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)	GS10798
Title of the project (s) covered by monitoring report	Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	2.4
Version number of the monitoring report	2.3
Completion date of the monitoring report	29/11/2023
Date of project design certification	10/05/2022
Date of Last Annual Report	N/A
Monitoring period number	The 1st monitoring period
Duration of this monitoring period	29/10/2021 – 31/12/2022
Project Representative	Swiss Carbon Assets 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	84,279.822	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	27 6.29 4	Employees Million VND/month Trainings
SDG 13: Climate action	Emission reductions	75,535	VERs

Table 2 – Product Vintages

		Amount Achieved
Start Dates	**End Dates**	**SDG 13 (GS-VERs)**
29/10/2021	31/12/2021	11,407
01/01/2022	31/12/2022	64,128

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4 includes the construction of an off-shore wind power farm in Thanh Hai commune, Thanh Phu district, Ben Tre province, Viet Nam with total capacity of 120 MW and gross annual electricity output of 389,202 GWh. The project involves the installation of total 28 wind turbines - generators in four phases.

- Phase 1 – Thanh Hai 1: The installed capacity of 30 MW and estimated annual electricity output of 96.853 GWh. Phase 1 was put into commercial operation on 29/10/2021;
- Phase 2 – Thanh Hai 2: The installed capacity of 30 MW and estimated annual electricity output of 96.853 GWh. The first turbine of Phase 2 was put into commercial operation on 31/10/2021 and the remaining turbines of Phase 2 is expected to be put into commercial operation on 01/05/2024.
- Phase 3 – Thanh Hai 3: The installed capacity of 30 MW and estimated annual electricity output of 97.748 GWh. Phase 3 is expected to be put into commercial operation on 01/05/2024;
- Phase 4 – Thanh Hai 4: The installed capacity of 30 MW and estimated annual electricity output of 97.748 GWh. Phase 4 is expected to be put into commercially operation on 01/05/2024.

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 389.202 GWh[1]) will be supplied to the national grid via a newly constructed transmission line from the plant to a 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.

[1] Annual electricity output when all 4 phases are completed.

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 307,540 tCO_2e on average per year and 1,537,698 tCO_2e over the first crediting period.

The construction of the project activity started in 2019. Phase 1 and a part of phase 2 started commercial operation on 29/10/2021 and 31/10/2021, respectively.

In the first monitoring period from 29/10/2021 to 31/12/2022 (both days included), the project activity achieved total 75,535 tCO_2e emission reductions.

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

Table 3: The list of key events of Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4

Date	Key events
22/07/2019	Start date of the project (the date that the equipment supply contract was signed)
10/05/2022	Registration as a GS project
29/10/2021	Commercial operation date of Phase 1
31/10/2021	Commercial operation date the first turbine of Phase 2
29/10/2021 - 31/12/2022	First monitoring period

A.2. Location of project

The wind power plant is located in Thanh Hai communes, Thanh Phu district, Ben Tre province of Viet Nam.

The geo-coordinates of the project's site are as follow:

- Northern latitude: 09°54'19''
- Eastern longitude: 106°40'48''

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

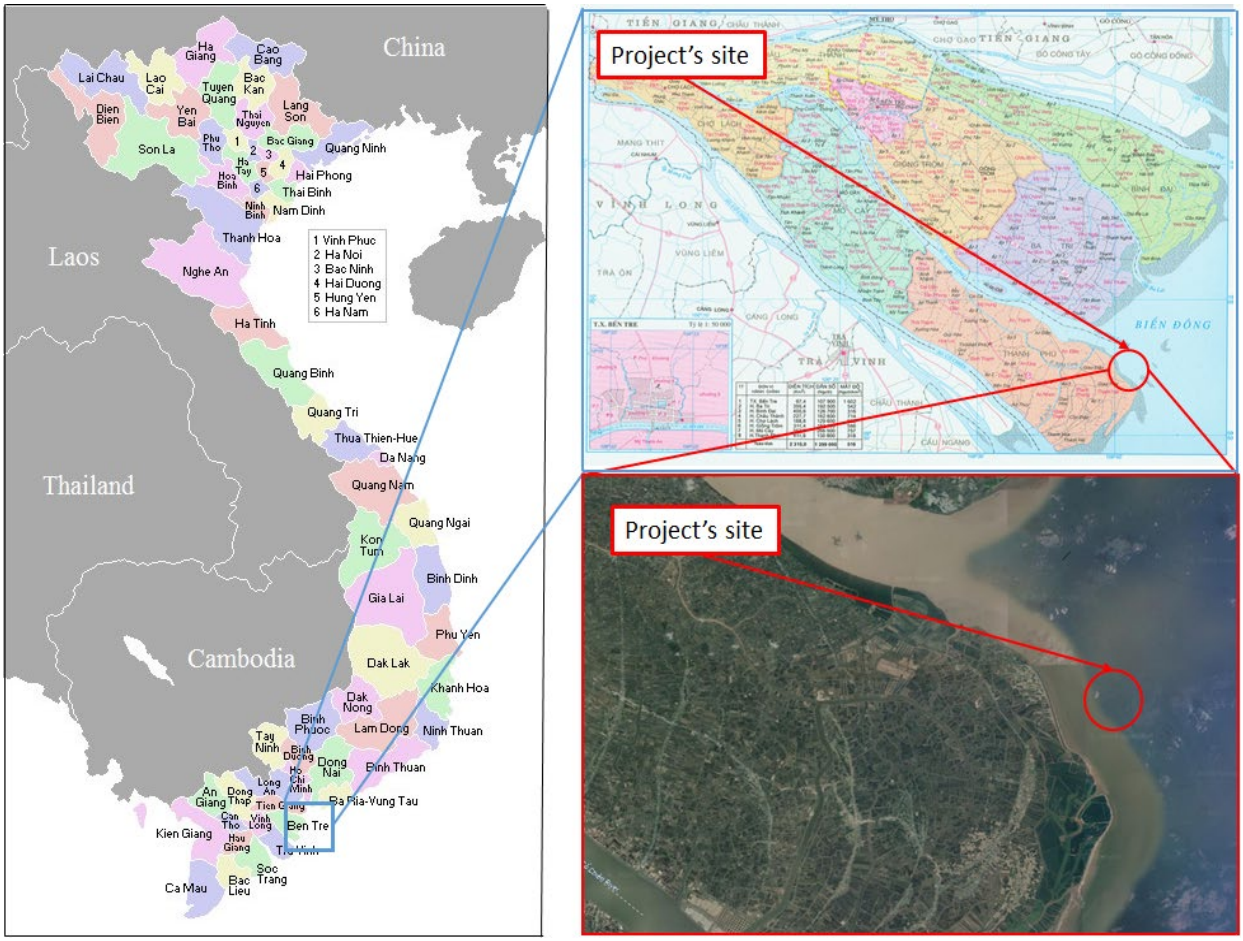

Figure 1: Map of the location of the project activity

A.3. Reference of applied methodology

Applied methodology:

- ACM0002 "Grid-connected electricity generation from renewable sources", version 20.0 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" 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

A.4. Crediting period of project

Type of crediting period: renewable.

Length of the second crediting period: 5 years.

Duration of the second crediting period: 29/10/2021 - 28/10/2026.

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 120 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 Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4.

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

Table 4: Main technical parameters of the proposed project activity[2]

Main parameter	Unit	Value
1. Turbine		
• Type	-	Phase 1: SG4.5-145 Phase 2: SG4.5-145 Phase 3: D4500-155 Phase 4: D4500-155
• Number of turbines and capacity + Phase 1 + Phase 2 + Phase 3 + Phase 4	Set	Total: 28 7 (6x4.25 MW and 1x4.5 MW) 7 (6x4.25 MW and 1x4.5 MW) 7 (6x4.25 MW and 1x4.5 MW) 7 (6x4.25 MW and 1x4.5 MW)
• Manufacturers + Phase 1 & 2 + Phase 3 & 4	-	Siemens Gamesa Renewable Energy DongFang Electric Co., Ltd.
• Tower height + Phase 1 & 2 + Phase 3 & 4	m	107.5 110
• Blade diameter	m	

[2] Equipment supply contracts; Approval of the plant completion acceptance reports issued by Department of Industry and Trade of Ben Tre province; Electricity generation licenses after project completion issued by Ministry of Industry and Trade.

+ Phase 1 & 2 + Phase 3 & 4		145 155
2. Generator		
• Type		Three-phase asynchronous
• Voltage	V	690
• Frequency	Hz	50
3. Main transformer		
• Type		Three phases, outdoor
• Rated capacity	MVA	4 x 40
• Voltage	kV	22/110
4. Technical lifetime of the plant[3]	year	20

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

Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4 started the construction in 2019. Phase 1 (including 7 turbines) and the first turbine of Phase 2 were put into commercial operation on 29/10/2021 and 31/10/2021, respectively. The remaining turbines of Phase 2, Phase 3 and Phase 4 are expected to be put into commercial operation in May 2024. The project activity was registered as a GS project on 10/05/2022.

In the first monitoring period from 29/10/2021 to 31/12/2022, Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4 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

FARs from the Design Review are summarized as follows.

FARs	Addressed by PPs
FAR-1: Remote audit shall be resumed by VVB when Covid-19 situation eases as per	COVID 19: Interim Measures, version 5, dated 21/12/2021, para 4.2.1 mentioned "In case of **4.1.1 (a)** the VVB shall complete the on-site inspection as normal when the COVID-19 situation eases". Para 4.1.1 (a) mentioned that "A VVB may postpone site visits for on-site inspections, taking into

[3] Tool10 – Tool to determine the remaining lifetime of equipment, EB50, Annex 15.

Interim Measures para 4.2.1.	account the rules of relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB (if any) and other relevant travel restrictions and guidance (for example, a requirement to self-isolation upon return from specific countries)". According to the final validation report, version 05, dated 21/01/2023, the validation team has used alternative measure **4.1.1 (b)** of COVID 19: Interim Measures. Therefore, "remote audit shall be resumed by VVB" is not applicable to this project.
In-line With PR 5.1.29, 1st Verification shall be completed within 2 years after design certification.	The request for 1st performance review was submitted on 20/10/2023 within 2 years from the date of Design Certification on 10/05/2022.
In-line with PR 5.1.39, annual reporting shall be provided to GS where verification did not take place in a calendar year.	The project participants received the final Design Review for this project on 07/02/2023. The annual report will be submitted by the end of 2023 in case the 1st performance review cannot be submitted in 2023.

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 No.5 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 0.2s and 0.5s for main and back-up meters, respectively.

The following diagram indicates the power meter location:

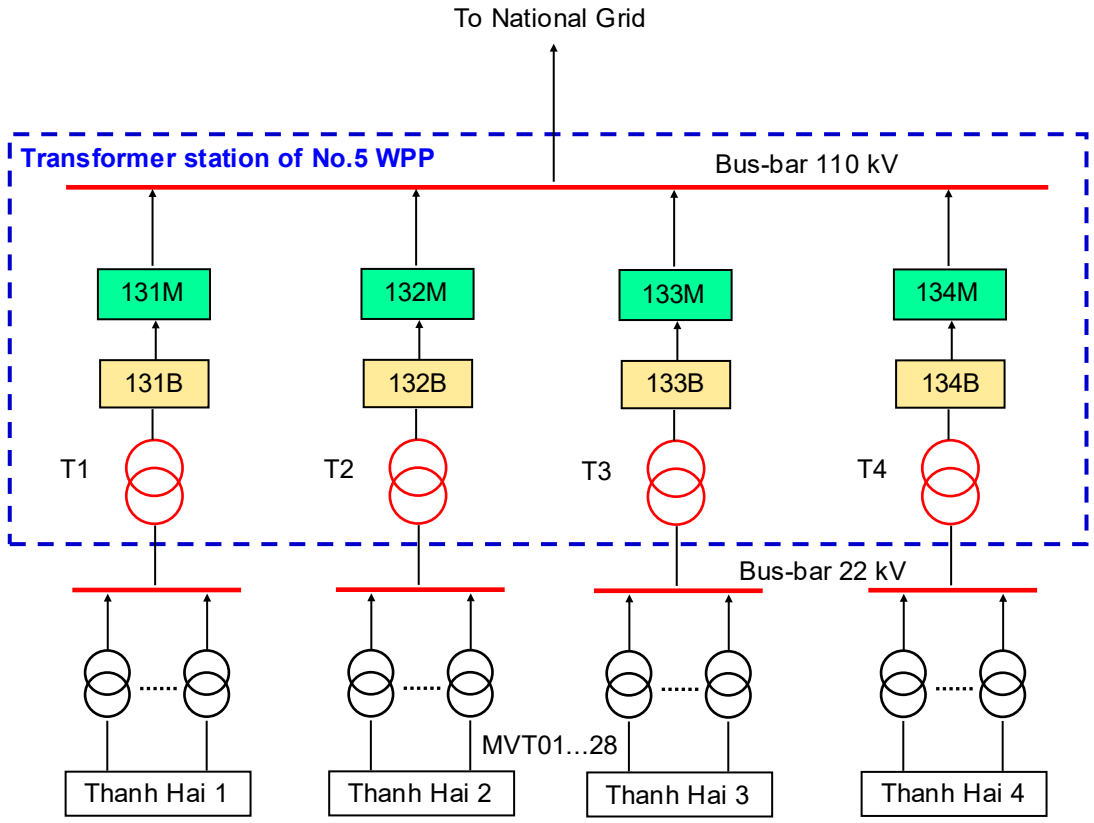

Figure 2: Meter diagram of No.5 Wind Power Plant Thanh Hai 1-4

Where:

MTV01…28: Medium voltage transformer from 01 to 28

T1, T2, T3, T4: Main transformers

131M, 132M, 133M, 134M: Main power meters

131B, 132B, 133B, 134B: Back-up power meters

Details of the power meters are as follows:

Table 5: Details of the power meters of Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4

Power meter	Type	Position	Function	Record frequency	Calibration party and frequency
Main power meter 131M	Landis+ Gyr	The 22/110 kV transformer station of No.5 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 1 (WTG from No.01 to 07 of No.5 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
Backup power meter 131B	Landis+ Gyr	The 22/110 kV transformer station of No.5 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 1 (WTG from No.01 to 07 of No.5 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
Main power meter 132M	Landis+ Gyr	The 22/110 kV transformer station of No.5 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 2 (WTG from No.08 to 14 of No.5 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
Backup power meter 132B	Landis+ Gyr	The 22/110 kV transformer station of No.5	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 2	The end of every month	Third party, at least once every

		Wind Power Plant	(WTG from No.08 to 14 of No.5 WPP). Data recorded by this meter will be used when the main meter fails.		three years
Main power meter 133M	Landis+ Gyr	The 22/110 kV transform er station of No.5 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 3 (WTG from No.15 to 21 of No.5 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
Backup power meter 133B	Landis+ Gyr	The 22/110 kV transform er station of No.5 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 3 (WTG from No.15 to 21 of No.5 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
Main power meter 134M	Landis+ Gyr	The 22/110 kV transform er station of No.5 Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 4 (WTG from No.22 to 28 of No.5 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
Backup power meter 134B	Landis+ Gyr	The 22/110 kV transform er station of No.5	Measuring amount of electricity exported from and amount of electricity imported to Thanh Hai 4	The end of every month	Third party, at least once every

		Wind Power Plant	(WTG from No.22 to 28 of No.5 WPP). Data recorded by this meter will be used when the main meter fails.		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:

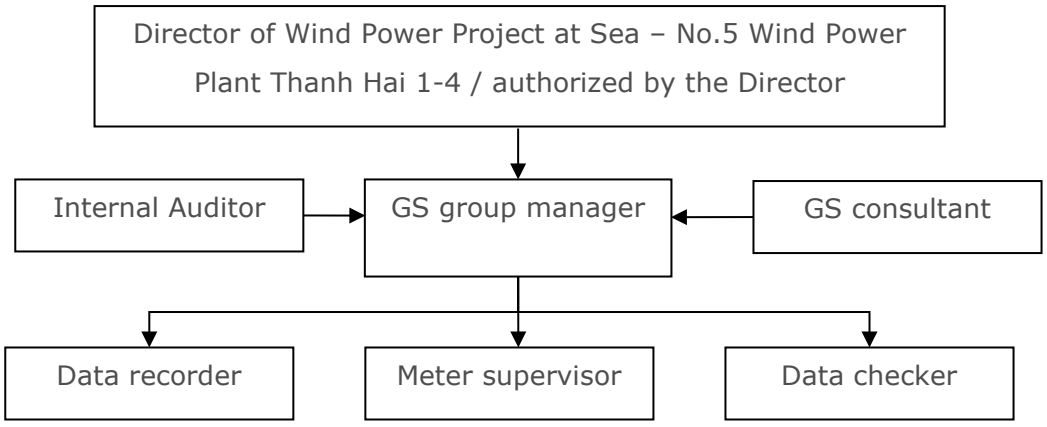

Figure 3: Structure of monitoring group

The responsibilities of each person involved are elaborated as follows

Table 6: Organization of CDM group

Person	Responsibility
Director of Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4/ authorized by the Director	Check and sign the monitoring report annually.
GS group manager	Managing the whole GS business of Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4, 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.

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:

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 Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4 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 No.5 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 No.5 Wind Power Plant in this monitoring period***

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

Table 7: Detailed information of power meters in No.5 Wind Power Plant

Technical details		Thanh Hai 1		Thanh Hai 2		Thanh Hai 3		Thanh Hai 4	
		Main meter 131M	Backup meter 131B	Main meter 132M	Backup meter 132B	Main meter 133M	Backup meter 133B	Main meter 134M	Backup meter 134B
Serial No.		43702920	43702653	43702921	43702646	43702911	58119876	43702912	58119878
Model		Landis+Gyr	Landis+Gyr	Landis+Gyr	Landis+Gyr	Landis+Gyr	Landis+Gyr	Landis+Gyr	Landis+Gyr
Accuracy		0.2s	0.5s	0.2s	0.5s	0.2s	0.5s	0.2s	0.5s
Operation status during the monitoring period		Good	Good	Good	Good	Good	Good	Good	Good
Manufacturer		Greece	Greece	Greece	Greece	Greece	Greece	Greece	Greece
Calibration frequency as the national regulations		At least once every three years							
1st calibration	*Date:*	16/07/2020	16/07/2020	16/07/2020	16/07/2020	20/07/2021	20/07/2021	20/07/2021	20/07/2021
	Calibration entity:	Northern Electrical Testing One Member Company Limited							
2nd calibration	*Date:*	17/03/2022		17/03/2022		17/03/2022		17/03/2022	
	Calibration entity:	Southern Electrical Testing Company							

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	$EG_{PJ,grid,y}$ (or $EG_{facility,y}$)
Unit	MWh
Description	Net electricity supplied to the national grid by the project activity during this monitoring period
Source of data	Direct measurement at the connection point by power meters
Value(s) applied	84,279.822 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[4]. 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; • Local employees; • Equal pay for work of equal value for both men and women.
Unit	• Quality of employment; • Number of employees (for data on quantitative employment); • Number of local employees; and • 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. Men and women are paid equally for work of equal value.
Source of data	Training certificates, labour contracts, salary records

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

<table>
<tr><td>Value(s) applied</td><td>- The employees are trained on technical aspects relating to the operation of the wind power plant; occupational safety and hygiene; electricity safety.
Summary of training courses:<table><tr><th>Date</th><th>Training</th><th>Attendee</th><th>Conducted by</th></tr><tr><td>18/10/2020</td><td>Operation of the wind power plant</td><td>16</td><td>Southern Regional Load Dispatch Center</td></tr><tr><td>05/05/2021</td><td>Occupational safety and hygiene</td><td>7</td><td>Nam Viet Environmental Monitoring and Safety Training Co., Ltd.</td></tr><tr><td>01/10/2022</td><td>Electricity safety</td><td>19</td><td>Tan Hoan Cau Ben Tre JSC</td></tr><tr><td>06/10/2022</td><td>Occupational safety and hygiene</td><td>8</td><td>PFL Occupational Safety Co., Ltd.</td></tr></table>- The employees are provided with labour contracts, social and medical insurances.
- Number of employees: 27 (including 5 female and 22 male employees)
- Average income: 6.29 million VND per month</td></tr>
<tr><td>Measurement methods and procedures</td><td>Checking documents</td></tr>
<tr><td>Monitoring frequency</td><td>Annual</td></tr>
<tr><td>QA/QC procedures</td><td>Cross-checking by interviews</td></tr>
<tr><td>Purpose of data</td><td>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</td></tr>
</table>

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 No.5 Wind Power Plant and calculated combined margin (CM) emission factor are used as reference in calculation of the emission reduction.
Value(s) applied	75,535 tCO_2e
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

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

No electricity is exported to the national grid in the baseline scenario of the project activity, so the baseline estimate for SDG7 is 0 MWh.

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

No employee is employed; no income is generated; and no training is provided in the baseline scenario of the project activity, so the baseline estimate for SDG8 is 0 employee; 0 VND; and 0 training.

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

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 (29/10/2021 – 31/12/2022), Wind Power Plant at Sea – No.5 Wind Power Plant Thanh Hai 1-4 supplied to the grid a total net electricity of $EG_{facility,y}$ = 84,279.822 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:

$$BE_y = 84,279.822 * 0.89625 = 75,535\ tCO_2 \text{ (rounded down)}$$

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

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

The net electricity of 84,279.822 MWh has been exported to the national grid in this monitoring period of the project activity, so the project estimate for SDG7 is 84,279.822 MWh.

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

27 employees are employed with average salary of 6.29 million VND/month; and 4 training courses have been provided to employees in this monitoring period of the project activity, so the project estimate for SDG8 is 27 employees; 6.29 million VND/month; and 4 trainings.

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

The project emissions of this wind power project:

$$PE_y = 0$$

E.3. Calculation of leakage

The leakage (if any) is applicable for SDG13 only.

The technology utilized in Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4 is neither transferred to nor transferred from another activity; hence, leakage is considered as zero.

$$LE_y = 0$$

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 and modern energy for all	MWh of renewable energy generated	0 MWh	84,279.822 MWh	84,279.822 MWh
SDG 8: Promote sustained, inclusive and	The employees have access to training, healthcare,	0 employee 0 VND 0 training	27 employees 6.29 million VND 4 trainings	27 employees 6.29 million VND 4 trainings

sustainable economic growth, full and productive employment and decent work for all	insurances and better income			
SDG 13: Take urgent action to combat climate change and its impacts	Emissions reductions	75,535 tCO_2e	0 tCO_2e	75,535 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[5] achieved during this monitoring period
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	403,308.189 MWh	84,279.822 MWh
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive	80 employees 8 million VND/month Number of trainings is not mentioned in the registered PDD	27 employees 6.29 million VND/month 4 trainings

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

employment and decent work for all		
SDG 13: Take urgent action to combat climate change and its impacts	361,465 tCO_2e	75,535 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 29/10/2021 to 31/12/2022 (first and last days included) – 429 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 343,141 MWh.

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

343,141 / 365 * 429 = 403,308.189 MWh.

SDG 8:

According to the registered PDD, the estimated number of employees is 80 people with an average salary of 8 million VND/month. The number of trainings is not estimated in the registered design renewal PDD.

SDG 13:

According to the registered PDD, amount estimated ex ante for one year of emission reductions – 365 days is 307,540 tCO_2e.

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

307,540 / 365 * 429 = 361,465 tCO_2e.

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

SDG 7:

The actual net electricity exported to the national grid in this monitoring period is 84,279.822 MWh while the estimated ex ante is 403,308.189 MWh. It is thus 21% of the ex-ante estimation in the registered PDD. The reason for the decrease in electricity output is because the project has not been fully completed. Only Thanh Hai 1 and the first WTG of Thanh Hai 2 were put into operation in this monitoring period.

SDG 8:

Compared to the estimated values in the registered design renewal PDD, the actual employees decreased from 80 people to 27 people; the average monthly salary decreased from 8 million VND to 6.29 million VND; and 4 training courses were provided to employees. In the first monitoring period, only Thanh Hai 1 and the 1st WTG of Thanh Hai 2 have been put into operation. The remaining six WTGs of Thanh Hai 2, all of Thanh Hai 3 and Thanh Hai 4 are expected to be put into operation in May 2024. The project has not been fully completed, so the actual employees and average salary are lower than the expected values in the registered PDD.

SDG 13:

The actual emission reductions achieved in the first monitoring period of the project activity is 75,535 tCO_2e while the estimated ex ante is 361,465 tCO_2e. It is thus 21% of the ex-ante estimation in registered PDD. The reason for the decrease in ERs is because the project has not been fully completed. Only Thanh Hai 1 and the first WTG of Thanh Hai 2 were put into operation in this monitoring period.

SECTION F. SAFEGUARDS REPORTING

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

Relevant SDG Indicator/Safeguarding Principle	**Principle 8.2 Erosion and Water Body Instability**
Data / Parameter	Plantation
Unit	-
Description	The project owner conducts plantation 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.
Source of data	Site observation, the contract for plantation with the third party and the payment invoice.
Value(s) applied	-
Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	Cross-checking by interviews
Purpose of data	-
Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**Principle 9.5 Hazardous and Non-hazardous Waste**
Data / Parameter	Hazardous wates, non-hazardous waste
Unit	-
Description	• Hazardous wastes are collected and treated by the third authorized party in accordance with local laws and related regulations; and • Non-hazardous wastes are collected and treated in accordance with local laws and related regulations.
Source of data	Site observation, the signed contract for collection, transportation and treatment of domestic waste, the signed contract for collection, transportation and treatment of hazardous waste.
Value(s) applied	-
Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	Cross-checking by interviews
Purpose of data	-

Additional comment	N/A

Relevant SDG Indicator/Safeguarding Principle	**Principle 9.10 High Conservation Value Areas and Critical Habitats/ Principle 9.11 Endangered Species**
Data / Parameter	Number of endangered aquatic and birds are killed
Unit	Number
Description	Number of endangered aquatic and birds are killed or injured when colliding with turbines.
Source of data	Checking documents
Value(s) applied	0
Measurement methods and procedures	The number of dead endangered aquatic and birds are monitored and recorded
Monitoring frequency	Annual
QA/QC procedures	Cross-checking by interviews
Purpose of data	-
Additional comment	N/A

The monitoring result of the above safeguarding principle show that during this monitoring period, the mitigation measures for this safeguarding principle 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 book has been located Thanh Hai People Committee and Wind Power Project at Sea – No.5 Wind Power Plant Thanh Hai 1-4 offices, VNEEC office as the stakeholders' chosen places. All the sites are appropriate publicly accessible location where local stakeholders can provide their feedback about the project. Project Participant will check the comments in the book on a regular basis, and record responses. They will be respectful to the views of stakeholders and suggest alternative solutions or compromises wherever possible
GS Contact (mandatory)	help@goldstandard.org
Telephone access	Tan Hoan Cau Ben Tre JSC +84 969 995 1595 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	phungquocan6789@gmail.com 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

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 safeguards 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.

Not applicable.

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

Not applicable.

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