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)	GS10975
Title of the project (s) covered by monitoring report	Hoa Binh 1 - Phase 2 Wind Power Project
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	3.2
Version number of the monitoring report	2.1
Completion date of the monitoring report	19/03/2024
Date of project design certification	20/12/2021
Date of Last Annual Report	19/12/2022
Monitoring period number	The 1st monitoring period
Duration of this monitoring period	30/08/2021 - 31/10/2022 (both days inclusive)
Project Representative	Swiss Carbon Value 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, version 20.0: "Gird-connected electricity generation from renewable sources"
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 7: Ensure access to affordable, reliable, sustainable and modern energy for all	MWh of renewable energy generated	138,456.577	MWh
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Employees have access to training, healthcare, insurances and better income	24 (including 5 women and 19 men) 5 17.5	Employees Trainings Million VND/month
SDG 13: Climate action	Emission reductions	124,091	VERs

Table 2 – Product Vintages

		Amount Achieved
Start Dates	**End Dates**	**SDG 13 (GS-VERs)**
30/08/2021	31/12/2021	22,947
01/01/2022	31/10/2022	101,144

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The Hoa Binh 1 - Phase 2 wind power project activity involves the construction of an off-shore wind power plant in Vinh Hau and Vinh Hau A communes, Hoa Binh district, Bac Lieu province, Viet Nam with a total capacity of 50 MW. The project involves the installation of 13 wind turbines - generators, 22kV underground cable line, a management house, a 63 MVA transformer station and 110 kV electricity transmission line.

The purpose of the project activity is to generate power using renewable energy source and export to the national grid by utilizing wind energy. The net electricity generated (with an estimated annual volume of 157,560 MWh) will be supplied to the national grid via a newly constructed transmission line from the plant to the transformer station.

Prior to the implementation of the project activity, electricity in Vietnam is generated mainly from fossil fuel sources and is solely distributed to consumers 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 project will reduce the emission of greenhouse gases by replacing electricity generated from fossil fuel fired power plants with zero emissions electricity from a wind power plant. It is expected that the power plant when in full operation, will result in the reduction of 141,213 tCO_2e on average per year and 706,064 tCO_2e over the first crediting period of 5 years.

The construction of the project activity started in 2020. The project started commercial operation on 30/08/2021.

In the first monitoring period from 30/08/2021 to 31/10/2022 (both days included), the project activity achieved total 124,091 tCO_2e emission reductions.

The implementation of the project is listed in the below Table.

Table 3: The list of key events of the project activity

Date	Key events
29/07/2020	Start date of the project (the date that the equipment supply contract was signed)
30/08/2021	Commercial operation date (WTG15, WTG16, WTG17 and WTG19

06/09/2021	Commercial operation date (WTG18, WTG20, WTG21 and WTG22)
14/09/2021	Commercial operation date (WTG14, WTG25 and WTG26)
29/10/2021	Commercial operation date (WTG23 and WTG24)
20/12/2021	Registration as a GS project
30/08/2021 - 31/10/2022	First monitoring period

A.2. Location of project

The wind power plant is located in Vinh Hau and Vinh Hau A communes, Hoa Binh district, Bac Lieu province of Viet Nam.

The geo-coordinates of the power house (same with Hoa Binh 1 power house) are as follow:

- Northern latitude: 09°11'43''
- Eastern longitude: 105°41'35''

The geo-coordinates of turbines are as follow:

Table 2 - Geo-coordinates of the turbines

Turbine	Northern latitude	Eastern longitude
WT-14	9° 8′ 39.81″ N	105° 43′ 42.97″ E
WT-15	9° 8′ 30.75″ N	105° 43′ 46.59″ E
WT-16	9° 8′ 21.67″ N	105° 43′ 50.20″ E
WT-17	9° 8′ 12.58″ N	105° 43′ 53.82″ E
WT-18	9° 8′ 03.49″ N	105° 43′ 57.44″ E
WT-19	9° 7′ 54.44″ N	105° 44′ 01.06″ E
WT-20	9° 8′ 01.72″ N	105° 41′ 51.01″ E
WT-21	9° 7′ 52.63″ N	105° 41′ 54.63″ E
WT-22	9° 7′ 43.54″ N	105° 41′ 58.21″ E
WT-23	9° 7′ 34.49″ N	105° 42′ 01.83″ E
WT-24	9° 7′ 25.40″ N	105° 42′ 05.45″ E
WT-25	9° 7′ 16.31″ N	105° 42′ 09.07″ E
WT-26	9° 7′ 07.22″ N	105° 42′ 12.68″ E

The location of the project's site including wind turbines and the administrative office is shown in Figure 1 below:

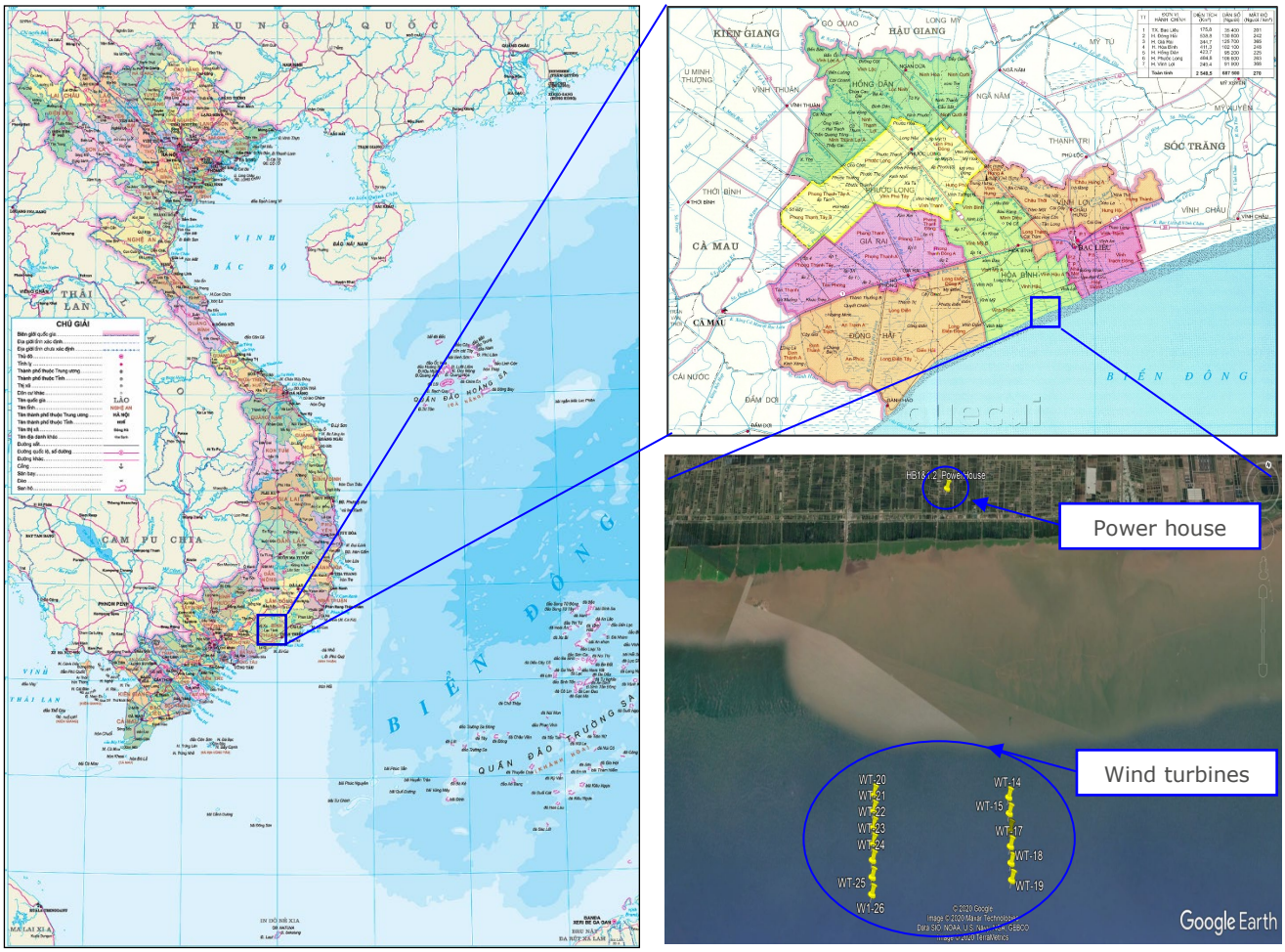

Figure 1 - Project's location

A.3. Reference of applied methodology

Applied methodology:

- Version 20.0 of ACM0002: "Grid-connected electricity generation from renewable sources";

(https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG)

Related tools:

- Version 07.0 of the Tool07: "Tool to calculate the emission factor for an electricity system"; and

(https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf)

- Version 07.0.0 of the Tool01: "Tool for the demonstration and assessment of additionality".

(https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf)

- Version 03.0 of the Tool32: "Positive lists of technologies"

(https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-32-v3.0.pdf)

- Version 03.0 of the Tool05: "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation"

(https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v3.0.pdf)

A.4. Crediting period of project

Type of crediting period: renewable.
Length of the second crediting period: 5 years.
Duration of the first crediting period: 30/08/2021 - 29/08/2026.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

Description of the installed technology, techinical process and equipment

The project involves the construction of a 50 MW grid-connected off-shore wind power plant with wind turbines and generators to convert kinetic power of the wind to electrical energy, which is supplied to the national grid at the connection point through the transmission line. At the connection point, the electricity meter systems are installed. They are digital and bi-directional type to measure the export and import of electricity of Hoa Binh 1 - Phase 2 Wind Power Project.

The main technical parameters of project are shown in the Table below:

Table 4: Main technical parameters of the proposed project activity

Main parameter	Unit	Value	
1. Turbine			
• Type	-	Vestas V150-4.2MW	
• Number of turbines	set	03	10
• Capacity (site specific)	MW	4.0	3.8
• WT number	-	WT18, WT19, WT20	WT14, WT15, WT16, WT17, WT21, WT22, WT23, WT24, WT25, WT26
• Manufacturer	-	Vestas Asia Pacific A/S	
2. Generator			
• Type		Three-phase asynchronous	
• Voltage	kV	3 x 0.8	
• Frequency	Hz	50	
3. Main transformer			
• Type		Three phases	
• Rated capacity	MVA	63	
• Voltage	kV	23/115	

Information on the implementation status of the project activity during this monitoring period

Hoa Binh 1 - Phase 2 Wind Power Project started the construction in 2020. The plant was put into commercial operation as follows:

Commercial operation date	WTGs were put into commercial operation
30/08/2021	WTG15, WTG16, WTG17 and WTG19
06/09/2021	WTG18, WTG20, WTG21 and WTG22
14/09/2021	WTG14, WTG25 and WTG26
29/10/2021	WTG23 and WTG24

The project activity was registered as a GS project on 20/12/2021.

In the first monitoring period from 30/08/2021 to 31/10/2022, Hoa Binh 1 - Phase 2 Wind Power Project was in good operation state. There have not any changes from the project design that was envisaged at design certified PDD.

B.1.1. Forward Action Requests

Not applicable.

B.2. Post-Design Certification changes

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

Not applicable.

B.2.2. Corrections

Not applicable.

B.2.3. Changes to start date of crediting period

Not applicable

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

Not applicable.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

C.1. Monitoring equipment

The metering systems are installed at the 22/110 kV transformer station of Hoa Binh 1 – Phase 2 Wind Power Plant to measure the electricity exported to and imported from the national grid. The metering systems include the main and back-up systems of electronic 3 phased type. They are digital meters bi-directly with allowed errors at least 0.2 and 0.5 for main and back-up meters, respectively.

The following diagram indicates the power meter location:

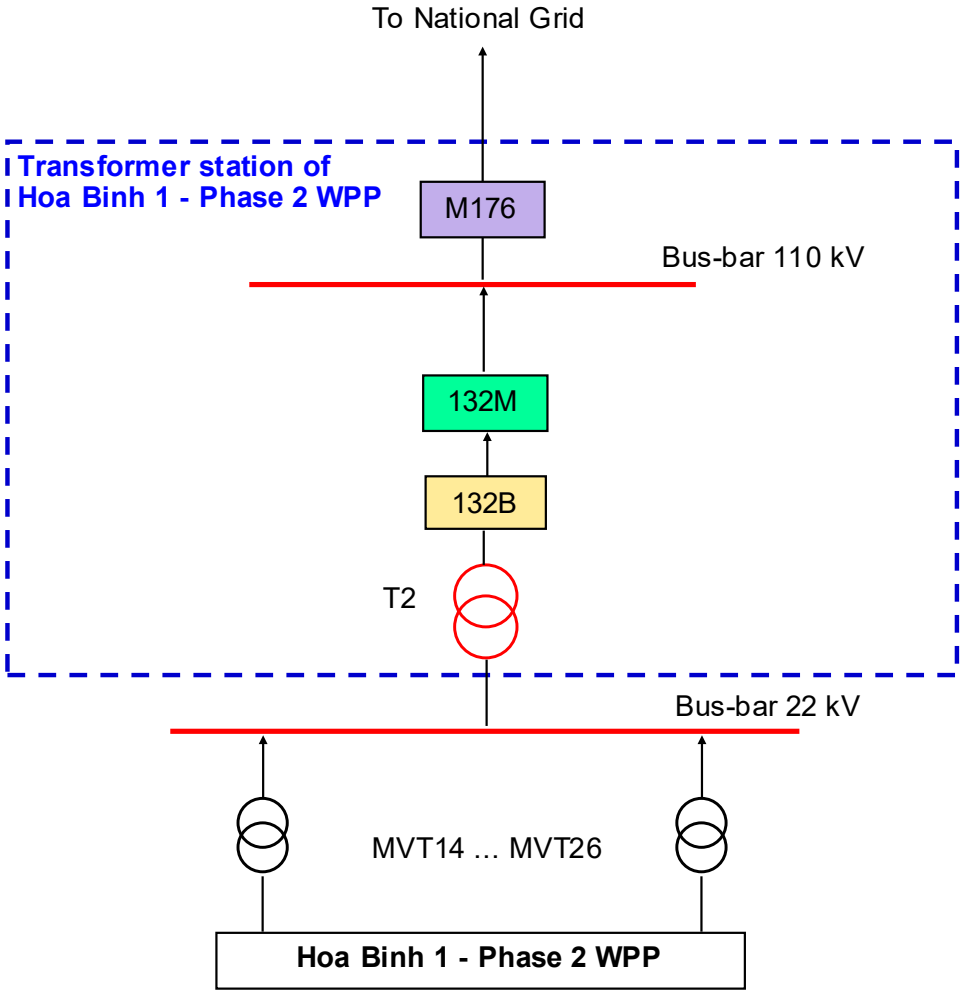

Figure 2: Meter diagram of Hoa Binh 1 – Phase 2 Wind Power Plant

Where:

MVT14 … MVT26: Medium voltage transformer from 14 to 26, corresponding WTG14 to WTG26

T2: Main transformer

132M: Main power meter

132B, M176: Back-up power meters

Details of the power meters are as follows:

Table 5: Details of the power meters of Hoa Binh 1 - Phase 2 WPP

Power meter	Type	Position	Function	Record frequency	Calibration party and frequency
Main power meter 132M	Elster A1700	The 22/110 kV transformer station of Hoa Binh 1 – Phase 2 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Hoa Binh 1 WPP – Phase 2. Data recorded by this meter will be used as the basis for electricity invoices.	The end of every month	Third party, at least once every three years
Backup power meter 132B	Elster A1700	The 22/110 kV transformer station of Hoa Binh 1 – Phase 2 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Hoa Binh 1 – Phase 2 WPP. Data recorded by this meter will be used when the main meter fails.	The end of every month	Third party, at least once every three years
Backup power meter M176	Elster A1700	The 22/110 kV transformer station of Hoa Binh 1 – Phase 2 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Hoa Binh 1 – Phase 2 WPP. Data recorded by this meter will be used as the basis for electricity invoices.	The end of every month	Third party, at least once every three years

C.2. Monitoring Procedure

The project participants have developed and implemented the monitoring procedure for the project activity.

1. Organizational structure, roles and responsibilities of personnel

The project owner established a special GS group to take charge of data collection, supervision, checking and archiving. GS group manager is trained by the GS consultant and receives technical support from time to time from the GS consultant. The structure of monitoring group is as follows:

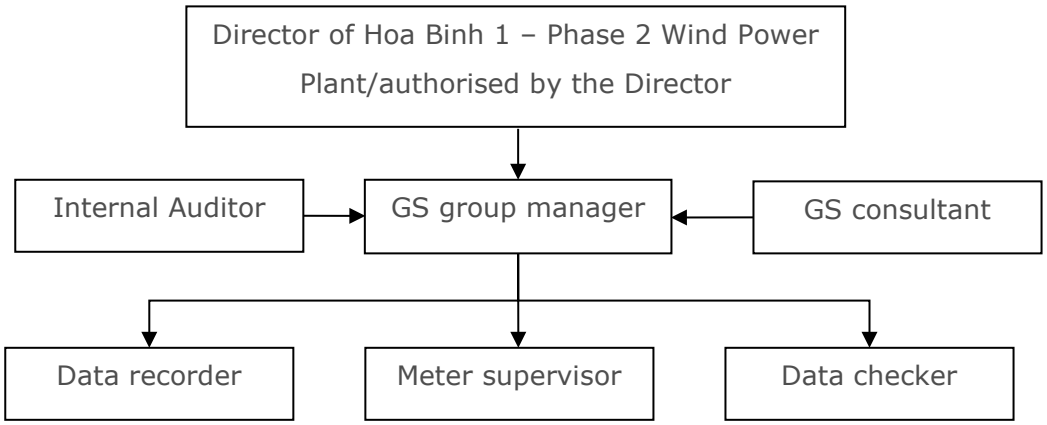

Figure 3: Structure of monitoring group

The responsibilities of each person involved are elaborated as follows

Table 6: Organization of CDM group

Person	Responsibility
Director of Hoa Binh 1 - Phase 2 Wind Power Project/ authorized by the Director	Check and sign the monitoring management report annually.
GS group manager	Managing the whole GS business of Hoa Binh 1 - Phase 2 Wind Power Project, guiding and supervising data recorder after being trained by GS consultant.
GS consultant	Providing GS group manager training and technical support about GS monitoring plan.
Internal auditor	Checking the monitoring procedure at least once in a year
Data recorder	Collecting and recording data every month.
Meter supervisor	Checking power meter periodically according to relevant regulation.

Data checker	Double checking the collected data measured by power meter.

2. Data collection procedures

The steps of monitoring the electricity supplied to the grid and the electricity imported from 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 record and meter supervisor from Hoa Binh 1 - Phase 2 Wind Power Project together with staff from EVN shall read and collect data from main power meters through the SCADA system on the first day of every month, the result (monthly electricity protocol) will be signed by both parties and kept respectively;
- The data from the backup power meters will be cross checked with the data from main power meters. The data from back-up systems will be used in case of failing of the main meters;
- The project owner provides electricity sales invoice to EVN, and keeps the copy of invoices; and
- The power owner provides the electricity protocols and copy of invoices and other related documents to the verifier of VVB.

3. Data recording and archiving procedures

- The GS group appointed by Hoa Binh 1 – Phase 2 Wind Power Plant keeps monitored data in electronic archives at the end of every month. Paper documents are stored in electronic format. Electronic documents are printed out and kept.
- All the data and information in the form of documents are archived by the GS group, with at least one copy backup for each datum.
- All the data shall be kept for 2 years after the crediting period.

4. Emergency procedures

In case of any unforeseen event that is not covered under this monitoring plan, staff of the GS group shall inform the manager and the director. The manager and director are then responsible to ensure that the cause for the unforeseen event is detected, the

event is remedied and for the period of time in which the unforeseen event has occurred uncertainty in data gathered is limited as much as possible.

In case of both main and back-up metering systems are in failure, the project owner and the power company (EVN) will jointly calculate a conservative estimate of power supplied to the grid. The assumptions used to estimate net electricity supply to the grid will be signed by a representative of the project owner as well as a representative of the power company (EVN).

Emergency case

Since the starting of monitoring period, emergency case did not occur and the difference between the power meters is in an acceptable range.

5. Quality Assurance and Quality Control

5.1. Training

All staffs are trained and the training records are kept. Through the training, the staffs receive the necessary knowledge of the installation, examination and maintenance of electricity and machine; being familiar with the operating principle and basic structure of equipment; masters the cause and solution of common problems and the basic knowledge of GS and monitoring requirements.

5.2. Calibration

Periodical power meter inspection and on-site check should be implemented according to the relevant guidance of the EVN. After inspection and on-site check, power meters must be sealed after examination and identification by both of Project Owner and EVN, either party cannot remove the seal or modify any power meter when the other party (or its authorized representative) is absent.

- ***History of power meters of Hoa Binh 1 – Phase 2 Wind Power Plant in this monitoring period***

Detailed information of each power meter can be found in below table:

Table 7: Detailed information of the power meters

Technical details		Main meter 131M	Backup meter 131B	Backup meter M174
Serial No.		19030354	20036286	20036500
Model		A1700	A1700	A1700
Accuracy		0.2s	0.5s	0.5s
Installation date		08/07/2021	08/07/2021	08/07/2021
Operation status during the monitoring period		Good	Good	Good
Manufacturer		Elster	Elster	Elster
Calibration frequency as the national regulations		At least once every three years		
1st calibration	*Date:*	16/05/2019	30/11/2020	30/11/2020
	Calibration entity:	Quality Assurance and Testing Center 1		
2nd calibration	*Date:*	27/04/2022		
	Calibration entity:	Southern Electrical Testing Company		
Valid until:		26/04/2025	29/11/2023	29/11/2023

C.3. Plant operation and maintenance.

The project owner has signed the contract for operation and maintenance of WTGs with Vestas Wind Technology Viet Nam LLC (the representative of Vestas WTG manufacturer in Viet Nam) in 20 years from the COD to ensure that the WTGs are operated in the best conditions. The WTGs are operated and maintained according to the manufacturer's standards. Maintenance of WTGs is carried out on a rotating basis so that plant operations are minimally interrupted. In this monitoring period, the plant operated stably, and no downtime occurred due to incidents of equipment.

SECTION D. DATA AND PARAMETERS

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

Relevant SDG Indicator/Safeguarding Principle SDG	**SDG 13: Climate Action**
Data/parameter	**$EF_{grid,OM,y}$**
Unit	tCO_2/MWh
Description	Operating margin CO_2 emission factor for grid connected power generation in year *y*
Source of data	Data published by DNA Viet Nam (Ref. http://dcc.gov.vn/van-ban-phap-luat/1059/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-(K%C3%A8m-CV-263/BDKH).html)
Value(s) applied	0.8795
Choice of data or Measurement methods and procedures	The latest $EF_{grid,OM,y}$ for 2018 was calculated and published by Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Viet Nam) on 12/03/2020 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

Relevant SDG Indicator/Safeguarding Principle SDG	**SDG 13: Climate Action**
Data/parameter	**$EF_{grid,BM,y}$**
Unit	tCO_2/MWh
Description	Build margin CO_2 emission factor for grid connected power generation in year *y*

Source of data	Data published by DNA Viet Nam (Ref. http://dcc.gov.vn/van-ban-phap-luat/1059/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-(K%C3%A8m-CV-263/BDKH).html)
Value(s) applied	0.9465
Choice of data or Measurement methods and procedures	The latest $EF_{grid,BM,y}$ for 2018 was calculated and published by Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Viet Nam) on 12/03/2020 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

Relevant SDG Indicator/Safeguarding Principle SDG	**SDG 13: Climate Action**
Data/parameter	**$EF_{grid,CM,y}$**
Unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor for grid connected power generation in year *y*
Source of data	Data published by DNA Viet Nam (Ref. http://dcc.gov.vn/van-ban-phap-luat/1059/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-(K%C3%A8m-CV-263/BDKH).html)
Value(s) applied	0.89625
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 DNA of Viet Nam and weightings w_{OM}, w_{BM} of 0.75 and 0.25 for wind

	power plant project 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

Relevant SDG Indicator/Safeguarding Principle	**SDG 7 - Indicator 7.2.1: Renewable energy share in the total final energy consumption**
Data / Parameter	$EG_{facility,y}$
Unit	MWh/year
Description	Net electricity supplied to the national grid by the project activity
Source of data	Direct measurement at the connection point by power meters
Value(s) applied	25,603.899 MWh/year in 2021 (from 30/08/2021 to 31/12/2021) 112,852.678 MWh/year in 2022 (from 01/01/2022 to 31/10/2022) Total of 138,456.577 MWh for this monitoring period
Measurement methods and procedures	Calculating by subtracting $EG_{y,import}$ from $EG_{y,export}$. 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 are continuously measured and monthly recorded. The recorded data are confirmed by the joint balance sheets which are 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 are complied with national standard and technology. These power meters are calibrated and checked at least every 3 year according to the related national regulations[1]. Electricity protocols shall be crosschecked with electricity sale invoices.
Purpose of data	Contribution of clean and sustainable energy from the Project to the national grid and to the increase of the share of the renewable energy in the global energy mix.
Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**SDG 8 - Indicator 8.5.1 – Average hourly earnings of female and male employees, by occupation, age and persons with disabilities**
Data / Parameter	• Quality of employment; • Quantitative employment and income generation; • Equal pay for work of equal value for both men and women.
Unit	• Number of employees (for data on quantitative employment); • Income in USD and VND (for data on income generation); • List of employees, functions and respective income (for data on equal pay for work of equal value for both men and women).
Description	The employees of the project are trained on technical aspects relating to the operation of the wind power plant and provided with labour contracts, medical insurance and social insurance. The employees of the project are paid higher than the average monthly income per capita of the province (4.3 mil. VND/month) and the minimum wage regulated by the Government (3.64 mil. VND/month). Men and women are paid equally for work of equal value.

[1] Decision No. 2739 QD-TDC on promulgating metrological technical standard of Viet Nam.

Source of data	Training certificates, labour contracts, salary records
Value(s) applied	- The employees are trained on technical aspects relating to the operation of the wind power plant operation training; operation and management of the 110kV substation; electrical safety training; fire protection and rescue; occupational safety and hygiene training. Summary of training courses:

Date	Training	Attendee	Conducted by
30/03/2021	Operation and management for shift leaders of the wind power plant	4	National Load Dispatch Center under Viet Nam Electricity
05/10/2020	Operation and management of the 110kV substation	11	Ho Chi Minh City Electric Power College
12/10/2020	Electrical safety	10	Ho Chi Minh City Electric Power College
11/06/2021	Fire protection and rescue	23	Department of Fire Prevention, Fighting, and Rescue under Bac Lieu Province Police
15/12/2019	Occupational safety and hygiene	8	Viet Technology and Education JSC

	- The employees are provided with labour contracts, social and medical insurances; - Number of employees: 24 (including 5 female and 19 male employees); - Average income: 17.5 million VND per month.
Measurement methods and procedures	Checking documents
Monitoring frequency	Annual
QA/QC procedures	Cross-checking by interviews
Purpose of data	Contribution of the project to provide full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**SDG 13: Climate action**
Data / Parameter	ER_y - Annual emission reduction
Unit	tCO_2e/year
Description	The project generates renewable power, which displaces part of the electricity otherwise supplied by fossil fuel fired power plants, thus GHG emission reductions are achieved via this project
Source of data	Electricity generated by Hoa Binh 1 – Phase 2 Wind Power Plant and calculated combined margin (CM) emission factor are used as reference in calculation of the emission reduction.
Value(s) applied	22,947 tCO_2e/year in 2021 (from 30/08/2021 to 31/12/2021) 101,144 tCO_2e/year in 2022 (from 01/01/2022 to 31/10/2022)

	Total of 124,091 tCO_2e in this monitoring period
Measurement methods and procedures	According to ACM0002 version 20.0
Monitoring frequency	Annual
QA/QC procedures	Cross-checking with electricity data
Purpose of data	Direct emission reductions of the project over the Baseline
Additional comment	N/A

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

The project activity is a renewable energy plant. This section therefore is not applicable.

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

Baseline emissions include only CO_2 emissions from electricity generation by fossil fuel fired power that are displaced due to the project activity. It is calculated as follows:

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

Where:

BE_y	Baseline emissions in the monitoring period (tCO_2e)
$EG_{facility,y}$	Quantity of net electricity generation supplied by the project activity to the national grid during the monitoring period (MWh)
$EF_{grid,CM,y}$	Combined margin CO_2 emission factor of the national electricity grid in year y (tCO_2/ MWh)

In the monitoring period (30/08/2021 - 31/10/2022), Hoa Binh 1 - Phase 2 Wind Power Project supplied to the grid a total net electricity of $EG_{facility,y}$ = 138,456.577 MWh.

The baseline emission factor $EF_{grid,CM,y}$ = 0.89625 tCO_2e/MWh.

The baseline emission (BE_y) for the monitoring period is calculated as follows:

$$BE_y = 138,456.577 * 0.89625 = 124,091\ tCO_2 \text{ (rounded down)}$$

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

The project emissions of this wind power project:

$$\mathbf{PE_y = 0}$$

E.3. Calculation of leakage

The technology utilized in Bac Lieu Province Wind Power Plant is neither transferred to nor transferred from another activity; hence, leakage is considered as zero.

$$\mathbf{LE_y = 0}$$

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 7: Ensure access to affordable, reliable, sustainable	MWh of renewable energy generated	0 MWh	138,456.577 MWh	138,456.577 MWh

and modern energy for all				
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	The employees have access to training, healthcare, insurances and better income	0 employee 0 training 0 VND per month	24 employees 5 trainings 17.5 million VND per month	24 employees 5 trainings 17.5 million VND per month
SDG 13: Take urgent action to combat climate change and its impacts	Emissions reductions	124,091 tCO_2e	0 tCO_2e	124,091 tCO_2e

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

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[2] achieved during this monitoring period
SDG 7: Ensure access to affordable, reliable, sustainable and	184,755.288 MWh	138,456.577 MWh

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

modern energy for all		
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	30 employees Number of trainings was not mentioned in the registered PDD 8 million VND per month	24 employees 5 trainings 17.5 million VND per month
SDG 13: Take urgent action to combat climate change and its impacts	165,587 tCO_2e	124,091 tCO_2e

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

This monitoring period is from 30/08/2021 to 31/10/2022 (first and last days included) – 428 days.

SDG 7:

According to the registered PDD, amount estimated ex ante for one year of net electricity exported to the grid – 365 days is 157,560 MWh.

The amount estimated ex ante for this monitoring period in the PDD is calculated as follows:

157,560 / 365 * 428 = 184,755.288 MWh.

SDG 13:

According to the registered PDD, amount estimated ex ante for one year of emission reductions – 365 days is 141,213 tCO_2e.

The amount estimated ex ante for this monitoring period in the PDD is calculated as follows:

141,213 / 365 * 428 = 165,587 tCO_2e.

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

The actual emission reductions achieved in the first monitoring period of the project activity is 124,091 tCO_2e while the estimated ex ante is 165,587 tCO_2e. It is thus 75% of the ex-ante estimation in registered PDD, no justification is required.

SECTION F. SAFEGUARDS REPORTING

The details on monitoring of safeguarding principles are presented in the following table:

Relevant SDG Indicator/Safeguarding Principle	**Principle 4.3 Land Tenure and Other Rights**
Data / Parameter	Compensation records, land use right certificate
Unit	N/A
Description	The project owner has paid money to households who lose their land due to the implementation of the project activity. The compensation plan and compensation expenditure were validated and approved by the District People's Committee. The compensation work has been completed and it has been officially confirmed in writing by the District People's Committee.
Source of data	Compensation records (the approved compensation plan, the confirmation on completion of compensation work by the District People's Committee), the land use right certificate.
Value(s) applied	N/A
Measurement methods and procedures	Checking documents
Monitoring frequency	Once in the first monitoring period
QA/QC procedures	Cross-checking by interviews
Purpose of data	N/A
Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**Principle 8.2 Erosion and/or Water Body Instability**
Data / Parameter	Cultivation of plant and afforestation for impacted areas
Unit	N/A
Description	The project owner has planted trees in the campus such as powerhouse, transformer station site, coastal area to restore the green cover, create nice scenery and improve the ecosystem as well as the landscape and soil conditions in the area. The project owner has paid money to the Government to plant new equivalent forest area to replace the area occupied by the project activity.
Source of data	Site observation, proof of payment for afforestation, bills for buying trees and fertilizers.
Value(s) applied	N/A
Measurement methods and procedures	Site observation and checking documents
Monitoring frequency	Once per monitoring period
QA/QC procedures	Cross-checking by interviews
Purpose of data	Improved environment and biodiversity in the project's area
Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**Principle 9.5 Hazardous and Non-hazardous Waste**
Data / Parameter	• Hazardous waste (lubricant, grease, light bulb, accumulator, etc.); and • Non-hazardous waste (domestic waste).
Unit	Kg
Description	• Hazardous wastes are collected and properly stored in the dedicated hazardous waste storage at the

	plant. When the volume is substantial, the project owner contracts a licensed third party to transport and treat hazardous waste in accordance with the law. • Non-hazardous wastes are collected and treated in accordance with local laws and related regulations.
Source of data	Site observation; The signed contract with Urban Service Center of Bac Lieu Province for collection, transportation and treatment of domestic solid waste, and payment records; The signed contract with Viet Xanh Environmental Manufacturing – Trading – Service Co., Ltd for collection, transportation and treatment of hazardous waste, and receipts of hazardous waste.
Value(s) applied	Total of 475 kg of hazardous wates has been treated (including 300 kg of engine, transmission and waste lubricating oil and 175 kg of absorbent, filter material, cleaning cloth, hazardous components)
Measurement methods and procedures	Site observation and checking documents
Monitoring frequency	Once per monitoring period
QA/QC procedures	Cross-checking by interviews
Purpose of data	Prevent the penetration of waste, lubricant and grease into soil and groundwater
Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**Principle 9.5 High conservation value areas and critical habitats**
Data / Parameter	Number of dead birds/ bats
Unit	N/A
Description	Number of birds or bats are killed by wind turbines
Source of data	Site observation; and checking the monitoring book of bird, bat and aquatic at the project site.

Value(s) applied	0 (no birds or bats were killed by collisions with the turbines during this monitoring period)
Measurement methods and procedures	Site observation and checking documents
Monitoring frequency	Once per monitoring period
QA/QC procedures	Cross-checking by interviews
Purpose of data	Prevent the penetration of waste, lubricant and grease into soil and groundwater
Additional comment	N/A

The monitoring result of the above safeguarding principle show that during this monitoring period, the mitigation measures for these safeguarding principles have been implemented successfully by the project owner.

These mitigation measures will continue to be implemented and monitored in the next monitoring periods of the project activity.

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 following continuous input and grievance mechanism have been applied to this project:

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)	Grievance Expression Process Book. The process books have been located in Vinh Hau A and Vinh Hau Commune People Committees and Hoa Binh 1 – Phase 2 Wind Power Plant office as the stakeholders' chosen places. All the above sites are appropriate publicly accessible location where local stakeholders can provide their feedback about the project. The Project Participants checked the comments in the book on a regular basis, and record responses. They were respectful to the views of

	stakeholders and suggest alternative solutions or compromises wherever possible.
GS Contact (mandatory)	help@goldstandard.org
Telephone access	Hoa Binh 1 – Phase 2 Wind Power Plant +84 982 741 102 Energy and Environment Consultancy JSC +84 24 6666 9753 Swiss Carbon Value Ltd. +41 435 013 550 The telephone contact details were explained and discussed at the Meeting, and also provided in the Continuous Input / Grievance Expression Process Book
Internet/ email access (optional)	info@pagroup.vn eec@eec.vn registration@southpolecarbon.com The email address of the company was explained and discussed at the Meeting, and also provided in the Continuous Input / Grievance Expression Process Book
Other	Not applicable

The continue input/grievance mechanism has been in place for the stakeholders to provide feedback on the project. So far, the operation of the plant has run smoothly without any technical problems or social safeguard problems. There was no comment collected on the comment books, via phone calls or emails during the monitoring period.

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

During the stakeholder consultation meeting, all participants agreed that the project activity has no negative impacts on the environment – social - economic, so no mitigation measures were added from the stakeholders. The stakeholder feedback round has been conducted from 28/11/2020 to 27/01/2021 and the continue input/grievance mechanism is always maintained. So far, there have been no changes in the project design and the plant has been operated safely without any problems, so

the project participants have not received any further comments from stakeholders for the project activity.

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

No legal contest has arisen with the project during the monitoring period. The project owner has full legal right to control and operate the project activity. They have got all the required permits granted by the government like Business Certificate, Investment Licence of the Project, Certificate of Land Use Rights, Electricity Generation Permit, Power Purchase Agreement.

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