	AGUS 2	Hydro	180.0
21	AGUS 4	Hydro	158.1
22	AGUS 6	Hydro	200.0

Source: “2011, List of Power Plants”- Department of Energy, Philippines.

Annex 2: EBWPC Livelihood and Social Programs for Burgos Wind Project

	Programs	Target Beneficiaries	Frequency
1	Medical Outreach	20% of population	Once a year
2	Socio-cultural	BgysSaoit,Nagsurot, Poblacion&Municipality of Burgos	Once a year
3	Scholarship program	5 students per year	One project but implemented throughout the year
4	Community clean-up drives and tree planting	BgysSaoit,Nagsurot&Poblacon	Once a year
5	Pasture development	All members of the Burgos Pasture Association (33 members)	One project but implemented throughout the year
6	Rice production	Farmers (10 farmers per Year)	One project but implemented throughout the year
7	Eco-tourism	One project per year	One project but implemented throughout the year

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Document information

Version	*Date*	*Description*
12.0	8 October 2021	Revision to: Improve consistency with version 03.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN).
11.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
10.1	28 June 2017	Revision to make editorial improvement.
10.0	7 June 2017	Revision to: • Improve consistency with the “CDM project standard for project activities” and with the PoA-DD and CPA-DD forms; • Make editorial improvement.
09.0	24 May 2017	Revision to: • Ensure consistency with the “CDM project standard for project activities” (CDM-EB93-A04-STAN) (version 01.0); • Incorporate the “Project design document form for small-scale CDM project activities” (CDM-SSC-PDD-FORM); • Make editorial improvement.
08.0	22 July 2016	EB 90, Annex 1 Revision to include provisions related to automatically additional project activities.
07.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A04-STAN) (version 01.0).
06.0	9 March 2015	Revision to: • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Make editorial improvement.
05.0	25 June 2014	Revision to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from F-CDM-PDD to CDM-PDD-FORM; • Make editorial improvement.

Version	*Date*	*Description*
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b.
04.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the project design document form for CDM project activities" (EB 66, Annex 8).
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12 Initial adoption.

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