




**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	Chile: Lircay Run-Of-River Project UNFCCC Ref. Number: 2417
Number and duration of the next crediting period	Crediting period: 2 04/08/2016 – 03/08/2023
Version number of the validation report	1.0
Completion date of the validation report	25/08/2020
Version number of PDD to which this report applies	6
Project participants	Hidromaule S.A. C-Quest Capital LLC
Host Party	Chile
Applied methodologies and standardized baselines	AM0026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid – version 3.0
Mandatory sectoral scopes	1
Conditional sectoral scopes, if applicable	-
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	59,381 tCO _{2e}
Name and UNFCCC reference number of the DOE	Earthood Services Private Limited UNFCCC Ref. Number: E-0066
Name, position and signature of the approver of the validation report	 Dr. Kaviraj Singh Managing Director

SECTION A. Executive summary

Brief summary of the project activity

The project activity consists in run-of-river hydropower plant, which generate electricity avoiding power generation from fossil fuel sources. The installed capacity of the plant is 19 MW, delivering an average of 130 GWh/y to the Chilean National Electric System (SEN).

The plant is located at about 30 km northeast from Talca city in the VII Region of Maule, Chile, as described below:

Plant	Project coordinates (UTM PSAT 56)	
	East (km)	North (km)
Intake	293,740	6,063,160
Power house	295,188	6,065,434

Technical description of the plant:

Installed Capacity		19 MW
<u>Turbines</u>	Quantity	02
	Manufacturer	Andritz Vatech Hydro
	Type	Francis horizontal
	Nominal capacity (per unit)	10,658 kW
	Serial #s	#1 – 2034 #2 – 2035
<u>Generators</u>	Quantity	02
	Manufacturer	Alconza
	Type	Synchronous – NIR 12589A – B-10QLW
	Nominal capacity (per unit)	10,556 kVA
	Power factor	0.9
	Serial #s	#1 – 1,938,140 #2 – 1,936,743

The lifetime of the main equipment (turbines and generators) is 40 years, according to manufacturer's specifications, as per its environmental approval.

The estimated ERs of the project activity is 59,381 tCO₂e/y and 415,667 tCO₂e for the entire crediting period.

As there was a discrepancy in the name of the project activity, CAR 01 was raised and successfully closed.

Scope of validation

Hidromaule S.A. has contracted ESPL to conduct the validation of the renewal of the crediting period of the project activity "Chile: Lircay Run-Of-River Project".

The scope of the validation is to establish that:

- the PA is in accordance with all relevant CDM rules and requirements;
- the PA is in accordance with conditions of the latest version of applied methodology AM0026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid – version 3.0;
- the validation of the renewal of crediting period is in accordance with requirements of CDM methodological tool "TOOL11 – 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.

Validation process

The validation process involved the following:

- contract with Hidromaule S.A. for the scope of validation of the renewal of the crediting period of the project activity;
- desk review;
- issuance of validation findings;
- reporting, calculation checks, QA/QC and resolution of findings;
- issuance of draft validation report;
- independent technical review of the project documentation;
- issuance of the final validation report;
- submission of the request for renewal, as appropriate.

Conclusion

ESPL has performed the validation of the renewal of the crediting period of the CDM PA “Chile: Lircay Run-Of-River Project” (UNFCCC Ref. Number: 2417).

The validation team has confirmed that it is in accordance with all relevant CDM rules and requirements and conditions of the latest version of applied methodology AM0026 – version 3.0. In addition, it was confirmed that the monitoring system is feasible and the estimated emission reductions are conservatively calculated.

The PA is expected to generate an annual average of 59,381 tCO₂e in the second crediting period.

The request for renewal of the crediting period of the PA is being submitted in accordance with the CDM procedures.

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	OR	Cruz	Sergio	Verifit	Y	N	Y	Y
2.	Local Expert	OR	Cruz	Sergio	Verifit	Y	N	Y	Y
3.	Methodological Expert	OR	Cruz	Sergio	Verifit	Y	N	Y	Y
4.	Technical Expert	OR	Cruz	Sergio	Verifit	Y	N	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.	Technical Expert	IR	Garg	Shreya	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Means of validation**C.1. Desk/document review**

A desk review was conducted by the validation team that included:

- a review of the data and information presented to assess its completeness;
- a review of the registered project activity, the applied methodology including applicable tool(s) and, where applicable, the applied standardized baseline;
- a review of supporting documents.

A complete list of documents/evidences reviewed is included as Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: -				
No.	Activity performed on-site	Site location	Date	Team member
-	-	-	-	-

A site visit has not been performed for the validation of the renewal of the crediting period, in accordance with CDM validation and verification standard for project activities – version 02.0 – paragraph 31, as the estimated annual average of ERs is below 100,000 tCO₂e. Therefore, the on-site visit is not obligatory.

In addition, the PPs have provided evidences to show the facilities and equipment (e.g. pictures, equipment manuals, virtual tour) and PPs' representatives have been interviewed and operation personnel have provided all necessary information for a clear and precise understanding of the project activity, which has been considered sufficient by the validation team for the purpose of the present validation.

Moreover, FAR 01 has been raised in order to have all technical data thoroughly checked to confirm their consistency with presented information during the next verification of the project activity.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Contardo	Jose-Manuel	Hidromaule	28/07/2020	- Project management - EF calculations	Sergio Cruz
2.	Avendaño Pavez	Gabriel	Hidromaule	28/07/2020	- Project monitoring	Sergio Cruz
3.	Diaz	Alexis	Hidromaule	28/07/2020	- Project operation - Virtual tour	Sergio Cruz
4.	Mesina	Cristian	Hidromaule	28/07/2020	- Project operation - Virtual tour	Sergio Cruz
5.	Patrickson	Christian	Stratcarbon	28/07/2020	- CDM aspects - ER calculations	Sergio Cruz
6.	Seguel	Carla	Stratcarbon	28/07/2020	- CDM aspects	Sergio Cruz

C.4. Sampling approach

Not applicable as no sampling has been used during the validation.

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	-	1	-

Validity of monitoring plan	1	-	-
Crediting period	-	-	-
Project participants	1	-	-
Post-registration changes	-	-	-
Others (please specify): Name of project activity PA technical features	-	1	1
Total	3	2	1

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The PDD was crosschecked with the CDM-PDD-FORM template available at the UNFCCC website and with the instructions for filling it out.
Findings	CL 01
Conclusion	The latest version of the PDD template (CDM-PDD-FORM – version 11.0) available at the UNFCCC website has been used. It has been filled out in accordance with the instructions.

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

Means of validation	<p>The PA applies approved methodology AM0026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid – version 3.0, which is latest one available at UNFCCC website.</p> <p>The PA also applies the methodological tools:</p> <ul style="list-style-type: none">a. TOOL07: Tool to calculate the emission factor for an electricity system – version 07.0;b. TOOL11: 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>The methodology and tools are from UNFCCC CDM website.</p>	
Findings	-	
Conclusion	All applicability conditions of the applied methodology are met:	
	Applicability Criteria – AM0026 – v. 3.0	Assessment
	<p>Projects that are renewable electricity generation projects of the following types:</p> <ul style="list-style-type: none">(a) Run-of-river hydro power plants and hydroelectric power projects with existing reservoirs where the volume of the reservoir is not increased;(b) New hydroelectric power projects with reservoirs having power densities (installed power generation capacity divided by the surface area at the full reservoir level) greater than 4 W/m².(c) Wind sources;(d) Solar sources;(e) Geothermal sources;(f) Wave and tidal sources.	<p>The project complies with the condition (a) as it is constituted by new run-of-river hydro power plant, as per the environmental impact assessment.</p>
	<p>Projects that are connected to the interconnected grids of the Republic of Chile and Projects that fulfils all the legal obligations under the Chilean Electricity Regulation; or Proposed projects implemented in countries other than Chile provided the country has a regulatory framework for electricity generation and dispatch that meets the following conditions:</p> <ul style="list-style-type: none">(a) An identifiable independent identity is responsible for optimal operation of the system based on the principle of lowest marginal costs.	<p>The project complies with the condition as the project activity is connected to the Chilean National Electric System (SEN), fulfilling all legal obligations under the Chilean electric power regulations, as per CNE, and CEN resolutions.</p>

	<p>(b) The data for merit order based on marginal costs is publicly made available by the authority responsible for operation of the system.</p> <p>(c) The data on specific fuel consumption for each generation source in the system is publicly available.</p> <p>(d) It is possible with the information available, to ensure that power plants dispatched for other considerations (e.g. safety conditions, grid stability, transmission constraints, and other electrical reasons) are not identified as marginal plants.</p>	
	<p>The methodology is not applicable to:</p> <p>1) The proposed CDM project activities that involve switching from fossil fuels to renewable energy at the site of the project activity, and</p> <p>2) If the baseline is the continued use of fossil fuels at the site.</p>	<p>Not applicable to the project as it does not involve switching from fossil fuels to renewable energy and its baseline is not the continued use of fossil fuels at the site.</p>
	<p>In addition, the project activity complies with all requirements of applicable methodological tools.</p>	

D.3. Validity of original baseline or its update

Means of validation	<p>In accordance with the directives for the renewal of the crediting period of a registered CDM project activity, the validity of the current baseline shall be reassessed using the latest version of the TOOL11.</p> <p>Step 1: Assess the validity of the current baseline for the next crediting period</p> <p>Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies: the current baseline scenario complies with all relevant mandatory national/sectoral legislation, as verified in its licenses (Approval of the Resolution of Environmental Impact and Resolution # 414 – environmental approval.</p> <p>Step 1.2: Assess the impact of circumstances: the conditions used to determine the baseline emissions in the previous crediting period are still valid.</p> <p>The only change since the registration of the project is organizational changes in the Chilean electric system, as the National Independent System Operator has changed its name from CDEC (Centre of Economic Dispatch of Load) to CEN (National Electric Coordinator), which now is responsible for the Chilean National Electric System (SEN), comprising the SIC and SING grids that were not previously interconnected. This has not altered the validity of the original baseline scenario used in the validation of the project activity.</p> <p>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 step is not applicable as the project activity was a greenfield.</p> <p>Step 1.4: Assessment of the validity of the data and parameters: the values of fixed parameters used for the calculations of EF_{BM} are updated for the 2nd crediting period, as per requirements of TOOL07.</p> <p>The application of Steps 1.1, 1.2, 1.3 and 1.4 above confirmed that the current baseline remains valid for the subsequent crediting period and that a fixed parameter has been introduced.</p> <p>As there are parameters that were updated for the 2nd crediting period, Step 2 is assessed below:</p> <p>Step 2: Update the current baseline and the data and parameters</p> <p>Step 2.1: Update the current baseline: although the current baseline is valid, the baseline emissions were updated in accordance with the stated above in Step 1.4.</p> <p>Step 2.2: Update the data and parameters: parameters WOM, W_{BM} and EF_{BM} and all parameters used for its calculation have been included as fixed parameters.</p>
Findings	-

Conclusion	<p>The baseline scenario is given by applied methodology AM0026 and still valid, as per the assessment against TOOL11.</p> <p>As per the methodology, "Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the Combined margin (CM) calculations".</p>
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D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	<p>All equations, formulas and assumptions were correctly applied as per the applied methodology (AM0026 – v. 3.0) and tools.</p> <p>The baseline emissions are calculated by the following formula: $BE_y = Generation_y \times EF_y$ Where:</p> <ul style="list-style-type: none"> • BE_y: baseline emissions in year y; • $Generation_y$: electricity generated by the proposed CDM project during year y; • EF_y: baseline emission factor for year y. <p>As per the applied methodology (AM0026 – v. 3.0), no project emissions are accounted for this type of project activity. So, $PE_y = 0$.</p> <p>As per the applied methodology (AM0026 – v. 3.0), no leakage is to be accounted. So, $LE_y = 0$.</p> <p>Thus, $ER_y = BE_y$</p> <p>The parameters used to calculate the emission reductions are conservative, traceable and from official, public and reliable sources.</p> <p>The fixed ex-ante parameters necessary for the project activity are included in Section B.6.2 of PDD, in accordance with the applied methodology and tools. They are:</p> <ul style="list-style-type: none"> - $EG_{m,y}$: Net electricity generated and delivered to the grid by power plant/unit m included in the build margin calculation in year y; - $EF_{CO2,m,y}$: Average CO₂ emission factor of fuel type i used in power unit m included in the build margin calculation in year y; - $FC_{i,m,y}$: Amount of fossil fuel type i consumed by power plant / unit m included in the build margin calculation in year y; - $NCV_{i,m,y}$: Net calorific value of fossil fuel type i consumed by power plant / unit m included in the build margin calculation in year y; - $EF_{BM,y}$: Build margin emission factor of the grid to which the project plant is connected; - w_{OM}: Weight for operating margin emission factor; - w_{BM}: Weight for build margin emission factor.
Findings	CAR 02
Conclusion	The methodology and tools were correctly applied in order to calculate the estimates of emission reductions, with reliable and conservative parameters.

D.5. Validity of monitoring plan

Means of validation	<p>The PDD sets a monitoring plan, which is feasible and in accordance with the applied methodology and tools.</p> <p>The management structure and roles and responsibilities are established for data collection, calibration frequency of meters, data report and data archiving.</p> <p>Moreover, there are procedures set for crosschecking the monitored data.</p> <p>No sampling plan is set to monitor the parameter.</p> <p>The parameters to be monitored necessary for the project activity are listed at the PDD, in accordance with the applied methodology and tools.</p> <p>The parameters required for monitoring are contained in the monitoring plan:</p> <ul style="list-style-type: none"> - $Generation_y$ (or $Generation_{j,h}$): Energy generation of the project for each hour h; - $EF_{j,h}$: Operating margin emission factor for proposed CDM project j for hour h; - $D_{(j,i)}$: Energy displacement of the marginal plant i due to proposed CDM project j;
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	<ul style="list-style-type: none"> - d_i: Emission factor of the marginal plant i; - SFC_i: Specific fuel consumption per unit of electric energy produced in the i marginal power plant; - M: Number of power plants on the margin that would supply power to the grid in the absence of the CDM projects operating in the system; - N: Total number of CDM projects that operate in the grid, where N is the first built CDM power plant and 1 is the last CDM power plant built in the system; - C_j: Electricity generated by the j CDM power plant during hour h; - A_i: Generation capacity of the i power plant on the margin during hour h; - B_i: Electricity generated by the i power plant on the margin during hour h; - <i>Plant name</i>: Identification of power sources; - $CEF_{OM,i}$: CO₂ emission factor of fuel used in the i^{th} marginal power plant of the operating margin cohort; - $Oxid_i$: Fraction of fuel oxidized on combustion; - $NCV_{i,y}$: Net calorific value of fossil fuel type i in year y; - $EF_{OM,y}$: Operating margin emission factor for year y; - EF_y: CO₂ emission factor of the displaced energy from the grid.
Findings	CL 02
Conclusion	<p>The monitoring plan of the PA is in accordance with the approved monitoring methodology and the means of monitoring of the parameters contained in the monitoring plan are feasible.</p> <p>The management structure and roles and responsibilities are set for data collection, calibration frequency of monitoring equipment, data report and data archiving. In addition, procedures for quality assurance and quality control are be set, as well as specific training for involved personnel.</p> <p>There is no sampling plan set to monitor the parameters.</p>

D.6. Crediting period

Means of validation	The crediting period is 7 years renewable. This is the 2 nd crediting period and its start date is 04/08/2016, which is the first date after the end of the 1 st crediting period.
Findings	-
Conclusion	<p>The 2nd crediting period is from 04/08/2016 – 03/08/2023.</p> <p>The renewal is being requested in accordance with CDM requirements and EB directives.</p>

D.7. Project participants

Means of validation	<p>The project participants are:</p> <ul style="list-style-type: none"> - Hidromaule S.A. - C-Quest Capital LLC
Findings	CL 03
Conclusion	<p>The names of the project participants included in the updated PDD were assessed in accordance with the applicable validation requirements related to the renewal of crediting period.</p> <p>All information is in accordance with UNFCCC website.</p>

D.8. Post-registration changes

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

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

methodologies, standardized baselines, or other methodological regulatory documents			
Changes to the project design	N	-	-
Changes specific to afforestation and reforestation project activities	N	-	-

SECTION E. Internal quality control

The draft validation report that is prepared by validation team is reviewed by an independent technical review team (one or more members) 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 to which the project activity is related. All members of technical review team are independent of the validation team.

During the technical review process, additional findings may be identified or the closed-out findings may be opened, which needs to be satisfactorily resolved before the request for the renewal of the crediting period is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same, in such case, providing the comments/findings/issues that needs to be resolved by the validation team. The decision taken by the technical reviewer is final and is authorized on behalf of ESPL.

SECTION F. Validation opinion

ESPL, contracted by Hidromaule S.A., has performed the independent validation of the renewal of crediting period of the project "Chile: Lircay Run-Of-River Project", with UNFCCC Ref. Number: 2417.

ESPL commenced the validation based on the baseline and monitoring methodology AM0026 – version 3.0, the registered PDD – version 4.3.1 (from previous crediting period) and draft PDD (for the 2nd crediting period).

ESPL's validation approach is based on the understanding of the risks associated with reporting the project activity, estimates of GHG emission data and the controls to be implemented to mitigate these. ESPL planned and performed the validation by obtaining evidence, other information and explanations that ESPL considered necessary to give reasonable assurance that the estimated GHG emission reductions are fairly to be achieved.

The validation team confirms, based on final version of revised PDD for the 2nd crediting period, that:

- the original baseline is still valid as it is given by the applied methodology;
- the additionality of the project is valid for the renewal of the crediting period. No regulatory surplus has been identified. The project is in accordance with all applicable regulations and legislations;
- the project description is in accordance with the characteristics identified on site;
- the monitoring plan is adequate to the project activity and it is in accordance with the applied methodology;
- at this 2nd crediting period, the project activity is likely to achieve the estimated of 59,381 tCO₂e per year.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDEC	Centre of Economic Dispatch of Load
CDM	Clean Development Mechanism
CEN	National Electric Coordinator
CL	Clarification Request
CM	Combined Margin
CNE	National Commission of Energy
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Crediting Period
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
kW	kilo Watt
kWh	kilo Watt hour
LoA	Letter of Approval/Authorization
MoC	Modalities of Communication
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt hour
OM	Operating Margin
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PLF	Plant Load Factor
PP	Project Participant
PS	Project Standard
SEN	Chilean National Electric System
SIC	Central Interconnected System
SING	Great North Interconnected System
tCO ₂ e	Tonnes of Carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VT	Validation Team
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Sergio Bonanno Cruz		
Country	Brazil		
Education	Post Graduate Diploma in Environment		
Experience	+25 Years		
Field	Environmental Law, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	Yes (ACM0001, ACM0002, AM0026, ACM0006, AMS-I.D)		
Local expert	Brazil, Chile, Colombia		
Financial Expert	Yes		
Technical Reviewer	No		
TA Expert	Yes (1.2, 13.1)		
Reviewed by	Shreya Garg	Date	29/08/2019
Approved by	Anshika Gupta	Date	29/08/2019

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	Yes (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	India		
Financial Expert	No		
Technical Reviewer	Yes		
TA Expert	Yes (1.2, 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	version 02.0	Other
2.	UNFCCC	Standard: CDM PCP for PA	version 02.0	Other
3.	UNFCCC	Standard: CDM VVS for PA	version 02.0	Other
4.	UNFCCC	Form: CDM-PDD-FORM	version 11.0	Other
5.	UNFCCC	Project design document (registered)	version 4.3.1 – 21/06/2011	PP
6.	PP	Project design document (draft)	version 1 – 16/07/2020	PP
7.	PP	Project design document (revised)	version 5 – 12/08/2020	PP
8.	PP	Project design document (final)	version 6 – 18/08/2020	PP
9.	PP	ER Spreadsheet (draft)	-	PP
10.	PP	ER Spreadsheet (final)	-	PP
11.	UNFCCC	<u>Methodology</u> AM0026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid	version 3.0	Other
12.	UNFCCC	<u>Methodological tools</u> - TOOL07: Tool to calculate the emission factor for an electricity system	version 07.0	Other
		- TOOL11 – 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	
13.	Environmental Impact Assessment System (SEIA) Regional Environmental Commission of Maule Region	<u>Environmental licenses</u> - Approval of the Resolution of Environmental Impact (RCA) - Resolution # 414 – environmental approval	https://seia.sea.gob.cl/expediente/ficha/fichaPrincipal.php?modo=normal&id_expediente=1578767 03/11/2006	PP
14.	PP	<u>Pictures; Virtual tour and Layouts</u> - virtual tour - general view – pictures - turbines – pictures - generators – pictures	28/07/2020 28/07/2020 28/07/2020 28/07/2020	PP
15.	Regional Environmental Commission of Maule Region	<u>Technical lifetime of equipment</u> - Resolution # 414 – environmental approval	03/11/2006	PP
16.	Andritz Vatech Alconza	<u>Technical data</u> - Equipment datasheet – turbines - Equipment datasheet – generators - Adduction channel – as built - Power units – design - Power house – design - Penstock – layout	30/01/2007 - - - - -	PP

		- Transmission line – layout	-	
17.	PP	<u>Emission Factor</u> - BM calculation	version 1 version 2	PP
	PP	- OM calculation	version 1 version 2	
	CNE	- Installed capacity – National Energy Commission – May/2020	https://www.cne.cl/cdec2.cdec-sing.cl/pls/portal/cdec.pck_inf_tec_nt_gene_pu	
	CDEC-SIN	- Technical information of units	b.sp_unidades https://www.coordinador.cl/	
	CEN	- Gross generation	-	
	CNE	- Node Price report Jan/2019	-	
	CNE	- Node Price report Jan/2020	-	
	CNE – Energía Abierta	- Nation Energy Balance 2018	http://energiaabierta.cl/catalogo/balance-energetico	
	IPCC	- 2006 IPCC Guidelines	https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf	
	CDEC-SING	- Operation Statistics	1998 / 2007	
18.	-	DNA of Chile	https://mma.gob.cl/	Other
19.	-	CEN	https://www.coordinador.cl/	Other
20.	-	CNE	https://www.cne.cl/	Other
21.	-	IPCC publications	www.ipcc-nggip.iges.or.jp	Other
22.	-	UNFCCC	cdm.unfccc.int	Other

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

Table 1. CL from this validation

CL ID	01	Section no.	D.1	Date: 29/07/2020
Description of CL				
<p>According to the instructions for filling out the PDD, it is missing:</p> <ol style="list-style-type: none"> Section A.1: <ol style="list-style-type: none"> summary of project boundary; summary of baseline scenario; total GHG emission reductions for the chosen crediting period; Section A.3: <ol style="list-style-type: none"> 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; description of the technologies/measures existing prior to the implementation of the project activity at the same site, as applicable; Section A.6: the confirmation and declaration that: <ol style="list-style-type: none"> the proposed CDM project activity is neither registered as a CDM project activity nor included as a component project activity (CPA) in a registered CDM programme of activities (PoA); the proposed CDM project activity is not a project activity that has been deregistered. the proposed CDM project activity was a CPA that has been excluded from a registered CDM PoA; a registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project) exists in the same geographical location as the proposed CDM project activity; Section C.2: the lifetime is not given in years and months; Section F: indication whether each project participant listed in the PDD is authorized by at least one Party involved in the project activity in the respective letter of approval or in a separate authorization letter. 				
Project participant response				Date: 11/08/2020
<p>The Project Participant added in section A.1 of the PDD:</p> <ul style="list-style-type: none"> A summary of the project boundary. A summary of the baseline scenario. The total GHG emission reductions for the chosen crediting period. <p>The Project Participant added in section A.3 of the PDD:</p> <ul style="list-style-type: none"> The Lircay run-of-river power plant layout, describing the main facilities, systems and equipment, including the location of the electric meters, The expected lifetime of the equipment as per declared in project feasibility study and Declaration of Impact Assessment, <p>The Project Participant declared in section A.6 of the PDD the following: The Project Participant confirms that the proposed project activity:</p> <ol style="list-style-type: none"> Is neither registered as a CDM project activity nor included as a component project activity (CPA) in a registered CDM programme of activities (PoA); Is not a project activity that has been deregistered; <p>Furthermore, the Project Participant declares that the proposed project activity:</p> <ol style="list-style-type: none"> Is not CPA that has been excluded from a registered CDM PoA; Is not a registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project) exists in the same geographical location as the proposed CDM project activity; <p>The Project Participant corrected in section C.2 of the PDD the following:</p> <ul style="list-style-type: none"> Stated the lifetime of the project activity in years and months. 				

The Project Participant added the following information in section F of the PDD:

- Hidromaule S.A. is a Project Participant in the Chile: Lircay Run-Of-River Project activity and has been duly authorized by the Host Party (Chile) involved in the project activity.

Documentation provided by project participant

PDD – v. 5

DOE assessment

Date: 12/08/2020

- a. Section A.1:
 - i. it was included a summary of project boundary;
 - ii. it was included a summary of baseline scenario;
 - iii. it was included the total GHG emission reductions for the chosen crediting period;
- b. Section A.3:
 - i. it was included a diagram with main facilities;
 - ii. the equipment was brand new when installed and their average lifetime is over 40 years as per project feasibility study and environmental approval document;
 - iii. the installed capacities, load factors and efficiencies;
 - iv. the monitoring equipment and their location in the systems;
 - v. description of the technologies/measures existing prior to the implementation of the project activity at the same site, as applicable;
- c. Section A.6: it was confirmed and declared that:
 - i. the proposed CDM project activity is neither registered as a CDM project activity nor included as a component project activity (CPA) in a registered CDM programme of activities (PoA);
 - ii. the proposed CDM project activity is not a project activity that has been deregistered.
 - iii. the proposed CDM project activity was a CPA that has been excluded from a registered CDM PoA;
 - iv. a registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project) exists in the same geographical location as the proposed CDM project activity;
- d. Section C.2: the lifetime is now given in years and months;
- e. Section F: it was indicated that each project participant listed in the PDD is authorized by at least one Party involved in the project activity in the respective letter of approval or in a separate authorization letter.

CL ID	02	Section no.	D.5	Date: 29/07/2020
Description of CL				
<i>In Section B.7.1, it is not clear how the parameter Generation_y will be crosschecked.</i>				
Project participant response				Date: 11/08/2020
The Project Participant made the following change in section B.7.1, parameter Generation _y (or Generation _{i,h}): described a new QA/QC procedure for the parameter in order to better ensure its accuracy.				
Documentation provided by project participant				
PDD – v. 5				
DOE assessment				Date: 12/08/2020
The crosschecking of parameter Generation _y is set on <u>QA/QC procedures</u> and <u>Additional comment</u> cells regarding the parameter in Section B.7.1.				

CL ID	03	Section no.	D.7	Date: 29/07/2020
Description of CL				
<i>The list of project participants at front page, Section A.4 and Appendix 1 is not in accordance with information presented at the UNFCCC website.</i>				
Project participant response				Date: 11/08/2020
The Project Participant completed the table and added the second Project Participant: C-Quest Capital from the Netherlands.				
Documentation provided by project participant				
PDD – v. 5				
DOE assessment				Date: 12/08/2020
All sections present the name of both PPs.				

Table 2. CAR from this validation

CAR ID	01	Section no.	A	Date: 29/07/2020
Description of CAR				
<i>The name of the project activity is not in accordance with documents at the UNFCCC website.</i>				

Project participant response	Date: 11/08/2020
The Project Participant corrected the name of the project in the PDD, using the exact name of the registered project activity.	
Documentation provided by project participant	
PDD – v. 5	
DOE assessment	Date: 12/08/2020
The name of the project activity is now complete and in accordance with the exact name of the registered project activity.	

CAR ID	02	Section no.	D.4	Date: 29/07/2020
Description of CAR				
The values used for parameter $NCV_{i,y}$ are not the net values, as CNE Energy Balance Report includes gross calorific values.				
Project participant response				Date: 11/08/2020
The Project Participant recalculated the OM, BM, CM grid emission factors using Net Calorific Values. With these new grid emission factors, the Project Participant recalculated the estimated emission reduction of the Lircay project activity. To convert the gross calorific values provided by the CNE Energy Balance, the Project Participant used the directions provided in Chapter 1 (Introduction), section 1.4.1.2, page 1.16 of the 2006 IPCC Guidelines, available at: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf				
Documentation provided by project participant				
PDD – v. 5				
DOE assessment				Date: 12/08/2020
The values used for parameter $NCV_{i,y}$ were recalculated to express net values. As a consequence, OM, BM, CM grid emission factors were correctly recalculated.				

Table 3. FAR from this validation

FAR ID	01	Section No.	C.2	Date: 29/07/2020
Description of FAR				
As no physical site visit was performed during the validation of renewal of the crediting period of the project activity and all checking of technical data of equipment has been done based on documents, pictures and interviews, the verifier shall reconfirm the technical data in the next verification of the project activity.				
Project participant response				Date: 11/08/2020
Project participant will provide the conditions to carry out a site visit during next verification process and reconfirm all the technical data presented during this validation process.				
Documentation provided by project participant				
-				
DOE assessment				Date: 12/08/2020
The verification team shall reconfirm the technical data in the next verification of the project activity.				

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		