

TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

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VERSION **v. 1.2**

RELATED SUPPORT

- TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2

This document contains the following Sections

Key Project Information

0 – Description of project

0 – Application of approved Gold Standard Methodology (ies) and/or demonstration of SDG Contributions

0 – Duration and crediting period

0 – Summary of Safeguarding Principles and Gender Sensitive Assessment

0 – Outcome of Stakeholder Consultations

Appendix 1 – Safeguarding Principles Assessment (mandatory)

0 – Contact information of Project participants (mandatory)

0 – LUF Additional Information (project specific)

0 – Summary of Approved Design Changes (project specific)

KEY PROJECT INFORMATION

GS ID of Project	GS 7739
Title of Project	West Bakr Wind Farm Project
Time of First Submission Date	23/01/2020
Date of Design Certification	28/07/2022
Version number of the PDD	06
Completion date of version	31/10/2022
Project Developer	First Climate Markets AG
Project Representative	First Climate Markets AG
Project Participants and any communities involved	Lekela Egypt Wind Power BOO (S.A.E.)
Host Country (ies)	Egypt
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	NA
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
Project Cycle:	☐ Regular ☒ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in Error! Reference source not found.)	Estimated Annual Average	Units or Products
7 Affordable and Clean Energy	MWh of renewable energy generated	1,197,600	MWh/Annum
8 Decent Work and Economic Growth	Trainings	1	No of Training
	Employees	15	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.	E£ (EGP)
13 Climate Action (mandatory)	Emission Reduction	531,674	tCO ₂ /Annum (GS VER)

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and 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, totalling to 252 MW capacity Wind power project in Ras Ghareb city, 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 will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be 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 will contribute to Egypt's sustainable development in several ways:

- **Environmental:** The proposed project will help 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 proposed project will provide electricity without the generation of any local pollution.
- **Economic:** The proposed project will enable the country to save natural gas that would otherwise be combusted for power generation. It will also contribute to the diversification of energy sources for the country.
- **Social:** The proposed project will create new job opportunities and enhance both technology transfer and public awareness of renewable energy technologies, specifically wind power generation.

A.1.1. Eligibility of the project under Gold Standard

>> The project type is a 252 MW large scale Wind Power Plant which generates power using Wind Energy. The project applies methodology ACM0002 Version 20.0, which is an approved methodology under Gold Standard.

The project has been submitted to GS4GG for preliminary review before 24/01/2020 and hence meets the eligibility criteria published in latest version 1.2 of Renewable Energy Activity Requirement. Also, the eligibility requirement outlined in paragraph 2.1.3 of Renewable Energy Requirement (V1.4) is effective from 24 Jan 2020 and the proposed project activity is listed on 23 Jan 2020 i.e. before the effective date. Hence, the project activity is in compliance with the requirement and thus meeting the eligible requirement.

The project activity meets the eligibility criteria as per "Renewable Energy Requirements" (V1.4), section 2 & 3 and also satisfies the requirement of section 3.1.1 of GS4GG Principles & Requirements document (V 1.2) as described below.

Eligibility Criteria Category	Description	Justification	Criteria met?
Types of Project	The project type is a large-scale Wind Power Plant which generates power using Wind Energy. The project activity belongs to the type of Renewable energy. The project applies methodology ACM0002 Version 20, which is an approved methodology under Gold Standard.	The Wind Power Plant Project is conceived as a grid connected large wind power plant within the category of renewable energy supply. See section A.1.	Yes
Location of Project:	The Project activity is located at Village: Ras Ghareb, State: Red Sea Governorate in Egypt. Further details have been provided in section A.4 of this report.	The project participants have the Power Purchase Agreement Signed with Egyptian Electricity Transmission Company (EETC) which demonstrates that the PP (Lekela Egypt Wind Power BOO (S.A.E.)) is the legal owner.	Yes
Project Area, Project Boundary	Project Area and Boundary are defined in line with the applicable Methodology ACM0002. The project activity includes 252 MW installed	The Project is located at Village: Ras Ghareb, State: Red Sea	Yes

and Scale:	capacity and is greenfield large wind power plants with an installed capacity above or equal to 15 MW to be qualified as a large-scale wind plant (in accordance with UNFCCC rules).	Governorate in Egypt. The project has an installed capacity of 252 MW which is more than 15 MW, therefore applies as a Large-Scale project. See section A.1	
Host Country Requirements:	The project activity follows the Social wellbeing, Environmental wellbeing, Economic wellbeing and Technological wellbeing.	Projects is in compliance with Egypt's legal, environmental, ecological and social regulations.	Yes
Contact Details:	Project Participant: Lekela Egypt Wind Power BOO (S.A.E.). Name of the contact person: Mr. Yves Keller Email: Yves.Keller@firstclimate.com	GS4GG-Cover Letter	
Legal Ownership and Other Rights:	The project activity is being developed by the PPs	The PPA is in the name of Lekela Egypt Wind Power BOO (S.A.E.) and is being submitted to the DOE.	Yes
Official Development Assistance (ODA) Declaration:	The project had private funding and funding from bank. The PP hereby confirms that there is no public funding from Annex 1 countries and no diversion of Official Development Assistance (ODA) involved in the project activity. The project is funded by bank.	The Project Owner declares that the project has not directly or indirectly received or benefited from official development assistance. An ODA declaration (i.e., GS Annex D) has been submitted to DOE.	Yes

General Eligibility Criteria under Renewable Energy Activity Requirements

Project Type : As discussed above, the project type is eligible.

Project Location : The project is located in Egypt.

Project scale : The project activity is a 252 MW Wind power project and thus qualifies under Large scale projects.

Project is not registered under any mechanism.

However, the project proponent hereby confirms that there would not be double counting of credits for any particular monitoring period. The project is not registered under the IREC mechanism.

A declaration mentioning the same will be submitted from the Project Developer.

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

>> The project participants have the Power Purchase Agreement Signed with Egyptian Electricity Transmission Company (EETC) & Commissioning Certificate which demonstrates that the PP is the legal owner. Thus, the project participants Lekela Egypt Wind Power BOO (S.A.E.). is the owner of the project and have the legal rights for the credits that shall be generated by this project activity. The credits, however, will be issued to the account of First Climate Markets AG, as mentioned in the Cover Letter.

A.2 Location of project

>> The Proposed 252 MW Grid Connected Wind Project is planned 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 Technologies and/or measures

>> 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.

Technology employed:

In wind energy generation, kinetic energy of wind is converted into mechanical energy and subsequently into electrical energy. Wind blowing at high speeds has a considerable

amount of kinetic energy. When this kinetic energy passes through the blades of the wind turbines, it is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected shaft hence rotates, which is connected to a generator, thereby producing electricity. The technology is a clean technology since there are no GHG emissions associated with the electricity generation. Hence the project activity has used an environmentally safe and sound technology. Also, there is no transfer of technology involved in this project activity.

Based on the condition of the project site, the proposed project is to install and operate 96 wind turbines of 2.625 MW each. The selected turbines were manufactured by Siemens Gamesa. The detailed parameters of selected turbines are provided in Table 1.

Table 1 Key Technology to be employed at the Project Wind Farm: As per "Technology Provider Specification Certificate:"

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	ABB
Rated Voltage	0.69 / 21 kV
Rated Power	2910 kVA
Transformer Type	Dry type vacuum cast resin transformer
Manufacturer	Hainan Jinpan Electric Co., Ltd.
Rated Voltage	0.69 / 33 kV
Rated Power	2910 kVA
Tower Type	Tubular steel

¹ <https://www.siemensgamesa.com/en-int/-/media/siemensgamesa/downloads/en/products-and-services/onshore/brochures/siemens-gamesa-onshore-wind-turbine-sg-2-6-114-en.pdf>

Length	HH 80 m
Total No of WTGs Installed	96
Life of the WTGs	25 years

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

Baseline Scenario

As the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following as per applied methodology: *"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".*

Hence, pre-project scenario and baseline scenario are the same.

Purpose of the Project

The purpose of the project activity is to generate electrical power using Wind energy, thereby displacing non-renewable fossil resources resulting to sustainable, economic and environmental development. In the absence of the project activity equivalent amount of power generation would have taken place through fossil fuel dominated power generating stations. Thus, the renewable energy generation from project activity will result in reduction of the greenhouse gas emissions.

Positive contribution of the project to the following Sustainable Development Goals:

1. **SDG13: Climate Action:** The project would lead to reduction of approx. 531,674 tCO₂ per annum due to implementation of project activity.
2. **SDG 7: Affordable and Clean Energy:** The project is generating approx 1,197,600 MWh of clean energy per annum.
3. **SDG 8: Decent Work and Economic Growth:** The project is generating direct permanent employment to around 15 persons and & indirect temporary employment to more than 100 person during construction. The project leads to Trainings & workshops which are conducted for the O&M staff of the PP.

A.4 Scale of the project

>> Renewable energy project activities with a maximum output capacity of 15 megawatts (or an appropriate equivalent) are small scale project activity and project activities of more than 15 MW are considered as large-scale CDM project activity.

As the project activity is of 252 MW capacity, hence clearly it is Large Scale project.

A.5 Funding sources of project

>> Private funding and funding from bank. The PP hereby confirms that there is no public funding from Annex 1 countries and no diversion of Official Development Assistance (ODA) involved in the project activity.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

>>

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

B.2. Applicability of methodology (ies)

>> As per para 2 of ACM0002 (Version 20), "This methodology applies to project activities that include retrofitting, rehabilitation (or refurbishment), replacement or capacity addition of an existing power plant or construction and operation of a Greenfield power plant".

The project activity meets the applicability conditions of the approved consolidated baseline and monitoring methodology ACM0002, Version 20.0 for Greenfield projects as described below:

² <https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

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>

The project activity meets the applicability conditions of the approved methodology, Sectoral Scope 1 for Greenfield projects as described below:

Applicability	Project activity vis-à-vis applicability Conditions
This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (a) Involve a capacity addition to (an) existing plant(s); (b) Involve a retrofit of (an) existing operating plants/units; (c) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (d) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is installation of a new grid connected Wind power plant/ unit at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable.
The methodology is applicable under the following conditions: (a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, wind power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, wind, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The proposed project activity is an installation of a new grid connected Wind power plant/ unit and hence criteria under point (a) is met. The project does not involve any capacity additions, retrofits or replacements and therefore this criterion under point (b) is not applicable.
In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m^2 ; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m^2 ; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using	The proposed project activity is an installation of a new grid connected Wind power plant/ unit and not Hydro power plant, therefore these criteria are not applicable for this project activity.

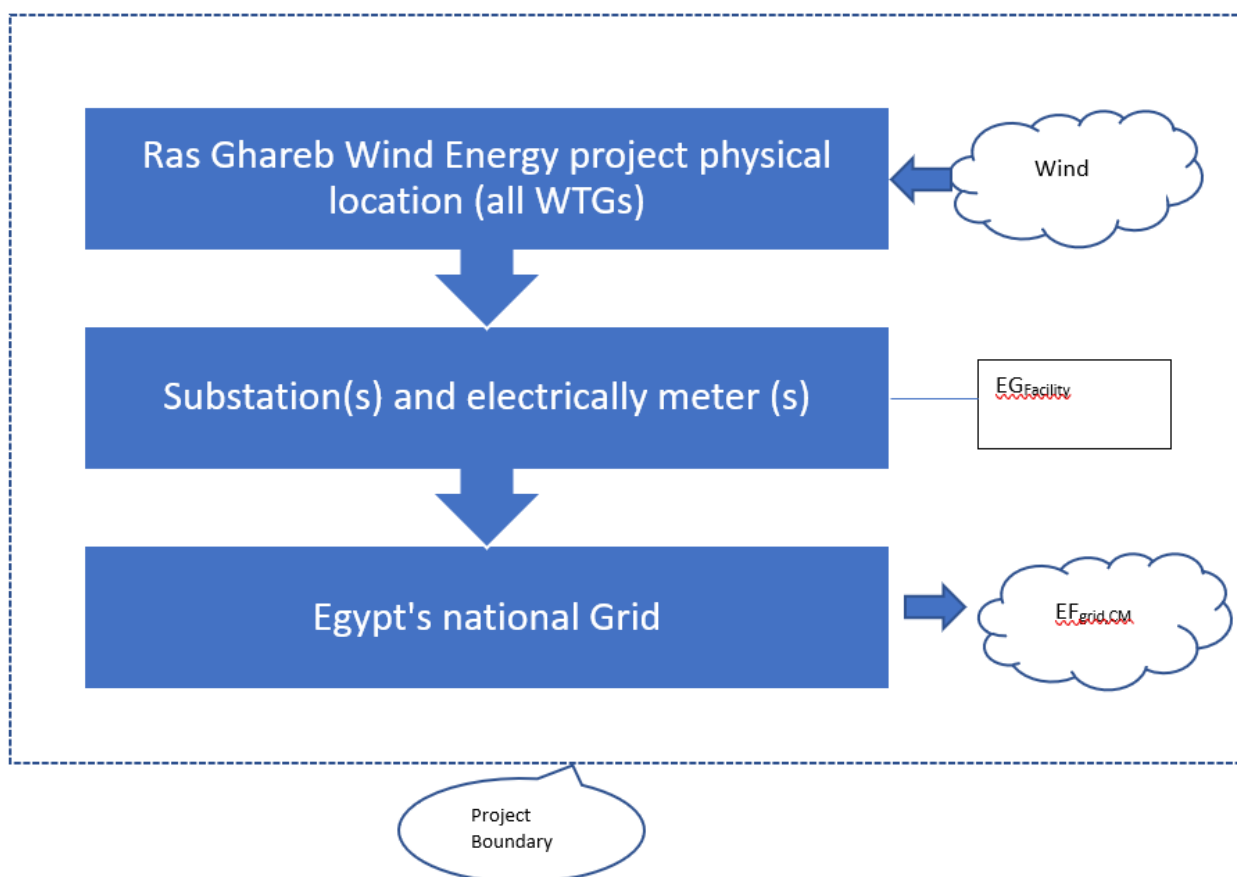
equation (3), is lower than or equal to 4 W/m^2 , all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m^2 ; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	
In the case of integrated hydro power projects, project proponent shall: • Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or • Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The proposed project activity is an installation of a new grid connected Wind power plant/ unit and not Hydro power plant, therefore these criteria are not applicable for this project activity.
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	The project activity is installation of a new grid connected Wind power project/ unit and does not involve switching from fossil fuel to renewable energy, therefore criterion described in point (a) is not relevant to the project activity. This is a Wind power plant/ unit and not a biomass fired plant, therefore criterion described in point (b) is not applicable to the project activity.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a	The project activity is a new grid connected Wind power plant/ unit and not a

result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.
Applicability conditions of “Tool to calculate the emission factor for an electricity system”, - Version 07.0	
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	This condition is applicable. OM, BM and CM are estimated using the tool under section B.6.3 for calculating baseline emissions.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 2: be met. Namely, the total capacity of off-grid Procedures related to off-grid power generation” should power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	Since the project activity is grid connected, this condition is applicable and the emission factor has been calculated accordingly.
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity is located in Egypt, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.
Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project activity is a grid connected wind power project/ unit and does not involve emission from biofuels. Therefore, this criterion is not applicable.

B.3. Project boundary

>> According to ACM0002, the spatial extent of the project boundary includes the project power plant/unit and all power plants/units connected physically to the electricity system that the project power plant is connected to.

Thus, this project boundary is the site of the project activity, where wind energy is used to generate renewable electricity, measured as EG_{facility} , including all the plants connected to Egypt's national grid, for the purpose of calculating the grid emission factor $EF_{\text{grid,CM}}$.



Schematic representation of the project boundary

Source		GHGs Included?		Justification/Explanation
Baseline	Grid connected electricity generation	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
Project	Greenfield Wind Power Project Activity	CO ₂	No	No CO ₂ emissions are emitted from the project activity
		CH ₄	No	No CO ₂ emissions are emitted from the project activity
		N ₂ O	No	No CO ₂ emissions are emitted from the project activity

B.4. Establishment and description of baseline scenario

>> Since, the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources.

The project activity involves setting up of WTGs plant to harness the power generation from wind to produce electricity and supply to the grid. As per applicable methodology the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM), in accordance with the Tool to calculate the emission factor for an electricity system - Version 7.0. Calculations for this combined margin must be based on data from an official source (where available) and made publicly available.

Currently (based on year 2019/20), prior to project implementation, the total national grid installed capacity was equivalent to 59,530⁵MW.

Based on Egypt's Integrated Sustainable Energy Strategy (ISES) to 2035, the power generation mix shall evolve to a situation where the share of fossil fuel based thermal power generation (coal, natural gas and oil plants) is reduced and renewable technologies (including solar, wind, and hydro capacities) increase their share. The government's latest targets call for 20% of Egypt's power generation to be based on renewables by 2022, and 42% by 2035 (IRENA, 2018). Wind power specifically will represent, according to this plan, around 14.6% of the energy mix in 2035.

In order to encourage the private sector to produce electricity from renewable energy sources, Egypt adopted the Renewable Energy Law (Decree No 203/2014) in 2014.

Competitive bidding to be run by the New and Renewable Energy Authority ("NREA") open to private sector companies for construction of the renewable power projects. Constructed stations will be operated by NREA. Produced electricity will be sold to Egyptian Electricity Transmission Company (EETC) at a regulated price determined by Egyptian Electric Utility and Consumer Protection Regulatory Agency (ERA).

Competitive bidding mechanism for build-own-operate (BOO) contracts to be run by EETC and open to private companies for construction, ownership and operation

⁵ http://www.moee.gov.eg/english_new/EEHC_Rep/finalaEN19-20.pdf

of the renewable power projects. Generated electricity will be sold to EETC on the price agreed between EETC and plant owner.

Feed-in tariff (FIT) support system under which private sector investors are allowed to build, own and operate renewable energy power stations and sell generated electricity to EETC or to licensed distribution companies via power purchase agreements (PPA). PPA determines duration of the contract and a fix electricity price (feed-in tariff). PPA for feed-in tariffs for solar installations will last 20 years, for wind projects 20 years. Egypt aims to deploy 4300 MW of new renewable capacity under FIT scheme between 2015 and 2017. FIT system is open only for solar PV and wind technologies.

Independent power production through third party access scheme allows independent power producers (IPP) to enter bilateral electricity purchase contracts with eligible consumers and sell them produced electricity directly. EETC must allow for conclusion of such contract and make grid network available. In this case, EETC is allowed to charge and collect grid access fee for grid usage.

Egypt has a single-buyer electricity market, with the Egyptian Electricity Holding Company (EEHC) being the main player and owner of almost all of the distribution assets. Under this model, the Egyptian Electricity Transmission Company (EETC), a state-owned company, purchases electricity from all public and private generation companies and sells it to nine main distribution companies and other private electricity distribution companies. It also directly sells electricity to a number of consumers connected to the extra-high-voltage and high-voltage networks.

There is no mandatory law in Egypt to establish a renewable plant, however there are mechanisms as described above to establish a renewable plant.

Details on the calculation of the grid emission factor and related assumptions following TOOL 07 are described in section B.6.1.

Parameter	Value	Nomenclature	Source
EF _{grid,CM,y}	0.4440 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated ⁶ as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Annual Report of Egyptian Electricity Holding Company, Ministry of Electricity Renewable Energy.
EF _{grid,OM,y}	0.4815 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project	Calculated as the last 3 year (2017-18, 2018-19 and 2019-20) generation-weighted average,

⁶ http://www.moee.gov.eg/english_new/report.aspx

		electricity system in year y	sourced from Annual Report of Egyptian Electricity Holding Company, Ministry of Electricity Renewable Energy.
EF _{grid,BM,y}	0.3313 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Calculated Baseline CO ₂ Emission for the most recent year 2019-20 Annual Report of Egyptian Electricity Holding Company, Ministry of Electricity Renewable Energy.

B.5. Demonstration of additionality

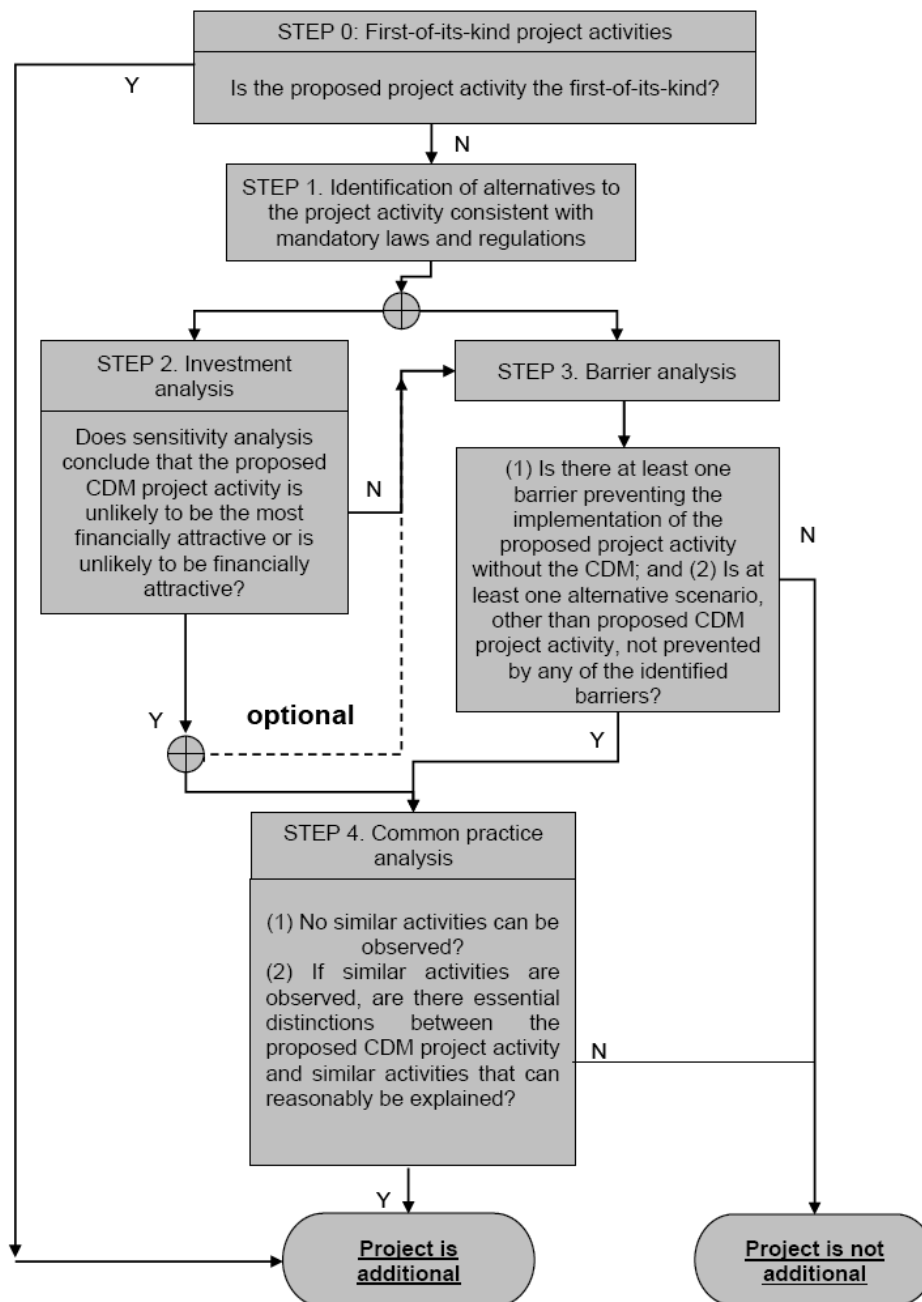
The table below is only applicable if the proposed project is deemed additional, as defined by the applied approved methodology or activity requirement or product requirement.

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	Not Applicable
Describe how the proposed project meets the criteria for deemed additionality.	Not Applicable

According to the CDM Project Standard, the project participants shall demonstrate, in accordance with the applied methodologies and the requirements relating to prior consideration of the CDM, that the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the proposed CDM project activity.

The Project follows the methodology ACM0002 for the demonstration of additionality. Since the project technology is not included in the positive list stated in the Tool 32: Positive lists of technologies. the additionality of the project activity shall be demonstrated and assessed using the latest version of the "TOOL 01: Tool for the demonstration and assessment of additionality".

The step-wise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs:



The detailed application of TOOL01 is described below:

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind This step is optional. If it is not applied, it shall be considered that the proposed project activity is not the first-of-its-kind. The project is not a first of its kind in Egypt, thus, Step 0 is not applicable.

Step 1 – Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity

Scenario 1: continuation of the current situation (no project activity or other alternatives undertaken). This scenario is equivalent to the baseline situation where 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.

Egypt uses a mix of generating technologies currently dominated by thermal generation and possesses significant reserve of primary energy resources (e.g. Oil and Gas). Moreover, the fact that all plants in the build margin, are fossil fuel fired power plants and have been commissioned between 2016 and 2019 demonstrates the natural tendency to continue the expansion of fossil fuel powered generation units to satisfy growing energy demands. Since then, other fossil fuel powered projects have been commissioned and are being developed.

Thus, the continued operation of grid-connected power plants and the addition of new generation sources is equivalent to the non-implementation of the Project and represents a reasonable scenario that will be further assessed in the next steps.

Scenario 2: proposed project activity undertaken without being registered as a CDM project activity.

The proposed project activity is the result of an innovative arrangement to attract international investments for the expansion of wind power generation. To attract such investors, the New and Renewable Energy Authority (NREA), a state entity that is responsible for the promotion of renewable energy investments, has developed a large area for wind developments. Part of this area has been awarded as a concession to Lekela Egypt Wind Power BOO (S.A.E.). The area for the proposed project is therefore designated and suitable for the development of the project activity or other wind power plants. However, Lekela Egypt Wind Power BOO (S.A.E.), as an Independent Power Producer (IPP), has the option but not the obligation to implement the project. The fact that IPP investments are an innovative form for promoting power generation investments is demonstrated by the fact that the historical portion of electricity provided by IPPs in the national electricity grid, as shown by table Electricity Generation for the past 2 years (page 21⁷), is only around 5%. Therefore, even with the IPP scheme existing for some years now, the proportion of electricity being provided by this type of enterprise is very small. Now in spite of this observation, the hypothesis that the wind power plant could be implemented without registration as a CDM project is a reasonable scenario and will be further assessed in the next steps.

Scenario 3: Other Power Generation technology. This alternative is equivalent to other realistic and credible alternative scenario to the proposed CDM project activity scenario

⁷ http://www.moee.gov.eg/english_new/EEHC_Rep/finalaEN19-20.pdf

that deliver outputs services or services with comparable quality, properties and application areas.

Lekela Egypt Wind Power BOO (S.A.E.), as an Independent Power Producer (IPP), has the option but not the obligation to implement the project. Given the baseline definition from ACM0002, this scenario would be similar to the “addition of new generation sources” and, thus, this alternative does not need to be assessed.

Therefore, the realistic and credible alternatives available to the Project Developer comparable with the proposed CDM project are the following scenarios:

- 1) Continuation of the current situation;
- 2) The proposed project activity undertaken without being registered as a CDM project activity;

Sub-step 1b: Consistency with mandatory laws and regulations

There are no laws or regulations preventing any investment or installation of a renewable electricity generation plant on the location or obliging the Project Developers to implement the project activity. Therefore, there is no legal restriction either to build or not to build the proposed power plant. Nevertheless, there are several policies that seek to address barriers and obstacles to the development of renewable energy, plants in order to expand carbon neutral power generation.

According to the Renewable Energy Outlook for Egypt developed by the International Renewable Energy Agency (IRENA)⁸, Egypt adopted its first renewable energy strategy in 1982.

In February 2008, following the emergence of the energy supply/demand gap in 2007, Egypt’s Supreme Energy Council (SEC) established a new target. The objective was to source 20% of generated electricity from renewable energy sources by 2022. The SEC planned to meet its ambitious targets through the deployment of a variety of renewable energy sources, including 12% wind, 2% solar and 6% hydropower.

To realize these targets, the intention was that the majority of the necessary new renewable energy installation should be implemented by the government, with the remainder by the private sector. Unfortunately, by January 2011, it was apparent that Egypt’s political and economic instability would not allow meeting the established renewable energy targets.

In January 2013, the Government of Egypt thus started developing a new 20-year strategy, the Integrated Sustainable Energy Strategy (ISES) to cover the period from

⁸ <https://www.irena.org/publications/2018/Oct/Renewable-Energy-Outlook-Egypt>

2015 to 2035. The project was funded by the European Union and implemented in co-operation with all relevant national partners. In October 2016, the SEC agreed to a new energy strategy for Egypt, approved with the Technical Assistance to Support the Reform of the Energy Sector for Egypt (TARES).

The sustainable development targets for Egypt, as far as they relate to energy are:

- The core objective is to ensure the availability of reliable energy supplies to satisfy the future development needs of the country with a more diverse energy mix. This shall be achieved with diverse investments in a range of fossil fuel based, renewable and nuclear power generation technologies. Moreover, it includes rationalizing the demand side and reforming energy subsidies without putting excessive financial costs onto citizens.

Goal II – Ensuring sustainability

- The core objective is to achieve both the technical and financial sustainability of the energy sector: This requires ensuring a sufficient and resilient supply of diversified sources that can be utilized to deliver reliable electricity and by ensuring sufficient income that is capable to finance the necessary infrastructure as well as operating costs.

Goal III – Improving institutional and corporate governance

- The core objective is to modernize the current institutional structure of public enterprises to cater for a more commercial framework, by realigning the organizational structures of the Egyptian Electricity Holding Company (EEHC), Egyptian General Petroleum Corporation (EGPC) and their subsidiary companies, and introducing the necessary training assistance to responsible entities, along with action plans to enhance energy planning and energy efficiency.

Goal IV – Strengthening competitive markets and regulation

- The core objective is to establish an environment that can help build competitive energy markets as a key step in driving down costs and promoting market liberalization to support greater transparency and efficiency within the electricity, gas and oil markets.

The Egyptian government implemented a set of new laws and regulations to facilitate the implementation of its renewable energy targets for 2035, in line with the ISES as described above. The key laws and regulations behind this national energy transition are summarized below

Renewable Energy Law (Decree Law 203/2014)	To endorse the creation of a promising economic environment for a major increase in renewable energy investment in the country.
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Cabinet Decree No. 1947 of the year 2014 on Feed-in Tariff (1st round)	To establish the basis for the Feed in Tariffs for electricity produced from renewable energy projects and thus support such investments.
Prime Ministerial Decree No. (37/4/15/14) of the year 2015	To endorse the regulations to provide land for renewable energy projects.
New Electricity Law No. 87 of 2015	To offer legislative and regulatory frameworks that allow reaching the electricity market reform targets.
Prime ministerial decree no. 2532 of the year 2016 on Feed in Tariff (2nd round)	Modifies the prices of the electricity (FIT) generated from renewable sources, establishes the contractual period for wind projects which is 20 years and for solar energy projects is 25 years.
Investment Law No. 72 of the year 2017	• To confirm investment guarantees and amendments as of May 2017. • To create a new arbitration center for settling disputes. • To codify social responsibility. • To initiate foreign investment in Egypt.

Within the regulatory framework described above, the following schemes are applied for the implementation of renewable energy projects in Egypt and are applicable to this proposed project activity:

Competitive bidding

In the early 1990s, the NREA started the competitive bidding process for renewable electricity generating capacity for government projects. In 2009, EETC launched the first auctions for large-scale private projects using the BOO scheme where the NREA secured the land and data on resources. In the following years, a number of other tenders were launched by EETC: 200 MW of solar PV in 2013; 250 MW wind, 200 MW solar PV and 100 MW CSP (Concentrated Solar power) in 2015 (Eversheds and PricewaterhouseCoopers, 2016).

As a result of the declining cost of renewable energy sources, in 2017 Egypt moved to the auction mechanism (competitive bidding) for large-scale solar and wind projects. Auctions for large-scale solar PV projects were announced to be carried out under state-owned EPC contracts with the NREA, or under a BOO scheme with an IPP through PPA agreements with EETC. In this regard, EETC issued a tender for a 600 MW of PV capacity in the West of Nile area in December 2017.

Other support mechanisms

The Prime Ministerial Decree No. (37/4/15/14) of 2015 was issued to allocate land for renewable energy projects through usufruct rights. In line with the decree, the

government assigned about 7,600 km² in the Gulf of Suez, east and west of the Nile, Benban and Kom Ombo regions, of which about 5,700 km² are for wind projects (75% share) and about 1,900 km² for solar energy projects (25% share).

In further support of renewable energy schemes, EETC proposed and discussed with both the NREA and the Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA) a transmission code for the interconnection of wind projects. The code was approved by EgyptERA, in addition to the rules and regulations for the interconnection of solar PV systems with the low- and medium-voltage networks.

Plans and preparations for the establishment of carbon market mechanisms

In order to address the difficulty to attract investments for its GHG mitigation strategy, Egypt's NDC announced the possibility of implementing a national market for carbon trading that may be developed into a regional market. In support to this objective, the European Bank for Reconstruction and Development (EBRD) has launched a project to develop an up-scaled CDM-based mechanism in the southern and eastern Mediterranean region, including Egypt, Morocco, Tunisia and Jordan. According to the EBRD's concept, the intention is to:

- Develop, implement and purchase CDM-style credits from the renewable energy sector in one or more SEMED countries.
- Contribute and support the carbon market development by reviewing the options, including domestic use of carbon credits, and developing local capacity, in particular in the area of MRV and large emission reduction project management.
- Contribute to the further development of up-scaled CDM-based carbon credit instruments, such as PoAs under the CDM or new market mechanisms.

In complement to this initiative by the multilateral development bank EBRD, the Project Participant EETC, which is Egypt's state utility that purchases the electricity of the project activity, is already positioning for the continuation of the CDM or the development of new market mechanisms. This is referenced by the fact that the PPA contains a provision that regulates responsibilities and rights to any Environmental Attributes generated by the project activity (for example CERs from CDM or any future mechanism established by the UNFCCC). According to the agreement, EETC and Lekela Egypt Wind Power BOO (S.A.E.) will cooperate to undertake all regulatory steps to achieve the necessary accreditations and registrations and share the Environmental Attributes in an equal proportion of 50%

Step 2 – Investment Analysis

In this step, it should be defined whether the proposed project activity is not

- (a) The most economically or financially attractive; or
- (b) Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).

Given that the project does not involve a comparison of alternatives, the Investment analysis will be based on the demonstration of economic or financial feasibility of the project activity, without the revenue from the sale of Verified emission reductions (VERs).

Sub-step 2a: Determine appropriate analysis method

In order to determine the appropriate analysis method, the following options are available to be used in the additionality analysis:

Option I - Apply simple cost analysis;

Option II - Apply investment comparison analysis;

Option III - Apply benchmark analysis

Since the GS project activity generates economic benefits other than GS related income (i.e. sales of electricity), the simple cost analysis (Option I) is not viable. There is no alternative scenario, other than the project activity to be compared. Therefore, the investment comparison analysis (Option II) is not recommended. Thus, the benchmark analysis (Option III) will be used, as this is the option that best represents the discretion of Project Developer to implement or not implement the project.

Sub-step 2b: Option III. Apply benchmark analysis

Project Participants have considered Post-Tax Equity IRR for investment analysis at the time of decision-making. As Project Participants is only interested in the returns project is generating on the portion of investment costs, which is financed by them in the form of equity.

As per Para 15 of EB112, Annex 02 states that Required/expected returns on equity are appropriate benchmarks for an equity IRR. Therefore, the Expected return on equity is considered appropriate benchmark.

The financial/economic indicator to be used for the benchmark analysis will be the Equity IRR.

The IRR will be calculated based on parameters that are standard to Egypt's power market, considering the specific characteristics of the project activity, but not linked to the subjective profitability expectation or risk profile of a particular Project Developer.

The benchmark analysis is performed comparing the IRR with the benchmark.

Sub-step 2c: Calculation and comparison of financial indicators

The established benchmark for this comparison is calculated based on TOOL27 - Investment Analysis (EB112, Annex 02). The cost of equity was extracted from Appendix 1 from (EB112, Annex 02) based on parameters that are standard in the market and valid, in real terms, for US\$ denominated long-term returns. So, considering

the EB112, Annex 02, Appendix, Table 1, Host Country Egypt, Group 1 (which includes Energy Industries), the reference value for the Cost of Equity is 13.32%.

The Required return on equity (benchmark) was computed in the following manner:

$$\text{Nominal Benchmark} = \{(1 + \text{Real Benchmark}) * (1 + \text{Inflation rate})\} - 1$$

Where:

- Default value for Real Benchmark = 13.32% (as per Appendix of EB112, Annex 2)
- Inflation Rate forecast for by IMF for 5 years = 6.54%

<https://www.imf.org/en/Publications/WEO/weo-database/2021/October/weo-report?c=469,&s=PCPIPCCH,&sy=2021&ey=2026&ssm=0&scsm=1&sc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1>

As a conservative approach, benchmark of 20.73% has been selected for this project activity.

Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III):

Key assumptions supporting the financial projections

Details of the project	Value	Source
State where the project is situated	Egypt	
WTG Capacity (MW)	2.625	As per PIM
No. of WTGs	96	As per PIM
Total Capacity (MW)	252.00	As per PIM
Expected Date of Commissioning	31-Mar-21	As per PIM
Life of the plant (Yrs.)	20	As per PIM
Generation and sale of electricity		
PLF @ P50 (%)	54.25%	Calculated
Annual generation @ P50 (MWh)	1,197,600	As per Third Party Report in accordance to EB 48 Annex 11
Deration every year (%)	0.00%	
Tariff rate at the decision making (USD/MWh)	40.77	As per PIM
Operation and maintenance cost and Insurance		
O&M (USD/Mn.)	10.98	As per PIM
Escalation (%)	5.00%	As per PIM
O & M free for (Yr.)	-	As per PIM
Insurance (USD Mn.)	-	
Financial Parameters		
TOTAL COST (USD Mn.)	341.00	As per PIM
Loan Amount (USD Mn.)	255.75	As per PIM
Equity Investment (USD Mn.)	85.25	As per PIM

Details of the project	Value	Source
Term loan		
Margin (%)	25.00%	As per PIM
Loan Amount (USD Mn.)	255.75	As per PIM
Interest rate (%)	6.50%	As per PIM
Loan Tenure (Qtr.)	72	As per PIM
Moratorium Period (Qtr.)	4	As per PIM
Repayment Period (Qtr.)	68	Calculated Value
Repayment instalments value (USD Mn.)	3.761	Calculated Value
1st instalment from (Qtr. end)	31-Mar-22	Considered from the next Quarter End
Book Depreciation (SLM Method)		
Land Cost (USD Mn.)	-	
Gross Depreciable Value (USD Mn.)	341.00	Calculated Value
Salvage Value (%)	10.00%	Assumed as per industry standard
Salvage value (USD Mn.)	34.10	As per PIM
Net Depreciable Value (USD Mn.)	306.90	Calculated Value
Residual Value (USD Mn.)	34.10	Calculated Value
Income Tax		
Income tax rate (%)	22.50%	https://taxsummaries.pwc.com/egypt/corporate/taxes-on-corporate-income

Project activity equity IRR and the benchmark comparison in real terms

Benchmark Cost of Equity	Project Equity IRR
20.73%	8.34 %

The Financial analysis calculation is available as an excel spreadsheet attached to this PDD. The project activity cannot be considered as financially attractive as the equity IRR for the project activity is less than the Benchmark.

Sub-step 2d: Sensitivity analysis

Addressing Guidance 27 & 28 of EB 112, Annex 06, following factors has been subjected to sensitivity analysis:

1. PLF
2. O&M Cost
3. Project Cost
4. Tariff

The rationale of sensitivity is, "The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario

presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis".

Variation %	-10%	Normal	10%	% Variation required to reach benchmark
PLF	3.66%	8.34%	13.02%	26.44%
O&M	9.82%	8.34%	6.79%	-93.10%
Project Cost	11.93%	8.34%	5.51%	-26.95%
Tariff Rate	3.66%	8.34%	13.02%	26.44%

As the OPEX/O&M cost value has been referenced by the third party costs related to Long-term Service Agreement "LTSA" only, it ignores other cost for General Administration and Insurance. Nevertheless, the fact that only third party costs have been considered demonstrates that an OPEX/O&M cost below the referenced figures is not rational.

When it comes to Revenues, it is unlikely to have substantial changes. Power Tariff is fixed by the PPA (Refer PPA Pg 159: 38.2 USD/MWh) and the projected volume if **energy generation** is based on the long-term average of power generation estimated by the third party based Energy Assessment Report. While power generation will be higher or lower in any given year, it is unlikely that average power generation will significantly differ from this estimate.

In addition to this analysis, a Breakeven Point Analysis was calculated in order to discuss the likelihood that substantial changes in key parameters could change this conclusion. As referenced by the table below, revenues/tariff would have to be 26.44% higher in order to improve the project's profitability to a level that reaches the benchmark. Given the fact that the tariff is fixed by the PPA & Generation is based on third party PLF report, this is unlikely scenario.

The reduction in CAPEX/Project cost would have to be -26.95 % in order to reach the benchmark. As CAPEX is defined by the Turbine Supply and Construction arraignments at the projects starting date, such a change must also be seen as improbable.

Outcome of Step 2: After the sensitivity analysis, it is concluded that the proposed GS project activity is unlikely to be financially/economically attractive (as per Step 2c).

Step 3 – Barrier analysis

As described under Sub-step 1b above, renewable energy projects and therefore the project activity have been facing substantial barriers that are being addressed with economic policies and incentives including the GS and the development of carbon market mechanisms. Nevertheless, the project's additionality has already been demonstrated

with the results of the investment analysis and therefore the Project Participant opt to not present a formal Barrier Analysis.

Step 4 – Common practice analysis

The above additionality tests are complemented with an analysis of the extent to which the proposed project type (e.g. technology or practice) has already diffused in the relevant sector and region. This test is a credibility check to complement the investment analysis (Step 2).

Stepwise approach for common practice analysis has been carried out as per CDM Methodological tool TOOL 24 “Common Practice”, version 03.1 EB84, Annex 7:, the proposed project activity applies Measure (ii): Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies (example: energy efficiency improvements, power generation based on renewable energy).

Sub-step 4a: The proposed project activity(ies) applies measure(s) that are listed in the definitions section above

The latest guidelines on common practice, i.e. Methodological TOOL24, is applied.

Step 1: calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity. The project will have an installed capacity of 252 MW, thus the range of a capacity of +/-50% can be calculated to be from 126 MW to 378 MW.

Step 2: identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

- (a) The projects are located in the applicable geographical area; for this case, electricity generation plants connected to Egypt’s Unified National Grid.
- (b) The projects apply the same measure as the proposed project activity; for this case, all electricity generation plants.
- (c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity; which would be wind energy for this case.
- (d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant; which is not applicable to this case.
- (e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1; which would be between 126 MW and 378 MW.
- (f) The projects started commercial operation before the project design document (PDD) is published for global stakeholder consultation or before the start date of proposed

project activity, whichever is earlier for the proposed project activity. The earliest date for this case is 17/09/2019 (Notice to proceed the equipment supply agreement).

In total, 10 full scale grid connected wind farm projects were operational in Egypt before the project starting date, with cumulative installed capacity of almost 1,000 MW.

However, as can be seen, only 2 projects: the Gulf of El-Zayt Wind Power Plant of 200 MW and Ras Gharib 262.5 MW are inside the capacity range calculated in Step 1 (e).

Step 3: within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all} .

However, all of these projects (Except Gulf El-Zayt project) are below the capacity range threshold (as explained in Step 2). Therefore, the Gulf El-Zayt project continues to be the only project that is similar to the project activity.

Therefore: **$N_{all} = 1$**

Step 4: within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff} .

According to TOOL24 (EB84 Annex 7), section 4, Different Technologies are technologies that deliver the same output, but differ by at least one of several criteria. Among these criteria is the dimension of (d) Investment climate on the date of the investment decision, inter alia:

- (i) Access to technology;
- (ii) Subsidies or other financial flows;
- (iii) Promotional policies;
- (iv) Legal regulations.

When comparing the Gulf of El-Zayt Wind Farm with the project activity it is important to recognize that the projects have been developed by completely different actors under different promotional policies. In order to analyse this difference, we replicate a table from the Project's Due Diligence report to define and discuss different routes for the development of wind power projects in Egypt:

	NREA (New and Renewable Energy Authority)	Competitive Bidding
Program size	2,200MW	2,500MW
Single Wind Farm Size	Large (100-400MW)	Large (250MW)
Developer	NREA	Private
Financing	Gov't, international development agencies	Commercial finance
Tariff Setting	Proposed by regulator, Approved by Cabinet	Dictated by the bid
Grid Contracts	20 years	20 years
Offtaker	Grid Operator	Grid Operator
Construction	NREA, via EPC	Developer
Operation and Maintenance	NREA	Developer

The project activity has been developed under the category of competitive bidding. This implies that the project is financed by a private investor (IPP), with commercial finance and based on a power tariff that is defined by a competitive bid.

In contrast to this IPP development, The Gulf of El-Zayt Wind Farm, as referenced by NREA's annual report for the year 2018 has been developed directly by Egypt's national agency NREA and financed by national and international development agencies. The tariff for such projects is proposed by the regulator and approved by the cabinet.

It is therefore clear that the project activity and the Gulf of El-Zayt project have been developed under different legal regulations, are subject to different promotional policies, as well as to differences in terms of subsidies and financial flows. Given the fact that the Gulf of El-Zayt project has been developed by the state agency, financed by domestic and international public funds and based on a tariff that was defined by the state, the project is not subject to the same investment risks and there is no private investor who would have to balance financial rewards with these risks.

We can therefore conclude that the Gulf of El-Zayt Wind Farm is different from our project activity and therefore **$N_{diff} = 1$** .

Step 5: calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

$F = 1 - 1/1 = 0$; Factor F is, therefore, lower than 0.2.

In complement to this assessment, we can also determine that the calculation

$N_{all} - N_{diff} = 1 - 1 = 0$, which is lower than 3.

As per methodological tool "common practice" version 03.1, The proposed project activity is a "common practice" within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3.

Therefore, the proposed project activity is not regarded as “common practice”, and thus can be considered additional.

Demonstration of serious CDM consideration

CDM Project Standard for project activities Version 03.0, para 32 states that “For a proposed CDM project activity with a start date on or after 2 August 2008, the project participants shall notify the designated national authority (DNA) of the host Party of the project activity, if such DNA exists, and the UNFCCC secretariat (hereinafter referred to as the secretariat), in writing of the commencement of the project activity and their intention to seek the CDM status for the project activity, or, through a DOE, publish the PDD for global stakeholder consultation, within 180 days of the start date in accordance with the “CDM project cycle procedure for project activities”.

Project Name	Promoters'	Start Date	F-CDM Date
Lekela Egypt Wind Power BOO (S.A.E.)		17-Sep-2019	04-Mar-2019

B.5.1 Prior Consideration

>> As per rule update by Gold Standard dated Principle & Requirement Ver 1.2 para 4.1.49 (b), “In order to be eligible under Gold Standard a retroactive project must submit the required documents to Gold Standard (time of first submission) within one year of its start date”. Start date of the project activity is 17/09/2019 (Date of Notice to Proceed the supply agreement) and all GS documents were submitted to GS within 1 year of project start date i.e. on 23/01/2020.

Project Timelines/milestones:

Events	Dates
Board Resolution	30-Nov-2018
Start Date of the Project	17-Sept-2019
First Submission to GS	23-Jan-2020
Physical Meeting (Local Stakeholder Consultation)	12-Sept-2021
Project Commissioning	13-Nov-2021
Design Certification	28-Jul-2022

B.5.2 Ongoing Financial Need

>> The project generates power using Wind energy which is a renewable, zero emission source of energy. Baseline considerations for the project are based on approved consolidated baseline methodology ACM0002 (Version 20.0).

Thus, the project follows section 5.3.2 of the applied methodology which requires the project proponent to determine the additionality based on "Tool for the demonstration and assessment of additionality", Version 7.0. and for additionality, please refer section B.5 of this document.

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact
		Indicator (Proposed or SDG Indicator)
SDG 7: Affordable and Clean Energy	7.2: By 2030, increase substantially the share of renewable energy in the global energy mix Target: 1,197,600 MWh per annum	7.2.1: Renewable energy share in the total final energy consumption
SDG 8: Decent Work and Economic Growth	8.5: By 2030, achieve 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 Target: • Training: 1 annually • Employment of 15 staff	8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
SDG 13: Climate Action	13.2: Integrate climate change measures into national policies, strategies and planning Target: 531,674 tCO ₂ per annum	13.2.1: Number of countries that have communicated establishment or operationalization of an integrated policy/ strategy/ plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

>> The company shall conduct regular surveys during construction as well as O&M phases in the villages near project locations to check the requirement of facilities by the villages. Based on the surveys, PP shall identify and works on several scope(s) of developmental activities such as health camps, distribution of furniture & sports kits in schools, toilet requirements in government schools, drinking water requirements etc. For this project activity, following SDGs are expected to be impacted:

SDG 7: Affordable and Clean Energy

The baseline scenario is no project, thus leading to generation of electricity in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 1,197,600 MWh of clean energy per annum.

SDG 8: Decent Work and Economic Growth

The project leads to Trainings & workshops which are conducted for the O&M staff of the PP. It is expected that a minimum of 1 training (either of the above) would be carried out annually.

The project will also provide employment to approximately 15 persons including O&M staff, management staff on-role, outsourced jobs as well as security guards during the O&M phase.

SDG13: Climate Action :

The project leads to mitigation of 531,674 tCO₂ per annum.

As per the approved consolidated Methodology ACM0002 (Version 20.0), Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

Baseline Emissions:

The proposed project activity will calculate baseline emissions according to ACM0002. Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology

assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ, y} \times EF_{grid, CM, Y} \quad \text{ACM0002 Equation 11}$$

BE_y = Baseline emissions in year y (t CO₂/yr)

$EG_{PJ, y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh/yr)

$EF_{grid, CM, Y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of "TOOL07: Tool to calculate the emission factor for an electricity system" (t CO₂/MWh)

Since the project activity is the installation of a Greenfield power plant, then:

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

Here:

$EG_{PJ, y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh/yr)

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

According to the EB 100 annex 4: TOOL07: Tool to calculate the emission factor for an electricity system, the baseline methodology procedure to calculate $EF_{grid, CM, y}$ is the following:

Step 1: Identify the relevant electricity systems.

For determining the electricity emission factors, the project participant is identifying the relevant project electricity system or any connected electricity systems. No connected electricity system is located partially or totally in Annex I countries, thus the project electricity system is defined by using the three options stated in CDM TOOL 07 (EB 100 annex 4): Tool to calculate the emission factor for an electricity system, version 7.0.

Since the Egyptian DNA has not published a delineation of the project electricity boundary to be used, Option 1 (the priority option) is not feasible. Therefore, the Project Developer will use option 2 (the next option in the priority order).

Option 2. A delineation of the project electricity system defined by the dispatch area of the dispatch center responsible for scheduling and dispatching electricity generated by

the project activity. Where the dispatch area is controlled by more than one dispatch center, i.e. layered dispatch area, the higher-level area shall be used as a delineation of the project electricity system (e.g. where regional dispatch centers are required to comply with dispatch orders of the national dispatch center then area controlled by the national dispatch center shall be used).

In Egypt, the Egyptian Electricity Holding Company (EEHC) is the main electricity operator and regulator in Egypt. Among its objectives are producing, transmitting and distributing electrical energy for all uses on the various voltages, and also managing, operating and maintaining electricity transmission and distribution networks at the various voltage levels, selling electrical energy on the various voltages throughout the country and making the optimal utilization of these networks. Therefore, this company is the responsible for defining all characteristics of the electricity grid in the country.

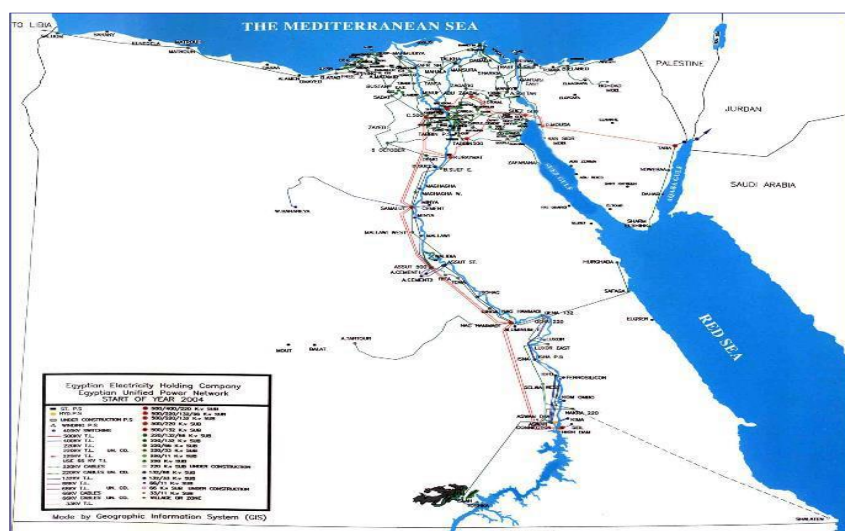
In its Annual Report for 2017⁹, the EEHC mentions the Unified National Grid as being the national grid for electricity transmission in Egypt.

In Egypt, all the power plants are connected to the unified Egyptian National Grid in which the Egyptian Electricity Transmission Company (EETC), a subsidiary from EEHC, acts as a single buyer of bulk power, purchasing electricity from the generating companies through Power Purchase Agreements (PPAs) and selling it to the distribution companies and UHV and HV customers.

All power stations connected to the unified electric grid, are managed as a pool. The priority of dispatch is defined on the basis of least marginal cost optimisation where priority is given to renewable sources, then to thermal units with low specific fuel consumption (Ton Oil equivalent/MWh) and cost as base load and with those that have high operational costs as peak load. The great majority of the annual electricity generation is concentrated within a 250 Km radius around Cairo, which is the country`s load center. Hydro plants are concentrated at Aswan, about 900 Km south of Cairo, and provide another substantial portion. The Unified national grid, comprising all those power plants that are physically connected through transmission and distribution lines to the project activity, constitutes a clear grid boundary. Egypt is a net exporter of electricity so no emission calculations for imported electricity are to be included.

Figure: Egyptian Unified Electricity Grid.

⁹ <http://www.eehc.gov.eg/eehcportal/Eng/YearlyReports.aspx>



Step 2: Choose whether to include off-grid power plants in the project electricity system

The Project Developer chooses Option I: Only grid power plants are included in the calculation. Power plants, which are isolated and not connected to the power grid, are not considered part of this grid boundary.

Step 3: Select a method to determine the operating margin (OM)

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods:

(a) Simple OM, or (b) Simple adjusted OM, or (c) Dispatch data analysis OM, or (d) Average OM.

Any of the four methods can be used, however, the simple OM method (option a) can be used if low-cost/must-run resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydro electricity production.

Approach 1 has been used to verify that the low-cost/must-run resources constitute less than 50% of total grid generation on average of the five most recent years.

$$Share_{LCMR} = \text{average} \left[\frac{EG_{LCMR}(y-4)}{total_{(y-4)}}, \dots, \frac{EG_{LCMR}y}{total_y} \right]$$

Where:

$Share_{LCMR}$ = Share of the low cost/must run resources (per cent)

EG_{LCMRy} = Electricity generation supplied to the project electricity system by the low cost/must run resources in year y (MWh)

$total_y$ = Total electricity generation supplied to the project electricity

system in year y (MWh)

y = The most recent year for which data is available

The following values are provided by the Egyptian Electricity Holding Company annual reports for years 2014/2015; 2015/2016; 2016/2017; 2017/2018 and 2018/2019, 2019/2020.

Electricity Generation per type of source

Plant Type	Generation (GWh)				
	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
Hydro Power Plants	13,410	12,726	12,610.80	13,004	14,908
Wind Parks	2,031	2,173	2,315	2,999	4,224
Solar	168	580	518	1,434	4,297
Total - low-cost/must run	15,608	15,479	15,444	17,437	23,429
Private sector (BOOT plants)	12,496	11,383	10,892	10,802	10,660
Electricity purchased from IPP	42	35	42	43	20
Thermal	1,52,106	1,56,574	1,64,193	1,64,884	156,542
Total Net - all plants	1,80,253	1,83,471	1,90,571	1,93,165	190,650
Low-cost/must-run portion	8.66%	8.44%	8.10%	9.03%	12.29%
Five -year average for low-cost/must-run plants:			9.30%		

Since low cost/must run electricity generation sources resources represent 9.30% of the total grid electricity generation and constitute less than 50% of total grid generation on average of the five most recent years, therefore, Simple OM can be applied.

For the simple OM, the emission factor is calculated using the following data vintage:

(a) Ex ante option: the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. Since only grid power plants are being considered, a period of 3-year generation-weighted average, based on the most recent data available at the time of submission of the PDD to the DOE for validation is being used.

Step 4: Calculate the operating margin emission factor according to the selected method

The ex-ante option will be used for the calculation of the simple OM. The simple OM may be calculated by one of the following two options:

Option A: Based on the net electricity generation and a CO₂ emission factor of each power unit; or

Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

Option B can only be used if:

- i. The necessary data for Option A is not available; and
- ii. Only nuclear and renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known; and
- iii. Off-grid power plants are not included in the calculation (i.e. if Option I has been chosen in Step 2).

Since data on each power unit is not available for the project's case, Option B will be used for the calculation of simple OM emission factor.

Information regarding Net Electricity Production and fossil fuels amounts consumed in the project electricity system in the most recent 3 years 2017-18, 2018-19 and 2019-20 can be found in ER sheet and the table below:

Where Option B is used, the simple OM emission factor is calculated as follows:

$$ER_{\text{grid, OM Simple, } y} = \frac{\sum_i FC_{i, y} \cdot NCV_{i, y} \cdot EF_{CO_2, i, y}}{EG_y}$$

Where:

$EF_{\text{grid, OM simple, } y}$	=	Simple operating margin CO ₂ emission factor in year y (tCO ₂ /MWh)
$FC_{i, y}$	=	Amount of fossil fuel type i consumed by power plant / unit m in year y (mass or volume unit)
$NCV_{i, y}$	=	Net calorific value (energy content) of fossil fuel type i in year y (GJ / mass or volume unit)
$EF_{CO_2, i, y}$	=	CO ₂ emission factor of fossil fuel type i in year y (tCO ₂ /GJ)
EF_y	=	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost / must-run power plants / units, in year y (MWh)
i	=	All fuel types combusted in power sources in the project electricity system in year y
y	=	The relevant year as per the data vintage chosen in step 3 (Ex-ante option)

NET ELECTRICITY generated to the Grid by all power sources serving the system, not including low-cost/must-run power plants/units			
	Net Electricity Production GWh		
	2017/2018	2018/2019	2019/2020
Thermal	164,193	164,884	156,542
Purchased Energy from IPPs	42	43	20
Generated from private sector (BOOT)	10,892	10,802	10,660
Total Net electricity generated (excluding isolated and low cost must run units), Egy (GWh)	175,127	175,729	167,222

Source: MOEE Annual Reports for the indicated year, Table performance statistics of power plants website: http://www.moee.gov.eg/english_new/report.aspx

	2017/2018(tCO2)	2018/2019(tCO2)	2019/2020 (tCO2)
CO2 emissions	90,351,479	82,859,268	76,245,790
	2017/2018	2018/2019	2019/2020
Simple operating margin CO2 emission factor (tCO2/MWh)	0.5159	0.4751	0.4560

3 YEAR SIMPLE OPERATING MARGIN (TCO2/MWh) Weighted Average	0.4815
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The Simple OM is then calculated as the weighted average CO2 emissions from electricity generation / Net electricity supplied to the grid in the most recent 3 years.

Simple Operating Margin (OM) Grid Emissions factor = 0.4815 tCO₂/MWh

Step 5: Calculate the build margin (BM) emission factor

In terms of vintage of data, project participants choose

Option 1 - for the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period;

Capacity additions from retrofits of power plants are not included in the calculation of the build margin emission factor.

The sample group of power units (m) used to calculate the build margin is determined as follows:

- a. Identify the set of five power units, other than the power units registered as CDM project activities, that started to supply electricity to the grid most recently (SET5 units) and determine their annual electricity generation (AEGSET-5-units, in MWh);
- b. Determine the annual electricity generation of the project electricity system, not including power units registered as CDM project activities (AEGtotal, in MWh). Identify the set of power units, excluding power units registered as CDM project activities, that started to provide electricity to the grid most recently and that include 20 per cent of AEGtotal (if 20 per cent falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) (SET>20 percent) and control their annual electricity generation (AEGSET-≥20 per cent, in MWh);
- c. From SET5-units and SET>20 per cent identify the set of power units that includes the larger annual electricity generation (SETsample);

Set the date when the power units in SET_{sample} began to supply electricity to the grid. If none of the power units in SET_{sample} started to provide electricity to the grid more than 10 years ago, then use SET_{sample} to calculate the build margin. In this case ignore Steps (d), (e) and (f).

Otherwise:

- d. Reject from SET_{sample} the power units which started to supply electricity to the grid more than 10 years ago. Include in that set the power units registered as CDM project activities, starting with power units that started to supply electricity to the grid most recently, until the electricity generation of the new set comprises 20 per cent of the annual electricity generation of the project electricity system (if 20 per cent falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) to the extent is possible. Determine for the resulting set (SET_{sample}-CDM) the annual electricity generation (AEGSET-sample-CDM, in MWh); If the annual electricity generation of that set is comprised of at least 20 per cent of the annual electricity generation of the project electricity system (i.e. $AEGSET\text{-sample-CDM} \geq 0.2 \times AEG_{total}$), then use the sample group SET_{sample}-CDM to calculate the build margin. Ignore Steps (e) and (f)

Otherwise:

- e. Include in the sample group SETsample-CDM the power units that started to supply electricity to the grid is more than 10 years ago until the electricity generation of the new set comprises 20 per cent of the annual electricity generation of the project electricity system (if 20 per cent falls on part of the generation of a unit, the generation of that unit is fully included in the calculation);
- f. The sample group of power units m used to calculate the build margin is the resulting set (SETsample-CDM->10yrs).

The set of power units that have been built most recently are specified in ER sheet

The build margin emissions factor is the generation-weighted average emission factor (tCO₂/MWh) of all power units m during the most recent year y for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \cdot EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where:

- EF_{grid,BM,y} = Build margin CO₂ emission factor in year y (tCO₂/MWh)
- EG_{m,y} = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
- EF_{EL,m,y} = CO₂ emission factor of power unit m in year y (tCO₂/MWh)
- m = Power units included in the build margin
- y = Most recent historical year for which power generation data is available

The list of each power unit and its specific CO₂ emissions per MWh are specified in below table:

Power Plant	Installed capacity (MW)	Net Electricity Generated (MWh) 2019-20	Commissioning Date	% of system Net Total	tCO ₂
North Giza	2,250	6,925,700	2018-2019	3.585%	4,208,595.38
West Damietta Ext	750	2,176,300	2016-2018	1.127%	1,083,950.91
West Assuit	1,500	5,695,000	2015-2019	2.948%	2,218,351.08
South Helwan	1,300	6,256,300	2019	3.239%	694,040.51
Burulls	4,800	17,133,000	2017 - 2018	8.870%	3,387,102.91
Beni Suef	4,800	15,283,500	2017 - 2018	7.912%	5,908,117.336
New Capital	4,800	9,005,000	2017 - 2018	4.662%	3,202,139.16

The CO₂ emission factor of each power unit m (EF_{EL,m,y}) is determined as per the guidance in Step 4 above for the simple OM using Options A1, using for y the most recent historical year for which electricity generation data is available, and using for "m" the power units included in the build margin.

Build Margin Grid Emissions Factor = **0.3313 tCO₂/MWh**

Step 6: Calculate the combined margin emissions factor

The calculation of the combined margin (CM) emission factor (EF_{grid,CM,y}) is based on the Weighted average CM, as follows:

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

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 (%)
 w_{BM} = Weighting of build margin emissions factor (%)

The following default values are used for this wind power generation project activity (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods: $w_{OM} = 0.75$ and $w_{BM} = 0.25$

Para 86 a. Wind and solar power generation project activities: $w_{OM} = 0.75$ and $w_{BM} = 0.25$

W (OM)	0.75	0.4815
W (BM)	0.25	0.3313
EF_{CM,grid} (tCO₂/MWh)		0.444

Combined Margin (CM) Grid Emissions factor = 0.444 tCO₂/MWh

Leakage

No leakage emissions are considered according to ACM0002. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.

Emission reductions

$$ER_y = BE_y - PE_y$$

ACM0002 Equation 17

Where:

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

B.6.2 Data and parameters fixed ex ante

SDG13

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.

SDG13

Data/parameter	$EF_{BM, y}$
Unit	tCO _{2e} /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.

SDG13

Data/parameter	$EF_{CM, y}$
Unit	tCO _{2e} /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.

B.6.3 Ex ante estimation of SDG Impact

>> *SDG 7: Affordable and Clean Energy* - Project expected to generate 1,197,600 MWh clean energy every year

SDG 8: Decent Work and Economic Growth - Minimum 1 training to be carried out annually, apart from providing employment to approximately 15 persons.

SDG13 : Climate Action - The project leads to mitigation of 531,674 tCO₂ per annum.

Calculation of Outcome for SDG13: Climate Action

Baseline emissions

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.

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

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 tCO₂/MWh.

Project Participant	Capacity	Generated Power (MWh/year)	Baseline Emission Factor (tCO ₂ /MWh)	Baseline emissions (tCO ₂ /year)
Lekela Egypt Wind Power BOO (S.A.E.)	252 MW	1,197,600	0.444	531,674

$BE_y = 1,197,600 \times 0.444 \text{ t CO}_2/\text{year} = 531,674 \text{ tCO}_2/\text{year}$

Project emissions

$PE_y = 0$

Leakage

No leakage emissions are applicable.

Emission reductions

$ER_y = BE_y = 531,674 \text{ tCO}_2/\text{year}$

B.6.4 Summary of ex ante estimates of each SDG Impact

SDG 7: Affordable and Clean Energy

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 MWh	1,197,600 MWh	1,197,600 MWh
Year 2	0 MWh	1,197,600 MWh	1,197,600 MWh
Year 2	0 MWh	1,197,600 MWh	1,197,600 MWh
Year 4	0 MWh	1,197,600 MWh	1,197,600 MWh
Year 5	0 MWh	1,197,600 MWh	1,197,600 MWh

Total	0 MWh	5987999	5987999 MWh
Total number of crediting years	5		
Annual average over the crediting period	0 MWh	1,197,600 MWh	1,197,600 MWh

The proposed project activity falls under grid, which constitutes of both fossil fuels and non-fossil fuels sources of electricity generation hence in baseline, the affordable and Clean Energy generated was 0. Since the project is a Wind energy project, therefore the Affordable and Clean Energy produced by the project is 1,197,600 MWh per year.

SDG 8: Decent Work and Economic Growth

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 2	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 2	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 4	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 5	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Total	0 Training, 0 Jobs	5 Training, 15 Jobs	5 Training, 15 Jobs
Total number of crediting years	5		
Annual average over the crediting period	0 Training, 0Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs

SDG13 : Climate Action

Year	Baseline estimate	Project estimate	Net benefit
Year 1	531,674 tCO ₂	0 tCO ₂	531,674 tCO ₂
Year 2	531,674 tCO ₂	0 tCO ₂	531,674 tCO ₂
Year 2	531,674 tCO ₂	0 tCO ₂	531,674 tCO ₂
Year 4	531,674 tCO ₂	0 tCO ₂	531,674 tCO ₂
Year 5	531,674 tCO ₂	0 tCO ₂	531,674 tCO ₂

Total	2,658,370 tCO ₂	0 tCO ₂	2,658,370 tCO ₂
Total number of crediting years	5		
Annual average over the crediting period	531,674 tCO ₂	0 tCO ₂	531,674 tCO ₂

The proposed project activity falls under grid, which constitutes of both fossil fuels and non-fossil fuels sources of electricity generation hence in baseline, the estimated emission is 531,674 tCO₂ per year. Since the project is Wind energy project, therefore the project does not emit any GHG.

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 7.2.1 : Affordable and Clean Energy

Data / Parameter	EGy
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	1,197,600
Measurement methods and procedures	The main monitoring data will be provided by electricity meters (main and backup meters) installed at the grid interface for electricity export to grid. Meters are located 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 will be two meters (main and backup) that measure the total net electricity.

QA/QC procedures	Total MWh delivered by the project to the grid will be 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 will be 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.

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 agreement's.
Source of data	Training Records (HSE & HR) Salary of the project employees & / O&M agreement
Value(s) applied	The trainings & workshops will be given to the O&M staff are: - HSE Training Record - Soft Skill Training It is expected that a minimum of 1 training (either of the above) would be carried out annually.

	The training programmes 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.
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 would be 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	-

SDG13.2.1 : Climate Action

Data / Parameter	ERy
Unit	tCO ₂
Description	CO ₂ emission reduction due to implementation of project activity
Source of data	Calculated as per "Tool to calculate the emission factor for an electricity system,".
Value(s) applied	531,674 tCO ₂ emission reductions estimated per annum
Measurement methods and procedures	Calculated
Monitoring frequency	-
QA/QC procedures	Calibration records will be 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

B.7.2 Sampling plan

>> Sampling is not required for the given project activity.

B.7.3 Other elements of monitoring plan

>> 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 will be monitored, unless calculated as indicated in the table above. All measurements will be conducted with calibrated measurement equipment according to relevant industry standards.

The Project Company will recruit an O&M team to manage the administrative and technical tasks. After this period, this agreement with Gamesa may be extend or the Project Developer/Project Participant can take over the O&M activities of the WTGs. Both options are typical in the wind industry.

The effective Monitoring Plan to be put in place will 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 will be monitored automatically by the Project owner (Lekela Egypt Wind Power BOO (S.A.E.)) and will be crosschecked using electricity sales invoices. Electricity data will be aggregated monthly and presented as a summary in periodical monitoring report.

Metering

The project electricity generation will be 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

Main Meter for Line 1: 02891378

Backup Meter for Line 1: 02914086

Maine Meter for Line 2: 02891300

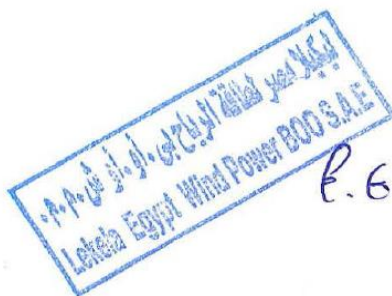
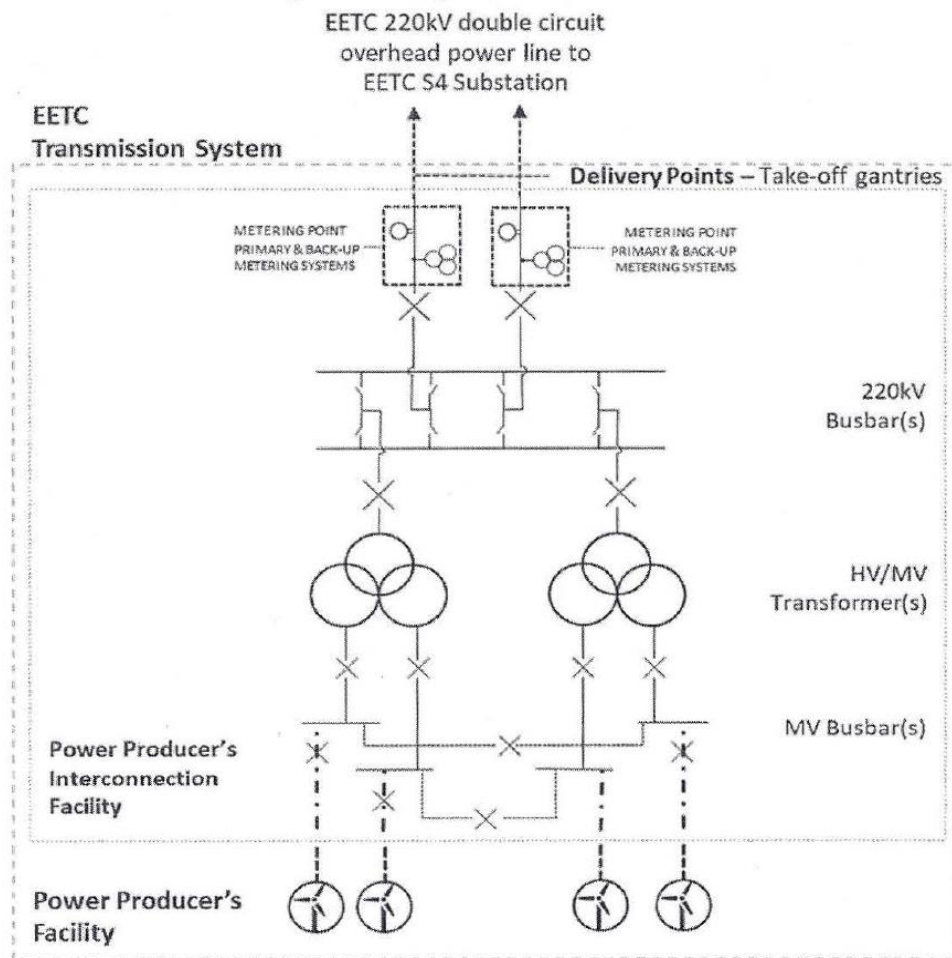
Backup Meter for Line 2: 02913923

Meter Specifications:

Meter Sl. No. Parameters	02891378	02914086	02891300	02913923
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 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 will have the provisions to record on memory the accumulated kilowatt-hours. The results from the Main Meter will be supplied by EETC on a monthly basis.

Figure 4 – Delivery Point Facility Schematic



YE

Recording and Archiving

Electricity generated by the Project and supplied to the national grid will be monitored and recorded by a Data Management System at the on-site control centre. Collected data will be 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.) will ensure that the meter readings be readily available for verification.

Data will be recorded electronically as well as on paper for backup. All the records or copies of these will be 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 will maintain daily operation and maintenance logs on a real time basis. They will provide detailed on-the-spot information about the operations at the plant and any event of significance will be reported.

Calibration

EETC will be responsible for the equipment calibration and will do this according to international standards. EETC will install and maintain 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 EEHC representatives for inspection, testing or calibration. The measured electricity meter installed is bidirectional type with accuracy of 0.2/.5%, 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, will be the person responsible for data monitoring and recording activities. He will report to, the project's General Manager. The daily monitoring activities will be performed by technical Operators on-site, reporting to the Site Manager, who in turn reports to the Project Co-ordinator.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

>> Date of Notice to proceed (Signed on 17/09/2019) shall be the commencement date under the Supply Contract signed between the Supplier (Siemens Gamesa) and Lekela Egypt Wind Power Boo S.A.E. Hence, Start date for the project activity is 17/09/2019.

C.1.2 Expected operational lifetime of project

>>20 years

C.2. Crediting period of project

C.2.1 Start date of crediting period

>>13/11/2021 (Date of commissioning of the project activity.)

C.2.2 Total length of crediting period

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

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#), ongoing monitoring is summarized below.

Principles	Mitigation Measures added to the Monitoring Plan
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 B.7.2.1 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 will be disposed to the waste handlers and the firm will comply with all the local laws for monitoring and disposal.

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?

Response: Project participants do not involve and promote any discrimination about the gender differences. As per Gold Standard Gender Policy, para 13(i) "Foundational gender-sensitive requirement - This strengthens Gold Standard's 'do no harm' approach and addresses safeguard to prevent or mitigate adverse impacts on women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standard certification and includes compliance with the gender 'do no harm' safeguards, gender gap analysis and gender sensitive stakeholder consultations."

The project does not seek to graduate to gender-grade GS certification and thus foundational gender sensitive requirements have been described.

The Foundational gender-sensitive minimum standards have been demonstrated as per the below:

HR Policy takes into account various gender sensitive measures such as:

1. There is no gender pay gap and there is transparency in pay and opportunities for promotion and advancement. There is no discrimination between employees by: (1) paying a wage to employees of one sex or gender identity at an equal rate; and (2) providing equivalent employment opportunities as defined by the law, based on sex and gender identity.

2. There are Gender Unbiased Leave policies, working hours, compliance to minimum wage standards, no harassment policy in the organization.

Thus, the project does not involve and is not complicit in any form of discrimination based on gender difference.

Question 2: - Explain how the project aligns with existing country policies, strategies and best practices

Egypt¹⁰ is party to "Convention on the Elimination of All Forms of Discrimination against Women" and the project has aligned its policies which does not discriminate on gender.

Egypt is one of the members of International Labor Organization (ILO), which formed in 1961. Also, Egypt signed Convention on the Elimination of All Forms of Discrimination against Women :1753 on 1981¹¹ and ratified the CEDAW¹² Convention on 11th Feb 1982.

The equal right of men and women to the enjoyment of all economic, social and cultural rights set forth in the present Covenant. It defines the meaning of gender discrimination and sets out penalties and compensation.

The Project participants do not involve and promote any discrimination about the gender differences. The same is ensured into HR Policy, hence no expert Stakeholder inputs are required. Also, the project has conducted the detailed ESIA study for the project activity to address the key concerns if any.

¹⁰ https://www.ilo.org/ipecc/Regionsandcountries/arab-states/egypt/WCMS_201295/lang--en/index.htm

¹¹ <https://indicators.ohchr.org/>

¹² <https://www.hrw.org/reports/2004/egypt1204/8.htm>

Further the questions raised in the Gold Standard Safeguarding Principles & Requirements document are described under Appendix 1.

Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?

The project does not seek to graduate to gender-grade GS certification and thus foundational gender sensitive requirements have been justified.

As per GS4GG GENDER EQUALITY REQUIREMENTS & GUIDELINES, "Gold Standard may require that the Project seek the input of an Expert Stakeholder and to include their recommendations in the Project design. For projects seeking gender-responsive certification, the Gold Standard VVBs audit teams shall include gender consultants with relevant sector expertise to verify the gender claims of the project".

The Project participants do not involve and promote any discrimination about the gender differences. The same is ensured into HR Policy, hence no expert Stakeholder inputs are required.

Further the questions raised in the Gold Standard Safeguarding Principles & Requirements document are described under Appendix 1.

Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?

No Expert is required to assist with Gender issues at the Stakeholder Consultation as the stakeholders were invited in a 'gender-sensitive' manner and efforts has been made to solicit input from women and marginalised groups.

As per the GS Stakeholder guidelines, section 1.1.2 "All Gold Standard projects shall "take gender issues into account". This requires local stakeholder consultation processes to reach a wide range of community representatives in ways that ensure equal and effective participation of both women and men, and that gender issues are fully factored into comprehensive social and environmental impact assessments."

Since the project is applying retroactively for GS registration. The Local Stakeholder Consultation Meeting had an overall healthy participation in the meeting. It was held during the day, as women tend to circulate more freely and safely than after sunset. All the villagers were invited for the consultation through invitation pasted in public places (local administration Offices, Bus Stand, Market etc.) The meeting was conducted in local language and English translation is prepared for the purpose of reporting.

The project representative explained how the power projects help in providing clean energy and thereby help in mitigating impacts due to Global Warming and the impacts of Wind power projects which lead to providing clean energy, increase in employment opportunities both long term and short term, increased income and thereby leading to improvement in living standard of the people.

Nevertheless, PP had organized a Local Disclosure Event to publicize the results of the Environmental and Social studies of the project to the local communities and stakeholders on 25th of November 2018 at Cancun Sokhna Resort which is the nearest hotel to Ras Gharib. Invitations were sent to the local stakeholders and NGOs by mail and/or emails. Also, face to face invitations and communications through Ras Gharib

city council were done to engage as many local people as possible. As a result, more than 150 persons attended the event covering the relevant stakeholders including Red Sea governorate, Ras Gharib city council, Egyptian Environmental Affairs Agency (EEAA), New and Renewable Energy Authority (NREA), the Egyptian Electricity Transmission Company (EETC), and the EPC contractor (Senvion).

ESIA local Disclosure Report is also being submitted along with ESIA report to the DOE.



SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1 Summary of stakeholder mitigation measures

>>

Since, the project is applying retroactively for GS registration, two rounds of stakeholder consultation including one mandatory physical meeting and one stakeholder feedback round lasting for two months have been conducted for the project activity. The Physical Stakeholder Feedback Round was held at Meeting Hall Ras Ghareb city council building, Ras Ghareb city, Red Sea Governorate on 12/09/2021 to consider and receive feedback from all the possible stakeholders to the project.

Identified Stakeholders for the project activity:

- Local community
- Local administration
- Technology suppliers
- Local vendors

The Agenda of the event included an opening speech and remarks by Lekela-Egypt General Manager, and the Head of the city council. The agenda for the meeting was as follows;

- Introduction of the Project owner and participants
- WBWF project description and site specifications
- WBWF Environmental and Social Impact during construction and operation phases
- Grievance Mechanism for stakeholders
- Introduction to Climate Change
- Introduction to Carbon Credits mechanisms and Gold Standard due diligence

Mamdouh Higazy, E&S Manager (Lekela Egypt Wind Power BOO (S.A.E.)) and Nader Hassan, Local Representative (First Climate Markets AG) facilitated the stakeholder consultation event on Sunday 12/09/2021 to publicize the environmental and social impacts of the project and the carbon credits cycle to the local communities and stakeholders. This event is a part of Gold Standard scheme due diligence.

Due to the difficulties of organizing such an event at the project site, the event was held at the meeting hall in the city council building of Ras Gharib city. These difficulties are related to obtaining security permits for the event attendees from the military agencies since the project site lies in one of the military controlled areas. Lekela Egypt Wind Power BOO (S.A.E.) chose the city council building to be easily accessible for the local community to facilitate their effective participation and the city council is one of their main stakeholders. Invitations were sent to the local stakeholders and NGOs by mail and/or emails. Also, face to face invitations and communications in Ras Gharib city were done to engage as many local people as possible. As a result, more than 45 persons attended the event with the presence of the Head of the city council Mr. Hamed Ahmed. The event started at 11.00 AM and lasted for 2 hours till 01.00 PM.



The Minutes of LSH meeting along with List of Attendees and other supporting's shall be submitted to the DOE.

Lekela Egypt Wind Power BOO (S.A.E.) has conducted a stakeholder feedback consultation round in line with GS4GG requirements and guidelines to incorporate all the feedback received for the project activity if any.

The Stakeholder feedback round has been planned to consider and receive feedback from all the possible stakeholders to the project, i.e.

1. Local villagers & Farmers,
2. Community members,
3. O&M operators and employees,
4. Local government bodies,
5. Apart from these the stakeholders as identified by Gold standard Board, i.e. Gold standard partnered NGOs and DNA of Egypt (EEAA) were also invited.

All the stakeholders have been invited through via public notice which were displayed to the nearby areas, also emails & individual invitation were sent to attend the stakeholders meeting. The stakeholder feedback consultation round meeting was held at project site (Meeting Hall Ras Ghareb city council building, Ras Ghareb city, Red Sea Governorate) on 12/09/2021.

More Detail is provided in the stakeholder consultation report under section E.2 of the SCR.

Summary of comments received

The stakeholders were overall satisfied with the feedback given to them about the impact of the project activity on the environment. Some of the important points discussed in the meeting were.

- The stakeholders appreciated the fact that the project produces electricity from a clean source as opposed to the electricity generation from the fossil fuels.
- The local people expressed their happiness about the project in their area which has provided employment opportunity to the local people.

Local stakeholders welcomed and expressed their support to the project. The meeting was concluded by vote of thanks to all the participants.

Report on consideration of comments received

The queries/ comments raised by local populace in the meeting were satisfactorily resolved/ clarified by the representative of PP & EPC Contractor.

At the end of meeting, Local stakeholders welcomed and expressed their support to the project. The meeting was concluded by vote of thanks to all the participants.

As evident from the stakeholders' comments the stakeholders were satisfied with the positive sustainable impacts of the wind project

E.2 Final continuous input / grievance mechanism

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)	Input/Grievance Register to be maintained at project site O&M provider office. The format of receiving inputs/ complaints is as per GS requirements
GS Contact (mandatory)	help@goldstandard.org
Other	PP Representative Email address mentioned in the Grievance Book: Mr. Yves Kellerand his mobile number is +49 6101 55658 73 shall be available for any stakeholder to comment. Email id: Yves.Keller@firstclimate.com

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into [SECTION D](#) above. Please refer to the instructions in the [Guide to Completing](#) this Form.

Assessment Questions/ Requirements	Justifica tion of Relevan ce (Yes/po tentially /no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigatio n Measures added to the Monitorin g Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion		a. The Project is not in conflict with the economic livelihood or other issue of the local community. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. b. Project activities are not expected to cause any human rights abuse. As a member of United Nations and part of UN Agreement on Human Rights , it is ensured by law in Egypt that no action can be taken against human rights.	Not Required
Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women		1. The Project do not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. For this project,	Not Required

2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		every employee is treated with respect and afforded equitable treatment. The grievance register has maintained at site to take stakeholder feedback. There is no any sexual harassment and/or any forms of violence against women. 2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work. The project has equal opportunity for both men and women. 3. Egypt ratified the International Convention on the Elimination of All Forms of Racial Discrimination on 1981 with certain reservation. The project activity is in line with strategy of elimination of discrimination. 4. Summary of opinions and recommendations of an Expert Stakeholder is required in case of Gender responsive project activity. However, the project activity is a Wind power generation project and does not involve any such scenarios. Nevertheless, a detailed ESIA study has been conducted to evaluate all the requirements with respect to the project activity.	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to		a. The project proponent is committed to the	Not Required

increased health risks and shall not adversely affect the health of the workers and the community		employee's workplace health & safety during all phases of the project. The company ensures to provide safe and healthy workplaces for employees and protecting the safety of the communities. All employees will attend health & safety trainings. This is issued in the Labour code on Occupational Safety, Health and Working Conditions and UN Agreement on Human Rights.	
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	This is a Wind power project, as per the ESIA study there are no protected archeological and cultural heritage sites are reported within the project footprint". Law on Cultural heritage is protected against alteration, damage or removal by the "NATIONAL LEGISLATION By-law of March 1869 on "Antiquities items". Antiquities in general are protected by Law No. 117 of 1983 and buildings of architectural value and historical importance are protected by Law No. 178 of 1961. Law No. 144 of 2006 regulates demolition	Not Required
>>			

		licenses and is concerned with protecting buildings of recognized architectural value.	
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project does not involve any settlement areas. Thus, this project does not cause the physical or economic relocation of peoples. The project activity does not involve any alteration of existing roads as well as it does not add additional traffic. Since the site located isolated area, the traffic volume is negligible. Hence, there is no additional burden to the existing traffic. In addition, the project proponent built new roads for those sites which do not have road access.	Not Required
>>		Nevertheless, a detailed ESIA study has been conducted for the project activity.	
Principle 4.3 Land Tenure and Other Rights			
a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	No	There are no uncertainties regarding land tenure, access rights, usage rights or land ownership.	Not Required
b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?		The Wind turbines are all developed on government land and some private land and all of them belongs to the PP. All the land agreements are well in place and there are no issues with	
>>			

		land tenure, access rights usage rights or land ownership. Moreover, the project is not located with close proximity of any forest.	
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	No cultural heritage/ indigenous people are replaced by the project. A detailed ESIA study is performed for the project activity and submitted to the assessment team.	Not Required
>>			
Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects		PP does not involve and is not complicit in any kind of corruption. Egypt has ratified UN convention against Corruption in 2005 ¹³ .	Not Required
Principle 6.1 Labour Rights			
1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organisations		1. PP and their subcontractors complying with all relevant national laws ¹⁴ regarding child labour. PP will not employ children in any shape or form for their works. Egypt has ratified ILO "C138 – Minimum Age Conventions" and "C182 – Worst Forms of Child Labour Convention".	Not Required

¹³ https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XVIII-14&chapter=18&clang=en#EndDec

¹⁴ <https://www.egypt.gov.eg/english/laws/>

3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures		2. The project owner is committed to the safe and healthy working conditions all phases of the project. All employees will attend trainings health & safety. This issue is protected by Labour code and UN Agreement on Human Rights. Egypt¹⁵ has ratified ILO "C029 – Forced Labor Convention" 3. The working agreements with all individual workers are available which contains the guidelines that define how employees work, and the working environment to feel safe and free to learn, explore and discover. PP and appointed contractors will not involve in any form of forced or compulsory labour. Egypt has ratified ILO "C029 – Forced Labour Convention".¹⁶ 4. The notice at site is displayed containing abstract of sections Article No. 64 of Egypt's Child Law prohibits the work of children under the age of	
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¹⁵ https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102915

¹⁶ https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102915

		15. Law ¹⁷ no. 12 for 1996 for the Code of the Child. 5. The project owner is committed to the safe and healthy working conditions all phases of the project. All employees will attend trainings health & safety. This issue is protected by Labor code ¹⁸ and UN Agreement on Human Rights ¹⁹ .	
Principle 6.2 Negative Economic Consequences			
1. Does the project cause negative economic consequences during and after project implementation?	No	The project activity is a renewable wind power generation project and generates various employment opportunity for the locals throughout its lifetime. Thus, there is no negative economic consequences during and after project implementation.	Not Required
>>			
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project reduces Greenhouse Gas (GHG) emissions and fossil fuel usage compared to the baseline scenario.	Not Required
>>			
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power	No	No. The project activity is a grid connected renewable	Not Required

¹⁷ <https://www.egypt.gov.eg/english/laws/>

¹⁸ <https://www.ohchr.org/EN/Countries/MENARegion/Pages/EGIndex.aspx>

¹⁹ <https://www.ohchr.org/EN/countries/MENARegion/Pages/EGIndex.aspx>

supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?		energy based Wind power generation project. There is no use of Wood or Biomass in the project activity. On the contrary the project generates renewable energy and supplies to the grid. Hence, it's not required to be monitored.	
>>			
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project being a Wind power project thus there is no impact of water resources. The plant area does not have large rivers and streams flow. Nevertheless, PP has conducted the detailed ESIA study for the project activity and the same is submitted to the assessment team.	Not Required
>>			
Principle 8.2 Erosion and/or Water Body Instability			
a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	No. the risk of erosion is unlikely by the project. Nevertheless, PP has conducted the detailed ESIA study for the project activity and the same is submitted to the assessment team.	Not Required
>>			
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	The project is proposed to establish at the land which was not used for production of crops and other products for a long time.	Not Required
>>			

Principle 9.2 Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project is susceptible to decreased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme conditions.	Not Required
>>			
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The wind plant does not affect the herbal life.	Not Required
>>			
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No	The project takes a precautionary approach regarding environmental challenges and is not complicit in practices contrary to the precautionary principle. The environment is protected by several Laws and Regulations in Egypt. The purpose of the "Law on Environmental Protection" is to protect the environment with principles of sustainable development and environment. The project owner also follows necessary procedures for	Not Required
>>			

		environmental safety at the project. Environmental issues in Egypt are governed by Law No. 4 of 1994. This law provides for the creation of an agency for the protection and promotion of the environment, the Egyptian Environment Affairs Agency (EEAA).	
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	All hazardous and non-hazardous wastes will be disposed as per the local regulations. Being a wind power project does not involve emission of Hazardous waste. PP has conducted the detailed ESIA study and submitting the same to the assessment team. Nevertheless, PP shall implement the procedure to dispose the all type of waste at site d as per the local regulations. Hazardous waste viz. waste oil used oil, used grease, wastes or residues containing oil, empty barrels/ containers/ liners wastes or residues Containing oil etc. will be collected and stored in paved and enclosed area with secondary containment and subsequently sold to authorized recyclers/ Transfer storage disposal facility (TSDF) in compliance	Not Required
>>			

		with Egypt government norms.	
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	No	Not applicable for Wind power plants.	Not Required
>>			
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	No, the project does not involve harvesting of forest.	Not Required
>>		ESIA study clearly reveals that project activity does not involve harvesting of forest.	
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	No. The project does not modify the quantity or nutritional quality of food available.	Not Required
>>			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	No. Not applicable for Wind project.	Not Required
>>			
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	No. ESIA report states that the projected area of the Project is saline soils, not located in sensitive ecological zones, biodiversity conservation areas, and there are no rare and valuable plant and animal species.	Not Required
>>			

Principle 9.11 Endangered Species			
a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	No. There were no endangered species found in the project boundary, project has got the approval from ministry of environment and forest in the form of NOC. The project does not impact other areas where endangered species may be present.	Not Required
>>		The ESIA concluded the same.	

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Lekela Egypt Wind Power BOO (S.A.E.).
Registration number with relevant authority	
Street/P.O. Box	
Building	Lekela Egypt, The Q building no. 34B1, Northern Investors Area, Mohamed Naguib Axis – New Cairo, Egypt.
City	New Cairo
State/Region	Cairo
Postcode	11865
Country	Egypt
Telephone	
E-mail	Mamdouh.higazy@lekela.com
Website	https://lekela.com/
Contact person	Mr. Mamdouh Higazy
Title	Branch Manager
Salutation	Mr.
Last name	Higazy
Middle name	
First name	Mamdouh
Department	
Mobile	
Direct tel.	+2010000032853
Personal e-mail	faisal.eissa@lekela.com

APPENDIX 3- LUF ADDITIONAL INFORMATION

NA

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

NA

APPENDIX A: WTG UTM COORDINATES

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

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

Zone: 36 N	Easting	Northing
Wind Turbine	X	Y
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	6157201
43	480970	3157380
44	481275	3157584
45	481589	3157787
46	481925	3157975
47	482225	3158195
48	482565	3158346

Zone: 36 N	Easting	Northing
Wind Turbine	X	Y
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
92	486395	3155877
93	486650	3156106
94	486906	3156335
95	487154	3156571
96	487390	3156820

Revision History

Version	Date	Remarks
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption