Gold Standard for the Global Goals
Key Project Information & Project Design Document (PDD)

Version 1.1 – August 2017

Gold Standard

KEY PROJECT INFORMATION

Title of Project:	Wind Energy Project in Gujarat by Enn Enn Corp Limited
Brief description of Project:	The project activity involves the implementation of 12.6 MW capacity wind power project consisting of 6 Wind Turbine Generators (WTG's) of 2100 KW capacity each by Enn Enn Corp Limited. These wind mills are located at Rajkot and Surendranagar district in the state of Gujarat. The project will generate energy through renewable source i.e. wind. The kinetic energy of wind is converted into mechanical energy and subsequently into electrical energy. Kinetic energy which is carried by wind when passes through the blades of the WTG, is converted to mechanical energy which rotates the connected generator and which in turn produces the electricity.
Expected Implemetation Date: Expected duration of Project:	26/02/2012 20 years
Project Developer:	Enn Enn Corp. Limited
Project Representative:	EKI Energy Services Limited
Project Participants and any communities involved:	Enn Enn Corp. Limited
Version of PDD: Date of Version:	02 31/05/2020
Host Country / Location:	India
Certification Pathway (Project Certificatin/Impact Statements & Products	Impact Statements & Products
Activity Requirements applied: (mark GS4GG if none relevant)	GS4GG
Methodologies applied:	AMS-I.D. "Grid connected renewable electricity generation" (Version 18)
Product Requirements applied:	Gold Standard labels for Certified Emission Reductions (GSCERs)
Regular/Retroactive:	Retroactive
SDG Impacts:	**1 –SDG 7–** Affordable and Clean Energy Contribution to Climate Security & Sustainable Development **2 –SDG 8 –** Decent Work and Economic Growth **3 –SDG 13–** Climate Action
Estimated amount of SDG Impact Certified	**1 –SDG 7–** 22,130 MWh /annum **2 –SDG 8 –** 1 training /annum and 10 people employed **3 –SDG 13–** 20,844 tCO_2e/ annum

SECTION A. Description of project

A.1. Purpose and general description of project

Purpose of the project activity:

The project activity involves the implementation of 12.6 MW capacity wind power project consisting of 6 Wind Turbine Generators (WTG's) of 2100 KW capacity each by Enn Enn Corp Limited. These wind mills are located at Rajkot and Surendranagar district in the state of Gujarat. The project will generate energy through renewable source i.e. wind. The kinetic energy of wind is converted into mechanical energy and subsequently into electrical energy. Kinetic energy which is carried by wind when passes through the blades of the WTG, is converted to mechanical energy which rotates the connected generator and which in turn produces the electricity.

The electricity thus produced will be displacing the grid electricity which would have been otherwise generated through sources dominated by fossil fuel based power plants. The project activity thereby reduces the emission of green house gases which would have been generated from such fossil fuel based power plants..

The details of the project and the state of installation are mentioned in the table:-

Name of the PP	Capacity in MW	Connection with Grid	State	Usage of Electricity
Enn Enn Corp. Limited	12.6 MW	Indian Grid	Gujarat	Sale to grid

The project activity is promoted by Enn Enn Corp. Limited. Thus Enn Enn Corp. Limited is acting as PP for the project activity.

Sectoral Scope: 01 : Grid-connected electricity generation from renewable sources
Methodology : AMS I.D. "Grid connected renewable electricity generation" Version 18[1]
Project Type : I. Renewable energy projects

Tools referred with above methodology are:

Tool to calculate the emission factor for an electricity system[2] - Version 07.0 (EB 100, Annex 04)

Scenario existing prior to the implementation of project activity:

The project activity is a green field project, which means no power generation facility existedat the project site in the pre-project scenario. Hence, absence of any project activity is a befitting preproject scenario at project site.

Baseline Scenario:

The electricity produced by the project activity will be supplied to state electricity board, which lies in NEWNE regional grid (Now Indian Grid), as prescribed by Central Electricity Authority (CEA), country's apex power sectorplanning body, under the federal Government of India. In the absence of the project activity, sameamount of electricity would have been delivered into the grid by the existing and proposed fossil fuelfired power plants. The current project activity, therefore, precludes the emission of greenhouse gases(GHGs) that would have resulted in the absence of this renewable energy-based power project activity.

[1] https://cdm.unfccc.int/UserManagement/FileStorage/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC

[2] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

Hence, NEWNE regional grid (Now Indian Grid) has been considered for baseline emission calculations for the project activity.
Evidently, the pre-project scenario is same as the baseline scenario.

Contribution to sustainable development

Ministry of Environment, Forests and Climate Change, GoI, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. The project contributes to sustainable development using the following ways.

- **Social well-being:** The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation.

- **Economic well-being:** The project is a clean technology investment in the region, which would not have been taken place in the absence of the carbon credit benefits the project activity will also help to reduce the demand supply gap in the state.

  The project activity will generate power using zero emissions Solar based power generation which helps to reduce GHG emissions and specific pollutants like SOx, NOx, and SPM associated with the conventional thermal power generation facilities.

- **Technological well-being:** The successful operation of project activity would lead to promotion of Solar based power generation and would encourage other entrepreneurs to participate in similar projects.

- **Environmental well-being:** Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions.

A.2. Eligibility of the project under Gold Standard

The project activity meets the eligibility criteria as per section 4 of GS4GG Principles & Requirements -v1.2 as described below:

- The project applies methodology AMS-I.D, (Version 18)[3], Sectoral Scope: 01, which is an approved methodology under Gold Standard.
- The project type is power generation using Wind Energy which is an eligible project type as it is in accordance with 1.1.1 a) and 1.1.1 b) of the Eligible Project Types & Scope under Renewable Energy Activity Requirements.
- The project activity results in displacement of electricity from thermal power stations while contributing to sustainable development of India. Hence, the project contributes to the Gold Standard Vision and Mission.
- Wind power is an approved project type and does not require approval from Gold Standard.
- This project activity is not associated with geo-engineering or energy generated from fossil fuel or nuclear, fossil fuel switch, nor does it enhances or prolongs such energy generation.

General Eligibility Criteria under Renewable Energy Activity Requirements

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

[3] https://cdm.unfccc.int/UserManagement/FileStorage/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC

Project Location: The project is located in India.Further details have been provided in section A.4 of this report.
Project scale: The project activity is 12.6 MW Wind Power Project and thus, qualifies under small scale projects (non-micro scale project). Project Area and Boundary are defined in line with the applicable Methodologies or product Requirements.

The project activity got registered under CDM with project ID 10073.

Please refer following link for the same.
https://cdm.unfccc.int/Projects/DB/URSCert1417432071.89/view

As per section 4 of GS4GG Principles & Requirements -v1.2, 4.1.2 (b) "The project demonstrates its proposed contribution to the sustainable Development Goals (SDGs) , meaning at least an impact on SDG 13 plus two other SDGs.".

The project has applied for Gold Standard labelling, under GS4GG scheme.

A.3. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

Enn Enn Corp. Limited is the project proponent (PP) of project activity and have the legal right to control and operate the project activities.

The project ownership has been demonstrated through below supporting documents:

1. **Commissioning certificates –** The letter from State Nodal Agency to Enn Enn Corp. Limited for commissioning of generation facility indicates that PP have the legal right to control and operate the project activities.
2. **Contract with EPC contractor –** The purchase order on the name of Enn Enn Corp. Limited indicates that PP have the legal right to control and operate the project activities.

Based on above evidences, the project ownership is with **Enn Enn Corp. Limited**.

A.4. Location of project

A.4.1. Host Country

India

A.4.2. Region/State/Province etc.

State: Gujarat

A.4.3. City/Town/Community etc.

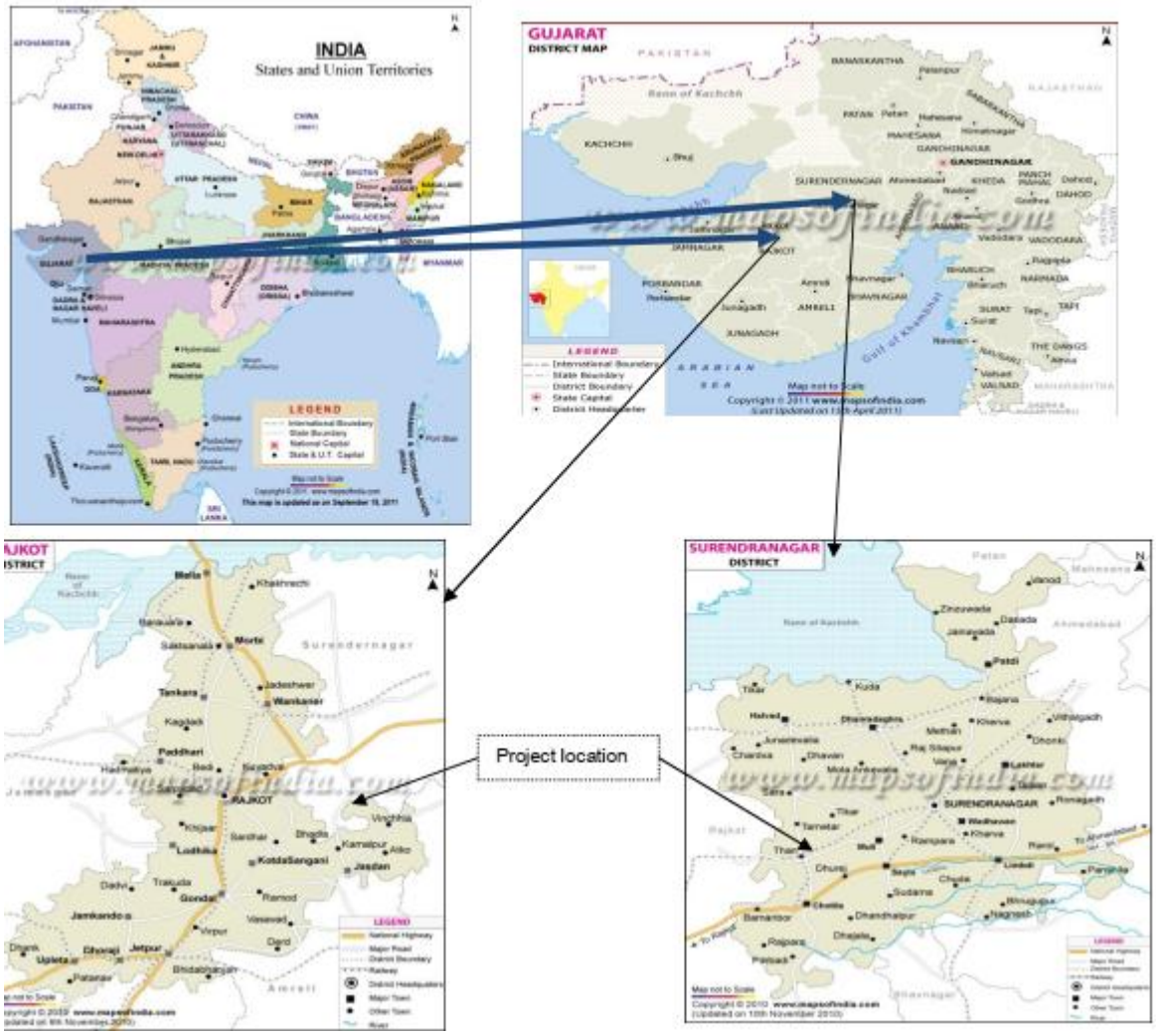
Dahisara Village, Taluka- Jasdan
Pipaliya Dhoro Village, Taluka-Chotila
Khadvavdi Village, Taluka- Jasdan
Barvada Village, Taluka- Jasdan

A.4.4. Physical/Geographical location

Project is located at Akal site of Chord village at Jaisalmer district in the state of Rajasthan. Co-ordinates of the six WTGs are tabulated below:

Unique identification	Commissioning date	Location no.	Geographical Co ordinates	Village	Taluka	District

SEL/2100/11-12/2349	30/09/2011	JSD-43	220 11′ 21.6″ N 710 08′ 49.7″E	Dahisara	Jasdan	Rajkot
SEL/2100/11-12/2350	30/09/2011	JSD-44	220 11′ 09.6″ N 710 09′ 01.7″ E	Dahisara	Jasdan	Rajkot
SEL/2100/11-12/2346	30/11/2011	JSD-76	220 08′ 17.2″N 710 04′ 30.9″E	Pipaliya dhoro	Chotila	Surendranagar
SEL/2100/11-12/2426	29/03/2012	JSD-51	220 08′ 17.3″ N 710 10′ 55.8″E	Barvada	Jasdan	Rajkot
SEL/2100/11-12/2347	30/11/2011	JSD-24	220 09′ 27.8″ N 710 09′ 34.3″E	Pipaliya dhoro	Chotila	Surendranagar
SEL/2100/11-12/2348	18/11/2011	JSD-25	220 09′ 52.2″ N 710 09′ 29.2″E	Khadvavdi	Jasdan	Rajkot



A.5. Technologies and/or measures

Technology of the small scale project activity:

The project activity incorporates installation of six number of 2100 kW S-88 wind turbine generator of Suzlon Energy Limited. In wind energy based power generation, the kinetic energy of the wind is being converted to mechanical energy and subsequently to electric energy. The wind, when passes through the blades of the WTG, its kinetic energy is converted into mechanical energy, which rotates the wind turbine's blades. The wind blade supplies the mechanical energy to the generator thereby producing electricity.

Specification of S – 88/2100 KW WTG[4]:

S. No	Parameters	Specification
Operating data		
1.	Installed electrical output	2100 kW
2.	Cut in wind speed	4 m/s
3.	Rated wind speed	14 m/s
4.	Cut out wind speed	25 m/s
5.	Hub height	79m (Foundation top equal to ground level)
6.	Wind Class	IEC-IIA
7.	Rotational speed	15 to 17.6 rpm
Rotor		
1.	Pitch System	Pitch regulated, electrical
2.	Rotor Diameter	88 m
3.	Rotor Swept Area	6082 m2
4.	Material Type	Epoxy bounded fibre glass
Generator		
1.	Type	Single fed induction Generator with slip rings, variable rotor resistance with SUZLON-FLEXI-SLIP control system
2.	Rated Power	2100 kW
3.	Rated voltage	3 Phase- 690 V AC
4.	Frequency	50 Hz
5.	Protection	IP 54, IP2 3 for slip ring unit
6.	Insulation Class	Class H
7.	Cooling system	Air-cooled
8.	Slip control	Unique flexi slip providing slip up to 16.67%
Gear box		
1.	Gear box type	3 stage (1 planetary and 2 helical)
2.	Gear ratio	1:98.8
3.	Nominal Load	2200 kW
Yaw system		
1.	Yaw drive system	3 electrical driven planetary drives
2.	Yaw bearing type	Slide bearing with gear ring & automatic greasing system
Braking system		
1.	Aerodynamic brake	3 independent systems with blade pitching mechanism
2.	Mechanical brake	Hydraulic disc brake, activated by Hydraulic Pressure + mechanical rotor lock, activated by hydraulic pressure
Certification		
1.	Design standards	GL 2003
2.	Quality	ISO 9001:2000, ISO 9001:2008, ISO14001:2004 AND OHSAS 18001:2007
Tower		
1.	Tower type	Tabular Tower (4 sections)

[4] http://www.suzlon.com/pdf/S88%20product%20brochure.pdf

2.	Corrosion protection	Epoxy/ PU coated

The project activity is deployed taking into consideration all aspects of environmentally safe and sound technology. Moreover, there has been no technology transfer involved in the project activity.

A.6. Scale of the project

The project is a small scale project utilizing Wind Turbine Generators (WTGs) to generate electricity.The total installed capacity of the project is 12.6 MW.

A.7. Funding sources of project

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 entirely funded by equity and thus no external funding sources have been used.

A.8. Assessment that project complies with 'gender sensitive' requirements

As per mandatory requirement of "Gold Standard Gender Equality Guidelines & Requirements", the " a)Foundation gender-sensitive requirements" are followed by PP.
All projects submitted for Gold Standard certification must have GENDERSENSITIVE PROCEDURES/ STRATEGIES AND MUST ADHERE TO THE GENDER PRINCIPLES AS ESTABLISHED IN THE GOLD STANDARD GENDER POLICY. STEPS 1 – 3 require all project developers to complete a gender safeguards assessment and gender-sensitive stakeholder consultations as part of initial project design and feasibility.
Meeting these requirements enables projects to claim to be 'Gender-Sensitive'. This is a mandatory foundational requirement that applies to all Gold Standard certifications. This level of certification is based on adherence to process as described in Steps 1-3.
Also Steps 1-3 require four mandatory questions to be answered and the same are discussed as below.

Question 1: Does the project reflect the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy? Explain how.

Response: As per Gold Standard Gender Policy, p. 10 "Foundational gender-sensitive requirement – This strengthens Gold Standard's 'do no harm' approach and addresses safeguards to prevent or mitigate adverseimpacts on women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standardcertification and includes compliance with the gender 'do no harm' safeguards, gender gap analysis and gendersensitive stakeholder consultations."

The project being a renewable energy project is not gender sensitive project. The project does not adversely impact women or men.

Question 2: Does the project align with existing country policies, strategies and best practices? Explain how.

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

Question 3: Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.

Response: The Project has completed the following gender assessment questions below:

1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits?

   No, the Project being a Wind project does not reduce access to or control of resources for women.

2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)?

   No, the Project beneficiaries in terms of employment and social upliftment of the area are common for both the gender.Further the project has carried out various CSR activities leading to welfare of community at large.

3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or mento participate in the decisions/designs of the project's activities (such as lack of time, child care duties, lowliteracy or educational levels, or societal discrimination)?

   No, the CSR activities carried our by the project proponent/O&M contractor are discussed with the community consisting both the genders. HZL does not create any form of discrimination among men and women and further CSR policy of the PP can be obtained from below mentioned weblink.
   http://www.hzlindia.com/csr/csr-policy/

4. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project'sactivities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?

   Yes the project takes into account gender roles and abilities of women/men. Job profile is allocated based on the type of work to be carried out.

5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilitiesor that prevents them from engaging in other activities?

   No, on the contrary the project leads to increased availability of electricity in the regional grid thereby uplifiting the living standards.

6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, forinstance, regarding their full participation in design and implementation or access to opportunities and benefits?

   No, since the project is a renewable electiricity generation project, thus it will not have discriminated Against women.

7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking intoaccount different roles and priorities of women and men in accessing and managing environmental goods andservices?

   No, in fact, the project leads to improved electricity in the regional grid thereby leading to less usage of fuel for lighting.

8. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?

   No, in fact, due to improved electricity availability the usage of fuel for lighting would be reduced as well asindoor air quality would be improved.

Question 4: Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure Requirements? Explain how.

Response: The project is currently a CDM project applying for retroactive GS registration an Online Stakeholder Feedback round has been initiated on 2 Jan 2019 which expired on 2 Mar 2019, however no any comments or feedback has been received for the same. The LSC conducted as part of the CDM project

involved around 20 participants including local villages, NGOs, government officials, suppliers, employees and general stakeholders.

Since the project is applying retroactively for GS registration, a Stakeholder Feedback round was also being carried out.

Also a part of continuous grievance mechanism, a register is being placed at project site, wherein any stakeholder can register their complaints or suggestions for continual improvement.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

Methodology :AMS-I.D. "Grid connected renewable electricity generation" (Version 18)[5]
Tool :"Tool to calculate the emission factor for an electricity system" (Version 07.0)[6]

This GS4GG PDD has been developed using the latest version of methodology AMS-I.D version 18.0. The latest version of methodology is AMS-I.D version 18.0 and the project activity meets the applicability and eligibility criteria of latest version of methodology also.

B.2. Applicability of methodology

Scope 01-Energy Industries (Renewable/non-renewable sources).
Approved small-scale baseline methodology AMS-I.D, version 18: "Grid connected renewable electricity generation."

The project activity generates power through a renewable source of energy (wind) and supplies it to the regional grid. This electricity would, otherwise, have been generated through fossil fuel sources connected to INDIAN grid (Now Indian Grid). The project activity meets the applicability conditions of the selected methodology.

Choice of selected methodology has been justified by showing that the project activity meets each applicability conditions of the selected methodology in table below:

Applicability conditions of AMS-I.D. (Version 18)	Eligibility of project under consideration
1. This methodology comprises renewable energygeneration units, such as photovoltaic, hydro,tidal/wave, wind, geothermal and renewablebiomass:[7] (a) Supplying electricity to a national or a regionalgrid; or (b) Supplying electricity to an identified consumerfacility via national/regional grid through a contractual arrangement such as wheeling.	The project activity involves the installation of a green-field wind project for renewable electricity generation. It would supply electricity to the regional grid that is primarily dominated with fossil fuel fired generating units hence it satisfies this applicability criteria
2. Illustration of respective situations under whicheach of the methodology (i.e. AMS-	The project activity would supply electricity to the NEWNE regional grid (Now Indian Grid), hence it satisfies this applicability criteria.

[5] https://cdm.unfccc.int/UserManagement/FileStorage/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

[7] Refer to EB 23, annex 18 or the definition of renewable biomass.

I.D.,AMS-I.Fand AMS- I.A[8]) applies is included in Table 2.	
3. This methodology is applicable to projectactivities that (a) install a new power plant at a sitewhere there was no renewable energy power plantoperating prior to the implementation of theproject activity (Greenfield plant); (b)involve a capacity addition; [9] (c)involve a retrofit [10] of (an)existing plant(s); or (d)involve a replacement[11]of(an) existing plant(s).	The project activity involves installation of a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant). Hence, this applicability criterion is satisfied .
4. Hydro power plants with reservoirs[12] that satisfyat least one of the following conditions are eligibleto apply this methodology: • The project activity is implemented in an existing reservoir with no change in thevolume of reservoir. • The project activity is implemented in an existing reservoir [13] , where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4W/m²; • The project activity results in new reservoirs and the power density of the power plant, asper definitions given in the Project Emissionssection, is greater than 4 W/m².	The project activity is a wind power project. Hence this criteria is not applicable to the project activity.
5. If the new unit has both renewable and nonrenewable components (e.g., a wind/diesel unit),the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,[14]the capacity of the entire unit shall not exceed the limit of 15 MW.	The project has a total capacity of 12.6 MW. The unit has no non-renewable components or provision for future addition of a co-fired fossil fuel system. Thus, the project activity meets the applicability condition.

[8] AMS-I.D "Grid connected renewable electricity generation", AMS-I.F "Renewable electricity generation for captive use and mini-grid" and AMS-I.A "Electricity generation by the user"

[9] A capacity addition is an increase in the installed power generation capacity of an existing power plant through: (i) The installation of a new power plant besides the existing power plant/units; or (ii) The installation of new power units , additional to the existing power plant/units. The existing power plant/units continue to operate after the implementation of the project activity

[10] Retrofit (or rehabilitation or refurbishment). It involves an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants. A retrofit restores the installed power generation capacity to or above its original level. Retrofits shall only include measures that involve capital investments and not regular maintenance or housekeeping measures.

[11] Replacement. It involves investment in a new power plant or unit that replaces one or several unit(s) at the existing power plant. The installed capacity of the new plant or unit is equal to or higher than the plant or unit that was replaced

[12] A reservoir is a water body created in valleys to store water generally made by the construction of a dam.

[13] A reservoir is to be considered as an "existing reservoir" if it has been in operation for at least three years before the implementation of the project activity.

[14] A co-fired system uses both fossil and renewable fuels, for example the simultaneous combustion of both biomass residues and fossil fuels in a single boiler. Fossil fuel may be used during a period of time when the biomass is not available and due justifications are provided.

6. Combined heat and power (cogeneration)systems are not eligible under this category.	The project activity does not involve cogeneration and hence it satisfies the applicability criteria.
7. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the projectshould be lower than 15 MW and should be physically distinct[15] from the existing units.	This condition is not applicable to the proposed project activity as it is a greenfield project activity and does involve the addition of renewable energy generation units at an existing renewable power generation facility.
8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of themodifie or retrofitted unit shall not exceed the limit of 15 MW	This condition is not applicable to the project activity as it is not a modification/ retrofit measure in an existing power plant.

The latest meth version of AMS I.D is version 18 and project is registered with CDM in version 17 of AMS I.D. The AMS I.D version 18 is revised due to following reasons and there is no any impact on project activity due to revision of AMS I.D to version 18.

Thus GS4GG PDD is applicable with AMS I.D version 18 of methodology.

B.3. Project boundary

As per AMS I.D, "the physical, geographical site of the renewable generation source delineates the project boundary."

The project boundary is illustrated on the following page:

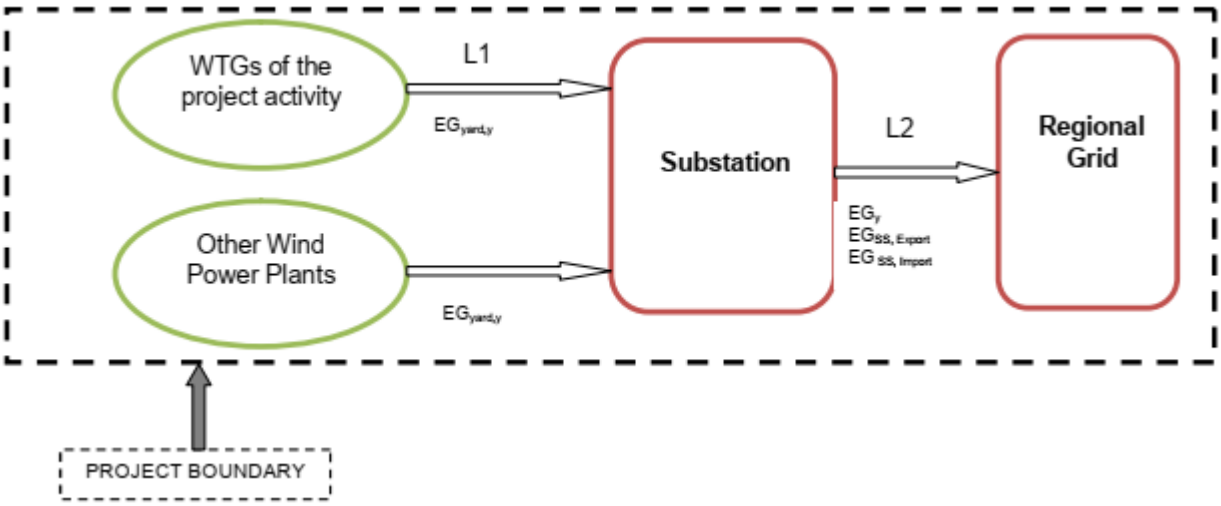


Figure 1. Illustration of GS Project activity Boundary

For the purpose of GHG mitigation/sequestration following table shall be completed (delete if not required)

Source	GHGs	Included?	Justification/Explanation

[15] Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered "physically distinct".

Baseline scenario	Grid connected electricity generation.	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project scenario	Greenfield Solar PV Power Project Activity.	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O

B.4. Establishment and description of baseline scenario

According to the methodology available in paragraph 19 of Type I.D.,the baseline scenario is that the 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 into the grid.

As per paragraph 22, 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.

$BE_y = EG_{BL,y} X EF_{CO2,grid,y}$
Where:

BE_y = Baseline Emissions in year y (tCO_2)

$EG_{BL,y}$ = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{CO2,grid,y}$ = CO_2 Emission Factor in year y (tCO_2/MWh)

As per paragraph 23, the Emission Factor can be calculated in a transparent and conservative manner as follows:

(a) A combined margin (CM), consisting of the combination of Operating Margin (OM) and Build Margin (BM) according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system'.

OR

(b) The weighted average emissions (in tCO2/MWh) of the current generation mix. The data of the year in which project generation occurs must be used."

The approach proposed in the "Option (a)" i.e. "Combined Margin" has been used for ascertaining baseline emissions and corresponding emission reductions. The OM and BM emission factor have been considered from the information (CO2 Baseline Database for the Indian Power Sector - Version 15.0, Dec.19) published by the Central Electricity Authority (CEA), Ministry of Power, Govt. of India.

As per methodology, combined grid emission factor as per the "Tool to calculate the emission factor for an electricity system" version 07 is calculated as below.

CO_2 Baseline Database for the Indian Power Sector, Version 15.0, Dec.19[16] published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

As per Methodological tool: Tool to calculate the emission factor for an electricity system (Version 07.0, EB 100, Annex 4), following six steps have been followed:

[16] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver15.pdf

(a) Step 1: Identify the relevant electricity systems;
(b) Step 2: Choose whether to include off-grid power plants in the project electricity system (optional);
(c) Step 3: Select a method to determine the operating margin (OM);
(d) Step 4: Calculate the operating margin emission factor according to the selected method;
(e) Step 5: Calculate the build margin (BM) emission factor;
(f) Step 6: Calculate the combined margin (CM) emission factor.

Step 1: Identify the relevant electricity systems

As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems". It also states that "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used". Keeping this into consideration, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into five regional grids viz. Northern, Eastern, Western, North-eastern and Southern.

However since August 2006, however, all regional grids except the Southern Grid had been integrated and were operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids were treated as a single grid named as NEWNE grid from FY 2007-08 onwards for the purpose of this CO_2 Baseline Database. As of 31 December 2013, the Southern grid has also been synchronised with the NEWNE grid, hence forming one unified Indian Grid. Since the project supplies electricity to the Indian grid, emissions generated due to the electricity generated by the Indian grid as per CM calculations will serve as the baseline for this project.

Table: Geographical Scope of Indian Electricity Grid

Northern	Eastern	Western	North-Eastern	Southern
Chandigarh	Bihar	Chhattisgarh	Arunachal Pradesh	Andhra Pradesh
Delhi	Jharkhand	**Gujarat**	Assam	Karnataka
Haryana	Orissa	Daman & Diu	Manipur	Kerala
Himachal Pradesh	West Bengal	Dadar & Nagar Haveli	Meghalaya	Tamil Nadu
Jammu & Kashmir	Sikkim	Madhya Pradesh	Mizoram	Telangana
Punjab	Andaman & Nicobar	Maharashtra	Nagaland	Puducherry
Rajasthan		Goa	Tripura	Lakshadweep
Uttar Pradesh				
Uttarakhand				

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)
Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

The Project Participant has chosen only grid power plants in the calculation.

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, which are described under Step 4:

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

The data required to calculate Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers. The choice of other two options for calculating operating margin emission factor depends on generation of electricity from low-cost/ must-run sources. In the context of the methodology low cost/must run resources typically include hydro, geothermal, Solar, low cost biomass, nuclear and solar generation.

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)

	2014-15	2015-16	2016-17	2017-18	2018-19
India	16.8%	15.1%	14.6%	14.3%	14.5%

Data Source: Central Electricity Authority (CEA) database Version 15, Dec 2019[17]

The above data clearly shows that the percentage of total grid generation by low-cost/ must-run plants (on the basis of average of five most recent years) for the Indian grid is less than 50 % of the total generation. Thus the Average OM method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

For the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either of the two following data vintages:

Ex-ante option: if the ex-ante option is chosen, 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.

OR

Ex-post option: if the ex-post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

PP has chosen ex-ante option for calculation of Simple OM emission factor using a 3-year generation-weighted average, based on the most recent data available at the time of submission of the PD to the DOE for validation.

OM determined at validation stage will be the same throughout the crediting period. There will be no requirement to monitor & recalculate the emission factor during the crediting period.

Step 4: Calculate the operating margin emission factor ($EF_{grid,OMSimple,y}$) according to the selected method

The operating margin emission factor has been calculated using a 3 year data vintage:

[17] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver15.pdf

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2016-17	2017-18	2018-19
INDIAN Grid	9,16,278	9,60,693	9,95,957

Simple Operating Margin (tCO_2/MWh) (incl. Imports)			
	2016-17	2017-18	2018-19
INDIAN Grid	0.9636	0.9543	0.9685

Weighted Generation Operating Margin	
INDIAN Grid	**0.9622**

Step 5: Calculate the build margin (BM) emission factor ($EF_{grid,BM,y}$)

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 70:

In terms of vintage of data, project participants can choose between one of the following two options:

(a) 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 PD 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.

(b) Option 2 - For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Option 1 as described above is chosen by PP to calculate the build margin emission factor for the project activity. BM is calculated ex-ante based on the most recent information available at the time of submission of PD and is fixed for the entire crediting period.

Build Margin (tCO_2/MWh) (not adjusted for imports)	
	2018-19
INDIAN Grid	**0.8811**

Step 6: Calculate the combined margin (CM) emission factor ($EF_{grid,CM,y}$)

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 79:

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

(a) Weighted average CM; or
(b) Simplified CM.

PP has chosen option (a) i.e weighted average CM to calculate the combined margin emission factor for the project activity.

The combined margin emissions factor is calculated as follows:

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

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)
$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (t CO_2/MWh)
W_{OM} = Weighting of operating margin emissions factor (per cent)
W_{BM} = Weighting of build margin emissions factor (per cent)

The following default values should be used for W_{OM} and W_{BM}:

Wind power generation project activities: W_{OM}= 0.75 and W_{BM}= 0.25 (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods. Since project activity is of Wind power generation, the above weightage has been considered for OM and BM.

Therefore, $\mathbf{EF_{grid,CM,y}}$ = 0.9622 * 0.75 + 0.8811 * 0.25
= **0.9419 tCO_{2e}/MWh**

Baseline emission factor (EF_y)

The baseline emission factor is calculated using the combined margin approach as described in Step 6 above:

Therefore, $EF_y = EF_{grid,CM,y}$ = 0.9419 t CO_2/MWh.

$\mathbf{BE_y}$ = 22,130 x 0.9419
= **20,844 tCO_2e**

B.5. Demonstration of additionality

Please refer to section B.5. of the PDD[18], Additionality is in line with Tool for the demonstration and assessment of additionality.

The project is commissioned and exact chronology of the events is explained below. The chronology of events is tabulated as well:-

Sr. No.	Activities	Date
1.	Purchase order (Start date of the project activity)	20/04/2011
2.	CDM intimation received by UNFCCC	05/10/2011
3.	CDM intimation sent to Host Party DNA	11/10/2011
4.	Public notice for local stakeholders' consultation meeting	19/10/2011
5.	Local stakeholders' consultation meeting	24/10/2011
6.	Project CDM registration with UNFCCC	04/12/2014
7.	GS stakeholder consultation meeting	28.11.2019
8.	GS ubmission	23.01.2020

[18] https://cdm.unfccc.int/Projects/DB/URSCert1417432071.89/view

B.6. Sustainable Development Goals (SDG) outcomes

B.6.1. Relevant target for each of the three SDGs

SDG Goal	Relevant SDG Target	Corresponding indicator
SDG 7 – Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all	7.2-By 2030, increase substantially the share of renewable energy in the global energy mix	Electricity produced and supplied to the grid. (7.2.1 Renewable energy share in the total final energy consumption)
SDG 8 – Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	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 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	1. No. of trainings provided to the employees (8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training) 2. Employment generated due to project activity (8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities)
SDG 13 – Climate Action: Take urgent action to combat climate change and its impacts	13.2: Integrate climate change measures into national policies, strategies and planning	The project is helping in Emission reductions in tCO_2 by implementing renewable energy projects in host country i.e. in India. (13.2.1 Number of countries that have communicated the 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.6.2. Explanation of methodological choices/approaches for estimating the SDG outcome

SDG Goal	Methodological choices/approaches for estimating the SDG outcome
SDG 7 –Affordable and Clean Energy : Ensure access to affordable, reliable, sustainable and modern energy for all	**Measurement Method:** - Electricity produced and supplied to the grid is monitored through energy meter. Net electricity will be calculated by state electricity board and O&M operator on monthly basis and provided in the share certificate/monthly report or equivalent. The other parameters used for net electricity supplied to grid are mentioned in monitoring plan. **QA/QC Process:** This parameter is monitored monthly and value of parameter will be cross checked with invoices. The meters will be calibrated on regular frequency.
SDG 8 – Descent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	**Measurement Method:** - Training and employment generation is monitored through training records, staff register or letter from O&M contractor for training and employment details or HSE/HR records **QA/QC Process:** This parameter is based on records, data and no any QA/QC procedure required. The DOE can confirm this parameter with interview with PP or Site incharge or employees for training and employment generation.
SDG 13 – Climate Action : Take urgent action to combat climate change and its impacts	**Measurement Method:** - The emission reduction parameter is calculated as product of net electricity supplied to grid and grid emission factor. The grid emission factor is ex-ante parameter and determined based on data obtained from "CO_2 Baseline Database for Indian Power Sector" version 15, published by the Central Electricity Authority, Ministry of Power, Government of India. This is in line with "Tool to calculate the emission factor for an electricity system, version 7.0". The emission reductions are calculated as per registered PDD and as per methodology requirement. **QA/QC Process:** This parameter is calculated, and no any QA/QC procedure required.

B.6.3. Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

a. **SDG13: Climate Action:** The project would lead to reduction of 20,844 tCO2e per annum

b. **SDG 7: Affordable and Clean Energy:** The project is expected to generate 22,130 MWh of clean energy per annum

c. **SDG 8:** Decent Work and Economic Growth: The project provides employment to around 10 person

Relevant SDG Indicator	**SDG 13** (Indicators 13.2.1)
Data/parameter	**$EF_{grid,OM,y}$**
Unit	tCO_2/MWh
Description	Operating Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 15.0, Dec 2019[19]
Value(s) applied	0.9622

[19] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver15.pdf

Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2016-17, 2017-18 and 2018-19. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 15.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

Relevant SDG Indicator	**SDG 13** (Indicators 13.2.1)
Data/parameter	$\mathbf{EF_{grid,BM,y}}$
Unit	tCO_2/MWh
Description	Build Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 15.0, Dec 2019[20]
Value(s) applied	0.8811
Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2018-19. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 15.0, Dec 2019, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period

Relevant SDG Indicator	**SDG 13** (Indicators 13.2.1)
Data/parameter	$\mathbf{EF_{grid,CM,y}}$
Unit	tCO_2/MWh
Description	Combined Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 15.0, Dec 2019 [21]
Value(s) applied	0.9419
Choice of data or Measurement methods and procedures	The combined margin emissions factor is calculated as follows: $\mathbf{EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year y (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year y (tCO_2/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.6.4. Ex ante estimation of outcomes linked to each of the three SDGs

SDG 13 – Climate Action :

Formula used to calculate the net emission reduction for the project activity is

[20] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver15.pdf
[21] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver15.pdf

$ER_Y = BE_Y – PE_Y – LE_Y$

Where,

ER_Y = Emission Reduction in tCO_2/year
BE_Y = Baseline emission in tCO_2/year
PE_Y = Project emissions in tCO_2/year
LE_Y = Leakage Emissions in tCO_2/year

Baseline Emission (BE_Y)

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.

$BE_y = EG_{PJ,y} * EF_{grid,y}$

Where,

$EG_{PJ,y}$ = Total quantity of net electricity delivered to the recipient facility
$EF_{grid,y}$ = Baseline emission factor
= 0.9419 tCO_2/MWh

BE_y = 22,130* 0.9419
= 20,844 tCO_2/year

Since $ER_y = BE_y$
Therefore, ER_y = 20,731 tCO_2/year

Name of the SPVs	Capacity	PLF (%)	Generated Power (MWh) p.a.	Baseline Emission Factor (tCO_2/MWh)	Baseline Emissions (tCO_2/year)
Enn Enn Corp. Limited	12.6 MW	20.05%	22,130	0.9419	20,844

SDG 7 – Affordable and Clean Energy:

The project activity will generate 22,130 MWh per year of affordable and clean energy.

SDG 8 : Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. More than 10 people employed and more than 1 training /annum.

B.6.5. Summary of ex ante estimates of each SDG outcome

SDG 13 Climate Action

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.

$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$

Where,

$EG_{PJ,y}$ = Total quantity of net electricity delivered to the recipient facility
$EF_{grid,CM,y}$ = Baseline emission factor = 0.9368 tCO_2/MWh

BE_y = 22,130 * 0.9419
= 20,844 tCO_2/year

Since $ER_y = BE_y$

Therefore, ER_y = 20,844 tCO_2/year

Year	Baseline estimate	Project estimate	Net benefit
11-07-2019 to 10-07-2020	20,844	0	20,844
11-07-2020 to 10-07-2021	20,844	0	20,844
11-07-2021 to 10-07-2022	20,844	0	20,844
11-07-2022 to 10-07-2023	20,844	0	20,844
11-07-2023 to 10-07-2024	20,844	0	20,844
Total	104,220	0	104,220
Total number of crediting years	05		
Annual average over the crediting period	20,844	0	20,844

SDG 7 : Affordable and Clean Energy

Net generation per year= 22,130 MWh/year

Year	Baseline estimate	Project estimate	Net benefit
11-07-2019 to 10-07-2020	0	22,130	22,130
11-07-2020 to 10-07-2021	0	22,130	22,130
11-07-2021 to 10-07-2022	0	22,130	22,130
11-07-2022 to 10-07-2023	0	22,130	22,130
11-07-2023 to 10-07-2024	0	22,130	22,130
Total	0	110647.95	110647.95
Total number of crediting years	05		
Annual average over the crediting period	0	22,130	22,130

SDG 8 : Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project provides employment at least 10 persons.

Also project activity improves the quality of employment by giving training to employee. Thus minimum 1 training per year will be conducted by the project activity.

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Relevant SDG Indicator	**SDG13**
Data / Parameter	ER_y
Unit	tCO_2e/year
Description	Emission reductions achieved per year
Source of data	As per Estimated ER sheet. During the verification, the results shall be obtained from the Actual ER sheet.
Value(s) applied	20,844 (estimated)
Measurement methods and procedures	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.
Monitoring frequency	As per monitoring period
QA/QC procedures	Not Applicable
Purpose of data	To Monitor the SDG 13 Indicator
Additional comment	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of GS-VERs for this project activity, whichever occurs later.

Relevant SDG Indicator	**7.2.1 Renewable energy share in the total final energy consumption**
Data / Parameter	$EG_{PJ,y}$
Unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit in year y in MWh
Source of data	Monthly joint meter reading reports
Value(s) applied	22,130 (estimated)
Measurement methods and procedures	The electricity exported / supplied by the project activity is measured through meters (ABT Meters) having accuracy class of 0.2s. It is difference of export and import of project activity.
Monitoring frequency	Continuous measurement & monthly recording
QA/QC procedures	The frequency of calibration is once in 5 years[22]. The monthly electricity supplied by the project activity in the JMR report is cross checked with other source of data. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering.
Purpose of data	To Monitor the SDG 7 Indicator
Additional comment	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

Relevant SDG Indicator	**8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities**
Data / Parameter	Number of employment generation
Unit	Number

[22] http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Description	Number of people employed directly due to the project activity
Source of data	Plant records or The training records for all the employees/Letter from O&M contractor for employment generation/ DOE interview with employees, local stakeholders etc
Value(s) applied	10
Measurement methods and procedures	The total number of persons working in the plant would be calculated based on the daily log available at site. This parameter also monitor number of men/women employed by the project activity. The project activity ensures that "equal pay for work of equal value" for both men and women and there is no any discrimination against women. "The employment covers number of men and number of women employed by the project activity. The job is of type temporary/permanent or skilled/unskilled, etc. Also it is ensued that peoples will get equal payment for equal work. The payment will be based on work and no any gender inequality for payment for work of equal value. Further preference will be given to the local people for employment in skilled and unskilled jobs based upon their skills and competency. The same can be verified at the time of verification.
Monitoring frequency	Monthly monitoring and annual compilation
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with attendance register.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

Relevant SDG Indicator	**8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training**
Data / Parameter	**Quality of Employment**
Unit	number
Description	Plant records or The training records for all the employees/Letter from O&M contractor for employment generation/ DOE interview with employees, local stakeholders etc.
Source of data	1 training per year
Value(s) applied	Together with the technology supplier, the Project organise training for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures.
Measurement methods and procedures	Annual
Monitoring frequency	The training records for all the employees
QA/QC procedures	-
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

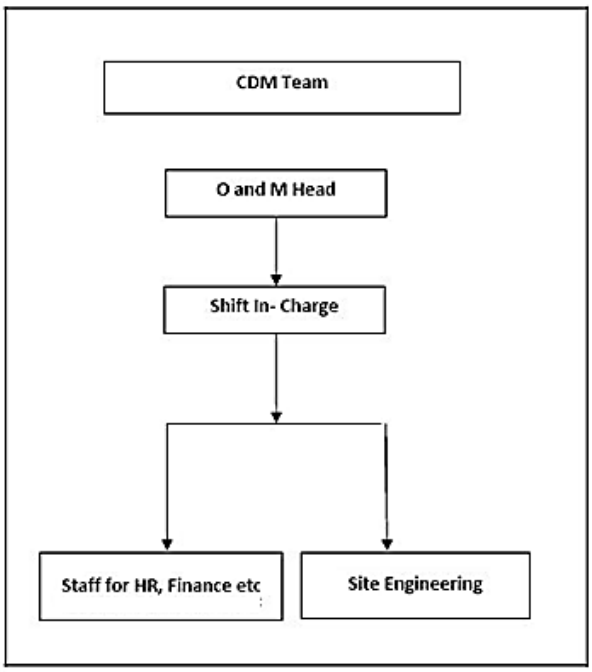
B.7.2. Sampling plan

No sampling is required.

B.7.3. Other elements of monitoring plan

The monitoring plan is developed in accordance with the modalities and procedures for GS project activities and is proposed for grid-connected wind power project being implemented in Gujarat, India. The monitoring plan, which will be implemented by the project participant describes about the monitoring organisation, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipments for this project activity. The team comprises of the following members:



Responsibility
• Reviewing the monthly and annual generation statistics. • Evaluating the GHG performance of the project activity. • Identifying the opportunities for future improvement • Addressing grievance related to project activity.
• Implementation of corrective appropriate measures in case any discrepancies are identified in the reported parameters. • Review of monthly report. • Ensuring calibration of monitoring equipment as and when required.
• Monitoring and reporting the GHG performance related parameters following the guidance provided in the project design document • Preparation of monthly and annual generation statistics. • Reporting of any discrepancies identified in the reporting parameters. • Ensuring calibration of the monitoring equipments as and when required.

Data Measurement

The export and import energy will be measured continuously using meters. Readings of meters shall be taken on monthly basis by authorized officer of EPC contractor in the presence of PP or representative of PP. Based on the Meter Reading Statement, the electricity being produced by the project activity will be evaluated. The metered data can be cross checked with other suitable data source (like daily generation report).

Data collection and archiving

Readings from meters will be collected in the presence of the plant in-charge. Export and Import data would be recorded and stored in logs as well as in electronic form on a daily basis. The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of CERs for the project activity whichever occurs later.

Emergency preparedness

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.

Personnel training

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff (GS team) will be trained. The plant helpers will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

In case of mismatch between billing (JMR) period cycle and monitoring period cycle, the daily generation electricity data will be used to calculate the electricity for specific period.

In case common metering arrangement at substation, apportioning will be followed by state electricity board and PP is geeing the value of export/import or net electricity export and this value will be considered for emission reduction calculations

Apportioning:

In case of mismatch of date between the start date of the billing cycle and the start date of monitoring period the data will be apportioned in line to the daily generation values for the said mismatch period.

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

Start date of the project activity is 20/04/2011 (CDM Start date).

C.1.2. Expected operational lifetime of project

25 years 00 months

C.2. Crediting period of project

C.2.1. Start date of crediting period

11/07/2021 (expected) or the date of GS Registration whichever is later.

C.2.2. Total length of crediting period

5 Years 00 months (renewable twice)

SECTION D. Safeguarding principles assessment

D.1. Analysis of social, economic and environmental impacts

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes / potentially / no)	Justification	Mitigation measure (if required)
3.0 Social & Economic Safeguarding Principles And Requirements	1. The Project Developer and the Project shall respect internationally proclaimed human	No	The Project is not in conflict with the economic livelihood of the local community. The Project does not cause any human rights abuse and respects internationally	Not applicable

3.1 Principle 1 – Human Rights	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.		proclaimed human rights issue. Further, the Project meets the local labor law requirements thus does not cause any human rights abuse. The India has ratified the United Nations Human Rights Rules and regulations. The India ratified the same as per web link[23] given below. The project adheres to the host country's commitment to: Universal Declaration of Human Rights (UDHR) International Covenant on Economic, Social and Cultural Rights, India Accession 10/04/79[24] International Covenant on Civil and Political Rights India Accession 10.04.79[25]	
3.2 Gender Equality and Women's Rights	(i) Promotes gender equality and the empowerment of women. (ii) Does not recognise Projects that contribute to discrimination against women or reinforce gender-based discrimination and/or inequalities. (iii) Recognises and seeks to contribute to SDG 5 – Achieve gender equality and	No	The Project promotes gender equality and the empowerment of women. The Project does not cause any discrimination against women. The project Proponent does not indulge in discrimination on basis of gender, race, religion, sexual orientation. The project abide by the Factories Act that prohibits any form of discrimination and is in accordance with the Convention on the Elimination of All Forms of Discrimination against	Not applicable

[23] http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN
[24] http://hrlibrary.umn.edu/research/ratification-india.html and http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN
[25] http://hrlibrary.umn.edu/research/ratification-india.html and http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

	empower all women and girls. MANDATORY REQUIREMENTS: 1. The Project shall complete the following gender assessment questions in order to inform Requirements 2-4, below: • Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? • Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)? • Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's		Women (CEDAW) , India ratified it on 09/07/1993 with certain reservations [26] And International Convention on the Elimination of All Forms of Racial Discrimination; India ratified the convention on 03/12/1968 with certain reservation[27] There is no any possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits. The Project can not adversely affect men and women in marginalised or vulnerable communities. Project has taken into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities.	

[26] http://nhrc.nic.in/documents/india_ratification_status.pdf and http://www.un.org/womenwatch/daw/cedaw/
[27] http://nhrc.nic.in/documents/india_ratification_status.pdf and http://www.refworld.org/docid/3ae6b3940.html

	activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)?			
	• Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?		Project has taken into account gender roles and the abilities of women or men to benefit from the Project's activities.	
	• Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?		The Project design does not contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities.	
	• Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits?		Project does not reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits.	

	• Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?		Project does not limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services.	
	• Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?		The proposed Project would not expose women and girls to further risks or hazards.	
	2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive): • Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. • Slavery, imprisonment, physical and mental drudgery, punishment or		The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women for Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. • Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. • Restriction of women's rights or access to resources (natural or economic). • Recognise women's ownership rights regardless	

	coercion of women and girls. • Restriction of women's rights or access to resources (natural or economic). • Recognise women's ownership rights regardless of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.		of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.	
	3. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work, specifically: • Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities. • Introduce conditions that ensure the		Projects applies the principles of nondiscrimination, equal treatment, and equal pay for equal work. The equitable participation of men and women is followed in the identified tasks/activities. The project activity ensures the participation of women or men in Project activities and they are getting benefits based on pregnancy,	

	participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. • Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits. 4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.		maternity/paternity leave, or marital status. These conditions does not limit the access of women or men, as the case may be, to Project participation and benefits. The project activity follows country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	
3.3 Principle 3 – Community Health, Safety and Working Conditions	1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	No	The project is renewable energy technology (Wind based power generation Technology) and does not have exposure to increased health risks and shall not adversely affect the health of the workers and the community. Necessary health and safety measures will be taken during construction and operation phase, as well as throughout the operational lifetime of the project activity, also staffs will be trained to be able to work with high voltages and occupational health and safety.	Not applicable

3.4 Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement 3.4.1 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 (e.g., knowledge, innovations, or practices)?	No	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage. The explanation regarding this is provided by project owner.	Not applicable
3.4.2 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 has received the necessary approvals from the local authorities and does not lead to any resettlement. India (the Ministry of Rural development have the "The National Rehabilitation and Resettlement Policy, 2007 http://www.dolr.nic.in/nrrp2007.pdf The project activity do not have any major impact on land use patterns. In accordance with Article 1 of the International Covenant on economic, Social and Cultural Rights the program does not complicit in involuntary resettlement. No Expropriation has been conducted on any private land involved in project activity. Land has been purchased by PP directly from the owner of the land through direct negotiation of commercial terms. There has not been involvement of any government agency in the acquiring the land. The land is acquired on mutual consent	Not applicable

			between private land owner and PP, thus there are no any issues of dissatisfaction of private land owner.	
3.4.3 Land Tenure and Other Rights	1. Does the Project require any change to land tenure arrangements and/or other rights? 2. For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights.	No	The project has received the necessary approvals from the local authorities and does not lead to any resettlement. There are no any uncertainties with regards land tenure, access rights, usage rights or land ownership. Thus land tenure and other rights are with PP.	Not applicable
3.4.4 Indigenous Peoples	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	The project is located at site where there are no any peoples residing. The project is located at barren land.	Not applicable
3.5 Principle 5 – Corruption	(a) Does not recognise Projects that engage in, contribute to or reinforce corruption of any kind.	No	The project is renewable energy technology (Wind based power generation Technology) and does not contribute to or reinforce corruption of any kind. Indulgence in corruption is an illegal activity in the host	Not applicable

			country and the local labor compliance takes into account of the same. The project abides by the United Nations Convention Against Corruption. India ratification 09.05.11[28]	
3.6 Principle 6 – Economic Impacts 3.6.1 Labour Rights	The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard.	No	Forced labor is an illegal activity in the host country and the local labor compliance takes into account of the same. Further, India is a party to ILO and forced labour is illegal in India. The project does not employ any form of forced or compulsory labour. Employees can quit their Services at any time. The project complies with the Factories Act in India that prohibits forced or compulsory labour[29]. The project activity does not involve any child labour.	Not applicable
3.6.2 Negative Economic Consequences	Is project involves Negative Economic Consequences	No	No potential risks to the local economy. The financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period.	Not applicable

[28] http://www.unodc.org/unodc/en/treaties/CAC/signatories.html
[29] http://www.ilo.org/dyn/natlex/docs/WEBTEXT/32063/64873/E87IND01.htm

4.0 Environmental & Ecological Safeguarding Principles And Requirements 4.1 Principle 1 – Climate and Energy 4.1.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is renewable energy technology (Wind based power generation Technology) and does not lead any increase in greenhouse gas emissions over the Baseline Scenario.	Not applicable
4.1.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project activity supplies energy to national grid and project activity displaces equivalent quantity of electricity which would have been generated by fossil fuel dominated grid connected power plants.	Not applicable
4.2 Principle 2 – Water 4.2.1 Impact on natural water patterns and flow	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 is renewable energy technology (Wind based power generation Technology) and does not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s).	Not applicable
4.2.2 Erosion and/or water body stability	1. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2.	No	The project is renewable energy technology (Wind based power generation Technology) and does not affect Erosion and/or water body stability.	Not applicable

	2. Is the Project's area of influence susceptible to excessive erosion and/or Water body instability?			
4.3 Principle 3 – Environment, ecology and land use 4.3.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	No	The project proponent has implemented Environment Health Safety and Social guideline which takes into account the same. The project activity involves barren land and does not involve use of land and soil for production of crops or other products. The project does not involve any landscape modification or soil. Hence there is no any impact of this principle.	Not applicable
4.3.2 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 renewable energy technology (Wind based power generation Technology). The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions. Thus this section is Not Applicable.	Not Applicable
4.3.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	The project is renewable energy technology (Wind based power generation Technology). The Project not be negatively impacted by the use of genetically modified organisms or GMOs. Thus this section is Not Applicable	Not Applicable
4.3.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	The project has received environmental clearance from the State Pollution control Board. Further the	Not applicable

			EHSS guidelines takes into account the same. The project does not lead to release of any hazardous substances that pose threat to the environment. Rather it aims at reducing the air pollution that is prevalent due to use of fossil fuel power plants. The project promotes environmental protection through the use of cleaner technology. The project abides by the stipulations of the Indian Environment Protection Act 1986[30] .	
4.3.5 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	The project is renewable energy technology (Wind based power generation Technology). The project does not involve generation of Hazardous and Non-hazardous Waste. Standard procedure is followed at site during operation and maintenance.	Not Applicable
4.3.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	The project is renewable energy technology (Wind based power generation Technology) power generation. There are no any involvement of pesticides and/or fertilisers. Thus this principle is Not Applicable.	Not Applicable
4.3.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	The project is renewable energy technology (Wind based power generation Technology) power generation. The project activity does not involve any	Not Applicable

[30] http://envfor.nic.in/legis/env/env1.html

			harvesting of forests. Thus this principle is Not Applicable.	
4.3.8 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	The project is renewable energy technology (Wind based power generation Technology) power generation. The Project does not modify the quantity or nutritional quality of food available. Thus this principle is Not Applicable	Not Applicable
4.3.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The project is renewable energy technology (Wind based power generation Technology) power generation. The Project does not involve animal husbandry. Thus Not Applicable	Not Applicable
4.3.10 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 cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage.	Not Applicable
4.3.11 Endangered Species	1. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? 2. Does the Project potentially impact other areas where	No	There are no any endangered species identified at project site and also no species have the route through area. The project activity does not impact other endangered species through transboundary affects.	Not Applicable

	endangered species may be present through transboundary affects?			

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

Enn Enn Corp. Limited organised stakeholder consultation with the objective to inform the interested stakeholders on the environmental and social impacts of the project activity and discuss their concerns regarding the project activity. The project proponent invited the local stakeholders for their feedback and commnets on 01-12-2019 with the help of public notice, and thereafter also conducted a stakeholder consultation meeting at the plant site on 07-12-2019. Location of meeting: Project Site, Tilali and Mandal, District: Nandurbar

The stakeholders who attended the meeting for the project activity are as under:

1. Own employees
2. Local population

Project representatives explained the project benefits and how project would help to fight against climate change . Also,the stakeholders were given a brief introduction about the company and its operations, the details of the proposed GS project activity along with a session on climate change awareness and its negative impacts.

E.2. Summary of comments received

Q1: How this project is different than coal based plants?

A1: This project will use wind energy to generate electricity and as this is a renewable energy generation, which does not pollute environment like coal burning does in the form of harmful gases.

Q1: How does the project activity benefit the villages around the project site and their residents?

A1: The project activity will benefit the nearby villagers by providing employment opportunities to local or nearby people and also provides immense opportunity for economic development of the area like increase in business opportunities, improvement in transportation social activities helps to uplift the standard of living.

Q1: Are there any safety practices to be adopted for this project?

A1: Yes, all the risk associated mitigation measures will be implemented.

Q1: Attendees were eager to know about the scope of employment generation during the operation of the wind Plant?

A1: It was responded that the preference would be given to the local villagers for the skilled and unskilled requirements.

Project Representative asked to the participants, if they had suggestions/feedback to the project activity. No adverse feedback was given by stakeholders. They applauded the project activity being coming at their

region and they believed that the project would attract more industries to come in their region with clean energy generation projects, leading to more employment opportunities.

The stakeholders expressed positive opinion about the project and appreciated the efforts undertaken by the company to contribute to the initiative of global warming mitigation, and other sustainable features as generation of employment opportunities. No adverse comments were received.

E.3. Report on consideration of comments received

No negative comments were received on project activity from any of the local stakeholders consulted. As all comments were very positive about the project, no further action is required.

There were no further comments raised by the stakeholders, and they were totally in support for setting up of these kinds of projects in the region. The local stakeholders expressed their support to the project.
The meeting was concluded by vote of thanks to all the participants..

Appendix 1. Contact information of project participants

Organization name	Enn Enn Corp. Limited
Registration number with relevant authority	NA
Street/P.O. Box	Kadampali Society, Opp Jeevan Bharti School, Nanpura
Building	Abhishek House
City	Surat
State/Region	Gujarat
Postcode	395001
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Fax	+91 261 2463655
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Website	www.ennenngroup.com
Contact person	Abhsihek N Shah
Title	Director
Salutation	Mr.
Last name	Shah
Middle name	N
First name	Abhishek
Department	-
Mobile	+91-9925599900
Direct fax	NA
Direct tel.	NA
Personal e-mail	abhishek@ennenngroup.com

Organization name	EKI Energy Services Limited
Registration number with relevant authority	NA
Street/P.O. Box	Office No. 201, Plot 48, Scheme 78 Part 2
Building	Vijay Nagar, Near Brilliant Convention Center
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Postcode	452010
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E-mail	supratik@enkingint.org
Website	www.enkingint.org
Contact person	Supratik Datta
Title	DGM (Operation - Climate Change)
Salutation	Mr.
Last name	Datta
Middle name	

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Appendix 2. Summary of post registration design changes

NA

Revision History

Version	Date	Remarks
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1	10 July 2017	Initial adoption