

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

Section A – Description of project

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

Section C – Duration and crediting period

Section D – Summary of Safeguarding Principles and Gender Sensitive Assessment

Section E – Outcome of Stakeholder Consultations

Appendix 1 – Safeguarding Principles Assessment (mandatory)

Appendix 2 – Contact information of Project participants (mandatory)

Appendix 3 – LUF Additional Information (project specific)

Appendix 4 – Summary of Approved Design Changes (project specific)

KEY PROJECT INFORMATION

GS ID of Project	GS 6999
Title of Project	21 MW Wind Energy Project by Shree Cement Limited
Time of First Submission Date	27/03/2023
Date of Design Certification	20/11/2019
Version number of the PDD	07.1
Completion date of version	01/06/2024
Project Developer	Shree Cement Limited
Project Representative	EKI Energy Services Limited
Project Participants and any communities involved	Shree Cement Limited Communities involved: Not applicable
Host Country (ies)	India
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	Not applicable
Methodology (ies) applied and version number	ACM0002 - Grid-connected electricity generation from renewable sources - Version 21.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☐ Regular ☒ Retroactive

Land-use & Forest Key Project Information¹

Not applicable

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
13 Take urgent action to combat climate change and its impact	Emissions Reductions	44,528	tCO ₂ e (GS VERs)
7 Ensure access to affordable, reliable, sustainable and modern energy for all	MWh of renewable energy generated	47,829	MWh ²
8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Number of trainings and hiring through the project	1 training/annum and employment to 10 persons	Number

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

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The purpose of the project activity is to generate power using renewable energy source (wind energy) and sell the power generated to the state grid. The project activity generates electricity using wind energy. The generated electricity is feed to the regional grid system which is under the purview of the INDIAN electricity grid of India.

¹ Please refer to 0 for detailed information on LUF projects

² <https://kerc.karnataka.gov.in/uploads/75401660293882.pdf> , from the mentioned tariff it is calculated as per formula - Capacity of plant * PLF * daily operation hours * considering 365 days = 21 * 26% * 24 * 365 = 47,829 MWh

The project activity replaces anthropogenic emissions of greenhouse gases estimated to be approximately 44,528 tCO₂e per year, thereon displacing 47,829 MWh/year amount of electricity from the generation-mix of power plants connected to the INDIAN GRID, which is predominantly based on fossil fuel based power plants.

The annual Energy Generation is estimated based on the following equation-

$$\begin{aligned}\text{Annual Electricity generation} &= \text{Capacity of plant} * \text{PLF} * \text{daily operation hours} * \\ &\text{Number of days in operation in a year} \\ &= 21 * 26\%^3 * 24 * 365 \\ &= 47,829 \text{ MWh}\end{aligned}$$

The total installed capacity of the current project activity is 21 MW; which involves operation of WTGs in the state of Karnataka in India. The monthly electricity generated from the wind turbines is being reported in the monthly EHT B- Form issued by Gulbarga Electricity Supply Company Limited forms the basis of actual electricity being injected into the grid. The project is promoted by Shree Cement Limited.

WTG Details	Date of Commissioning (DOC)
KST 091	28-March-2018
KST 129	28-March-2018
KST 134	28-March-2018
KST 145	31-March-2018
KST 146	31-March-2018
KST 127	31-March-2018
KST 179	31-March-2018
KST 132	28-June-2018
KST 133	28-June-2018
KST 092	28-June-2018

The project activity is a new facility (Greenfield) and the purpose of the project activity is to generate electricity by the utilization of renewable wind energy source and further selling the generated energy to the Indian Grid. In this process, there is no consumption of any fossil fuel and hence the project does not lead to any greenhouse gas emissions.

³ As per KERC tariff order dated 04-09-2017 page no. 12 <https://kerc.karnataka.gov.in/uploads/75401660293882.pdf>

Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

Major Milestone of Project activity:

1. The letter of intent is on 29/11/2017 and order is placed on 20/12/2017.
2. The project activity is commissioned in three phases like 28/03/2018, 31/03/2018 and 28/06/2018

Further major milestones and timeline being followed towards implementation of the project activity are as follows:

Sl. No.	Particulars	Date
1	DPR of project submitted by Third Party	13/07/2017
2	Stakeholder Consultation Meeting	16/09/2017
3	Board Resolution of project activity	29/09/2017
4	LOI issued to technology supplier	29/11/2017
5	PO issued to technology supplier	20/12/2017
6	Commissioning of project activity	28/03/2018, 31/03/2018 and 28/06/2018
7	Wheeling and Banking agreement signed with KPTCL	25/07/2018
8	Submission of GS4GG PDD for Preliminary Review at Sustaincert	18/10/2018

In the Pre- project scenario the entire 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.

Contribution to sustainable development

Ministry of Environment, Forests and Climate Change (MoEFCC) 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.
- **Technological well-being:** The successful operation of project activity would lead to promotion of wind based power generation and would encourage other entrepreneurs to participate in similar projects
- **Environmental well-being:** Wind 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.1.1. Eligibility of the project under Gold Standard

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The project activity meets the eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements document as described below:

- The project applies methodology ACM0002, Version 21.0, Sectoral Scope: 01, which is an approved methodology under Gold Standard.
- The project type is electricity 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 energy based electricity generation is an approved project type and does not require approval from Gold Standard.
- The project activity is not associated with geo-engineering, energy generated from fossil fuel or nuclear, fossil fuel switch nor does it enhance or prolongs such energy generation

General Eligibility Criteria under criteria 1.2 of Renewable Energy Activity Requirements

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

Project Location: The project is located in India. The project activity is not located in HCV areas. Further details have been provided in section A.4 of this report.

Project scale: The project activity is 21 MW Wind Energy project and thus qualifies under large scale projects.

There will be no double counting as the project activity is neither registered nor seeking registration in any other GHG mechanism.

As per section 1 Scope and Applicability of GS4GG Renewable Energy activity requirements v1.4, the project activity conforms (a) Gold Standard for the Global Goals Principles & Requirements (and associated documents) AND (b) Gold Standard Renewable Energy Activity Requirements.

As per the GS4GG Renewable Energy activity requirements v1.4⁴, section 2, Eligible Project Types is described below:

- As per the section 2.1.2 (a), this project is generating electricity using renewable energy sources i.e. from wind energy.
- As per the section 2.1.2 (b), this project is electricity generation through wind energy and supplying energy to the national grid in India (INDIAN grid).
- The project is grid connected renewable energy project. This project has been submitted for the preliminary review on 07/01/2020 which is before 24/01/2020. Therefore, the conditions in section 2.1.3 which are applicable to the projects having submitted for preliminary review after 24/01/2020 as mentioned in section 2.1.5 and hence not applicable for this project and this also makes this project activity eligible using conditions in section 2.1.2.
- Section 2.1.4 is not required as the project satisfy the eligibility condition of section 2.1.2.
- The conditions in section 2.1.5 are not eligible as the conditions here are effective from 24/01/2020 while the project activity was submitted for preliminary review on 07/01/2020.
- The project activity is not seeking any exception under the conditions in section 2.1.6. hence not applicable to this project activity.
- The project activity is generating electricity using wind energy and supplying to grid, it does not involve any distributed installation of Renewable technology, hence conditions in section 2.1.7 are not applicable to this project activity.
- The project activity is wind project and not specific Renewable Energy project types like Hydropower, projects using biomass resources etc., hence as per criteria 2.1.8 additional eligibility criteria are prescribed in Annex A (Additional Eligibility criteria for specific project types) of GS4GG-Renewable-Energy-Activity-Requirements-v1.4 document is not applicable for the project activity

⁴ <https://globalgoals.goldstandard.org/202-ar-renewable-energy-activity-requirements/>

- The project activity is not seeking the renewable Energy Labels, hence criteria 2.1.9 of VERs, hence GS4GG-Renewable-Energy-Activity-Requirements, v1.4 document is not applicable for project activity.

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

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Shree Cement 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 respective State Nodal Agency to Shree Cement Limited for registration of 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 Shree Cement Limited indicates that PP have the legal right to control and operate the project activities.

Based on above evidences, the project ownership is with Shree Cement Limited.

A.2 Location of project

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Host country: India

State/Province: Karnataka

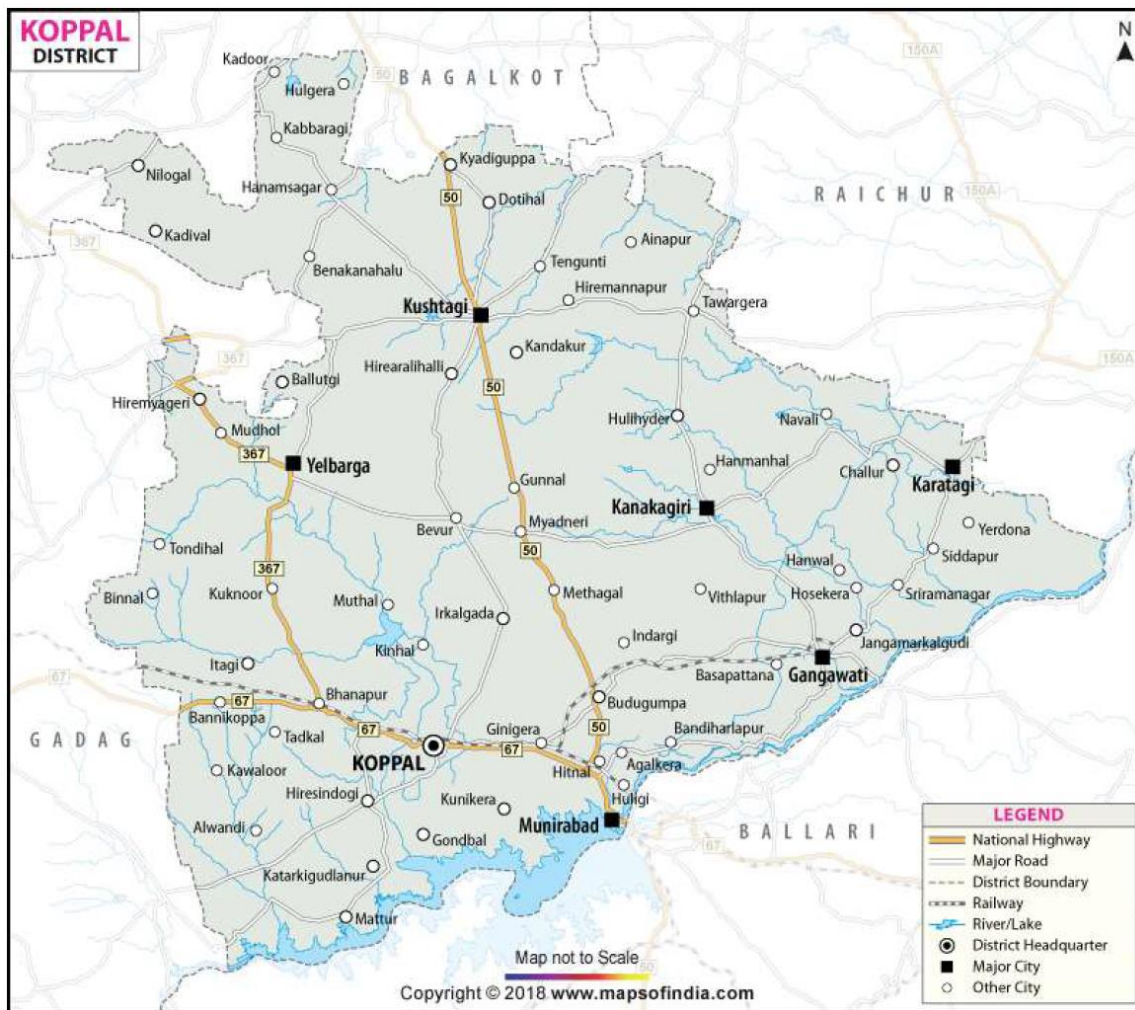
District/Region: Koppal

City/Town/Community: Kushtagi Wind farm site

Project Developer	WTG Location No	Latitude (D° M' Sec")	Longitude (D° M' Sec")
Shree Cement Limited	KST 091	15°52'49.43"	76°12'00.23"
	KST 092	15°52'49.43"	76°12'00.23"
	KST 127	15°52'58.59"	76°13'46.49"
	KST 129	15°53'15.44"	76°13'12.72"
	KST 132	15°53'05.95"	76°12'01.57"
	KST 133	15°53'34.38"	76°10'35.56"

	KST 134	15°52'28.57"	76°12'12.61"
	KST 145	15°53'05.62"	76°13'06.86"
	KST 146	15°53'21.05"	76°13'40.58"
	KST 179	15°52'49.83"	76°13'02.40"

The location of the project activity has been highlighted in the map shown below:



A.3 Technologies and/or measures

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The total installed capacity of the project is 21 MW, which comprises of total 10 number of Wind Turbine Generator (WTG) in Karnataka. The WTGs used in the project activity are of Suzlon S-97 model.

The technical specification of the S-97 model of WTGs are as follows:

MODEL	S97 - 2.1MW
Operating Data	
Rated power	2.1MW

Cut-in wind speed	4 m/s
Rated wind speed	11 m/s
Cut-out wind speed	25 m/s
Rotor	
Pitch system	Electric drive with electric brake, gear box, frequency converter and batteries
Diameter	97 m
Swept area	7386 m ²
Blade material type	Glass-fibre reinforced plastic (GRP)/Polyester
Generator	
Type	Asynchronous 3 phase induction with slip rings operated with rotor circuit inverter system (DFIG)
Frequency	50/60 Hz
Protection	IP 54, IP23 for slip ring unit
Cooling system	Air cooled
Insulation	Class H
Braking System	
Aerodynamic brake	Pitch/full blade
Mechanical brake	Hydraulic disc brake, activated by hydraulic
Gearbox	
Type	3 stages (One planetary & Two helical)
Yaw System	
Type	Electric motors with brake, gear box and pinion
Bearings	3 (1 per blade) , Material - 42CrMo4 QT
Tower	
Type	Tubular Steel Tower (4 sections)

Technology Transfer

No technology transfer from other countries is involved in the project.

Plant Load Factor

The expected plant load factor for the project activity as determined by Power & Energy Consultants, a third party engineering and consultancy firm, is 26%⁵. The plant load factor is applied in accordance with paragraph 3(b) of the "Guidelines for the reporting and validation of plant load factors" for ex-ante estimation of emission reductions.

The project activity is a Voluntary initiative by the PP and is contributing to the SDG goals set forth by GS as detailed below:

1 – SDG 7 – Affordable and Clean Energy (Contribution to Climate Security & Sustainable Development) - 47,829 MWh/year

⁵ It is also supported by KERC order dated 04/09/2017 page no. 12
<https://kerc.karnataka.gov.in/uploads/75401660293882.pdf>

2 – SDG 8 – Decent Work and Economic Growth –Minimum 1 training /annum and 10 people employed

3 – SDG 13 – Climate Action- 44,528 tCO₂e / annum

A.4 Scale of the project

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The project is a large-scale project utilizing Wind Turbine Generators (WTGs) to generate electricity. The project activity uses UNFCCC approved methodology ACM0002, version 21.0 and the total installed capacity of the project is 21 MW, thus falls under large scale category

Besides, as per section 9.1.1 and 9.1.2 of GHG Emissions Reduction & Sequestration Product Requirements v.2.1, the project activity installed capacity (21 MW) exceeds small scale thresholds, hence it falls under large-scale category.

A.5 Funding sources of project

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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)

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Title: Grid-connected electricity generation from renewable sources

Reference: The project activity meets the eligibility criteria of large scale project as it is more than 15 MW

Methodology: ACM0002: Grid-connected electricity generation from renewable sources - Version 21.0⁶

Type I: Energy industries (renewable / non-renewable sources)

Category: Approved Consolidated Methodology (ACM0002)

Tools referred with above methodology and applicable for project activity are:

- Tool to calculate the emission factor for an electricity system - Version 07.0 (EB 100, Annex 04)⁷
- Tool for the demonstration and assessment of additionality – Version 07.0.0(EB 70, Annex 08)⁸
- Investment analysis - Version 08.0.0 (EB 97, Annex 08)⁹
 - Common Practice, version 03.1(EB 84, Annex 76)¹⁰
 - Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 03.0.1 (EB 66, Annex 47)¹¹

B.2. Applicability of methodology (ies)

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The project activity is Grid connected renewable power generation and meets the applicability conditions of the chosen methodology as follows:

⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/approved>

⁷ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

⁸ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v11.0.pdf>

¹⁰ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf>

¹¹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>

The project activity involves generation of grid connected electricity from renewable wind energy. The project activity has an installed capacity of 21 MW which will qualify for a large CDM project activity under large scale methodologies. The project status is corresponding to the methodology ACM0002 version 21.0¹² and applicability of methodology are discussed below:

Applicability	Project activity vis-à-vis applicability Conditions
This methodology is applicable to grid-connected renewable power generation project activities that: a. install a Greenfield power plant; b. involve a capacity addition to (an) existing plant(s); c. involve a retrofit of (an) existing operating plants/units; d. involve a rehabilitation of (an) existing plant(s)/unit(s) or e. involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a Renewable Energy Project i.e. Wind Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". Hence the project activity meets the given applicability criterion.
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, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The project activity is an installation of a new grid connected renewable energy power plant and hence this condition is met.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, 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	The project activity does not involve any capacity additions, retrofits or replacements and therefore this condition is not applicable.

¹² <https://cdm.unfccc.int/methodologies/PAmethodologies/approved>

between the start of this minimum historical reference period and the implementation of the project activity;	
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/m²; 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/m². d. The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m², 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/m²; 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/m² 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.	The project activity is a grid connected renewable wind energy project. This condition is applicable only for hydro power plants and not applicable for wind projects. Therefore, this condition is not applicable for project activity.

In the case of integrated hydro power projects, project participant shall: i) 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 ii) 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 project activity is a grid connected renewable wind energy project. This condition is applicable only for hydro power plants and not applicable wind projects. Therefore, this condition is not applicable for project activity.
Methodology is not applicable to the following: 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 an installation of a new grid connected renewable energy project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant 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 result of the identification of baseline scenario, is "the continuation of the	The project activity is a new grid connected renewable wind energy plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.

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

Applicability Criterion (with Para number reference)	Project Case
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).	The project is a grid connected Greenfield Wind power project and thus the tool is applicable.
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: Procedures related to off-grid power generation” should be met. Namely, the total capacity of off-grid 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	Steps involved in calculation of Emission Factor is included in section B.6.3 of the PDD as per the requirement of the tool

Applicability Criterion (with Para number reference)	Project Case
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.	
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.	Project is located in non-Annex I country and hence the tool is applicable
Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project is a Wind project and there is no involvement of biofuels.

Methodological Tool- Tool for the demonstration and assessment of additionality-
Version 07.0.0 (EB 70, Annex 08)

Applicability Criteria has been demonstrated in section on additionality below.

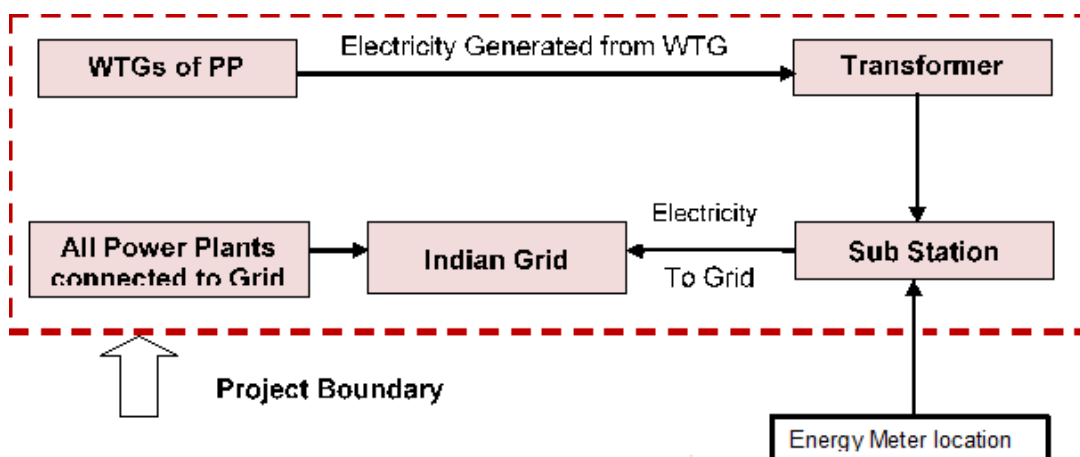
The project activity qualifies as Type I during every year of the crediting period in accordance with applicable provisions for project activity eligibility as discussed above. Also the total installed capacity of project activity is 21 MW which is applicable as per large scale project activities methodology ACM0002: Grid-connected electricity generation from renewable sources Version 21.0 . The project capacity will be always remain the same and hence the project activity will always be large scale project activities throughout the crediting period and thereafter.

B.3. Project boundary

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As per ACM0002 version 21.0 - "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to".

The project boundary includes the WTGs, sub-stations, grid and all power plants connected to grid. The proposed project activity will evacuate power to the Indian grid. Therefore the entire Indian grid and all connected power plants have been considered in the project boundary for the proposed Gold Standard project activity.



Source	GHGs	Included?	Justification/Explanation
Baseline scenario	CO ₂	Yes	Main emission source
	CH ₄	No	Minor emission source
	N ₂ O	No	Minor emission source
	Other	No	No CO ₂ emissions are emitted from the project
Project scenario	CO ₂	No	No CO ₂ emissions are emitted from the project
	CH ₄	No	Project activity does not emit CH ₄
	N ₂ O	No	Project activity does not emit N ₂ O
	Other	No	Project activity does not emit other forms of GHG emissions

B.4. Establishment and description of baseline scenario

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Updated baseline for the second crediting period in line with the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1

This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 5.1.47 of Gold Standard Principles & Requirements, version 1.2.

The tool stipulates the following steps to be carried out.

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

The baseline scenario remains unchanged and is in compliance with all the relevant mandatory national and/or sectoral policies.

Step 1.2: Assess the impact of circumstances

The baseline scenario identified during the Design Certification of the project activity was 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. Thus, this project activity was a voluntary investment which intends to replace equivalent amount of electricity at grid from renewable source. Project developer was not bound to incur this investment; hence absence of project activity (i.e. the investment) does not lead to any continued baseline practice for PP within their scope whereas the continued operation of the project activity would continue to replace equivalent amount of electricity at grid. Hence, the same baseline as identified in the previous crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period under GS4GG.

Nevertheless, there is an impressive growth attained by the Indian Power Sector within the recent years, the installed capacity has grown from mere 1,713 MW in 1950 to 411,648.60 MW as on 31/01/2023, consisting of 236,468.91 MW Thermal sources, 168,399.69 MW Renewable sources and 6,780 MW Nuclear. Sector-wise details of installed capacity are shown below

ALL INDIA INSTALLED CAPACITY (IN MW) OF POWER STATIONS
(As on 31.01.2023)
(UTILITIES)

Region	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES(MNRE)	Total	
Northern Region	State	17085.00	250.00	20428.00	0.00	37513.00	0.00	6208.95	237.00	43849.95	79352.95
	Private	22324.33	1080.00	558.00	0.00	23962.33	0.00	3241.00	30570.15	33811.15	57773.48
	Central	15707.04	250.00	2044.06	0.00	17921.10	1620.00	11502.51	349.00	13811.51	30732.61
	Sub Total	55347.17	1580.00	5780.96	0.00	62708.13	1620.00	20751.76	31656.15	52437.91	116766.04
Western Region	State	41290.00	400.00	2049.02	0.00	43639.02	0.00	5446.00	2649.00	8095.00	50000.00
	Private	31947.17	500.00	4676.00	0.00	37123.17	0.00	481.00	36550.25	37061.25	74184.42
	Central	21325.92	0.00	3290.02	0.00	24615.94	1840.00	11635.00	655.00	23011.00	29356.94
	Sub Total	74573.09	1400.00	10815.04	0.00	86779.58	1840.00	7562.00	37846.53	45409.03	134025.61
Southern Region	State	20502.00	0.00	791.50	169.96	21463.46	0.00	11027.40	661.08	12449.08	33993.00
	Private	13373.50	250.00	5340.24	273.70	19237.45	0.00	0.00	48504.70	48504.70	67742.15
	Central	12239.34	3350.00	3359.50	0.00	18948.84	3320.00	0.00	541.90	541.90	19500.00
	Sub Total	46205.34	3840.00	8491.80	433.66	58779.81	3320.00	11627.40	49688.48	61459.98	121586.77
Eastern Region	State	6970.00	0.00	50.00	0.00	7020.00	0.00	3550.22	270.11	3820.33	10070.33
	Private	5553.00	0.00	0.00	0.00	5553.00	0.00	209.00	1529.22	1712.22	7265.22
	Central	15176.70	0.00	0.00	0.00	15176.70	0.00	1005.20	10.00	16191.90	16191.90
	Sub Total	27699.70	0.00	50.00	0.00	27775.70	0.00	4764.42	1731.33	6355.75	34335.45
North Eastern Region	State	0.00	0.00	411.26	36.00	447.26	0.00	422.00	245.25	663.25	1114.66
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	243.55	243.55	243.55
	Central	810.20	0.00	1253.20	0.00	1063.40	0.00	1522.01	30.00	1552.01	2475.81
	Sub Total	810.20	0.00	1664.46	36.00	2311.16	0.00	1944.01	518.80	2461.81	4115.78
Islands	State	0.00	0.00	0.00	84.35	84.35	0.00	0.00	5.25	5.25	89.60
	Private	0.00	0.00	0.00	35.19	35.19	0.00	0.00	28.08	28.08	63.27
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	5.70	5.70
	Sub Total	0.00	0.00	0.00	119.54	119.54	0.00	0.00	38.43	38.43	157.97
All India	State	86737.00	1180.00	7012.06	280.31	94129.37	0.00	27264.36	2457.06	29741.91	104021.71
	Private	73198.00	1830.00	10574.24	308.89	85911.14	0.00	3931.00	117429.75	121363.75	207271.89
	Central	84500.00	3840.00	7237.01	0.00	95577.01	6780.00	16684.72	1632.30	17251.02	98464.99
	Total	244435.00	6070.00	24824.21	589.20	276338.51	6780.00	46039.17	121549.52	160399.63	411640.60

Figures at decimal may not tally due to rounding off

It is evident from the image above that the installed capacity is predominantly coal based and therefore, is a major source of carbon dioxide emissions in India. Hence, there exists scope for reducing the CO₂ emissions in the country by increased use of renewable energy sources.

Furthermore, project developer has considered the latest available CO₂ Baseline Database (CEA database, version 18.0) at the time of requesting renewal of the crediting period for establishing the baseline emission factor, which itself considered all the new circumstances. Hence, the new circumstances do not have an impact on the baseline emission. As per below table, the fossil fuel based thermal power generation is dominant over the renewable based power generation, thus baseline scenario remains same as original.

Thus, current baseline remains the same and there is no impact if circumstances, existing at the time of requesting renewal of crediting period.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested

As explained in step 1.2, the baseline scenario was the electricity import/generation from the power plants connected to the electricity grid. The project activity in green

field project and there is no any baseline equipment or investment involved in project activity. Therefore, this condition is not applicable to the project activity.

This sub-step is applicable here because the baseline scenario identified at the validation of the project activity is the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

If the baseline scenario of the project activity is the continuation of use of the current equipment(s) without any investment and the projects proponents or third party (ies) will undertake an investment later, but before the end of a crediting period, then the current baseline needs to be updated for that crediting period or the crediting of emission reductions should be limited to the period before the baseline equipment would cease its operation.

Determination of remaining lifetime of the project activity is done by using "Tool to determine the remaining lifetime of equipment" version 01, EB 50, Annex 14 and option (a) is used here i.e. product technical brochure to support the technical lifetime of equipment and compare to the date of first commissioning for the major equipment i.e. WTG. turbine. Supplier of WTG in this project activity in through product technical brochure mentions that project lifetime is 25 years and at present it is 05 years 02 months 10 days (considering since the day of PO issued to supplier) and it has another about 19 years 10 months of remaining lifetime.

Step 1.4: Assessment of the validity of the data and parameters

This step stipulates that "Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity."

In the context of the present project activity the emission factor has been updated along with the approach used to calculate the emission factor.

Step 2: Update the current baseline and the data and parameters

As evident from the explanation provided above the baseline scenario remains unchanged. Only the approach used to calculate the baseline emission factor is updated as per the latest version of CEA database available at the time of PDD submission for renewal.

In line with the GS4GG Principles & Requirements version 1.2 para 5.147 (c), the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account GS4GG Principles & Requirements with regard to renewal of the crediting period at the time of requesting renewal of crediting period; and the correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

Impact of the national and/or sectoral policies and circumstances upon the baseline scenario of the project activity

The Government of India enacted the Electricity Act in the year 2003 to harmonize and rationalize the provisions in the existing laws. The Act consolidated the laws relating to generation, transmission, distribution, trading and use of electricity. With the Enactment of the act, the then existing laws viz, The Indian Electricity Act 1910, The Electricity Supply Act, 1948 and The Electricity Regulatory Commissions Act, 1998 were repealed. The Electricity Act 2003 was in force at the time of the completion of the baseline study for the registered PDD.

Section 3 of the said act required the Central Government to prepare the national electricity policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy. In accordance with the section 3 of the Electricity Act 2003, the Central Government notified the National Electricity Policy¹³ on 12/02/2005 which was in force at the time of completion of the baseline study as stated in the Design Certified PDD of the project activity. This policy has not been revised since then and is currently in force as well.

In addition to the above policies, State Electricity Regulatory Commissions (SERCs) have announced preferential tariffs and Indian Renewable Energy Development Agency (IREDA) provides term loan assistance towards establishing biomass power projects. All these fiscal and financial incentives were in force at the time of completion of the baseline study for the Design Certified PDD of the project activity and still continues to exist.

¹³ <http://www.cercind.gov.in/Act-with-amendment.pdf>

The state electricity regulatory commission issues tariff order in respect of procurement of power generated from wind power plants and there is no mandatory national and/or sectoral policies have come into effect that would affect the compliance of the current baseline. Hence, it can be concluded the current baseline complies with all relevant mandatory national and/or sectoral policies that have come into effect after the submission of the project activity for Design Certification and are applicable at the time of requesting renewal of the crediting period.

However, despite the financial incentives given by the government to renewable power projects in India the generation from the low cost must run resources connected to the erstwhile Southern Grid (now integrated with NEWNE grid and formed INDIAN grid) has not increased to such an extent that this would lead to more than 50% contribution from the low cost must run resources towards the total generation from the erstwhile Southern Grid (now synchronized with NEWNE grid and formed INDIAN grid).

The approved consolidated baseline methodology, ACM0002 (version 21.0) has been used to determine the baseline and the estimation of emission reductions for the applicable crediting period. As referred in the methodology "Tool to calculate the emission factor for an electricity system" (version 07.0) has been used to determine continued validity of the baseline based on combined margin (CM) calculations.

As per CEA database version 18.0,(latest available version at the time submitting request for Renewal of Crediting Period), electricity generation sector is still predominantly based on fossil fuel based energy sources more than renewable energy sources and is continuing with same pattern.

In light of the above description, it is to be concluded that in accordance with relevant guidelines stipulated in the Project Standard version 03.0, national and/or sectoral policies and circumstances had been considered towards formulating the OM and BM baseline scenario. Hence, the baseline scenario as applied for the present project activity remains justified.

As per the approved consolidated methodology ACM0002 (version 21.0)

If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario 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 "TOOL07: Tool to calculate the emission factor for an electricity system".

The project activity involves setting up of a wind-energy based power plant to harness the kinetic energy of wind resources to produce electricity and supply to the grid. In the

absence of the project activity, the equivalent amount of power would have been supplied by the state grid (part of Indian grid), which is fed mainly by fossil fuel fired plants.

In the absence of the project activity, the equivalent amount of power would have been drawn from the state grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid.

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). Calculations for this combined margin emission factor must be based on data from an official source (where available) and made publicly available. The CEA database version 14 is the latest available data at the time of PDD submission to DOE for validation, hence same is considered for emission factor calculations.

The combined margin of the Indian grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9310 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 18.0, September 2022 ¹⁴ published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9518 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3 years (2019-20, 2020-21 and 2021-22) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 18.0, September 2022 ¹⁵ published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8687 tCO ₂ /MWh	Build margin CO ₂ emission factor for	Baseline CO ₂ Emission Database, Version 18.0, September 2022 ¹⁶

¹⁴ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

¹⁵ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

¹⁶ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

		the project electricity system in year y	published by Central Electricity Authority (CEA), Government of India published by Central Electricity Authority (CEA), Government of India
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Calculation of Baseline Emission

As per the approved consolidated Methodology ACM0002 (Version 21.0) para 47: 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:

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

Where:

- 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 CDM 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 the "Tool to calculate the emission factor for an electricity system" (t CO₂/MWh)

As per methodology, combined grid emission factor as per the "Tool to calculate the emission factor for an electricity system" version 07.0 is calculated as below.

CO₂ Baseline Database for the Indian Power Sector, Version 18.0, September 2022¹⁷ 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:

- Step 1: Identify the relevant electricity systems;
- Step 2: Choose whether to include off-grid power plants in the project electricity system (optional);
- Step 3: Select a method to determine the operating margin (OM);
- Step 4: Calculate the operating margin emission factor according to the selected method;

¹⁷ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission__2021_22.pdf

- (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 CO₂ Baseline Database. As of 31/12/2013, 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, wind, low cost biomass, nuclear and solar generation.

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

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
India	14.6%	14.3%	14.5%	17.0%	16.5%	15.8%

Data Source: Central Electricity Authority (CEA) database Version 18.0, September 2022¹⁸

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 CO₂ emissions per unit net electricity generation (tCO₂/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.

¹⁸ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission__2021_22.pdf

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:

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2019-20	2020-21	2021-22
INDIAN Grid	965,009	958,218	1,035,672

Simple Operating Margin (tCO ₂ /MWh) (incl. Imports)			
	2019-20	2020-21	2021-22
INDIAN Grid	0.9541	0.9402	0.9605

As per para 48 of TOOL 07 Version 07.0 The simple OM emission factor is calculated based on the net electricity generation of each power unit and an emission factor for each power unit as follows:

$$EF_{grid, OM Simple, y} = \sum_m EG_{m,y} \times EF_{EL,m,y} / \sum_m EG_{m,y}$$

Where:

$EF_{grid,OMSimple,y}$ = Simple operating margin CO₂ emission factor in year y (t CO₂/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 (t CO₂/MWh)

m = All power units serving the grid in year y except low-cost/must-run power units

y = The relevant year as per the data vintage chosen in Step 3.

$$\text{Hence } EF_{Grid, OM Simple, y} = (965,009 \times 0.9541 + 958,218 \times 0.9402 + 1,035,672 \times 0.9605) / (965,009 + 958,218 + 1,035,672)$$

$$EG_{Grid, OM, Simple, y} = 0.9518 \text{ tCO}_2/\text{MWh}$$

Weighted Generation Operating Margin	
INDIAN Grid	0.9518

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 PDD submission to the VVB 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 VVB. 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 (tCO₂/MWh) (not adjusted for imports)	
	2021-22
INDIAN Grid	0.8687

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:

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

Where:

EF_{grid,BM,y} = Build margin CO₂ emission factor in year y (t CO₂/MWh)

EF_{grid,OM,y} = Operating margin CO₂ emission factor in year y (t CO₂/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 and solar 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, $EF_{grid,CM,y} = 0.9518 * 0.75 + 0.8687 * 0.25$
 $= \mathbf{0.9310 \text{ t CO}_2/\text{MWh}}$

Baseline emission factor (EF_y)

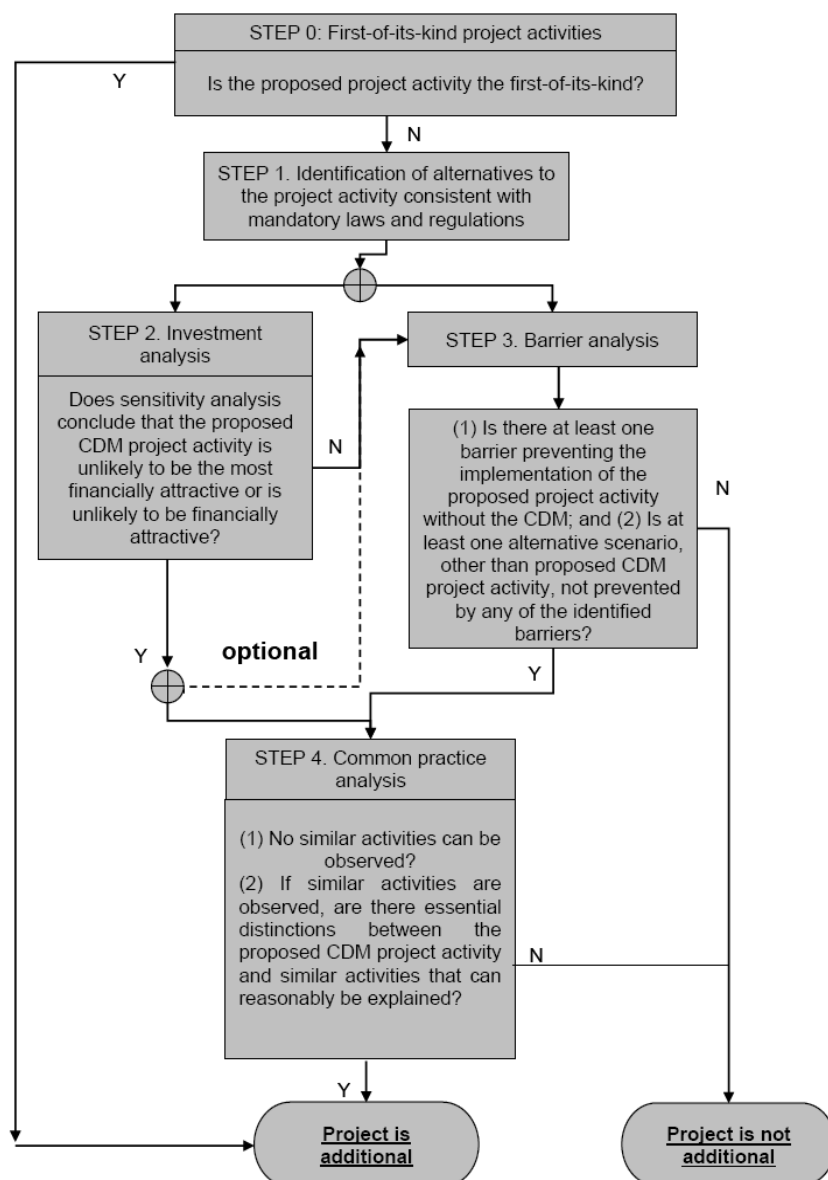
The baseline emission factor is calculated using the combined margin approach as described in Step 6 above:

Therefore, $EF_y = EF_{grid,CM,y} = 0.9310 \text{ t CO}_2/\text{MWh}$.

$BE_y = 47,829 \times 0.9310$
 $= \mathbf{44,528 \text{ tCO}_{2e}}$

B.5. Demonstration of additionality

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). The methodology requires the project investor to determine the additionality based on Methodological Tool- "Tool for the demonstration and assessment of additionality", version 7.0.0. The step-wise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs.



The additionality of the Project activity is ascertained in line with the applicable guidance from the UNFCCC.

The demonstration of additionality for the proposed Project activity is being carried out in accordance with the additionality tool provided by the UNFCCC i.e. "Tool for demonstration and assessment of Additionality" version 07.0.0. The tool provides a step-wise approach to demonstrate additionality which is displayed below:

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The proposed project activity is not the first-of-its-kind. Hence 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:

Identify realistic and credible alternative(s) available to the project participants or similar project developers that provide outputs or services comparable with the proposed GS project activity.

The purpose of the project activity is to generate electrical power using wind energy and feed the electricity generated to the grid. Hence, the following alternatives are considered:

Alternative 1: The proposed project activity not undertaken as a GS project activity.

The PP could proceed with the implementation of the project without Carbon credit benefits. The electricity produced from the renewable energy project would have been sold to the grid. This is in compliance with all applicable legal and regulatory requirements and can be a part of the baseline. However, the Project activity is not feasible without revenues from sale of Carbon Credits. This argument has been discussed in step 2 of the Additionality section.

Alternative 2: No proposed project activity and equivalent amount of energy would have been produced by the grid electricity system through its currently running power plants and by new capacity addition to the grid i.e. Continuation of the present situation.

The PP would have continued without investment in Project activity with usual business activities. The grid would continue with the fossil fuel based power projects and this would result in GHG emissions. Hence, the new capacity add-on from a fossil fuel based power plant is appropriate, realistic & credible baseline alternative for the project activity.

Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above.

Thus, though two alternatives are mentioned above as per step of additionality tool, the first alternative is not possible as project activity is not viable without carbon credit benefits and second alternative is the baseline scenario for the project activity as per methodology as mentioned in section B.4 of GS4GG PDD.

It is to be noted that being the green field project activity, "the baseline scenario 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."

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

The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution. The project activity comes under white category as mentioned in section 1.11 of this document, thus there shall be no necessity of obtaining the Consent to Operate” for White category of industries. Since project activity falls under white category and the non-polluting nature of project fulfils the compliance to the local laws and regulations (This sub-step does not consider national and local policies that do not have legally-binding status).

The relevant national laws and regulations pertaining to generation of energy in India are:

- Electricity Act 2003
- National Electricity Policy 2005
- Tariff Policy 2006

The Project activity conforms to all the applicable laws and regulations in India:

- Power generation using renewable energy is not a legal requirement or a mandatory option.
- There are state and sectoral policies, framed primarily to encourage wind power projects.
- These policies have also been drafted realizing the extent of risks involved in the projects and to attract private investments.
- The Indian Electricity Act, 2003 (May 2007 Amendment) does not influence the choice of fuel used for power generation.
- There is no legal requirement on the choice of a particular technology for power generation.

The both alternatives are in compliance with laws and regulations required. There is no any mandatory requirement to implement the project activity.

Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. Since wind projects are categorised as white category, no any consent to operate required from pollution control board. However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity in line with methodology.

Step 2: Investment analysis

Determine whether the proposed project activity is economically or financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of emission reductions credits. To conduct the investment analysis, use the following sub-steps:

Sub-step 2a: Determine appropriate analysis method

The Project activity envisages to export the power to Indian grid and the revenues from the sale would be generated in accordance with the terms and tariffs established in the Power Purchase Agreement (PPA). Thus, simple cost analysis (Option I) cannot be used as the analysis method as the sale of the units of generated electricity shall result in a revenue stream during the operations of the Project activity. In the absence of the project activity grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity.

After eliminating Option I and Option II, the use of Benchmark analysis (Option III) is the method of analysis that has been selected as the most suitable method. This method determines the attractiveness of the project activity for the investors, as well as provides a measure of the viability of the investment to generate revenues during its operation, as compared with other avenues and investment options. Hence, the Benchmark analysis method is to be employed for analysis of the said project.

Sub-step 2b (Option III): Apply benchmark analysis

The investment analysis using Benchmark analysis approach (Option III) has been chosen. Further, this method illustrates the evaluation of the Project by the PP before the decision to undertake the project was taken and management approval granted.

Choice of Financial Indicator:

According to the "Tool for demonstration and assessment of Additionality", the financial indicator can be based either on (1) project IRR or (2) equity IRR. There is no general preference between the approaches (1) or (2). The benchmark chosen for analysis shall be fully consistent with the choice of approach. Therefore, in accordance with the guidance, the relevant financial indicator for project activity has been chosen as post tax equity IRR.

Choice of Benchmark:

As per Investment Analysis tool, Required/expected returns on equity are appropriate benchmarks for an equity IRR. The Equity IRR is considered as the financial indicator

and the benchmarks used is cost of equity. Hence the benchmarks used are applicable to the project activity and the type of IRR calculation presented.

Appropriateness of using benchmark analysis for additionality demonstration and its conformity to guidance 16 of Annex 8, EB 97.

-

Considering the fact that the alternative to the project is the supply of electricity from the grid & the choice of the developer is to invest or not to invest, benchmark analysis has been considered appropriate to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest. Benchmark analysis has been considered appropriate for demonstration of additionality, which is in conformity with guidance 16 of Annex 8 EB 97.

Benchmark Calculation

As per the guidelines of Methodological Tool- Investment Analysis para 15, "The applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities are also appropriate." Since in this project activity, equity IRR has been considered as financial indicator, hence as per guidance 16, required/expected returns on equity are considered as appropriate benchmarks and benchmark supplied by relevant national authorities has been used.

Since the choice of benchmark is based upon parameters that are standard in the market, hence as per Guidance 19 of EB 97 Annex 8, "the cost of equity should be determined either by: (a) selecting the values provided in the Appendix; or by (b) calculating the cost of equity using CAPM". Hence as per option (a), the default value for India is being considered as per the value provided in Appendix of EB 97 Annex 8. The benchmark thus selected complies as per the relevant guidelines on Investment Analysis.

Further as per guidance 16 of EB 97 Annex 8, "In situations where an investment analysis is carried out in nominal terms and the available IRR benchmarks are in real terms, project participants shall convert the real term values of benchmarks to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period". Following the above guidance, the default value is being converted to nominal values by adding inflation rate for 10 years¹², as per the inflation forecast rate provided by Reserve Bank of India.

At the time of decision made of project activity, Version 07 of methodological tool "Investment Analysis" (EB 92 Annex 5) was the latest available tool to PP, however

Request for Registration can be submitted only till 28/06/2018. Hence PP has used Methodological Tool for Investment Analysis version 08 for which RFR can be submitted till 26/07/2019. hence PP has considered the same tool for default value of return on equity. The default value of Return on Equity for Group-1 projects in India is 10.73 %.

As per paragraph 7 of Appendix A of the above mentioned document, "In situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used"

Default Value Benchmark:

As per para 20 of EB 97, Annex 8 the cost of equity is determined by selecting the values provided in the Appendix, i.e. Default values for cost of equity (expected return on equity) is presented below:

Appendix in EB 97, Annex 8 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = 10.73%

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 = 10.73 % (as per Appendix of EB 97, Annex 8)
- Inflation Rate forecast for by Reserve Bank of India (RBI) (i.e. Central Bank of India) for India

Benchmark estimation:

Appendix in EB 97, Annex 8 specifies default value of expected return on equity in real terms for Energy

Industries (Group 1) in India = 10.73 %

Inflation Forecast for India as per RBI website:

Since RBI publishes the inflation forecast for 5 years and 10 years, PP has considered the maximum 10 years inflation considering the renewable crediting period of project activity.

Benchmark Calculations	Value	Sources Link	Document Date
Default Value for India as per UNFCCC guidelines	10.73 %	EB 97 Annex 8	01-11-2017
Inflation forecast (WPI Mean) as per RBI for 10yrs	4.00 %	https://rbi.org.in/Scripts/PublicationsView.aspx?id=17458	06-04-2017
Benchmark (with 10yrs Forecast)	15.16 %	Calculated	

Thus, benchmark of 15.16 % has been selected for this project activity.

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

The Post tax Equity IRR is evaluated for the entire lifetime of the project activity, i.e. 25 years. It is calculated based on the cash outflows from and cash inflows into the project activity.

Key Assumptions supporting financial projections are provided in excel spreadsheet to the VVB and the same has been summarized in Annex-1 of this report.

Based on result of IRR excel spreadsheets, equity IRR is less than Benchmark.

This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark). Thus, it can be easily concluded that project activity is additional and is not business as usual scenario.

Sub-step 2d: Sensitivity Analysis

Addressing Guidance 27 & 28 of EB 97, Annex 8, 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."

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost,

PLF and Tariff Rate Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favorable conditions.

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per Third Party DPR in line with "Guidelines for the reporting and validation of Plant load factors" stated in EB48 Annex11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third Party Report based on long term data.
Sensitivity Parameter 2 : O&M
The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. Hence, the reduction in the O&M cost is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The actual project cost is lower within 10% than the DPR cost. Since the Purchase Order cost is firm, there is no possibility of project cost going below this level. However, Sensitivity is carried out for threshold level below which benchmark is not breached.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/-10% even then the benchmark is not breached.

Outcome of Step 2:

This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark Equity IRR) for any of the investor. Thus it can be easily concluded that project activity is additional & is not business as usual scenario.

Step 3: Barrier analysis

Barrier analysis has not been used.

Step 4: Common practice analysis

For the concerned project activity, Common Practice Analysis has been carried out for 21 MW capacity Wind Project by **Shree Cement Limited**.

Stepwise approach for common practice analysis has been carried out as per Methodological tool "Common Practice", version 03.1 EB 84, Annex 7:

Step (1): Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Range	Capacity	Unit
+50%	31.5	MW
Capacity of the proposed project activity	21	MW
-50%	10.5	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;
- (b) The projects apply the same measure as the proposed project activity;
- (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;
- (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;
- (e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;
- (f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows:

a) As the project is located in Karnataka states of India, therefore, projects in the geographical area of Karnataka have been chosen for analysis. The project activity involves generation of electricity from wind energy. The project activity are located in the states of Karnataka in India and the policy applicable for the wind projects is regulated by respective state policy. The policies/tariff for each state is regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states. The project implemented in different states are claimed as different since the policies and regulations differ in each state. Each state have different policies regarding renewable energy, hence Karnataka state is considered as geographical region for common practice analysis.

b) The project activity is a green-field wind power project and uses measure (b) "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies". Therefore, projects applying same measure (b) are candidates for similar projects.

c) The energy source used by the project activity is wind. Hence, only wind energy projects have been considered for analysis.

d) The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.

e) The capacity range of the projects is within the applicable capacity range from 10.5 MW to 31.5 MW.

f) The start date of the concerned project activity is 20/12/2017. Therefore projects, which have started commercial operation before 20/12/2017, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are **$N_{wind} = 11$**

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} .

The project activities, which have got registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the DOE. After excluding the registered and under validation projects the total number of projects.

$N_{all} = 3$

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} .

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria:

1. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on this criteria, there are no any different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – For proposed project activity, there are no any different technology project considered out of similar identified projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating N_{diff} projects.

$$N_{diff} = 0$$

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.

$$\text{Calculate } F=1-N_{diff}/N_{all}$$

$$F = 1-(0/3) = 1$$

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.

Thus if both conditions are fulfilled, then project activity will be a common practice otherwise, the project activity is treated as not a common practice.

Outcome of Common Practice analysis:

As,

i. $F = 1$; is greater than 0.2

ii. $N_{all} - N_{diff} = 3$; is not greater than 3

The project activity does not satisfy second condition. Hence, project activity is not a common practice.

Thus, the proposed project activity is not a “common practice” within a sector in the applicable geographical area.

The above discussions show that wind power development is not a common practice and the project activity is not financially attractive; hence the project activity is additional.

B.5.1 Prior Consideration

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Not Applicable as it is 2nd Crediting Period.

B.5.2 Ongoing Financial Need

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The project activity's generation amount has been lower than the estimated IRR since its operation, which can be confirmed through the previous verification of the project activity. The revenue is crucial for the project's positive return and its continuity. Initially, carbon credits were priced higher during the registration period, but their cost has substantially decreased in recent years. As a result, generating sufficient carbon revenue has become increasingly vital for sustaining the project. Unfortunately, various incidents, including the inability to realize revenue from the sale of GSVER, burdened the project proponent, leading to financial difficulties and challenges in meeting verification and certification costs. The emergence of COVID further complicated the financial situation, imposing additional constraints on the project.

The project is currently repaying its debt, including both loans and equity funding. The power is sold at a fixed rate as per the Power Purchase Agreement (PPA), and income from GS certification will be used for loan repayment. To sustain the project, debt repayment remains crucial. The realization of carbon revenue is, therefore, essential to ensure the financial sustainability of the project and contribute to sustainable development. Despite facing several barriers, the project developer has decided to continue the project with support from carbon revenue, given its positive contributions to the grid, job opportunities, and economic benefits for neighboring communities. Additionally, since the project owner has taken significant loans for implementation, the ongoing and additional revenues from the carbon mechanism will play a crucial role in sustaining the project and achieving its contributions towards SDGs.

Investment analysis conducted during the Second Crediting Period shows that the project is not economically feasible without GS VER credit income. Also, the sensitivity analysis confirms that the proposed project activity is unlikely to be financially attractive without the revenues from VERs as the IRR result (6.71%) is below the benchmark, which is 15.16%.

Consequently, the project activity was deemed as additional. Furthermore, the agreement signed with the WTG supplier established a maintenance regime of the equipment. In line with this agreement, maintenance work is being carried out.

This maintenance work of the turbines proves to be a significant financial burden for the Project Activity. Therefore, carbon revenues derived from Gold Standard certification have played an essential role in helping Project Developer pay maintenance works of the equipment.

First crediting period issuances of VERs (vintage wise) is as below¹⁹:

Year	Issuances of VERs
2018	34,461
2019	47,657
2020	40,265

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)
13 Climate Action (mandatory)	13.2: Integrate climate change measures into national policies, strategies and planning	GHG Emission reductions in tCO ₂
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

¹⁹ <https://registry.goldstandard.org/projects/details/1454>

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	1. No. of trainings provided to the employees 2. Employment generated due to project activity
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B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

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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 – Decent 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 VVB can confirm this parameter with interview with PP or Site in-charge 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 18.0. , 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 07.0. 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.
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B.6.2 Data and parameters fixed ex ante

SDG13

Data/parameter	EF_{grid,OM,y}
Unit	tCO ₂ /MWh
Description	Simple Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 18.0, September 2022 ²⁰
Value(s) applied	0.9518
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 three recent years 2019-20, 2020-21 and 2021-22. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 18.0, September 2022 ²¹ , published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission

²⁰ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

²¹ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

Additional comment	This parameter is fixed ex-ante for the entire crediting period.
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Data/parameter	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 18.0, September 2022 ²²
Value(s) applied	0.8687
Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system", version 07.0 as per the latest data available for the most recent year 2021-22. The data is obtained from "CO ₂ Baseline Database for Indian Power Sector" version 18.0, September 2022 ²³ 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.

Data/parameter	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 18.0, September 2022 ²⁴
Value(s) applied	0.9310
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%

²² https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

²³ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

²⁴ https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf

	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

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SDG 7 : Affordable and Clean Energy and SDG 13 Climate Action:

For a given year, the emission reductions contributed by the project activity (ER_y) is calculated as follows:

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

Where:

BE_y	=	Baseline emissions in year y (t CO ₂)
$EG_{PJ,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
$EF_{grid,CM,y}$	=	Combined margin CO ₂ emission factor for grid connected power generation in year y

$EG_{PJ,y}$ is calculated by multiplying installed capacity (21 MW) with Plant Load Factor (26%²⁵) assuming daily 24 hours and 365 days in a year as operation period

$$EG_{PJ,y} = 21 * 26\%^{26} * 24 * 365 = 47,829 \text{ MWh}$$

$$BE_y = 47,829 \text{ MWh/annum} \times 0.9310 \text{ t CO}_2/\text{MWh} \\ = \mathbf{44,528 \text{ t CO}_2\text{e/annum}}$$

$$ER_y = BE_y - PE_y$$

Where:

$$ER_y = \text{Emission reductions in year y (t CO}_2\text{e)} \\ BE_y = \text{Baseline emissions in year y (t CO}_2\text{e)}$$

²⁵ As per KERC tariff order dated 04/09/2017 page no. 12 <https://kerc.karnataka.gov.in/uploads/75401660293882.pdf>

²⁶ As per KERC order dated 04/09/2017 page no. 12 <https://kerc.karnataka.gov.in/uploads/75401660293882.pdf>

PE_y = Project emissions in year y (t CO₂e)

Therefore, ER_y = **44,528** – 0

= **44,528** tCO₂e/annum

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 to around 10 persons. Also, project activity improves the quality of employment by giving training to employee. Thus at least 1 training per year will be conducted by the project activity

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

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.

Year	Baseline estimate	Project estimate	Net benefit
28/03/2024 to 27/03/2025	44,528	0	44,528
28/03/2024 to 27/03/2025	44,528	0	44,528
28/03/2025 to 27/03/2026	44,528	0	44,528
28/03/2026 to 27/03/2027	44,528	0	44,528
28/03/2027 to 27/03/2028	44,528	0	44,528
Total	222,640	0	222,640
Total number of crediting years	5		
Annual average over the crediting period	44,528	0	44,528

SDG 7 : Affordable and Clean Energy

Year	Baseline estimate	Project estimate	Net benefit
28/03/2024 to 27/03/2025	0	47,829	47,829
28/03/2024 to 27/03/2025	0	47,829	47,829

28/03/2025 to 27/03/2026	0	47,829	47,829
28/03/2026 to 27/03/2027	0	47,829	47,829
28/03/2027 to 27/03/2028	0	47,829	47,829
Total	0	239,145	239,145
Total number of crediting years	5		
Annual average over the crediting period	0	47,829	47,829

SDG 8 : Decent Work and Economic Growth

Year	Baseline estimate	Project estimate	Net benefit
28/03/2024 to 27/03/2025	0	10 people employed/year and 1 training conducted/year	10 people employed/year and 1 training conducted/year
28/03/2024 to 27/03/2025	0	10 people employed/year and 1 training conducted/year	10 people employed/year and 1 training conducted/year
28/03/2025 to 27/03/2026	0	10 people employed/year and 1 training conducted/year	10 people employed/year and 1 training conducted/year
28/03/2026 to 27/03/2027	0	10 people employed/year and 1 training conducted/year	10 people employed/year and 1 training conducted/year
28/03/2027 to 27/03/2028	0	10 people employed/year and 1 training conducted/year	10 people employed/year and 1 training conducted/year
Total	0	50 people employed and 5 trainings conducted	50 people employed and 5 trainings conducted
Total number of crediting years	5		
Annual average over the crediting period	0	10 people employed/year and 1 training conducted/year	10 people employed/year and 1 training conducted/year

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 13

Data / Parameter	ER _y
Unit	tCO ₂ e/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	44,528 (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.

SDG 7

Data / Parameter	EG _{PJ, y}
Unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
Source of data	Monthly joint meter reading reports/B-Forms or equivalent
Value(s) applied	47,829 (estimated)
Measurement methods and procedures	Net electricity supplied to the grid by the project plant in a given month = Export, kWh – Import, kWh As per the regulations by Karnataka Electricity Regulatory Commissions (KERC), transmission losses are adjusted in imports by considering 115% of import as imported electricity plus transmission losses. Thus, the 115% of

	import and transmission loss if any would be accounted while calculating net electricity supplied to grid as per PPA.
Monitoring frequency	Continuous measurement & monthly recording
QA/QC procedures	The meters is approved, tested and sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years²⁷. The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.
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 GS-VERs for this project activity, whichever occurs later.

SDG 8

Data / Parameter	Quality of Employment
Unit	-
Description	Training of Staff and number of employments
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	1 training/annum and employment number

²⁷ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

	to 10 persons
Measurement methods and procedures	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.
Monitoring frequency	Annual
QA/QC procedures	The training records for all the employees
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

B.7.2 Sampling plan

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No sampling is required

B.7.3 Other elements of monitoring plan

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Aim of monitoring:

The monitoring methodology specified in the methodology requires that the project-monitoring plan to consist of monitoring of quantity of net electricity supplied to the grid in the year y. In order to monitor the mitigation of GHG due to the project activity, the total energy exported needs to be measured. The net energy supplied to grid by the project activity multiplied by emission factor for regional grid, would form the baseline for the project activity.

Since the baseline emission factor is based on an ex-ante determination, monitoring of this parameter is not required. The sole parameter for monitoring is the net electricity exported to the grid.

Monitoring roles and responsibilities

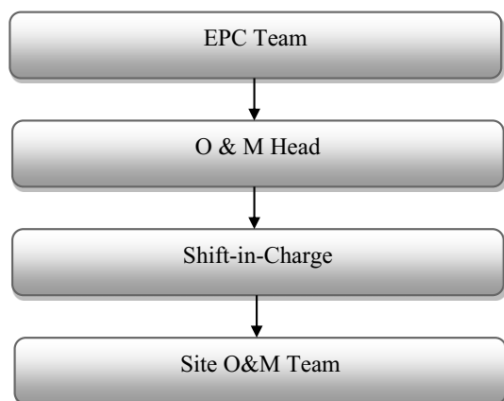
The operational and management structure implemented for data monitoring is as follows:

The monitoring plan is developed in accordance with the modalities and procedures for project activities and is proposed for grid-connected wind power project being implemented within India territory. The monitoring plan, which will be implemented by the project proponent 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 monitoring, measurement, reporting and reviewing of the data rests with the project proponent. 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:



Responsibilities of O & M Head: Overall functioning and maintenance of the project activity and overall responsibility of compliance with the Monitoring Plan.

Responsibilities of Plant In-charge: Responsibility for Maintains the data records, ensures completeness of data, and reliability of data. Regularly verifying the monthly energy generation date with energy sales receipt or installed meters reading for identification of any discrepancies in data collection and taking suitable action to rectify them.

Responsibilities of Shift In-charge: Responsibility for day to day data collection and maintains day to day log book for monitored data. Responsibility for monthly and annual report generation.

Quality assurance of the data/reports and preliminary check of data for any discrepancies.

QA/QC procedures:

The energy meters at the feeders are maintained and owned by state electricity board. Neither the project proponent nor the site personnel have any control over it. The records will be cross-checked with the records of sold electricity to state electricity board. The meters are calibrated by state electricity board at-least once in five years.

Data Measurement:

The export and import energy will be measured continuously using above mentioned Main & Check meters. Export & Import readings of Main & Check meters shall be taken on monthly basis by authorized officer of state electricity board in the presence of PP or representative of PP. The meter reading will be taken jointly and signed by the representatives of the state electricity board and project investors. Based on the readings, invoices will be raised by project investors. These invoices can be used for

cross checking the meter readings taken for the project activity. It is to be noted though PP or PP representative is available during meter reading, the calculations of net electricity supplied to grid is completely under purview of state electricity board officer and PP do not have any control on it. Also accuracy class of meters and calibration frequency is under purview of state electricity board officer and PP do not have any control on it. PP got the monthly credit report from where net electricity supplied to grid is obtained and used for emission reduction calculations.

Apportioning:

In case of common metering arrangement, the apportioning will be done by state electricity board and PP is getting break up sheet where the energy supplied by project activity to grid is mentioned.

The same break up sheet will be used for invoice purpose. This apportioning process is under control of state electricity board and PP do not have any control on it.

Data Archiving:

Monthly data shall be archived electronically and in paper form and stored for the entire crediting period and two years thereafter.

Emergency preparedness:

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

In the event that the main meter, which is used to record the net electricity exported by the project, is found to be faulty it will be repaired or replaced and the data from the check meter will be used in its place. In the unlikely event that the check meter fails it will also be repaired or replaced.

Training and maintenance requirements:

Each and every site personnel is provided with proper training to meet the requirements of the Operations and maintenance. This ultimately leads to creativity in problem solving.

Personnel training:

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff (CDM/VCS 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.

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

>>

29/11/2017. This date corresponds to the date of LOI placed for WTGs of the project activity

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

>>

28/03/2023

Previous crediting period

28/03/2018 to 27/03/2023

C.2.2 Total length of crediting period

>>

05 years 00 months (Second Crediting Period)

5 years Renewable cycle is adopted for project activity

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 summarised below.

Data / Parameter	Noise and Shadow Flickering
Unit	---

Description	The noise and shadow produced due to operation of wind power plant respect to nearest residential spot
Source of data	Grievance Register
Value(s) applied	---
Measurement methods and procedures	Manual
Monitoring frequency	Once in a year
QA/QC procedures	---
Purpose of data	Analysis of Safeguarding Principles
Additional comment	---

Data / Parameter	Impact on endangered species in the project boundary and due to any transboundary affects
Unit	---
Description	Impact on endangered species by the wind power plant construction and operation within the project boundary and any transboundary affects
Source of data	Plant register for recording any nest and carcass of any endangered species including birds
Value(s) applied	---
Measurement methods and procedures	Manual
Monitoring frequency	Once in a year
QA/QC procedures	---
Purpose of data	Analysis of safeguarding principle
Additional comment	---

Data / Parameter	Waste Oil Disposal
Unit	Litre
Description	Waste oil due to operation and Construction work of plant
Source of data	Plant log book
Value(s) applied	---
Measurement methods and procedures	Manual
Monitoring frequency	Once in a monitoring period
QA/QC procedures	---

Purpose of data	Analysis of safeguarding principle
Additional comment	---

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?	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 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 is a renewable energy wind project and it is not a gender sensitive project because the project does not adversely impact women or men. PP have HR policy which mention that, they do not differentiate between women and men. PP also conducted stakeholder meeting which was open for participation by all and both men and women had participated in the stakeholder meeting conducted. The HR policy of PP and the stakeholder meeting documents are submitted. Hence, it is established that, there is no gender discrimination by PP and that PP is strictly adhering with their policies.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	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 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	Expert was not required to assist with Gender issues at the stakeholder consultation. As per para 4.4 of the Gender Policy, the PP had organised a stakeholder consultation meeting for which the local people were invited irrespective of the gender and the locals were invited for the stakeholder meeting through public notice which was accessible for both the genders. The stakeholder consultation documents are provided from which it can be seen that there was participation from both the genders. In order to get continuous feedback from the local stakeholders, PP has also placed a grievance register at the site, which is accessible to all irrespective of gender, for recording any grievance/feedback about the project. The comments received in the grievance register, shall be resolved by the team of PP at the earliest.

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

>>

Solicitation of comments from stakeholders

The details of the Stakeholder Meetings are as follows:

Date of invitation – 06/09/2017

Date of Meeting – 16/09/2017

In the introductory speech, the representative of Shree Cement Limited (Project Investor), welcomed the gathering and given a brief about the climate mitigation project activity. Subsequent to the introductory speech, stakeholders were explained about the electricity generation from wind project is an environmental friendly power generation technology contributing to reduction in GHG emissions. They were also explained about the benefits of the wind power projects like, increasing energy availability and improving quality of power and its assistance to the local population by providing employment opportunities to both skilled & unskilled labours.

The Minutes of meeting with commenting sheet from LSC meeting , invitation letter receipt copy are to be submitted to the DOE during validation.

Meeting started with opening speech by representative of project participant. He introduced all guests on dais. The representative of project participant explained Technical aspects of project to stakeholders. He also explained about social, environmental and economical benefits of the project. He also elaborated about carbon mechanism & its requirement for the current project. After the detailed discussions, the session was open for questions from stakeholders.

Most of the questions were related to employment opportunities, economic development, benefits from project to villagers and other development activities. The question raised by the villagers are summarised below:

Q: Will the project provide employment opportunities or improve economic development of the area?

A: Yes, the project will provide economic development of the area and will provide employment opportunities to the local people depending upon their skill and qualification.

Q: Will the operation of the plant result in increased temperature in the surroundings?

A: There will be no impact on ambient temperature due to operation of the plant.

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

A: 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; and various social activities shall help to uplift the standard of living.

Report on consideration of comments received

No negative comments have been 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.

Also, the stakeholder feedback round will be initiated after the listing of the project activity at GS4GG.

Stakeholder feedback Round:

The SFR will be planned for 60 days after listing project with GS. The email will be send to relevant stakeholders like NGOs, DNA officials, Gold Standard officials along with project documents

The process for the SFR is as follows;

- E mail and Invitations send to relevant stakeholders
- The non-technical summary of project activity along with Registered PDD, web link of UNFCCC web page for the same registered project in CDM, draft GS4GG PDD submission to relevant stakeholders, GS Public view section web link.
- Grievance Mechanism Feedback/Questions from Stakeholders
- Answers for questions received from stakeholders during online SFR process.

Identification of Stakeholders:

The Stakeholder feedback round will be conducted to consider and receive feedback from the possible stakeholders to the project, i.e. NGOs. Apart from these, the stakeholders as identified by Gold Standard Board, i.e. Gold Standard partnered NGOs in India and DNA of India (MoEFCC).

Invitations to Stakeholders:

The Stakeholder feedback round will be done online method. Email invitations were sent to GS partnered NGO's and MoEFCC. The relevant documents of project activity like GS4GG PDD, project Technical summary were made available during Stakeholder feedback round.

As per GS toolkit, for SFR process physical meeting is not mandatory. Thus online email will be sent to NGOs, Govt officials, GS personnel etc.

The list of invites to whom the SFR e mail has been sent will be mentioned.

For local stakeholders, public notice has been put at project site. Also SFR process are mainly to cover the issues raised during local stakeholder consultation and there were no any negative comments raised during initial physical local stakeholder consultation. Thus public notice put at project site village and requested the feedback for this project activity as a part of SFR was sufficient and meets the requirement as per GS4GG. This public notice covers all local stakeholders for feedback during SFR process. The public notice has mentioned different feedback methods like the grievance register, telephone access, internet access so that local stakeholders can give their feedback for the project activity.

The Mandatory Continuous Input & Grievance Expression Methods applied are described in below section.

The national/international NGO supporters will be identified for stakeholder feedback round and e mail will be send for their feedback. The C and D category stakeholders are invited through online SFR. For category A and B, the public notice has been put at project site.

Question/Comments session:

This section will complete once SFR process is complete.

Conclusion:

This section will complete once SFR process is complete.

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.
	Grievance Register to be maintained at office of Project Developer and O&M site office at project location.
Continuous Input / Grievance Expression Process Book (mandatory)	Grievance register is placed at the site for the local stakeholders. Global stakeholders can log their grievances through the provided link: https://www.shreecement.com/contact-us A dedicated committee is formulated to handle the grievances at top priority
GS Contact (mandatory)	help@goldstandard.org
Other	Mr. Sanjay Singh, representative of Project Developer is responsible and his mobile number +91 1462 228101 shall be available for any stakeholder to comment Or can be contacted through email Sanjay.Singh@shreecement.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.

SOCIAL SAFEGUARDING PRINCIPLES		
Reference requirement	Question	Response
P.1 HUMAN RIGHTS		
P.1.1.1 	Does the project developer, its representatives and the Project disrespect internationally proclaimed human rights?	☐ YES ☒ NO
P.1.1.1 	Is the project involved or complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights?	☐ YES ☒ NO
P.1.1.2 	Have local communities or individuals raised human rights concerns regarding the project (e.g., during the stakeholder engagement process, grievance processes, public statements)?	☐ YES ☒ NO
P.1.1.3 	Is there a risk that rights-holders (e.g., Project-affected stakeholders) do not have the capacity to claim their rights?	☐ YES ☒ NO
P.1.1.3 	Does this project undermine national or regional measures for the realisation of the right to development?	☐ YES ☒ NO
If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements. Please add text here...		
Would the project potentially involve or lead to:		
P.1.1.1 	adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.2 	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalised or excluded individuals or groups, including persons with disabilities?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.3 	restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalised individuals or groups, including persons with disabilities?	☐ YES ☐ POTENTIALLY ☒ NO
P.1.1.3 	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project incorporates a human rights-based approach.

- 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 proclaimed human rights issue
- Further, the Project meets the Indian labor law requirements thus does not cause any human rights abu
- 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 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 link²⁸ given below. The project adheres to the hostcountry's commitment to: Universal Declaration of Human Rights (UDHR) International Covenant on Economic, Social and Cultural Rights, India Accession 10/04/79²⁹.
International Covenant on Civil and Political Rights India Accession 10.04.79³⁰

The project does not involve any conflict with livelihood of local people and respect all human rights. Stakeholder consultation had been carried out to take their opinion.

The host country prohibits discrimination on the basis of a person's race, sex, religion, place of birth, or social status.

P.2 | GENDER EQUALITY AND WOMEN'S EMPOWERMENT

P.2.1.1 	Have women's groups/leaders raised gender equality concerns regarding the project, (e.g., during the stakeholder engagement process, grievance processes, public statements)?	☐ YES ☒ NO
P.2.1.2 	Does the project undermine the principles of non-discrimination, equal treatment, and equal pay for equal work?	☐ YES ☒ NO
P.2.1.2 	Does the project prevent men and women from having equal opportunities to participate in identified tasks and	☐ YES ☒ NO

²⁸ https://tbinternet.ohchr.org/_layouts/15/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

²⁹ <http://hrlibrary.umn.edu/research/ratification-india.html>

³⁰ <http://hrlibrary.umn.edu/research/ratification-india.html>

	activities, whether through paid work, volunteer work, or community contributions, as appropriate?	
P.2.1.2 	Does the project limit the participation of women or men based on pregnancy, maternity/paternity leave, or marital status?	☐ YES ☒ NO
P.2.1.2 	Is information about project objectives being communicated in a way that is inappropriate for the local context and not tailored to the methods of understanding of both women and men, which could hinder their participation?	☐ YES ☒ NO
P.2.1.3 	Has the project assessed gender risks without referencing the country's gender strategy or equivalent national commitment?	☐ YES ☒ NO
P.2.1.4 	Has expert stakeholder(s) been involved, and has their input been requested for the project design on gender equality and women's empowerment?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.2.1.1 	adverse impacts on gender equality and/or the situation of women and girls?	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.1 	exacerbation of risks of gender-based violence? For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc.	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.2 	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	☐ YES ☐ POTENTIALLY ☒ NO
P.2.1.2 	limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well-being.	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project is addressing any identified risk to gender equality and women's empowerment.

There is no any likelihood that the proposed Project would expose women and girls to further risks or hazards

The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. For project, 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.

The project does not involve any slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.

The project does not restrict of women's rights or access to resources.

The project Recognise women's ownership rights regardless of marital status

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. The project has HR policy and same is followed equally.

The project ensures participation of both men and women and they are benefitted based on pregnancy, maternity/paternity leave, or marital status.

There is no limit to the access of women or men to Project participation and benefits.

India ratified the International Convention on the Elimination of All Forms of Racial Discrimination³¹ on 03/12/1968 with certain reservation. The project activity is in line with strategy of elimination of discrimination.

P.3 | COMMUNITY HEALTH AND SAFETY

P.3.1.1 	Does the project involve potential risks to the health and safety of affected communities during its life cycle?	☐ YES ☒ NO
P.3.1.2 	Does the project involve any potential risks to the workers' safety and health?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

³¹ http://nhrc.nic.in/documents/india_ratification_status.pdf

P.3.1.1 	construction and/or infrastructure development (e.g., roads, buildings, dams)?	☐ YES ☒ NO
P.3.1.2 	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	☐ YES ☒ POTENTIALLY ☐ NO
P.3.1.2 	harm or losses due to failure of structural elements of the project (e.g., collapse of buildings or infrastructure)?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	risks of water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., explosives, fuel and other chemicals during construction and operation)?	☐ YES ☐ POTENTIALLY ☒ NO
P.3.1.2 	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g., food, surface water purification, natural buffers from flooding)?	☐ YES ☐ POTENTIALLY ☒ NO

Briefly describe below how the project is addressing any identified risk related to community health and safety.

The project is renewable energy 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, relevant staff will be trained to be able to work with safety. The project is in compliance with all relevant local and national laws.

P.4 | CULTURAL HERITAGE, INDIGENOUS PEOPLE, DISPLACEMENT AND RESETTLEMENT

P.4.1 | Sites of Cultural and Historical Heritage

P.4.1.1 	Does the project involve altering, damaging, or removing sites, objects, or structures of significant cultural heritage?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.4.1.1 	activities adjacent to or within a cultural heritage site?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.1 	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	☐ YES ☐ POTENTIALLY

		☒ NO
P.4.1.1 	alterations to landscapes and natural features with cultural significance?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.1 	adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.2 	utilisation of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.1.2 	If answer to question above is "YES" or "POTENTIALLY" - are the communities made aware of their right under the law, scope and nature of proposed development and its potential consequences?	☐ YES ☐ NO ☒ NA
P.4.1.3 	If answer to question above is "YES" - does the project provide equitable sharing of benefits from commercialization of such knowledge, innovation, or practice, consistent with their customs and traditions?	☐ YES ☐ NO ☒ NA
P.4.1.4 	If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.1.4 	If answer to question above is "YES", has project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

No the project does not involve or be complicit in the altercultural 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 10/04/1979 will ensure no damage to critical cultural heritage. As per the list of cultural heritage sites in India³² by UNESCO, it is clear that the project site is not a cultural heritage site

[P.4.2 | Forced Eviction and Displacement](#)

³² <http://whc.unesco.org/en/statesparties/in>

P.4.2.1 	Does the project involve any risks related to involuntary relocation of people?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.4.2.1 	risk of forced evictions or involuntary relocation of people?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2 	temporary or permanent and full or partial physical displacement (including people without legally recognizable claims to land)?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2 	economic displacement (e.g., loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.2.2 	If answer to question above is "YES" or "POTENTIALLY", - has the project developed Resettlement Action Plan or Livelihood Action Plan in consultation and agreement with affected individual, group or community? - has the project integrated Resettlement Action Plan or Livelihood Action Plan into the Project design?	☐ YES ☐ NO ☒ NA
P.4.2.3 	If answer to question above is "YES" - are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.2.3 	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project has received the necessary approvals from the local authorities and does not lead to any resettlement.

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013³³

[P.4.3 | LAND TENURE AND OTHER RIGHTS](#)

³³ <https://legislative.gov.in/actsofparliamentfromtheyear/right-fair-compensation-and-transparency-land-acquisition-rehabilitation>

P.4.3.1 	Does the project involve any risks related to identifying and managing legitimate tenure rights that may be affected by the project?	☐ YES ☒ NO
---------------------------	--	--

If the answer to question above is "yes," please explain the reason and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project potentially involve or lead to:

P.4.3.1 	impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.3.1 	uncertainties with regards to 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.	☐ YES ☐ POTENTIALLY ☒ NO
P.4.3.2 	Changes in legal arrangements, if yes, are the changes done in line with relevant laws and regulations?	☐ YES ☐ NO ☒ NA
P.4.3.2 	Changes in legal arrangements, if yes, are these changes agree with free, prior and informed consent of the involved stakeholders?	☐ YES ☐ NO ☒ NA
P.4.3.3 	Does some other entity (other than the project developer) hold uncontested land title for the entire Project Boundary?	☐ YES ☐ NO ☒ NA
P.4.3.4 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☒ NO ☐ NA
P.4.3.4 	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA
P.4.3.5 	Have project developer in consultation with stakeholders established a functioning mechanism to receive, process, resolve, communicate and record grievances?	☒ YES ³⁴ ☐ NO ☐ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

³⁴ For ongoing stakeholder consultation, a grievance register has been placed at the site and the grievances of the local stakeholders are resolved from time to time.

The land used for project is mix of revenue land and private land. The revenue land is taken on sub-lease basis for lifetime of project from revenue department and private land is purchased/ leased from land owners. Land has been utilized by PP directly from the owner of the land through direct negotiation of commercial terms. The land is acquired on mutual consent between private land owner and PP, thus there are no any issues of dissatisfaction of private land owner. The Project Developer holds land rights for lifetime and there are no any uncertainties for land tenure.

P.4.4 | INDIGENOUS PEOPLES

P.4.4.1	Does the project involve Indigenous People within the Project area of influence who may be affected directly or indirectly by the Project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here...

Would the project potentially involve or lead to:

P.4.4.1	affect areas where indigenous peoples are present (including project area of influence)	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.1	affect areas, land and territory claimed by indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.1	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.7	If answer to above questions is "YES" or "POTENTIALLY", - Is it determined that the proposed project may affect the rights, lands, resources, or territories of indigenous people? - Has an "Indigenous People Plan" (IPP) or "Indigenous People Plan Framework" been elaborated and included in the project documentation? - Was the plan developed in accordance with the effective and meaningful participation of indigenous peoples and in accordance with UNDP Guidelines?	☐ YES ☐ NO ☒ NA
P.4.4.3	risk of forcibly removing indigenous people from their lands and territories?	☐ YES ☐ POTENTIALLY ☒ NO
P.4.4.4	utilisation and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	☐ YES ☐ POTENTIALLY

	Consider, and where appropriate ensure, consistency with the answers under Principle 4.1 above	☒ NO
P.4.4.5 P.4.4.6 	If answer to question above is "YES" or "POTENTIALLY" - Did the project obtain free, prior and informed consent from indigenous people before taking their cultural, intellectual, religious, and/or spiritual property? - Does the project ensure that the indigenous people receive an equitable sharing of benefits resulting from the use of their traditional knowledge and practices? ? - Does the project ensure that the sharing of benefits resulting from the use of indigenous peoples' traditional knowledge and practices is culturally appropriate and inclusive? - Does the project ensure that the provision of equitable sharing of benefits does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions, and housing?	☐ YES ☐ NO ☒ NA
P.4.4.8 	Does the project lack appropriate feedback and grievance channels for Indigenous Peoples and their representatives?	☐ YES ☐ NO ☒ NA
P.4.4.8 	Has a grievance mechanism not been established at the beginning of programme or project implementation with due consideration given to customary dispute settlement mechanisms among the Indigenous Peoples concerned and will it remain operational throughout the project cycle?	☐ YES ☐ NO ☒ NA
P.4.4.9 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA
P.4.4.9 	If answer to question above is "YES", have project design been changed, modified, updated considering opinions and recommendations of an Expert Stakeholder?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is located at site where there are no any peoples residing. The project is located at barren land.

[P.5 | CORRUPTION](#)

P.5.1.1 	Does the project involve, or is it complicit in, contributing to or reinforcing corruption or corrupt projects?	☐ YES ☒ NO
P.5.1.1 	Does the project have a risk of encouraging bribery, kickbacks, or other unethical behavior?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The project is renewable energy technology and does not contribute to or reinforce corruption of any kind.

ECONOMIC SAFEGUARDING PRINCIPLES

P.6 | ECONOMIC IMPACTS

P.6.1 | LABOUR RIGHTS AND WORKING CONDITIONS

P.6.1.1 	Does the project involve, facilitate, or condone forced labor, or pose a potential risk of forced labor?	☐ YES ☒ NO
P.6.1.1 	Does the project violate any labor or health and safety laws, international obligations, or ILO conventions?	☐ YES ☒ NO
P.6.1.2 	Does the project violate the principles of equal opportunity and fair treatment in its employment decisions?	☐ YES ☒ NO
P.6.1.3 	Does the project violate national laws, if available regarding non-discrimination in employment?	☐ YES ☒ NO
P.6.1.4 P.6.1.5 	Does the project allow child labor?	☐ YES ☒ NO
P.6.1.7 P.6.1.8 	Does the project have insufficient processes and measures in place to ensure the safety and health of project workers?	☐ YES ☒ NO
P.6.1.9 	Does the project have insufficient measures to safeguard and support vulnerable project workers, such as women, people with disabilities, migrant workers, and young workers, and to prevent any kind of harassment, abuse, bullying, or exploitation, including gender-based violence (GBV)?	☐ YES ☒ NO
P.6.1.10 	Does the project have no grievance mechanism available for workers to voice workplace concerns? Is information about this mechanism not provided to workers at the time of recruitment, or is it not easily accessible?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Would the project potentially involve or lead to:

(NOTE: APPLIES TO BOTH PROJECT AND CONTRACTOR WORKERS)

P.6.1.1 	use of forced labour?	☐ YES ☐ POTENTIALLY ☒ NO
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P.6.1.1 	working conditions that do not meet national labour laws and international commitments?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	working conditions that may deny freedom of association and collective bargaining?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	absence of documented working agreements with all individual workers <i>if such agreements do not exist, or do not address working conditions and terms of employment, the project developer shall provide reasonable working conditions and terms of employment.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	use of migrant workers? <i>if engaged, the developer shall ensure that they are engaged substantially equivalent terms and conditions to non-migrant workers carrying out similar work.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.1 	having no arrangements for basic services ³⁵ for workers? <i>the project developer shall put in place and implement policies on the quality and management of the accommodation and provision of basic services in a manner consistent with the principles of non-discrimination and equal opportunity. Workers' accommodation arrangements should not restrict workers' freedom of movement or of association</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2 	any form of discrimination or harassment based on factors unrelated to job requirements, such as gender, race, nationality, ethnicity, social or indigenous origin, religion or belief, disability, age, or sexual orientation?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2 	any form of discrimination in any aspect of employment, such as recruitment, compensation, working conditions, training, job assignment, promotion, termination, or discipline?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.2 	harassment, intimidation, and/or exploitation, especially in regard to women?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.3 	discriminatory working conditions and/or lack of equal opportunity where national law provides provision to address non-discrimination in employment?	☐ YES ☐ POTENTIALLY

³⁵ Basic services requirements refer to minimum space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and in some cases basic medical services.

		☒ NO
P.6.1.4 	use of child labour? (including third-party engaged workers)	☐ YES ☐ POTENTIALLY ☒ NO
P.6.1.4 	inadequate and verifiable mechanisms for age verification?	☐ YES ☒ NO
P.6.1.7 	no processes and measures in place for the safety and health of project workers?	☐ YES ☒ NO
P.6.1.7 	No provision of safety and health training provisions, including on the proper use and maintenance of personal protective equipment conducted by competent persons and the maintenance of training records?	☐ YES ☒ NO
P.6.1.7 	No provision to record and document accidents, diseases, incidents, and any resulting injuries, illnesses, or deaths?	☐ YES ☒ NO
P.6.1.8 	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	☐ YES ☒ NO
P.6.1.9 	No measures to protect vulnerable project workers from harassment, exploitation, and gender-based violence (GBV)? This includes women, people with disabilities, migrant workers, and young workers.	☐ YES ☒ NO
P.6.1.10 	No grievance mechanism available for workers to voice workplace concerns.	☐ YES ☒ NO
P.6.1.11 	No measures for due diligence and the establishment of policies and procedures to manage and monitor the performance of third-party employees in the project?	☐ YES ☒ NO

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

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 India have laws in place prohibiting forced and compulsory labor³⁶

[P.6.2 |NEGATIVE ECONOMIC CONSEQUENCES](#)

P.6.2.1 	Is there a risk of project failure during implementation or after project certification due to a lack of financial resources?	☐ YES ☒ NO
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³⁶ <http://labour.nic.in/content/>

P.6.2.2 	Does the project have potential negative impacts or pose a risk to the local economy?	☐ YES ☒ NO
P.6.2.2 	Are there any potential risks or negative impacts this project may have on vulnerable or marginalised social groups, despite the benefits it may bring?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here...

Would the project involve or lead to:

P.6.2.2 	economic impacts (negative/detrimental) to the local economy?	☐ YES ☐ POTENTIALLY ☒ NO
P.6.2.2 	negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?	☐ YES ☐ POTENTIALLY ☒ NO

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

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.

The financial sustainability is demonstrated in registered PDD and these calculations are for entire lifetime of project activity.

The project does not involve any negative impacts and no any potential risk to local economy.

[P.7 | CLIMATE AND ENERGY](#)

[P.7.1 | GHG EMISSIONS](#)

P.7.1.1 	Does the project have a risk of increasing greenhouse gas emissions over the Baseline Scenario?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.7.1.1 	increase greenhouse gas emissions over the Baseline Scenario?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology and does not lead any increase in greenhouse gas emissions over the Baseline Scenario.

P.7.2 | ENERGY SUPPLY

P.7.2.1	Does the project pose a risk to the availability and reliability of energy supply to other users?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.7.2.1	negative impact on the availability and reliability of energy supply to other users?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

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. In case of emergency, electricity will be imported from the grid. The net electricity supplied to grid will be the difference of export and import of project activity.

P.8 | WATER

P.8.1 | IMPACT ON NATURAL WATER PATTERNS/FLOWS

P.8.1.1	Does the project increase water usage to a level that will not allow for the maintenance of environmental flows?	☐ YES ☒ NO
P.8.1.1	Does the project result in the discharge of wastewater that does not meet the required standard for beneficial reuse and could therefore negatively impact the environmental flow?	☐ YES ☒ NO
P.8.1.1	Does the project have the potential risk to exceed the rate of recharge for the groundwater source?	☐ YES ☒ NO
P.8.1.1	Does the project involve any processes or activities that could contaminate the groundwater and render it unsuitable for use?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

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Would the project involve or lead to:

P.8.1.1 	affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.1 	Wastewater discharge of quality that does not meet the required standard for beneficial reuse?	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.1 	significant extraction, diversion of ground water? For example, construction of dams, reservoirs, river basin developments, groundwater extraction	☐ YES ☐ POTENTIALLY ☒ NO
P.8.1.2 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☒ NO ☐ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology and does not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s).

[P.8.2 | EROSION AND/OR WATER BODY INSTABILITY](#)

P.8.2.1 	Does the project have a risk of negatively impacting the catchment and has it been assessed and addressed?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.8.2.2 	negatively impact on the catchment area?	
P.8.2.5 	<i>If yes, Erosion prevention measures, including soil and slope protection measures, must be implemented before project commencement. These measures should involve natural terracing, infiltration strips, permanent ground cover, hedge and tree rows, and effective slope length assessment. Regular reassessment of these measures is necessary.</i>	☐ YES ☐ POTENTIALLY ☒ NO
P.8.2.6 	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☒ NO ☐ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology and does not affect Erosion and/or water body stability.

P.9 | ENVIRONMENT, ECOLOGY AND LAND USE

P.9.1 | LANDSCAPE MODIFICATION AND SOIL

P.9.1.1 -	Is there any risk of soil resource degradation or loss of ecosystem services provided by soils in the project?	
P.9.1.3	If yes, the project shall maintain healthy soils by minimising negative impacts on soil health, productivity, structure, and water retention. Steps to minimise soil degradation include crop rotation, composting, using N-fixing plants, and reducing tillage and ecologically harmful substances.	☐ YES ☒ NO

If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.1.4	production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.1.4	if answer to above question "yes" or "potentially", does project adopt appropriate and culturally sensitive sustainable resource management practices?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

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.

P.9.2 | VULNERABILITY TO NATURAL DISASTER

P.9.2.1	Does the project have any risks associated with natural or man-made hazards that could result from land use changes due to the project?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.2.2 	any potential risks that require emergency preparedness and response planning?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.2.2 	if answer to above question "yes" or "potentially", did the project developer disclose appropriate information about emergency preparedness and response to affected communities?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology. Thus this section is Not Applicable.

[P.9.3 | BIOSAFETY AND GENETIC RESOURCES](#)

P.9.3.1 	Does the project involve the transfer, handling, and use of genetically modified organisms/living modified organisms that may result in adverse effects on biological diversity?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.3.1 	the transfer, handling and use of genetically modified organisms/living modified organisms (GMOs/LMOs) that result from modern biotechnology	☐ YES ☐ POTENTIALLY ☒ NO
P.9.3.1 	If answer to above question is "yes" has a risk assessment by a competent Expert stakeholder been carried out in accordance with Annex iii of the Cartagena protocol on biosafety to the convention on biological diversity?	☐ YES ☐ NO ☒ NA
P.9.3.2 	If answer to above question is "yes" has any risks identified in the risk assessment?	☐ YES ☐ NO ☒ NA
P.9.3.3 	Forestry (for example Afforestation/Reforestation) involving GMO planting? <i>Note - Forestry projects (for example Afforestation/Reforestation) involving GMO planting are not eligible for Certification under Gold Standard for the Global Goals.</i>	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology. Thus this section is Not Applicable

P.9.4 RELEASE OF POLLUTANTS		
P.9.4.1 	Does the project have a risk of releasing pollutants to air, water, and land in routine, non-routine, or accidental circumstances?	☐ YES ☒ NO
If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements. Please add text here....		
Would the project involve or lead to:		
P.9.4.1 	any potential risk of pollutant release that cannot be avoided?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.4.3 	If answer to above question is "Yes" or "potentially", has the project identified all potential pollution sources that may degrade the quality of soil, air, surface, and groundwater in the project area?	☐ YES ☐ NO ☒ NA
P.9.4.2 	If answer to above question is "Yes" or "potentially", do the pollution prevention and control technologies and practices applied during the project life cycle align with national regulations or international best practices?	☐ YES ☐ NO ☒ NA
P.9.4.3 	If answer to above question is "Yes", is there a monitoring plan to ensure that mitigation measures are implemented, and resources are protected?	☐ YES ☐ NO ☒ NA
If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements. Electricity generation using wind energy resources is considered in white category that does not need any consent from the Pollution Control Board or any such authority ³⁷ , as it having zero pollutant release to environment. Further the 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 ³⁸ .		

³⁷ http://chocmms.nic.in/SPCB_DOCUMENTS/Categorisation.pdf

³⁸ <http://envfor.nic.in/legis/env/env1.html>

P.9.5 HAZARDOUS AND NON-HAZARDOUS WASTE		
P.9.5.1	Does the project involve the generation of waste materials (both hazardous and non-hazardous)?	☐ YES ☒ NO
P.9.5.3	Does the project involve risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☒ NO
P.9.5.5	Does the project involve the use of any chemicals or materials subject to international bans or phase-outs?	☐ YES ☒ NO
If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.		
Would the project involve or lead to:		
P.9.5.1	the generation and management of waste materials?	☐ YES ☒ POTENTIALLY ☐ NO
P.9.5.1	treatment, destruction, or disposal of waste material?	☐ YES ☒ NO ☐ NA
P.9.5.1	If answer to above question is "Yes", does the project involve an environmentally friendly method that includes appropriate control of emissions and residues resulting from the handling and processing of waste material?	☐ YES ☐ NO ☒ NA
P.9.5.3	risk of release of hazardous materials resulting from their production, transportation, handling, storage, or use?	☐ YES ☒ NO ☐ NA
P.9.5.3	If answer to above question is "yes", does project has measures in place to address health risks?	☐ YES ☐ NO ☒ NA
P.9.5.4	Involve manufacture, trade, and use of chemicals and hazardous materials subject to international bans or phase-outs due to their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer	☐ YES ☐ POTENTIALLY ☒ NO
If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.		
<i>The project is renewable energy technology. The project does not involve generation of Hazardous and Non-hazardous Waste. Standard procedure (i.e. in accordance with local regulations pertaining to hazardous waste disposal) is followed at site during operation and maintenance.</i>		
P.9.6 PESTICIDES & FERTILISERS		
P.9.6.1	Does the project involve the use of chemical pesticides?	☐ YES ☒ NO

P.9.6.5 	Does the project involve purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous)	☐ YES ☒ NO
P.9.6.6 	Does the project use fertilisers, and if so, are measures being taken to minimise their use and nutrient losses to the environment?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.6.1 	chemical pesticides use for pest management?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.6.4 	If answer to question above is "yes" or "potentially", does project has documented Chemical Pesticides Policy in place?	☐ YES ☐ NO ☒ NA
P.9.6.5 	purchase, store, use, manufacture, or trade in Class II (moderately hazardous) pesticides?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.6.5 	If answer to question above is "yes" or "potentially", does project has appropriate controls on manufacture, procurement, or distribution and/or use of these chemicals?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above questions, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology. Thus this principle is Not Applicable.

[P.9.7 | HARVESTING OF FORESTS](#)

P.9.7.1 	Does the project have a risk of unsustainable forest management, including timber harvesting?	☐ YES ☒ NO
P.9.7.1 	Does the project pose a risk of depleting biodiversity and ecosystem functionality in areas where improved forest management is undertaken?	☐ YES ☒ NO
P.9.7.1 	Does the project risk not meeting requirements for environment-friendly, socially beneficial, and economically viable plantations using native species whenever possible?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The project is renewable energy technology. Thus this principle is Not Applicable.

[P.9.8 | FOOD SECURITY](#)

P.9.8.1 	Does the project involve the risk of negatively influencing access to and availability of food for people affected?	☐ YES ☒ NO
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If the answer to the question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.8.1 	modification of the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	☐ YES ☐ POTENTIALLY ☒ NO
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If the answer is "yes" or "potentially" to the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The project is renewable energy technology. Thus this principle is Not Applicable

[P.9.9 | ANIMAL WELFARE](#)

P.9.9.1 	Does the project involve any risks to animal welfare? Animal welfare shall be ensured by providing access to water and food, appropriate environment, humane treatment, and staff training. Evidence of mistreatment will be treated as an immediate non-conformity.	☐ YES ☒ NO
P.9.9.2 	Does the project involve any potential risk of excessive or inadequate use of veterinary medicines?	☐ YES ☒ NO
P.9.9.4 	Does the project involve the risk of administering synthetic growth promoters, including hormones?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.9.1 	animal husbandry or harvesting of fish populations or other aquatic species? ³⁹	☐ YES ☒ NO ☐ NA
P.9.9.1 	limiting access for animals to basic needs like drinking water, adequate food, daylight, appropriate shelter etc.?	☐ YES ☐ POTENTIALLY ☒ NO

³⁹ 'Involve' means if the project mechanism and/or impact(s) are achieved via changing animal husbandry practices in some way.

P.9.9.3 	inadequate measures to isolate sick animals and control the spread of disease, especially zoonotic diseases?	☐ YES ☒ NO ☐ NA
P.9.9.5 	inadequate low-stress methods, equipment, and facilities that facilitate calm animal movement.	☐ YES ☒ NO ☐ NA
P.9.9.6 	inadequate measures to ensure that animals are exposed to the least stress possible during transportation and slaughtering?	☐ YES ☒ NO ☐ NA
P.9.9.7 	inappropriate spacing per animal and stocking rates per land unit?	☐ YES ☒ NO ☐ NA
P.9.9.8 	inadequate measures to address the specific needs of aquatic animals?	☐ YES ☒ NO ☐ NA
P.9.9.9 P.9.9.10 	primary production of living natural resources such as animal husbandry, aquaculture, and fisheries? If the answer is yes, implement industry-standard sustainable management practices in line with to one or more relevant and credible standards and utilise available technologies.	☐ YES ☒ NO ☐ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The Project does not involve animal husbandry. Thus Not Applicable

[P.9.10 | HIGH CONSERVATION VALUE AREAS AND CRITICAL HABITATS](#)

P.9.10.1 	Does the project have the risk of negatively impacting HCV areas and/or critical habitats?	☐ YES ☒ NO
P.9.10.2 	Does the project in the project area or area of downstream impacts have risks to the following: native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☒ NO

If the answer to any of the questions above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

The Project does not affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified.

The project is not located in any HCV areas as per the list of approved HCV areas of India.⁴⁰

Would the project involve or lead to:

P.9.10.1	identified habitats as HCV areas and or Critical habitats?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.10.1	If answer to above question is "yes", does the project have any risks that could negatively impact the catchment, project success, and surrounding HCV and ecological assets, as well as any measurable adverse impacts on the criteria or biodiversity values for which the critical habitat was designated, and on the ecological processes supporting that biodiversity?	☐ YES ☐ NO ☒ NA
P.9.10.1	If answer to above question is "yes", is a robust, appropriately designed, and long-term Habitats and Biodiversity Action Plan absent which will make the project unable to achieve net gains of those biodiversity values for which the critical habitat was designated?	☐ YES ☐ NO ☒ N/A
P.9.10.2	Does the project area or area of downstream impacts have native tree patches, individual native trees, freshwater resources (including rivers, lakes, swamps, temporary water bodies, and wells), habitats of rare, threatened, and endangered species, and biodiversity-enhancing areas?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.10.2	If the answer to the above question is "yes", will the project have any adverse effects on these areas?	☐ YES ☐ No ☒ NA
P.9.10.3	If the answer to above question is "yes", does the project has opportunities to minimise unwarranted conversion or degradation of the habitat and to enhance the habitat as part of its development?	☐ YES ☐ No ☒ NA
P.9.10.4	Is the project applying Land Use & Forest Activity Requirements and managing a minimum 10% of the project area to protect or enhance the biological diversity of native ecosystems following HCV approach as per the given requirements?	☐ YES ☒ No ☐ NA
P.9.10.5	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

The Project does not affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified.

⁴⁰ https://wiienvvis.nic.in//WriteReadData/UserFiles/image/PAs_Map_Database/images/karn_envis_2017.jpg

The project is not located in any HCV areas as per the list of approved HCV areas of India.⁴¹

P.9.11 | ENDANGERED SPECIES

P.9.11.1	Does the project lead to the reduction or negative impact on any recognised Endangered, Vulnerable or Critically Endangered species?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.11.2	distortion of habitats of endangered species?	☐ YES ☒ POTENTIALLY ☐ NA
P.9.11.2	If answer to the above question is "yes", does the project plan to protect and enhance them?	☐ YES ☐ POTENTIALLY ☐ NO ☒ N/A
P.9.11.2	Are opinions and recommendations of an Expert Stakeholder(s) not sought and demonstrated as being included in the project design?	☐ YES ☐ NO ☒ NA

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

- a) There are no endangered species identified as potentially being present within the project boundary and there are no species migrating through the area.
- b) The project does not affect other areas where endangered species may be present through transboundary affects.

The project site is not on the migration route of migratory birds also. It is evident from the maps showing migratory bird route for India. Further, migratory birds fly on very high altitude while height of WTGs are not more than 125 meters. Moreover, the area does not fall under any reserved forest and does not have rare or endangered species. Below is the link for scientific paper justifying the same-

<https://wgbis.ces.iisc.ac.in/energy/water/paper/TR123/section6.htm>

⁴¹ https://wiienvvis.nic.in//WriteReadData/UserFiles/image/PAs_Map_Database/images/karn_envis_2017.jpg

P.9.12 | INVASIVE ALIEN SPECIES

P.9.12.1	Does project introduce any alien species (not currently established in the country or region of the project) into new environments?	☐ YES ☒ NO
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If the answer to question above is "yes," please explain project situation and how the project will ensure compliance with applicable requirements.

Please add text here....

Would the project involve or lead to:

P.9.12.1	risk of introducing any alien species with a high risk of invasive behaviour regardless of whether such introductions are permitted under the existing regulatory framework?	☐ YES ☐ POTENTIALLY ☒ NO
P.9.12.1	risk of potential accidental or unintended introductions including the transportation of substrates and vectors (such as soil, ballast, and plant materials) that may harbour alien species.	☐ YES ☐ POTENTIALLY ☒ NO
P.9.12.2	risk of spreading alien species into areas in which they have not already been established?	☐ YES ☐ POTENTIALLY ☒ NO

If the answer is "yes" or "potentially" to any of the above question, please provide a brief description of the project situation below. Also, provide justification and/or evidence as necessary to demonstrate compliance with applicable requirements.

Please add text here....

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Shree Cement Limited
Registration number with relevant authority	--
Street/P.O. Box	Bangur Nagar, Post Box no.33
Building	--
City	Beawar, District - Ajmer
State/Region	Rajasthan
Postcode	305901
Country	India
Telephone	+91 1461 228 101
E-mail	Sanjay.Singh@shreecement.com
Website	https://www.shreecement.com/
Contact person	Mr.Sanjay Singh
Title	Energy Manager
Salutation	Mr.
Last name	Singh
Middle name	--
First name	Sanjay
Department	--
Mobile	--
Direct tel.	--
Personal e-mail	--

APPENDIX 3- LUF ADDITIONAL INFORMATION

Risk of change to the Project Area during Project Certification Period:	NA
Risk of change to the Project activities during Project Certification Period:	NA
Land-use history and current status of Project Area:	NA
Socio-Economic history:	NA
Forest management applied (past and future)	NA
Forest characteristics (including main tree species planted)	NA
Main social impacts (risks and benefits)	NA
Main environmental impacts (risks and benefits)	NA
Financial structure	NA
Infrastructure (roads/houses etc):	NA
Water bodies:	NA
Sites with special significance for indigenous people and local communities - resulting from the Stakeholder Consultation:	NA
Where indigenous people and local communities are situated:	NA
Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance:	NA

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

Please refer to Design Change [Requirements](#) for more information on procedures governing Design Changes

Not applicable

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