



**Programme of activities design document form
(Version 09.0)**

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

BASIC INFORMATION

Title of the PoA	Sustainable Small Hydropower Programme of Activities (PoA) in Viet Nam
Version number of the PoA-DD	6.0
Completion date of the PoA-DD	20/07/2020
Coordinating/managing entity	Vietnam PoA Carbon Management Joint Stock Company
Host Parties	Viet Nam
Applied methodologies and standardized baselines	<p>Applied methodology: ACM0002, version 20.0: "Grid-connected electricity generation from renewable sources"</p> <p>Standardized baseline: Not applicable</p>
Sectoral scopes	01: Energy industries (renewable - / non – renewable sources)

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PART I. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

1. General operating and implementing framework of PoA

Programme of Activities (PoA) under the CDM often referred, as “Programmatic CDM” is a framework covering similar projects that can be registered as a single CDM project activity. The “Sustainable Small Hydropower Programme of Activities (PoA) in Viet Nam”, later on referred as the “Viet Nam Small Hydro PoA”, will consist of CDM Programme Activities (CPAs) that each represents one or more small-scale hydropower plants built in Viet Nam with an installed capacity of up to 30MW¹. The Viet Nam Small Hydro PoA is a voluntary action being coordinated and managed by Vietnam PoA Carbon Management Joint Stock Company (subsequently referred to as Coordinating/Managing Entity - CME), a company registered in Viet Nam.

2. Policy/measure or stated goal of the PoA

Viet Nam has a large hydropower potential that could be sourced as renewable energy for small hydropower plants. In the face of growing demand for electricity, small hydropower development should also be one attractive solution towards meeting the demand in an environmentally sustainable manner. However, in spite of abundant potential and high demand², investors in development of small hydropower plants still face several difficulties³ even though the Vietnamese government⁴ has encouraged every kind of entities (including private entities) to invest in such small hydropower projects.

Electricity of Viet Nam (EVN), through dependent finance power companies (No1, No 2 and No 3), still maintains and consolidates its monopoly role⁵ in buying electricity generated from these projects. Therefore, Independent Power Producers (IPPs) are facing big challenges to get Power Purchase Agreement, which increase their transaction costs, which must be added to high costs for getting permits and clearances besides large investment costs that must be covered by IPPs. The high costs and unclear revenues could decrease the financial attractiveness of hydropower development, which in turn prevents IPPs from entering the market. The CDM as defined in the Kyoto Protocol can contribute to financing such hydropower projects, which could provide an incentive for IPPs to enter the hydropower industry.

The objective of the Viet Nam Small Hydro PoA is to develop a platform for supporting the development of small hydropower projects in Viet Nam. To reach this goal the CME will

¹ Decision No 3454/QĐ-BCN issued by Ministry of Industry on 18 October 2005, hydropower projects having installed capacity within the range from 1 to 30 MW are categorized as small scale projects, in Viet Nam.

² <http://tietkiemnangluong.com.vn/home/hoat-dong-chuong-trinh/thuy-dien-nho-tiem-nang-con-bo-ngo-8003-7794.html>

³ <http://www.vncold.vn/Web/Content.aspx?distid=924>

⁴ Prime's Minister Decision No 176/2004/QĐ-TTg dated 05 October 2004 on approval the development plan of Viet Nam power sector for the period of 2004 – 2012 with perspectives to 2020.

⁵ <http://vietbao.vn/Kinh-te/Tong-cong-ty-Dien-luc-VN-doc-quyen-mua-re-ban-dat/10732642/87/>

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provide the following services across Viet Nam:

- raise awareness among local stakeholders of climate change and renewable energy. To ensure maximum stakeholder involvement CPAs will be developed according to the Gold Standard requirements and will include significant public education and consultation components
- raise awareness among Viet Nam's hydropower developers of opportunities for generating CDM revenues. To this end the CME will conduct capacity building sessions across the country that explain the CDM and support entrepreneurs in integrating CDM into their hydropower projects in order to improve the financial viability of such projects.
- provide standardized and streamlined access to CDM services for the hydropower projects in Viet Nam, including the smallest ones that otherwise would not be able to generate into CDM revenues. To this end CME will coordinate the inclusion of the CPA in the PoA; conduct the registration of the CPA as a Gold Standard activity (if applicable); provide monitoring and verification services to all CPAs; and support the effective commercialization of CERs. Over time additional services will be added to support the effective development of the hydropower sector across Viet Nam.

In this way the proposed PoA will promote the development of renewable energy and facilitate the abatement of greenhouse gas emissions through replacement of fossil-fuel based electricity.

Contribution to Sustainable development:

Environmental sustainability

- The PoA encourages hydropower utilization to generate electricity, which otherwise would have been generated through alternate fuels (most likely fossil fuels) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions.
- As a hydropower project activity, each CPA produces no end products in the form of solid waste (ash, etc.), it addresses the problem of solid waste disposal encountered by most other sources of power.
- Being a renewable energy source, hydro energy used to generate electricity contributes to resource conservation and reduces reliance on exhaustible fossil fuel based power sources as well as the need to import fuels for the purpose of power generation.
- Thus, the PoA contributes to environmental well being across Viet Nam.

Economic sustainability

In recent years, Viet Nam has suffered a critical electricity shortage as a consequence from rapidly increasing demand and insufficient supply, thereby imposing negative impacts on economic growth⁶ as well as on daily lives of people⁷. This PoA will support CPAs that contribute directly towards balancing the supply and demand gap. By exporting electricity directly to the national grid, the CPAs included in this PoA will help to reduce electricity losses across the national grid and to lessen the risks of cascading national grid collapse due to overload.

Moreover, the PoA

- Increases employment opportunities in the area where the CPA is located, which will give an increase in local community's income in general;

⁶ http://www.uni-bros.com/en/news.php/power_shortages_deter_investors/id=17958/cid=4

⁷ <http://giadinh.net.vn/28083p0c1000/mat-dien-thuong-xuyen-tren-dien-rong-nguoi-dan-bi-tra-tan.htm>

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- Will facilitate the industrialisation process through the provision of stable power and enhance the local investment environment and thereby improve the local economy;
- Diversifies the sources of electricity generation, important for meeting growing energy demands and the transition away from diesel and coal-supplied electricity generation;
- Contributes to poverty alleviation through income and employment generation: the CPA will employ people throughout project operation.
- Through its CPAs will contribute towards the tax revenues of the provinces in Viet Nam.

Social sustainability

- The CPA would lead to the development of the region.
- During civil work, the CPA is expected to generate considerable employment opportunities for the local population.
- Other than these, there are various kinds of mechanical work, which would generate employment on regular and permanent basis.

Technology sustainability

- Modern turbines and generators will be used under this PoA, which in turn will accelerate the deployment of renewable energy technologies in Viet Nam.
- The PoA supports technological and know-how transfer from other regions or even other countries through trainings and practical works.
- The PoA encourages in promoting local products developed in the region when spare parts replacement is needed to support renewable technology development especially for hydropower technology which are available and made by local companies.

In conclusion the PoA will contribute positively towards sustainable development and be consistent with the energy policies set by the Government⁸ of Viet Nam. Therefore, it satisfies the sustainable development criteria for CDM projects set by the DNA of Viet Nam.

3. Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity

The Viet Nam Small Hydro PoA is a voluntary action being coordinated and managed by Vietnam PoA Carbon Management Joint Stock Company (CME). There are no mandatory laws or regulations in place in Viet Nam that require hydropower plants to seek CDM services. Likewise, no mandatory laws or regulations exist requiring the CME or any other party to develop a PoA for hydropower plants in Viet Nam

A.2. Physical/geographical boundary of PoA

The proposed PoA will be developed within one country only, Viet Nam, with its capital city Hanoi. Viet Nam is located in South East Asia that lies along the Indochinese Peninsula and circles the old south eastern part of the Asian continent with its back turned to the Eastern Sea (Pacific Ocean). The location of which the CPAs will be implemented within the following co-ordinates⁹:

Latitude: 8°10' - 23°24'N

⁸ To encourage the investment in exploitation of renewable energy resources in Viet Nam, the project "Strategies and master plans for renewable energy in Viet Nam for the period up to 2015 with the perspectives up to 2025" is being implemented by the Ministry of Trade and Industry since 2007

⁹ http://www.chinhphu.vn/cttdtcp/en/about_vietnam08.html

Longitude: 102°09' - 109°30'E

A map indicating the location of the PoA is provided in fig. A.1.



Fig 1. Map of Viet Nam

A.3. Technologies/measures

A typical CPA under this PoA comprises one or more small hydropower plants, as defined under Vietnamese regulation¹⁰, that are constructed by one or more third-party project owners. The CPAs may use different hydropower technologies to convert kinetic energy of water to generate electricity, which may include technologies (but not limited to) as Pelton, Kaplan, Turgo, Francis turbines etc. The technologies employed in each CPA may differ from one CPA to the next, and may comprise *inter alia* barrages, diversion tunnels, fore bays, spillways, pressure pipes, powerhouses, and booster stations. The detailed technical characteristics will differ across CPAs and be described in the corresponding CPA-DDs. The electricity generated by under a CPA will be transmitted to the closest grid connection available in area where the hydropower plants covered by the CPA are located.

¹⁰ Ibid at 1

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A.4. Coordinating/managing entity

Vietnam PoA Carbon Management Joint Stock Company will be the Coordinating/Managing Entity¹¹ (CME) for the project activities under the Programme of Activities (PoA) and communicate with the CDM Executive Board.

A.5. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Viet Nam (host Party)	Vietnam PoA Carbon Management Joint Stock Company	No
Switzerland	South Pole Carbon Asset Management Ltd.	No

A.6. Public funding of PoA

Viet Nam Small Hydro PoA does not receive public funding

SECTION B. Management system

The proposed PoA involves a range of operational activities in order to implement and manage each CPA by the CME and CPA owner within the PoA.

Entity	Management Responsibilities and Arrangements
CME	<ul style="list-style-type: none"> • Identification of Project Activities to be included in the PoA • Contractual arrangements with Project Entities ensuring compliance with the PoA eligibility criteria described in this document. • Preparation and updating of PoA and CPA DDs • Collection of documents and supporting evidence required for validation of the PoA, inclusion of CPAs as well as verification of CERs • Communication with the CDM Executive Board, including communication on matters related to the registration process and issuance process, distribution of CERs and change of project participants • Implementation of a database allowing for a transparent and unambiguous management of information related to the PoA and its underlying CPAs • Maintain existing relationship with the project owner (e.g. conduct training for data monitoring) • Periodic collection of monitoring data • Preparation of monitoring reports for emission reduction verification
CPA owner	<ul style="list-style-type: none"> • Implement hydropower plant project activity (conducting the feasibility study, investment, people consultation, construction, daily operation, and maintenance of hydropower plant) • Preparation of monitoring data according to the

¹¹ The Coordinating/Managing Entity shall be a project participant authorized by all participating project owners and the host country DNA and identified in the modalities of communication to serve as the entity which communicates with the Executive Board, including on matters relating to the distribution of CERs.

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	<p>guidelines set in the generic CPA-DD</p> <ul style="list-style-type: none">Facilitate the CME and DOE required documents and access to site as needed
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In addition to the above management tasks, CME will implement the following operational elements to ensure proper management and oversight of the proposed PoA.

(i) A record keeping system for each CPA under the PoA

In order to unambiguously identify hydropower plant participating in the PoA a serial numbering system will be implemented that uniquely identify each hydropower plant through numbers for the CPA and the hydropower facility. This serial numbering system will be used to record baseline and monitoring data on a continuing basis using an Excel database. In this way the CME will be able to track the emission reduction of each hydropower plant over the full duration of the crediting period.

Each CPA will follow the record keeping and monitoring requirements stipulated in the applied methodology. The CME will record and document CPA detail information as follows:

- Name of the CPA and its installed capacity
- The name, address, and project owner details of each participating CPA
- The geographical coordinates of each CPA (GPS coordinates of the power house)
- The record of technical specification of each hydropower plant participating in the CPA
- The verification status (number of verification and associated monitoring period)
- Emission reductions monitored and issued each in monitoring period

CME will be responsible for the management of records and data associated with each CPA. The Excel database will be updated manually using the data supplied by the participating hydropower plants. It will form the basis for the verification of CPAs and be available for inspection by the DOE at any point in time.

The Carbon Project Management Tool (PMT) is the project management software to monitor the PoA pipeline. This system is a browser-based application running on a web server and is accessible from any computer with Internet access.

Connections between users and the web server are secured with 256-bit SSL encryption. The backend is an apache web server, the web application is written in PHP5, and data is stored in a MySQL database. Utilizing mainstream open source technology, South Pole Carbon Asset Management Ltd. (South Pole), as the service provider, guarantees the CME flexibility and reliability with regards to development and maintenance.

The PMT's server architecture guarantees that all data is kept consistent and always up to date for each user. The separation of presentation and data allows for flexible interfaces with other applications, easy data export and automated backups of sensitive and valuable project data.

The PMT can be used to track individual projects under various standards, with different credit types and crediting periods, as well as groups of projects or entire pipelines of projects, such as a PoA. On the project level, tools such as milestone management, a sophisticated comment and notification system to facilitate communication between different team members, deadline alerts, etc. allow project managers and supervisors to meet targets and deadlines and monitor or project both past and future amount of emission reductions resulting out of a project.

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One level above, various features allow grouping and manipulating several projects together, with combined overviews on milestone deadlines, generated emission reductions, and applied standards. Data can be directly exported to Excel from within the PMT, both for individual projects as well as for the PoA to run custom evaluations or to visualize data.

The PMT is hosted on a server in the EBM datacentre (www.ebm.ch) in Basel, Switzerland with very high service availability. The datacentre employs redundant network connections and electricity providers and is ISO9001/ISO 14001 certified. It also employs energy efficiency measures such as a clever climate management. Surveillance happens 24 h/365 days per year.

Following selection of screen shots shows just a few of the many functions of the PMT and the interface that will be shown for the PoA. Sensitive data from a live system has been blurred out. The project-related information shown has been taken from fictional projects inserted into the PMT Trial version.

Projects Overview holds most relevant information at one glance. The map can be exported to Google Earth, key data can be exported to Excel.

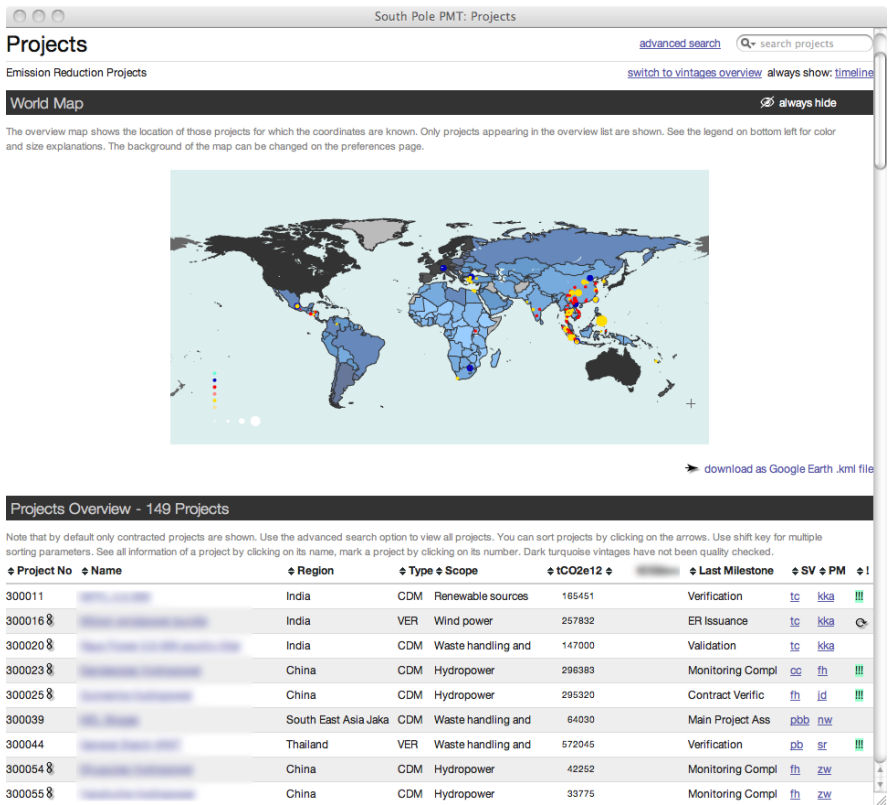


Fig 2: Project Overview

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The Milestones Overview shows at first glance which projects are behind schedule. All tables show the same projects – if one project is marked in a table, it will be marked in all tables. Which projects are shown in the overview depends on the outcome of a search query. Per default, only active contracted projects are shown.

Milestones Overview always hide

Date colors: black = pending, pink = approaching, red = overdue. Dashed underline: to be confirmed as closed.

Background colors: pink = initial due date was earlier than new due date (=discrepancy), red = discrepancy over 90 days. If the management approval team denied working on a milestone, it will have a red line on the top.

Milestones both showing a hook and a date signify that the project has a closed milestone of this sort already, but a new milestone is due at the date shown.

Project No	Name	EA	IPA	ERPA	MPA	PDD	DNA	Val.	MCC	Reg.	Ver.	Iss.
300011	IPPA	✓		✓		✓	✓	✓		✓	2010-09-30	2010-12-31
300016	ERPA	✓	✓	✓		✓		✓		2010-07-01	2010-09-30	2010-10-31
300020	MPA	✓	✓	✓	✓	✓	✓	✓		2010-06-15	2011-05-31	2011-09-30
300023	PDD	✓		✓	✓	✓	✓	2010-02-12	2010-09-15	2010-06-30	2010-12-31	2011-02-28
300025	DNA	✓		✓	✓	✓	✓	✓		✓	2010-06-30	2010-06-30
300039	Val.	✓	✓	✓	✓	2010-03-31	2010-05-31	2010-08-05			2012-12-31	undefined
300044	MCC			✓		✓		✓	2010-06-30	✓	✓	2010-03-31
300054	Reg.	✓		✓	✓	✓	✓	✓	✓	2010-07-31	2010-11-30	2010-12-30
300055	Ver.	✓		✓	✓	✓	✓	2010-02-28	✓	2010-07-31	2010-11-30	2010-12-30
300057	Iss.	✓	✓	✓		✓	✓	✓		2010-11-30	2010-12-10	
300059	EA	✓		✓		✓	✓	✓		2010-04-30	2010-05-31	2010-07-31
300062	IPA	✓	✓	✓	✓	✓	✓	✓		✓	2010-10-31	undefined
300063	ERPA	✓		✓	✓	✓	✓	✓		2010-07-31	2010-12-31	2011-01-31
300065	MPA	✓		✓	✓	✓	✓	✓	✓	2010-05-31	2011-03-31	2011-04-30
300067	PDD	✓		✓	✓	✓	✓	✓	2010-08-01	2010-05-31	2011-03-31	2011-04-30
300068	DNA	✓	✓	✓	✓	✓	✓	✓	✓	2010-06-04	2010-10-01	2010-11-01
300070	Val.	✓	✓	✓	✓	✓	✓	✓		2010-10-31	2010-12-31	

Fig 3: Milestone Overview

Milestone totals are shown at the end of the table.

	EA	IPA	ERPA	MPA	PDD	DNA	Val.	MCC	Reg.	Ver.	Iss.
Total milestones initially expected to be closed											
Total milestones closed											
Total closed (only 1 per project)											
Average days needed after ERPA											

Fig 4: Milestone Totals

For PoAs, vintage packages of the corresponding CPAs are displayed automatically in the PoA vintage package information. A vintage package cannot be added directly at the PoA level.

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Vintage Packages

[advanced search](#)

Emission Reduction Vintages

[switch to projects overview](#)

Vintages Overview - 16 Packages

The numbers show available credits (expected plus issued minus assigned or delivered). Dark turquoise vintages have not been quality checked.

Package	Type	Project	scroll back							scroll ahead		
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
300001 - A	CER	4.5 MW Biomass	0	0	0	0	23500	23500	23500	23500	23500	0
300004 - A	GS VER	Windpower Bundle	0	0	0	0	0	0	0	0	0	0
300006 - A	CER	6 MW Poultry Litter	0	0	0	0	0	0	0	0	0	12300
300009 - A	GS CER	Shuangqing Hydropower	0	0	0	0	0	0	0	0	0	111000
300009 - B	VCU	Shuangqing Hydropower	0	0	0	0	0	0	0	0	100000	0
300011 - A	CER	Menna Hydropower	0	0	0	0	0	0	0	10000	250000	103000
300012 - A	VCU	20 MW Wind	0	0	0	0	0	0	3450	52345	53445	0
300013 - A	VCU	Starch WWT	0	0	0	0	0	0	10022	11003	11004	11000
300014 - A	VCU	Mex Distillery WWT	0	0	0	0	0	0	0	0	12333	40000
300014 - B	VCU	Mex Distillery WWT	0	0	0	0	0	0	0	0	0	0
300017 - A	VER+	Rio Grande Hydroelectric Project	0	0	0	0	0	87099	87099	87099	87099	87099
300018 - A	GS VER	Taipei Wind farm	0	0	0	0	0	0	0	0	0	100000
300019 - A	GS VER	Polyester Biomass	0	0	0	0	0	0	0	0	22333	25000
300020 - A	GS VER	Tapioca WWT	0	0	0	0	0	0	31222	31222	31222	31222
300023 - A	CER	Agave Compost	0	0	0	0	0	0	0	0	1600	2300
300024 - A	VCU	Asean Waste Gas Recovery	0	0	0	0	0	0	287964	287964	287964	287964

Fig 5: Vintage Package

(ii) A system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as a CDM project activity or as a CPA of another PoA,

The database described above will be used to perform a double accounting check. Every new CPA will be compared to the already existing database and the list of project activities that are under validation or registered at the UNFCCC or CPAs that have been included in any other registered PoA. Moreover as shown below, the CPA owners will be made aware of the double accounting principle and will certify that the proposed CPA is neither registered as a CDM project activity nor included in another registered PoA under the CDM of the UNFCCC or any voluntary scheme. Should such a case occur then the CME will not proceed with inclusion of the corresponding CPA in the PoA.

(iii) The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA;

To ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA the CPA owner shall enter into a contractual arrangement with the CME including respective provisions that:

1. The CPA has not been and will not be registered as a single CDM project activity nor as a CPA under another PoA.
2. The CPA owner is aware that the CPA will be subscribed to the present PoA.
3. The CPA owner cedes its rights to claim and own emission reductions under the Clean Development Mechanism of the UNFCCC or any voluntary scheme to the CME of the present PoA.
4. The CPA owner certifies that the CPA is not registered under the Clean Development Mechanism of the UNFCCC or any voluntary scheme.

Using the unique identification for each participating CPA and the custom-tailored Carbon Project Management Tool, the PoA CME will confirm that a facility has not already been registered or entered validation as a CDM project activity or as a CPA of another PoA. Should such a case occur then the coordinating entity will not proceed with inclusion of the corresponding CPA in the PoA.

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(iv) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies

The CME

The CME is responsible for technical review of inclusion of CPAs. The following technical documentation will be requested by the CME to the CPA Owner:

- Feasibility study
- Environmental Assessment Report (when required)
- Technical design documents
- Financial analysis

The CME will maintain close communications with the CPA Owner before the CPA is included in the registered PoA to ensure that the CPA is eligible under the PoA. Upon inclusion, the CME shall remain in communication with the CPA Owner, and gather information related to the performance of the project activity.

In order to ensure the quality of its CDM-related activities, and to ensure the correct monitoring of the performance of each CPA, the CME is supported by South Pole. CDM experts from South Pole will be assigned to check the features of potential CPAs and ensure that each CPA meets all the requirements and eligibility criteria to be included in the registered PoA.

The CME will also employ South Pole's web-based Project Management Tool to unequivocally keep track of the PoA and CPAs performance.

South Pole

South Pole is responsible of providing the CME, during the PoA lifetime, with guidance and technical assistance, including data control, management of information and Quality Assurance and Quality Control services. South Pole provides also technical support to the CME during the entire CDM PoA cycle including, but not limited to, guidance during the validation/registration process of the PoA as well as inclusion of CPAs and verification/issuance of CERs.

Through its RACI¹² approach and Project Management Tool (PMT), South Pole is responsible of providing the CME, during the PoA lifetime, with guidance and technical assistance in data control, management of information and Quality Assurance and Quality Control practices.

Roles and responsibilities of the CME and South Pole staff

The CDM implementation of each CPA as well as of the PoA will be carried-out based on the following diagram.

¹² Responsible, Accountable, Consulted, Informed. The RACI approach is described below.

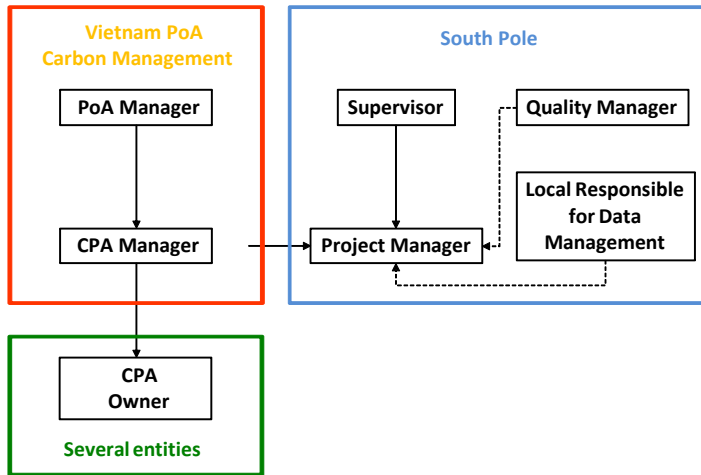


Fig 6: Implementation of a CPA

Roles and responsibilities of the CME's staff

For each CPA under this PoA, the CME, through the PoA Manager, will assign a CPA Manager, who will be supervised by the PoA Manager. The CPA Manager will be in close communication with the CPA Owner and with the South Pole appointed Project Manager.

Position	Responsibilities
PoA Manager	<ul style="list-style-type: none"> - CPAs contracting. - Preliminary Emissions reductions and carbon revenue estimation. - Initial CPA Eligibility Criteria compliance check. - Ensure high-quality implementation of all CPAs including the updates in the South Pole's PMT. - Coordination of Validation and inclusion of the CPA in the PoA. - Keep updated the PoA CPA Record Keeping System (PMT). - Train staff, set priorities properly, solves problems raised by the CPA Manager. - Quality control of implementation work. If necessary, reviews work of CPA Manager before submission to South Pole. - Ensure productive, efficient and inspiring working conditions for all employees. - Human Resource selection, negotiation of work contracts, proper assignment of targets and responsibilities, and conduction of evaluation process. - Ensure all administrative issues are properly dealt with, including accounting processes, office rent, legal registration / approvals, IT, social security, tax, compliance with local laws. - Managing liason with country DNA.
CPA Manager	<ul style="list-style-type: none"> - Inclusion of the CPA - Communications with the CPA Owner. - Ensure CPA complies with eligibility criteria and that all the relevant documentation required by the DOE to validate the CPA is provided. - Ensure that CPA-DD is written in a high quality manner. - Ensure that the CPA is implemented in accordance to the CPA DD. - Compiles from the CPA Owner the monitoring information and develops the monitoring report. - Identification of opportunities to improve work process and propose solutions to CME upper management. - Deployment of any improvements and monitoring of their impact. - Ensure that the CPA inclusion and implementation phases are adequately

resourced.

Vietnam PoA Carbon Management Joint Stock Company will review the competencies of its personnel to be involved in CPA inclusions prior to their employment/assignment and will ensure that staff is properly trained with regards to specific CPA inclusion requirements. Personnel involved in CPA inclusion process shall have a background in engineering or natural sciences and experience in the renewable energy or environmental sectors.

Roles and responsibilities of the involved South Pole's staff

Project Manager (Responsible):

- Fully responsible for the data management of the PoA and CPA in PMT and for first quality checks of the PoA (whenever PoA-DD updating is required) and its associated CPAs (CPA-DD, stakeholder consultation, monitoring report, etc.)
- If corrections are needed, the Project Manager raises the issue with the CPA Manager and assists in providing a solution before document submission to the Quality Manager.

Supervisor (Accountable):

- Oversees and ensures high-quality implementation of all CPAs and the PoA through South Pole's RACI system and Project Management Tool.
- Reviews work of Project Manager before closure of milestone in PMT.

Quality Manager (Consulted):

- After a first revision is made and corrective actions are taken by the Project Manager, the Quality Manager (member of the South Pole's Global Quality Control and Technical Support Team) is responsible for all quality checks of the PoA and its associated CPAs (CPA-DD, stakeholder consultation, monitoring report, etc.).
- He also supports and advises the South Pole Project Manager to ensure that the project is built as described in the CPA-DD.

Local Responsible for Data Management (Informed):

- Ensures that the information is properly stored; ensures that the file names correspond to the CPA and that a standard nomenclature is used; and ensures that files, archives and registries are clearly organized.

(iv). Records of arrangements for training and capacity development for personnel

Training and capacity development activities for the CME will be carried-out to ensure that the CPA Manager(s) as well as PoA Manager are fully qualified to implement this PoA and that are familiar with the EB latest guidelines related to PoA development, CPA inclusion, monitoring, verification and issuance. The training and capacity development activities for the CME staff shall be carried-out by experienced PoA South Pole staff, because of their deep knowledge of:

- The eligibility check,
- The additionality tests,
- The baseline estimation, and
- The monitoring guidelines and requirements, among others.

Training and capacity development activities for the CPA Owner will be carried-out with the purpose of ensuring correct monitoring as established in the CPA-DD. Training specific content and specific material (if applicable) will be adapted to each specific CPA, according to the technical specifications of each CPA, and to the characteristics of the equipment installed at each facility. It may be carried-out by the South Pole staff actively involved in this PoA, or by the CPA Manager.

(v). Records and documentation control process for each CPA under the PoA;

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In order to ensure transparency and high-quality information managed during the PoA/CPA CDM cycle, the RACI approach developed by South Pole is employed. The "RACI" approach splits responsibilities for project management into the categories: Responsible, Accountable, Consulted and Informed.

Each step of the CDM project cycle at PoA level and at CPA level is broken down in individual milestones. Closing of milestones is based on a 4-eye principle according to the assignment of responsibilities. Quality checks (up to 8-eye principle) are enabled for key milestones.

For each step of the CDM project cycle and for each key activity in the PoA/CPA implementation process, such as "CPA eligibility check", the milestone closing procedure summarized below is followed.

- CPA Manager (Responsible) enters the milestone into the PMT.
- CPA Manager prepares project documentation, (such as the CPA-DD draft for the Initial Project Eligibility Assessment stage) and checks if assumptions and parameters applied and relevant sheets are consistent and justified by sources transparently. Prior the submission to the appointed South Pole Project Manager for review, the CPA Manager stores on the server all the applied documents and includes in the system the route in which all the information can be found.
- The South Pole Project Manager (Responsible) does a first quality check of all the documentation submitted by the CPA Manager. If corrections are needed, the Project Manager coordinates with the CPA Manager to take action before submission to the Quality Manager.
- South Pole Project Manager sets milestone as "requesting closure" and informs Quality Manager (Consulted).
- Quality Manager and Local Responsible for Data Management (Informed) check deliverables and comment on open issues. Commented documents are sent back to the South Pole Project Manager and to the CPA Manager if necessary. Such cycle might be repeated several times until sufficient quality is met.
- If deliverables reach sufficient quality the Local Responsible for Data Management inserts conclusion as comment in PMT milestone and the Quality Manager inserts main conclusions as comment in the specific milestone and stamps it.
- The Supervisor (Accountable) checks the outcome and agrees with Project Manager, Local Responsible for Data Management, and with Quality Manager by closing the milestone.

(vi). Procedures for technical review of inclusion of CPAs

The CME has the main responsibility for technical review of inclusion of CPAs, whereas South Pole provides technical support and quality control/quality assurance services for the inclusion process. All necessary documents to demonstrate compliance with the eligibility criteria of the PoA are collected and verified by the CME. The CME collects also all information and supporting evidences required to draft the CPA-DD.

The entire technical review process is managed through the sophisticated Project Management Tool software developed by South Pole, which is described above.

(vii). Measures for continuous improvements of the PoA management system

The management system is subject to a continuous review of its effectiveness which is aligned with a Continuous Improvement Philosophy. Such review spans the various elements and any

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procedures. The aim is to identify any shortcomings and correct them, as well as to seek to continuously improve the PoA's performance on all counts. All those involved are encouraged to raise any issues that they feel need to be corrected and suggest any means of improvement, and to communicate these to the PoA Manager. The PoA manager will then allocate resources and appoint the relevant staff, bearing in mind the nature of issues raised, to ensure that solutions are designed, tested and their effectiveness monitored, prior to being formally adopted.

Monitoring plan

It is envisaged that there would be multiple CPAs under the PoA. Each CPA is to be verified individually. Thus there is no PoA level sampling to be considered. A monitoring plan for each CPA will be developed in accordance with the applied baseline and monitoring methodology at the CPA level as per section I.7 of this PoA DD.

The CME will submit CPAs for verification by the DOE pursuant to the sequence described below:

- 1- The CME will continuously update a list of all CPAs
- 2- The CME collects the monitoring information for all CPAs that will be verified and prepares one monitoring report for each CPA.
- 3- Assessment of the CPAs.
- 4- The total verified emission reductions by the PoA is computed

For verification purposes, the CME will follow the procedure described below:

1- Maintenance of a list of verification procedures to be applied to each CPA

The CME will develop and continuously update a list of CPAs. This will clearly and uniquely identify each CPA and gives further important information to build the basis in order to compile a monitoring report, such as the crediting period start date of each CPA.

2- Collection of monitored parameters and elaboration of the monitoring plan

The monitoring report will compile all required monitoring information for a CPA that will be verified by the DOE. This report will unambiguously set out the data relating to the emission reductions generated by each specific CPA during the monitoring period consistent with the requirements of this PoA-DD and the corresponding CPA-DD.

The monitoring plan for parameters included in section I.7.1 will be implemented for each CPA with assistance from the CME as follows:

- CPA owner will implement each CPA individually and monitor and record all parameters included in section I.7.1.
- The CME will provide guidance to CPA owner on how monitoring should be conducted and data should be collected in regards to emission reductions calculation.
- The CPA owners will provide data on monitored parameters included in section I.7.1 to the CME.
- The CME will document and store all parameters included in section I.7.1 provided by CPA owners in an electronic database, while primary data will be stored by CPA owner
- The CME review relevant monitoring documents, prepare the monitoring report, and provide the latter to the DOE.

3- Assessment of the CPAs

The DOE performs a desk review of the monitoring information of all CPAs and performs on-site assessments in accordance with the prevailing guidelines and rules.

At the end of the assessment, the CME shall provide an updated monitoring report elaborated in light of the DOE findings.

4-The total verified emission reduction by the PoA is computed

The DOE approves the final monitoring report provided by the CME and certifies that (i) the list and type of data collected and provided within the monitoring report is consistent with the monitoring plan of each CPA (ii) the ERs are estimated as described in this PoA-DD and the respective CPA-DD and are not miscalculated.

SECTION C. Demonstration of additionality of PoA

CDM project standard for programmes of activities, version 02.0, item 11 *"Renewal of programme of activities period and renewal of crediting period of component project activities"*, paragraph 285 state that:

"For renewal of the PoA period of a registered CDM PoA, the coordinating/managing entity is not required to reassess the additionality of the PoA nor update the section of the PoA-DD relating to additionality."

The project is a registered CDM PoA project. Therefore, the reassessment of the additionality is not required for renewing crediting period.

Additionality shall be demonstrated for each new CPA following the steps outlined in the "Tool for the demonstration and assessment of additionality" - version 07.0.0. For a technology that is as well established as electricity generation from hydropower in Viet Nam, financial barriers are the main barriers faced by project owners. As the CPAs generate financial benefits other than CDM-related income, investment analysis (benchmark analysis) will be used to demonstrate the additionality of each CPA followed by common practice analysis.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity

Paragraph 8 of version 07.0.0 of the additionality tool states: "Project activities that apply this tool in context of approved consolidated methodology ACM0002, only need to identify that there is at least one credible and feasible alternative that would be more attractive than the proposed project activity..". Since only Greenfield hydropower projects are eligible under the Viet Nam Small Hydro PoA, each CPA will consider and analyze "continuation of the current situation" (no project activity or other alternatives undertaken) as a credible and feasible alternative to the project activities.

A CPA will therefore consider the following two alternatives in the assessment of additionality:

- Alternative 1: the proposed CPA is undertaken without the CDM
- Alternative 2: continuation of the current situation. In this case, the proposed CPA will not be constructed and the power will be solely supplied from the Viet Nam national grid.

Sub-step 1b: Consistency with mandatory laws and regulations

The "continuation of the current situation" alternative does not face any barrier from the current law and regulation in Viet Nam because it is the "do-nothing" alternative. The project owner of a CPA has no obligation to build or invest in the power plant to supply electricity for the local area. Hence this alternative is consistent with mandatory laws and regulations.

Step 2: Investment analysis

Sub-step 2a: Determine appropriate analysis method

Project activities proposed under CPAs that are eligible for inclusion in the Viet Nam Small Hydro PoA will generate financial and economic benefits other than CER revenues, so the simple cost analysis (Option I) is not applicable. Likewise, Option II (investment comparison analysis) is not applicable since the only alternative to the CPA is the "continuation of the current situation" alternative. So the appropriate analysis method for conducting the investment analysis is the benchmark analysis (Option III).

Sub-step 2b: Option III. Apply benchmark analysis

As indicated in Annex 5, EB 62: Guidelines on the Assessment of Investment Analysis, version 05, “*Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR.*” Therefore, based on the availability of published data inputs that constitute the benchmark at the time of investment decision, benchmark analysis for CPAs to be included in the PoA can opt for either local commercial lending rate or WACC approach. Regardless which approach is applied by the project participant, it shall be explained comprehensively in the CPA DD with sufficient references and be assessed in its totality by the DOE responsible for validation and inclusion of the CPA in question.

The benchmark calculated will then be compared to project IRR for additionality demonstration.

In case of CPAs using local commercial lending rates as a benchmarks for the project IRR

The benchmark should be derived from the average long-term lending rates available from the beginning of calculated year up to the date of decision making. All data is sourced from weekly reports published by the State Bank of Viet Nam on its official website (<http://www.sbv.gov.vn/wps/portal/en>).

In case of using WACC as a benchmarks for the project IRR

The project participant should apply the WACC equation to estimate the required return on capital as a benchmark for the project IRR as follows:

$$WACC = E * R_e + D * R_d * (1 - T_c) \quad (1)$$

Where:

R_e : cost of equity

R_d : cost of debt

E : Average industry equity ratio

D : Average industry debt ratio

T_c : Average enterprise tax rate

The WACC is the “*the cost of financing and required return on capital*” which is “*based on private equity investors/fund*” required return on comparable projects” as presented in Option III, Item (38)(b) of version 07.0.0 of the “*Tool for the demonstration and assessment of additionality*”. And it also reflects a common-practice approach in investment decision-making in Viet Nam as this approach was also introduced by the Ministry of Industry to conduct the financial analysis of IPP projects in Viet Nam¹³

The average industry debt ratio (D) is determined based on common practice in the Vietnamese hydropower industry and can be sourced from relevant regulations or guidances or other public sources. The average industry debt ratio will be revised and updated, as necessary, in later CPAs included in the PoA. The average equity ratio (E) is defined as $E = 1 - D$.

Determine the cost of debt

The cost of debt is determined as the interest rate for a long-term loan prevailing at the time of making the investment decision for the CPA in question, as published by sources such as State Bank of Viet Nam¹⁴. In case more than one interest rate is available, the CPA will choose the lowest value in order to ensure a conservative and standard value for the cost of debt.

¹³ Decision No. 2014/QĐ – BCN issued by the Ministry of Industry provides temporary guidelines for conducting the economic, financial and investment analysis and providing the purchasing-selling price frame for power generation projects.

¹⁴ The State Bank of Viet Nam publishes interest rates for long-term loans on the following website: www.sbv.gov.vn/.

Determine the cost of equity

To derive an appropriate cost of equity for electricity generation project type in Viet Nam, the well-known capital-asset pricing model (CAPM) is used¹⁵. This model provides a standard formula relating the expected return on an asset to the asset's risk:

$$R_e = R_f + \beta (R_m - R_f) \quad (2)$$

Where:

R_e ,	cost of equity for electricity generation project type
R_f	Risk free rate return
β	Beta of the security for electricity generation project type
$R_m - R_f$	Market risk premium

Risk free rate:

The risk free rate is understood as the rate of return on an asset that is theoretically free of any risks. Under the CAPM the rate of interest on government bonds is considered as risk free rates. In the context of the Viet Nam Small Hydro PoA the risk free rate is equal to the long-term Vietnamese government bond rates available at the date of making the investment decision for the CPA in question. The data for Vietnamese government bond rates will be sourced from publicly available sources.

Beta:

Beta (β) indicates the sensitivity of the asset value to market risk factors. Beta represents the market risk for an asset and is calculated as the statistical measure of volatility of a specific asset/investment relative to the movement of a market group. The conventional approach for estimating beta of an investment is a regression of returns on investment against returns on a market index. For companies and project activities that are not publicly listed, the beta is determined by referring to beta values of publicly listed companies that are engaged in similar types of business. The project activity type considered under the Viet Nam Hydro PoA is power generation; therefore the applied beta for this project should be based on the beta values of listed power generation companies in Viet Nam.

In cases where the capital structure (Debt/Equity) between the listed companies and the CPA in question differs, the Beta applied for the benchmark has to be adjusted according to the following steps:

- Step 1 – The Levered Beta of all power generation companies listed on the Vietnamese stock exchange is obtained using publicly available data. This Levered Beta takes into account each power company's specific capital structure, including financial leveraging or gearing;
- Step 2 – The Levered Beta is unlevered using the average capital structure of the companies it comprises. This yields the Unlevered Beta, which represents the beta of a company without any debt. In other words, the unlevering of the beta removes the financial effects of leverage¹⁶.

¹⁵ The CAPM is used to determine a theoretically appropriate required rate of return of an asset, if that asset is to be added to an already well-diversified portfolio, given that asset's non-diversifiable risk. The model takes into account the asset's sensitivity to non-diversifiable risk (also known as systemic risk or market risk), often represented by the quantity beta (β) in the financial industry, as well as the expected return of the market and the expected return of a theoretical risk-free asset. See also Black, Fischer., Michael C. Jensen, and Myron Scholes (1972). The Capital Asset Pricing Model: Some Empirical Tests, pp. 79-121 in M. Jensen ed., Studies in the Theory of Capital Markets. New York: Praeger Publishers.

¹⁶ <http://www.investopedia.com/terms/u/unleveredbeta.asp>

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- Step 3 – The Unlevered Beta is levered again according to the assumed average industry debt-equity ratio (defined as D/E) for a typical hydropower project in Viet Nam at the date when the investment decision was made. This Levered Beta will be used to calculate the cost of equity element in the WACC.

Risk Premium:

The risk premium is calculated as the difference between average return on stocks and the risk free rate of return. The average return on stocks is defined as the compound annual rate (CAGR) of return of the Viet Nam stock exchange. The period considered for the analysis will be from 28 July 2000¹⁷ to the date when the investment decision for the particular CPA was made.¹⁸

Substituting the values for R_f , R_m , and β into (2) yields the cost of equity for power generation projects in Viet Nam with a capital structure that corresponds to the capital structure of the CPA at the date when the investment decision for the CPA was made. This estimate of the cost of equity for the power generation sector meets the CDM EB rules because it reflects a sector-specific approach and is calculated based on similar companies operating in power generation sector in Viet Nam. Therefore the estimate is obtained from “parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer” as stipulated in the guidance given in the latest additionality tool under sub-step 2b (5).

Determine average Enterprise Tax rate

In terms of enterprise tax, there are legal documents in Viet Nam prescribing general provisions on the implementation of enterprise tax. The investment certificate of each particular project, on the other hand, may also specify tax requirements imposed on the project.

Therefore, the CPAs will apply the provision on tax in the investment certificate in the case that investment decision is made during the validity period of such certificate and that there is no legal documents on enterprise tax published and taking effect after the date of issuance of the investment certificate.

If there are no provision on tax rate in the investment certificate, or the certificate has expired at the date of investment decision of the project, or there are new legal documents published and taking effect after the issuance of the investment certificate and before the date of investment decision, the latest legal documents on enterprise revenue tax shall be applied to calculate average enterprise tax rate in the investment analysis.

Sub-step 2c: Calculation and comparison of financial indicators

Project IRR calculations for a CPA will be based on a list of economic parameters provided by the owner of the CPA at the time of making the investment decision. This list of parameters includes:

Table 2: Key parameters for calculation of Project IRR

No	Parameter	Unit	Comment
1	Investment decision date	DD/MM/YY	Shall be based on investment decision making documents
2	Construction start date	Year	Shall be based on construction schedule or public sources or relevant documents
3	Date project starts operating	year	Shall be based on operation schedule or public sources or relevant documents
4	Installed capacity	MW	Shall be consistent with the Feasibility Study

¹⁷ The date when the stock market in Viet Nam has started operation.

¹⁸ The return of the Viet Nam stock exchange is estimated using the appropriate stock market index. At the time of registration of the Viet Nam Small Hydro PoA the VN Index was the most appropriate stock market index for Viet Nam.

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			Report or Equipment Contract or relevant documents
5	Total investment cost	billion VND	Shall be consistent with study conducted by third party. If the construction is expected to last several years, a yearly breakdown of investments can be provided
6	Total annual O&M cost	%	Shall be based on the decision No. 2014/QĐ – BCN issued by the Ministry of Industry or its equivalent at the time of investment decision. Indicated as a percentage of the total investment cost.
7	Technical lifetime – period of financial assessment	Years	Based on the longest value among the lifetimes of the major technical components of the hydropower plant (e.g. turbine, generator, etc.). If not specified the project technical lifespan and the assessment period will be chosen as 20 years, as per “ <i>Guidance on the Assessment of Investment Analysis</i> ” (Version 05), Annex 5, EB 62). ¹⁹
8	Fair value	billion VND	Shall be considered as null because the period of financial assessment reflects the technical lifetime according to “ <i>Guidance on Assessment of Investment Analysis</i> ”(version 05), Annex 5, EB 62.
9	Annual net electricity generation	MWh	Shall be consistent with the PLF and take into account parasitic loss and load loss.
10	Electricity price	VND/kWh	As per PPA if signed at date of investment or as per meeting minutes signed between EVN and the CPA Owners or relevant decisions by the Electricity Regulatory Authority on avoided cost tariff that are in force at the time of decision making.
11	Enterprise revenue tax: - For the first [XXX] years - For the next [XXX] years - - For the remaining years	%	As per latest legal documents on enterprise revenue tax on the date of investment decision or investment licence/certificate, whichever later.
12	Project IRR	%	XXX

All economic and financial parameters for a CPA shall be sourced from documents that can be designed by a third party (e.g. hydropower technical consultant) and also independently validated by another third party and/or local authorities such as Department of Industry and Trade or Department of Investment.

A standardized excel worksheet has been developed into which data received from the CPA owner will be entered in a transparent manner, and which will in turn compute the project IRR from the cash flow. The said excel sheet has been supplied to the DOE for inspection. This spreadsheet will be used for all CPAs to be included in the PoA.²⁰

For the eligibility of the CPA, its IRR shall be less than the commercial lending rate, or if the WACC is chosen as the appropriate benchmark the IRR shall be less than the WACC.

¹⁹ If not specified otherwise in the financial documentation of a CPA, the depreciation rate will be chosen as 1/technical lifetime. The financial assessment period is equal to the technical lifetime.

²⁰ If over the course of the lifetime of the PoA, a parameter or its source become unavailable or are replaced by a more relevant or updated parameter and/or source, then this parameter and/or sources will be revised accordingly after prior agreement from the DOE.

Sub-step 2d: Sensitivity analysis

A sensitivity analysis will be also conducted to test the robustness of the results of the investment analysis conducted for a CPA. To this end the following parameters will be changed by $\pm 10\%^{21}$, as they mainly influence the economic feasibility of the CPA:

- Annual amount of electricity exported to the national grid
- Feed in price set by EVN
- O&M cost
- Total investment cost

The full results of each sensitivity analysis will be reported in the respective CPA-DD using the following format:

Table 3: Framework for reporting results of sensitivity analysis

	IRR	Variation that hits the benchmark	Likelihood of hitting the benchmark
Annual amount of electricity exported to the national grid +10%			
Feed in price set by EVN +10%			
O&M cost -10%			
Total investment cost -10%			

If the sensitivity analysis shows that the project IRR of the CPA is lower than the benchmark in all cases then the results of the investment analysis are deemed robust. If the project IRR exceeds the benchmark under one or more scenarios calculated in the sensitivity analysis, the CPA owners shall provide evidence to demonstrate that such a scenario is unlikely to happen. If such demonstration cannot be substantiated with sufficient evidence the CPA will be considered as non-additional.

Step 3: Barrier analysis

This step will not be applied, except in cases where the results of the investment analysis are negative, and exceptional barriers exist that make a particular CPA additional pursuant to “Tool for the demonstration and assessment of additionality” - version 07.0.0.

²¹ A $\pm 10\%$ band is consistent with Decision No. 709/QĐ – NLDK issued by the Ministry of Industry, dated 13 April 2004 to provide temporary guidelines for conducting the economic, financial and investment analysis and providing the purchasing-selling price frame for power generation projects. It is also common-practice for sensitivity analysis for additionality demonstration. Furthermore, $\pm 10\%$ is also a common practice rate for sensitivity analysis of a CDM project

Step 4: Common practice analysis

For the purpose of common practice analysis, hydropower projects in the whole Viet Nam are taken into account. Therefore, the entire host country is chosen as the applicable geographical area.

Sub-step 4a: Analyse other activities similar to the proposed project activity

According to the para 58 of the "Tool for the demonstration and assessment of additionality", version 07.0.0, latest version of the 'guideline on common practice' available on the UNFCCC website shall be applied. As per common practice tool, the project activity falls in the type of "Switch of technology with or without change of energy source, including the use of renewable energies" which listed in the para 10 (b) of the tool. Therefore, the following Steps wise approached according to the 'common practice' tool shall be applied to analyze the common practices for the proposed project.

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.

Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number N_{all} . Registered CDM project activities and projects activities undergoing validation shall not be included in this step;

Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number N_{diff} .

Step 4: Calculate factor $F = 1 - N_{diff} / N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

The proposed project activity is a "common practice" within a sector in the applicable geographical area if both the following conditions are fulfilled:

- (a) the factor F is greater than 0.2, and
- (b) $N_{all} - N_{diff}$ is greater than 3.

If the CPA is not common practice as per sub-step 4b and if the CPA has been determined to be additional as per step 2 or 3 then the CPA will be considered additional and can be included in the Viet Nam Small Hydro PoA.

SECTION D. Start date and duration of PoA**D.1. Start date of PoA**

23 December 2009 (date in which the period for public comments of the PoA-DD and generic and specific CPA-DDs started)

D.2. Duration of PoA

28 years 0 month

SECTION E. Environmental impacts**E.1. Level at which environmental impacts analysis is undertaken**

- 1. Environmental Analysis is done at PoA level ☐
- 2. Environmental Analysis is done at CPA level ☒

The highly localized and site-specific environmental impacts of each hydro project and sub-national environmental policies that may differ across Viet Nam justify a separate environmental

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assessment for each CPA. The environmental analysis for each CPA will be conducted in line with applicable environmental policies that will be identified in each CPA.

E.2. Analysis of environmental impacts

The environmental impact analysis will be done at CPA level

E.3. Environmental impact assessment

The currently effective laws and regulations on environmental impact assessment is the Environment Protection Law of Viet Nam 2005 (Article 18) and Decree No.21/2008/ND-CP dated February 28, 2008, which requires environmental impact assessment (EIA) for hydropower projects with reservoir's capacity of 300,000 m³ or more of water. For CPAs to be included in the future in the PoA, the latest legal documents on EIA requirements available at the decision making time of the CPAs' owners will be applied. The findings of the respective EIA and details on any recommended mitigation measures to minimize the negative impacts and ensure the long-term benefits from a CPA shall be described in the corresponding CPA-DD.

SECTION F. Local stakeholder consultation

F.1. Level at which local stakeholder consultation is undertaken

1. Local stakeholder consultation is done at PoA level ☐
2. Local stakeholder consultation is done at CPA level ☒

The highly localized and site-specific impacts of each hydro project require local stakeholder consultations to be carried out for each CPA at the CPA level.

F.2. Modalities for local stakeholder consultation

Not applicable

F.3. Summary of comments received

Not applicable

F.4. Consideration of comments received

Not applicable

SECTION G. Approval and authorization

The host LoA from Viet Nam was issued on 14/07/2010²²

The LoA from Switzerland was issued on 27/09/2011²³

PART II. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

[XXX]

²²

http://cdm.unfccc.int/filestorage/2/T/6/2T6SPHQVN1AEZY8RG7XWFI0KJMODCL/PoA_Hydro_VN%20%28Vietnam%20LoA%29.pdf?t=QTN8cGtlaXlIfDBx7CUGn6_ISn1GGR4dYC7c

²³

http://cdm.unfccc.int/filestorage/3/E/R/3ER4DJZGBK0AW7IHSQ8C19XTV256YP/PoA_Hydro_VN%20%28Switzerland%20LoA%29.pdf?t=QXF8cGtlaXo3fDDVqDQ6wpKYid6l7T9VgH0c

H.2. Reference number of generic CPA

[XXX]

H.3. Purpose and general description of generic CPA

The CPA involves the construction of a [capacity] hydropower plant, which is located on [river] river in [commune] commune, [district] district, [province] province of Viet Nam. The CPA's installed capacity and estimated annual gross power generation is [XXX]MW and [XXX] MWh.

[project description]

The project's contributions to the sustainable development of the local area as well as the host country are as follows:

General contributions towards national sustainable development:

- [XXX]

Contributions towards local sustainable development:

a) Economic well-being

- [XXX]

b) Social well-being

- [XXX]

[conclusion]**H.4. Technologies/measures**

The CPA involves the construction of [XXX] in order to convert potential flowing energy from the [XXX] river into clean electrical energy, which will be supplied to the national grid at the connection point. At the connection point, the power meter systems will be installed. They are digital and bi-directional type to measure the export and import of electricity by [XXX] Hydropower plant.

Figure 1 shows the layout of the project plant.

[XXX]

Figure 1: Project lay-out

The main equipment of the CPA is shown in Table below.

Table 1. Main equipment used in the proposed project activity

Main parameters	Units	Values
<i>1. Turbine</i>		
• Type		
• Diameter of runner	m	
• Rated net head	m	
• Number of turbine	set	
• Turbine discharge	m ³ /s	
• Capacity	MW	

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• Speed	rpm	
• Annual utilisation hours	hour	
• Efficiency	%	
• Expected lifetime	hour	
2. Generator		
• Number	set	
• Type		
• Rated voltage	kV	
• Rated capacity	MW	
• Efficiency at load = XXX, Cosφ = XXX		
• Expected lifetime	year	
3. Transformer		
• Number	set	
• Type		
• Rated capacity	MVA	
• Primary voltage	kV	
• Secondary voltage	kV	
• Expected lifetime	year	
4. Annual river flow		
	m ³ /s	

[XXX]

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

Applied methodology:

- ACM0002 – Grid-connected electricity generation from renewable sources – Version 20.0
(<https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>)

Related tools:

- Tool07 - Tool to calculate the emission factor for an electricity system – Version 07.0
(<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>)
- 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
(<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>)

Standardized baseline:

Not applicable

I.2. Applicability of methodologies and standardized baselines

The applicability of methodology is shown in the below table:

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No.	The applicability criteria of Version 20.0 of ACM0002 are the following:	Version 20.0 of ACM0002 is applicable to a CPA under the proposed PoA because:
1	<p>This methodology is applicable to grid-connected renewable energy power generation project activities that:</p> <ul style="list-style-type: none"> (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plant(s)/unit(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s). 	<p>A CPA under the proposed PoA will consist of a renewable energy generation plant/unit (hydro) that supplies electricity and displaces electricity from an electricity distribution system (the national grid) that would have been supplied by at least one fossil fuel fired generating unit (thermal power plants in the national grid).</p>
2	<p>The methodology is applicable under the following conditions:</p> <ul style="list-style-type: none"> (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. 	<p>A CPA under the proposed PoA will consist of a renewable energy generation plant/unit (hydro), this criteria is applicable.</p> <p>N/A. A CPA under the proposed PoA will not include any activities that consist of capacity additions, retrofits or replacements.</p>
3	<p>In case of hydro power plants, one of the following conditions shall apply:</p> <ul style="list-style-type: none"> (a) The project activity is implemented in an existing single or multiple reservoir, with no change in the volume of any of the reservoir 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 (7), is greater than 4 W/m²; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m² (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 (7), is lower than or equal to 4 W/m², all of the following conditions shall apply: <ul style="list-style-type: none"> (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: <ul style="list-style-type: none"> a. Lower than or equal to 15 MW; and b. Less than 10 percent of the installed capacity of integrated hydro power project. 	<p>A CPA under the proposed PoA will be a hydro power plant/unit either with a run-of-river reservoir or accumulation reservoir. In case the CPA utilizing new single or multiple reservoirs, the power density of each reservoir must be greater than 4 W/m² with or without the volume increased.</p>
4	<p>In the case of integrated hydro power projects, project proponent shall:</p>	<p>N/A. A CPA under the proposed PoA will be a hydro power plant/unit</p>

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	<p>(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</p> <p>(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</p>	<p>either with a run-of-river reservoir or accumulation reservoir, not be integrated hydro projects.</p>
5	<p>This methodology is not applicable to:</p> <p>(a) Project activities that involve switching from fossil fuels to renewable energy at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site</p> <p>(b) Biomass fired power plants/ units</p>	<p>A CPA under the proposed PoA does not involve switching from fossil fuels to renewable energy sources at the site of the CPA.</p> <p>A CPA under the proposed PoA shall not develop biomass fired power plants.</p>
6	<p>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".</p>	<p>N/A. A CPA under the proposed PoA will not include any activities that consist of retrofits, rehabilitations, replacements or capacity additions.</p>
7	<p>The PoA may consist of one or several types of CPAs. CPAs are regarded to be of the same type if they are similar with regard to the demonstration of additionality, emission reduction calculations and monitoring. The coordinating/managing entity (CME) shall describe in the CDM-PoA-DD for each type of CPAs separately.</p>	<p>A CPA included in the PoA is grid-connected hydropower project which have a maximum installed capacity below or equal to 30 MW to be qualified as a small hydropower plant under Vietnamese regulations.</p> <p>A CPA to be included in the proposed PoA shall meets the following criteria as mentioned in section K.</p>
8	<p>Eligibility criteria for CPA inclusion used for each type of CPAs</p>	<p>Eligibility criteria for CPA inclusion is mentioned in section K.</p>
9	<p>The CME shall describe transparently and justify in the CDM-PoA-DD which CPAs are regarded to be of the same type. CPAs shall not be regarded to be of the same type if one of the following conditions is different:</p> <p>(a) The project activity with regard to any of the following aspects:</p> <p>(i) Renewable energy power generation technology;</p> <p>a. Hydro-power plant/unit;</p> <p>i. Hydropower plant/unit with reservoir;</p> <p>ii. Hydropower plant/unit without reservoir;</p> <p>(ii) Project activity type:</p> <p>a. Greenfield;</p>	<p>CPAs in the PoA are hydropower plants with reservoir or pondage (ROR), thus they are same type.</p> <p>A CPAs included in the PoA is a</p>

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	<ul style="list-style-type: none"> b. Capacity addition; c. Retrofit of existing operating plant/unit; d. Rehabilitation of existing plant/unit; e. Replacement of existing plant/unit; <p>(b) The legal and regulatory framework;</p> <ul style="list-style-type: none"> (i) Legal regulations; (ii) Promotional policies. 	<p>greenfield hydropower project.</p> <p>All CPAs included in the PoA are compliance with the legal and regulatory framework for electricity sector in Vietnam such as 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 which are the main laws that govern the electricity sector in Vietnam. 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..</p>
10	<p>When defining eligibility criteria for CPA inclusion for a distinct type of CPAs, the CME shall consider relevant technical and economic parameters, such as:</p> <ul style="list-style-type: none"> (a) Technical and economic parameters that are technology specific (e.g. ranges of load factors, sizes of installation, wind speed); (b) Parameters reflecting the investment climate: <ul style="list-style-type: none"> (i) Subsidies or other financial flows; (ii) Tariffs; (iii) Depreciation; (iv) Power purchase agreements; (v) Other parameters determining market circumstances; (c) Ranges of costs (capital investment, operating and maintenance costs, etc.) and revenues (income from electricity sale, subsidies/fiscal incentives, official development assistance (ODA)). 	<p>N/A. CPAs included in the PoA are one type of CPA, i.e a grid-connected hydropower project, thus, the criteria is not applicable.</p>
11	<p>When Option (ii) in the latest approved version of the "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities" is applied, that is related to defining technical and economic criteria as ranges of values for each input parameter required for the inclusion of the CPA in the PoA-DD, the eligibility criteria related to costs, revenues and investment climate shall be updated every two years in order to correctly reflect the technical and market circumstances of a CPA implementation</p>	<p>CPAs included in the PoA are one type of CPA and applied only one methodology, i.e ACM0002, version 20.0, the criteria is not applicable.</p>

I.3. Application of multiple methodologies

Not applicable

I.4. Project boundary, sources and greenhouse gases (GHGs)

According to ACM0002 version 20.0, the spatial extent of the CPA boundary includes the CPA power plant and all power plants connected physically to the local grid that the CPA is connected to.

The greenhouse gases and emission sources included in or excluded from the project boundary are shown in the table below.

Table 1: Emissions sources included in or excluded from the project boundary

	Source	GHG	Included?	Justification/Explanation
Baseline	CO ₂ emission from electricity generation in fossil fuel fired power plants that are displaced due to the CPA.	CO ₂	Yes	Main emission source.
		CH ₄	No	Minor emission source.
		N ₂ O	No	Minor emission source.
Project activity	Emissions of CH ₄ from the reservoir.	CO ₂	No	Minor emission source.
		CH ₄	Yes	Main emission source from plants in reservoir. ²⁴
		N ₂ O	No	Minor emission source.

I.5. Establishment and description of baseline scenario

CDM project standard for programmes of activities, version 2.0, item 11 “*Renewal of programme of activities period and renewal of crediting period of component project activities*”, paragraph 287, 288, 289 and 291 state that:

"287. The coordinating/managing entity shall describe how to demonstrate the validity of the original baseline or how to update it for each of the corresponding CPAs in accordance with the provisions in paragraphs 288–291 below.

288. To demonstrate the validity of the original baseline or its update, the coordinating/managing entity is not required to re-assess the baseline scenario. Instead, the coordinating/managing entity shall assess the modalities to calculate GHG emission reductions or net anthropogenic GHG removals that would have resulted from that scenario.

289. The coordinating/managing entity shall assess and incorporate the impact of national and/or sectoral policies and circumstances existing at the time of requesting renewal of the PoA period on the modalities to estimate baseline GHG emissions for the subsequent crediting period of each corresponding CPA, without reassessing the baseline scenario.

291. If data and parameters used for determining the original baseline, that were determined ex ante and not monitored during the PoA period, are no longer valid, the coordinating/managing entity shall update such data and parameters in accordance with the “Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”.

The project is a registered PoA project. Therefore, the reassessment of the baseline scenario is not required.

According to version 20.0 of ACM0002, if the project activity is the installation of a new grid-connected renewable power plant, the baseline scenario is defined as the following:

²⁴ As per version 12.3.0 of ACM0002, this emission source only needs to be considered for CPAs that have reservoirs with a power density (PD) less than 10 W/m²

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"Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin calculations described in the "Tool to calculate the emission factor for an electricity system".

The Viet Nam national electricity grid, which is operated and monopolized by the EVN, is the unique transmission and distribution line, to which all power plants in Viet Nam are physically connected. Therefore the Viet Nam national electricity grid is the project electricity system.

Thus the baseline scenario of CPAs included in the Viet Nam Small Hydro PoA is the delivery of equivalent amount of annual power output from the Viet Nam national grid to which the proposed CPA is also connected. In the absence of the CPA, the clean energy generated by this proposed CPA would have been generated through non-renewable sources from Power Plants connected to the National grid, fostering the emission of greater quantities of green house gases.

The combined margin emission factor of the National grid will be calculated according to the "Tool to calculate the emission factor for an electricity system" version 07.0. The CO₂ emission factors for power generation in the National grid are calculated based on the database provided by EVN.

The analysis and description in section I.6 will support the baseline scenario shown above.

The stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period is conducted following methodological tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (Version 03.0.1, EB 66, Annex 47). 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

The "Procedures for the renewal of the crediting period of a registered CDM project activity" approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline.

The validity of the current baseline is assessed using the following sub-steps:

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

According to the registered PoA, in the absence of the project activity, electricity which will be supplied to the national grid would come from fossil fuel power plants. The generation of electricity by burning fossil fuels result in CO₂ emission into the atmosphere. Hence, the baseline scenario of the project is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected fossil fuel power plants and by the addition of new generation sources.

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 Vietnam. 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. National policy and regulation does not mandate setting up renewable power plants from existing capacity. Thus it can be concluded that the current baseline scenario is in compliance with relevant mandatory national and sectoral policies.

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 PoA.

Deleted: The latest report of Emission Factor of Vietnam Electricity System, published by Department of Climate Change, Ministry of Natural Resources and Environment of Vietnam on 12/03/2020 effects the baseline GHG emission, and the reassessment of the baseline emissions by applying the data of the latest report is presented in the section I.6 below.¶

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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.

The emission factor of the Vietnam national grid applied for the 1st crediting period was 0.5558 tCO₂/MWh which was set fixed ex-ante at PoA level. As per As per paragraph 99 of "Tool to calculate the emission factor for an electricity system", version 07.0.0, emission factor will be specified at CPA level. However, new circumstances will not impact 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.

This sub-step should only be applied if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

Since the baseline scenario identified during the validation of the project activity was electricity generation in power plants that are displaced due to the project activity and 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. 19/08/2026) as fossil fuel dominated grid will exceed the crediting period for which renewal is requested. Therefore, this sub-step is not applicable for the PoA.

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".

In the registered PoA, the grid emission factor was calculated as per the combined margin approach described in the "Tool to calculate the emission factor for an electricity system" version 02.2.1. The grid emission factor was calculated as the weighted average of OM & BM; and was fixed ex-ante for the entire crediting period. Since the emission factors that were determined at the start of the first crediting period are not valid anymore, the data and parameters have been updated for the second crediting period.

As mentioned above, the steps for determining the CO₂ emission factor for an electricity system shall be applied to each CPA. Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period of the PoA in section I.6 below.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline.

The current baseline scenario is still valid.

Step 2.2: Update the data and parameters.

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Deleted: The OM and BM was obtained from official data provided by DNA Vietnam on 12/03/2020. This is the most recent data available during the validation of renewal of crediting period. ¶

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Deleted: 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.¶

As mentioned in step 1.4, all parameters regarding the grid emission factor are updated in the second crediting period.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

The reduced emission is calculated in accordance with the approved consolidated baseline methodology ACM0002, version 20.0.

I. Project emissions (PE_y)

According to the ACM0002, version 20.0, the project emissions are calculated using the following equation:

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

Where:

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

Emissions from fossil fuel combustion ($PE_{FF,y}$)

According to paragraph 33 of ACM0002, version 20.0, for all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. The project activity is a renewable power plant. Therefore, emission from fossil fuel combustion is zero.

$$PE_{FF,y} = 0$$

Project emissions from the operation of dry, flash steam or binary geothermal power plants ($PE_{GP,y}$)

CPAs does not include the operation of dry, flash steam or binary geothermal power plants, thus this emission ($PE_{GP,y}$) = 0.

Therefore, the above equation on the project emissions can be shortened as follows:

$$PE_y = PE_{HP,y}$$

Emissions from water reservoirs of hydro power plant ($PE_{HP,y}$)

For CPAs that result in new reservoirs and/or the increase of existing reservoirs, the power density (PD) of the CPA shall be calculated as follows:

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

Where:

PD	Power density of the CPA (W/m ²).
Cap_{PJ}	Installed capacity of the hydro power plant after the implementation of the CPA (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.

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A_{PJ}	Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the CPA, when the reservoir is full (m^2).
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 (m^2). For new reservoirs, this value is zero.

(a) If the PD is greater than 4 W/m^2 and less than or equal to 10 W/m^2 :

$$PE_{HP,y} = \frac{EF_{Res} * TEG_y}{1000}$$

Where:

$PE_{HP,y}$	Project emission from reservoir of hydro power plants in year y (tCO_2e)
EF_{Res}	Default emission factor for emissions from reservoirs of hydropower plants ($kgCO_2e/MWh$). ²⁵
TEG_y	Total electricity produced by the CPA, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh).

(b) If PD is greater than 10 W/m^2 , then:

$$PE_{HP,y} = 0$$

II. Baseline emissions (BE_y)

Baseline emissions include only CO_2 emissions from electricity generation from fossil fuel fired power plants that are displaced due to the CPA, calculated as follows:

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

Where:

BE_y	Baseline emissions in year y (tCO_2).
$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CPA in year y (MWh).
$EF_{grid,CM,y}$	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh).

Calculation of $EG_{PJ,y}$

Because the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

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

Where:

$EG_{PJ,y}$	= Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)
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²⁵ Default value was $90 \text{ Kg } CO_2e / MWh$ as per EB23.

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

Therefore, the baseline emissions are calculated as follows:

$$BE_y = EG_{\text{facility},y} * EF_{\text{grid},CM,y}$$

Calculation of CO₂ emission factor of the national grid

For CPAs that will be included during the second PoA renewal period, the emission factor is calculated using:

- Latest national data at the time of CPA-DD submission to the DOE for inclusion of PoA: The database will be published by the host country DNA of Vietnam, Department of Climate Change, Ministry of Natural Resources and Environment of Vietnam.
- Latest calculation tool: The Version 07.0 of : "Tool to calculate the emission factor an electricity system" valid from 31/08/2018 onward,

As per version 07.0 of "Tool to calculate the emission factor for an electricity system", following steps are applied in the calculation of the emission factor for the baseline scenario:

- Step 1:** Identify the relevant electricity systems;
- Step 2:** Choose whether to include off-grid power plants in the project electricity system (optional);
- Step 3:** Select a method to determine the operating margin (OM);
- Step 4:** Calculate the operating margin emission factor according to the selected method;
- Step 5:** Calculate the build margin (BM) emission factor;
- Step 6:** Calculate the combined margin (CM) emission factor

Step 1. Identify the relevant electricity systems

CPAs under the PoA will be connected to the national electricity grid of Vietnam, which is operated and monopolized by the EVN. This national electricity grid is the unique transmission and distribution line, to which all power plants in Vietnam are physically connected. Hence the national electricity grid is the project electricity system.

There are electricity imports to the national electricity grid from China - another host country, thus the China Power Grid is the connected electricity system and the emission factor for the imported electricity is zero tons CO₂ per MWh by default.

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

There are two options to calculate the operating margin and build margin emission factor:

- Option 1:** Only grid power plants are included in the calculation;
- Option 2:** Both grid power plants and off-grid power plants are included in the calculation

Because only the data of grid connected power plants is available, so Option 1 will be chosen for calculating the grid emission factor.

Step 3. Select a method to determine the operating margin (OM);

The calculation of the operating margin emission factor ($EF_{\text{grid},OM,y}$) is based on one of the following methods:

- a) Simple OM; or
- b) Simple adjusted OM; or

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c) Dispatch data analysis OM; or

d) Average OM.

The method (a) "Simple OM" can be chosen in Vietnam.

The data vintage which is used to calculation the Simple OM emission factor is the Ex-ante option of a 3-year generation-weighted average that is the most recent data available at the time of inclusion of CPA under the second PoA renewal period.

Step 4. Calculate the OM emission factor according to the selected method

The simple OM emission factor is calculated as the generation-weighted average 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.

Simple OM may be calculated by one of the following two options:

Option A: Based on the net electricity generation and a CO₂ emission factor of each power unit; or

Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system

Because the necessary data for Option A is available so Option A "Calculation based on average efficiency and electricity generation of each plant" is used and then the simple OM emission factor is calculated as follows:

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

Where:

$EF_{grid,OMsimple,y}$ = Simple operating margin CO₂ emission factor in year y (t CO₂/MWh)

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

$EF_{EL,m,y}$ = CO₂ emission factor of power unit m in year y (t CO₂/MWh)

m = All power units serving the grid in year y except low-cost/must-run power units

y = The relevant year as per data vintage chosen in Step 3

Because the data on fuel consumption and electricity generation of power unit m is available, so the emission factor ($EF_{EL,m,y}$) should be determined as Option A1 :

$$EF_{EL,m,y} = \frac{\sum_i FC_{i,m,y} \times NCV_{i,y} \times EF_{CO2,i,y}}{EG_{m,y}}$$

Where:

$EF_{EL,m,y}$ = Simple operating margin CO₂ emission factor in year y (t CO₂/MWh)

$FC_{i,m,y}$ = Amount of fuel type i consumed by power unit m in year y (Mass or volume unit)

$NCV_{i,y}$ = Net calorific value (energy content) of fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,y}$ = CO₂ emission factor of fuel type i in year y (t CO₂/GJ)

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

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- m = All power units serving the grid in year y except low-cost/must-run power units
- i = All fuel types combusted in power unit m in year y
- y = The relevant year as per the data vintage chosen in Step 3

Step 5. Calculate the BM emission factor

In terms of vintage of data, one of the following two options can be chosen:

Option 1 - For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CPA-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period, or

Option 2 - For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

The information on units already built for sample group m is available, so Option 1 shall be chosen for CPAs.

The BM emissions factor is the generation-weighted average emission factor (tCO₂ /MWh) of all power units m during the most recent year y at the time of inclusion of CPA under the second PoA renewal period for which power generation data is available. It is calculated as follows:

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

Where:

- EF_{grid,BM,y} = Build margin CO₂ emission factor in year y (tCO₂/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} = CO₂ emission factor of power unit m in year y (t CO₂/MWh)
- m = Power units included in the build margin
- y = Most recent historical year for which power generation data is available

Step 6. Calculate the CM emission factor

According to the tool, the calculation of the combined margin (CM) emission factor (EF_{grid, CM,y}) is based on one of the following methods:

- (a) Weighted average CM; or
- (b) Simplified CM

The CME chooses the weighted average CM method to calculate CM emission factor for the PoA.

The combined margin emissions factor is calculated as follows:

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

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Where:

$EF_{grid,CM,y}$	=	Combined margin CO ₂ emission factor of national grid in year y (tCO ₂ /MWh)
$EF_{grid,OM,y}$	=	Operating margin CO ₂ emission factor of national grid in year y (tCO ₂ /MWh)
W_{OM}	=	Weighting of operating margin emissions factor (%)
$EF_{grid,BM,y}$	=	Build margin CO ₂ emission factor of national grid in year y (tCO ₂ /MWh)
W_{BM}	=	Weighting of build margin emissions factor (%)

According to version 07.0 of the "Tool to calculate the emission factor for an electricity system", the weightings of both operating margin emission factor and build margin emission factor will be linked to crediting period of CPAs that will be included during the second PoA renewal period.

For the first crediting period of CPAs: The following default weightings are applied:

$$W_{OM} = 0.5 \text{ and } W_{BM} = 0.5$$

For the second crediting period of CPAs: The following default weightings are applied:

$$W_{OM} = 0.25 \text{ and } W_{BM} = 0.75$$

The CM emission factor shall be calculate ex-ante at CPA level.

III. Leakage (LE_y)

According to ACM0002, version 20.0, no leakage emissions are considered. Thus, $LE_y = 0$.

IV. Emission reductions (ER_y)

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y	Emission reductions in year y (tCO ₂ e)
BE_y	Baseline emissions in year y (tCO ₂ e)
PE_y	Project emissions in year y (tCO ₂)

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Deleted: The Emission Factor of Vietnam Electricity System was calculated and published by DNA of Vietnam, Department of Climate Change, Ministry of Natural and Environment of Viet Nam on 12/03/2020 using Version 07.0 of "Tool to calculate the emission factor for an electricity system", including: ¶
The operating margin emission factor: $EF_{grid,OM,y} = 0.8795$ tCO₂/MWh¶
And build margin emission factor: $EF_{grid,BM,y} = 0.9465$ tCO₂/MWh¶

The combined emission factor is calculated as follows:¶

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

Where:¶

W_{OM} : Weighting of OM emission factor (%)¶

W_{BM} : Weighting of BM emission factor (%)¶

However, the DNA report applied the weighting factors of both OM and BM emission are 0.5, which is not applicable for the second and third crediting period. ¶

According to the Version 07.0 of "Tool to calculate the emission factor for an electricity system", the following default values are used in the renewal crediting period:¶

$W_{OM} = 0.25$ and $W_{BM} = 0.75$ ¶

So in the renewal crediting period, the CM emissions factor is derived as follows:¶

$$EF_{grid,CM,y} = 0.25 \times 0.8795 + 0.75 \times 0.9465 = 0.92975 \text{ tCO}_2/\text{MWh}¶$$

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I.6.2. Data and parameters fixed ex ante

Data/Parameter	Cap _{BL}
Data unit	MW
Description	Installed capacity of hydropower plant before the implementation of the project activity.
Source of data	This is a green-field project. This value does not exist prior to the implementation of the project activity
Value(s) applied	0
Choice of data or Measurement methods and procedures	The project activity constructs a new hydropower plant, so Cap _{BL} is considered as zero according to version 20.0 of ACM0002.
Purpose of data	For calculating the power density (PD)
Additional comment	N/A

Data/Parameter	A _{BL}
Data unit	m ²
Description	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. For new reservoirs, this value is zero.
Source of data	This is a green-field project. This value does not exist prior to the implementation of the project activity
Value(s) applied	0
Choice of data or Measurement methods and procedures	The project activity builds a new single reservoir, so A _{BL} is considered as zero according to the version 20.0 of ACM0002.
Purpose of data	For calculating the power density (PD)
Additional comment	N/A

Data/Parameter	EF _{grid,OM,y}
Data unit	tCO ₂ /MWh
Description	Operating margin Emission Factor of Vietnam national electricity grid
Source of data	<u>Most data published by DNA Vietnam at time of inclusion CPA under the second PoA renewal period</u>
Value(s) applied	<u>To be specified at CPA level</u>
Choice of data or Measurement methods and procedures	The EF _{grid,OM,y} <u>will be</u> calculated and published by Ministry of Natural resources and Environment, Department of Climate change.
Purpose of data	For calculation of EF _{grid,CM,y}
Additional comment	N/A

Data/Parameter	EF _{grid,BM,y}
Data unit	tCO ₂ /MWh
Description	Build margin Emission Factor of Vietnamese national electricity grid
Source of data	<u>Most data published by DNA Vietnam at time of inclusion CPA under the second PoA renewal period</u>

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Value(s) applied	<u>To be specified at CPA level</u>
Choice of data or Measurement methods and procedures	The $EF_{grid,OM,y}$ <u>will be</u> calculated and published by Ministry of Natural resources and Environment, Department of Climate change.
Purpose of data	For calculation of $EF_{grid,CM,y}$
Additional comment	N/A

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Data/Parameter	$EF_{grid,CM,y}$
Data unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor for an electricity system".
Source of data	Data published DNA Viet Nam (Ministry of Natural resources and Environment, Department of Climate Change)
Value(s) applied	<u>To be specified at CPA level</u>
Choice of data or Measurement methods and procedures	The $EF_{grid,CM,y}$ <u>will be</u> calculated using published <u>most</u> data by Ministry of Natural resources and Environment, Department of Climate Change <u>at time of inclusion CPA under the second PoA renewal period</u> and Version 07.0 of "Tool to calculate the emission factor for an electricity system".
Purpose of data	Fixed for the second crediting period.
Additional comment	N/A

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I.6.3. Modalities for ex ante calculation of emission reductions

Not applicable

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

Data/Parameter	$EG_{y, export}$
Data unit	MWh
Description	Electricity supplied by the proposed CPA to the national grid, i.e. excluding the electricity generated by the proposed CPA used for internal consumption and losses.
Source of data	Direct measurement at the project connection point. .
Value(s) applied	To be specified in each CPA
Measurement methods and procedures	Two-way power meters will be installed at the grid-connected point to measure the amount of electricity supplied and consumed by the proposed project. The readings of electricity meter will be hourly measured and monthly recorded. The recorded data will be confirmed by the joint balance sheet which will be signed by the representatives of EVN and the project owner. Electronic data will be archived within the crediting period and 2 years after the end of the crediting period.
Monitoring frequency	Continuous measurement and monthly recording
QA/QC procedures	The uncertainty level of this data is low. The measurement/ monitoring equipment should be complied with national standard and technology. These equipment and systems should be calibrated and checked according to latest regulation in Vietnam.
Purpose of data	For $EG_{facility,y} = EG_{y, export} - EG_{y, import}$
Additional comment	

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Data/Parameter	EG_{y, import}
Data unit	MWh
Description	Electricity supplied by the national grid to the proposed CPA
Source of data	Direct measurement at the project connection point
Value(s) applied	To be specified in each CPA
Measurement methods and procedures	Two-way power meters will be installed at the grid-connected point to measure the amount of electricity supplied and consumed by the proposed project. The readings of electricity meter will be hourly measured and monthly recorded. The recorded data will be confirmed by the joint balance sheet which will be signed by the representatives of EVN and the project owner. Electronic data will be archived within the crediting period and 2 years after the end of the crediting period.
Monitoring frequency	Continuous measurement and monthly recording
QA/QC procedures	The uncertainty level of this data is low. The measurement/ monitoring equipment should be complied with national standard and technology. These equipment and systems should be calibrated and checked according to latest regulation in Vietnam.
Purpose of data	For $EG_{\text{facility},y} = EG_{y, \text{export}} - EG_{y, \text{import}}$
Additional comment	

Data/Parameter	EG_{facility,y}
Data unit	MWh
Description	Net electricity supplied to the national grid by the proposed project
Source of data	Calculating from $EG_{y, \text{import}}$ and $EG_{y, \text{export}}$. So $EG_{\text{facility},y}$ has been excluded the electricity generated by the proposed project used for internal consumption and losses.
Value(s) applied	To be specified in each CPA
Measurement methods and procedures	Calculating by subtracting $EG_{y, \text{import}}$ from $EG_{y, \text{export}}$. Double checking by the joint balance sheet issued by EVN and project owner to ensure the consistency. Data will be archived within the crediting period and 2 years after the end of the crediting period.
Monitoring frequency	Continuous measurement and monthly recording
QA/QC procedures	The uncertainty level of this data is low. The measurement/ monitoring equipment should be complied with national standard and technology. These equipment and systems should be calibrated and checked according to latest regulation in Vietnam.
Purpose of data	For CERs calculation
Additional comment	

Data/Parameter	TEG_y
Data unit	MWh
Description	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y.
Source of data	To be specified in each CPA
Value(s) applied	To be specified in each CPA
Measurement methods and procedures	Directly measured power meters will be installed at the output of generator to measure the amount of generated electricity. The readings of electricity meter will be monthly recorded. Electronic data will be archived within the crediting period and 2 years after the end of the crediting period.
Monitoring frequency	Continuous measurement and monthly recording
QA/QC procedures	The uncertainty level of this data is low.

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Purpose of data	Applicable to CPAs with a power density (PD) greater than 4 W/m ² and less than or equal to 10 W/m ² .
Additional comment	

Data/Parameter	A_{PJ}
Data unit	m ²
Description	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.
Source of data	Feasibility Study
Value(s) applied	To be specified in each CPA
Measurement methods and procedures	Measured from topographical surveys and maps yearly
Monitoring frequency	Once at the beginning of each crediting period
QA/QC procedures	The uncertainty level of this data is low.
Purpose of data	For the calculation of PD
Additional comment	

Data/Parameter	Cap_{PJ}
Data unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data	Project site
Value(s) applied	To be specified in each CPA
Measurement methods and procedures	Determine the installed capacity by taking photographs of the nameplates. And the value in nameplate will be included in the monitoring report.
Monitoring frequency	Once at the beginning of each crediting period
QA/QC procedures	The capacity of this project will not be changed. The monitoring of Cap_{PJ} will be taken yearly can will be confirmed by the Verifier
Purpose of data	For the calculation of PD
Additional comment	

I.7.2. Sampling plan

Not applicable

I.7.3. Other elements of monitoring plan**1. Monitoring Plan Objective and Organisation**

The purpose of the monitoring plan is to measure the net electricity delivered to the local electricity grid by the CPA. The net electricity will be calculated by subtracting the electricity exported with the electricity imported by the CPA.

To ensure that the data is reliable and transparent, the CPA owner will establish Quality Assurance and Quality Control (QA&QC) measures to effectively control and manage data reading, recording, auditing as well as archiving data and all relevant documents.

2. Monitoring Data and archiving

Data to be monitored is the net electricity delivered to the local regional grid by the project. The monitoring data is derived from periodic electricity meter records kept by the project owners and/or the grid company, which are crosschecked with actual invoices sent by project owners to the grid company. The operator of the hydro plant will be responsible for collecting the monitoring data and

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will provide the CME with meter readings for electricity delivered and if available calibration certificates. Details of the CPA monitoring plan will be described for each CPA.

The data will be archived electronically and be stored for 2 years after the end of the crediting period of each CPA by the CME.

3. Calculation approaches

Calculation of ex-post emission reductions is carried out for each CPA as per following equation:

$$ER_{[CPA],y} = (EG_{[CPA],y,export} - EG_{[CPA],y,import}) * EF_{grid,CM,y} - PE_{[CPA],y}$$

Where:

$ER_{[CPA],y}$ Emission Reductions from [CPA] in year y; t CO₂

$EG_{[CPA],y,export}$ Electricity exported by [CPA] in year y; kWh

$EG_{[CPA],y,import}$ Electricity imported by [CPA] in year y; kWh

$EF_{grid,CM,y}$ CO₂ Emission Factor of the grid where the [CPA] is connected; t CO₂e/kWh

$PE_{[CPA],y}$ Project emissions from [CPA] in year y (tCO₂).

4. Quality Assurance and Quality Control

The installation location of the meters is detailed in each CPA. The CPA owner will implement QA&QC measures to calibrate and guarantee the accuracy of metering and safety of the project operation.

The metering devices will be calibrated and inspected properly and periodically as per standard industry norms and requirements. The grid company and the project owners are responsible for operation and maintenance of their respective electricity meters.

5. Verification of monitoring results

The responsibilities for verification of the projects are defined in each CPA. The CPA also defines the responsibility for providing the DOE with all required necessary information, before, during and in the event of queries, after the verification

SECTION J. Crediting period type and duration

Type of crediting period

Renewable

The second crediting period

Duration of each crediting period

7 years 0 month

SECTION K. Eligibility criteria for inclusion of CPAs

A CPA to be included in the proposed PoA shall meets the following criteria:

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
1	Geographical boundaries	Comprise one or more newly developed grid-connected hydro power plants located within the geographical boundary of Viet Nam.	Geographical boundaries of CPAs are specified their Feasibility Study Report (FSR)

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2	Installed capacity	Have a maximum installed capacity below or equal to 30 MW to be qualified as a small hydropower plant under Vietnamese regulations.	One or more of the following documents shall be provided for validation: <ul style="list-style-type: none"> • FSR • EPC • Nameplate of equipment • Other relevant document
3	Double counting	Be uniquely identified project which is neither registered as a CDM project activity nor included in another registered PoA to avoid double counting of emission reductions.	<ul style="list-style-type: none"> • Available information on the UNFCCC website, • Confirmation of CPA owner for the same
4	Equipment	Use newly built equipment to generate electricity from hydro power	The information on specification of the technology/measure may be validated from one of more of following documents: <ul style="list-style-type: none"> • FSR • Nameplate of equipment • EPC contracts • Power purchase agreement (PPA) • Or other relevant available document.
5	Start date	Have start date after validation start date. Validation start date is defined as the date in which the PoA-DD, and generic and specific CPA-DDs were first uploaded to the UNFCCC website for public inputs (in accordance to EB 55, Annex 38, paragraph 7d) or in the case of the CPA having start date before validation start date, have start date between 22 June 2007 and validation start date and be included in the list that have been provided to UNFCCC for this PoA (in accordance to EB 47 Meeting Report, paragraph 72).	The start date of the CPA may be confirmed by one or more following documents: <ul style="list-style-type: none"> • Equipment Purchase Contract • Start of construction • Or any other document in line with the start date definition as per the glossary of CDM terms

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6	Methodology requirements	<p>Be in line with requirements Methodology ACM0002, version 20.0: "Grid-connected electricity generation from renewable sources" for hydro power projects. The CPA shall meet the following sub-criteria:</p> <ul style="list-style-type: none"> - not include any activities that consist of capacity additions, retrofits or replacements; - be a hydro power plant/unit either with a run-of-river reservoir or accumulation reservoir. In case the CPA utilizing new single or multiple reservoirs, the power density of each reservoir must be greater than 4 W/m² with or without the volume increased - Not result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m² 	<ul style="list-style-type: none"> • Feasibility Study Report (FSR) • Other relevant available document
7	CER rights	<p>Have a cooperation agreement with the CME to participate in the PoA. The Agreement shall clearly state that CPA owner cedes its rights to claim and own emission reductions under the Clean Development Mechanism of the UNFCCC or any voluntary scheme to the CME of the present PoA.</p>	<p>Emission Reduction Purchase Agreement between CPA owner and the CME</p>
8	Additionality	<p>Additionality of GHG emission reductions is demonstrated in accordance to the "Tool for the demonstration and assessment of additionality", version 7.0.0 (for new CPAs). This means the CPA shall meet the following sub-criteria:</p> <ul style="list-style-type: none"> • Demonstrate that the Project IRR is either less than the Commercial Lending rate or less than the Weighted Average Cost of Capital (WACC), in cases where the WACC is chosen as the appropriate Benchmark. It shall also be demonstrated that such conclusion is confirmed by a means of a sensitivity analysis. • CPA is not common practice in Viet Nam. 	<p>Input for calculating investment analysis will taken from:</p> <ul style="list-style-type: none"> • FSR • Published data on local commercial lending rates • Other relevant available document

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9	Stakeholder consultations and environmental impact analysis	Undertake stakeholder consultations and environmental impact analysis as per requirements of the CDM modalities and procedures as well as the relevant laws and regulations of Viet Nam.	The information will be confirmed by following documents: <ul style="list-style-type: none"> • Invitation notice • Meeting minutes • Summary of comments received and how they have been taken into account. • Feasibility Study Approval • Environmental Impact Assessment Report Approval/ Environmental Protection Commitment • Investment Licence • Other relevant document.
10	Diversion of official development assistance	The CPA should have no public funding from Annex I countries resulting into the diversion of official development assistance or public funding.	One of the following document shall be provided: <ul style="list-style-type: none"> • The declaration from the CPA implementer affirming that no funding from Annex I parties is used in the CPA; • Loan funding documents (if applicable)
11	Target group	The CPA should be a grid-connected hydropower project.	Document pertaining to grid connection/ Grid connection agreement/ PPA etc shall be provided.

Appendix 1. Contact information of coordinating/managing entity and project participants

Coordinating/managing entity and/or project participants	<input checked="" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Project participant
Organization name	Vietnam PoA Carbon Management Joint Stock Company
Country	Viet Nam
Address	Floor 6, Alley 85, Le Van Luong Street, Hanoi
Telephone	+ 84 – 4 – 35579753
Fax	+ 84 – 4 – 35579755
E-mail	eec@eec.vn
Website	www.eec.vn
Contact person	Dang Thi Hong Hanh

Coordinating/managing entity and/or project participants	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant
Organization name	South Pole Carbon Asset Management Ltd
Country	Switzerland
Address	Technoparkstrasse 1, Zurich
Telephone	+ 41 44 633 78 70
Fax	--
E-mail	registration@southpolecarbon.com
Website	www.southpolecarbon.com
Contact person	Renat Heuberger

Appendix 2. Affirmation regarding public funding

Viet Nam Small Hydro PoA does not receive public funding

Appendix 3. Applicability of methodologies and standardized baselines

Not applicable

Appendix 4. Further background information on ex ante calculation of emission reductions

No further information

Appendix 5. Further background information on monitoring plan

No further information

Appendix 6. Summary report of comments received from local stakeholders

No further information

Appendix 7. Summary of post-registration changes

No further information

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
09.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the "CDM project standard for programmes of activities" (CDM-EB93-A07-STAN); • Make editorial improvements.
08.1	28 June 2017	Revision to: <ul style="list-style-type: none"> • Remove a duplicated instruction; • Make editorial improvement.
08.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Improve consistency with the "CDM project standard for programmes of activities" and with the PDD and CPA-DD forms; • Make editorial improvement.
07.0	25 May 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with the "CDM project standard for programmes of activities" (CDM-EB93-A07-STAN) (version 01.0); • Incorporate the "Programme design document form for small-scale CDM programmes of activities" (CDM-SSC-PoA-DD-FORM); • Make editorial improvement.
06.0	15 April 2016	Revision to ensure consistency with the "Standard: Applicability of sectoral scopes" (CDM-EB88-A04-STAN) (version 01.0).
05.0	9 March 2015	Revision to: <ul style="list-style-type: none"> • Include provisions related to choice of start date of PoA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Add exception for generic CPA where technology is under positive lists; • Make editorial improvement.
04.1	5 August 2014	Editorial revision to correct the document information table.

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Version	Date	Description
04.0	25 June 2014	<p>Revision to:</p> <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the project design document form for CDM programme of activities (these instructions supersede the Guideline: Completing the programme design document form for CDM programme of activities (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the PoA in B.4 and Appendix 1; • Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Appendix 6; • Change the reference number from F-CDM-PoA-DD to CDM-PoA-DD-FORM; • Make editorial improvement.
03.0	3 December 2012	<p>EB 70</p> <p>Revision to reflect changes to the <i>Guideline: Completing the programme design document form for CDM programmes of activities</i> (EB 70, Annex 6).</p>
02.0	13 March 2012	<p>EB 66</p> <p>Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, annex 12).</p>
01.0	27 July 2007	<p>EB 33, Annex 41</p> <p>Initial publication.</p>
<p>Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, project design document</p>		