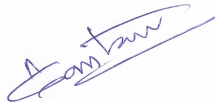




**Validation report form for renewal of crediting period for
CDM project activities
(Version 03.0)**

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

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Los Santos Wind Power Project 6275
Number and duration of the next crediting period	Crediting Period: 2 nd (01/07/2019 to 30/06/2026)
Version number of the validation report	2.0
Completion date of the validation report	18/05/2020
Version number of PDD to which this report applies	4
Project participants	Cooperativa de Electrificación Rural Los Santos (COOPESANTOS) Carbonbay GmbH & Co. KG
Host Party	Costa Rica
Applied methodologies and standardized baselines	AMS-I.D.: Grid connected renewable electricity generation- Version 18.0
Mandatory sectoral scopes	1: Energy Industries (renewable -/ non-renewable sources)
Conditional sectoral scopes, if applicable	Not Applicable
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	11,383 tCO ₂
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited E-0066
Name, position and signature of the approver of the validation report	 Ashok Kumar Gautam Director

SECTION A. Executive summary

The project activity involves generation of electricity from wind turbine generators (WTGs) installed in host country Costa Rica in EL Guarco and Desmparados. The project consists of fifteen horizontal axis GAMESA G52-850 WTG models, each with a rated capacity of 850kW. The total installed capacity of the project thus turns out to be 12.75 MW.

The purpose of this PA is to generate clean electricity by using natural wind patterns to run the WTGs, which are directly connected to national grid. Thus, project displaces carbon intensive, fossil fuel based electricity with low emission electricity production. This results in overall reduction of carbon emissions from electricity generation in the host country.

Total estimated annual average emission reduction from Los Santos Wind Power Project for second crediting period is 11,383 tCO₂.

Scope of Validation

The scope of the services provided by Earthood Services Private Limited for the project is to perform validation of the renewal of crediting period for the project activity. The scope of validation is to assess the claims and assumptions made in the revised project design document (PDD) against the UNFCCC criteria including, but not limited to, CDM PS/1/, CDM VVS/3/, applied methodology/10/ and other relevant rules and requirements established for CDM project activities.

Validation Process

The validation process is undertaken by validation team that involves the following:

- the desk review of documents and evidences submitted by the project participant in context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation report for renewable of crediting period complying with the CDM requirements

An independent Technical Review team reviews the validation report prepared by validation team. The final validation report that is accepted by Technical Reviewer is then approved on behalf of Earthood Services Private Limited and processed further as per CDM procedures.

Conclusion

The review of the PDD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) has provided Earthood with sufficient evidence to determine the fulfilment of stated criteria. Earthood is of the opinion that the project activity 6275 "Los Santos Wind Power Project" as described in the final revised PDD version 4 dated 18/05/2020 meets all relevant requirements of CDM, meets host country criteria and has correctly applies the methodology AMS-I.D. ver. 18 - Grid connected renewable electricity generation. Therefore, the project is being recommended to CDM EB for request for its renewable of 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	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
2.	Verifier	IR	Guleria	Shifali	Central Office	Y	N	N	Y

3.	Technical Expert	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
4.	Local Expert	EI	Padilla	Victor	Central Office	Y	Y	Y	Y
5.	Methodology Expert	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y

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	Garg	Shreya	Central Office
2.	TA expert to TR	IR	Garg	Shreya	Central Office
3.	Approver	IR	Gautam	Ashok	Central Office

SECTION C. Means of validation

C.1. Desk/document review

The validation for the renewal of crediting period is performed primarily as a document review of the project design document version (final) version 4 dated 18/05/2020. The cross checks between information provided in the PDD and information from sources other than those used, if available, the validation team's sectoral or local expertise and, if necessary, independent background investigations.

The complete list of documents/evidences assessed by validation team is included under Appendix 3

C.2. On-site inspection

Duration of on-site inspection: 09/12/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening Meeting: Introduction, scope and objective of work, roles and responsibilities of audit team, resources required, and timetable of the onsite audit including venue for closing meeting and any concerns from PP.	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
2.	Travel to site location	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
3.	Physical inspection of the site	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
4.	Project Activity (Technology, Location and Implementation)	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
5.	Choice and applicability of baseline methodology(ies)	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
6.	Project boundary and emission sources included in the project boundary.	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
7.	Baseline identification	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
8.	Parameter fixed Ex-ante and Baseline emissions, Project emissions and Leakage calculation	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
9.	Monitoring plan (feasibility of monitoring arrangements described in PDD, QA/QC procedures, responsibility of implementation of monitoring plan, data recording & storage procedures)	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
10.	Operational lifetime of the project activity,	San Isidro & San	09/12/2019	Kaviraj Singh, Victor

	Start date of the project activity, Crediting period	Cristobal, Costa Rica		Padilla
11.	Environmental impacts and need of EIA	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
12.	Compilation of the findings by Auditor/s (CARs/CLs)	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla
13.	Closing Meeting: Submission of the audit findings to the client and agreement on the issues raised and agreement on timelines.	San Isidro & San Cristobal, Costa Rica	09/12/2019	Kaviraj Singh, Victor Padilla

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Giles	Christian	Anaconda Carbon	09/12/2019	Emission Reduction Calculation, Monitoring Plan and procedures	Kaviraj Singh, Victor Padilla
2.	Solis	Wendy	Coopesantos	09/12/2019	Technology, location, implementation of PA	Kaviraj Singh, Victor Padilla
3.	Bruekner	Wolfgang	Carbonbay	09/12/2019	Monitoring Plan, implementation	Kaviraj Singh, Victor Padilla
4.	Luna	Jeffery	Coopesantos	09/12/2019	Plant Operations, QA and QC	Kaviraj Singh, Victor Padilla
5.	Dloma	Donald	Coopesantos	09/12/2019	Site Activity and facility	Kaviraj Singh, Victor Padilla

C.4. Sampling approach

No sampling approach was applied by the DOE since all data was validated. The assessment team has also physically visited all WTGs, thus no sampling approach for site visit has been applied.

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	-	CAR#01	-
Application and selection of methodologies and standardized baselines	-	CAR#02, CAR#03	-
Validity of original baseline or its update	CL#01	-	-
Estimated emission reductions or net anthropogenic removals	CL#02	CAR#03	-
Validity of monitoring plan	CL#02	-	-
Crediting period	-	-	-
Project participants	-	-	-
Post-registration changes	-	-	-
Others (please specify)	-	-	-
Total	2	3	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The PDD form used is CDM-PDD-FORM version 11/4/, which was the appropriate form, and the latest version available at the time of validation. All the sections of the
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	form were filled as per the guidelines and gave all the relevant details.
Findings	CAR#01 was raised and successfully closed.
Conclusion	The updated PDD has been found to be completed using the valid version of the PDD form. The information that is transferred in the current version of the PDD/6/ is materially the same as that in the registered PDD and in line with the para 406 of the VVS for PA version 02/3/

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

Means of validation	The PDD employs methodology AMS-I.D.: Grid connected renewable electricity generation, version 18.0/10/. The applied version of the methodology is the latest available version, and is therefore found to be appropriate. This has been confirmed from the information available on UNFCCC methodology webpage ¹ AMS.I.D. “Grid connected renewable electricity generation”, version 18.0/10/.		
	The applicability condition of the methodology AMS.I.D. (Version 18.0) is presented as follows:		
	Applicability conditions	Justification by the Project proponent	Means of validation
	This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	The project is a grid – connected renewable energy power generation that is a Greenfield plant (category “a”). Please refer to feasibility study of the project activity for further information.	It was confirmed during the on-site visit through interviews and from the validation report for first crediting period that the project is a greenfield plant. The same has also been cross checked and verified from the project feasibility report/19/. Therefore, the validation team confirms that the condition applicable to this project activity is category (a) i.e. Greenfield plant.
Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir; (b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is	The project activity is not a hydropower plant. Please refer to feasibility study of the project activity for further information.	Since the project is a wind power plant, this condition is not applicable.	

¹ <https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK>.

	greater than 4 W/m ₂ ; (c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m ₂ .		
	If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project activity is a renewable energy project has an installed capacity below 15 MW. Please refer to feasibility study of the project activity for further information.	It was confirmed during the on-site visit through interviews and on-site observations, and checked from the registered PDD/5/ and validation report that project activity is a renewable project activity with no non-renewable component. The information was also cross checked from project feasibility report/19/ that no mention of any non-renewable component was made.
	Combined heat and power (co-generation) systems are not eligible under this category.	The project activity is a wind power project. Please refer to feasibility study of the project activity for further information.	Since the project is a wind power plant, this condition is not applicable.
	In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The project activity is a Greenfield wind power project with an installed capacity below 15 MW. Please refer to feasibility study of the project activity for further information.	It was confirmed during the on-site visit through interviews and from the registered PDD and validation report that the project is a greenfield plant. The same was also been cross checked and verified from the project feasibility report/19/. Therefore, the validation team confirms that the condition is not applicable to the project activity.
	In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is a Greenfield wind power project with an installed capacity below 15 MW. Please refer to feasibility study of the project activity for further information.	It was confirmed during the on-site visit through interviews and from the registered PDD/5/ and validation report that the project is a greenfield plant. The same was also been cross checked and verified from the project feasibility

			report/19/. Therefore, the validation team confirms that the condition is not applicable to the project activity..
	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	The project activity is a wind power project. Please refer to feasibility study of the project activity for further information.	Since the project is a wind power plant, this condition is not applicable.
	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The project activity is a wind power project. Please refer to feasibility study of the project activity for further information.	Since the project is a wind power plant, this condition is not applicable.
Findings	CAR#02 and CAR#03 was raised and successfully closed.		
Conclusion	The PDD/5/ was found to be in accordance with the applied methodology/10/ and the applicable requirements in the CDM project standard for PA ver 2/1/.		

D.3. Validity of original baseline or its update

Means of validation	<p>Baseline scenario applicable to the project is in accordance with the paragraph 19 of the applied methodology/10/. The baseline scenario is that the electricity delivered to the grid by project activity would have otherwise been generated by the operation of grid connected power plants in the host country. The description of baseline scenario in revised PDD/6/ was found to be in line with baseline scenario prescribed in the applied methodology/10/.</p> <p>The continuation of existing baseline was validated as per the Methodological Tool11/12/ "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.</p> <p>Step 1: Assess the validity of the current baseline for the next crediting period <i>Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies</i></p> <p>The baseline scenario identified by the PP was found to be in accordance with</p>
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applied methodology/10/ and the registered PDD/5/ i.e. generation of electricity from grid connected power plants in absence of project activity.

The validation team confirms that since the registration of project, even though the national utility in host country continues to promote renewable energy projects, no government policies and programmes implemented mandate the establishment of wind power projects. Although policies and plans have been brought up in the host country for the energy sector, these were found not affecting the baseline as evident from studying VII National Energy Plan of Costa Rica/27/ and National Development Plan 2015-2018 /28/.

Therefore, the current baseline was found to be in compliance with the most recent relevant mandatory national and/or sectoral policies which have come in to effect after the submission of the PA for validation. This is 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" version 03.0.1/12/.

Therefore, the current baseline was found to be valid and acceptable for second crediting period by the validation team.

Step 1.2 Assess the impact of circumstances

The scenario of fuel used in the current baseline scenario for electricity generation has remained similar to the fuels used at the time of validation. The Costa Rican government for several years has aimed to become carbon neutral, which is clear from the various policies and plans which they have come up over this decade /27,28,29/. The Validation report for first crediting period also validated and reported Costa Rica's goal of becoming carbon neutral by 2021 /31/, which was backed by review of BICSA internal evaluation document and National Development Plan for 2011- 2015 (published 2010) /32/ as applicable at the time of registration of PA. Similar goals are still being aimed to be met by Costa Rica, as evident from recent plans and policies - in February 2019, Costa Rica launched its National Decarbonization Plan which aims at becoming a net-zero emission economy by 2050/30/.

However, it is checked and noted that none of the policies discussed above mandate or directly facilitate the continuation of functioning of the project activity.

Therefore, market characteristics were found to have remained similar to that at the time of validation and thus, circumstances and conditions used to determine the baseline emissions in the previous crediting period are still considered valid.

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.

The wind power plant equipment i.e WTGs would not require any additional investment for operation and continuation of use of current baseline equipment would be the most likely scenario in the crediting period for which renewal is requested, because the operational lifetime of turbines as already established at the time of registration of project activity is 20 years, which exceeds the duration of second crediting period. The project activity was a greenfield power plant and the turbines were bought on 5th May, 2010/23/ and therefore, it has been concluded that the continued usage of project equipment without any investment until at least 04/05/2030 is the most likely scenario, which exceeds the end date of second crediting period (30/06/2026).

Step 1.4 Assessment of the validity of the data and parameters

During the assessment it was confirmed that three parameters fixed at the time of registration need to be updated in-line with current requirements, standards and applied methodology.

Therefore, the following parameters have been updated in line with step 2.2 of tool 11/12/:

Parameter	Value	Justification
Combined margin CO ₂ emission factor for the electricity system in year y, EF_{grid,CM,y}	0.2710 tCO ₂ /MWh	Updated for the second crediting period. The parameter has been calculated as per "Tool to calculate the emission factor for an electricity System, version

			07.0"/11/. The calculations are in conformity with the methodological and tool requirements. Section D.4 of this report discusses the calculation procedure of this parameter in detail.
	Build margin CO ₂ emission factor for the project electricity system in the year y, $EF_{grid,BM,y}$	0.0426 tCO ₂ /MWh	The value for this parameter is updated from previous crediting period. The calculations were done using "Tool to calculate the emission factor for an electricity System, version 07.0"/11/. Section D.4 of this report discusses the calculation procedure of this parameter in detail.
	Operating margin CO ₂ emission factor for the project electricity system in year y, $EF_{grid,OM,y}$	0.3472 tCO ₂ /MWh	The value for this parameter is updated from previous crediting period. The calculations were done using "Tool to calculate the emission factor for an electricity System, version 07.0"/11/. Section D.4 of this report discusses the calculation procedure of this parameter in detail.
Findings	CL#01 was raised and successfully closed.		
Conclusion	The DOE has accepted and validates the original baseline for this crediting period in the updated PDD/6/. The baseline scenario is found to be valid in accordance with the methodology/10/ and VVS for PA version 2/3/.		

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	<p>The project activity is a greenfield wind power plant with rated capacity 12.75MW, which is why the methodology applied is AMS-I.D. version 18/10/, which is found to be a suitable choice. In line with section 5 of the applied methodology, emission reductions achieved in any year shall be calculated as given below:</p> $ER_y = BE_y - PE_y - LE_y$ <p>Where,</p> <p>ER_y = Emission reductions in year y (t CO₂)</p> <p>BE_y = Baseline emissions in year y (t CO₂)</p> <p>PE_y = Project emissions in year y (t CO₂)</p> <p>LE_y = Leakage emissions in year y (t CO₂)</p> <p>Baseline Emissions</p> <p>Baseline emissions are calculated in accordance with paragraph 5.5 of applied methodology/10/:</p> $BE_y = EG_{PJ,y} \times EF_{grid,y}$ <p>Where,</p> <p>BE_y = Baseline emissions in year y (t CO₂)</p> <p>$EG_{PJ,y}$ = 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)</p> <p>$EF_{grid,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO₂/MWh)</p> <p>Methodology section 5.5.1 provides different methods for calculation of $EG_{PJ,y}$ depending on the type of project. Since the current project activity is a greenfield power plant, the calculation for this parameter in line with para 26 of applied methodology was found to be an appropriate choice:</p>
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$$EGPJ,y = EGPJ, facility,y$$

Where,

$EGPJ, facility,y$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

For calculation of emission factor, applied methodology provisions two options in paragraph 23/10/. PP has chosen to calculate emission factor in a transparent and conservative manner as follows:

"A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the emission factor for an electricity system"

Since the methodology does not require any condition to choose either of the options, PP's choice to choose option (a) is acceptable to the validation team.

Calculation of Emission Factor:

The emission factor is calculated using "Tool to calculate the emission factor for an electricity system" version 7.0/11/, which uses the following step by step approach to calculate emission factor of the grid for this project:

Step 1: Identify the relevant electricity systems

In accordance with paragraph 17 of applied tool/11/ option 1, the National Electricity System (SEN) is defined as the relevant electric power system, which is considered appropriate since the system covers the whole country and defines the interconnected systems and spatial extent of the power plants. The electricity system is published by ICE, which is the authority responsible for generating and managing the energy supply throughout Costa Rica/15/.

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

In line with para 28 and 29 of applied tool/11/, project participant has chosen to include only grid-connected power plants in the calculations.

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

PP has selected option (b) in accordance with para 38 of applied tool/11/ i.e. Simple adjusted OM. Based on the data requirement and important conditions set to be met in order to apply specific OM method, the choice of option (b) was found appropriate because low cost/ must run plants in the host country constitute more than 50% of the total generation of the system/15/. The simple adjusted OM can be calculated from the two data vintages.

- Ex-ante option- the emission factor is calculated at the time of validation and doesn't need any monitoring and recalculate during the whole crediting period.
- Ex-post option- The emission factor is calculated annually during the monitoring period.

PP has selected the Ex-ante option for the calculation of the OM emission factor.

The National Centre for Energy Control is the government authorized entity responsible for maintaining and providing hourly generation data and is considered a credible source, which is controlled by ICE/13/. The data is also cross-checked against ARESEP data, which publishes official reports annually for electricity generation and found to be appropriate/25/. Availability of hourly loads of the grid has allowed the project participant to appropriately demonstrate calculation of operating margin using simple adjusted OM method in the emission factor calculation sheet/9/. The calculation of the Simple adjusted OM has been cross-checked from the emission factor calculation sheet/9/ for the 3 consecutive years and found inline to the tool 7/11/.

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

In line with para 56 of tool07/11/, the formula used in revised PDD/6/ for calculation of operating margin emission factor was found to be appropriate, as given below:

$$EF_{grid,OM-adj,y} = (1-\lambda_y) \times \frac{\sum EG_{m,y} \times EF_{EL,m,y}}{\sum EG_{m,y}} + \lambda_y \times \frac{\sum EG_{k,y} \times EF_{EL,k,y}}{\sum EG_{k,y}}$$

Where,

- $EF_{grid,OM-adj,y}$ = Simple adjusted operating margin CO₂ emission factor in year y (t CO₂/MWh)
- λ_y = Factor expressing the percentage of time when low-cost/must-run power units are on the margin in year y
- $EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
- $EG_{k,y}$ = Net quantity of electricity generated and delivered to the grid by power unit k in year y (MWh)
- $EF_{EL,m,y}$ = CO₂ emission factor of power unit m in year y (t CO₂/MWh)
- $EF_{EL,k,y}$ = CO₂ emission factor of power unit k in year y (t CO₂/MWh)
- m = All grid power units serving the grid in year y except low-cost/must-run power units
- k = All low-cost/must run grid power units serving the grid in year y
- y = The relevant year as per the data vintage chosen in Step 3

Calculation of parameters $EF_{EL,m,y}$, $EF_{EL,k,y}$, $EG_{m,y}$ and $EG_{k,y}$ has been determined in line with instructions given in para 57 of applied tool/11/ i.e. using method provided in sections 6.4.1.1.1 and 6.4.1.1.2.

Determination of $EF_{EL,m,y}$ and $EF_{EL,k,y}$: For calculation of $EF_{EL,m,y}$ and $EF_{EL,k,y}$ (emission factor for each power unit m and unit k respectively), Option A1 has been used from para 49 of Tool07/11/, which is found to be an appropriate choice since all data required for conducting this calculation (fuel consumption and electricity generation) was found to be available/25/.

Determination of $EG_{m,y}$ and $EG_{k,y}$: For determination of net electricity generated by power plant unit m or k ($EG_{m,y}$ and $EG_{k,y}$), since only grid connected power plants are considered, para 51 from section 6.4.1.1.2 has been followed. The monitoring table for parameter $EG_{m,y}$ and $EG_{k,y}$ (Parameter table 4 of applied tool) provisions determination of these parameters once for each crediting period using most recent three historical years for which data is available at the time of submission of CDM-PDD to DOE for validation. The same approach was confirmed to be followed by assessing the emission factor calculation sheet .

At the time of submission of PDD for second crediting period to the DOE, it was confirmed that the latest ARESEP data for electricity generation is published for year 2018. ARESEP or Regulatory Authority for Public Services of Costa Rica is the body responsible for publishing annual electricity generation data for Costa Rica and therefore, considered a credible source of information. Therefore, the approach followed for determination of electricity generation by power plants m and k was found appropriate and acceptable to the assessment team.

Calculation of λ_y has been presented in emission factor calculation sheet/9/ using approach 2 given in para 62 of tool 07/11/, which is one of the two approaches provisioned by applied tool for calculation of this parameter. The calculation in emission factor calculation sheet was checked and the plotting of graph and calculations were found to be in accordance with appendix 3 of tool 07/11/. The methodological choices and calculations were found to be appropriate and acceptable by the assessment team.

The electricity generation data used for calculation of operating margin emission factor was found to be the latest data available at the time of submission of PDD to the validating DOE.

STEP 5: Calculate the build margin (BM) emission factor

To calculate build margin emission factor, tool07/11/ provisions two options for

	<p>selection of vintage of data used. Since either of the choices do not require any pre-condition to be met before being selected, option 1 has been chosen by the PP. Project participant has applied option 1 from para 72 of Tool 07, which says that build margin emission factor shall be updated based on the most recent information available on units already built at the time of submission of request for renewal of the crediting period. Although real-time data for electricity generation for 2019 is available for Costa Rica grid connected power plants, the most recent consolidated data published by ARESEP available at the time of PDD submission to DOE was confirmed to be of 2018/25/.</p> <p>PP has applied the steps defined in procedure for selection of power units in operation at the time of submission of its request for renewal of crediting period (defined in the Para 75 of Tool 07/11/), which has been checked and found to be valid for the calculation of BM emission factor.</p> <p>The 5 power units considered for BM calculation, which have been appropriately selected as per the guidance in the para 75 of tool 7/11/, generate 20% of the system's energy, and the calculated build margin is the generation-weighted average emission factor (tCO₂/MWh) of all power units m during the most recent year y for which power generation data is available.</p> <p>The methodological choices and calculations were found to be appropriate and acceptable by the assessment team.</p> <p>The electricity generation data used for calculation of build margin emission factor was found to be the latest data available at the time of submission of PDD to the validating DOE.</p> <p><u>Step 6: Calculate the combined margin emission factor</u></p> <p>In accordance with para 82 and and 83 of Tool07/11/, option (a) weighted average CM has been chosen by the PP. Since option (a) for calculating combined margin is required to be used as a preferred option as per the applied tool, no further clarification was sought on the methodological choice.</p> $EF_{grid,CM,y} = EF_{grid,OM,y} \times w_{OM} + EF_{grid,BM,y} \times w_{BM}$ <p>Where,</p> <p>$EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (t CO₂/MWh)</p> <p>$EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (t CO₂/MWh)</p> <p>w_{OM} = Weighting of operating margin emissions factor (per cent)</p> <p>w_{BM} = Weighting of build margin emissions factor (per cent)</p> <p>Default values from para 86 of applied tool will be used in the project activity for $w_{OM} = 0.75$ and $w_{BM} = 0.25$. Since these values are applicable for wind and solar power generation project activities, the approach has been accepted by the validation team for second crediting period.</p> <p>Based on the above discussion, it has been confirmed by the assessment team that the project baseline defined for the first crediting period has undergone updates for its (ex-ante) parameters, and the procedures and calculations applied have been found as correct and valid for the renewal of crediting period.</p> <p>Therefore, the updated baseline meets all the methodological applicability conditions and thus acceptable.</p>
Findings	CL#02 and CAR#03 was raised and successfully closed.
Conclusion	The updates to the baseline have been accepted by the assessment team, since these are based on the conditions laid down in the latest applicable standards (CDM VVS – PA, ver 02.0/3/), methodology(ies) (AMS-I.D, ver. 18.0/10/), and methodological tools (AM Tool 07, ver. 07.0/11/ & Tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, ver. 03.0.1/12/).

D.5. Validity of monitoring plan

Means of validation	The monitoring plan given in the updated PDD/6/ complies with the registered monitoring plan. The values of ex-ante parameter and monitored parameters can be found in the table given below.
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Ex-Ante parameters			
S. No.	Parameter	Value in updated PDD	Assessment
1.	EF _{grid,CM,y}	0.2710 tCO ₂ /MWh	Calculated using weighted average values of EF _{grid,BM,y} and EF _{grid,OM,y} . The calculations have been verified and found to be correct and valid for the proposed crediting period. The calculations have been confirmed from the ER estimation sheet /9/ shared with the DOE.
2.	EF _{grid,BM,y}	0.0426 tCO ₂ /MWh	Calculated using Tool 7, ver. 07.0/11/, and found applying valid equations and options wherever available.
3.	EF _{grid,OM,y}	0.3472 tCO ₂ /MWh	Calculated using Tool 7, ver. 07.0/11/, and found applying valid equations and options wherever available.
4.	EG _{m,y}	Please refer the revised PDD/6/ and EF calculation sheet/9/	Parameter has been determined as per the data provided by by ARESEP(Regulatory Authority of Public Service)/25/, which is the official authority responsible for publishing electricity generation data consolidated from ICE reports.
5.	EFCO _{2,i,y}	Fuel Oil: 75.5 tCO ₂ /TJ Diesel: 72.6 tCO ₂ /TJ	Calculated using IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories /17/, and found applying valid equations and options wherever available.
6.	FC _{i,m,y}	Please refer the revised PDD/6/ and EF calculation sheet/9/	Parameter has been determined as per the data provided by ARESEP(Regulatory Authority of Public Service)/25/, which is the official authority responsible for publishing electricity generation data consolidated from ICE reports. The data has been obtained from the official sources and found applying valid equations and options wherever available.
7.	NCV _{i,y}	Fuel Oil: 39.8 GJ/ton; Diesel: 41.4 GJ/ton	Calculated using IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories /17/, and found applying valid equations and options wherever available.
Monitored Parameters:			
S No.	Parameter and Unit	Monitoring Frequency	Equipment
1.	EG _{facility,y} (unit - MWh)	Continuous (at least monthly)	One main and two back up meters are used for the calculation of the parameter.

Findings	CL#02 was raised and successfully closed.
Conclusion	The sampling and monitoring plan shared by PP for the project activity is the continuation of the monitoring plan implemented in the previous crediting period, and is not undergoing any changes. Therefore, the monitoring plan is valid for the proposed crediting period of the project activity.

D.6. Crediting period

Means of validation	Crediting period renewal has been requested by PP, whereby the previous crediting period duration was 01/07/2012 – 30/06/2019 (Renewable)/18/. The start date for the second crediting period (up for renewal of crediting period) has been applied as 01/07/2019, which is in accordance with para 270 of the PCP for PA version 2.0/2/ and therefore, accepted by the validation team.
Findings	No findings were raised.
Conclusion	The next crediting period of the project activity commences on the day immediately after the expiration of the of the first crediting period i.e. 01/07/2012 – 30/06/2019/18/. This found to be in compliance with VVS for PA version 02 /3/. Furthermore, the project activity has been confirmed as implemented during its first crediting period (Para 279, PS-PA, ver. 02.0/1/), the intimation to EB for renewal of the crediting period is no more a requirement.

D.7. Project participants

Means of validation	<p>The PP names valid for the PDD for its proposed crediting period are:</p> <p>Name of entity: Carbonbay GmbH & Co. KG Address: Große Theaterstr. 14 20354 Hamburg Germany Party: Germany</p> <p>Name of entity: Cooperativa de Electrificación Rural Los Santos (COOPESANTOS) Address: San Marcos de Terrazú, Costa Rica Party: Costa Rica</p> <p>The parties mentioned are confirmed by the assessment team, as being in-line with the latest MoC applicable.</p>
Findings	No findings were raised.
Conclusion	The names of the project participants in the updated PDD/6/ are consistent with the names of the project participant in the latest version of MoC/7/.

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 ²	N	NA	NA
Corrections	N	NA	NA
Change to the start date of the crediting period	N	NA	NA
Inclusion of a monitoring plan	N	NA	NA
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	NA	NA
Changes to the project design	N	NA	NA
Changes specific to afforestation and reforestation project activities	N	NA	NA

² 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 E. Internal quality control

The draft validation report for renewal of crediting period prepared by the validation team was reviewed by an independent technical review team to confirm if the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team were independent of the validation team.

The technical review process may accept or reject the validation opinion or raise additional findings in which case these must be resolved before requesting for registration. The technical review process is recorded in the internal documents of ESPL and the additional findings gets included in the report.

The final report approved by the technical reviewer is authorized by Managing Director and issued to PP and/or submitted for request for registration, as appropriate on behalf of ESPL.

SECTION F. Validation opinion

The validation of “Los Santos Wind Power Project” for renewable of its crediting period was performed based on rules and requirements defined by UNFCCC for the CDM project activities.

The purpose of this PA, is to generate electricity from the WTG which would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.

It is demonstrated that the project is not a likely baseline scenario and the emission reductions attributable to the project are, hence, additional to any that would occur in the absence of the proposed CDM PA. The project correctly applies the approved baseline and monitoring methodology AMS-I.D.version 18- Grid connected renewable electricity generation./10/ and is assessed against latest valid CDM PS, VVS and PS and/or other applicable CDM Decisions/Tools/Guidance/Forms.

The proposed CDM PA is likely to achieve the anticipated emission reductions stated in the PDD provided the underlying assumptions do not change. The expected emission reductions (annual average) from the PoA are estimated to be 11,383 tCO₂e per year over the selected crediting period starting. The proposed CDM PA is likely to achieve the anticipated emission reductions stated in the PDD provided the underlying assumptions do not change.

ESPL has informed the project participants of the validation outcome through the draft validation report and final validation report. In case of negative validation outcome, the final validation report is only submitted to PP. The final validation report contains the information with regard to fulfilment of the requirements for validation, as appropriate.

ESPL applied the following validation process and methodology using a competent validation team;

- the desk review of documents and evidences submitted by the project participant in context of the reference CDM rules and guidelines issued by CDM EB,
- undertaking/conducting site visit, interview or interactions with the representative of the project participant,
- reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- preparing a draft validation opinion based on the auditing findings and conclusions
- technical review of the draft validation opinion along with other documents as appropriate by an independent competent technical review team
- finalization of the validation opinion (this report)

The review of the PDD, supporting documentation and subsequent follow-up actions (onsite visit and interviews) have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria.

ESPL believes the PA “Los Santos Wind Power Project” as described in the final PDD /6/ does meet the stated criteria of CDM, meets host country criteria and has correctly applied the methodology AMS-I.D.ver. 18- Grid connected renewable electricity generation/10/. Therefore, the project is being recommended to CDM EB for request for renewal of crediting period.

Appendix 1. Abbreviations

	Full texts
ACM	Approved Consolidated Methodology
AM	Approved Methodology
ACM	Approved Consolidated Methodology
ARESEP	Regulatory Authority for Public Services
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon di oxide
CP	Crediting Period
DNA	Designated National Authority
DR	Desk Review
DOE	Designated Operational Entity
EB	Executive Board
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
GW	Giga Watt
GWh	Giga Watt hour
HASL	Highest annual system load
ICE	Instituto Costarricense de Electricidad (Costa Rican Institute of Electricity)
IPCC	Intergovernmental Panel on Climate Change
kW	kilo Watt
kWh	kilo Watt hour
LASL	Lowest annual system load
LoA	Letter of Approval/Authorization
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
N ₂ O	Nitrous Oxide
ODA	Official Development Assistance
OM	Operating Margin
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PLF	Plant Load Factor
PoA DD	Programme of Activities Design Document
PP	Project Participant
PS	Project Standard
RFR	Request for Registration
tCO ₂ e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
UNFCCC	United Nations Framework Convention on Climate Change

V	Version
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Kaviraj Singh		
Country	India		
Education	Ph.D. (Environmental Engineering), IIT Delhi Masters (Energy & Environmental), DAVV Indore		
Experience	15 Years +		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-II.D., ACM0006, AMS-I.A., AMS-I.C., AMS-II.B., AMS-III.H, ACM0002, ACM0001, AM0080		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1, TA 13.2)		
Reviewed by	Abhishek Mahawar	Date	26/09/2019
Approved by	Ashok Gautam	Date	26/09/2019

Competence Statement			
Name	Shifali Guleria		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	1+ year		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Shreya Garg (Quality Manager)	Date	24/09/2019
Approved by	Anshika Gupta (Technical Manager)	Date	25/09/2019

Competence Statement			
Name	Victor Padilla Segura		
Country	Costa Rica		
Education	Bachelors of Engineering (Wind Engineering Elements)		
Experience	3+ years		
Field	Renewable Energy		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Costa Rica)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for PA	Ver. 2	Others
2.	UNFCCC	Standard: CDM PCP for PA	Ver. 2	Others
3.	UNFCCC	Standard: CDM VVS for PA	Ver. 2	Others
4.	UNFCCC	Form: CDM-PDD-FORM	Ver. 11.0	Others
5.	PP	Registered PDD (for 1 st Crediting Period)	Ver 3.6, Dated 23/04/2012	PP
6.	PP	For 2 nd Crediting Period Final PDD	Version 4.0, Dated 18/05/2020	PP
7.	PP	Signed MoC Forms	Several (UN webpage)	Others
8.	PP	ER and EF Calculation Sheet (draft)	-	PP
9.	PP	ER and EF Calculation Sheet (final)	corresponding to final PDD	PP
10.	UNFCCC	Methodology: AMS-I.D.: Grid connected renewable electricity generation	Version 18	Others
11.	UNFCCC	Tol 07: Tool to calculate the emission factor for an electricity system	Ver. 7.0	Others
12.	UNFCCC	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	Others
13.	CENCE	Centro Nacional de Control de Energia (National Centre for Energy Control) data https://apps.grupoice.com/CenceWeb/CencePosdespachoNacional.jsf?init=true	-	Others
14.	UNFCCC	Methodological Tool 11 "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period"	Ver. 03.0.1	Others
15.	Costa Rican Institute of Electricity	Plan de Expansion de la Generacion (2018-2034) (Plan of Expansion in Generation)	May, 2019	Others
16.	PP	Electricity export invoices	-	PP
17.	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories	2006	Others
18.	UNFCCC	UN webpage for PA: https://cdm.unfccc.int/Projects/DB/ERM-CVS1337868435.3/view	-	Others
19.	PP	Project Feasibility Report	-	Others
20.	ICE	Power Purchase Agreement	05/03/2009	
21.	CDM EB	Meeting report: CDM Executive Board 105 th meeting	25 th to 28 th November, 2019, Ver. 01.1	Others
22.	CDM EB	Meeting report: CDM Executive Board one hundredth meeting	27 th to 31 st August, 2018, Ver. 01.0	Others
23.	PP	WTG Purchase contract	Dated 05/05/2010	Others
24.	PP	MOC	-	Others
25.	ARESEP-Regulatory Authority of Public	Electricity generaion data https://aresep-my.sharepoint.com/:x/g/personal/	2018	Others

	Service	multimedia_aresep_go_cr/EcE4d8HIY51Jvseon4DVFbUBWsLYR_qVguiADkF198-DA?e=9SH8XA&wdLOR=c9421BC4B-DA02-4BC3-A179-B15E9DC9686C		
26	ARESEP-Regulatory Authority of Public Service	https://app.powerbi.com/view?r=eyJrIjojOTI4ODZiMWItY2M3ZS00MDNjLTlmMmMtMDA1YWVjZDBiYTJjIiwidCI6IjBkNzIzOGY4LWI3ODQtNDk2MC1iZGUyLTZiZWZmMTMwQyNDcwZCIsImMiOiR9	Last accessed: 24/04/2020	Others
27	Costa Rica	VII National Energy Plan of Costa Rica 2015- 2030: https://www.ccacoalition.org/en/resources/vii-national-energy-plan-costa-rica-2015-2030	2015	Others
28	Costa Rican Government	National Development Plan (2015 – 2018)	2014	Others
29	Costa Rican Government	Energy Strategy of Costa Rica: Towards a New Energy Model	2010	Others
30	Costa Rican Government	National Decarbonization Plan 2050	2019	Others
31	ERM CVS	Validation Report (First crediting period)	07/06/2012	Others
32	Costa Rican Government	National Development Plan (2011 – 2014)	2010	Others

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

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

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

Table 2. CL from this verification

CL ID	Section no.	Date : DD/MM/YYYY
01	D.3	30/01/2020
Description of CL		
According to PS for PA, for a PA renewal of crediting period, the project participant shall demonstrate the validity of the original baseline or update it in accordance with paragraphs 283-286. This demonstration was found missing from revised PDD version 1.0, Section B.4 "Establishment and description of baseline scenario". Since the scope of this assignment is renewal of crediting period, PP shall assess validity of the original baseline in accordance with paragraphs 283-286 in PS for PA.		
Project participant response		Date : 10/03/2020
<i>The PDD has been modified to include the information regarding the validity of the baseline .</i>		
Documentation provided by project participant		
<i>Updated PDD.</i>		
DOE assessment		Date: 13/03/2020
PP has demonstrated the validity of the original baseline in the revised PDD version 2.0 section B.4 "Establishment and description of baseline scenario". As per the requirement, PP has demonstrated the following sections in the revised PDD version 2.0 section B.4 - <ul style="list-style-type: none"> • compliance of the current baseline with relevant mandatory national and/or sectoral policies • Impact of circumstances • 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 • validity of the data and parameters • current baseline • data and parameters The demonstration of validity of the original baseline has been found inline to the paragraphs 283-286 of Project standard for PA version 2.0. Thus, the CL stands closed.		

CL ID	Section no.	Date : DD/MM/YYYY
02	D.4, D.5	30/01/2020
Description of CL		

1. In section B.6.1 of revised PDD version 1.0, under step-4, the following is stated:
 “EFEL,m,y, EFEL,k,y, EGm,y and EGk,y should be determined using the same procedures as those for the parameters EFEL,m,y and EGm,y in Option A of the simple OM method above”.
 However, Option A of the simple OM method is not described anywhere in the PDD, thus rendering the statement mentioned above inaccurate.
 PP shall demonstrate the options chosen and calculation method used for determining parameters: EFEL,m,y, EFEL,k,y, EGm,y and EGk,y as per Tool07 version 7.0 sections 6.4.1.1.1. and 6.4.1.1.2.
2. In section B.6.1 of revised PDD version 1.0, under step-4, for Lambda calculation, lambda calculations have been provided. However, from the text provided in the PDD, it's not clearly stated which approach from para 61-62 of Tool07 was used to determine lambda.
3. For calculation of BM, as per Tool07 para 72(a), “the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE”. The data used for calculation of BM in revised PDD ver1.0 is from 2018. PP is requested to clarify if this was the latest available data at the time of submission of renewal request to the DOE.
4. In section B.6.1 of revised PDD version 1.0, under step-5, the procedure used for calculation of sample group of power units m used to calculate the build margin was not found to be clearly stated. From the text provided in revised PDD, following information is not clear:
 - a. According to tool07 para 75, steps (d), (e) and (f) shall be ignored if none of the power units in SETsample started to supply electricity to the grid more than 10 years ago.
 From the text given in the revised PDD, it's not clear if any of the power units from SETsample started to supply electricity to grid more than 10 years ago.
 - b. Under step 5 in revised PDD, it's stated that “The set of plants used for the calculation of the build margin factor is made up of the alternative that represents the greatest quantity of energy between the five plants that have been build recently, which generated 20% of the system's energy”. It's not clear in this text which set of power units comprises larger annual electricity generation and has been used for calculation of “m”, SET5-units or SET20 per cent
 PP is requested to clearly demonstrate the approach used and results obtained for calculation of power units “m” under step-5.
5. In EF+ER sheet provided by the PP worksheet “OM&BM” cell P18, build margin emission factor is calculated by dividing the sum of emissions from two power plants “GUAPILES” and “OROTINA” in 2018 by total electricity generation from all power plants in 2018. PP is requested to justify the selection of plants “GUAPILES” and “OROTINA” for the calculation of build margin emission factor.

Project participant response

Date : 10/03/2020

1. To determine EFEL, m, y, EFEL, k, y, EGm, y y EGk, Option A of the simple OM method was used: Calculation based on average efficiency and electricity generation of each plant and an emission factor for each power unit. Option B is not used because necessary data for option A is available.

6.4.1.1.1 The emission factor of each power unit m has been determined by option A because for each power unit 'm' data on fuel consumption and electricity generation is available.

6.4.1.1.2 EGm,y has been determined as per the provisions in the monitoring tables because there are no off-grid power plants.

2. Lambda was determined by approach 2 applying the step wise procedure provided in appendix 3 of Tool 07 because the LASL is more than one-third of the HASL in a project electricity/ grid system demonstrated based on the yearly data for the years used to determine the OM emission factor.

3. The data used for the calculation of BM is based on the last data records from 2018 from the "Autoridad Reguladora de Servicios Públicos" of Costa Rica (ARESEP) and the Centro Nacional de Control de Energía (CENCE). Attached backup.

4.a There aren't any power units in SETsample that started to supply electricity to the grid more than 10 years ago. The oldest power unit in SETsample started supply electricity to the grid on 2010.

4.b To determine 'm' we have used the set of power units that comprise 20 per cent (SET20 per cent) because it is the set that comprises larger annual electricity generation.

The Procedure to determine the sample group of power units 'm' used to calculate the build margin includes: identify the 5 most recent power units, excluding CDM. Identify the units that comprise at least 20 per cent of the system generation, excluding CDM. Select the set of power units that comprises the larger annual generation (SET20 per cent). Discard there aren't at least one power unit older than 10 years in the set and finally use that resulting set like 'm' to calculate the build margin.

5. In this case, this mistake has been corrected, as the BM emission factor must be calculated by dividing the sum of emissions from all power plants with fossil fuel consumption in the base year (2018) by total electricity generation from all power plants in 2018..

Documentation provided by project participant

Updated ER sheet

DOE assessment

Date: 12/03/2020

1- PP has stated that Option A (Calculation based on average efficiency and electricity generation of each plant) of the simple OM method was used to determine EFEL, m, y, EFEL, k, y, EGm, y y EGk as the necessary data for option A is available. But this selection of the option A is not demonstrated in the section B.6.1 of revised PDD version 2.0 page 14 (step 4). PP is requested to demonstrate the same. Also, Option A provides various sub-options on how to determine parameters: EFEL,m,y, EFEL,k,y, EGm,y and EGk,y. PP shall demonstrate in PDD the options chosen and calculation method used for determining these parameters as per Tool07 version 7.0 sections 6.4.1.1.1. and 6.4.1.1.2. Open

2- PP has stated that the calculation of the Lambda has been determined by approach 2 of para 61 of Tool07 because the LASL is more than one-third of the HASL in a project electricity/grid system. The calculation of the Lambda in the page 15 of the updated PoA-DD has been checked from the step wise procedure provided in appendix 3 of Tool 07 and found consistent. However, PP shall mention the approach picked for Lambda calculation in the PDD. Open

3- The data used for calculation of BM in revised PDD ver 2.0 is from 2018 from the "Autoridad Reguladora de Servicios Públicos" of Costa Rica (ARESEP) and the Centro Nacional de Control de Energía (CENCE). PP is requested to provide the source for e.g. webpage link of this attached backup. Open

4- To determine 'm', PP has used the set of power units that comprise 20 per cent (SET20 per cent) of annual electricity generation. However, no justification for selection of this SET has been provided in the revised PDD ver 2.0. In TOOL07 para 75, a step by step approach has been provided for determination of SETsample. Although generic statements for this determination have been provided in the revised PDD (page 15), no step-wise-step project specific information has been provided. The approach is not clearly demonstrated in the ER sheet either. The following information was found to be incomplete:

- a. Identification of SET5-units and determination of their annual electricity generation (AEGSET-5-units), which is the first step as per TOOL07 para 75. Also, determination of CDM and non-CDM registered projects.
- b. Determination of SET \geq 20% and their annual electricity generation (AEGSET- \geq 20%) as per step b of para 75, TOOL07. It is not clear how the list of plants in EF sheet worksheet 'Operational Start (BM)' was selected when total generation from this set (3,549,052.95 MWh) is significantly higher than 20% of total generation of 2018 (2,261,254 MWh).
- c. Comparison of SET5-units and SET \geq 20%.
- d. In EF sheet, different sets of plants have been used for calculation of EGm,y (worksheet 'Operational start (BM)') and EFEL,m,y (worksheet 'OM & BM'). This approach is not found to be consistent with para 77 of TOOL07, according to which m is 'Power units included in the build margin'.

PP shall demonstrate project-specific choice of data in ER sheet and revised PDD to justify the SETsample selected and provide over-all clarification on calculation of build margin emission factor. Open

5- Please refer to part 4 of this finding.

Project participant response

Date : 06/04/2020

1- To determined EFEL, m, y, EFEL, k, y, EGm, y y EGk, Option A of the simple OM method was used: Calculation based on average efficiency and electricity generation of each plant and an emission factor for each power unit. Option B is not used due because necessary data for option A is available.

6.4.1.1.1 Determination of EFEL,m,y : The emission factor of each power unit m has been determined by option A1 because for each power unit 'm' data on fuel consumption and electricity generation is available.

6.4.1.1.2 Determination of EGm,y : For grid power plants EGm,y has been determined as per the provisions in the monitoring tables. For off-grid power plants, EGm,y has been determined using Option 1, based on (sampled) data on the electricity generation of off-grid power plants, as per the guidance in appendix 1 Procedures related to off-grid power generation.

2- Lambda was determined by approach 2 applying the step wise procedure provided in appendix 3 of Tool 07 because the LASL is more than one-third of the HASL in a project electricity/ grid system demonstrated based on the yearly data for the years used to determine the OM emission factor.

3-The sources used for calculation of BM are:

- a. Planificación de la Generación Eléctrica 2018-2034. Mayo 2019. San José, Costa Rica.
<https://www.grupoice.com/wps/wcm/connect/d91d6f4f-6619-4a2f-834f-6f5890eebb64/PLAN+DE+EXPANSION+DE+LA+GENERACION+2018-2034.pdf?MOD=AJPERES&CVID=mleNZKV>
- b. Informe Anual Generación y Demanda 2018. Costa Rica.
<https://apps.grupoice.com/CenceWeb/documentos/3/3008/11/BOLET%C3%83?N%20ANUAL%202018.pdf>
- c. Análisis de la generación ARESEP. Costa Rica.
<https://app.powerbi.com/view?r=eyJrljoiOTI4ODZiMWItY2M3ZS00MDNjLTlmMmQtMDA1YWNjZDBiYTJlIiwidCI6IjBkNzIzOGY4LWI3ODQtNDk2MC1iZGUyLTZiZWZmMTMwQyNDcwZCIsImMiOiR9>

4-To Calculate the build margin (BM) emission factor we choose option 1 for the second crediting period. The build margin emission factor is updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE considering the sources previously mentioned.

The sample group of power units m used to calculate the build margin is determined as per the following procedure:

- a. The power units registered as CDM project activities are identify including their annual electricity generation. Set of five power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently, is identified as SET5 units in the EF sheet
- b. The annual electricity generation of the project electricity system, excluding power units registered as CDM project activities is determined as AEG total in EF sheet. The 20 per cent of that is calculated.
- c. The set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20 per cent of AEG total and their annual electricity generation is determined as SET \geq 20 per cent in EF sheet.
- d. Between SET5 units and SET \geq 20 per cent, the set of power units that comprises the larger annual electricity generation, that means SET \geq 20 per cent, is selected as SET sample in EF sheet.
- e. None of the power units in SET sample started to supply electricity to the grid more than 10 years ago, so SET sample is used to calculate the build margin.
- f. EF of BM is calculated dividing the total CO2 emissions in 2018 from the power units that used fossil fuel by the annual electricity generation of SET sample in 2018.

The last BM calculation considered some power units registered as CDM project in SET \geq 20 per cent. Therefore, right now the annual electricity generation of SET sample is less. The EF sheet is updated.

Documentation provided by project participant

- Updated PDD
- Updated ER Sheet

DOE assessment	Date : 08/04/2020
<p>1 All sub-options choices have now been clarified and clearly demonstrated in the revised PDD version 3. The options selected were found to be appropriate and in line with tool07. However, PP is requested to also clarify the methodological choices made in step 1 of calculation of emission factor (pg 13 of revised PDD version 3.0). From the text provided, it is not clear if Option 1, Option2 or Option 3 from para 17 of applied tool to delineate the project electricity system was used to identify the relevant electricity power system. Open</p> <p>2 The choice of approach 2 has now been clearly demonstrated in the revised PDD version 3 and it was found to be meeting the requirements stated in tool07. Therefore, the finding is now closed.</p> <p>3.a. The link (b) provided by PP in response to finding is not accessible. Similarly, in EF calculation sheet worksheet 'Sources', the link number [1] is not accessible. PP shall provide the accurate links for both these cases. Open</p> <p>3.b. According to one of the links provided by PP in finding response (link c), latest electricity generation data up to whole year of 2019 was found available. Tool07 mandates in para 72(a)- option 1 that: <i>"For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE."</i></p> <p>PP is requested to clarify why data only till 2018 is used for BM calculations and how is 2018 data considered the most recent data available at the time of revised PDD submission to DOE. Open</p> <p>3.c. Similarly, according to para 42(a) of Tool07, for calculation of simple adjusted OM: <i>"For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation."</i></p> <p>Since generation data for year 2018 has been used, PP is requested to justify the usage of 2018 data but not 2019 data for calculation of OM. Open</p> <p>4. The revised EF calculation sheet corresponding to revised PDD version 3 was checked against tool07 requirements for calculation of build margin emission factor. The whole method applied by PP to calculate build margin was now found to be an accurate representation and calculation as per tool07. Both EF sheet and PDD were found to be revised appropriately. Therefore, the finding is now closed.</p>	
Project participant response	Date : 19/04/2020
<p>1. The project electricity system is delineated using Option 1 because the project electricity system and connected electricity systems are published by the ICE, the Costa Rica's DNA that generates and manages the energy supply throughout the country.</p> <p>3.a. Forwarding the links and attached the backups https://www.grupoice.com/wps/wcm/connect/d91d6f4f-6619-4a2f-834f-6f5890eebb64/PLAN+DE+EXPANSION+DE+LA+GENERACION+2018-2034.pdf?MOD=AJPERES&CVID=mleNZKV https://aresep-my.sharepoint.com/:x/g/personal/multimedia_aresep_go_cr/EcE4d8HIY51Jvseon4DVFbUBWslYR_qVguiADkF198-DA?rt=U8xjLjh10g</p> <p>3.b. and 3.c ARESEP is the DNA to publish official reports related to electricity generation data in Costa Rica. CENSE is the ICE department that works in the electricity generation registry in real time. We use CENCE for the Lambda calculation. ARESEP has the responsibility to filter and consolidate the CENCE data for this official reports but right now ARESEP just have the data of 2018. Attached is the latest official report of ARESEP from https://aresep-my.sharepoint.com/:x/g/personal/multimedia_aresep_go_cr/EcE4d8HIY51Jvseon4DVFbUBWslYR_qVguiADkF198-DA?rt=U8xjLjh10g</p>	
Documentation provided by project participant	
<ul style="list-style-type: none"> Updated PDD 	

DOE assessment	Date: 24/04/2020
<p>1- PP has updated the methodological choices made in step 1 of calculation of emission factor (pg 13 of revised PDD version 4.0). From the text provided, Option 1 from para 17 of applied tool to delineate the project electricity system was used to identify the relevant electricity power system. The options selected were found to be appropriate and in line with tool07.</p> <p>3.a.- PP has provided the updated link (b) for the sources used for calculation of BM. The provided link is accessible. PP has provided the link mentioned in the EF calculation sheet worksheet 'Sources', the link number is found accessible.</p> <p>3.b.and 3.c.- PP has stated that the data provided for the calculation of BM and OM is the latest data and 2018 data considered the most recent data available at the time of revised PDD submission to DOE. The attached official report of the ARESEP has been checked from the link provided by PP and found appropriate and in accordance with the para 72(a)- option 1 and para 42(a) of Tool07.</p> <p>Thus, the CL stands closed.</p>	

Table 3. CAR from this verification

CAR ID	01	Section no.	D.1	Date : 31/01/2020
Description of CAR				
<p>Some sections of revised PDD ver 1.0 provided by the PP were not found to be in line with instructions for completing CDM-PDD-FORM ver 11.0. :</p> <ol style="list-style-type: none"> In Section A.3, PP is requested to provide relevant information as per requirements as listed in template guidelines. As compared to requirements and guidelines, following information was found missing: <ol style="list-style-type: none"> Describe the technologies/measures to be employed and/or implemented by the project activity, including: <ol style="list-style-type: none"> The types and levels of services (such as the amount of a certain type of cement produced or the amount of electricity fed into the electricity grid) provided by the facilities, systems and equipment and their relation, if any, to other facilities, systems and equipment outside the project boundary; The arrangement of the facilities, systems and equipment; The age and average lifetime of the equipment based on the manufacturer's specifications and industry standards; The installed capacities, load factors and efficiencies; The monitoring equipment and their location in the systems. A short summary of the baseline scenario as established in section Error! Reference source not found., including the equivalent information listed in paragraph 1 above. In section B.2, as per standard and template requirements for this section (under additional specific guidelines), since this is a small scale project activity, please demonstrate that the project qualifies as Type I, Type II and/or Type III in accordance with PS for PA para 268. In section B.2, as per template requirements (para 1), for each applicability condition listed, PP is requested to explain documentation that has been used for justification for that applicability condition. In section B.3, as per instructions to fill the form, "In addition to the table, where possible, present a flow diagram of the project boundary based on the description provided in section A.3 above. Include in the flow diagram all the facilities, systems and equipment, and flows of mass and energy described in that section. In particular, indicate in the diagram the emission sources and GHGs included in the project boundary and the data and parameters to be monitored." 				
Project participant response				Date : 10/03/2020

1. Section A3 of the PDD has been updated to include:
 - Electrical output to the grid
 - The arrangement of the equipment installed
 - Average lifetime of the equipment
 - Installed capacity
 - Plant load factor
 - Monitoring equipment location
 - Short description of the baseline scenario
2. The project activity is a Wind Power project, please refer to the feasibility study of the project activity.
3. Documentation provided has been listed in section B2.
4. A diagram with the project boundary information is now included in the PDD

Documentation provided by project participant

Updated PDD

DOE assessment**Date:** 13/03/2020

1- In Section A.3, PP has updated the relevant information in the MR version 3.0 page 4 as per requirements as listed in template guidelines. As compared to requirements and guidelines, following information was updated:

- The project activity utilizes 15 horizontal axis GAMESA G52-850 WTGs with a rated capacity of 850 kW each. The total installed capacity of the project activity is 12.75 MW.
- The technical specification of the system and details.
- The turbine lifetime according to the detailed datasheets for the GAMESA G52-850 is of 20 years.
- The project feasibility study calculated a plant load factor of 42.68% and the turbine supply contract guarantees a minimum of 42 GWh per year.
- The monitoring equipment and their location in the systems.
- The validity of the original/current baseline for the Los Santos Wind Power Project renewal of the crediting period is assessed against the tool for "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.

Closed

2- Although it is clear that the project activity is a wind power project, PP is required to demonstrate in section B.2 that the project qualifies as Type I, Type II and/or Type III (in this case type I) in accordance with PS for PA para 268 and para 119. Open

3- Section B.2 lists feasibility study as the document used for determining applicability of methodology. Therefore, PP is requested to provide the feasibility study for the project activity. Open.

4- In section B.3, as per instructions to fill the form, "In addition to the table, where possible, present a flow diagram of the project boundary based on the description provided in section A.3 above. No diagram has been found in the section B.3. Open

Project participant response**Date :** 06/04/2020

2. Section B2 now makes reference to the para 119 and 268 of the PS for PA.
3. Feasibility study has been provided to the DOE
4. Flow diagram now appears in the PDD

Documentation provided by project participant

- Updated PDD
- Feasibility study for the project activity

DOE assessment**Date:** 08/04/2020

2- Revision in section B.2 of revised PDD version 3 were checked and it was found to be in line with requirements of PS for PA. The findings has therefore, been satisfactorily closed.

3- Feasibility report was received by the validation team and the information provided in the report was found to be consistent with information given in revised PDD.

4- Flow diagram was found to be appropriately added to section B.3 of revised PDD version 3.0. The information presented through the flowchart was found to be appropriate and in accordance with guidance provided in PS for PA. Therefore, the finding is closed.

CAR ID	02	Section no.	D.2	Date :	31/01/2020
Description of CAR					

<ol style="list-style-type: none"> 1. In revised PDD version 1.0, Page 1, title of Project "Los Santos Wind Energy Project" is not mentioned against the relevant entry "Title of the project activity". PP shall mention the title in accordance with registered PDD and UNFCCC project webpage 2. On page 1 of revised PDD version 1.0, applied methodology is mentioned as AMS-I.D.ver. 17. As per PS for PA para 279(a), the methodology must be updated to latest valid version at the time of renewal of crediting period. Since, version 18 of this methodology is available and valid, PP is requested to update the version. 3. In section A.6 of revised PDD version 1.0, WTG purchase contract is dated 05/05/2010. This date is consistent with WTG purchase date mentioned in registered PDD ver 3.6 section 1.2. However, as per B.5 section of same registered PDD, WTG purchase is given as 25/05/2010. PP is requested to confirm the actual date of WTG purchase and provide supporting document for the same. 	
Project participant response	Date : 10/03/2020
<ol style="list-style-type: none"> 1. The title of the project activity is now included in page 1 2. Version 18 of the Methodology is now listed in the PDD 3. Section B5 now lists the WTG purchase date as 05/05/2010 	
Documentation provided by project participant	
Updated PDD	
DOE assessment	Date: 13/03/2020
<p>1- PP has updated the title of the project "Los Santos Wind Energy Project" in revised PDD version 2.0, Page 1 against the relevant entry "Title of the project activity". PP has mentioned the title in accordance with registered PDD and UNFCCC project webpage. Closed</p> <p>2- PP has updated the latest applied methodology mentioned as AMS-I.D.ver 18.0 on page 1 of revised PDD version 2.0., PP has updated the latest valid version of the methodology at the time of renewal of crediting period as per PS for PA para 279(a). Closed.</p> <p>3- PP has confirmed that the actual date of purchase is 05/05/2010 in section A.6 of revised PDD version 2.0 page 5. PP is requested to provide supporting document for the same. Open.</p> <p>4- The value in ER spreadsheet "GEN 07-18" cell B27 is 722245 and cell B81 is 722086. Moreover, in the excel source document ("E6 GENxFUENTE 2004 2018 ARESEP CR") also, the value is 722086. All these values represent energy generation from thermal power plants in 2007 and therefore should be the same. PP is requested to clarify the reason behind this inconsistency. Open</p>	
Project participant response	Date : 06/04/2020
<p>3- Proof of WTG purchase has been provided to the DOE</p> <p>4- ER Sheet has been modified</p>	
Documentation provided by project participant	
<ul style="list-style-type: none"> • Statemet that is signed from techonology provider and the project regarding purchase of turbines. • Modified ER Sheet 	
DOE assessment	Date: 08/04/2020
<p>3- The actual date 05/05/2010 was checked and confirmed from the WTF purchase contracts which were shared with by PP. The information was found to be consistent in revised PDD version 3.0. Therefore, the finding is closed.</p> <p>4- The finding was not found to be addressed in the EF calculation sheet shared by PP. The values in cells B27 and B81 were still found to be inconsistent. Open</p>	
Project participant response	Date : 20/04/2020
<p>4. There is a mistake in the total of energy generation from thermal. The correct amount is 722 086 in cell B27. ER spreadsheet "GEN 07-18" cell B27 has been modified.</p>	
Documentation provided by project participant	
DOE assessment	Date: 24/04/2020
<p>4- The value of total of energy generation from thermal has been updated by PP in the cell B27 of the ER calculation sheet. The calculation of the total energy generation from thermal has been checked and found 722086 as reported in the ER spreadsheet "GEN 07-18" cell B27 and B81.</p> <p>Thus, the Car stands closed.</p>	

CAR ID	03	Section No.	D.2, D.4	Date : 08/04/2020
Description of CAR				

1. According to registered PDD page 17, tables for parameters $NCV_{i,y}$ and EF_{CO_2} , in the field 'source of data used', it is mentioned that "lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories" will be used. However, as evident from EF sheet worksheet 'OM & BM' cells K5 to K12, PP has not used the lower limit of the NCV values. As per the data in IPCC table:

Fuel Type	Net calorific value (a)	Lower limit of the uncertainty at 95% confidence interval (b)
Diesel oil	43.0	41.4
Residual Oil	40.4	39.8

Similarly, in cells J5 to J12, PP has not used the lower limit value for parameter EF_{CO_2} :

Fuel Type	Default value (a)	Lower limit of the uncertainty at 95% confidence interval (b)
Diesel oil	74.1	72.6
Residual Oil	77.4	75.5

The values used in EF sheet are column (a) whereas according to registered PDD, the value that should be used is from column (b).

PP shall clarify the usage of NCV and EF_{CO_2} values given in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines

2. In the same worksheet mentioned above "OM & BM", kindly review the values of fuel density in cells L5 to L12. The calculation in these cells were not found to be appropriate. For e.g. in cell L6, the value used is 0.826, which is the density of diesel, whereas the actual fuel used in that corresponding plant is both diesel and bunker fuel (6.4% bunker and 93.59% diesel fuel). PP shall review all values calculation in cells L5 to L12.
3. For all fixed parameters listed in section B.6.2 of revised PDD, PP shall mention the values applied for each parameter instead of referring to the EF calculation sheet, because the guidance of the PDD form states this requirement.

OPEN

Project participant response	Date : 19/04/2020
<ol style="list-style-type: none"> 1. EF sheet worksheet 'OM & BM' cells K5 to K12 and J5 to J12 have been modified with the lower limit value of the NCV and EF_{CO_2} parameter. 2. Values calculation in cells L5 to L12 of EF sheet worksheet 'OM & BM' have been modified according to the fuel density values and the % of fuel used. 3. The PDD has been modified to include the values in section B.6.2 	
Documentation provided by project participant	
<ul style="list-style-type: none"> • Updated EF Sheet • Updated PDD 	
DOE assessment	Date: 24/04/2020

1- PP has updated the value of NCV and EFCO2 in the EF sheet worksheet 'OM & BM' cells K5 to K12 and J5 to J12 respectively. PP has used the updated IPCC values with the lower limit of the NCV and EFCO2 parameter inline to registered PDD page 17. The reported values have been checked and found as per the Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines.

2- PP has updated the density values in the cell L5 to L12 of EF sheet worksheet 'OM & BM' according to the fuel density values and the % of fuel used.

3- PP has updated all fixed parameters listed in section B.6.2 of revised PDD. PP has updated the values applied for each parameter instead of referring to the EF calculation sheet in the revised PDD.

Thus, the CAR stands closed.

Table 4. FAR from this verification

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

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> 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		