




**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	Hydro Electric Plant - Hidro Pantasma UNFCCC ID: 9118 TN P-No. : 20/162
Number and duration of the next crediting period	2 nd CP, from 07/10/2020 to 06/10/2027
Version number of the validation report	1
Completion date of the validation report	22/09/2021
Version number of PDD to which this report applies	6.0
Project participants	Hidropantasma S.A
Host Party	Nicaragua
Applied methodologies and standardized baselines	AMS-I.D. - Grid connected renewable electricity generation (Version 18.0) Standardized baselines: N/A
Mandatory sectoral scopes	Scope: 01 Energy Industries (renewable-/nonrenewable 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	30,862 tCO ₂
Name and UNFCCC reference number of the DOE	TÜV NORD CERT GmbH (TÜV NORD) Ref No.: E-0022
Name, position and signature of the approver of the validation report	 Stefan Winter Final Approver

SECTION A. Executive summary

Hidropantasma S.A. has commissioned the TÜV NORD JI/CDM Certification Program to carry out validation of the request for renewal of crediting period (RCP) for the project:

“Hydro Electric Plant - Hidro Pantasma”

with regard to the relevant requirements for CDM project activities.

The project has been registered on 24/12/2012 under the UNFCCC registration No. 9118. The PPs have chosen a 7-year crediting period, which is now due for renewal. The PPs have thus notified the UNFCCC about their intention to request the renewal of the crediting period.

The objective of this RCP validation is the review by an independent entity whether the project is still compliant with the applicable sections of:

- the CDM project standard,
- the CDM cycle procedure
- the updated applied UNFCCC Methodology AMS-I.D. ver. 18 and
- the methodological tool “Assessment of the validity of the original / current baseline and update of the baseline at the renewal of the crediting period”.

As per the requirements of the CDM Validation and Verification Standard^{VVS/} (section 11) the validation is based on

- the registered and/or latest updated version of the PDD (including revisions of the monitoring plan)^{PDD/},
- the updated emission reduction calculation spread sheet ^{/XLS/},
- further supporting documents made available to the validator as well as
- information collected through performing interviews and during the on-site assessment.

Furthermore, publicly available information, such as the host country legislation, was considered as far as available and required.

The project reduces GHG emissions due to the generation of renewable electricity from hydro plant which replaces related amount of electricity in the connected grid which is mainly fossil fuel generated.

Details of the project location are given in table A-1 below:

Table A-1: Project Location

No.	Project Location
Host Country	Nicaragua
Region:	Jinotega
Project location address:	250 km from Managua (Nicaragua's capital) and 22 km north of the city of Jinotega
Latitude:	Water intake 13.2867°
	Power house 13.3005°
Longitude:	Water intake -86.0069°
	Power house -85.9700°)

Basic technical details of the project are summarized in table A-2.

Table - A-2: Technical data of the project activity

Turbines

Parameter	Unit	Value
Manufacturer		KOSSLER GESELLSCHAFT m.b.H
Type		Pelton – PH2I - 1300/390

Number of turbines	-	2
Axis		Horizontal
Design Flow	m ³ /s (each one)	2.00
Rated Output	kW (each one) ¹	6,860
Speed	rpm	600
Impeller diameter	mm	1,300
Design head	m	374
Turbine efficiency (at design flow)	%	89.9

Generators

Parameter	Unit	Value
Manufacturer		Voith
Number of generators	-	2
Rated Output	kW (each one) ²	7,200 (each one)
Voltage	V	13,800 V +/- 5%
Power factor	-	0.90
Frequency	Hz	60
Speed	rpm	600
Connection	-	Star – Neutral grounded
Efficiency 100% of rated output	%	97.13

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 review	On-site inspection	Interview(s)	Validation findings
1	Team member	EI	Quireza	Oliver	-	x	-	x	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	Stöhr	Christina	TN CERT GmbH
2	Approver	IR	Winter	Stefan	TN CERT GmbH

SECTION C. Means of validation

C.1. Desk/document review

During the desk review all documents initially provided by the client and publicly available documents relevant for the validation were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD/},
- the last revision of the validation report^{/VAL/},

¹ Nameplate specification.

² Nameplate specification.

- documentation of previous verifications^{/VER/}
- the emission reduction calculation spreadsheet^{/XLS/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

C.2. On-site inspection

In accordance with EB108 §28 the DOE may apply alternative measures of validation/verification to mandatory on-site inspections until 30/06/2021. The DOE performed interviews via internet have with PP personnel representatives in order to confirm the relevant information provided in the PDD such as national regulation, local stakeholders consultation, technology information and project location.

The following remote inspection was done:

Duration of remote inspection: 04/02/2021 to 04/02/2021				
No.	Activity performed remotely	Site location	Date	Team member
1.	Kick off meeting	Remote	04/02/2021	Oliver Quireza
2.	Discussion on the calculation the EF calculation, and project description	Remote	04/02/2021	Oliver Quireza
3.	Closing meeting	Remote	04/02/2021	Oliver Quireza

Duration of remote inspection: 04/02/2021 to 04/02/2021				
No.	Activity performed remotely	Site location	Date	Team member
1.	Kick off meeting	Remote	04/02/2021	Oliver Quireza
2.	Discussion and review of calculation (baseline/project/leakage emissions and emission reductions)	Remote	04/02/2021	Oliver Quireza
3.	Review of completeness of ex ante and ex post parameters and such validation	Remote	04/02/2021	Oliver Quireza
4.	Monitoring plan (feasibility, QA/QC procedures, responsibility and recording of monitoring results and sampling methods, if applied)	Remote	04/02/2021	Oliver Quireza
5.	Feedback and interactions with local stakeholders	Remote	04/02/2021	Oliver Quireza
6.	Closing meeting	Remote	04/02/2021	Oliver Quireza

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Mantica	Rodrigo	Hidropantasma	04/02/2021	Project Description	Oliver Quireza
2.	Rodriguez	David	Hidropantasma	04/02/2021	Monitoring, data	Oliver Quireza
3.	Giraldo	Carlos	South Pole	04/02/2021	PDD, ER	Oliver Quireza

C.4. Sampling approach

<input checked="" type="checkbox"/>	No sampling approach has been used by the PP to determine the monitored parameters				
<input type="checkbox"/>	A sampling approach has been taken for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

SiRS: Simple Random Sampling

StRS: Stratified Random Sampling

SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling
 AS: Acceptance Sampling

²⁾ Sampling Types:

PS: Parameter Sampling

D.4.2 Sampling approaches during verification/validation

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT to verify the monitored parameters				
<input type="checkbox"/>	A sampling approach has been applied by the VT for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

²⁾ Sampling Types:

AS: Acceptance Sampling
 PS: Parameter Sampling
 COM: Full data check at higher data aggregation levels and sampling at original data levels

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	-	1	-
Application and selection of methodologies and standardized baselines	-	-	-
Validity of original baseline or its update	-	-	-
Estimated emission reductions or net anthropogenic removals	-	2	-
Validity of monitoring plan	-	-	-
Crediting period	-	1	-
Project participants	-	-	-
Post-registration changes	-	1	-
Others (please specify)	-	-	-
Total	-	5	-

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	<p>A draft revised PDD was submitted to the validation team by the project participants. By means of the UNFCCC website it has been checked whether the latest applicable PDD template CDM-PDD-FORM has been used.</p> <p>Further, it has been checked whether the latest instructions for filling out the PDD template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /unfccc/
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Findings	<input type="checkbox"/>	The latest reporting template CDM-PDD-FORM as listed on the UNFCCC website has been used for the PDD.
	<input type="checkbox"/>	The latest instructions for filling out the PDD have been followed. No adverse finding has been identified in the course of this validation.
	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: CAR02
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
After corrections the latest applicable PDD template CDM-PDD-FORM has been used. (i)The updated PDD has been completed using the valid version of the applicable PDD form, following the instructions therein; (ii) The information transferred to the later valid version of the PDD form is materially the same as that in the registered PDD, where applicable;		

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

Means of validation	<p>By means of comparison of the PDD with</p> <ul style="list-style-type: none"> (i) the applied CDM methodology (ii) all applicable CDM Meth tools and (iii) if applicable, a standardized baseline <p>the verification team has checked whether the updated PDD is in compliance with the requirements of the applied methodology/tools/SB.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /METH/ • /TOOL/ • /unfccc/ <p>Methodology conditions</p> <p>The conditions for the application of the methodology AMS-I.D., ver. 18 were identified by the PP in section B.2 o the updated PDD.</p> <p>The VT confirms that the methodology AMS-I.D., ver. 18 is applicable to hydroelectric projects.</p>			
Findings	<input checked="" type="checkbox"/>	The updated PDD is completely in accordance with the approved methodology applicable for the CDM project		
	<input checked="" type="checkbox"/>	The breakdown of PDD accordance of the referenced tools is as follows:		
		1	Title (of the tool)	Tool to calculate the emission factor for an electricity system
			Version	7.0
			MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)
		2	Title (of the tool)	Assessment of the validity of the original/current baseline und update of the baseline at the renewal of the crediting period
			Version	03.0.1
			MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A
		3	Title (of the tool)	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion
			Version	3.0.0
	MP compliance	<input checked="" type="checkbox"/> full compliance		

	<input type="checkbox"/>	findings have been raised					
	<input type="checkbox"/>	N/A					
	The breakdown of PDD accordance of the applicable SB is as follows:						
	1	<table border="1"> <tr> <td>Title (of the SB)</td> <td>-</td> </tr> <tr> <td>Version</td> <td>-</td> </tr> <tr> <td>MP compliance</td> <td> <input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A </td> </tr> </table>	Title (of the SB)	-	Version	-	MP compliance
Title (of the SB)	-						
Version	-						
MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input checked="" type="checkbox"/> N/A						
<input type="checkbox"/>	In this context the following CARs, CLs have been raised:						
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.					
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.					
	<p>The updated PDD fully complies with the latest version of the approved methodology and applicable tools. All applicable references in the updated PDD are correct and all applicable tools have been correctly identified.</p> <p>The VT concluded that the applicable conditions selected by the PP are in line with the real situation of the project, which was validated in the technical documentation of the PA.</p> <p>The methodologies and, where applicable, the standardized baselines and the other methodological regulatory documents were applied in accordance with the applicable requirements in the "CDM project standard for project activities".</p>						

D.3. Validity of original baseline or its update

Means of validation	<p>In order to check the validity of the original baseline or its updates the validation team has applied the following stepwise approach:</p> <p>The baseline scenario of the project as per the registered project can be described as follows:</p> <p><i>The electricity delivered to the grid by the project activity would have otherwise been generated by the operation of the grid-connected power plants and by the addition of new generation sources into the grid.</i></p> <p>As per the project standard this scenario is not subject to re-assessment and is thus deemed to be applicable for the next crediting period.</p> <p>However, the baseline itself i.e. the calculation of baseline emissions has been checked regarding the continued validity of underlying assumptions and parameter values. The assessment steps are described in the following subsections:</p> <p>As per tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" the PP has to assess the validity of the baseline. The following steps were reviewed:</p>
	<p><u>Step 1: Assess the validity of the current baseline for the next crediting period</u></p> <p><u>Step 1.1 Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies:</u></p> <p>The baseline of the registered PDD has been assessed to be compliant with the national legislation and policies applicable for the project activity at the time of validation. During the first crediting period the PP has reviewed the legal requirements and policies relevant for the baseline of the project. On the basis of this the PP has arrived at the conclusion that the baseline is still in line with all applicable legislations and policies.</p> <p>The validation team has independently reviewed the host country legislation as well as current policies, such as:</p> <p>Legislation:</p> <ul style="list-style-type: none"> ✓ Law 272 of 1998 ✓ Law of the Electrical Industry, Law 554 of 2005 ✓ Law of Energy Stability

- ✓ Law No. 271, which together with Law No. 272
- ✓ Laws No. 443, No. 467 and No. 532,
- ✓ Decree 45-94, 1994

Country policies are provided in the following documents:

- ✓ Advance Energetic sector March 2021
- ✓ Bulletin 133, January 2021
- ✓ Nicaragua Reforms in the energy industry legislation, September 2020
- ✓ Expansion plan for electric generation 2019-2033, MEM, _Nov 2018.

On the basis of this analysis the validation team confirms that the baseline is still in compliance with the currently applicable national legislation and other national and/or sectoral policies. Therefore, the baseline did not need to be adjusted due to changes in this respect.

Step 1.2 Assess the impact of circumstances:

As the baseline scenario might be affected by changed circumstances, e.g. market conditions, market prices etc. the PP has checked the baseline against such changes that have occurred since validation. This is of special importance if the baseline scenario is the continuation of the pre-project scenario.

The PP has addresses clearly the electricity price issue and evidence has been provided to demonstrate that the project Hidropantasma has a fix electricity price as per contract with the distributors.

Furthermore, the reforms in the renewable energy laws have not change the price structure either other aspect that impact directly the project profitability.

The argumentation provided by the PP is in line with the situation observed in the renewable energy sector project and the actual contractual situation.

The changes in the electricity sector doesn't affect the original baseline of the project activity.

The validation team has independently checked whether there are changes in circumstances which have an impact on the baseline. No such changes have been identified and thus it is deemed appropriate to keep the baseline.

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:

If the baseline scenario has been identified as the continuation of the pre-project scenario it is necessary to assess whether an investment and/or exchange of the baseline equipment (e.g. due to expiry of the equipment's lifetime) during the upcoming crediting period is to be deemed the most likely scenario. If so the baseline needs to be updated.

As the project activity consist of a greenfield project no baseline equipment is considered.

Furthermore, there is no other reason for a possible investment.

Thus, the validation team confirms the conclusion that no changes to the baseline are required due to the likeliness of investments in equipment which impacts the baseline.

Step 1.4: Validity of ex-ante determined parameters:

In the registered PDD the $EF_{grid,CM,y}$ was determined based on the TOOL 07 version 2.2.1. and for this renewal of CP the PP has applied the latest available TOOL version 7.0

In the updated PDD $EF_{grid,CM,y}$ is calculated ex-ante which is in line with the methodology, so that the following parameters are fixed ex ante according to the TOOL07.

	Parameter	Previous value	Updated value	Reference
1.	$EF_{grid,OM,y}$	0.6598	0.6749	according to the TOOL07
2.	$EF_{grid,BM,y}$	0.4849	0.4343	according to the TOOL07

	3.	$EF_{grid,CM,y}$	0.5723	0.4945	according to the TOOL07
	4.	$EG_{m,y}$	As per annex 3 PDD	As per appendix 4 PDD	https://www.ine.gob.ni/index.php/electricidad/serie-historica/
	5.	$FC_{i,m,y}$	As per annex 3 PDD	As per appendix 4 PDD	https://www.ine.gob.ni/index.php/electricidad/serie-historica/
	6.	$NCV_{i,y}$	Diesel oil: 41.4 GJ/t Fuel oil: 39.8 GJ/t	Diesel oil: no change Fuel oil: N/A	IPCC, 2006. OECD/IEA, 2004
	7.	$EF_{CO2,i,y}$	Diesel oil: 72.6 tCO2/TJ Fuel oil: 75.5 tCO2/TJ	Diesel oil: no change Fuel oil: N/A	IPCC, 2006. OECD/IEA, 2004
The $EF_{grid,CM,y}$ determination is assessed in section D.4 of this report.					
These changes have been appropriately considered in the updated PDD.					
Findings	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:			
		CAR 03			
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.			
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.			
	A relevant change in the project is that the emission factor $EF_{grid,y}$ changed from calculated ex-post to fixed ex-ante for the next crediting period. The correct weighing factors for 2 nd CP 0.25 for Om and 0.75 for BM have been applied. After the correction requested during the validation it is concluded that the PDD has been updated correctly in line with the respective requirements to the validity original baseline				

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	<p>For validation of the estimated GHG emission reductions the client has provided the validation team with the following documentation:</p> <ul style="list-style-type: none"> - Updated PDD/^{PDD/} - XLS spreadsheet^{t/XLS/} - Electricity data from the AMM <p>Further, the validation team has downloaded from the UNFCCC website the applicable version of the CDM methodology and all referenced methodological tools ^{/unfccc/}.</p> <p>The XLS ER calculation has been duly checked. Further it has been checked whether the results have been correctly transferred to the updated PDD for determination of ex-ante ER. The validation team has further checked the updated PDD against the latest version of the applicable methodology incl. the referenced methodological tools for consistency. Special focus was laid on the changes against the previous crediting period.</p> <p>1) Baseline emissions BE_y: The GHG calculation is based on the following equation:</p> $ \begin{aligned} BE_y &= EG_{PJ,y} \times EF_{grid,y} \\ &= 0.4945 \text{ tCO}_2/\text{MWh} \times 62,415 \text{ MWh} \\ &= 30,862 \text{ tCO}_2 \end{aligned} $ <p>Where:</p> <ul style="list-style-type: none"> BE_y = Baseline emissions in year y (t CO₂) $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh) $EF_{grid,y}$ = 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>$EF_{CO2,grid,y}$ is calculated yearly according to "TOOL 07 to calculate the emission factor</p>
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of an electricity system". As per PDD Ex ante option is chosen to calculate the $EF_{CO_2,grid,y}$ for the CP.

As per registered PDD Nicaragua's Electric National System (Sistema eléctrico Nacional, SEN) is assumed as the project electricity system. Furthermore, Off-grid power plants are not included in the project electricity system; option 1 is chosen.

Step 1. Identification of the relevant electricity systems

As mentioned above the plant Hidropantasma is connected to the grid Nicaragua's Electric National System through the substation Asturias, which is chose properly for the $EF_{CO_2,grid,y}$ calculation.

Step 2. Inclusion off-grid power plants in the project electricity system

In line with Option 1 of the tool the PP decided to not to include off-grid power plants.

Step 3. Selection of a method to determine the operating margin

The PP chose the simple OM emission factor, which is calculated as the generation-weighted average of CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

Step 4. Calculating the operating margin emission factor according to the selected method.

The PP selected the ex-ante approach for the calculation of the grid emission factor. The Option selected by the PP is in line with the Option 2 of Step 5 of the TOOL07. ver. 7.

The data is taken directly from the original data downloaded from the INE.

As the LCMR is less than 50% in the 5 years then the simple OM method is selected. Option A of the TOOL is selected for the OM calculation.

For the OM calculation the simple OM option is used, where the equation is the following:

$$EF_{grid,OMsimple,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where:

$EF_{grid,OMsimple,y}$	= Simple operating margin CO ₂ emission factor in year y (t CO ₂ /MWh)
$EG_{m,y}$	= Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{EL,m,y}$	= CO ₂ emission factor of power unit m in year y (t CO ₂ /MWh)
m	= All power units serving the grid in year y except low-cost/must-run power units
y	= The relevant year as per the data vintage chosen in Step 3

Step 5. Calculation of Build Margin emission factor

For the BM calculation the PP chose option 2. The PP calculates the BM ex ante. For the validation of RCP the BM is updated based on the most recent information available on units already built at the time of submission of the PDD to the DOE (August 2021) for RCP. The most recent data available is from 2018. The choice of the PP is in line with Option 2 of Step 5 of the TOOL07. ver. 7.

The following procedure was followed:

As per the tool the sample group of power units m is determined through as follow:

1. the identification of the set of five power plants units, excluding the registered CDM power units that started supplying electricity most recently (SET_{5-units})
2. Determine the annual electricity generation of the NIS excluding the registered CDM projects (AEG_{total}), than identify the set of power plant units that started to supply electricity most recently that comprises 20% of the AEG_{total} and determine the annual electricity generation AEG_{SET>=20}.
3. From AEG_{SET>=20} and SET_{5-units} select the set of power units that comprises the largest annual electricity generation SET_{sample}
4. For this MP the SET_{SET>=20} = SET_{sample} for the six years (2013-2018)

5. The SET_{≥20%} was selected as the SET_{sample} because it is the set of power units that comprises the larger annual generation (compared to SET_{5-units}).

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where:

$EF_{grid,BM,y}$	= Build margin CO ₂ emission factor in year y (t CO ₂ /MWh)
$EG_{m,y}$	= Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{EL,m,y}$	= CO ₂ emission factor of power unit m in year y (t CO ₂ /MWh)
m	= Power units included in the build margin
y	= Most recent historical year for which electricity generation data is available

Step 6. Calculation of the combined margin emission factor

The CM calculation follows the tool, where the applied weights for the 2nd CP are as follow:

$$W_{OM} = 0.25$$

$$W_{BM} = 0.75$$

The calculation is done as follow:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM}$$

Where:

$EF_{grid,BM,y}$	= Build margin CO ₂ emission factor in year y (t CO ₂ /MWh)
$EF_{grid,OM,y}$	= Operating margin CO ₂ emission factor in year y (t CO ₂ /MWh)
W_{OM}	= Weighting of operating margin emissions factor (per cent)
W_{BM}	= Weighting of build margin emissions factor (per cent)

By checking the public available information in the official web page of the INE (<https://www.ine.gob.ni/index.php/electricidad/estadisticas-anuales/>) it is confirmed the latest available public information is from year 2018, so the PP didn't performed further $EF_{grid,CM,y}$ calculation for 2019 and 2020.

This is line with the TOOL07 as it allows using data vintage y , $y-1$ or $y-2$. As the official information is public available in the INE web page after 18 months of the year y . The grid emission factor calculated for the 2nd CP is 494.5 tCO₂/kWh.

The PE are calculated in line with the methodology AMS-I.D. ver. 18 as follows:

$$\begin{aligned} PE_y &= PE_{FF,y} + PE_{GP,y} + PE_{HP,y} \\ &= 0 \text{ tCO}_2 + 0 \text{ tCO}_2 + 0 \text{ tCO}_2 \\ &= 0 \text{ tCO}_2 \end{aligned}$$

Where:

PE_y	= Project emissions in year y (tCO ₂ e/yr)
$PE_{FF,y}$	= Project emissions from fossil fuel consumption in year y (tCO ₂ /yr)
$PE_{GP,y}$	= Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e/yr)
$PE_{HP,y}$	= Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ e/yr)

For $PE_{FF,y}$

As per PDD has a fossil fuel based emergency generator is in place which will operate a minimum time so that the PE_{FF} are close to 0 tCO₂.

$PE_{GP,y}$ is not applicable as this is not a geothermal project.

For $PE_{HP,y}$

In line with the registered PDD and in according to ACM0002 version 20.0, the emissions from the reservoir have to be calculated if the PD is lower than 10 W/m². The PD is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

- PD = Power density of the project activity (W/m²)
- Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W)
- Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero
- A_{PJ} = Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m²)
- A_{BL} = Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m²). For new reservoirs, this value is zero

The calculation provided in section B.6.3 of the updated PDD shows that the power density of the project activity (PD) is greater than 10 W/m², so that:
PE_{HP} = 0 tCO₂

In line with the applied methodology and the emission reductions are calculated as follows:

$$\begin{aligned} ER_y &= BE_y - PE_y - LE_y \\ &= 30,862 \text{ tCO}_2 - 0 \text{ tCO}_2 - 0 \text{ tCO}_2 \\ &= 30,862 \text{ tCO}_2 \end{aligned}$$

Where:

- ER_y = Emission reductions in year y (t CO₂)
- BE_y = Baseline Emissions in year y (t CO₂)
- PE_y = Project emissions in year y (t CO₂)
- LE_y = Leakage emissions in year y (t CO₂)

The estimated amount of GHG emission reductions of the project is **216,031 tCO₂e** during the second crediting period (7 years) from 07/10/2020 to 06/10/2027, resulting in estimated average annual emission reductions of 30,862 tCO₂e.

The ER calculation sheet has been duly checked. Further it has been checked whether the results have been correctly transferred to the updated PDD for determination of ex-ante ER. The validation team has further checked the updated PDD against the latest version of the applicable methodology incl. the referenced methodological tools for consistency. Special focus was laid on the changes against the previous crediting period.

Findings	<input type="checkbox"/>	The calculation of ERs is done as per the applied methodology (AMS-I.D). The calculation in the Excel spreadsheet and the corresponding calculation tables in the PDD have been checked and no mistakes have been identified. The estimation of emission reductions for the 3rd crediting period is deemed plausible and conservative.
	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: CAR03, CAR05
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. For details please refer to Appendix 4.
All changes due to the upgraded methodology and the re-assessment of the baseline have been considered appropriately and in line with the CDM PS. The ERs calculation is done as per the applied methodology (AMS-I.D). The calculation in the Excel		

	spreadsheet and the corresponding calculation tables in the PDD are consistent and traceable. The estimation of emission reductions for the 2 nd crediting period is deemed plausible and conservative.
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D.5. Validity of monitoring plan

Means of validation	<p>The validation team has checked the monitoring plan of the updated PDD against the required changes due to the update of the baseline and other methodological changes. Further, changes due to editorial updates of the applicable templates have been checked.</p> <p>In detail all parameters, ex-ante values and applicable formulae have been checked to determine the required changes for the next crediting period.</p> <p>Monitoring</p> <p>The PDD describes the responsibilities and procedures for monitoring, records keeping, quality check and details on parameters monitoring and calibration of measurement equipment. No major change against the registered PDD has been done because no changes are expected in the monitoring procedure. The VT reviewed the parameters against the new version of the applied methodology (AMS-I.D. ver. 18).</p> <p>In line with the methodology and registered PDD the following parameters are to be monitored:</p> <ul style="list-style-type: none"> ✓ $EG_{P,j,y}$ ✓ $FC_{i,j,y}$ <p>The parameters have been described in the updated PDD in line with the applied methodology.</p>
Findings	<div style="display: flex; align-items: flex-start;"> <div style="width: 40px; text-align: center;"> <input type="checkbox"/> </div> <div> <p>Although the monitoring plan in the PDD has been revised to comply with the latest applicable version of the monitoring methodology (AMS-I.D., Version 18.0). No changes have occurred.</p> <p>The validation team has duly assessed all the required changes due to the upgraded methodological requirements and the re-assessment of the baseline. The validation team has concluded that</p> <ul style="list-style-type: none"> all necessary changes have been appropriately reflected in the updated PDD, the monitoring plan in the updated PDD is in compliance with the applied monitoring methodology, the monitoring arrangements described in the updated PDD can be implemented and are feasible within the project design. </div> </div> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="width: 40px; text-align: center;"> <input checked="" type="checkbox"/> </div> <div> <p>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</p> <p>CAR 03</p> </div> </div>
Conclusion	<div style="display: flex; align-items: flex-start;"> <div style="width: 40px; text-align: center;"> <input type="checkbox"/> </div> <div> <p>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</p> </div> </div> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="width: 40px; text-align: center;"> <input checked="" type="checkbox"/> </div> <div> <p>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</p> </div> </div> <p>After correction it is concluded that the monitoring plan of the updated PDD is fully in line with the applied methodology including the applicable methodological tools. The monitoring arrangements described in the updated PDD can be implemented and are feasible within the project design.</p>

D.6. Crediting period

Means of validation	<p>The validation team has checked that the validation process of the RCP takes place in the specified timeframe from 270 days before the expiry of the CP up to one year after the CP expiry. So, as the 1st CP ends on 06/10/2020 the request can be done from 10/01/2020 up to 06/10/2021.</p>
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Findings	<input type="checkbox"/>	As the respective requirements are met, the project's 3 rd crediting period may start immediately after the expiration of the 2 nd one, given that all other applicable criteria are met. It is further confirmed that the start date (01/01/2021) and the length of the crediting period (7 years) are in compliance with the project standard.
	<input type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
As per UNFCCC Project Cycle Procedure the time period to request the renewal of the crediting period starts 270 days before the expiry of the CP, So, as the 2nd CP ends on 06/10/2020 the request can be done from 10/01/2020 up to 06/10/2021.		

D.7. Project participants

Means of validation	The validation team has checked the revised PDD/ ^{PDD/} and the UNFCCC website/ ^{unfccc/} esp. the latest version of the Modalities of Communication/ ^{MOC/} to check whether the listed project participants have duly been authorized and if communication requirements are met.	
Findings	<input checked="" type="checkbox"/>	The names of the project participants as listed in the revised PDD (sections A.4. and appendix 1) are consistent with those listed on the dedicated UNFCCC project website as well as in the last version of the modalities of communication/ ^{MOC/} .
	<input type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
Conclusion	<input checked="" type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
The names of the project participants as listed in the revised PDD (sections A.4. and appendix 1) are consistent with those listed on the dedicated UNFCCC project website as well as in the last version of the modalities of communication/ ^{MOC/}		

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 ³	N	-	-
Corrections	Y	1.0	22/09/2021
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	-	-

³ 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).

Changes specific to afforestation and reforestation project activities	N	-	-
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SECTION E. Internal quality control

Before the submission of the final VAL RCP report a technical review of the whole validation procedure was carried out. The technical reviewers are competent GHG auditors where at least one is being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may have been confirmed or revised. Furthermore reporting improvements might have been achieved.

After the successful technical review an overall (esp. procedural) assessment of the complete validation has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting the renewal of crediting period is conducted.

SECTION F. Validation opinion

Hidropantasma S.A has commissioned the TÜV NORD JI/CDM Certification Program to re-validate the project "Hydro Electric Plant - Hidro Pantasma" for the purpose of renewal of the crediting period. The validation is based on the relevant UNFCCC requirements.

The review of the updated project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews have provided TÜV NORD JI/CDM Certification Program with sufficient evidence to validate the fulfilment of the stated criteria applicable for RCP.

In detail, the conclusions can be summarized as follows:

The current baseline of the project is in line with the national and/or sectoral policies and circumstances at the time of requesting renewal of crediting period.

The monitoring plan is transparent and adequate and in line with the applicable monitoring methodology (AMS-I.D. ver. 18).

The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 216,031 tCO_{2e} are most likely to be achieved within the second renewable crediting period of 7 years.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the renewal of the crediting period.

Queretaro, 22/09/2021




Oliver Quireza
Team leader

Abbreviations

Abbreviations	Full texts
CLZ	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CNDC	National Load Dispatch Center
CO ₂	Carbon dioxide
CO _{2eq}	Carbon dioxide equivalent
CL	Clarification Request
DVR	Draft Validation Report
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
ENATREL	National Company of Transmission of Electricity “ <i>Empresa Nacional de Transmisión eléctrica</i> ”
FAR	Forward Action Request
GHG	Greenhouse gas(es)
Hidropantasma	Hydro Electric Plant - Hidro Pantasma
IM	Interview Memo
INE	Nicaraguan Institute of Energy (<i>Instituto Nicaragüence de Eneqía</i>)
MARENA	Ministry for the Environmental “ <i>Ministerio del Ambiente y los Recursos Naturales</i> ” (DNA)
MP	Monitoring Plan
MR	Monitoring Report
MEM	Ministerio de Energía y Minas
PA	Project Activity
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VT	Verification/Validation Team
XLS	Emission Reduction Calculation Spread Sheet

Appendix 1. Competence of team members and technical reviewers



Statement of Competence
Appointment and authorization according to the procedures of the TUV NORD xCDM Certification Program

Mr. Oliver Quireza Campos

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2024-06-28
VCS / ISO 14064-2	Lead Assessor	2024-06-28


Authorization status for technical areas within sectoral scope:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater
13.2	Mining

337 - Rev. 6, Date: 2021-06-15

337_201-14489-FRM_2021-06-15_mkt

337-14489-FRM_mkt | 20-10-16-20



Statement of Competence
Appointment and authorization according to the procedures of the TUV NORD xCDM Certification Program

Ms. Christina Stöhr

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Reviewer	2023-06-06
VCS / ISO 14064-2	Lead Assessor/ Technical Reviewer	2023-06-06

Authorization status for technical areas within sectoral scope:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater

206 - Rev. 7, Date: 2020-10-07

206_201-14489-FRM_2020-10-07_mkt

206-14489-FRM_mkt | 20-10-16-20

Appendix 2. Documents reviewed or referenced

No	Author	Reference	Title	References to the document	Provider
1.	TÜV NORD	/CPM/	TÜV NORD JI / CDM Certification Program Manual (incl. procedures and forms)	N/A	TÜV NORD
2.	UNFCCC	/GOT/	Glossary "CDM terms" (version 10.0)	https://cdm.unfccc.int/Reference/index.html	Other
3.	IPCC	/IPCC/	<ul style="list-style-type: none"> ✓ IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000 ✓ Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual 	https://www.ipcc-nggip.iges.or.jp/public/gp/english/	IPCC
4.	UNFCCC	/KP/	Kyoto Protocol (1997)	https://unfccc.int/kyoto_protocol	UNFCCC
5.	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))	https://unfccc.int/decisions?search2=marrakesh	UNFCCC
6.	UNFCCC	/VVS/	CDM Validation and Verification Standard, Version 2.0	https://cdm.unfccc.int/Reference/Standards/index.html	UNFCCC
7.	UNFCCC	/METH-1/	AMS-I.D: Grid connected renewable electricity generation, ver. 18	https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG	UNFCCC
8.	UNFCCC	/TOOL/	<ul style="list-style-type: none"> ✓ Tool to calculate the emission factor for an electricity system, ver. 07 ✓ Assessment of the validity of the original/current baseline und update of the baseline at the renewal of the crediting period, ver. 3.0.1 ✓ Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, ver. 3.0 	Name	Ver.
9.	UNFCCC	/PCP/	CDM project cycle, version 2.0	https://cdm.unfccc.int/Reference/Standards/index.html	UNFCCC
10.	UNFCCC	/PS/	CDM project standard, version 2.0	https://cdm.unfccc.int/Reference/Standards/index.html	UNFCCC
11.	UNFCCC	/PDD-T/	Project Design Document Form (CDM-PDD-FORM) - Version 11.0 including Attachment: Instructions for filling out the project design document form for CDM project activities	https://cdm.unfccc.int/Reference/Standards/index.html	UNFCCC
12.	TÜV NORD	/VAL/	Validation Report for registration of the CDM project "Hydro Electric Plant - Hidro Pantasma", submitted by TUV RHEINLAND, version 03 dated 21/12/2012	https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356253134.74/view?cp=1	TÜV NORD
13.	PP	/PDD/	RCP Project Design Document for CDM project: "Hydro Electric Plant - Hidro Pantasma" version 5, dated 03/03/2021 Version 6, dated 15/09/2021	N/A	UNFCCC
14.	PP	/PDD-Reg/	Registered Project Design Document for CDM project: "Hydro Electric Plant - Hidro Pantasma" version 5, dated 19/12/2012	https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356253134.74/view?cp=1	UNFCCC

No	Author	Reference	Title	References to the document	Provider
15.	INE	/EF/	-Monthly net generation SEN, covering the period from 2013 to 2018, by INE. -Raw materials for electricity generation SEN, covering 2013-2018, by INE.	https://www.ine.gob.ni/index.php/electricidad/estadisticas-anuales/	PP
16.	PP	/XLS/	210128_ER_HidroPantasma-MDL 210915_ER_HidroPantasma-MDL	N/A	PP
17.	INE	/LAW/	Commercial Annexes: -Commercial information of market -Share unit -Variable costs and costs of thermal start-up -commercial measurement of system -mandatory generation -Dispatch without restriction and energy price in the spot market -Contracts coordination	N/A	PP
18.	PP	/ERPA/	ERPA, between PP and CERs buyer, June 2020.	N/A	PP
19.	ENATRE L IDB	/BL/	<ul style="list-style-type: none"> ✓ Advance Energetic sector March 2021 ✓ Bulletin 133, January 2021 ✓ Nicaragua Reforms in the energy industry legislation, September 2020 ✓ Expansion plan for electric generation 2019-2033, MEM, _Nov 2018. 	https://www.enatrel.gob.ni/ https://www.lexology.com/library/detail.aspx?g=b9da19ab-1936-4dce-8f2b-4d61d3b6549a	other
20.	CNEE MARN	/LIC/	<ul style="list-style-type: none"> ✓ Environmental License, Resolution administrative DGCA-028-2008R, by MARENA. ✓ Public Act -Contract, License of Generation, project Hidropantasma, by MEM, 24/10/2011 ✓ Report of socio environmental activities January 2021. 	N/A	PP
21.	TN JI/CDM CP	/COVID/	<p>TUV NORD Covid pandemic guidance and notifications:</p> <ul style="list-style-type: none"> ✓ TN Guidance 20/001 "CORONAVIRUS – GUIDELINE FOR AUDITORS", version 2 ✓ Covid pandemic Announcements along with related EB emails and EB decision via JI/CDM Team SharePoint 20/03/2020, 24/06/2020, 25/02/2021 ✓ Information provided during EEM conducted on 11/11/2020 and 16/12/2020 ✓ Covid-19 pandemic EB decision 	https://extranet.tuev-nord.de/sites/jicdm/default.aspx https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01_041_index.html	TN JI/CDM CP

Appendix 3. Clarification requests, corrective action requests and forward action requests

Table 3. CL from this validation

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

Table 4. CAR from this validation

CAR ID	CAR 01	Section no.	B.6.2/B.6.3	Date: 10/02/2021
Description of CAR				
Several fixed ex ante and monitoring parameters in the applied values box refer to annex 3, nevertheless the PDD doesn't have such annex. Furthermore the applied values in the calculation and references have to be provided clearly in appendix 4 of the PDD.				
Project participant response				Date: 25/06/2021
<i>PDD was updated accordingly.</i>				
Documentation provided by project participant				
<ul style="list-style-type: none"> - 210625_PDD_Hidropantasma_RCP_coomented.docx - Power purchase agreements with DISSUR and DISNORTE 				
DOE assessment				Date: 26/07/2021
The applied values for ex ante and monitoring parameters are provided in the provided EF spreadsheet. Finding is closed.				

CAR ID	CAR 02	Section no.	Front page /A.1	Date: 14/09/2021
Description of CAR				
Page 1: <ol style="list-style-type: none"> the template has been altered. The table is not completely grey in the template. Please add the information- if or if not a standardized baseline is applied. The emission reductions number is missing a unit Section A.1: as per template to fill the PDD, the following is requested here: "... <i>The baseline scenario...</i> "				
Project participant response				Date: 15/09/2021
<i>Page 1: all the findings were corrected.</i> <i>Section A.1: sentence about the baseline scenario was included.</i>				
Documentation provided by project participant				
<ul style="list-style-type: none"> - 210915_PDD_Hidropantasma_RCP_TC.docx - 2021_09_15_TR_Findings_RCP_Pantasma_SP-CGI.docx 				
DOE assessment				Date: 16/09/2021
The minor corrections have been applied in the front page. The added baseline scenario description is in accordance with the project activity and the MR template. Finding is closed.				

CAR ID	CAR 03	Section no.	B.6	Date: 14/09/2021
Description of CAR				
Section B.6.1: the stated equation 1 differs from the formula applicable from the applied methodology. Section B.6.2: the grid emission factor is missing in this section. Section B.6.3: first section baseline emissions: However the Baseline emission result is missing. Section B.7.1: <ol style="list-style-type: none"> <i>EGfacility,y (EG BL,y)</i>: The parameter's abbreviation and the description differ from the 				

applied methodology e. $EG_{m,y}$, $FCi_{m,y}$, $NCVi,y$, $EFCO2,i,y / EFCO2,m,i,y$, η_m : Why are the parameter monitored? The grid emission factor is fixed.	
Project participant response	Date: 15/09/2021
<p>Section B.6.1: Equation 1 was updated.</p> <p>Section B.6.2: the grid emission factor parameter was included.</p> <p>Section B.6.3: in the first section baseline emissions the BE result was included.</p> <p>Section B.7.1:</p> <p>d. Parameter's abbreviation and the description were corrected and updated according to the methodology and Tool07.</p> <p>e. $EG_{m,y}$, $FCi_{m,y}$, $NCVi,y$, $EFCO2,i,y / EFCO2,m,i,y$ were removed from the monitored parameters and updated in the fixed parameters according to the Tool07. Parameter η_m was removed since it was not applied in this CP and the grid emission factor is fixed.</p>	
Documentation provided by project participant	
<ul style="list-style-type: none"> - 210915_PDD_Hidropantasma_RCP_TC.docx - 2021_09_15_TR_Findings_RCP_Pantasma_SP-CGI.docx 	
DOE assessment	Date: 16/09/2021
<p>Section B.6.1: the stated equation 1 is in line with the applied methodology.</p> <p>Section B.6.2: the parameter grid emission factor is in line with the applied methodology and TOOL07.</p> <p>Section B.6.3: first section baseline emissions: However the Baseline emission result is missing.</p> <p>Section B.7.1.</p> <p>Parameter EG BL,y abbreviation is in line with the applied methodology.</p> <p>Parameters $EG_{m,y}$, $FCi_{m,y}$, $NCVi,y$, $EFCO2,i,y / EFCO2,m,i,y$ were moved to the section of fix parameters. The fix parameters are correctly determined in accordance with the TOOL07.</p> <p>Finding is closed</p>	

CAR ID	CAR 04	Section no.	B.6	Date: 14/09/2021
Description of CAR				
Appendix 7 - permanent change: the wording is not quite clear. The second CP is mentioned however this PDD is the first one for the 2 nd crediting period, how can it already be mentioned as PRC?				
Project participant response				Date: 15/09/2021
Permanent change were removed, this do not really correspond to the PDD which is in the process of being renewed.				
Documentation provided by project participant				
<ul style="list-style-type: none"> - 210915_PDD_Hidropantasma_RCP_TC.docx - 2021_09_15_TR_Findings_RCP_Pantasma_SP-CGI.docx 				
DOE assessment				Date: 16/09/2021
<p>No permanent change in this RCP is to be reported. The only applicable PRC is the one related to the corrections which has properly been reported in Appendix 7 of the PDD and assesses in a separate PRC validation report, submitted together with the RPC.</p> <p>Finding is closed</p>				

CAR ID	CAR 05	Section no.	ER sheet	Date: 14/09/2021
Description of CAR				
<p>Tab CM_ER</p> <ol style="list-style-type: none"> The title is quite confusing. Above the table it is stated "EF calculation" – however the tab states ER. As no ER-file is submitted a proper way of showing the emission reduction calculation is reasonable. (same for the EF_calculation) The source of net energy estimate is missing The names of the parameters for calculating the emission reductions differ from the applied methodology. BE_y, PE_y, ER_y are missing units- 				
Project participant response				Date: 15/09/2021
<ol style="list-style-type: none"> The title and table/tab name were updated.. The source was supplemented according to the supports included in the registered PDD. Parameter names updated. Units were included. 				
Documentation provided by project participant				
210915_ER_2ndCP_HidroPantasma-CDM.xlsx				
DOE assessment				Date: 16/09/2021

- a. Title is correct ER calculation
 - b. The electricity source is in line with the amount reported in the registered PDD.
 - c. The parameter to determined the ER are consistent with the ones in the applied methodology.
 - d. The units of parameters are correct.
- Finding is closed

Table 5. FAR from this validation

FAR ID	Section no.	Date: DD/MM/YYYY
Description of FAR		
N/A		
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		