



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

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KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS 11251
Title of the project (s) covered by monitoring report	Thai Hoa Wind Power Project
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	2.6
Version number of the monitoring report	2.1
Completion date of the monitoring report	28/12/2023
Date of project design certification	28/12/2022
Date of Last Annual Report	15/11/2023
Monitoring period number	The 1 st monitoring period
Duration of this monitoring period	31/10/2021 - 30/06/2023
Project Representative	Swiss Carbon Value Ltd.
Host Country	Viet Nam
Activity Requirements applied	<input type="checkbox"/> Community Services Activities <input checked="" type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
Methodology (ies) applied and version number	ACM0002, version 20.0: "Grid-connected electricity generation from renewable sources"
Product Requirements applied	<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> 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	321,791.613	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 19 men and 5 women) 10 21.8	Employees Trainings Million VND/month
SDG 13: Climate action	Emission reductions	278,059	VERs

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	GS-VERs
31/10/2021	31/12/2021	28,760
01/01/2022	31/10/2022	157,975
01/01/2023	30/06/2023	91,324

Declaration on no double counting:

Thai Hoa Wind Power Project is registered only in GS program. The project activity is not participated in other emissions trading programs, other binding limits, other forms of environmental credits or other GHG programs. This project is not rejected by any other GHG programs. The project developer has not and/or will not claim emission reductions for the same vintage in another standard other GS.

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The Thai Hoa Wind Power Project activity involves the construction of an on-shore wind power plant in Hoa Thang commune, Bac Binh district, Binh Thuan province, Viet Nam with a total capacity of 90 MW. The project involves the installation of 18 wind turbines – generators at 5 MW, 22kV underground cable line, 2x50 MVA transformer station and 220 kV transmission line.

Prior to the implementation of the project activity, electricity in Vietnam is generated mainly from fossil fuel sources and is solely distributed to consumers by Vietnam 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 renewable energy source and export to the national grid by utilizing wind energy. The electricity generated with an estimated annual volume of 248.5 GWh will be supplied to the national grid via a newly constructed transmission line from the plant to the 2x50 MVA transformer station.

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 a reduction of 214,728 tCO₂ on average per year and 1,073,640 tCO₂ over the first crediting period of 5 years.

The construction of the project activity started in July 2020. The project started commercial operation on 31/10/2021.

In the first monitoring period from 31/10/2021 to 30/06/2023 (both days included), the project activity achieved total 278,059 tCO₂e 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
14/07/2020	Start date of the project (the date that the equipment supply contract was signed)

31/10/2021	Commercial operation date
08/08/2023	Date of the final design review under GS4GG
31/10/2021 - 30/06/2023	First monitoring period

A.2. Location of project

The wind power plant is located in Hoa Thang commune, Bac Binh district, Binh Thuan province of Viet Nam.

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

Northern latitude: 11° 04’ 16”

Eastern longitude: 108° 21’ 52”

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

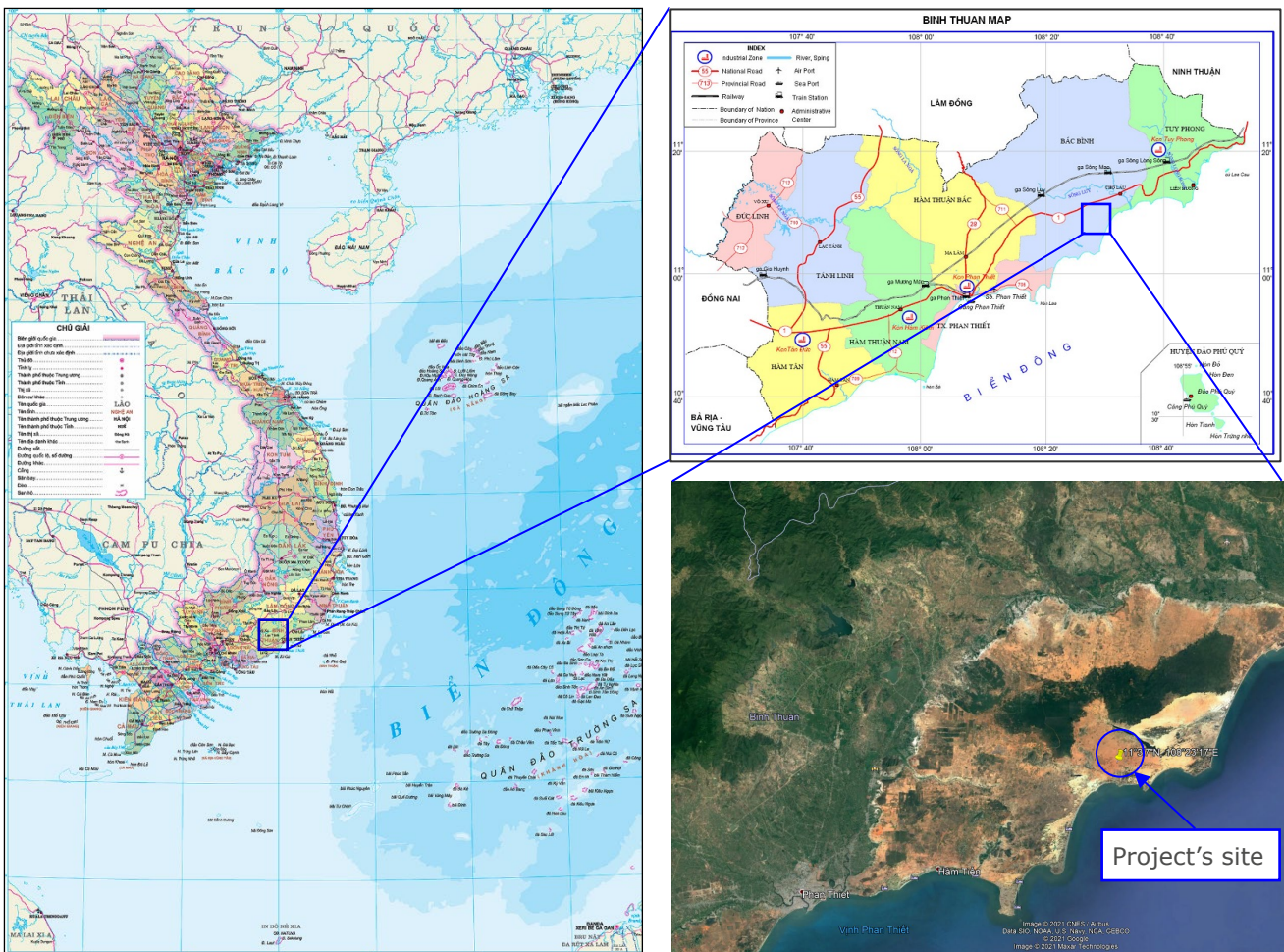


Figure 1 – Project’s location

The project’s layout is shown in the below figure:

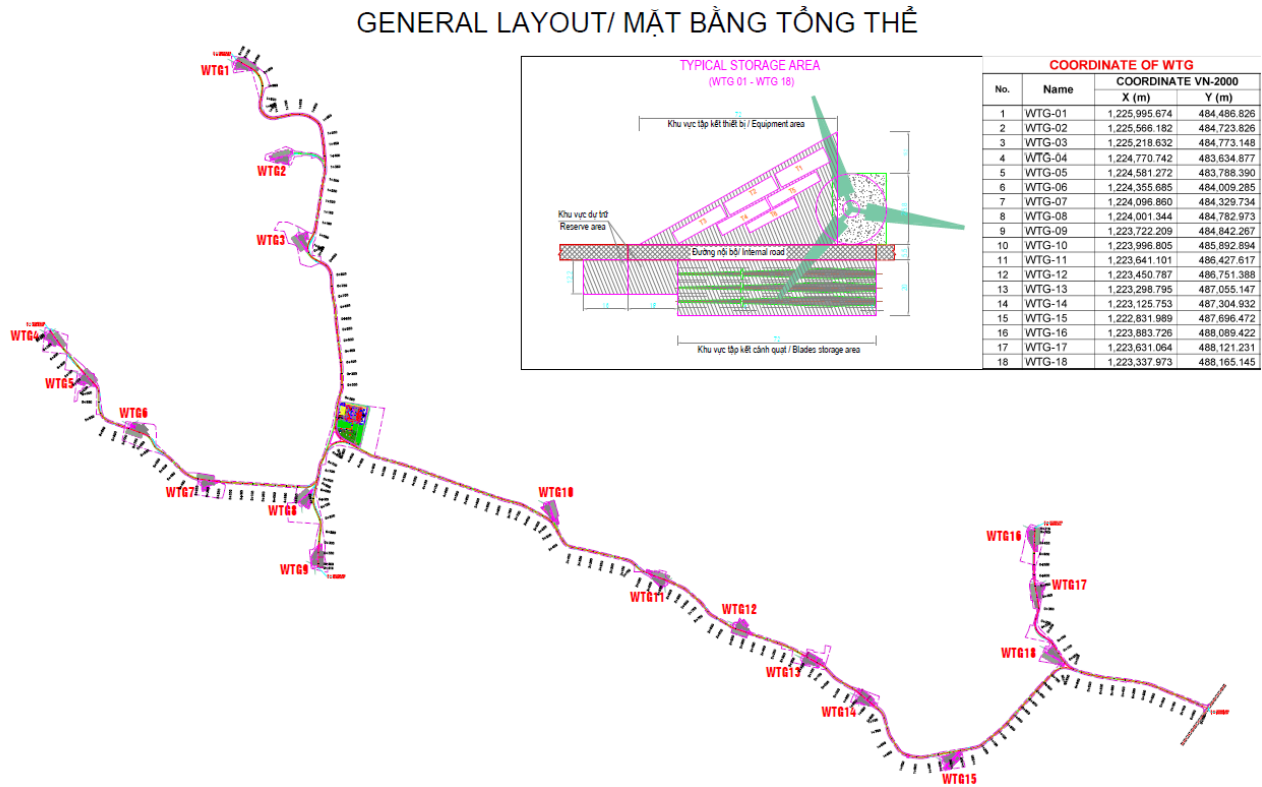


Figure 2: Project’s layout

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/XP2LKUSA61DKUQC0PIWPGWDN8E D5PG>

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>

A.4. Crediting period of project

Type of crediting period: renewable.

Length of the crediting period: 5 years.

Duration of the first crediting period: 31/10/2021 - 30/10/2026.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

Description of the installed technology, technical process and equipment

The project involves the construction of a 90 MW grid-connected wind power plant with 18 wind turbines and generators to convert kinetic power of the wind to electrical energy, which will be supplied to the national grid at the connection point through the 220kV electricity 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 Thai Hoa Wind Power Plant.

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

Table 4 - Main technical parameters of Thai Hoa Wind Power Plant¹

Main parameter	Unit	Value
1. Turbine		
• Type		SG 5.0–145
• Number of turbines	set	18
• Rated power	kW	5,000
2. Generator		
• Type	-	Three-phase synchronous
• Number	-	18
• Rated power	kW	5,000
• Voltage	V	690
• Frequency	Hz	50
3. Main transformer		
• Type	-	Three phases
• Number	-	2
• Rated capacity	MVA	50
• Voltage (high voltage/ low voltage)	kV	225/ 23

¹ The electricity generation permit issued by Ministry of Industry and Trade; and nameplates of equipment.

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

Thai Hoa Wind Power Project started the construction in July 2020. The plant was put into commercial operation on 31/10/2021. The project activity was registered as a GS project on 07/12/2022.

In the first monitoring period from 31/10/2021 to 30/06/2023, Thai Hoa 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

FARs from Design Review under Gold Standard for the Global Goals are summarized and addressed as follow:

No.	FARs	Addressed by PPs
FAR # 1	<p>In-line with GS4GG Principles and Requirements, VVB and PP shall consider the following rules after the design certification is finalized:</p> <p>5.1.1: The number of Performance Certifications in a five-year certification cycle is not limited although it must take place at least once, no later than two years after Project implementation or Design Certification, whichever is later.</p>	<p>The request for 1st performance review is expected to be submitted to SustainCERT in November 2023 within 2 years from the date of Design Certification on 07/12/2022.</p>
	<p>5.1.39: Transparent, annual update reports need to be provided for Projects that have achieved the Project Design Certification stage. An annual report shall be submitted for each monitoring year by end of next calendar year for which verification is not completed. If a verification is in progress but not completed, then an Annual Report is still required by the end of calendar year.</p>	<p>The project participants received the final Design Review for this project on 08/08/2023. An annual report will be submitted to GS by the end of 2023 in case the 1st performance review cannot be submitted in 2023.</p>

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 main and first backup metering systems are installed at the 220 kV Thai Hoa switching station and the second backup metering systems are installed at 220 kV transformer station of Thai Hoa 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:

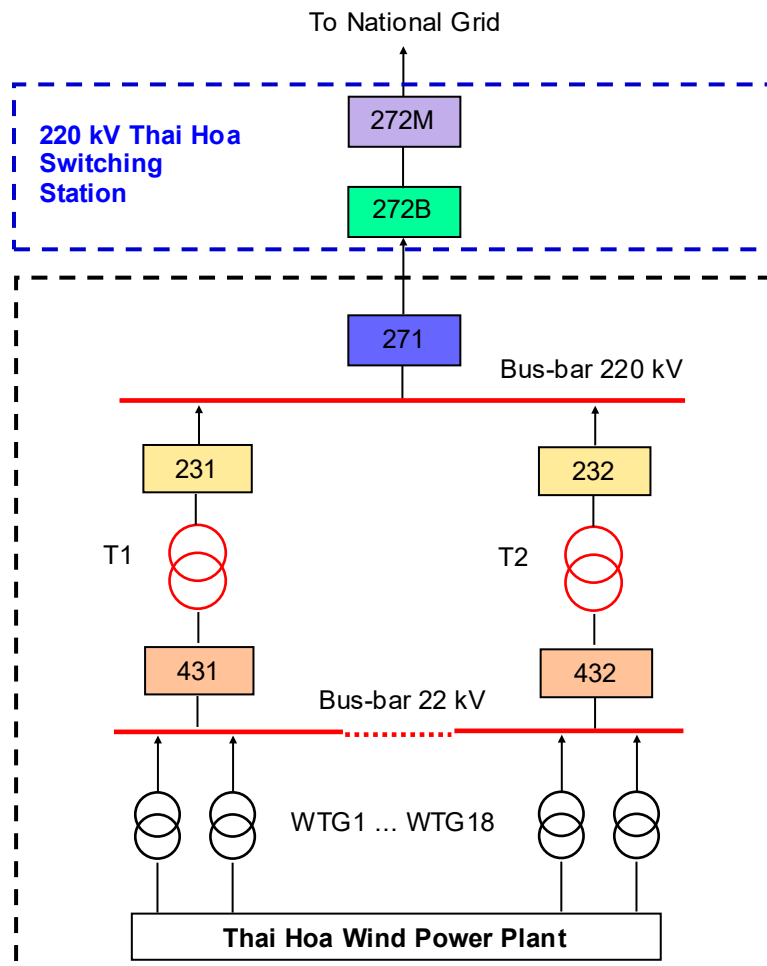


Figure 2: Meter diagram of Thai Hoa Wind Power Plant

Where:

- 272M : The main power meter
- 272B : The first backup power meter
- 271, 231, 232 : The second backup power meters at 220kV

431, 432 : The second backup power meters at 22kV

T1, T2 : Main transformers

WTG1 ... WTG18 : 18 wind turbines, generators and medium voltage transformers.

Details of the power meters are as follows:

Table 5: Details of the power meters of Thai Hoa Wind Power Project

Power meter	Type	Position	Function	Record frequency	Calibration party and frequency
Main power meter 272M	Elster A1700	The 220 kV Thai Hoa switching station.	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa 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
First backup power meter 272B	Elster A1700	The 220 kV Thai Hoa switching station.	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa 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
Second backup power meter 271 at 220kV	Elster A1700	The 220 kV transformer station of Thai Hoa Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa WPP. Data recorded by this meter will be used when both the main and first backup meters fail.	The end of every month	Third party, at least once every three years

Second backup power meter 231 at 220kV	Elster A1700	The 220 kV transformer station of Thai Hoa Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa WPP. Data recorded by this meter will be used when both the main and first backup meters fail.	The end of every month	Third party, at least once every three years
Second backup power meter 232 at 220kV	Elster A1700	The 220 kV transformer station of Thai Hoa Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa WPP. Data recorded by this meter will be used when both the main and first backup meters fail.	The end of every month	Third party, at least once every three years
Second backup power meter 431 at 22kV	Elster A1700	The 220 kV transformer station of Thai Hoa Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa WPP. Data recorded by this meter will be used when both the main and first backup meters fail.	The end of every month	Third party, at least once every three years
Second backup power meter 432 at 22kV	Elster A1700	The 220 kV transformer station of Thai Hoa Wind Power Plant	Measuring amount of electricity exported from and amount of electricity imported to Thai Hoa WPP. Data recorded by this meter will be used when both the main and first backup meters fail.	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:

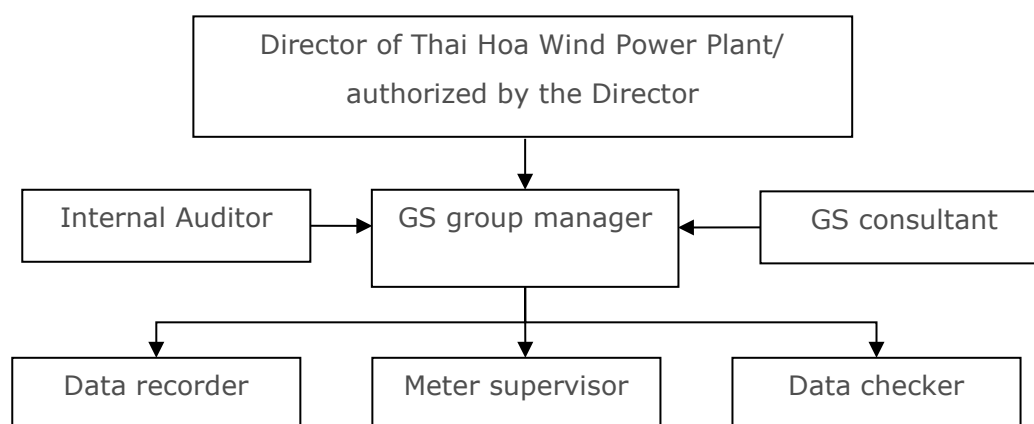


Figure 3: Structure of monitoring group

The responsibilities of each person involved are elaborated as follows

Table 6: Organization of GS group

Person	Responsibility
Director of Thai Hoa Wind Power Project/ authorized by the Director	Check the monitoring report annually.
GS group manager	Managing the whole GS business of Thai Hoa 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.
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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 Thai Hoa 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 Thai Hoa 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 Thai Hoa 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 272M	First backup meter 272B	2 nd backup meter 271	2 nd backup meter 231	2 nd backup meter 232	2 nd backup meter 431	2 nd backup meter 432
Serial No.		20015946	20042041	20042045	20042044	20042046	20042047	20042048
Model		A1700	A1700	A1700	A1700	A1700	A1700	A1700
Accuracy		0.2s	0.5s	0.5s	0.5s	0.5s	0.5s	0.5s
Operation status during the monitoring period		Good	Good	Good	Good	Good	Good	Good
Manufacturer		Elster	Elster	Elster	Elster	Elster	Elster	Elster
Calibration frequency as the national regulations		At least once every three years						
1 st calibration	<i>Date:</i>	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021
	<i>Calibration entity:</i>	Quality Assurance and Testing Center 1						
2 nd calibration	<i>Date:</i>	14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022
	<i>Calibration entity:</i>	Southern Electrical Testing Company						
Valid until:		13/09/2025	13/09/2025	13/09/2025	13/09/2025	13/09/2025	13/09/2025	13/09/2025

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://www.dcc.gov.vn/van-ban-phap-luat/1081/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2020-(k%C3%A8m-CV-1316/BDKH-TTBVTOD).html)
Value(s) applied		0.9242
Choice of data or Measurement methods and procedures		The latest $EF_{grid,OM,y}$ for 2020 was calculated and published by Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Viet Nam) on 03/01/2022. The calculation was based on "Tool to calculate the emission factor for an electricity system" – Version 07.0. The $EF_{grid,OM,y}$ shall be fixed in the first crediting period
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://www.dcc.gov.vn/van-ban-phap-luat/1081/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2020-(k%C3%A8m-CV-1316/BDKH-TTBVTOD).html)
Value(s) applied	0.6840
Choice of data or Measurement methods and procedures	The latest $EF_{grid,BM,y}$ for 2020 was calculated and published by Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Viet Nam) on 03/01/2022. The calculation was based on "Tool to calculate the emission factor for an electricity system" – Version 07.0. The $EF_{grid,BM,y}$ shall be fixed in the first crediting period.
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 13: Climate Action
SDG	
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://www.dcc.gov.vn/van-ban-phap-luat/1081/Nghien-cuu,-xay-dung-he-so-phat-thai-(EF)-cua-luoi-dien-Viet-Nam-nam-2020-(k%C3%A8m-CV-1316/BDKH-TTBVTOD).html)
Value(s) applied	0.8641

Choice of data or Measurement methods and procedures	The $EF_{grid,CM,y}$ was calculated and published by Ministry of Natural Resources and Environment, Department of Climate Change (DNA of Viet Nam) on 03/01/2022, using Operating margin CO ₂ emission factor - $EF_{grid,OM,y}$ and Build margin CO ₂ emission factor - $EF_{grid,BM,y}$ and weightings w_{OM} , w_{BM} of 0.75 and 0.25 for wind power plants 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
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	321,791.613 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 ² . 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	<ul style="list-style-type: none"> • Quality of employment; • Quantitative employment and income generation; • Equal pay for work of equal value for both men and women.
Unit	<ul style="list-style-type: none"> • 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 Binh Thuan 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.

² Decision No. 2739 QD-TDC on promulgating metrological technical standard of Viet Nam.

Source of data	Training records, training certificates, labour contracts, salary records, social insurance books, health insurance cards, contracts for annual health check with third party and examination results.																									
Value(s) applied	<p>- Ten training courses have been provided to the employees including: 01 training for operation of the wind power plant; 01 training for operation and management of the 220kV substation; 03 trainings for electrical safety; 02 trainings for fire prevention and rescue; 03 trainings for occupational safety and hygiene training;</p> <p>Summary of training courses:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No.</th> <th style="width: 30%;">Subject</th> <th style="width: 15%;">Date</th> <th style="width: 15%;">Number of attendees</th> <th style="width: 35%;">Conducted by</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Wind power plant operation</td> <td style="text-align: center;">09/04/2021</td> <td style="text-align: center;">7</td> <td>EVN – National Load Dispatch Centre</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Operation and management of the 220kV substation</td> <td style="text-align: center;">23/07/2021</td> <td style="text-align: center;">10</td> <td>EVN – Southern Regional Load Dispatch Centre</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Electrical safety</td> <td style="text-align: center;">19/07/2021</td> <td style="text-align: center;">14</td> <td>DHP Technology and Service Co., Ltd.</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Electrical safety</td> <td style="text-align: center;">28/10/2022</td> <td style="text-align: center;">5</td> <td>BHL Group International JSC</td> </tr> </tbody> </table>	No.	Subject	Date	Number of attendees	Conducted by	1	Wind power plant operation	09/04/2021	7	EVN – National Load Dispatch Centre	2	Operation and management of the 220kV substation	23/07/2021	10	EVN – Southern Regional Load Dispatch Centre	3	Electrical safety	19/07/2021	14	DHP Technology and Service Co., Ltd.	4	Electrical safety	28/10/2022	5	BHL Group International JSC
No.	Subject	Date	Number of attendees	Conducted by																						
1	Wind power plant operation	09/04/2021	7	EVN – National Load Dispatch Centre																						
2	Operation and management of the 220kV substation	23/07/2021	10	EVN – Southern Regional Load Dispatch Centre																						
3	Electrical safety	19/07/2021	14	DHP Technology and Service Co., Ltd.																						
4	Electrical safety	28/10/2022	5	BHL Group International JSC																						

5	Electrical safety	03/07/2023	19	BHL Group International JSC
6	Occupational safety and hygiene	15/07/2021	14	DHP Technology and Service Co., Ltd.
7	Occupational safety and hygiene	28/11/2022	8	BHL Group International JSC
8	Occupational safety and hygiene	03/07/2023	25	BHL Group International JSC
9	Fire prevention and recuse	15/01/2022	10	Fire Prevention, Fighting and Rescue Police Department of Binh Thuan Province
10	Fire prevention and recuse	26/12/2022	10	Fire Prevention, Fighting and Rescue Police Department of Binh Thuan Province

- The employees are provided with labour contracts, social and medical insurances;
- Number of employees: 24 (including 5 female and 19 male employees);
- Average income: 21.8 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 ₂ e/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 Thai Hoa Wind Power Plant and calculated combined margin (CM) emission factor are used as reference in calculation of the emission reduction.
Value(s) applied	278,059 tCO ₂ e
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 CO₂ emissions from electricity generation by fossil fuel fired power that are displaced due to the project activity. It is calculated as follows:

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

Where:

BE _y	Baseline emissions in the monitoring period (tCO ₂ e)
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 (31/10/2021 - 30/06/2023), Thai Hoa Wind Power Project supplied to the grid a total net electricity of EG_{facility,y} = 321,791.613 MWh.

The baseline emission factor EF_{grid,CM,y} = 0.89625 tCO₂e/MWh.

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

$$BE_y = 321,791.613 * 0.8641 = 278,059 \text{ tCO}_2 \text{ (rounded down)}$$

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 321,791.613 MWh has been exported to the national grid in this monitoring period of the project activity, so the project estimate for SDG7 is 321,791.613 MWh.

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

24 employees are employed with average salary of 21.8 million/month; and 10 training courses have been provided to employees in this monitoring period of the project activity, so the project estimate for SDG8 is 24 employees; 21.8 million/month; and 10 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 Thai Hoa Province Wind Power Plant 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	321,791.613 MWh	321,791.613 MWh
SDG 8: Promote sustained, inclusive and sustainable	The employees have access to training, healthcare,	0 employee 0 VND 0 training	24 employees 21.8 million VND 10 trainings	24 employees 21.8 million VND 10 trainings

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	278,059 tCO ₂ e	0 tCO ₂ e	278,059 tCO ₂ e

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 ³ achieved during this monitoring period
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	413,939.726 MWh	321,791.613 MWh
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive	35 employees 0 VND 0 training	24 employees 21.8 million VND 10 trainings

³ 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

357,684 tCO₂e

278,059 tCO₂e

change and its

impacts

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

This monitoring period is from 31/10/2021 to 30/06/2023 (first and last days included) – 608 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 248,500 MWh.

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

$$248,500 / 365 * 608 = 413,939.726 \text{ MWh.}$$

SDG 13:

According to the registered PDD, amount estimated ex ante for one year of emission reductions – 365 days is 214,728 tCO₂e.

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

$$214,728 / 365 * 608 = 357,684 \text{ tCO}_2\text{e.}$$

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 278,059 tCO₂e while the estimated ex ante is 357,684 tCO₂e. It is thus 78% 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 8.2 Erosion and/or water body stability
Data / Parameter	Cultivation of plant and afforestation for impacted areas
Unit	Number of trees and m ² of grass
Description	The project owner has planted trees in the campus such as powerhouse, transformer station site, access road 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; Contract for design, supply and construction of landscape and additional items of Thai Hoa WPP.
Value(s) applied	613 trees and 760 m ² of grass
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	<ul style="list-style-type: none"> • Hazardous waste (lubricant, grease, light bulb, accumulator, etc.); and • Non-hazardous waste (domestic solid waste; domestic wastewater).
Unit	Kg

Description	<ul style="list-style-type: none"> Hazardous wastes are collected and treated by the third authorized party in accordance with local laws and related regulations. The project owner has contracted 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: <ul style="list-style-type: none"> Domestic solid waste is transported and treated by the local urban environment company; Domestic wastewater is collected and treated by the three-compartment septic tank system built at the project site.
Source of data	Site observation; the signed contract for collection, transportation and treatment of hazardous wastes with the third licensed party; the receipt of hazardous waste, the periodic environmental monitoring report.
Value(s) applied	<ul style="list-style-type: none"> - 550 kg of hazardous waste has been collected by the project owner during this monitoring period; and then treated by the third party contracted with the project owner. - 5 kg of domestic solid waste per day. - 0.8 m³ of domestic wastewater per day.
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 9.10 High conservation value areas and critical habitats Principle 9.11 Endangered Species
Data / Parameter	Number of birds and other animals are killed or injured
Unit	Number

Description	Number of birds and other animals are killed or injured when colliding with turbines.
Source of data	Records at the plant
Value(s) applied	0 (no bird, bat or other animals 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	Assessing the project's impacts on birds and other animals
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 People’s Committee of Hoa Thang commune and Thai Hoa Wind Power Project 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	<p>Pacific – Binh Thuan Energy JSC +84 24 3941 3268</p> <p>Energy and Environment Consultancy JSC +84 24 6666 9753</p> <p>Swiss Carbon Value Ltd. +41 435 013 550</p> <p>The telephone contact details were explained and discussed at the Meeting, and also provided in the Continuous Input/Grievance Expression Process Book.</p>
Internet/email access (optional)	<p>tbd@thaibinhduong.vn</p> <p>eec@eec.vn</p> <p>registration@southpolecarbon.com</p> <p>The email address of the company was explained and discussed at the Meeting, and also provided in the Continuous Input/Grievance Expression Process Book.</p>

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.

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