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	Title: Nam Pong Hydropower Project UNFCCC Ref No: 5573
Number and duration of the next crediting period	2nd Crediting period Duration: 01/07/2021 to 30/06/2028
Version number of the validation report	1.2
Completion date of the validation report	29/04/2022
Version number of PDD to which this report applies	2.2 of 26/04/2022
Project participants	1. ZaHung Joint Stock Company 2. Energy and Environment Consultancy Joint Stock Company 3. Vietnam Carbon Assets Limited
Host Party	Vietnam
Applied methodologies and standardized baselines	ACM0002 "Grid-connected electricity generation from renewable sources" - Version 20.0
Mandatory sectoral scopes	1 : Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	NA
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	90,816 tCO_2e
Name and UNFCCC reference number of the DOE	Carbon Check (India) Private Ltd. E-0052
Name, position and signature of the approver of the validation report	 Amit Anand, CEO

SECTION A. Executive summary

>>**Purpose and general description and location**:
The project intends to reduce greenhouse gas (GHG) emission by generating electricity from a hydro power plant connected to grid. In absence of the project activity, equivalent amount of eleclectricity would have been generated in fossil fuel dominated grid. The project's installed capacity and estimated annual gross power generation is 30 MW and 122,057 MWh, respectively. The net electricity generated will be supplied to the national grid via a newly constructed transmission line. The project is located on Nam Pong stream in Chau Hanh and Chau Phong communes, Quy Chau district, Nghe An province, Viet Nam.

Validation scope:
The validation (renewal of crediting period) has been performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the project design document, the validity of methodology used, the project's baseline study, estimated emission reductions and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM VVS for Project Activities (version 03.0) /B03/, Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.

Validation process:
The validation has been performed as described in the CDM VVS for Project Activities (version 03.0) /B03/ and constitutes the following steps:

- Desk review of the registered PDD on the UNFCCC website
- Desk review of the revised PDD and the relevant documents
- Follow-up Interviews
- Issuance of Validation Report

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords) Para 49(a)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Host country criteria (National and/or Sectoral policies)
- Criteria given to provide for consistent project operations, monitoring and reporting

Conclusion:
Vietnam Carbon Assets Ltd. has commissioned Carbon Check (India) Private Ltd. (CCIPL) to carry out the validation (renewal of crediting period) of the project activity "Nam Pong Hydropower Project" in Vietnam, with regard to the relevant requirements for CDM activities. The project correctly applies the baseline and applicable monitoring methodology ACM0002: "Grid-connected electricity generation from renewable sources" (version 20.0) /B01/.

The project results in reductions of CO_2 equivalent emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is continued to be not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL's opinion that the project participants are able to monitor as per the monitoring plan.

The total emission reductions from the project are estimated to be 635,712 tCO_2e over a 7-year crediting period, averaging 90,816 tCO_2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

During the course of validation, the DOE had raised one (1) clarifications and one (1) corrective action requests, all of which have been successfully resolved by the PP. In addition, one (01) FAR is raised as per EB 113 decision.

CCIPL concludes that the CDM Project Activity "Nam Pong Hydropower Project" in Vietnam, as described in the PDD /01/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) Para 49 (a) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline and monitoring methodology (ACM0002, Version 20) /B01/ is applicable to the project and correctly applied. CCIPL therefore requests the approval of the renewal of the crediting period for the registered CDM project with UNFCCC.

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, Validator and Technical Expert (TA 1.2) and	EI	Buragohain	Champok	CCIPL	√	X	√	√
2.	Local Expert	EI	Trang	Ngoc	CCIPL	√	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	C.	Indumathi	CCIPL
2.	Approver	IR	Anand	Amit	CCIPL

SECTION C. Means of validation

C.1. Desk/document review

>>The PDD, version 2.0 of 09/03/2022, version 2.1 of 04/04/2022, version 2.2 of 26/04/2022 **/01/**, in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date of the project, the monitoring plan, the emission reduction calculations provided in the form of a spreadsheet (20220315_Nam Pong HPP_ER Sheet_CP2_Ver 2.0.xlsx) of 15/03/2022 **/02/** were assessed as part of the validation.
Appendix 3 lists the documentation that was reviewed during the validation.

C.2. On-site inspection

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

1.	NA	NA	NA	NA

On site visit for this validation on renewal of crediting period is not done as per VVS paragraph 30 and 31 /**B03**/ as described below:

"30. It is mandatory for the DOE to conduct an on-site inspection at validation for the proposed CDM project activity if:

a) Its estimated annual average of greenhouse gas (GHG) emission reductions or net anthropogenic GHG removals is more than 100,000 t CO2 eq; or
b) There is pre-project information that is relevant to the requirements for registration of the project activity and may not be traceable after the registration.

"31. For cases that are not referred to in paragraph 30 above, it is optional for the DOE to conduct an on-site inspection at validation. If the DOE does not conduct an on-site inspection as a means of validation, it shall describe the alternative means used and justify that they are sufficient for the purpose of validation."

On checking the registered PDD /03/ and the updated PDD provided for renewal of crediting period /01/, it is confirmed that the proposed project is a green field project, there is no pre-project information before the project, and that the estimated annual average of greenhouse gas (GHG) emission reductions or net anthropogenic GHG removals of the project activity is less than 100,000 tCO_2e.

Hence, CCIPL has not conducted an on-site visit, which is in conformity with paragraphs 30 and 31 of CDM Validation and Verification Standard for project activities version 03.0 /**B03**/. In addition, CDM Executive Board's decision to relax mandatory site visits by DOEs upto 30 June 2022 because of COVID-19 was followed.

The alternative means used and justified for the purpose of validation are demonstrated as below:

The validation team has carried out video call interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for RCP. During the desk review, the relevant documents, including the registered PDD /03/ and corresponding validation report for the 1st crediting period, the picture of nameplate of the main equipment, the picture of monitoring meters, the latest version of Power Purchase Agreement and other relevant background documents were provided and assessed. The project description in the PDD for the renewable crediting period has been verified from these documents. Validation team can confirm the project design, construction, operation and monitoring plan were not changed for 2nd crediting period. And the baseline scenario information also can be confirmed as it was defined by the applied methodology ACM0002 version 20.0.

The validation report, the registered PDD were checked, comparing the relevant evidence and interview with the PP representative and operation staff through telephone, CCIPL has confirmed that the project is implemented in line with the updated PDD and the monitoring system is in line with the updated PDD applicable for second crediting period. There is no change of the project design, construction, operation and monitoring plan.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Nguyen Tien	Hai	Energy and Environment Consultancy Joint Stock Company	23/03/2022	- Confirmation of technical specifications - Baseline scenario - Project boundary - Applicability of the methodology - Application of the methodology - Monitoring plan - Data management	Champok Buragohain & Ngoc Trang
2.	Hoang	Nhung	Energy and Environment Consultancy Joint Stock Company	23/03/2022		Champok Buragohain & Ngoc Trang

					and reporting, QA/QC systems - Monitoring / measuring systems - Metering guidelines , Meter specifications – Accuracy, make - Calibration requirements – procedure, frequency/schedule	

C.4. Sampling approach

>> N/A

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

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Application and selection of methodologies and standardized baselines		-	-
Validity of original baseline or its update	-	-	-
Estimated emission reductions or net anthropogenic removals	1		
Validity of monitoring plan	-	1	-
Crediting period	-	-	-
Project participants	-	-	-
Post-registration changes	-	-	-
Others (As per EB 113)	-	-	1
Total	1	1	1

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The updated PDD /01/ has been validated against the valid version of the applicable PDD form version 12 /B09/ and the instructions therein for filling out the PDD form.
Findings	NA
Conclusion	CCIPL confirms that the updated PDD /01/ is in compliance with the latest version of the PDD form (version 12) and the instructions therein for filling out the PDD form. CCIPL also confirms that the project participants have updated the relevant sections of the PDD in accordance with the relevant requirements in the Project Standard /B02/. CCIPL further confirms that the information transferred to the updated version of the PDD is materially the same as that in the registered PDD /03/.

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

Means of validation	The PP has applied the methodology ACM0002 Version 20 /B01/. This version of the methodology is the latest version and currently valid for the submission of project activity. The proposed project activity meets the criteria defined in the baseline methodology as described below:

Criteria	DOE assessment
This methodology is applicable to grid-connected renewable energy power generation project activities	The project activity is a greenfield hydro power plant connected to grid. Hence, meets the applicability condition.

	that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or I Involve a replacement of (an) existing plant(s)/unit(s).	
	The methodology is applicable under the following conditions: a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The project activity is installation of a new hydro power project with a new reservoir. This is consistent with revised and approved PDD /03/ and hence justifies the applicability condition.
	In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (3), is	The project activity results in a new reservoir and the power density of the power plant is greater than 4 W/m^2. This is consistent with registered PDD /03/ and hence applicability condition is justified.

	greater than 4 W/m2 ; or I The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m2 ; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m2 , all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	
	In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The hydro power plant is not a integrated power plant.
	The methodology is not applicable to: (a) Project activities that involve	Not applicable for the project activity as the project is a hydro power project.

	switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	
	In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	The project activity is a new hydro power plant and does not involve any retrofit, rehabilitation, replacement or capacity addition. Hence, not applicable for the project activity.
	The project activity correctly applied all applicable tools as referred by the methodology.	
Findings	N/A	
Conclusion	CCIPL hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for renewal of crediting period. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology and there is no deviation from the selected methodology.	

D.3. Validity of original baseline or its update

Means of validation	The project participant has included the assessment of the validity of the original baseline as per the tool "Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of a crediting period", Version 3.0.1 /**B05**/, which has been concluded to be still valid and applicable for the project The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period. Step 1: Assess the validity of the current baseline for the next crediting period Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies The project is a new hydro prower plant connected to grid. In the absence of the project equivalent power would have been generated in the fossil fuel dominated grid. Therefore, baseline is the grid emission. Electricity Law No. 28/2004/QH11 dated on 03/12/2004 and Law No. 50/2010/QH12 on "Economical and Efficient use of energy" dated on 17/06/2010 are the main laws that govern the electricity sector in Viet Nam /**B07/, /B08**/. Their implementation is regulated under Government Decree No. 14/2014/ND-CP on "Stipulating in detail the implementation of electricity law regarding electricity safety" dated on 26/02/2014. The national policy does not mandate hydro popwer for electricity generation nor prohibit use of fossil fuel to generate electricity. Therefore, the baseline scenario is still valid as per the original PDD /03/. Step 1.2: Assess the impact of circumstances The circumstances existing at the time of requesting renewal of crediting period are the same as existing in the validation of the project activity. The estimated baseline emissions using hydropower to supply renewable electricity to the Vietnam national grid that is currently dominated by fossil fuel power plants. The baseline scenario identified at the validation of the project activity was the continuation of the current

practice without any investment. It could be observed that the emission factor of the Vietnam national grid applied for the 1st crediting period was 0.5764 tCO_2/MWh and updated to 0.74405 tCO_2/MWh as per latest Vietnam national electricity grid emission factor for 2020 /**04**/. The grid emission factor is calculated following steps as per tool 'Tool to calculate the emission factor for an electricity system' version 7.0 /B06/. DOE accesed the emission factor from publicly available source /B11/ and confirms that it meets the tool /B06/ requirements. It can be confirmed that most of the electricity is still generated by fossil fuel power plants. At the time of requesting renewal of the crediting period, the conditions used to determine the baseline scenario in the previous crediting period are still valid. New circumstances have not been observed which will harm the validity of the baseline scenario.

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.
In the absence of the project activity, the equivalent electricity would have generated in fossil fuel dominated grid. Therefore the baseline identified is the continuation of use of the current equipment(s) without any investment. An investment is not necessary before the end of the next crediting period (i.e. 30/06/2028) as it is realistic to consider that fossil fuel dominated grid will exceed the crediting period for which renewal is requested. The project has a life of 40 years from 19/11/2013 (date of commissioning of the project) which will not end until the end of the second crediting period.

Step 1.4: Assessment of the validity of the data and parameter
"Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity".
Following data parameters are updated from revised and approved PDD /03/:

Data/Parameter	Value in registered PDD	Value in updated PDD	Assessment
Operating margin CO_2 emission factor for grid connected power generation in year *y* ($\mathbf{EF_{grid,OM,y}}$)	0.6465 tCO_2/MWh	0.9242 tCO_2/MWh	The updated emission factor is as per latest national grid emission factor data published on 31/12/2021 and hence correctly considered by PP for the second crediting period /**04**/.
Build margin CO2 emission factor for grid connected power generation in year y ($\mathbf{EF_{grid,BM,y}}$)	0.5064 tCO_2/MWh	0.6840 tCO_2/MWh	The updated emission factor is as per latest national grid emission factor data published on 31/12/2021 and hence correctly considered by PP for the second crediting period /**04**/.

	Combined margin CO_2 emission factor for grid connected power generation in year *y* ($EF_{grid,CM,y}$) | 0.5764 tCO_2/MWh | 0.74405 tCO_2/MWh | The combined margin is calculated considering 25% of OM and 75% of BM as per 'Tool to calculate the emission factor for an electricity system' /B06/. The data and calculation is correct and hence the updated value is accepted for the second crediting period. Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period as per step 2. Step 2: Update the current baseline and the data and parameters Since, the existing baseline scenario is still valid, this step is not applicable. Finally, it is concluded that the original baseline scenario is valid and assessment is complete as per "Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1.
Findings	N/A
Conclusion	CCIPL concludes that the original baseline is valid and assessment is done as per methodological tool 'Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1'. The assessment meets the requirements of paragraph 404 of VVS Standard version 03.0 /B03/.

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	**Baseline Emissions**: In line with applied methodology ACM0002, version 20, baseline emissions are calculated as below: $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ $EG_{PJ,y}$ = $EG_{facility,y}$ is the quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr). This is to be calculated from monitoring parameters ($EG_{y,export}$ and $EG_{y,import}$) as per monitoring plan given in section B.7.1 of the PDD and Appendix 5 of the PDD. For ex-ante estimation this is considerd to be 122,057 MWh per year. Grid emission factor ($EF_{grid,CM,y}$) is calculated as per 'Tool to calculate the emission factor for an electricity system' version 07 /10/ considering latest national data and fixed to be 0.74405 tCO_2/MWh for the entire second crediting period. Accoridingly baseline emission is estimated to be 90,816 tCO_2e per year. **Project Emissions**: In line with the applied methodology project emission applicable for the project activity is emissions from water reservoir of hydropower plants ($PE_{HP,y}$): For hydropower project activity that results in new single or multiple reservoirs and/ or the increase of single or multiple existing reservoirs, the power density (PD) of the project activity shall be 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 If the power density of the project activity is greater than 4 W/m2 and less than or equal to 10 W/m2, project emissions to be calculated as below: $PE_{HP,y} = \frac{EF_{Res} \times TEG_y}{1000}$ Where: $PE_{HP,y}$ = Project emissions from water reservoirs (t CO2e/yr) EF_{Res} = Default emission factor for emissions from reservoirs of hydro power plants (kg CO2e/MWh) TEG_y = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year *y* (MWh) If the power density of the project activity is greater than 10 W/m^2, $PE_{HP,y} = 0$ Area of the reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m2)-'A_{PJ}' to be monitored once at the begening of the crediting period. As per survey report by third party on 20/07/2021 the area of the reserviots is 320,000 m^2 /**07/.** Installed capacity of the hydro power plant after the implementation of the project activity (W) '**Cap_{PJ}**' to be monitored at the begening of each crediting period. There is no change in the capacity of the project from first crediting period amd hence the value of 30,000,000 W is applicable for second crediting period as well. Therefore, PD is 93.75 W/m^2 and hence $PE_{HP,y} = 0$. Leakage emissions: As per the applied methodology ACM0002, version 20.0, leakage emission is zero. Therefore, ex-ante emission reduction from the project activity is 90,816 tCO_2e per year.
Findings	CL 1 was raised to clarify the date of measurement of the area of the reservoir which PP provided the third party survey report done at the begening of the next crediting period. Hence, CL is closed.
Conclusion	CCIPL confirms, the PDD correctly lists assumption and data used by the PP for estimating emission reduction including their references and sources.

	Source of data and assumptions are correctly quoted and interpreted in the PDD. All values used in the PDD are considered reasonable in the context of the proposed CDM project activity. The baseline methodology and corresponding tools have been correctly applied to calculate project, baseline and leakage emissions, and emission reductions. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

D.5. Validity of monitoring plan

Means of validation

The monitoring plan in the PDD has been updated to comply with the latest applicable version of the monitoring methodology (ACM0002 ver.20.0).

Parameter	Description	Means of validation
$EG_{y,export}$ (MWh/year)	Electricity supplied by the proposed hydropower plant to the national grid	To be monitored using energy meter continuously and recorded monthly. Recorded value to be cross checked with invoices raised. Energy meters to be calibrated at least every three years /08/. It is noted that calibration frequency of energy meters were atleast once in two years during first crediting period as per national standard (Minister of Scientific, Technology and Environment). The updated national standard from Minister of Scientific, Technology and Environment require calibration of energy meters at least once in three years /08/. Hence calibration frequency during the second crediting period is accepted. The monitoring of the paremeter is as per applied methodology /B01/.
$EG_{y,import}$ (MWh/year)	Electricity imported from national grid to the hydropower plant	To be monitored using energy meter continuously and recorded monthly. Recorded value to be cross checked with invoices raised. Energy meters to be calibrated at least every three years /08/. It is noted that calibration frequency of energy meters were atleast once in two years during first crediting period as per national standard (Minister of Scientific, Technology and Environment). The updated national standard from Minister of Scientific, Technology and Environment require calibration of energy meters at least once in three years /08/. Hence calibration frequency during the second crediting period is accepted. The monitoring of the paremeter is as per applied methodology /B01/.
$\mathbf{EG_{facility,y}}$ (MWh/year)	Net electricity supplied by the proposed hydropower plant in year y	Calculated as difference of $EG_{y,export}$ and $EG_{y,import}$ that is $(EG_{y,export} – EG_{y,import})$

	A_{PJ} (m^2)	Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full.	This value to be monitored once at the beginning of the crediting period. The measurement is done on 20/07/2021. The second crediting period start from 01/07/2021 and hence the measured value of 320,000 m^2 is applicable for the entire second crediting period.
	Cap_{PJ} (W)	Installed capacity of the hydro power plant after the implementation of the project activity	The installed capacity as per commissioning reports is 30,000,000 W /11/ which is still same at the begining of the second crediting period as seen from photographs and nameplants of turbines.
Findings	CAR 1 was raised as calibration frequency of energy meters and metering arrangement was not transparent in the PDD, which PP corrected in the updated PDD and hence CAR is closed.		
Conclusion	CCIPL confirms that the monitoring plan included in the updated PDD is valid as per the applied methodology and conforms the revised and approved PDD /03/.		

D.6. Crediting period

Means of validation	In accordance to paragraph 272 of the PCP for project activity version 03 /**B04**/, the new crediting period shall start on the day immediately after the expiration of the current crediting period regardless of the date when the crediting period is deemed renewed. The current crediting period expired on 30/06/2021 and therefore the new crediting period starts from 01/07/2021. The hydro plant commissioned on 19/11/2013 /11/ and with expected operational lifetime of 40 years /03/ the technical life of the project ends on 18/11/2053, whereas the second crediting period ends on 30/06/2028. Therefore, the project is expected to be operational during the second crediting period.
Findings	NA
Conclusion	CCIPL confirms that the second period was correctly and clearly defined as from 01/07/2021 to 30/06/2028 as per CDM project cycle procedure.

D.7. Project participants

Means of validation	CCIPL confirm the list of project participants from the review of project view page at UNFCCC website for the activity (UNFCCC Ref: 5573) /B10/. CCIPL also reviewed the letter of approval (Ref. No.48/2011/DMHCC-BCD) dated: 28/09/2011 issued from the DNA of Vietnam and approval from Govt. of Switzerland (Reference: G514-3487) dated 27/09/2011 and the latest MoC dated: 13/03/2012 to confirm the name of the project participants.
Findings	N/A
Conclusion	CCIPL confirms that the project participants of the proposed CDM project activity is listed in the updated PDD and this information is consistent with the information provided in the section that contains the contact information for project participants.

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	-	-

[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).

Inclusion of a monitoring plan	N	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	-	-
Changes to the project design	N	-	-
Changes specific to afforestation and reforestation project activities	N	-	-

SECTION E. Internal quality control

>>The final validation report has undergone a technical review and quality reviewer before being submitted to the project participant(s) and UNFCCC Executive Board. A technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification has performed the technical review.

SECTION F. Validation opinion

>> Carbon Check (India) Private Limited (CCIPL) has performed an assessment of the request for renewal of the crediting period of CDM project activity "Nam Pong Hydropower Project" (UNFCCC Ref. No.: 5573). The assessment was performed in accordance with the "CDM Validation and Verification Standard for Project Activities (version 03.0) /B03/ and included an assessment of:

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

The review of the project design documentation and the subsequent follow-up interviews have been taken by CCIPL with sufficient evidences to determine the validity of the original baseline and/or its update through an assessment. The project correctly applies the baseline and monitoring methodologies ACM0002 "Grid-connected electricity generation from renewable sources" (version 20) /B03/.

The total emission reductions from the project are estimated to be 635,712 tCO_2e over a 7-year crediting period, averaging 90,816 tCO_2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL's opinion that the project participant is able to implement the monitoring plan.

In summary, it is CCIPL's opinion that the CDM project activity (UNFCCC Ref. No.: 5573) "Nam Pong Hydropower Project" as described in the PDD (version 2.2; Dated: 26/04/2022)/ /01/ meets all relevant UNFCCC requirements for the renewal of the crediting period. Hence CCIPL requests the renewal of the crediting period of the project.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH4	Methane
CL	Clarification Request
COD	Chemical Oxygen Demand
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
EECJSC	Energy and Environment Consultancy Joint Stock Company
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
kW	Kilo Watt
LoA	Letter of Approval
MoC	Modalities of Communication
MoV	Means of Verification
MR	Monitoring Report
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
RCP	Renewal of crediting period
Ref.	Document Reference
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Carbon CHECK

Carbon Check (India) Private Ltd.

Mr. Champok Buragohain

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☐
Verifier	☒	Technical Expert	☒	Local Assessor[1]	☒

In the following Technical Areas:

TA 1.1	☒	TA 4.1	☐	TA 9.1	☐	TA 13.1	☒
TA 1.2	☒	TA 5.1	☐	TA 9.2	☐	TA 13.2	☒
TA 3.1	☒	TA 5.2	☐	TA 10.1	☐	TA 14.1	☐

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

Date of Approval
24/12/2021

Valid Till
23/12/2022

Revision History of the Document

01/03/2020[2]	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

[1] India

[2] Please refer to previous version of competency certificates for the revision history

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Carbon
CHECK

Carbon Check (India) Private Ltd.

Ms. Indumathi. C

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	☐	**Team Leader**	☒	**Technical reviewer**	☒		
Verifier	☐	**Technical Expert**	☒	**Local Assessor**[1]	☒		

In the following Technical Areas:

TA 1.1	☒	**TA 4.1**	☐	**TA 9.1**	☐	**TA 13.1**	☒
TA 1.2	☒	**TA 5.1**	☐	**TA 9.2**	☐	**TA 13.2**	☒
TA 3.1	☒	**TA 5.2**	☐	**TA 10.1**	☐	**TA 14.1**	☐

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

Date of Approval
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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/01/	EECJSC	Updated Project design document form for the project activity "Nam Pong Hydropower Project" in Vietnam	Version 2.0 of 09/03/2022, version 2.1 of 04/04/2022, version 2.2 of 26/04/2022	PP
/02/	EECJSC	Emission reduction worksheet '20220315_Nam Pong HPP_ER Sheet_CP2_Ver 2.0.xlsx'	Version 02 of 15/03/2022	PP
/03/	EECJSC	Registered PDD the project "Nam Pong Hydropower Project" in Vietnam	Version 1.5 of 29/11/2011	Others
/04/	Ministry of Natural Resources and Evvironment	Vietnam national electricity grid emission factor for 2020	1316/BĐKH-TTBVTOD	PP
/05/	China Environmental United Certification Center Co., Ltd (CEC)	Validation report for 'Nam Pong Hydropower Project'	Report no: 11011116 of 11/12/2011	Others
/06/	ZaHung JSC (the project owner) and Northern Power Corporation	Power Purchase Agreement between ZaHung JSC (the project owner) and Northern Power Corporation with 20 years validity from commercial operation date	Dated 26/09/2013	PP
/07/	Power Engineering Consulting Joint Stock Company 1	Report on reservoir surface area of Nam Pong Hydropower Project	Survey report dated 20/07/2021	PP
/08/	Directorate for Standards, Metrology and Quality under Ministry of Science and Technology of the Socialist Republic of Viet Nam	Power meters – Verification/calibration procedure		PP
/09/	EECJSC	Photographs of Turbines and Gneartor with nameplate		PP
/10/	EECJSC	Single line diagram with metering arrangement		PP
/11/	EVN - Northern Power Corporation (EVNNPC)	Commercial operation of Nam Pong HPP is on 19/11/2013 when all parties had finished to close the meter readings after the test with a 72 hour-load	No.1419/EVNNPC-KDDN dated 17/04/2015	PP
/12/	Vietnam Carbon Assets Ltd.	Risk acknowledgement and acceptance form	28/04/2022	PP
/B01/	UNFCCC	ACM0002: Grid-connected electricity generation from renewable sources	Version 20	Others
/B02/	UNFCCC	Standard: CDM project standard for project activities	Version 03 of 09/09/2021	Others
/B03/	UNFCCC	Standard: CDM Validation and Verification standard for project activities	Version 03 of 09/09/2021	Others
/B04/	UNFCCC	CDM project cycle procedure for project activities	Version 03 of 09/09/2021	Others
/B05/	UNFCCC	Assessment of the validity of the	Version 3.0.1, EB 66	Others

		original/current baseline and update of the baseline at the renewal of the crediting period	annex 47	
/B06/	UNFCCC	Tool07: Tool to calculate the emission factor for an electricity system	Version 07.0 of 31/08/2018	Others
/B07/	Socialist Republic of Vietnam	Electricity Law	No. 28/2004/QH11	Others
/B08/	Socialist Republic of Vietnam	Law on Economical and Efficient use of energy	Law No. 50/2010/QH12	Others
/B09/	UNFCCC	Project Design Document Form (CDM-PDD-FORM)	Version 12 of 08/10/2021	Others
/B10/	UNFCCC	Project 5573 : Nam Pong Hydropower Project	https://cdm.unfccc.int/Projects/DB/CEC1324136092.65/view	Others
/B11/	Department of Climate Change - Ministry of Natural Resources and Environment	Emission factor of Vietnam's electricity grid in 2020	http://dcc.gov.vn/van-ban-phap-luat/1081/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2020-(kèm-CV-1316/BDKH-TTBVTOD).html	Others

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

Table 1. CL from this validation

CL ID	01	**Section no.**	D.4	**Date:** 28/03/2022
Description of CL				
1. The area of the reservoir to be monitored at the begining of each crediting period' as per the applied methodology requirement. PP is requested to clarify with supporting documents how the requirement is met. *2. PP is requested to provide the commercial operation date of the project with supporting document* *3. The official document of grid emission factor applied for the project to be submitted.*				
Project participant response				**Date:** 04/04/2022
1. The surface area of the reservoir was measured by the third party on 20/07/2021. The information has been updated in the revised PDD and the report on measuring reservoir area is attached herewith. *2. The information on commercial operation date (COD) of the Nam Pong hydropower project has been added in Section B.5 of the revised PDD. The confirming COD of Nam Pong HPP by Viet Nam Electricity (EVN) is attached herewith.* *The official document of latest grid emission factor of Viet Nam is attached herewith.*				
Documentation provided by project participant				
1. Report on measuring the reservoir surface area. *2. Commercial operation date_Nam Pong HPP* *3. EF 2020_DNA VIETNAM*				
DOE assessment				**Date:** 17/04/2022
Third party report prepared by Power Engineering Consulting Joint Stock Company 1 dated 20/07/2021 is reviewed by the validation team and confirms the value to be correct. The survey is done at the begening of the second crediting period which meets the methodology requirement. The commercial operation date of the project and grid emission factor found consistent with official documents. Hence, CL is closed.				

Table 2. CAR from this validation

CAR ID	01	**Section no.**	D.5	**Date:** 28/03/2022
Description of CAR				

1. *There is inconsistency in stating calibration frequency of energy meters in section B.7.1 of the PDD and Appenidx 5.* 2. *The monitoring system clearly showing the monitoring points are not transparent in Appendix 5 of the PDD*
Project participant response **Date:** 04/04/2022
1. *The calibration frequency of the equipment and system in section B.7.1 has been updated for consistency with Appendix 5 and current regulation in Viet Nam. Power meters should be calibrated every 3 years (36 months) according to the latest official document DLVN 39: 2019 on Alternaring current static watt-hour meters Verification procedure.* 2. *The monitoring system has been updated in the revised PDD.*
Documentation provided by project participant
1. *DLVN 39-2019 - Meter Calibration Frequency* 2. *Diagram of metering systems*
DOE assessment **Date:** 17/04/2022
The monitoring arrangement with flow diagram is clearly explained in Appendix 5 of the PDD. Calibration procedure is described in section B.7.1 of the PDD and Appendix 5 of the PDD. Explaination is consistent with actual monitoring arrangement and hence CAR is closed.

Table 3. FAR from this validation

FAR ID	01	**Section no.**		**Date:** 28/03/2022
Description of FAR				
The Project proponent shall refer EB 113 and: i. *Apply any GWP values that may be adopted by the CMP for that period in their monitoring reports for any emission reductions achieved on or after 1 January 2021; and* ii. *Update their project or programme design documents in accordance with any requirements of the CMP guidance.*				
Project participant response				**Date:** DD/MM/YYYY
-				
Documentation provided by project participant				
-				
DOE assessment				**Date:** DD/MM/YYYY
-				

- - - - -

Document information

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

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