

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

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KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS7739 ¹
Title of the project (s) covered by monitoring report	West Bakr Wind Farm Project
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	06
Version number of the monitoring report	04
Completion date of the monitoring report	09/05/2024
Date of project design certification	28/07/2022
Date of Last Annual Report	13/12/2022
Monitoring period number	02
Duration of this monitoring period	01/01/2023 to 31/12/2023 (Inclusive of both the dates)
Project Representative	First Climate Markets AG
Host Country	Egypt
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	ACM0002: Grid-connected electricity generation from renewable sources, Version 20.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

¹ <https://registry.goldstandard.org/projects/details/2584>

Table 1 Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 7: Affordable and Clean Energy	MWh of renewable energy generated	1,045,446	MWh
SDG 8: Decent Work and Economic Growth	Trainings	7	No of Training
	Employees	18	No of Employees
	Income (EGP) E£	The income to all the on roll (Salary slips) & off role (O&M Agreement), skilled & unskilled workers is made in line with minimum wage requirements and the contractual agreements. Cumulative income of workers is E£ 3,130,521.	E£ (EGP)
SDG 13: Climate Action (mandatory)	Emission Reduction	464,178	tCO ₂ (GS VER)

Table 2 – Product Vintages

Start Dates	End Dates	Amount Achieved		
		SDG 13: Climate Action (GS-VERs)	SDG 8: Decent Work and Economic Growth	SDG 7: Affordable and Clean Energy
01/01/2023	31/12/2023	464,178 tCO ₂	7 Trainings 18 Employees The income to all the on roll (Salary slips) & off role (O&M Agreement), skilled & unskilled workers is made	1,045,446 MWh

			in line with minimum wage requirements and the contractual agreements. Cumulative income of workers is E£ 3,130,521.	
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SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The project activity is developed by Lekela Egypt Wind Power BOO (S.A.E.). The main purpose of this project activity is to generate clean form of electricity through renewable Wind energy source for sale of electricity to the Egyptian Electricity Transmission Company (EETC). The project activity involves installation of 96 Wind Turbine Generators (WTGs) of 2.625 MW capacity each, totaling to 252 MW capacity Wind power project in Ras Ghareb, Red Sea Governorate state, Egypt.

The process of generating power through wind resources is a clean technology, as there is no fossil fuel fired or no greenhouse gases are emitted during the process. Project was commissioned on 13/11/2021. The project is estimated to replace anthropogenic emissions of greenhouse gases (GHG's) as 531,674 tCO₂e per annum, thereon displacing average 1,197,600 MWh/year amount of electricity, which is mainly dominated by thermal/fossil fuel-based power plant.

The project activity is the installation of a new renewable wind power project and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

Scenario existing prior to the implementation of the project activity

As the project activity is the installation of a new grid-connected renewable power plant/unit. The scenario existing prior to the implementation of project activity is Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new

generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100 Annex 4).

Baseline Scenario

Baseline scenario and Scenario existing prior to the implementation of the project activity are both same.

The Project is contributing to Egypt's sustainable development in several ways:

- **Environmental:** The project helps mitigate local pollution caused by air emissions from thermal power plants that would have provided the same amount of power in the absence of the project activity. The project provides electricity without the generation of any local pollution.
- **Economic:** The project enables the country to save natural gas that would otherwise be combusted for power generation. It also contributes to the diversification of energy sources for the country.
- **Social:** The project creates new job opportunities and enhance both technology transfer and public awareness of renewable energy technologies, specifically wind power generation.

The emission reductions achieved for this monitoring period are 464,178 tCO₂e.

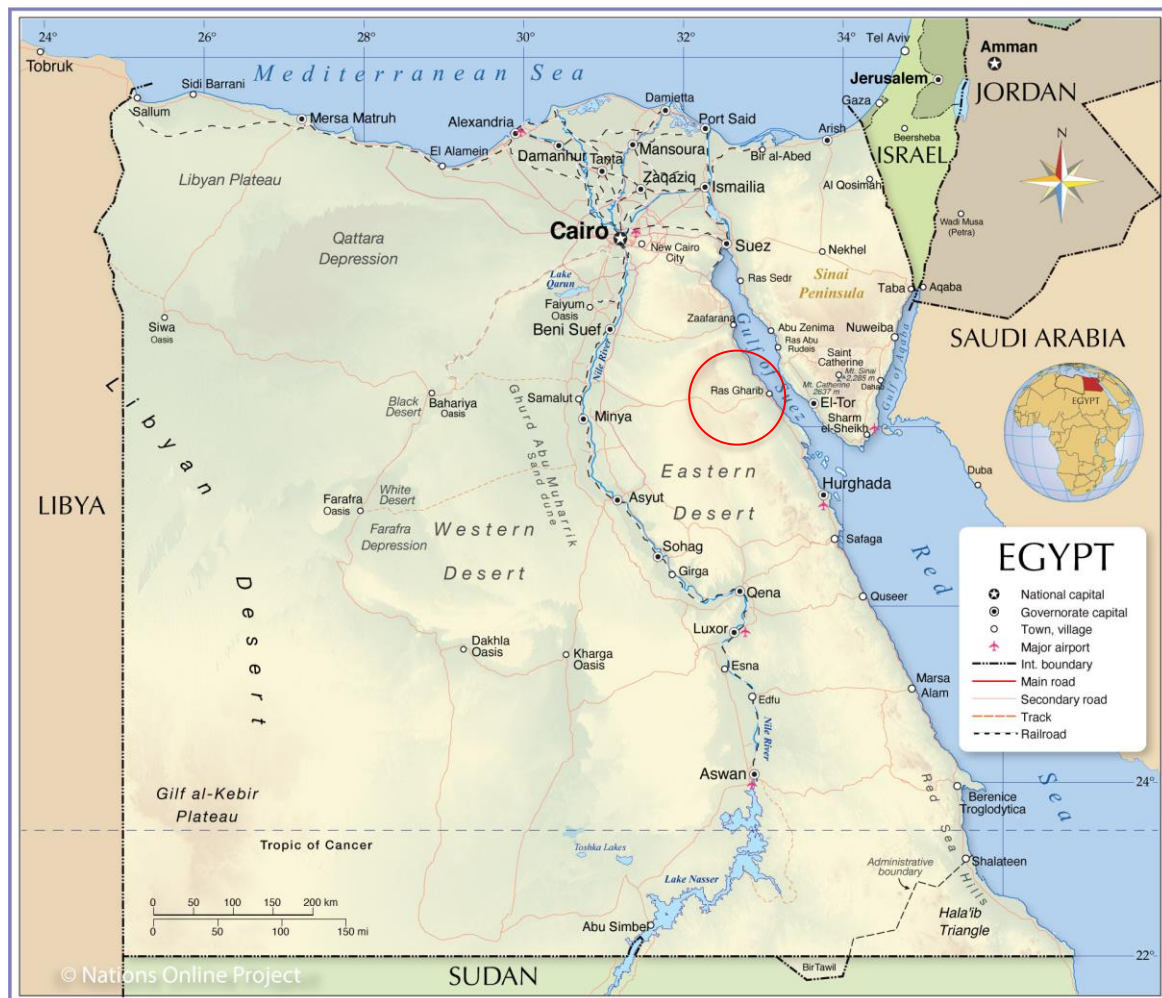
The project activity is not registered with any other GHG (such as CDM/Verra etc.) or non-GHG (IREC etc.) compliance or voluntary market-based mechanism and also not fall under any Nationally Determined Contribution . PD will not claim VERs for the same vintage in another standard other than GS. There is no double counting with national climate policies or programs.

The GHG emissions reductions are not accounted for within the relevant system of the regional regulator. Participation in the regulatory scheme is voluntary (e.g., there is not mandated or automatic capture of emissions reductions within the regulator's inventory) and the host country/regional regulator does not account for voluntary GHG emissions reduction/removal contributions from this project activity.

A.2. Location of project

The 252 MW Grid Connected Wind Project is installed in Village: Ras Ghareb, State: Red Sea Governorate in Egypt.

The coordinates of all the 96 WTGs are provided in Appendix A of this document. A pictorial representation of the location of the project activity on the map of Egypt is provided as follows:



Map-1 Showing the Ras Ghareb map in Egypt

A.3. Reference of applied methodology

Title: Grid-connected electricity generation from renewable sources.

References: Approved Large Scale Consolidated Methodology: ACM0002 “Grid-connected electricity generation from renewable sources” (Version 20.0, EB 105)²

ACM0002 draws upon the following tools which have been used in the PDD:

- Methodological Tool: Tool to calculate the emission factor for an electricity system (Tool 07)- Version 07.0³
- Methodological Tool: Tool for the demonstration and assessment of additionality (TOOL 01) - Version 07.0.0⁴

A.4. Crediting period of project

Type of crediting period: Renewable

Start date of crediting period: 13/11/2021

End date of crediting period:12/11/2026

(Inclusive of both dates)

Length of crediting period: 05 Years 00 Months for first crediting period. Which will be renewed twice (2), totalling to length of crediting period is 15 years

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The project activity involves installation of Wind power generation project in Ras Ghareb in Egypt. It involves the installation of 96 WTGs of 2.625 MW capacity each with a total installed capacity 252 MW. The project activity involves setting up of WTGs plant to harness the power generation from wind to produce electricity and supply to the grid.

Project start date	17/09/2019
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² <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

³ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

⁴ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

Commercial operation date	13/11/2021
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The project activity is expected to export 1,197,600 MWh annually of electrical energy, throughout its entire life span of 20 years. This results in average annual reduction of 531,674 tCO₂ from the project activity. The project activity does not involve any technology transfer.

Based on the condition of the project site, 96 wind turbines of 2.625 MW each was installed. The selected turbines were manufactured by Siemens Gamesa.

The technical specifications are given below:

The Wind turbine type	SG 2.6-114 ¹ (2.625 - 2.9) MW
Wind turbine class & standard	IIA / S, IEC 61400-1:2005+AMD1:2010
Blade Type	G114 Infused blade, structural shells and adhesive joints
Blade Material	Fiberglass reinforced resin
No of blade	3
Blade Pitch Controller Type	Hydraulic
Gearbox Type	Three stages gearbox (two planetary stages and one helical gear stage)
Generator Type	Doubly – fed induction machine
Generator Manufacturer	SGRE
Generated Rated Power	2695 kW
Generator Rated Speed	1680 rpm
Generator Max. speed	1900 rpm
Generator Rated Voltage	690 V
Transformer Type	Dry type vacuum cast resin transformer
Manufacturer	Hainan Jinpan Electric Co., Ltd.
Rated Voltage	0.69 V/ 33 kV
Rated Power	2910 kVA
Tower Type	Tubular steel
Length	HH 80 m
Total No of WTGs Installed	96
Life of the WTGs	25 years

B.1.1 Forward Action Requests

No FAR were raised during the previous verification of the project activity.

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

Following are the two corrections in the monitoring report:

1. As per section A.3 of the GS registered PDD, two dry type vacuum cast resin transformers were proposed to install in the project activity. As per actual site conditions, only one dry type vacuum cast resin transformer manufactured by Hainan Jinpan Electric Co. Ltd has been installed in the project activity. The same has been updated in section B.1 of this document.
2. As per Appendix A of the GS registered PDD, the coordinate mentioned for the WTG-42 as 480641 (Northing), 6157201 (Easting) is incorrect. The correct coordinate for the WTG-42 is 480641 (Northing), 3157201 (Easting). The same has been updated in Appendix A of this document.

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

Following guidance provided by ACM0002, all data collected as part of monitoring will be archived electronically and be kept at least for two years after the end of the last crediting period. 100% of the data was monitored, unless calculated as indicated in the table in section D.2. All measurements were conducted with calibrated measurement equipment according to relevant industry standards.

The Project Company recruited Siemens Gamesa Renewable Energy Egypt LLC as an O&M team to manage the administrative and technical tasks during the current monitoring period.

The effective Monitoring Plan to be put in place have the following objectives:

- Allocate roles and responsibilities to project staff
- Gather data on the net electricity supplied to the grid by the project;
- Establish Quality Assurance & Quality Control procedures, as well as data archiving procedures;
- Generate periodical reports for verification purposes indicating the amounts of CO₂ reduced by the project.

Electricity generation is monitored automatically by the Project owner (Lekela Egypt Wind Power BOO (S.A.E.)) through SCADA (Supervisory Control and Data Acquisition) system at the site and is crosschecked using electricity sales invoices. Electricity data is aggregated monthly and presented as a summary in periodical monitoring report.

Metering

The project electricity generation was monitored through the use of metering equipment at the relevant substation (the interconnection facility connecting the power generated to the grid). There are two lines of power evacuation and there two metering system equipment for each line:

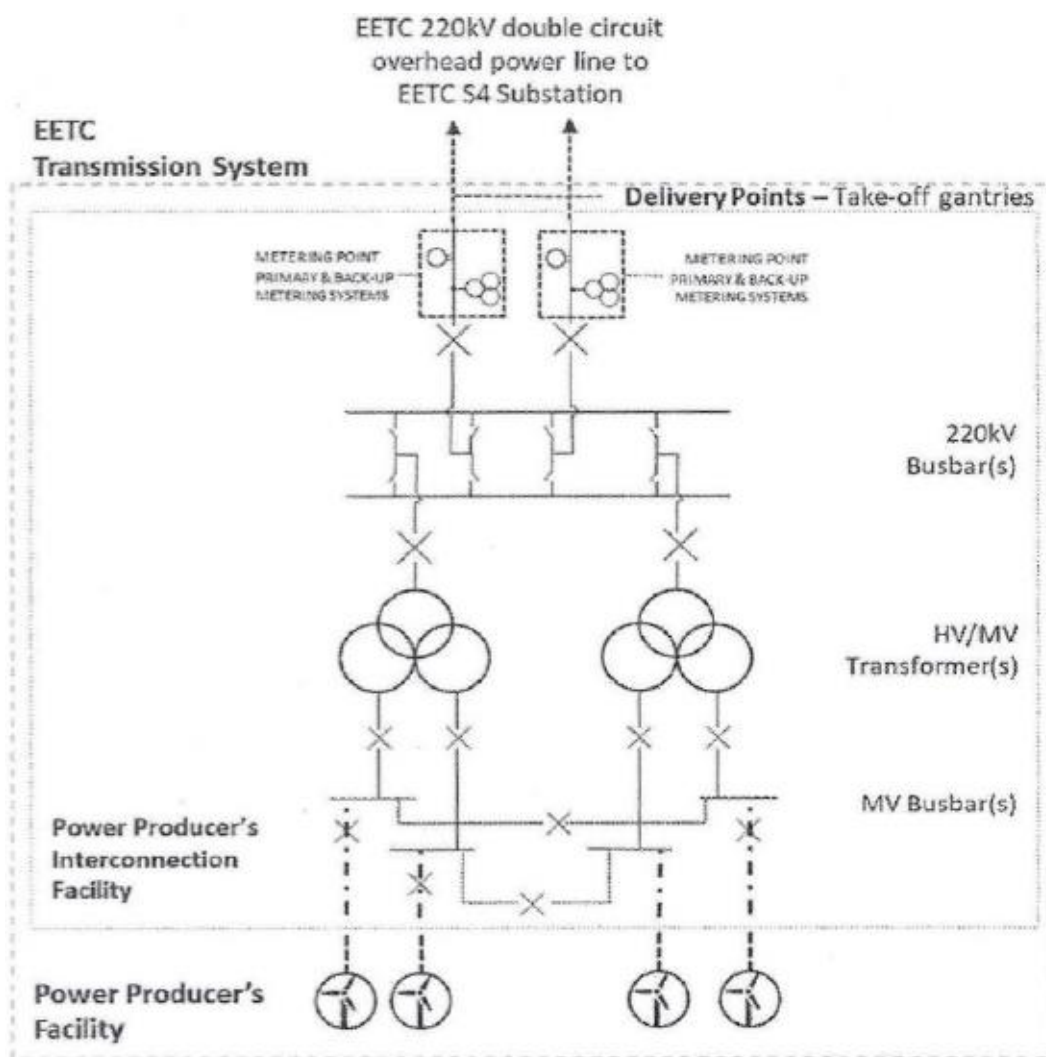
1. Main metering system equipment
2. Backup metering system equipment

Line	Serial Number of the energy meter
Main Meter for Line 1	02891378
Backup Meter for Line 1	02914086
Main Meter for Line 2	02891300
Backup Meter for Line 2	02913923

Meter Specifications:

Meter Sl. No.	02891378	02914086	02891300	02913923
Parameters				
Make	Elster	Elster	Elster	Elster
Model	A1882RALN	A1882RALN	A1882RALN	A1882RALN
Type	A1800	A1800	A1800	A1800
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Accuracy	0.2s	0.2s	0.2s	0.2s
Calibration Frequency	Once in a year	Once in a year	Once in a year	Once in year

Regarding the metering system, Lekela Egypt Wind Power BOO (S.A.E.) is responsible for adjust, operate, check and maintain the Primary Meters (main meter) and the Back Up Meters. The Lekela Egypt Wind Power BOO (S.A.E.) and EETC both have the right to read either meter and the two meters have the provisions to record on memory the accumulated kilowatt-hours. The results from the Main Meter is supplied by EETC on a monthly basis.



The wind turbine generator voltage level is 690VAC. The wind turbine generator nacelle is equipped with a dry type step-up transformer 0.69/33KV. The produced electricity

from the wind turbine generators at the facility is collected via a medium voltage underground cable network at 33KV level from the wind turbine generators to the substation located medium voltage collector/switchgear. The collected generated electricity at the 33KV medium voltage collector/switchgear is evacuated to the off taker national grid through 2 oil filled step up main power transformers each is 33/220KV, 175MVA then to 2 overhead transmission lines. All turbines are connected to a common HV bus bar and then the collected electricity from the turbines is evacuated to the national grid via 2 lines.

Recording and Archiving

Electricity generated by the Project and supplied to the national grid is monitored and recorded by a Data Management System at the on-site control center. Collected data is cross-checked against relevant minutes of meetings as well as any other pertinent records concerning the electricity production upon which the invoices to EETC are prepared. Lekela Egypt Wind Power BOO (S.A.E.) ensures that the meter readings be readily available for verification.

Data was recorded electronically as well as on paper for backup. All the records or copies of these are kept by the project owner for verification purposes. All data collected as part of monitoring should be archived electronically and kept for at least 2 years after the end of the last crediting period.

O&M Logs

Each shift leader maintains daily operation and maintenance logs on a real time basis. They provide detailed on-the-spot information about the operations at the plant and any event of significance is reported.

Calibration

EETC is responsible for the equipment calibration and do this according to international standards. EETC installs and maintains all electricity metering equipment and associated transformers conforming to specifications set by EETC. The metering equipment is to be sealed in the presence of both Project Developer and EETC representatives. Seals can only be opened in the presence of Lekela Egypt Wind Power BOO (S.A.E.) and EETC representatives for inspection, testing or calibration. The measured electricity meter installed is bidirectional type with accuracy of 0.2s and will be calibrated once in a year.

The national entity entrusted by the Ministry of Electricity and Energy, and NREA to do so is the Egyptian Electricity Transmission Company (EETC).

Management structure Project staff have been identified to carry out the above tasks and ensure that the objectives of the monitoring plan are met. The Project Coordinator, is the person responsible for data monitoring and recording activities. He reports to, the project's General Manager. The daily monitoring activities are performed by technical Operators on-site, reporting to the Site Manager, who in turn reports to the Project Coordinator.

Emergency preparedness:

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized. In the event that the main meter, which is used to record the net electricity exported by the project, is found to be faulty it will be repaired or replaced by authorized officer and the data from the backup meter will be used in its place. In the unlikely event that the backup meter fails it will also be repaired or replaced.

Error factor also applied as per the [Annex 60 GUIDELINES FOR ASSESSING COMPLIANCE WITH THE CALIBRATION FREQUENCY REQUIREMENTS](#) also applied in both export and import value to correct the data, if there will be delay in calibration. PD do the same in this monitoring period. Calculation is provided in the corresponding ER Sheet and below section.

Error Factor:

As per the [annex 60 GUIDELINES FOR ASSESSING COMPLIANCE WITH THE CALIBRATION FREQUENCY REQUIREMENTS as per the para 4 and 5](#) calculation is;

Net Generation: $\text{Export} \times (1 - 0.2\%) - \text{Import} \times (1 + 0.2\%)$

0.2 is class accuracy of meters as the maximum permissible error of all the measuring instruments are specified by the respective manufacturers as their technical specification.

QA/QC procedure:

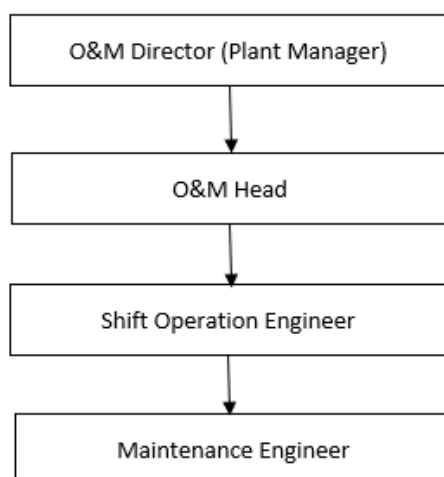
QA/QC procedure is provided in section D.2 of this monitoring report, as per the monitoring parameters.

Trainings:

As per the registered PDD monitoring plan, trainings are provided to the employees for quality of employment. For current monitoring period trainings were also provided. Details are provided in the appendix B of this report.

Organizational Structure:

Organizational structure of the team is as follows:



Roles and Responsibilities:

Designation	Responsibility
O&M Director (Plant Manager)	- Held complete control over monitoring aspects pertaining to the project. - Reviewed Monitoring report. - Training of the staff performed. - Emission reduction calculation has been maintained.
O&M Head	- Complete responsibility of implementation of project activity including preparation of PDD, validation, verification and associated action thereto as indicated in PDD. - Formulate monitoring compliance protocols & human resources training guidelines for O&M and fuel teams to comply with Monitoring Plan requirements. - Ensure adequate training is offered for O&M, fuel and Carbon teams to comply with the requirements of project activity. - Establish systems for data management and approve data submitted by operational team.

Shift Operation Engineer	- Collection of data from O&M and fuels group. - Carrying-out consistency checks on parameters and formats. - Prepare the data for calculations, - Storage of data including calibration and maintain data and retrieval of data.
Maintenance Engineer	- Monitor, measure, calibrate and store electricity generation data and other related data. - Monitor, measure, calibrate and store fuel consumption data. - Monitor, measure, calibrate and store fuel specific weighted average Carbon mass fraction data

Maintenance and Downtime activity:

There is no major breakdown in the project activity during the current monitoring period. Instead, there have been instances of corrective and preventive maintenance. The plant is on corrective maintenance for 7228 hrs. and 41 minutes The plant is on corrective maintenance for 0.86% of the time. Detailed information on the corrective maintenance and preventive maintenance activity has been provided in Appendix E.

SECTION D. DATA AND PARAMETERS

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

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

Data/parameter	EF _{OM,y}
Unit	tCO ₂ e/MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated using data from Egyptian Electricity Holding Company annual reports
Value(s) applied	0.4815
Choice of data or Measurement methods and procedures	Calculated as per TOOL07 using the ex-ante option. The 3 most recent years being used are 2017-18, 2018-19 and 2019-20.
Purpose of data	For the calculation of the Baseline Emission

Additional comment	This parameter is fixed ex-ante for the entire crediting period.
Data/parameter	$EF_{BM,y}$
Unit	tCO ₂ e/MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated using data from Egyptian Electricity Holding Company annual reports
Value(s) applied	0.3313
Choice of data or Measurement methods and procedures	Calculated as per TOOL07 (EB 100 annex 4) using the ex-ante option. The most recent years being used is 2019-20
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

Data/parameter	$EF_{CM,y}$
Unit	tCO ₂ e/MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ above.
Value(s) applied	0.444
Choice of data or Measurement methods and procedures	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh) $EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25%

Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

D.2 Data and parameters monitored

Relevant SDG Indicator 7.2: Affordable and Clean Energy

Data/parameter	EG _y
Unit	MWh
Description	Quantity of electricity generated and supplied by the project power plant to the grid in year y
Source of data	Direct measurement or calculated based on measurements from more than one electricity meters
Value(s) applied	1,045,446 MWh
Measurement methods and procedures	The main monitoring data is provided by electricity meters (main and backup meters) installed at the grid interface for electricity export to grid. Meters are in the substation that receives the electricity generated and delivers electricity to the grid.
Monitoring frequency	All the electricity generated by the plant is dispatched to the same transmission line that connects the collected substation with the concessionaire substation. At the concessionary substation (grid connection point) there is two meters (main and backup) that measure the total net electricity.
QA/QC procedures	Total MWh delivered by the project to the grid is recorded by the export meters (main and backup) class 0.2, calibrated once in a year as certified by the Egyptian Electricity Transmission Company (EETC).
Purpose of data	Continuous measurement and monthly recording
Additional comment	Meters calibration is performed according to the Grid Procedures. Data collected from the project meter has low uncertainty levels. Approved automated electronic system used to record the data. Backup meter installed. Data crosschecked with dispatch data reports.

Relevant SDG Indicator SDG 8.5.1: Decent Work and Economic Growth

Data/parameter	- Quantitative employment, - Quality of employment - Income generation		
Unit	- Number (Trainings) - Number (employees) - EGP E£ (salary)		
Description	- Number of Trainings provided to employees & O&M staff - Number of project employees with Number of male/female, permanent/temporary, age and person with disabilities. - Salary given to the permanent on role employees of the project & O&M contract for the off-role employees. The income to all the on-roll employees (Salary slips) & off role (O&M Agreement), skilled & unskilled workers is made on day-to-day basis in line with minimum wage requirements and the contractual agreements.		
Source of data	Training Records (HSE & HR) Salary of the project employees & / O&M agreement		
Value(s) applied	The trainings & workshops given to the O&M staff are: - Fire Fighting - Medium Voltage Switchgear - HV Gas Insulated Switchgear - First Aid - Introduction + Over current Protection - Transformer Protection - Substation Automation System The details of the training have been provided in Appendix B. The training programs help in making the workforce efficient and skilled at their job. This not only helps the company but adds to growth of individual employees. Thus, the project has a positive impact on the parameter. <table border="1"> <tr> <td>Number of trainings</td><td>7</td></tr> </table>	Number of trainings	7
Number of trainings	7		

	Number of employees	18 ⁵
	Income (Cumulative income of workers in E£)	3,130,521 ⁶
	With reference to the Egyptian laws for minimum wage requirement (https://mped.gov.eg/singlenews?id=5157&lang=en), the distinction of the salary for different type of skill level is not provided. Egyptian law only declare that the minimum salary is 3500 Egyptian pounds (E£) per month which is revised recently on 01/05/2024 to 6000 E£ per month. The average salary provided by the PD is way higher than the requirement of Egyptian law.	
Measurement methods and procedures	• Training Attendance sheets. • Employee Records Salary Record of the employees	
Monitoring frequency	Once in a Monitoring period	
QA/QC procedures	The number of persons employed is mentioned in the plant register, which can be crossed checked with daily attendance register.	
Purpose of data	Continuation of regular trainings/workshops for employees & O&M staff	
Additional comment	-	

Relevant SDG Indicator 13.2.1: Climate Action

Data/parameter	ER _y
Unit	tCO ₂ e
Description	CO ₂ emission reduction due to implementation of project activity

⁵ Classification of Employees are provided in the appendix D of this report.

⁶ Salary of employees are as per their type and category of employment. Project Developer follow the Egyptian minimum wages law (WageIndicator.org) and Ministry of Planning and Economic Development.

Total Cumulative salary is 3,130,521 E£ for 18 Employees for the current monitoring period (12 months). So, on an average, per employee per month wages is 14,493.152 E£. However, salaries of employees are also varied as per their position, type of employment and experience but all employees get salary as per the minimum wages law of Egypt.

Source of data	Calculated as per "Tool to calculate the emission factor for an electricity system,".
Value(s) applied	464,178 tCO ₂ emission reductions achieved during current monitoring period
Measurement methods and procedures	Calculated
Monitoring frequency	-
QA/QC procedures	Calibration records are maintained at the O&M site office.
Purpose of data	Calculation of baseline emissions
Additional comment	The data will be archived for crediting period+2 years

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
EG _y	1,045,446 MWh	1,170,036 MWh
Quantitative employment (Number of employees)	18	15
Quality of employment (Number of trainings)	7	2
Income generation (Cumulative income of workers)	3,130,521 E£	3,130,521 E£
ER _y	464,178 tCO ₂	519,489 tCO ₂

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

The baseline emissions are the product of electrical energy baseline $EG_{PJ,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor.

$$BE_y = EG_{PJ, facility,y} (MWh/yr) \times EF_{grid,CM,y} (tCO_2/MWh)$$

Where,

$EG_{PJ, facility,y}$ = Total quantity of net electricity delivered to the grid.

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y

$$EF_{grid,CM,y} = 0.444 \text{ tCO}_2\text{e/MWh.}$$

$$BE_y = 1,045,446 (MWh/yr) \times 0.4440 \text{ tCO}_2\text{/MWh} = 464,178 \text{ tCO}_2\text{/year}$$

Note: Validity of the calibration certificate for the energy meters is up to 12/12/2022 and then meter was calibrated on 06/04/2023. Since the current monitoring period starts from 01/01/2023, error factor of 0.2%⁷ has been applied for the initial days (from 01/01/2023 to 05/04/2023). ER has been calculated accordingly.

7 No. of training have been provided and 18 No. of Employees have been employed in the current monitoring period. The income to all the on roll (Salary slips) & off role (O&M Agreement), skilled & unskilled workers is made in line with minimum wage requirements and the contractual agreements.

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

As per the ACM0002 ver-20.0, Project Emission for most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant.

These emissions are accounted for as project emissions by using the following equation:

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

Where: PE_y = Project emissions in year y (tCO₂e/yr)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO₂/yr)

⁷ Accuracy class of the energy meters.

$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂e/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/yr).

The project activity involves the generation of electricity from the installation of wind projects. Hence, as per ACM0002, Version 20.0, there is no project emission for wind projects. Therefore, project emissions are zero.

E.3. Calculation of leakage

As per applied methodology ACM0002, version 20.0 Leakage emissions are not considered for the project activity.

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

SD G	SDG Impact	Baseline estimate	Project estimate	Net benefit
7	Affordable and Clean Energy	0	1,045,446 MWh	1,045,446 MWh
8	Decent Work and Economic Growth	0	7 Trainings 18 employees The income to all the on roll (Salary slips) & off role (O&M Agreement), skilled & unskilled workers is made in line with minimum wage requirements and the	7 Trainings 18 employees The income to all the on role (Salary slip) & Off role (O&M Agreement) skilled & unskilled workers is made in line with minimum wage requirements and the

			contractual agreements. Cumulative income of workers is E£ 3,130,521.	contractual agreements. Cumulative income of workers is E£ 3,130,521.
13	Climate Action (mandatory)	464,178 t CO ₂	0	464,178 t CO ₂

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 ⁸ achieved during this monitoring period
7	1,197,600 MWh/year (365 days) 1,197,600 MWh for the monitoring period (365 days)	1,045,446 MWh
8	1 Trainings 15 employees The income to all the on role (Salary slip) & Off role (O&M Agreement) skilled & unskilled workers is made in line with minimum wage requirements and the contractual agreements.	7 Trainings 18 employees Cumulative income of workers is E£ 3,130,521.

⁸ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

	531,674t CO ₂ /year	
13	531,674t CO ₂ for the monitoring period (365 days)	464,178 t CO ₂

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

SDG 7: Affordable and Clean Energy

The annual estimated power generation for the project activity is 1,197,600 MWh, considering number of days covered during current monitoring period to be 365, the estimated power generation is 1,197,600 MWh for the current monitoring period.

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which were not possible in the baseline scenario. The project provides employment to at least 15 persons. Also, project activity improves the quality of employment by giving training to employees. Thus, minimum 1 training per year is conducted by the project activity. The income to all the on role (Salary slip) & Off role (O&M Agreement) skilled & unskilled workers is made in line with minimum wage requirements and the contractual agreements.

SDG 13: Climate Action

The annual estimated emission reduction for the project activity is 531,674 tCO₂e, considering number of days covered during current monitoring period to be 365, the estimated emission reduction contributing towards SDG 13 is 531,674 tCO₂e for the current monitoring period.

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

The emission reductions as per the registered PDD for the current monitoring period is estimated to be 603,049 tCO₂e whereas during the current monitoring period the actual emission reductions are 464,178 tCO₂e, which is approximately 1% lower than the estimated emission reductions for the same monitoring period. The reductions in actual emission reduction are justified, since during the current monitoring period, the plant underwent scheduled maintenance. The generation is subject to climate conditions which are beyond the control of the Project Proponent. The current monitoring period is 01/01/2023 till 31/12/2023 (inclusive of both dates). The net electricity generated

during Jan, Mar and Dec is low due to the weather conditions which is beyond the control of the project participant. Hence the actual emission reductions are 12.7% lower as compared to the estimated emission reductions. The PLF achieved by the project activity during the current verification period is 47.36% which is 12.7% lower than the estimated PLF of 54.25%.

SECTION F. SAFEGUARDS REPORTING

As per the safeguarding Principal Assessment in section D.1 and Appendix-1 of the GS4GG PDD, safeguarding principles which are to be included in the monitoring plan or hold any relevance to the project activity is provided as follows:

Principles	Mitigation measures
Principle 2. Gender Equality	The project proponent is committed to the employee's equal pay for equal work during all phases of the project. Please refer section D.2 above, same has been considered as monitoring parameter under SDG 8 (8.5.1)
Principle 6.1 Labor Rights	The Project Developer ensures the training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.
Principle 9.5 Hazardous and Non-hazardous Waste	The waste is disposed to the waste handlers and the firm is complying with all the local laws for monitoring and disposal.

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.

As a part of continuous feedback from stakeholders, the grievances register is placed at site and is being continuously monitored and addressed through the grievances cell on regular basis and maintained in a register at site office. A copy of the grievance Register has been provided separately. However, for registering grievances emails, phone numbers and grievance boxes are also provided. The major grievances are

registered through the emails and phone calls by the stakeholder because project site is little far from human population. The locations of grievances boxes are:

1. The WBWF Construction Camp.
2. The Entrance Gate of Ras Ghareb local branch of The National Council for Childhood & Motherhood.
3. Al-Mogammae Square – Second biggest square in Ras Ghareb city.

The registered grievances on mail and phone calls are maintained in excel sheet. There has been 4 (four) grievances related to the salary timing in month February 2023, March 2023 and June 2023 received during the current monitoring period and were resolved. The ongoing continuous commutation is followed during the current monitoring period as per the registered PDD and GS4GG validation and verification standard requirement.

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

There has been stakeholder mitigation that was agreed to be monitored in this verification period. Four social grievances were received during the current verification period. The grievances were successfully resolved and closed.

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

No, there has been no legal contest that has arisen with the project during the monitoring period.

Appendix A WTG UTM CORDINATES

Zone: 36 N	Easting	Northing
Wind Turbine	X	Y
1	480602	3162428
2	480929	3162600
3	481204	3162809
4	481465	3163058
5	481711	3163281
6	481971	3163509
7	482208	3163756
8	482437	3164018
9	480724	3161371
10	481140	3161527
11	481231	3161992
12	481679	3162151
13	481977	3162361
14	482248	3162580
15	482556	3162803
16	482828	3163007
17	480616	3160350
18	480905	3160538
19	481204	3160711
20	481493	3160897
21	481689	3161247
22	481949	3161490
23	482247	3161676
24	482563	3161844
25	482899	3162059
26	481766	3160307
27	482144	3160573
28	482531	3160820
29	483010	3160975
30	483333	3161221
31	480609	3158299
32	480872	3158553
33	481139	3158775
34	481406	3158991
35	481704	3159188
36	481993	3159372
37	482305	3159550
38	482616	3159696
39	482921	3159881
40	483250	3160003
41	483527	3160212
42	480641	3157201
43	480970	3157380

Zone: 36 N	Easting	Northing
Wind Turbine	X	Y
49	482921	3158507
50	483214	3158702
51	483507	3158918
52	483779	3159158
53	484085	3159377
54	481544	3156474
55	481904	3156748
56	482284	3157070
57	482632	3157345
58	482988	3157629
59	483322	3157875
60	482350	3154644
61	482528	3154955
62	482705	3155287
63	482853	3155621
64	483046	3155910
65	483224	3156229
66	483486	3156465
67	483716	3156746
68	483900	3157049
69	484132	3157332
70	484385	3157590
71	484685	3157791
72	484942	3158031
73	485209	3158260
74	483374	3154602
75	486667	3154800
76	483915	3155281
77	484175	3155494
78	484451	3155678
79	484756	3155841
80	485084	3155841
81	485329	3156092
82	485572	3156345
83	485802	3156603
84	486025	3156889
85	486225	3157168
86	486462	3157440
87	485133	3154685
88	485387	3154934
89	485649	3155157
90	485897	3155399
91	486159	3155621

44	481275	3157584	92	486395	3155877
45	481589	3157787	93	486650	3156106
46	481925	3157975	94	486906	3156335
47	482225	3158195	95	487154	3156571
48	482565	3158346	96	487390	3156820

Appendix B Training Details

S. No.	Date of Training	Topic of Training	No. of attendees
1	04/02/2023	Fire Fighting	19
2	26/02/2023	Medium Voltage Switchgear	10
3	05/03/2023	HV Gas Insulated Switchgear	7
4	28/08/2023	First Aid	20
5	19/11/2023	Introduction + Over current Protection	7
6	28/11/2023	Transformer Protection	5
7	17/12/2023	Substation Automation System	7

Appendix C Calibration Details⁹

S. No.	Serial number of meters	Date of calibration	Validity of calibration
1	02891378 02914086 02891300 02913923	11/02/2021	10/02/2022
2	02891378 02914086 02891300 02913923	13/12/2021	12/12/2022
3	02891378 02914086 02891300 02913923	06/04/2023	05/04/2024

Appendix D Classification of Employees

S. No.	Name	Gender	Company	Category	Type	Position
1	Moustafa Abdelhadi	Male	IPH	Permanent	Skilled	O&M Director -

⁹Commissioning Date is 13/11/2021 of the project activity.

						Plant Manager
2	Mohamed Elahmar	Male	IPH	Permanent	Skilled	Operation & Maintenance Head
3	Walid Elgohary	Male	IPH	Permanent	Skilled	LTSA Performance Head
4	Badea Wagih	Male	IPH	Permanent	Skilled	QHSSE Head
5	Kholoud Bakry	Male	IPH	Permanent	Skilled	Maintenance Planning & Reporting Engineer
6	Mohamed Saif	Male	IPH	Permanent	Skilled	Junior Shift Operation Engineer
7	Heba Ibrahim	Female	IPH	Permanent	Skilled	E and S Manager
8	Julie Beshara	Female	IPH	Permanent	Skilled	Sustainable Design Engineer
9	Mostafa Abdelgalil	Male	IPH	Permanent	Skilled	Junior Shift Operation Engineer
10	Ahmed Elsayed	Male	IPH	Permanent	Skilled	Site Admin & Store Keeper
11	Eslam Sayed	Male	IPH	Permanent	Skilled	Mechanical technician
12	Hassan Osman	Male	IPH	Permanent	Skilled	Electrical technician
13	Abdulrahman Mohamed	Male	Engaz service	Temporary	Unskilled	Officeboy
14	Shawky Mohamed	Male	Engaz service	Temporary	Semi-skilled	Driver
15	Moustafa Heshmat	Male	Relax Tours	Temporary	Semi-skilled	Bus Driver
16	Mohamed Ashraf Hamdy	Male	Siemens Energy	Temporary	Skilled	O&M Team
17	Ahmed Maher Mousa	Male	Siemens Energy	Temporary	Skilled	O&M Team
18	Karim Mohamed Sabry	Male	Siemens Energy	Temporary	Skilled	O&M Team

Appendix E Corrective and Preventive maintenance

S. No.	Month	Corrective maintenance (hh:mm)
1	Jan-23	724:00
2	Feb-23	158:30
3	Mar-23	932:37
4	Apr-23	181:40
5	May-23	717:31
6	Jun-23	1084:09
7	Jul-23	798:17
8	Aug-23	685:43
9	Sep-23	568:27
10	Oct-23	485:47
11	Nov-23	418:29
12	Dec-23	484:31

S. No.	Month	Preventive maintenance of WTGs
1	Jan-23	WTG-19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 51, 52
2	Feb-23	WTG-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 35
3	Mar-23	0
4	Apr-23	WTG-46, 47, 39, 44, 45, 15, 24, 42, 43, 19, 18, 94, 41, 66, 24, 95, 21, 16, 17
5	May-23	WTG-61, 62, 63, 67, 73, 83, 84, 85, 87, 88, 89, 92, 93, 94
6	Jun-23	WTG-46, 53, 54, 55, 56, 57, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96
7	Jul-23	All 96 WTGs except WTG- 1, 2, 3, 4, 5, 6, 7, 8, 10, 14, 18, 19, 27, 39, 43,
8	Aug-23	All 96 WTGs
9	Sep-23	WTG-31, 48, 3, 9, 32, 8, 10, 11, 20, 26, 27
10	Oct-23	WTG-61, 62, 63, 64, 66, 67, 73, 81, 83, 84, 85, 87, 88, 89, 91, 92, 93, 94

11	Nov-23	WTG-42, 46, 47, 49, 50, 51, 52, 53, 54, 55, 57, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 73, 74, 75, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96
12	Dec-23	All 96 WTGs except WTG- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14, 15, 16, 19, 20, 21, 22, 23, 24, 26, 27, 39, 72

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