Validation report form for renewal of crediting period for CDM project activities

(Version 03.0)

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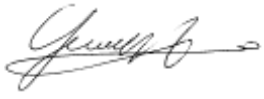
BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Burgos Wind Project UNFCCC reference number 7980
Number and duration of the next crediting period	2nd crediting period, 11/11/2021 until 10/11/2028
Version number of the validation report	1.1Aa
Completion date of the validation report	05/11/2022
Version number of PDD to which this report applies	Version 2 of RCP PDD
Project participants	EDC Burgos Wind Power Corporation
Host Party	Philippines
Applied methodologies and standardized baselines	ACM0002 - Grid-connected electricity generation from renewable sources ” version 20 of 28/11/2019
Mandatory sectoral scopes	Sectoral scope 1: Energy industries (renewable-/ non renewable sources
Conditional sectoral scopes, if applicable	N/A
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	251,519 tCO_2e
Name and UNFCCC reference number of the DOE	RINA Services S.p.A. (RINA), UNFCCC reference number of the DOE E-0037
Name, position and signature of the approver of the validation report	**Giovanni D’Angelo (**Authorized officer signing for the DOE) Sustainability & Food Certification Compliance Unit 

SECTION A. Executive summary

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The project activity involves the implementation and operation of 150 MW capacity Green field wind power project located in Burgos, Ilocos Norte, Philippines.

Each WTGs installed in this project activity is manufactured and supplied by Vestas with a rated capacity of 3.0 MW. The electricity generated by the project activity is exported to the grid through a 115 kV Transmission Line (T/L) connected to the NGCP Substation in Laoag City. Before the implementation of the project activity, no power plant is installed at the project site. Therefore, according to the large-scale consolidated methodology ACM0002, the baseline scenario is that 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) emission factor calculations described in "Tool 07: Tool to calculate the emission factor for an electricity system".

The project was validated by M/s.Bureau Veritas Certification (validation report ver 01, Dated 18/10/2012) /12/ and it was registered on 05/11/2012 (Date of registration action 24/01/2013) under the CDM registration reference number 7980. A Post registration changes was validated by M/s.Bureau Veritas Certification (dated 19/01/2017) /12/

Scope of validation

The objective of the Validation is to have an independent evaluation of the update PDD's compliance with relevant UNFCCC requirements and host Party criteria to confirm that the original project baseline is still valid or has been updated taking into account of new data where applicable. In particular, the project's baseline, monitoring plan and the project's compliance with relevant UNFCCC requirements and host Party criteria are validated in order to confirm the correctness of the application of the approved baseline methodologies for the determination of the continued validity of the baseline/or its update, and estimation of the emission reductions for the applicable crediting period. The validation scope is to review the updated PDD against the UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, and the subsequent decisions by the CDM Executive Board.

Validation process

This report summarizes the findings from the validation of the updated PDD of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given by the CDM Validation and Verification Standard, CDM Project Cycle Procedure and CDM Project Standard and included an assessment of: (a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period; (b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions from the applicable crediting period. This validation opinion is also to be seen in conjunction with the validation report at the time of requesting registration for the first crediting period. The Validation Opinion is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

Conclusion

RINA Services S.p.A. (RINA), commissioned by EDC Burgos Wind Power Corporation, has performed the validation for renewal of the crediting period for the registered project activity Burgos Wind Project in Philippines. In conclusion, it is RINA's opinion that the project meets all the relevant requirements for the renewal of the crediting period.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader, Technical Expert, Validator	IR	Singh	Vinay	RINA India	x	-	x	x
2.	Team Leader (in training)	ER	Balasubramanian	Rampradap	RINA India	x	-	-	-

B.2. Technical reviewer and approver of the validation report for RCP

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Amalorpavanathan	Cyril Augustus A	RINA India
2.	Approver	IR	D'Angelo	Giovanni	RINA HO

SECTION C. Means of validation

C.1. Desk/document review

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The updated PDD Version 03 and previous version /02/, in particular the applicability of the methodology, the baseline determination, the emission reduction calculations provided in the form of a spreadsheet "Emission Reductions" version 01 /10/, and the documents listed in the table 3 below, were reviewed during the validation.

C.2. On-site inspection

Duration of on-site inspection: N/A				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	N/A	N/A	N/A	N/A

A complete desk review of the submitted PDD /2/ and supportive evidences have been checked by the Validation Team.

In addition, audit team has conducted a remote site inspection via videoconference (teams) with PP on different topics as mentioned under section C.3 of this report.

Based on the videoconference, PDD review, as the review of UNFCCC procedures and guidelines, RINA Validation team has proceeded to skip the presential site visit, in line with paragraphs 30 of CDM Validation and Verification Standard for project activities version 03.0 /5/). Validation team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of validation.

By review of PDD;

By taking follow up actions by conducted interview with PP, to gather information about knowledge of project design, current situation via videoconference. Cross-checked evaluation under the scope of all information and references provided in PDD. Details of interviewees, topics covered and additional information presented in the above section "C.3 – Interviews".

Validation team has also checked the site visit requirements mentioned in the VVS for Project Activity version 03.0 /5/ and concluded that no site visit is required. The justification for the site visit requirements of VVS PA version 3.0 /5/ have been mentioned below.

VVS PA version 3.0 requirements	Validation team justification
Para 29 (b) (b) Follow-up actions (e.g. on-site inspection and telephone or e-mail interviews), including: (i) Interviews with relevant stakeholders in the host country, such as personnel with knowledge of the project design and implementation; (ii) Cross checks between the information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted;	Validation team has done the follow-up actions by: 1. Video call and e-mail conversations of PP. 2. Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted. 27/10/2022: video call at the wind farms to confirm -Implementation and operation of the proposed project activity; -Confirm data used in the ex-ante estimative of CERs calculation -Interviewed key personnel of the plant to confirm the operational and data collection procedures; QA QC procedures 27/10/2022 video call at the substations -confirm the energy meters installed for the net energy delivered to the grid and confirmation of meters specifications
Para 30 It is mandatory for the DOE to conduct an on- site inspection at validation for the proposed CDM project activity if: (a) Its estimated annual average of GHG emission reductions or net anthropogenic GHG removals is more than 100,000 t CO_2 eq; or (b) There is pre-project information that is relevant to the requirements for registration of the project activity and may not be traceable after the registration.	The validation team has not considered the site visit as mandatory due to the following reasons which are in line with the VVS PA version 3.0 requirements. As there is no pre-project information that is relevant to the requirements for renewal of the CDM project activity and may not be traceable after the post registration changes and renewal crediting period. Hence for the proposed CDM project activity, it is not mandatory to conduct the site visit.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Kapil	Krishan	Senior Manager (Operations)	27/10/2022	1. Status of the project activity 2. Applicability of selected Methodology 3. Baseline of the project 4. Emission reductions 5. Monitoring plan	EKI Energy Services Limited
2	Jugo	Crystel	Senior Manager (Business Development)	27/10/2022		EKI Energy Services Limited
3	Pamintuan	RJ	Vice President	27/10/2022	Project implementation and operation,	EDC Burgos Wind Power Corporation

					monitoring	
4	Durgo	Andy	Head-Operation & Maintenance	27/10/2022	Project implementation and operation, monitoring	EDC Burgos Wind Power Corporation
5	Arucan	Faye Marysol	Executive	27/10/2022	Project implementation and operation, monitoring	EDC Burgos Wind Power Corporation
6	Saguban	Michelle Labrador	Executive	27/10/2022	Project implementation and operation, monitoring	EDC Burgos Wind Power Corporation
7	Galemba	Cr	Executive	27/10/2022	Project implementation and operation, monitoring	EDC Burgos Wind Power Corporation

C.4. Sampling approach

>> N/A

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form			
Application and selection of methodologies and standardized baselines			
Validity of original baseline or its update	1		
Estimated emission reductions or net anthropogenic removals	1		
Validity of monitoring plan			
Crediting period			1
Project participants			
Post-registration changes			
Others (please specify)			
Total	2		1

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	PDD applies the applicable CDM- PDD-FORM: Project design document form version 12.0. /07/ RINA verified that for the renewal crediting period, information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD.
Findings	N/A.
Conclusion	RINA confirms that the PDD is based on the currently valid CDM-PDD-FORM template version 12.0 and is completed in accordance with the Attachment: Instructions for completing this form /07/

D.2. Application and selection of methodologies and standardized baselines

Means of validation	The project was originally registered based on version 12.2.0 of the methodology ACM0002 /09/; the revised PDD /02/ applies ACM0002 - Grid-connected electricity generation from renewable sources version 20 of 28/11/2019 /06/. RINA verified that the ACM0002 is still applicable to the project activity as described below:

Applicability criteria	Project activity	Criteria is met?
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).	RINA verified that the option a) Install a Greenfield power plant is applicable to the project activity	Yes
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.	RINA verified that the project activity is an installation of wind power plants grid-connected. Option b) is not applicable, since only new project/unit(s) is considered in the proposed project activity.	Yes
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,	Not applicable. The project comprises only wind power plants	Yes

	calculated using equation (3), is greater than 4 W/m2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m2; 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 (3), is lower than or equal to 4 W/m2, all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) 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	Not applicable, since the project activity is not an integrated project type. It is not hydro power plants	Yes

	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 five years prior to implementation of CDM project activity.		
	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.	a) Not applicable, since the wind power plants are a grid-connected power project. b) Not applicable, since the project activity is a wind project type.	Yes
	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".	Not applicable, the project is a green field wind plants.	Yes

This methodology also refers to the latest approved versions of the following tools:
- "TOOL01: Tool for the demonstration and assessment of additionality", version 7.0 (not used in the project activity for the renewal crediting period);
- "TOOL02: Combined tool to identify the baseline scenario and demonstrate additionality", version 7.0 not used in the project activity;
- "TOOL03: Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", version 3.0 (not used in the project activity);
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- "TOOL07: Tool to calculate the emission factor for an electricity system", version 7.0 /13/;
- "TOOL10: Tool to determine the remaining lifetime of equipment", version 1.0 (not used in the project activity);)
- "TOOL11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period", version 3.0.1 /08/.
- "TOOL32: Positive lists of technologies" (Version 2.0), not used in the project activity

Findings	N/A
Conclusion	RINA confirms that the selected baseline and monitoring methodologies have been previously approved by the CDM Executive Board and are applicable to the project, which complies with all the applicability conditions therein the selected versions are valid at the time of submission of the renewal of crediting period. It is also confirmed that the methodologies are correctly applied by comparing them with the actual text of the applicable versions.

D.3. Validity of original baseline or its update

Means of validation

The baseline was assessed according to the Tool 11 "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" /08/. The following steps were assessed:

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

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

In accordance with the ACM0002, if the project activity consists of the installation of a greenfield power plant, the baseline scenario is: "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 "TOOL07: Tool to calculate the emission factor for an electricity system". /13/

In the first crediting period, the project electricity system was the Luzon-Visayas Grid is the the relevant grid to the project activity. The Luzon-Visayas Grid as the relevant electricity system is also recommended by the host country DNA of Philippines, Department of Energy. According to the published data by the host country DNA of Philippines, Department of Energy, the latest grid emission factor refers to 2007-2011 National Grid Emission Factor /11/ and the same is considered for this project activiy.

In the second crediting period, the project activity will follow the same definition of the project electricity system and use emission CO2 emission factors of the latest published by by the host country DNA of Philippines, Department of Energy. Most recent data from 2015-2017 is used in the updated PDD.

Rina verified during the remote inspection that the following equipment's are installed and operational /14/ /15/:

WTG Specific Numbers	WTG Model	WTGs quantity	Installed Capacity (MW)	Commissioning Date (COD)
C01,C08,C15,C23,C24,C25,C27,C31,C33,C37,C38,C42,C47	Vestas	13	39	01/11/2014
C03,C06,C07,C20,C22,C29,C34,C44,C45	Vestas	9	27	31/10/2014
C10,C11,C14,C26,C28,C32,C36,C40,C46,C48,C49,C50,C12	Vestas	13	39	02/11/2014
C35,C02,C09,C13,C17,C18,C19,C21,C30,C39,C41	Vestas	11	33	03/11/2014
C04,C43,C05	Vestas	3	9	04/11/2014
C16	Vestas	1	3	05/11/2014
		50	150	

RINA verified in Google Earth that the geographical coordinates described in the PDD corresponds to the wind farms area. /20/

Step 1.2: Assess the impact of circumstances

There are no circumstances that impact the baseline scenario. During the second crediting period, the combined margin emission factor of the National Interconnected

	System will be calculated, according to "TOOL07: Tool to calculate the emission factor for an electricity system" and based on the Build Margin (BM) and Operating Margin (OM) values published by the by the host country DNA of Philippines, Department of Energy. **Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which the renewal is requested** In the absence of the project, the electricity would be generated by Luzon-Visayas grid connected power plants. Thus this step does not apply, since the power plants connected to the system would continue to supply energy independently of the lifetime of individual equipment. Regarding the project lifetime, the project has 20 years lifetime as validated in the registered PDD. Therefore, the remaining lifetime exceeds the end of second crediting period. **Step 1.4: Assessment of the validity of the data and parameters** The baseline emissions of the project activity were updated considering the last version of the methodologies and related applicable tools. **Step 2: Update the current baseline and the data and parameters** **Step 2.1: Update the current baseline** The current scenario still valid, thus there is no need to be updated. The baseline emissions for the second crediting period have been updated, without reassessing the baseline scenario, based on the latest approved version of the methodology ACM0002 and applicable tools. **Step 2.2: Update the data and parameters** The data and/or parameter(s) for the second crediting period were updated. The assessment is described in the sections below, the Brazilian grid delineation, the CO2 emission factor of the grid was updated to reflect the current delineation and matrix, following the latest version of TOOL07.
Findings	N/A.
Conclusion	RINA confirms that the selected baseline and monitoring methodologies have been previously approved by the CDM Executive Board and are applicable to the project, which complies with all the applicability conditions therein the selected versions are valid at the time of submission of the renewal of crediting period. It is also confirmed that the methodologies are correctly applied by comparing them with the actual text of the applicable versions.

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation

The approved baseline and monitoring ACM0002 - Grid-connected electricity generation from renewable sources version 20 of 28/11/2019 /06/ has been applied.

Data and parameters fixed ex-ante:

Data/parameter / unit	Value applied	Assessment
Cap (in MW) : Capacity of Wind Power Plant	150	RINA verified the name plate of the individual WTG and cross checked with commissioning certificate of the individual WTG. RINA the total number of WTG installed is 50 and the total capcity is 150 MW. The capacity of the project activity is fixed Ex-ante.
N_{hour} (in Hours) Number of operating hours of wind-	8760	RiNA confirms the calculation of operational hours is based on 24 hours operation of WTGs for the total number of 365 days in a year.

based power plant		
LF (in percentage) : Load factor of the wind-based power plant	28%	RINA confirms that the Load factor has been applied at 28%, based on Energy Yield Assessment Report (i.e. PLF Study Report prepared by a third party engineering company as conducted by Parsons Brinckerhoff. Therefore the PLF considered is in accordance with the requirements as specified by EB 48, Annex 11.
$EF_{grid,OM,y}$ (tCO2e/MWh): CO2 Operating Margin emission factor of the grid, in a year y	0.712	RINA verified that data for the year 2015-2017 is applied, since it is the latest data available at the time of PDD was submitted to validation of renewal crediting period. /16/
$EF_{grid,BM,y}$ (tCO2e/MWh): CO2 Build Margin emission factor of the grid, in a year y	0.598	RINA verified that data for the year 2015-2017 is applied, since it is the latest data available at the time of PDD was submitted to validation of renewal crediting period. /16/
W_{OM} (%): Weighting of operating margin emissions factor	75 %	Default value in accordance with TOOL07: "Tool to calculate the emission factor for an electricity system" for wind power plants
W_{BM} (%): Weighting of building margin emissions factor	25 %	Default value in accordance with TOOL07: "Tool to calculate the emission factor for an electricity system" for wind power plants

Emission Reduction

Project emissions:
In accordance with ACM0002, for most renewable energy power generation project activities, PE_y = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$\boldsymbol{PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}}$$

Where:

$\boldsymbol{PE_y}$ = Project emissions in year *y* (t CO_2e/yr)

$\boldsymbol{PE_{FF,y}}$ = Project emissions from fossil fuel consumption in year *y* (t CO_2/yr)

$\boldsymbol{PE_{GP,y}}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year *y* (t CO_2e/yr)

$\boldsymbol{PE_{HP,y}}$ = Project emissions from water reservoirs of hydro power plants in year *y* (t CO_2e/yr)

For this project activity, $PE_{FF,y,}$ $PE_{GP,y}$ and $PE_{HP,y}$ are zero. Therefore, the project does not generate any associated project emissions.

Baseline emissions:

In accordance with the applied methodology:

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

Where:

BE_y= Baseline emissions in year y (t CO2/yr)

$EG_{PJ,y}$ = 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)

$EF_{grid,CM,y}$ = Combined margin CO2 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 CO2/MWh)

If the project activity is the installation of a Greenfield power plant, then:

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

Where:

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)

$EG_{facility,y}$ for ex-ante estimation:
$EG_{facility,y}$ 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 (%)

For the combined emission factor, data is provided by the host country DNA of Philippines, Department of Energy /16/, in accordance with the requirements of the tool /13/, as described below.

STEP 1: Identify the relevant electricity system

The host country DNA of Philippines, Department of Energy published a national grid emission factor 2015 -2017, defines the Luzon-Visayas Grid as a part of the national grid of the country /11/

STEP 2: Choose whether to include off-grid power plants in the project electricity system (optional)

The host country DNA of Philippines, Department of Energy is responsible for calculating the emission factors and it did not include off-grid power plants in the calculation, therefore Option I is used:Only grid power plants are included in the calculation;

STEP 3: Select a method to determine the operating margin (OM)

The host country DNA of Philippines, Department of Energy is responsible for calculating the OM emission factor in Brazil. It uses the method c) Dispatch data analysis OM.

For the dispatch data analysis OM, it is necessary to use the year in which the project activity displaces grid electricity and to update the emission factor annually during monitoring.

Step 4: Calculate the operating margin emission factor according to the selected method

$$EF_{grid,OM-DD,y} = \frac{\sum_{m} EG_{PJ,h} \times EF_{EL,DD,h}}{EG_{PJ,y}}$$

Where:

$EF_{grid,OM-DD,y}$ = Dispatch data analysis operating margin CO2 emission factor in year y (tCO2/MWh)

$EG_{PJ,h}$ = Electricity displaced by the project activity in hour h m of year y (MWh)

$EF_{EL,DD,h}$ = CO2 emission factor for power units in the top of the dispatch order in hour h in year y (tCO2/MWh)

$EG_{PJ,y}$ = Total electricity displaced by the project activity in year y (MWh)

h = hours in year y in which the project activity is displacing grid electricity

y = Year in which the project activity is displacing grid electricity

For the ex-ante estimative, most recent data from 2021 was used /16/

Step 5. Calculate the build margin (BM) emission factor

For data vintage, Option 2 was chosen for the proposed project in the first crediting period. Therefore, for the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 of the tool. The most recent data from 2015 - 2017 was used /16/

Step 6: Calculate the Combined Margin emission factor

$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM}$

According with the Tool, values adopted for w_{OM} and w_{BM} in the second crediting period is equal w_{OM}= 0.75 and w_{BM}=0.25.

For the ex-ante estimative, most recent data from 2015 - 2017 was used /16/

Emission Factor	2015 - 2017
EFgrid,OM (tCO2/MWh)	0.712
EFgrid,BM (tCO2/MWh)	0.598
W_{OM}	0.75
W_{BM}	0.25
$EF_{grid,CM}$ (tCO_2/MWh)	**0.684**

The summary of ex-ante estimative will be presented in the final report:

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
Findings	FAR 1 is raised. Please refer Appendix-4.				
Conclusion	It is RINA's opinion: (a) All assumptions and data used by the PP are listed in the PDD; (b) All documentation used by the PP as the basis for assumption and source of data is correctly quoted and interpreted in the PDD (c) All values used in the PDD and CERs spreadsheet. including GWPs are considered reasonable in the context of the proposed project activity /10/; (d) The baseline methodology and methodological tools have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; (e) All estimates of the baseline and project emissions can be replicated using the data and parameters values provided in the PDD and CERs spreadsheet.				

D.5. Validity of monitoring plan

Means of validation	The approved baseline and monitoring ACM0002 - Grid-connected electricity generation from renewable sources version 20 of 28/11/2019 /06/ has been applied. The assessment of the ex-post parameters are described in the table below:

Parameter	Description/Assessment
$EG_{facility,y}$ (MWh/yr): Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.	Value applied: 367,920 RINA verified that for the ex ante estimate, the official assured energy approved by NGCP. The measurement methods of the parameter $EG_{facility,y}$ described are in line with the requirements of the updated methodology/tool 5: The parameter is a calculated using the difference of export and import value measured from the electricity meter at wind farm substation 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

Substation	Type Meter	Serial Number	Make	Accuracy Class
Burgos Substation	Main	194702911	AMETEK	0.2s
	Alternate	194703025	AMETEK	0.2s
Laoag Substation	Main	134421343	AMETEK	0.2s
	Alternate	15946702	AMETEK	0.2s

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 invoices.

RINA confirms 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.

Management system and quality assurance

A remote audit has been performed on 27/10/2022 and it is confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design.The monitoring is based only on data measured. The updated PDD /02/ describes that all data collected as part of monitoring will be archived and kept at least for 2 years after the end of the crediting period or 2 years after the last issuance of CER for this project activity, whichever occurs later. PDD describes the accuracy and calibration periodicity of the monitoring equipments in accordance with under the Wholesale Electricity Spot Market Metering Manual, Philippines. /17/.

Findings	N/A.
Conclusion	It is RINA's opinion that the monitoring plan is in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions. RINA has checked all the parameters presented in

	the monitoring plan against the requirements of the methodology and methodological tools; no deviations relevant to the project activity have been found in the plan. RINA confirms that the monitoring arrangements described in the monitoring plan, including the data management and quality assurance and quality control procedures, are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

D.6. Crediting period

Means of validation	The last day of the 1st crediting period is 10/11/2021. The second crediting period starts on the day immediately after the expiration of the current crediting period, on 11/11/2021.
Findings	CL 02 is raised to confirm the exact start date of crediting period and based on the clarification from PP the CL 02 is closed. Please refer the Appendix-4 for detail closure of findings.
Conclusion	RINA confirmed that the second crediting period of the registered CDM project activity commences on the day immediately after the expiration of the current crediting period.

D.7. Project participants

Means of validation	RINA verified that the project participants listed in the PDD are in accordance with project information in the UNFCCC web page: EDC Burgos Wind Power Corporation
Findings	N/A
Conclusion	RINA verified that the project participant included in the updated PDD is consistent with the name of the project participant in the project view page.

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[1]	N		
Corrections	N		
Change to the start date of the crediting period	N		
Inclusion of a monitoring plan	N		
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N		
Changes to the project design	N		
Changes specific to afforestation and reforestation project activities	N		

SECTION E. Internal quality control

>>

The draft final revision of the validation opinion report before being submitted to UNFCCC for request of renewal of crediting period were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review is performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

[1] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

SECTION F. Validation opinion

>>

RINA Service Spa (RINA) has performed a validation of the updated PDD for the project activity "Burgos Wind Project " in Philippines, CDM Registration Reference number 7980. The validation of the updated PDD has being performed for the second renewal crediting period (from 11/11/2021 to 10/11/2028) and is based on the information made available to us.

RINA has performed this validation in accordance with CDM validation and verification standard for project activities version version 03.0 of 09/09/2021 and included an assessment of:

- An impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period:
- The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

During the validation, there are not proposed post-registration changes for the next crediting period that is submitted together with the request for renewal of crediting period of the registered CDM project activity.

The review of the PDD version 2 of 05/11/2022 and the subsequent follow-up interviews have provided RINA with sufficient evidence to determine the validity of the original baseline scenario. The project correctly applies the baseline and monitoring methodology ACM0002 - Grid-connected electricity generation from renewable sources version 20 of 28/11/2019. The total emission reductions from the Burgos Wind Project are estimated to be on an average 251,519 tCO_2e per year over the selected 7 years renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CL	Clarification Request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra: *We declare that Mr/Mrs/Ms:*	**Vinay SINGH**
è qualificato come[1]: *is qualified as:*	**TEC – VAL – VER – TL – ITRP - REG-EXP[3]**
nello schema[2]: *for the scheme:*	**CDM – VCS – SCS – JI - ISO14064-2**
per le seguenti aree tecniche: *for the following technical areas:*	**1.2 - 14.1**

AREE TECNICHE *TECHNICAL AREAS*	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.2	Renewables	1
14.1	Forestry	14

in accordo alle istruzioni dell'Unità responsabile (OU) per sostenibilità & cambiamenti climatici.
in accordance with the instructions of the responsible unit (OU) for the sustainability & climate change.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	04/05/2020	First Issue
2	11/03/2022	Updated form

Il Resp. OU
Head of OU

[1] **Legend:**
VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
REG-EXP: Regional Expert
ITR: Independent Reviewer
DET: Determiner

[2] **Legend:**
CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS4GG: Gold Standard for Global Goals
SCS: SocialCarbon Standard
JI: Joint Implementation
ISO14064-2: International standard 14064 part 2

[3] India, Kenya, Uganda, Sri Lanka, Thailand, Mauritius.

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operative Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS
RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS4GG Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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RINA

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra
We declare that Mr/Mrs/Ms: **Amalorpavanathan Cyril AUGUSTUS AROKIASAMY**

è qualificato come[1]
is qualified as: CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, ITRP, REG-EXP[2]

per le seguenti aree tecniche:
for the following technical areas: 1.1, 1.2, 3.1, 4.1, 5.1, 13.1

AREE TECNICHE *TECHNICAL AREAS*	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.1	Thermal energy generation	1
1.2	Renewables	1
3.1	Energy Demand	3
4.1	Cement and lime production	4
5.1	Chemical industry	5
13.1	Solid Waste and wastewater	13

In accordo alle istruzioni della Unità Certification Innovation and Sustainability.
In accordance with the Instructions of the Certification Innovation and Sustainability Unit.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	30/06/2010	-
13	31/03/2017	Updated qualification as ITRP
14	20/09/2018	Update qualification as REG-EXP
15	15/11/2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"
16	15/09/2020	Update

Il Resp. CEINS
Head of CEINS

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

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

[2] Ghana, Azerbaijan, China, Sri Lanka, Bangladesh, Nepal, Thailand, Indonesia, Singapore, Malaysia, Cambodia, Vietnam, Philippines, UAE and Iraq; Brazil, Japan.

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

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

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	PP	CDM-PDD for project activity Burgos Wind Project in Philippines	First crediting period Revised registered PDD Version 6 of 09/12/2016, approved on 04/05/2017 Registered PDD version 4 of 18/10/2012	PP
2	PP	CDM-PDD updated for the second crediting period, 11/11/2021 until 10/11/2028	version 1 of 29/09/2022 version 2 of 05/11/2022	PP
3	CDM Executive Board	CDM project cycle procedure for project activities	version 03.0 of 09/09/2021	Other
4	CDM Executive Board	CDM project standard for project activities	version 03.0 of 09/09/2021	Other
5	CDM Executive Board	CDM validation and verification standard for project activities	version 03.0 of 09/09/2021	Other
6	CDM Executive Board	Baseline and monitoring methodology ACM0002 - Grid-connected electricity generation from renewable sources	version 20 of 28/11/2019	Other
7	CDM Executive Board	CDM-PDD-FORM: Project design document form, including its Attachment: Instructions for completing this form	Version 12 of 08/10/2021	Other
8	CDM Executive Board	CDM Executive Board: TOOL 11: "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 of 02/03/2012	Other
9	CDM Executive Board	Baseline and monitoring methodology ACM0002 - Grid-connected electricity generation from renewable sources	Version 12.2.0 (1st crediting period)	Other
10	PP	CERs spreadsheet CDM7980-Burgos-ER (2021-2028)	Version 1	PP
11	Department of Energy (DOE) DNA, Philippines	Resolution number 8, that defines the grid for CDM project	26/05/2008	Other
12	Bureau Veritas Certification	Validation report ver 01, for the project activity Burgos Wind Project	Dated 18/10/2012	Other

		Validation Report on Post-Registration Changes (PRCs)	Dated 19/01/2017	
13	CDM Executive Board	TOOL 7: "Tool to calculate the emission factor for an electricity system	Version 7 of 31/08/2018	Other
14	PP	REPA 0006 (or PPA) was issued on 17/04/2015 after obtaining the 'Certificate of Compliance (COC)'	Dated 23/02/2015	Other
15	PP	Commissioning Certificate for the project activity by Parsons Brinckerhoff Philippines, Inc	Dated 03/11/2014 Dated 04/11/2014 Dated 05/11/2014	Other
16	Department of Energy (DOE) DNA, Philippines	Emission factor data: https://www.doe.gov.ph/electric-power/2015-2017-national-grid-emission-factor-ngef	Accessed on 19/10/2022	Other
17	Wholesale Electricity Spot Market Metering Manual, Philippines	WESM Manual Metering Standards and Procedures Issue 14.0 | https://www.wesm.ph/downloads/download/TWFya2V0IFJlcG9ydHM=/MTc2NQ==	Dated 20/12/2021	Other
18	PP	Monthly Operation Reports	-	Other
19	Google Earth	Kml file/ geographical coordinates		Other

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

Table 1. CL from this validation

CL ID	01	**Section no.**	D.4	**Date:** 01/11/2022
Description of CL				
In section B.6.1, PP is requested to clarify the calculation of emission factor with the current crediting period. As in the 1st crediting period it is mentioned as 0.571 tCO2e/MWh and in the renewable crediting period it is 0.684 tCO2e/MWh.				
Project participant response				**Date:** 02/11/2022
For 2nd crediting period, the emission factor is calculated using the latest published data by the host country DNA of Philippines, Department of Energy. As per DNA of Philippines, the combined margin of the Luzon-Visayas Grid for wind power plant is estimated as 0.684 tCO2e/MWh. The same has been used.				
Documentation provided by project participant				
N.A.				
DOE assessment				**Date:** 04/11/2022
The assessment team has verified the latest published data available in the web portal of Department of Energy, of Philippines and confirmed that the values used for calculating the combined margin emission factor is appropriate and relevant to the 2nd crediting period (i.e. 11/11/2021 until 10/11/2028). The data used for emission factor calculation is issued by the government authority (i.e. host country DNA of Philippines, Department of Energy) and hence it is authentic. Therefore the CL is closed.				

CL ID	02	**Section no.**	D.6	**Date:** 01/11/2022
Description of CL				

PP is requested to clarify on the start date of the crediting period. As in the renewable of CDM PDD it is mentioned as 11/11/2021. *However, on UNFCCC portal this is mentioned as—* *11 Nov 14 - 10 Nov 21 (Renewable, Changed from: 01 Jun 14 - 31 May 21)*
Project participant response **Date:** 02/11/2022
End date for first crediting period is 10 Nov 2021. The start date of second crediting period has been selected as one day after the end date of first crediting period. Hence, start date of second crediting period is selected as 11/11/2021
Documentation provided by project participant
DOE assessment **Date:** 04/11/2022
PP has confirmed the end date of first crediting period as 10/11/2021 and therefore the start date of second crediting period mentioned in the CDM PDD is correct. The start date of second crediting period is not overlapping with the end date of first crediting period and it is deemed appropriate. Hence, the CL is closed.

Table 2. CAR from this validation

CAR ID	N.A.	**Section no.**		**Date:**
Description of CAR				
N.A				
Project participant response				**Date:**
N.A				
Documentation provided by project participant				
N.A				
DOE assessment				**Date:**
N.A				

Table 3. FAR from this validation

FAR ID	01	**Section no.**	D.4	**Date:** 01/11/2022
Description of FAR				
As per paragraph 7(c) of the EB 108 meeting report, the CME shall: *(i) apply any global warming potential values that may be adopted by the CMP16 for the period of monitoring reports for any emission reductions achieved on or after 01/01/2021; and* *(ii) update the PDD in accordance with any requirements of the CMP16 guidance.*				
Project participant response				**Date:** 02/11/2022
Agreed				
Documentation provided by project participant				
Signed Risk acknowledgment and acceptance form-27/09/2022				
DOE assessment				**Date:** 04/11/2022
The assessmemt team checked and confirmed the global warming potential values considered for the grid emission factor calculation is lowest value. Also the PP has submitted the signed copy of the Risk acknowledgment and acceptance form. However, the global warming potential has to be checked during next periodic verification.				

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Document information

Version	*Date*	*Description*
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for project activities" (CDM-EB93-A05-STAN) and version 02.0 of the "CDM project cycle procedure for project activities" (CDM-EB93-A06-PROC); • Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements of the "CDM validation and verification standard for project activities" (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Renewal of crediting period
Keywords: crediting period, project activities, validation report