Gold Standard for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT **- TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS11415
Title of the project (s) covered by monitoring report	Nhon Hoa 2 Wind Power Project
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	3.0
Version number of the monitoring report	1.5
Completion date of the monitoring report	03/10/2025
Date of project design certification	29/11/2023
Date of Last Annual Report	12/11/2024
Monitoring period number	The 2nd monitoring period
Duration of this monitoring period	01/01/2023 – 31/05/2025 (both dates inclusive)
Project Representative	Monsoon Sustainability Co., Ltd
Host Country	Viet Nam
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	ACM0002 – Grid-connected electricity generation from renewable sources (version 21.0)
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products

SDG 4: Quality Education	Substantially increase the number of youth and adults who have relevant skills for employment	64	People (Number of people that receiving trainings per year)
SDG 7: Affordable and Clean	Ensure access to affordable, reliable, sustainable and modern energy for all	449,720	MWh (MWh of renewable energy generated per annum)
SDG 8: Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (100% of the employees have access to training, healthcare, insurances and better income)	Max 29 staffs (including 18 males and 11 females) (min 23 staffs)	Staff (Jobs per year)
SDG 13: Climate Action (mandatory)	Emissions Reductions	370,095	GS-VERs (tCO_2e per year)

Table 2 – Product Vintages

		Amount Achieved			
Start Dates	**End Dates**	**SDG 4 People**	**SDG 7 MWh**	**SDG 8 Staff**	**SDG 13 GS-VERs**
01/01/2023	31/12/2023	28	173,696	23	142,942
01/01/2024	31/12/2024	18	177,586	23	146,144
01/01/2025	31/05/2025	18	98,438	29	81,009
Amount achieved in this monitoring period		**64**	**449,720**	**Min 23 - Max 29**	**370,095**

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The **Nhon Hoa 2 Wind Power Project** ("NH2 WPP" or "the Project") activity, which is implemented by Nhon Hoa 2 Energy Joint Stock Company involves the construction of a wind power plant in Chu Don commune, Chu Puh district, Gia Lai province, Viet Nam with a total capacity of 50 MW. The Project involves the installation of ten (10) wind turbines with 4.2 MW capacity and two (02) turbines with 4.0 MW capacity. The Project also constructs a 63 MVA transformer station and a 220 kV transmission line.

Prior to the implementation of the project activity, electricity in Viet Nam is generated mainly from fossil fuel sources and is solely distributed to consumers by Viet Nam Electricity (EVN) via the unique national electricity grid. The baseline scenario of the Project Activity is the same as the scenario existing prior to the start of implementation of the project activity. The purpose of the Project Activity is to generate power using a renewable energy source (wind) and to export the electricity to the national grid. The Project reduces the emission of greenhouse gases by replacing electricity generated from fossil fuel-fired power plants with zero emissions electricity from a wind power plant.

The construction of the project started on 30/05/2021 after receiving the land use right transfer decision from the local authority and the project began operations on 14 October 2021.

The start date of the Project's crediting period is 30th November 2021. This Monitoring Report covers the second monitoring period from 01st January 2023 to 31st May 2025 (29 months).

The project's contributions to the local community, the host country as well as global sustainable development as follows:

<u>Contributions towards local sustainable development:</u>

Economic well-being

- The Project Activity increases the industrial share in the economic structure of Gia Lai province. The Project Activity has a significant contribution to the state budget via annual taxes (i.e., corporate income tax).
- By supplying a stable electricity output, this Project Activity facilitates the industrialization process of the province and supports the economic development of local villages through fostering tourism, trade and services inside the province.
- This Project Activity supplies electricity to speed up the commissioning of other large infrastructure projects in the region.

Social well-being

- The Project Activity will contribute directly to improving the low-quality infrastructure systems of the communes. Thus, the Project will partly improves local living standards and contributes to filling the gap in development between different regions in Viet Nam.
- The Project Activity comprises a new transmission line together with the wind power plant, which will reduce electricity losses and improve the quality of electricity supply in the region.
- The Project Activity will result in the direct employment of local people for the operation phases. Therefore, this Project Activity will contribute directly to alleviating poverty in the region.

  The Project Activity involves training and education of new people on project technology (i.e., wind power) and relevant skills for employment. Hence, this Project Activity partly contributes to ensuring quality education for local people resulting in decent jobs and financial security.

Contributions towards national sustainable development:

- The Project Activity contributes to providing electricity for Vietnam by directly exporting power to the national grid, positively impacting economic growth as well as the daily lives of people, while reducing dependence on fossil fuel-based energy sources.
- Modern and highly efficient turbines and generators are being used in the Project Activity and the power transmission is at high voltage to ensure low losses. The Project Activity accelerates the deployment of renewable energy technologies in Vietnam.

Contributions towards global sustainable development:

- SDG 4: The Project Activity provides capacity building and different training services for employment (e.g., technical skillset related to wind operation, remotely monitoring systems SCADA, technical software, etc) of new wind project technology through its project lifetime. Hence, this contribution is relevant to the SDG 4 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'.
- SDG 7: The Project Activity generates electricity from the sustainable and renewable energy and contributes to increase the share of renewable energy in the global energy mix through the entire project operation activity. This positive

impact thus promotes contributing to the SDG 7 'Ensure access to affordable, reliable, sustainable and modern energy for all'.

- SDG 8: The Project Activity supports the creation of direct and indirect employment as well as income generation opportunities for people throughout the project lifetime as well as increases the opportunities to the other allied services at the locality which contributes the SDG 8 'Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all'.
- SDG 13: The Project Activity generates renewable energy-based electricity and mitigates the CO_2 emissions which would have been generated from the fossil-fuel based power plants. Therefore, the Project contributes to the SDG 13 by avoiding the climate change 'Take urgent action to combat climate change and its impacts'.

In conclusion, the Project Activity contributes positively towards sustainable development goals.

The key implementation timeline of the Project is listed in below table.

Table 3 – The List of Key Events of Project Activity

Date	Key events
27/06/2019	Land use planning approval
28/10/2019	Local stakeholder consultation
25/06/2020	Decision to include in master plan
14/09/2020	Connection Agreement
16/10/2020	Finalizing the FSR report
06/11/2020	Board management decision on project investment
02/12/2020	Construction permit
07/12/2020	Signing the Equipment supply contract and start date of the Project
15/12/2020	Power Purchase Agreement
01/2021	Environment protection management plan
29/05/2021	Land use right transfer decision

30/05/2021	Start the construction
10/10/2021	First submission for GS4GG preliminary review
14/10/2021	First commercial operation date for seven Wind Turbine Generators
22/10/2021	Second commercial operation date for the remaining five Wind Turbine Generators
09/01/2023 - 12/01/2023	Combined onsite Validation and Verification by VVB
29/11/2023	Project Design Certification Date approved by GS
16/02/2024	Project Performance Review approved by GS
24/05/2024	First Issuance Date of VERs from period of 30/11/2021 – 31/12/2022
30/11/2021 – 29/11/2026	The first crediting period

A.2. Location of project

The NH2 WPP is located in Chu Don commune, Chu Puh district, Gia Lai province, Viet Nam.

The geo-coordinates of the turbines are as follows:

Table 4 – Geo-coordinates of the Turbines[1]

#	Turbine Series No.[2]	Turbine Model[3]	Location	
			Latitude	Longitude

[1] Service and Energy Based Availability Agreement (AOM 5000) Between Nhon Hoa 2 Wind Electricity Joint Stock and Vestas Wind Technology Vietnam LLC
[2] Actual WTG IDs provided by VESTAS and managed through SCADA system
[3] Decision No. 1600/QD-DDMT on the Numbering of Equipment at Nhon Hoa 2 Wind Power Plant, dated 29th July 2022

NH2 - T1	242782	V150-4.2MW	13.555646	108.076763
NH2 - T2	242783	V150-4.2MW	13.552925	108.076558
NH2 - T3	242784	V150-4.2MW	13.550938	108.082283
NH2 - T4	242785	V150-4.2MW	13.547776	108.082058
NH2 - T5	242786	V150-4.2MW	13.543169	108.070931
NH2 - T6	242787	V150-4.2MW	13.531955	108.074562
NH2 - T7	242788	V150-4.2MW	13.540951	108.072664
NH2 - T8	242789	V150-4.2MW	13.529957	108.077396
NH2 - T9	242790	V150-4.2MW	13.527888	108.079852
NH2 - T10	242791	V150-4.2MW	13.525225	108.080318
NH2 - T11	242792	V150-4.0MW	13.550428	108.075386
NH2 - T12	242793	V150-4.0MW	13.548744	108.072920

The location of the project's site is shown in Figure below:

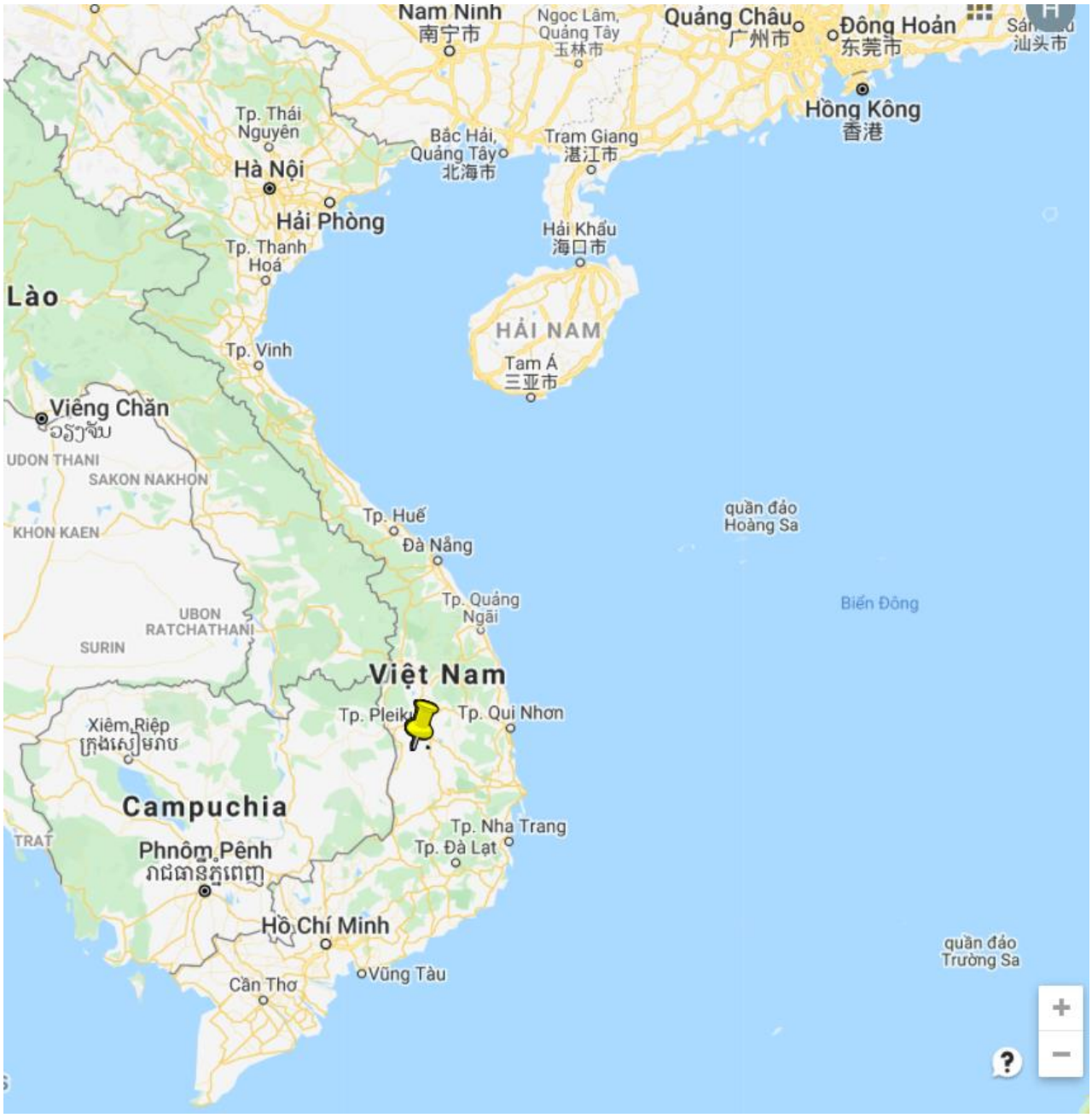


Figure 1 – Project's Location

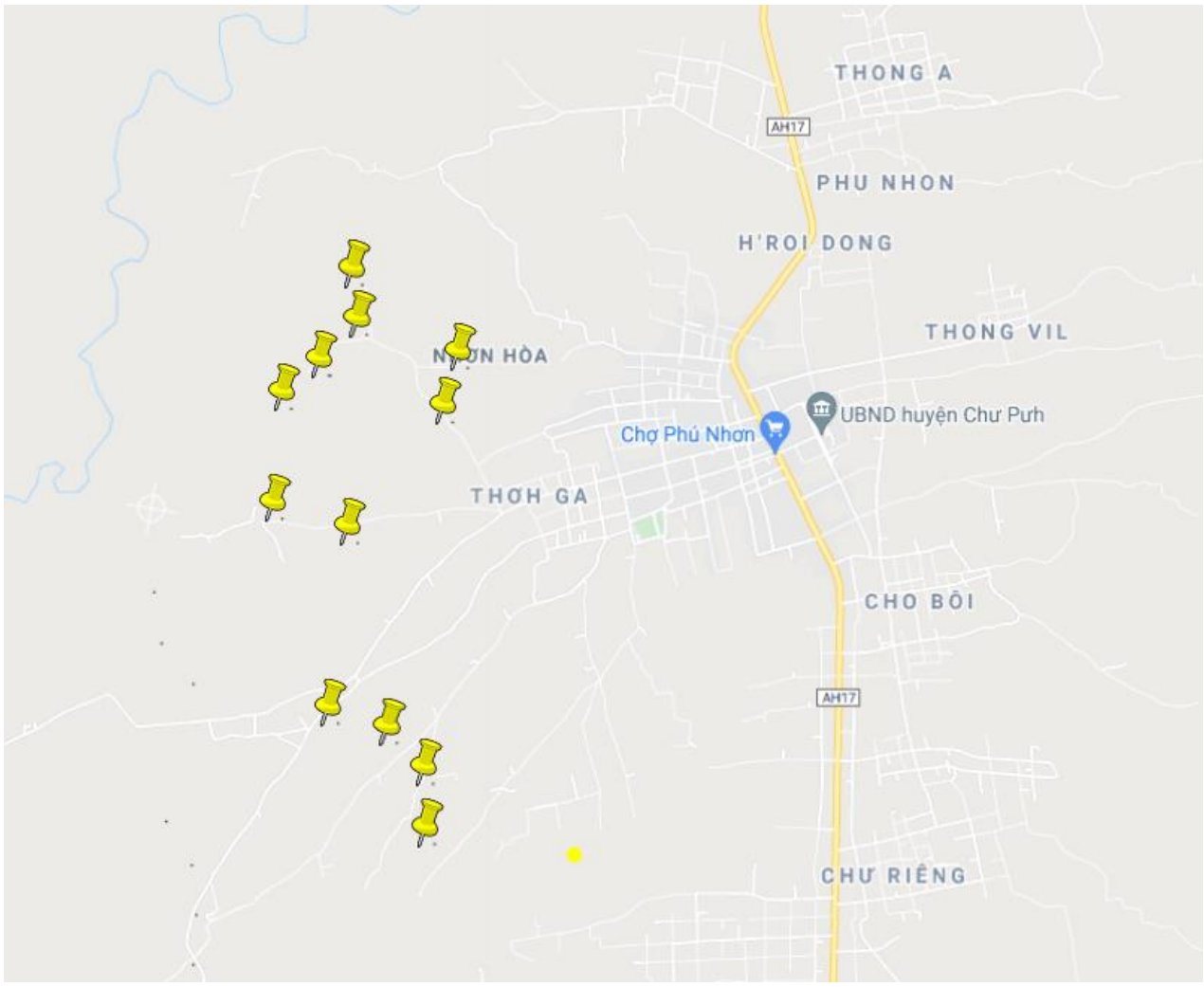


Figure 2 – Turbines' Location

A.3. Reference of applied methodology

Reference	Methodology - Tools	Version	Link
ACM0002	Grid-connected electricity generation from renewable sources	21.0	https://cdm.unfccc.int/methodologies/DB/HF3LP6O41YY0JIP1DK6ZRJO9RSCX3S
Tool 01	Tool for the demonstration and assessment of additionality	7.0	https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf
Tool 07	Tool to calculate the emission factor for an electricity system	7.0	https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

A.4. Crediting period of project

Start date of crediting period: 30/11/2021.

End date of crediting period: 29/11/2026.

Total length of crediting period: 15 years, 0 months (two times renewal) as per Renewable Energy Activity Requirements, version 1.4, paragraph 4.4.2, page 10[4]. The period from 30/11/2021 to 29/11/2026 (both dates inclusive) is the first 5 years crediting period.

The 1st monitoring period is from 30/11/2021 to 31/12/2022, which belongs to the first crediting period.

The 2nd monitoring period is from 01/01/2023 to 31/05/2025, which belongs to the first crediting period.

[4] Available at https://globalgoals.goldstandard.org/202-ar-renewable-energy-activity-requirements/

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The Project involved the installation and operation of ten (10) wind turbines with 4.2 MW capacity and two (02) turbines with 4.0 MW capacity which is total 50 MW installed capacity. The Project also involved the construction of a 63 MVA transformer station and a 220 kV transmission line. The Project began operation on 14 October 2021.

As per the registered PDD, the Project is estimated to generate 164,834 MWh of electricity per year, which is supplied to the Vietnam national grid EVN. During this second monitoring period 01/01/2023 to 31/05/2025, the Project generates a total of 449,720 MWh, with 173,696 MWh in 2023; 177,586 MWh in 2024; and 98,438 MWh in 2025 (5 months). Hence, reducing emissions is 370,095 tCO_2e during the 29-month monitoring period, with 142,942 tCO_2e in 2023; 146,144 tCO_2e in 2024; and 81,009 tCO_2e in 2025 (5 months). Refer to Section D.2 Data and parameters monitored D.2 Data and parameters monitoredand E.2. Calculation of project value or estimation of project situation of each SDG Impact for further details.

The technical parameters of the wind turbines are as follows.

Table 5 – Main Technical Parameters of NH2 WPP[5]

Main parameter	Unit	Value
1. Turbine 4.2 MW		
Type		V150
Rated power	MW	4.2
Mechanical Design		Rotor: 3 bladed, upwind Hydraulic Pitch controlled
Number of turbines	set	10
2. Turbine 4.0 MW		
Type		V150
Rated power	MW	4.0

[5] Actual Project final design

Main parameter	Unit	Value
Mechanical Design		Rotor: 3 bladed, upwind Hydraulic Pitch controlled
Number of turbines	set	2
3. Generator		
Type		Three-phase
Rated capacity	kVA	4,500
Voltage	kV	0.72
Frequency	Hz	50
Number of generators	set	12
4. Main transformer		
Type		Three phases
Frequency	Hz	50
Voltage	kV	33/220 (grid side)
5. Technical lifetime of the plant	year	20[6]

The single line diagram of the Project is shown below:

[6] Service and Energy Based Availability Agreement AOM5000 dated 07 December 2020, between VESTAS Wind Technology Vietnam LLC and Nhon Hoa 2 Wind Electricity JSC, page 38, "Availability Term" of 20 years for WTGs

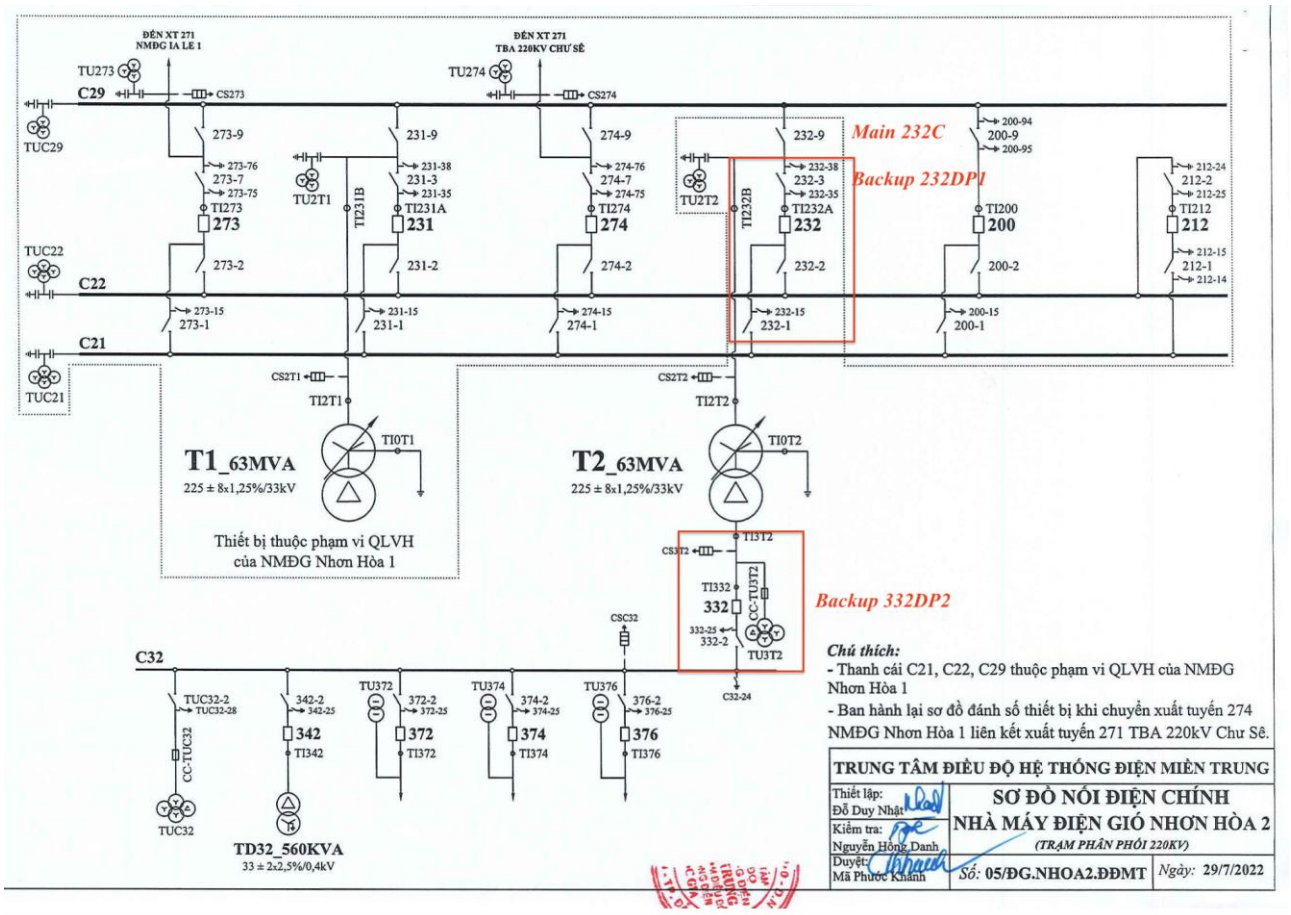


Figure 3 – Single Line Diagram of NH2 WPP

B.1.1 Forward Action Requests

The Project has no Forward Action Requests from the previous Validation and Verification processes.

B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

No temporary deviations from the registered monitoring plan or applied methodology have been applied during this second monitoring period.

B.2.2. Corrections

No corrections to project information or parameters fixed at validation have been approved during this second monitoring period or submitted with this monitoring report.

B.2.3. Changes to start date of crediting period

No changes of the Project's start date of crediting period. Hence, the first crediting period is 30/11/2021 to 29/11/2026 (both dates inclusive), 5 years and 0 months.

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable.

B.2.5. Changes to project design of approved project

No Project design changes from the approved PDD.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The monitoring system is designed in accordance with the requirements of methodology ACM0002, Grid-connected electricity generation from renewable sources (Version 21.0).

C.1. Management structure

The purpose of the management structure is to define the organizational structure of the monitoring team, monitoring practices, QA/QC procedures and archiving procedures.

A monitoring plan ensures that the emission reductions from the Project Activity are reported accurately and transparently. In detail, the data for the Project is compiled by the operational and maintenance (O&M) team and subsequently stored by the Project owner. The reporting and data flows as per the below structure of the monitoring group:

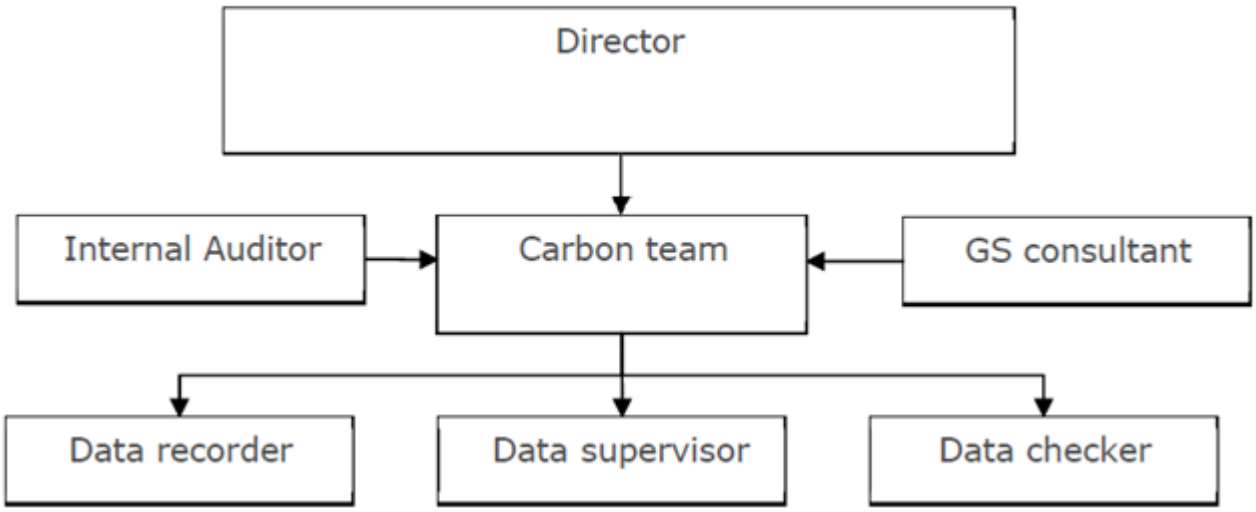


Figure 4 – Structure of the Monitoring Group

The responsibilities of each person involved are elaborated as follows:

Table 6 – Group Members and Their Responsibilities

Person	Responsibilities
Project Director	Check and sign the monitoring report annually.
Carbon team	Managing the carbon activities, guiding and supervising data recorder after being trained by carbon consultant.

Carbon consultant	Providing training and technical support about carbon monitoring plan.
Internal auditor	Checking the monitoring procedure at least once in a year.
Data recorder	Collecting and recording data as per monitoring plan.
Data supervisor	Checking power meter periodically according to relevant regulations.
Data checker	Double checking the collected data measured by the power meter.

C.2. Monitoring process

The electricity generated from the proposed Project Activity will be supplied to the national grid EVN for the complete Project lifetime under a long-term 20-year PPA with the grid operator. The electricity generated from the Project Activity before entering the grid at the connection points will be measured by bi-directional digital meters. The power meters will record the net export and import data with both main and back-up meters.

The steps of monitoring the electricity supplied to the grid and the electricity imported from the grid and consumed by the proposed project are as follows:

- The electricity supplied by the project to the grid and electricity imported from the grid are measured automatically by the bi-directional meter systems (main and backup power meters). The data is measured continuously;
- Persons in charge of data recording and the meter supervision from the Project monitor and report the data to EVN through an internal system every day by the Project data monitoring software and the data also be sent to EVN, the result (monthly electricity protocol) is signed by both parties and kept by both parties;
- The data from the backup power meters is cross-checked with the data from main power meter. The data from the back-up system is used in case of a failure of the main meter;
- The project owner provides electricity sales invoices to EVN, and keeps the copies of invoices; and
- The power owner provides the electricity protocols and copies of invoices and other related documents to the verifier of VVB.

C.3. Monitoring Equipment and Installation

Three electricity meters are adopted in the monitoring system of the project. The meters have been installed at the interconnection point to the grid for monitoring the electricity delivered to the grid.

One bidirectional electricity meter with the accuracy of 0.2s (Meter 232C) are installed as the main meter at the output side of the 33/220 kV substation to monitor the electricity exported to the grid ($EG_{export,y}$) and imported from the grid ($EG_{import,y}$) by the project activity.

Two bidirectional electricity meters of the accuracy of 0.5s which are meter 232DP1 and meter 332DP2 as backup meters for the main meter 232C at the 33/ 220 kV substation (e.g., M232DP1 and M332DP2).

The emission reductions are calculated based on records of the main meter 232C, and can be cross-checked with electricity sales and purchase receipts.

The monitoring system is illustrated in Figure 5 with blue highlight below (i.e. the SLD showing the meters for NH2).

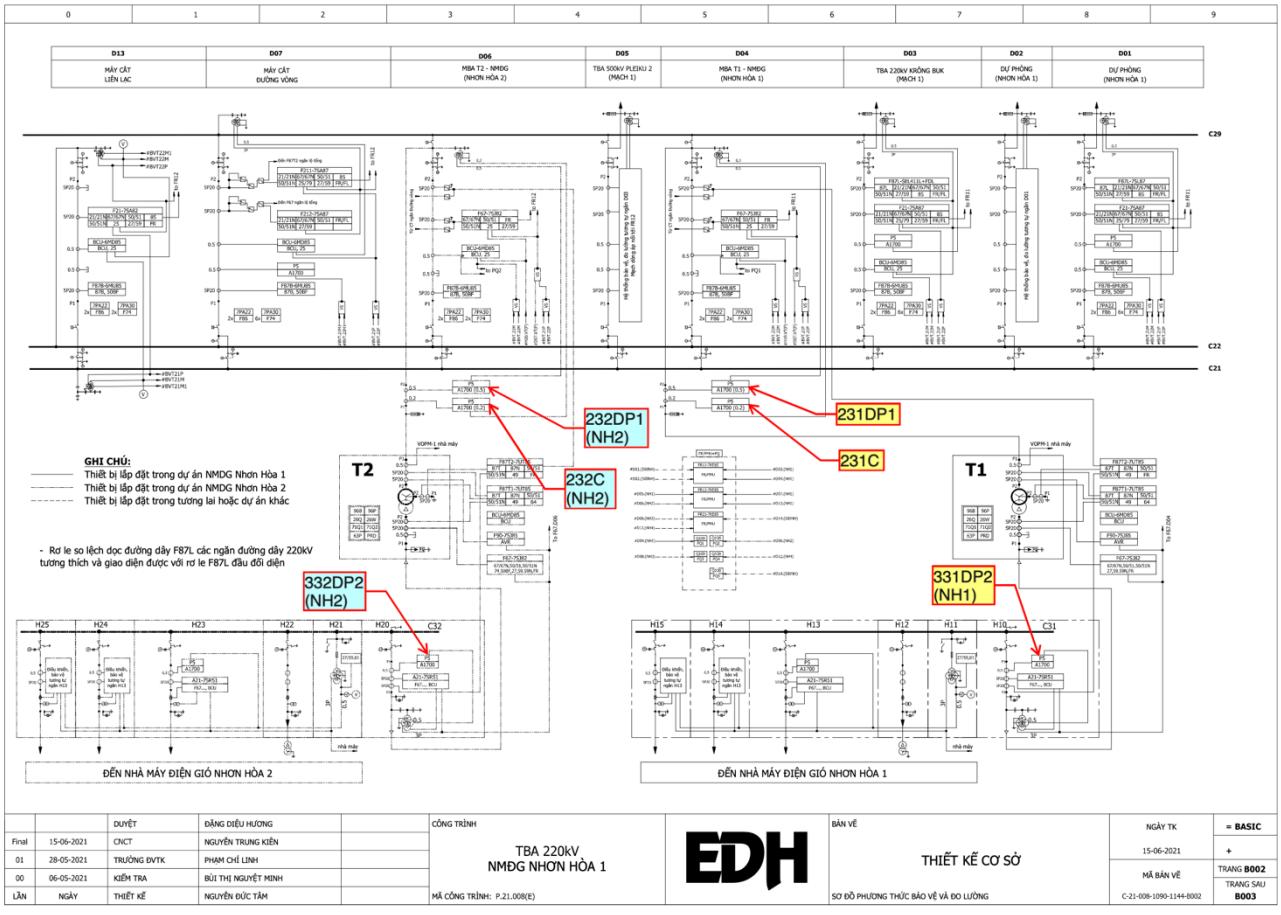


Figure 5 – Single Line Diagram of NH2 WPP

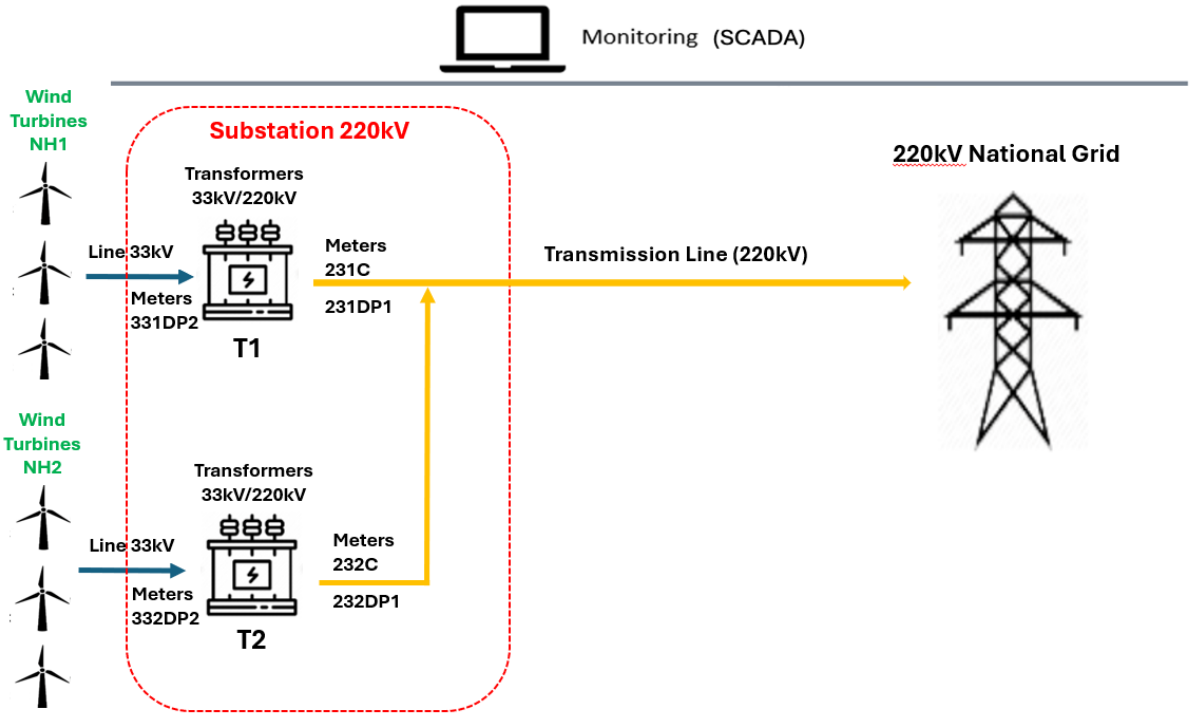


Figure 6 – Monitoring System Installed at NH2 WPP

C.4. Data recording, collection and reporting

Meter and invoice data is cross-checked on an internal system managed by EVN (e.g., SCADA and Communication Works). Every month, the monitored data has been archived electronically, at the same time the paper document has been archived for back-up. The project owner keeps the receipts of power sales/purchases. The electricity generation (gross or net) shall be cross-checked with records of electricity sales (e.g., electricity sales receipt).

The monitoring plan has been carried out mainly by the carbon team and conducted by the appointed personnel. All key documents have been kept collectively. The monitored data is kept during the whole crediting period and at least 2 years after the end of the crediting period or until the last issuance of VERs, whichever occurs later.

C.5. Calibration and Verification

The electricity meter is subject to regular maintenance and testing in accordance with the stipulation of the meter supplier and/or as per the requirements set by the grid

operators or national requirements[7]. The accuracy class of the meters should be in accordance with the stipulation of the meter supplier and/or as per the requirements set by the grid operators or national requirements.

In detail, testing and verification of all the energy meters M232C, M232DP1, and M332DP2 are calibrated and checked once a year for main meter and up to once in every 3 years for back-up meters by qualified external parties EVN with the records being supplied to the Project as per the applicable national regulations and also the Power Purchase Agreement (PPA).

C.6. Emergency procedures for monitoring system

Electricity measured by the main meter alone should suffice for the purpose of billing and emissions reduction verification as long as the error in the main meter is within the permissible limits. However, should either the project owner or the grid operator find the function of the main meter abnormal or broken-down, the other party and the authorized meter inspection institution needs to be informed immediately to address the issues and make the meter function normally again as soon as possible.

The back-up power meter is used in case of a failure of the main meter. In case of the meters, which is used to record the net electricity exported and imported by the Project, is found to be faulty, the staff in charge immediately informs the monitoring group and repair or replace the equipment. In the unlikely another event that the recording meters fail, they are also repaired or replaced.

In addition, should any previous monthly readings of the main meter be inaccurate by more than the allowable error, or be functioned improperly, the electricity generated by the project shall be determined by:

a) First, by reading the backup main meter, unless a test by either party reveals it is inaccurate;

[7] Clause 4, Circular 07/2019/TT-BKHCN dated 26th July 2019, issued by The Ministry of Science and Technology (Amending the Circular 23/2013/TT-BKHCN). Available at https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=198190

b) If the backup also meter fails to function normally, the project owner and the grid company shall jointly estimate the correct reading in a conservative manner;
c) If the project owner and the grid company fail to mutually estimate of the correct reading, the readings are taken as zero, it is conservative.

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

SDG 13

Data/parameter	**$EF_{grid,OM,y}$**
Unit	tCO_2e/MWh
Description	Operating margin CO_2 emission factor for grid connected power generation in year y
Source of data	Data published by the Vietnam Department of Climate Change (DCC) – Ministry of Natural Resources and Environment on 31st December 2022 (Document No. 1278/BĐKH-TTBVTOD)[8]
Value(s) applied	0.9239
Choice of data or Measurement methods and procedures	The latest $EF_{grid,OM,y}$ for 2021 was calculated and published by the Vietnam Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Vietnam) in December 2022 as per "*Tool to calculate the emission factor for an electricity system*" – Version 07.0 The quantity of electricity generation that is produced and fed into the grid during the latest 03 years (e.g.,

[8] Available at http://dcc.gov.vn/van-ban-phap-luat/1102/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2021-(k%C3%A8m-CV-1278/BDKH-TTBVTOD).html ("Research and develop emission factor (EF) of Vietnam's electricity grid in 2021", published on 31st December 2022)

	2019, 2020, and 2021) has been used to calculate $EF_{grid,OM,y}$
Purpose of data	For calculation of the combined margin CO_2 emission factor ($EF_{grid,CM,y}$)
Additional comment	N/A

SDG 13

Data/parameter	**$EF_{grid,BM,y}$**
Unit	tCO_2e/MWh
Description	Build margin CO_2 emission factor for grid connected power generation in year y
Source of data	Data published by the Vietnam Department of Climate Change (DCC) – Ministry of Natural Resources and Environment on 31st December 2022 (Document No. 1278/BĐKH-TTBVTOD)[9]
Value(s) applied	0.5202
Choice of data or Measurement methods and procedures	The latest $EF_{grid,OM,y}$ for 2021 was calculated and published by the Vietnam Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Vietnam) in Dec 2022 as per "Tool to calculate the emission factor for an electricity system" – Version 07.0
Purpose of data	For calculation of the combined margin CO_2 emission factor ($EF_{grid,CM,y}$)
Additional comment	N/A

SDG 13

[9] Available at http://dcc.gov.vn/van-ban-phap-luat/1102/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2021-(k%C3%A8m-CV-1278/BDKH-TTBVTOD).html ("Research and develop emission factor (EF) of Vietnam's electricity grid in 2021", published in 31st December 2022)

Data/parameter	**$EF_{grid,CM,y}$**
Unit	tCO_2e/MWh
Description	Combined margin CO_2 emission factor for grid connected power generation in year y
Source of data	Data published by the Vietnam Department of Climate Change (DCC) – Ministry of Natural Resources and Environment on 31st December 2022 (Document No. 1278/BĐKH-TTBVTOD)[10]
Value(s) applied	0.8230
Choice of data or Measurement methods and procedures	The $EF_{grid,CM,y}$ is calculated using Operating margin CO_2 emission factor – $EF_{grid,OM,y}$ and Build margin CO_2 emission factor – $EF_{grid,BM,y}$ which were published by the DNA of Vietnam and weightings wOM, wBM of 0,75 and 0,25 for wind power plant projects as per "*Tool to calculate the emission factor for an electricity system*" – Version 07.0
Purpose of data	For calculation of CO_2 emission reductions
Additional comment	$EF_{grid,CM,y} = EF_{grid,OM,y} * 0.75 + EF_{grid,BM,y} * 0.25$

D.2 Data and parameters monitored

SDG 4

Data/parameter	Number of people that received training services provided by the project
Unit	Number of people

[10] Available at http://dcc.gov.vn/van-ban-phap-luat/1102/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2021-(k%C3%A8m-CV-1278/BDKH-TTBVTOD).html ("Research and develop emission factor (EF) of Vietnam's electricity grid in 2021", published in 31st December 2022)

Description	Number of people that received technical and vocational training due to the project
Source of data	Training records
Value(s) applied	As per registered PDD, at least 14 people per year trained by the Project and in this second monitoring period the Project Activity achieved: • 01/01/2023 – 31/12/2023 (12 months) = 28 people • 01/01/2024 – 31/12/2024 (12 months) = 18 people • 01/01/2025 – 31/05/2025 (5 months) = 18 people **Total = 64 people**

Monitoring period	**Training date**	**Topic covered**	**Attendees**
01/01/2023 – 31/12/2023	28/09/2023	Monitoring plan training for Nhon Hoa 2 Wind Power Plants	Refer to the attached supporting document *NH1&2 Monitoring Training Attendance 2023*
	• March 2023 • August 2023	• Training on Quality, Health, Safety, Social, and Environmental aspects • Technical training	Refer to the attached supporting document *Annual Internal Training Plan NH2*
01/01/2024 – 31/12/2024	• 12/04/2024 • 04/06/2024 • 31/07/2024 • 09/12/2024	Quarterly periodic monitoring plan training for the Project team	Refer to the attached supporting document *NH1&2_Quarterly Training*
	• April 2024 • July 2024 • 27-31/05/2024 • 03-07/06/2024 • 25-26/07/2024	• Training on Quality, Health, Safety, Social, and Environmental aspects • Technical training	Refer to the attached supporting document *Annual Internal Training Plan NH2*

		• 23/10/2024		
	01/01/2025 – 31/05/2025	• 07/03/2025 • 09/05/2025	Quarterly periodic monitoring plan training for the Project team	Refer to the attached supporting document *NH1&2_Quarterly Training*
		February 2025	• Training on Quality, Health, Safety, Social, and Environmental aspects • Technical training	Refer to the attached supporting document *Annual Internal Training Plan NH2*
Measurement methods and procedures	The total number of persons receiving technical training was calculated based on the training records or training plans of the project.			
Monitoring frequency	Once per monitoring period			
QA/QC procedures	Number of people trained by the project is monitored through training records or internal training plans/materials or training certificates.			
Purpose of data	To Monitor the SDG 4 Indicator			
Additional comment	N/A			

SDG 7

Data/parameter	$EG_{facility,y}$ - Access to affordable and clean energy services[11]
Unit	MWh/year
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
Source of data	Direct measurement at the connection point by power meters.
Value(s) applied	As per registered PDD, at least 164,834 MWh of net electricity generation supplied by the Project to the grid per year and in this monitoring period the Project Activity achieved: • 01/01/2023 – 31/12/2023 (12 months) = 173,696 MWh • 01/01/2024 – 31/12/2024 (12 months) = 177,586 MWh • 01/01/2025 – 31/05/2025 (5 months) = 98,438 MWh **Total = 449,720 MWh** [The actual data meter readings by month, import and export electricity production data, are recorded by the Project]

Vintage	**Exported**	**Imported**	**NET MWh (Exported – Imported)**
	MWh	**MWh**	
Jan-23	28,844	10.000	28,834
Feb-23	23,891	7.000	23,884
Mar-23	23,532	12.000	23,520
Apr-23	10,246	39.000	10,207
May-23	5,721	76.000	5,645
Jun-23	4,700	36.000	4,664
Jul-23	5,432	52.000	5,380
Aug-23	7,221	9.000	7,212

[11] It is also referred as EGPJ,grid,y or EGPJ,facility,I,y in the Methodological tool 05 "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation", Version 03.0

Sept-23	4,108	53.000	4,055
Oct-23	7,040	64.000	6,976
Nov-23	23,617	2.000	23,615
Dec-23	29,705	1.000	29,704
Jan-24	32,747	0.000	32,747
Feb-24	20,646	17.000	20,629
Mar-24	19,217	25.000	19,192
Apr-24	8,118	53.000	8,065
May-24	8,732	54.000	8,678
Jun-24	4,172	33.000	4,139
Jul-24	9,846	23.000	9,823
Aug-24	3,001	55.000	2,946
Sept-24	6,033	52.000	5,981
Oct-24	11,187	35.000	11,152
Nov-24	22,557	13.000	22,544
Dec-24	31,692	2.000	31,690
Jan-25	29,528	1.000	29,527
Feb-25	27,484	1.000	27,483
Mar-25	22,883	17.000	22,866
Apr-25	13,418	38.000	13,380
May-25	5,273	91.000	5,182
Total	**450,591**	**871**	**449,720**
2023 (12 months)	174,057	361	173,696
2024 (12 months)	177,948	362	177,586
2025 (5 months)	98,586	148	98,438

Measurement methods and procedures

Calculating by subtracting $EG_{import,y}$ from $EG_{export,y}$.

Two-way power meters are installed at the grid- connected point to measure the amount of electricity supplied and consumed by the Project by the reverse direction. The readings of electricity meter were continuously measured and recorded monthly. The recorded data was confirmed by

the joint balance sheet as signed by the representatives of grid operator EVN and the Project Owner.
Electronic data is archived within the crediting period and at least 2 years after the end of the crediting period.
The meters details are as follows:

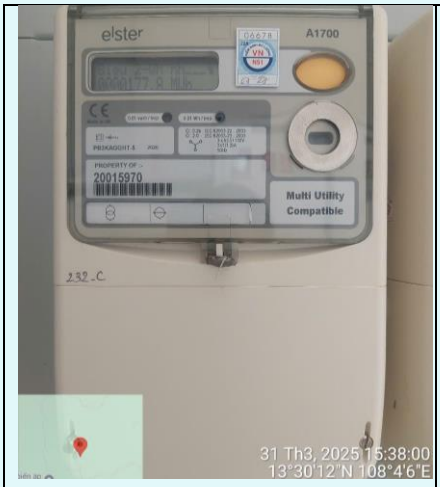
<table>
<tr><th colspan="2">Main meter 232C</th></tr>
<tr><td>Type of meter</td><td>Elster A1700
PB3KAGGHT-5</td></tr>
<tr><td>Location of meter</td><td>232 C</td></tr>
<tr><td>Accuracy of meter</td><td>0.2s</td></tr>
<tr><td>Serial number of meter</td><td>20015970</td></tr>
<tr><td>Calibration frequency</td><td>Once a year</td></tr>
<tr><td>Date of Calibration/ validity</td><td>Verification date: 22/08/2022; Valid until: 31/08/2025
Verification date: 10/08/2023; Valid until 31/08/2026
Verification date: 31/07/2024; Valid until 31/07/2027</td></tr>
<tr><td>Reference No. of Calibration Certificate</td><td>
<table>
<tr><th>Cert. No</th><th>Date</th><th>Validity</th></tr>
<tr><td>222705/CPC ETC-PXĐL</td><td>22/08/2022</td><td>31/08/2025</td></tr>
<tr><td>23/CPCETC-PXĐL</td><td>10/08/2023</td><td>31/08/2026</td></tr>
<tr><td>244352/CPCE TC-PXĐL</td><td>02/08/2024</td><td>31/07/2027</td></tr>
</table>
</td></tr>
<tr><td>Calibration Status</td><td>Active</td></tr>
</table>

Back-up meter 232DP1

Type of meter	Elster A1700 PB3KAAGHT-5
Location of meter	232DP1
Accuracy of meter	0.5s
Serial number of meter	21000515
Calibration frequency	Once every 3 years
Date of Calibration/ validity	Verification: 12/07/2021; Valid until: 31/07/2024 Verification: 02/08/2024; Valid until: 31/07/2027
Reference No. of Calibration Certificate	<table><tr><th>Cert. No</th><th>Date</th><th>Validity</th></tr><tr><td>21/0449/ĐL 2.28</td><td>12/07/2021</td><td>31/07/2024</td></tr><tr><td>244351/CPC ETC-PXĐL</td><td>02/08/2024</td><td>31/07/2027</td></tr></table>
Calibration Status	Active

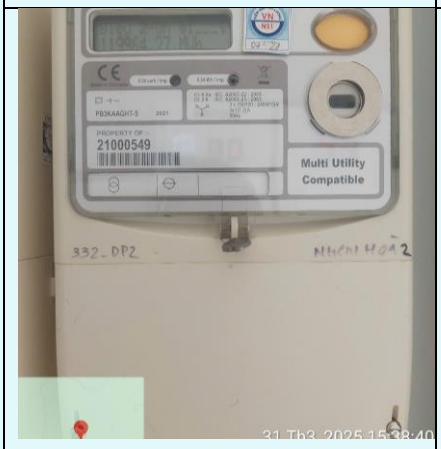
Back-up meter 332DP2	
Type of meter	Elster A1700 PB3KAAGHT-5
Location of meter	332DP2
Accuracy of meter	0.5s
Serial number of meter	21000549

Calibration frequency	Once in every 3 years
Date of Calibration/ validity	Verification: 12/07/2021; Valid until 31/07/2024 Verification: 02/08/2024; Valid until: 31/07/2027
Reference No. of Calibration Certificate	<table><tr><th>Cert. No</th><th>Date</th><th>Validity</th></tr><tr><td>21/0449/ĐL 2.33</td><td>12/07/2021</td><td>31/07/2024</td></tr><tr><td>244353/CPC ETC-PXĐL</td><td>02/08/2024</td><td>31/07/2027</td></tr></table>
Calibration Status	Active



Main meter 232C

Back-up meter 232DP1



Back-up meter 332DP2

Monitoring frequency	Continuous measurement and monthly recording
QA/QC procedures	The uncertainty level of this data is low. The measurement/monitoring equipment complies with national standard and technology. The main meter is verified every year and back-up meters are verified and checked every 3 years. **The accuracy class of the meters** should be in accordance with the stipulation of the meter supplier and/or as per the requirements set by the grid operator or national requirements in Circular No. 42/2015/TT-BCT, Clause 25, paragraph 2(a-b) issued by the Minister of Industry and Trade regarding Regulations on Electrical Measurement in Electricity System. In detail, accuracy of 0.2s for active power of main meter, and 0.5s for back-up meters. **Data** from operating meters is measured continuously. At the end of each month, the electricity meter reading data shall be cross-checked between the data taken from the operating meters and electronically reported data on monitoring system by the Project Owner and the Grid operator (EVN). Once the Confirmation Report of Meter readings and Electrical power is counter-signed by both Parties (i.e., electronic signature), the final metering data is reported and presented on the electricity sales invoices. • The export data shall be recorded and confirmed by the Electricity sales invoice raised by the Project Owner to EVN. • The import data shall be recorded and confirmed by the Electricity sales invoice raised by EVN to the Project Owner. Hence, the data of Quantity of net electricity generation supplied by the proposed Project Activity to the grid would be assessed and calculated of high accuracy and there is no interfere from the Project Owner.

Purpose of data	To monitor SDG 7 net contribution.
Additional comment	N/A

SDG 8

Data/parameter	Number of jobs created
Unit	Number of employees
Description	Number of people employed directly due to the Project Activity
Source of data	Employment records or labour contracts signed with employees or internal records.
Value(s) applied	As per registered PDD, at least 27 staffs per year employed by the Project Activity during operation phase and in this second monitoring period the Project Activity achieved: • 01/01/2023 – 31/12/2023 = 23 staffs (including 21 males and 02 females) • 01/01/2024 – 31/12/2024 = 23 staffs (including 21 males and 02 females) • 01/01/2025 – 31/05/2025 = 29 staffs (including 18 males and 11 females)
Measurement methods and procedures	Employment records has been used to confirm the number of full-time jobs. The sample copy of signed agreements and list of employees are provided for verification
Monitoring frequency	Once per monitoring period
QA/QC procedures	Number of people employed by the project is monitored through contractor capacity records or contractor's contracts or labour contracts or the social insurance or internal List of employee's records.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	N/A

SDG 13

Data/parameter	ERy - Annual emission reduction

Unit	tCO_2e/year
Description	The project generates renewable power, which displace part of the electricity otherwise supplied by fossil fuel fired power plants, thus GHG emission reductions are achieved due to this project.
Source of data	Electricity generated by the Project and the calculated combined margin (CM) emission factor are used as inputs/ references in the calculation of the emission reduction.
Value(s) applied	As per registered PDD, at least 135,655 tCO_2e emission reduction per year and in this second monitoring period the Project Activity achieved: • 01/01/2023 – 31/12/2023 (12 months) = 142,942 tCO_2e • 01/01/2024 – 31/12/2024 (12 months) = 146,144 tCO_2e • 01/01/2025 – 31/05/2025 (5 months) = 81,009 tCO_2e **Total = 370,095 tCO_2e**
Measurement methods and procedures	According to ACM0002 version 21.0
Monitoring frequency	Once per monitoring period
QA/QC procedures	The Quantity of net electricity generation supplied by the project plant is monthly measured by more than one electricity meters and the related CO_2 emission reduction is calculated according to the applied methodology ACM0002 version 21.0.
Purpose of data	To demonstrate the net contribution to SDG 13
Additional comment	N/A

D.3. Comparison of monitored parameters with last monitoring period

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period

SDG 4	64 people (Monitoring period from 01/01/2023 to 31/05/2025, a total of 03 years). Therefore, the average annually value is 64/3 = 21 people (approximately)	The average annually value are 14 people (Monitoring period from 30/11/2021 to 31/12/2022)
SDG 7	449,720 MWh (Monitoring period from 01/01/2023 to 31/05/2025, a total of 29 months). Therefore, the average monthly generation is 449,720/29 = 15,508 MWh	207,902 MWh (Monitoring period from 30/11/2021 to 31/12/2022, a total of 13 months). Therefore, the average monthly generation is 207,902/13 = 15,992 MWh
SDG 8	29 staffs (including 18 males and 11 females) (min 23 staffs)	27 staffs (22 males and 05 females)
SDG 13	370,095 tCO_2e (Monitoring period from 01/01/2023 to 31/05/2025, a total of 29 months). Therefore, the average monthly emission reduction is 370,095/29 = 12,762 tCO_2e	171,098 tCO_2e (Monitoring period from 30/11/2021 to 31/12/2022, a total of 13 months). Therefore, the average monthly emission reduction is 171,098/13 = 13,161 tCO_2e

The value obtained in this second monitoring period (01/01/2023 to 31/05/2025) for SDG 4 are higher than those in the last monitoring period (30/11/2021 to 31/12/2022), while the values for SDG 7, SDG 8 and SDG 13 are lower compared to the previous monitoring period.

D.4. Implementation of sampling plan

Not applicable.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

SDG 4: Quality Education

Baseline situation:

In the baseline scenario, the project would not have been built and the electricity would have been provided by the national grid.

Baseline SDG 4 contribution = 0 (the project would not have been built)

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Baseline situation:

The national grid comprises mostly fossil-fuel fired power plants, which are not sustainable or modern energy. Hence it will not contribute renewable energy share in the national or global energy consumption.

Baseline SDG 7 contribution = 0

SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all

Baseline situation:

In the baseline situation, there will be no new job creation in the absence of the Project Activity.

Baseline SDG 8 contribution = 0 (the project would not have been built)

SDG 13: Take urgent action to combat climate change and its impacts

Baseline situation:

In the baseline, the equivalent amount of electricity would have been generated in the Vietnam national grid (EVN) by the operation of power plants dominated by fossil fuel-based generation sources. No greenhouse gas emissions has been displaced under this scenario therefore no emission reductions under this situation.

Baseline SDG 13 contribution = 0 tCO_2e emission reductions (the Project Activity would not have been built)

E.2. Calculation of project value or estimation of project situation of each SDG Impact

SDG 4: Quality Education

Project's outcome:

The project contributed to SDG 4 by increasing the number of people who have relevant skills, including technical and vocational skills, for employment in terms of new technology (e.g., wind power plant). This refers to the number of employees who received training services of any type via Project.

A total of 64 people received technical training, skill development from the project during the period.

Net SDG 4 contribution: = Project's outcome – Baseline situation = Number of people receiving training services by the Project

- 01/01/2023 – 31/12/2023 (12 months) = 28 people
- 01/01/2024 – 31/12/2024 (12 months) = 18 people
- 01/01/2025 – 31/05/2025 (5 months) = 18 people

Total in this second monitoring period = 64 people

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Project's outcome:

This is the amount of electricity exported to the grid by the project, net of electricity imports, during the monitoring period (01/01/2023 – 31/05/2025).

Net SDG 7 contribution: = Project's outcome – baseline situation = Quantity of net renewable energy supplied by the Project Activity to the electricity grid

- 01/01/2023 – 31/12/2023 = 173,696 MWh
- 01/01/2024 – 31/12/2024 = 177,586 MWh
- 01/01/2025 – 31/05/2025 = 98,438 MWh

Total in this second monitoring period = 449,720 MWh

SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all

Project's outcome:

Project Activity has already operated and supported the creation of full-time job opportunities since the implementation of the Project Activity to people without discrimination.

Net SDG 8 contribution = Project's outcome – baseline situation = Number of people employed by the Project

- 01/01/2023 – 31/12/2023 (12 months) = 23 staffs (including 21 males and 02 females)
- 01/01/2024 – 31/12/2024 (12 months) = 23 staffs (including 21 males and 02 females)
- 01/01/2025 – 31/05/2025 (5 months) = 29 staffs (including 18 males and 11 females)

Total in this second monitoring period = 29 staffs (including 18 males and 11 females) (min 23 staffs)

SDG 13: Take urgent action to combat climate change and its impacts

Project's outcome:

For the climate combat action, the Project Activity generates renewable energy-based electricity and mitigates the CO_2 emissions which would have been generated from the fossil-fuel based power plants. Hence, the emission reductions under Project situation would be the same as the emission under baseline situation. This Project Activity directly reduces 370,095 tons of CO_2 emission during this monitoring period.

This SDG outcome is measured in accordance with ACM0002 "Grid-connected electricity generation from renewable sources" version 21.0 for the emission reductions generated by the Project Activity, ER_y (tCO_2e).

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 project activity, calculated as follows:

$$BEy = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

BE_y	Baseline emissions in year y (tCO_2/yr).
$EG_{PJ,y}$	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/yr).
$EF_{grid,CM,y}$	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the *"Tool to calculate the emission factor for an electricity system".*

- Calculation of Quantity of Net electricity generation ($EG_{PJ,y}$)

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:

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

In which, $EG_{facility,y}$ is the Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr).

Therefore, the baseline emissions are calculated as follows:

$$\boldsymbol{BEy = EG_{facility,y} \times EF_{grid,CM,y}} \qquad \textbf{(1)}$$

- Calculation of Emission Factor ($EF_{grid,CM,y}$)

As per Tool 07 "Tool to calculate the emission factor for an electricity system" version 7.0, the CO_2 emission factor for the displacement of electricity generated by power plants in an electricity system is determined by calculating the Combined Margin emission factor ($EF_{grid,CM,y}$) of the electricity system.

The data to calculate $EF_{grid,CM,2021}$ for specific renewable power projects in Vietnam in 2021 was published by the Vietnam Department of Climate Change (DCC) – Ministry of Natural Resources and Environment in December 2022 (Document No. 1278/BĐKH-TTBVTOD[12]) and has been used for the calculation of emission factor of the proposed Project.

The combined margin emission factor ($EF_{grid,CM,y}$) is calculated by the result of a weighted average CM of two emission factors including the Operating Margin (OM) and Build Margin (BM).

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

$EF_{grid,OM,y}$	Operating margin CO_2 emission factor in year y (tCO_2/MWh)
$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year y (tCO_2/MWh)
W_{OM}	Weighting of operating margin emissions factor (percent)

[12] Available at http://dcc.gov.vn/van-ban-phap-luat/1102/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2021-(k%C3%A8m-CV-1278/BDKH-TTBVTOD).html (Published in 31st December 2022)

W_{BM} Weighting of build margin emissions factor (percent)

The default values shall be used for the weight of the operating margin emission factor (W_{OM}) and weight of the building margin emission factor (W_{BM}) for wind and solar power generation Project activities. The Tool 07 allows to take 75% weightage of $EF_{grid,OM,y}$ and 25% weightage of $EF_{grid,BM,y}$.

Hence,

$$EF_{grid,CM,2021} = EF_{grid,OM,2021} \times W_{OM} + EF_{grid,BM,2021} \times W_{BM}$$
$$= 0.9239 \times 0.75 + 0.5202 \times 0.25 \ (tCO_2/MWh)$$
$$\mathbf{= 0.8230 \ (tCO_2/MWh)}$$

Project emission (PEy)

According to ACM0002, Version 21.0, 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_2e/yr)
$PE_{FF,y}$	Project emissions from fossil fuel consumption in year y (tCO_2/yr)
$PE_{GP,y}$	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO_2e/yr)
$PE_{HP,y}$	Project emissions from water reservoirs of hydro power plants in year y (tCO_2e/yr)

The proposed project is a wind power plant that neither uses fossil fuel nor operates geothermal power plants or requires water reservoirs (i.e. $PE_{FF,y} = 0$; $PE_{GP,y} = 0$; $PE_{HP,y} = 0$); therefore, the project emission is zero:

$$\mathbf{PEy = 0} \qquad \mathbf{(2)}$$

Leakage (LE_y)

According to ACM0002, Version 21.0, no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.

$$\mathbf{LEy = 0} \qquad \mathbf{(3)}$$

Emission reductions (ERy)

From (1), (2), and (3), the emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$
$$ER_y = EG_{facility,y} \times EF_{grid,CM,y}$$

Where:

- ER_y Emission reductions in year y (tCO_2e/yr).

- BE_y Baseline emissions in year y (t CO_2e/yr)
- PE_y Project emissions in year y (tCO_2e/yr).
- LE_y Leakage emissions in year y (tCO_2e/yr).

Emission reductions *(ER_y) = 370,095 tCO_2e during this second monitoring period (01/01/2023 – 31/05/2025).*

- 01/01/2023 – 31/12/2023 = 142,942 tCO_2e
- 01/01/2024 – 31/12/2024 = 146,144 tCO_2e
- 01/01/2025 – 31/05/2025 = 81,009 tCO_2e

The calculation is summarised in the Table below.

Table 7 – The Actual Net Quantity of Electricity Generated and Supplied by the Project to the Grid in This Monitoring Period

Vintage	Exported to grid	Imported from grid	$EG_{facility,y}$ (NET MWh = Exported – Imported)	$EF_{grid,CM,y}$	ER_y
	MWh	MWh			
Jan-23	28,844	10.000	28,834	0.8230	23,729
Feb-23	23,891	7.000	23,884	0.8230	19,655
Mar-23	23,532	12.000	23,520	0.8230	19,356
Apr-23	10,246	39.000	10,207	0.8230	8,400
May-23	5,721	76.000	5,645	0.8230	4,645
Jun-23	4,700	36.000	4,664	0.8230	3,838
Jul-23	5,432	52.000	5,380	0.8230	4,427
Aug-23	7,221	9.000	7,212	0.8230	5,935
Sept-23	4,108	53.000	4,055	0.8230	3,337
Oct-23	7,040	64.000	6,976	0.8230	5,741
Nov-23	23,617	2.000	23,615	0.8230	19,434
Dec-23	29,705	1.000	29,704	0.8230	24,445

Jan-24	32,747	0.000	32,747	0.8230	26,949
Feb-24	20,646	17.000	20,629	0.8230	16,977
Mar-24	19,217	25.000	19,192	0.8230	15,794
Apr-24	8,118	53.000	8,065	0.8230	6,637
May-24	8,732	54.000	8,678	0.8230	7,141
Jun-24	4,172	33.000	4,139	0.8230	3,406
Jul-24	9,846	23.000	9,823	0.8230	8,084
Aug-24	3,001	55.000	2,946	0.8230	2,424
Sept-24	6,033	52.000	5,981	0.8230	4,922
Oct-24	11,187	35.000	11,152	0.8230	9,177
Nov-24	22,557	13.000	22,544	0.8230	18,553
Dec-24	31,692	2.000	31,690	0.8230	26,080
Jan-25	29,528	1.000	29,527	0.8230	24,299
Feb-25	27,484	1.000	27,483	0.8230	22,617
Mar-25	22,883	17.000	22,866	0.8230	18,818
Apr-25	13,418	38.000	13,380	0.8230	11,011
May-25	5,273	91.000	5,182	0.8230	4,264
Total	**450,591**	**871**	**449,720**	**/**	**370,095**
2023 (12 months)	174,057	361	173,696	0.8230	142,942
2024 (12 months)	177,948	362	177,586	0.8230	146,144
2025 (5 months)	98,586	148	98,438	0.8230	81,009

E.3. Calculation of leakage

Not applicable.

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
4	Quality Education - Substantially increase the number of youth and adults who have relevant skills for employment (Number of people)	0	64	64
7	Affordable and Clean Energy – Net amount of electricity generated and supplied to grid (MWh)	0	449,720	449,720
8	Decent work and Economic Growth – Number of jobs created	0	29 staffs (including 18 males and 11 females) (min 23 staffs)	29 staffs (including 18 males and 11 females) (min 23 staffs)
13	Climate Action – Emission Reductions (tCO_2e)	370,095	0	370,095

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG 4 Number of people that receiving trainings per year

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[13] achieved during this monitoring period

[13] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

	01/01/2023–31/12/2023: 14 people	28 people
4	01/01/2024–31/12/2024: 14 people	18 people
	01/01/2025–31/05/2025: 14 people	18 people
Second monitoring period: 42 people		**64 people**

The approved PDD present estimate value is 14 people full 12 months. The estimate value for this monitoring period is 42 people. The impacts achieved from SDG 4 increase with the estimated value in approved PDD. Refer to Section E.6 for further remarks on the increase in achieved SDG 4 Impacts from estimated value in approved PDD.

SDG 7 Net amount of electricity generated and supplied to grid (MWh)

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[14] achieved during this monitoring period
	01/01/2023–31/12/2023: 164,834 MWh	173,696 MWh **(↑5%)**
7	01/01/2024–31/12/2024: 164,834 MWh	177,586 MWh **(↑8%)**
	01/01/2025–31/05/2025: 68,681 MWh	98,438 MWh **(↑43%)**
Second monitoring period: 398,350 MWh		**449,720 MWh (↑13%)**

The impacts achieved from SDG 7 increase with the estimated value in approved PDD (refer values in the above Table). Refer to Section E.6 for further remarks on the increase in achieved SDG 7 Impacts from estimated value in approved PDD.

SDG 8 Number of people employed by the Project per year (staffs)

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[15] achieved during this monitoring period
8	01/01/2023–31/12/2023: 27 staffs	23 staffs
	01/01/2024–31/12/2024: 27 staffs	23 staffs

[14] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

[15] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

01/01/2025–31/05/2025: 27 staffs	29 staffs
Second monitoring period: Min 27 staffs	**Min 23 - Max 29 staffs**

The approved PDD present estimate value is 27 staffs per year. The impacts achieved from SDG 8 decrease with the estimated value in approved PDD in 2023 and 2024 due to temporary internal human resources arrangements. However, the actual value at 29 in five months of 2025 is slightly higher than the values in approved PDD, and this number of employees is expected to be maintained and consisted with PDD estimations in the following years.

- ✓ During 2023-2024, the Project has been under operation for over 4 years and it has been performed stably without the need of extra human resources at the site. Therefore, the Project has been rearranged with its internal personnel to reduce the operation cost. In detail, the Project maintained its core employees to manage the Project operation activities at the site. In addition, the management team has served both Nhon Hoa 1 and Nhon Hoa 2 Projects. To avoid double counting the number of personnel for each individual Project now is only counted once for this SDG.
- ✓ In the 5 months period 01/01/2025-31/05/2025, the Project Company has started its new development of new substation at the site, therefore, they re-appointed their internal staff to meet the necessary requirements and activities, ensuring the progress and quality of the Project's work.

The Project aims to contribute to Goal 8 through its efforts to ensure long-term jobs and stable income for its employees. Through the Project contributions via its long-term jobs, the Project will build a strong human capacity for its employees, and therefore, partly contributing to the development of labour force quality. From this, the Project employees will benefit a better sustainable skillset and capacity to approach better decent job opportunities in the future.

Overall, the SDG actual impact values demonstrates that the Project Activity is still contributing positively to Goal 8. This contribution will still be monitored and reported in every monitoring period to maintain its positive impacts.

SDG 13 Emission Reductions per year (VERs)

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[16] achieved during this monitoring period
13	01/01/2023–31/12/2023: 135,655 tCO_2e	142,942 tCO_2e **(↑5%)**
	01/01/2024–31/12/2024: 135,655 tCO_2e	146,144 tCO_2e **(↑8%)**
	01/01/2025–31/05/2025: 56,523 tCO_2e	81,009 tCO_2e **(↑43%)**
Second monitoring period: 327,832 tCO_2e		**370,095 tCO_2e (↑13%)**

The impacts achieved from SDG 13 increase with the estimated value in approved PDD (refer values in the above Table). Refer to Section E.6 for further remarks on the increase in achieved SDG 13 Impacts from estimated value in approved PDD.

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

SDG 4: Quality Education

Estimated Net SDG 4 contribution = Project's outcome – baseline situation = 14 people

Baseline situation = 0

In the baseline situation, there will be no technical training provided in the absence of the project.

Project's outcome = 14

The project leads to technical and vocational training being provided for several people. For SDG 4, the number of people received technical training, skill development from the Project were determined by training records, or internal training plans due to the project. In this monitoring period a total of 64 people were trained through the Project activity. Accordingly, 28 people (min 18 people) were trained from the project activity per annum, which increased with the estimated outcomes in the approved PDD.

[16] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Estimated Net SDG 7 contribution = Project's outcome – baseline situation

= 164,834 MWh

(also see Section E.5 above)

Baseline situation = 0

Prior to the implementation of the project activity, electricity in Viet Nam is generated mainly from fossil fuel sources and is solely distributed to consumers via the unique Vietnam national electricity grid.

Project's outcome = 164,834 MWh (also see Section E.5 above)

The estimated data took the annual estimate (i.e., 164,834 MWh) to calculates a monthly value and then estimated the values for 12 months for this 12-month monitoring period. In detail,

- Annual electricity generation = 164,834 MWh
- Monthly electricity generation = 164,834 MWh/ 12 months = 13,736 MWh

For SDG 7, the quantity of net electricity generated and supplied to the grid by the Project Activity was measured directly at the connection point using power meters that comply with the national standards and technologies. During this 29-months monitoring period, a total of 449,720 MWh of net electricity was generated and supplied to grid, equivalent to an average monthly generation of 449,720/29 = 15,508 MWh, which increased with the estimated outcomes in the approved PDD.

SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all

Estimated net SDG 8 contribution = Project's outcome – baseline situation = 27 staffs during operation phase

Baseline situation = 0

In the baseline situation, there will be no new job creation in the absence of the project.

Project's outcome = 27 staffs during operation phase

For SDG 8, the number of people employed directly by the Project Activity during the operation phase was determined by the contractor contracts, or labour contracts, or the social insurance, or internal List of employee's record. In this monitoring period, 29 staffs (including 18 males and 11 females) were employed from the Project Activity, which increased with the estimated outcomes in the approved PDD.

SDG 13: Take urgent action to combat climate change and its impacts

Estimated Net SDG 13 contribution of emission reductions *(also see Section E.5 above)*

= Project's outcome – baseline situation = 135,655 tCO_2e

ERy = BEy – PEy – Ley

= 135,655 (tCO_2e/ 12-month monitoring period)

Baseline emissions (BEy)

BEy = $EG_{facility,y}$ x $EF_{grid,CM,y}$

*= 164,834 * 0.8230*

= 135,655 (tCO_2e/ 12-month monitoring period)

Project emission (PEy) = 0

Leakage (LEy) = 0

The estimated data took the annual estimate (i.e., 135,655 tCO_2e) to calculates a monthly value and then estimated the values for 12 months for this 12-month monitoring period. In detail,

- Annual electricity generation = 135,655 tCO_2e
- Monthly electricity generation = 135,655 tCO_2e/ 12 months = 11,305 tCO_2e

The calculation of the estimated and actual value of SDG 13 is based on methodology ACM0002: Grid-connected electricity generation from renewable sources (version 21.0). During this 29-months monitoring period, a total of 370,095 tCO_2e emission reductions were achieved, equivalent to an average monthly emission reduction of 370,095/29 = 12,762 tCO_2e, which increased with the estimated outcomes in the approved PDD. The main difference between the estimated value and actual value is due to the change electricity production of the Project Activity. However, the Project Activity still demonstrates that it is contributing positively to Goal 13.

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

In this monitoring period, SDG 4, SDG 7 and SDG 13 Impacts achieved a higher value than the amount based on the ex-ante estimation in the approved PDD. The comparison of other SDG Impacts has been clarified in Section E5.

SDG 4 Number of people that receiving trainings per year

Monitoring period	Values in approved PDD	Actual values achieved	Justification

01/01/2023 – 31/12/2023	14	28	The ex-ante estimation conservatively considered 14 trained people by the Project Activity per year (12 months), which is lower than the actual value at 28 people in 2023; at 18 people in 2024; and at 18 people in five months of 2025. The actual number of the trained people is higher than value in approved PDD because the Project has been conducting various training and educational activities for its staff. To maintain optimal performance of the Project Activity, it is necessary to require additional trainings and education for the Project team. Overall, the SDG actual impact values demonstrates that the Project Activity is contributing positively to Goal 4.
01/01/2024 – 31/12/2024	14	18	
01/01/2025 – 31/05/2025	14	18	

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Monitoring period	Values in approved PDD	Actual values achieved	Justification
01/01/2023 – 31/12/2023	164,834	173,696	The monitoring period is 29 months, being (i) full year of 2023-2024, and (ii) 5-month from January-March 2025.

01/01/2024 – 31/12/2024	164,834	177,586	(i) For the full year of 2023 and 2024 (12 months each), the Project Activity generated 173,696 MWh and 177,586 MWh of electricity respectively, which is approximately 5% and 8% higher than the estimated annual generation of 164,834 MWh in the approved PDD. (ii) For 5 months from 01/01/2025 to 31/05/2025, the actual values achieved at is 43% higher than in the approved PDD. The increase in electricity generation at the Project due to: - The Project WTGs' are located in a favourable area and at the optimal height where can maximize the wind resources (from downstream direction) for wind turbines, especially during windy season. In previous years, the actual wind speed reaches optimal levels which are resulting in higher electricity generation. In detail, as per actual monthly wind speed monitoring data *(source: summary of turbine performance for Nhon Hoa 2 Project)*, the Project observed a good range of wind speed at the site which was a average of 8.7 - 12.4 m/s during wind season, which is a great wind speed for WTGs to perform a high electricity generation volume. Even though the energy generation is increasing due to favourable WTGs location
01/01/2025 – 31/05/2025	68,681	98,438	
Total	**398,350**	**449,720**	

	and seasonal changes, the WTGs capacity and also Project performance will not exceed its maximum designed capacity (i.e., annual generation of 180,000 MWh (P50)[17]). Hence, the higher value of SDG 7 is still consistent with Project estimation and manufacturer forecast, and only occur under windy season, thereby is satisfactory and reasonable. For further details, please refer to Section D.2, specifically the table under SDG 7. Overall, the SDG actual impact values demonstrates that the Project Activity is contributing positively to Goal 7. Overall, the SDG actual impact values demonstrates that the Project Activity is contributing positively to Goal 7.

SDG 13 Emission Reductions per year (VERs)

Monitoring period	Values in approved PDD	Actual values achieved	Justification
01/01/2023 – 31/12/2023	135,655	142,942	Since emissions are positively correlated with electricity generation SDG 7, it is clear that the increase in achieved SDG impacts

[17] Energy production assessment of the Nhon Hoa 2 Wind Farm, DNV GL Vietnam Ltd.

01/01/2024 – 31/12/2024	135,655	146,144	for Goal 13. The higher electricity generation by the Project, also resulted in a greater reduction in emissions compared to the estimates provided in the approved PDD.
01/01/2025 – 31/05/2025	56,523	81,009	Similar to the clarification for SDG 7 above, the higher value of SDG 13 in the second monitoring period 01/01/2023-31/05/2025 therefore is satisfactory and reasonable.
Total	**327,832**	**370,095**	Overall, the SDG actual impact values demonstrates that the Project Activity is contributing positively to Goal 13.

The actual number of people trained per year to ensure the optimal performance and operation of the Project Activity is essential. Hence, it is clearly observed that the increase in achieved SDG impacts for Goals 4 is realistic and reasonable.
Wind farms generate electricity based on the wind resources available each month. In general, and particularly in this location, there are periods of both high and low wind throughout the year. As a result, the monthly average of electricity generation fluctuates significantly between seasons. Since emissions are positively correlated with electricity generation, it is clearly that the increase in achieved SDG impacts for Goals 7 and 13 is both feasible and justified.

SECTION F. SAFEGUARDS REPORTING

Principle 3

Data/parameter	**Safeguarding Principle 3 - Community Health, Safety and Working Conditions**
Unit	Occupational health and safety for workers
Description	Measures are taken to eliminate safety hazards related to the construction and operation of the project.

	An OHS Plan is prepared and implemented and best efforts are made to manage OHS risks.
Source of data	Safety performance reports from the O&M contractor
Value(s) applied	In this monitoring period: The project continues to comply with local regulations regarding Occupational health and safety for workers. No incidents and accidents occurred. 100% staff have received HSE training in this monitoring period.
Measurement methods and procedures	An Occupational Health and Safety Plan is developed and implemented according to the national regulations. The OHS trainings are conducted periodically to the Project workers with records. In the event of an incident or accident, the victim will receive immediate first aid on-site and will then be promptly transported to the nearest medical facility (approximately 2 km away – the local commune health station (Chu Don Commune Health Station)[18] for timely care and treatment. After that, depending on the employee's health condition, they will either be treated at this health station or transferred to higher-level hospitals as appropriate. The project complies with Vietnamese regulations such as the Law on Occupational Safety and Hygiene No. 84/2015/QH13[19], and Decree No. 88/2020/ND-CP on Elaborating Some Articles of the Law on Occupational Safety and Health on Compulsory Insurance for Occupational Accidents and Occupational Diseases[20].

[18] Chu Don Commune Health Station. Available at: https://diadiem247.com/gia-lai/tram-y-te-xa-chu-don-l399490.html
[19] The Law on Occupational Safety and Hygiene No. 84/2015/QH13, dated June 25, 2015. Available at: https://vss.gov.vn/english/legal/pages/default.aspx?ItemID=3549
[20] Decree No. 88/2020/ND-CP on Elaborating Some Articles of the Law on Occupational Safety and Health on Compulsory Insurance for Occupational Accidents and Occupational Diseases. Available at: https://molisa.gov.vn/official/39590

Monitoring frequency	Once per monitoring period
QA/QC procedures	On-going process since COD. Training OHS records or OHS plan or List of Training Attendances or Photos is maintained.
Purpose of data	To monitor the Safeguarding Principle 3 - Community Health, Safety and Working Conditions
Additional comment	N/A

Principle 9.5

Data/parameter	**Safeguarding Principle 9.5 - Hazardous and non-hazardous waste**
Unit	Quantity of the Hazardous and Non-hazardous waste to be managed
Description	Measures are taken to eliminate the environmental risks associated with hazardous and non-hazardous waste. Only small amounts of waste is generated from the Project and this is managed in compliance with national regulations for waste storage and waste collection and disposal. For examples: • Law on Environmental Protection 72/2020/QH14; • Decree No. 08/2022/ND-CP[21] • Circular No. 02/2022/TT-BTNMT[22]
Source of data	• Environmental performance reports from the 3-rd party (e.g., O&M contractor); • Designated waste storage and waste bins for non-hazardous waste and hazardous waste; • Waste collection contracts and manifests.
Value(s) applied	In this monitoring period: 100% Hazardous and Non-hazardous wastes were managed during the monitoring period 01/01/2023 – 31/05/2025. The Project continues to contract a licensed waste collector as required by national regulations regarding waste management.
Measurement methods and procedures	Collect and store wastes in appropriate bins/ storages with cover lid, separate by type of waste before contacting the contracted agencies authorized by the

[21] Decree No. 08/2022/ND-CP on Elaboration of Several Articles of the Law on Environmental Protection, dated January 10, 2022. Available at: https://faolex.fao.org/docs/pdf/vie212268.pdf

[22] Circular No. 02/2022/TT-BTNMT on Detailing a Number of Articles of Law on Environmental Protection dated January 10, 2022. Available at: https://thuviennhadat.vn/van-ban-phap-luat-viet-nam/circular-02-2022-tt-btnmt-detailing-articles-of-law-on-environmental-protection-507651.html

	government to pick up for further disposal. Records are maintained.
Monitoring frequency	Once per monitoring period
QA/QC procedures	On-going process since COD. Contracts and records to be maintained in terms of waste management activities.
Purpose of data	To monitor the Safeguarding Principle 9.5 - Hazardous and non-hazardous waste
Additional comment	N/A

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

The project developer has set up a continuous input and grievance mechanism as described in a separate Stakeholder Consultation Report. The stakeholders, especially communities around the project site, were informed about the grievance mechanism and available methods for sharing inputs and concerns.

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	The Grievance Expression Process Book is placed at the project location office in Plei Phung hamlet, Ia Phang commune, Chu Puh district, Gia Lai Province, Vietnam. Local stakeholders could give their comments directly to the Grievance Expression Process book. This location is easily accessible to both internal and external individuals, enabling them to conveniently provide suggestions. The Project Owner checks the comments in the book on a regular basis, and record responses. The Project Owner is respectful to the views of stakeholders and suggests alternative solutions or compromises wherever possible.
GS Contact (mandatory)	help@goldstandard.org
Nominated Independent Mediator	Local representatives from communes, village authorities or people committees. Local people could give feedback directly to the commune's representatives such as chiefs of villages, and representatives of local associations then these representatives could aggregate and transfer the feedback to the Project Owners.

Telephone access	+84.912265574
Email	longnt@emi.com.vn
Other	N/A

The Grievance Expression Process Book is placed at the Project site (e.g., at the gate of the Project administrative offices, and also store records in Project office). The book was established with the below template:

Continuous Inputs and Grievance Expression Process Book							
No.	Date	Name	Description of Inputs/Grievances	Checked by Project Manager (Yes/No)	Contact the grievance if needed (Yes/No)	Details of the mitigation actions	Inputs/Grievances are solved (Yes/No)
1							
…							

In order to establish a rigorous grievance mechanism, the Project has also developed a Grievance Procedure on how the Project receives and resolves grievances from project internal and external stakeholders.

During the second monitoring period 01/01/2023 to 31/05/2025, no official inputs or grievances letters from the local community relating to the Project operation phase were received through the Grievance Expression Process Book, or phone calls, or face-to-face communication.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

There were no mitigations that required to be monitored.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

No legal contests have arisen during the second monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption