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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

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KEY PROJECT INFORMATION

GS ID of Project	GS 7664
Title of Project	250 MW Solar PV Plant by Mahindra Renewables in Rajasthan
Time of First Submission Date	18/04/2020
Date of Design Certification	26/05/2022
Version number of the PDD	08
Completion date of version	21/11/2022
Project Developer	Mahindra Renewables Private Limited
Project Representative	Infinite Solutions
Project Participants and any communities involved	Mahindra Renewables Private Limited
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	NA (left blank intentionally)
Methodology (ies) applied and version number	ACM0002: Grid-connected electricity generation from renewable sources - Version 20.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☐ Regular ☒ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
7 Affordable and Clean Energy	MWh of renewable energy generated	565,587	MWh/Annum
	Trainings	1	No of Training
	Employees	15	No of Employees
8 Decent Work and Economic Growth	Income (INR)	The income to all the unskilled workers are made on day to day basis in line with minimum wage requirements.	
13 Climate Action (mandatory)	Emission Reduction	526,285	tCO ₂ /Annum (GS VERs)

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

The main purpose of the project activity is to generate electrical energy through sustainable means using solar power resources, the generated green electricity will contribute to climate change mitigation efforts. This project activity is a large-scale solar project. Mahindra Renewables Private Limited is the project investors for this project activity. The project will produce 565,587 MWh of electricity, thereby displacing grid power that will reduce 526,285t CO₂/Annum.

Project Timelines

<u>Implementation</u>	<u>Dates</u>
Letter of Award from SECI	27/07/2018
PPA	28/12/2018
PO date(EPC Contract date)	07/02/2020
Commissioning dates	
100 MW	14/05/2021
60 MW	08/06/2021
50 MW	24/07/2021

The project activity is the installation of a new grid-connected renewable power plant/unit and it is not registered under any carbon –credit mechanisms.

The details of the project are mentioned in the table:

Project Investors' Name	Capacity in MW	Village/District	State
Mahindra Renewables Private Limited	250 MW	Bhiv Ji ka Gaon, Bap, Jodhpur	Rajasthan

Scenario existing prior to the implementation of the project activity

As the project activity is the installation of a new grid-connected renewable power plant/unit. The scenario existing prior to the implementation of project activity is Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system” (Version 7.0, EB 100 annex 4).

Baseline Scenario

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

Sustainable Development

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment, Forest and Climate Change (MoEFCC), has mentioned four indicators for the sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India. The project’s contribution towards sustainable development has been addressed based on the following sustainable development aspects, in line with the requirements of the NCDMA:

- ***Social well being***

The project activity will provide job opportunity to local people during erection, commissioning and maintenance of the Solar power project. Frequency of visiting to villages and nearby areas by skilled, technical and industrialist has increased due to installation /site visit/operation and maintenance work related to the project at plant site. This directly and indirectly positively effects the economy of nearby populace.

- ***Environmental well being***

Solar power is one of the cleanest renewable energy powers and does not involve any fossil fuel. There are no GHG emissions. The impact on land, water, air and soil is negligible. Thus, the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

- ***Economic well being***

The project activity generates permanent and temporary employment opportunity within the vicinity of the project. The electricity supply in the nearby area improves which directly and indirectly improves the economy and lives standard of the area.

- **Technological well being**

The project activity is step forward in harnessing the untapped solar potential and further diffusion of the solar technology in the region. The project activity leads to the promotion and demonstrates the success of solar projects in the region which further motivate more investors to invest in solar power projects. Hence, the project activity leads to technological well-being.

Project Boundary

The Project activity is located at Jodhpur district in Rajasthan. Hence the project boundary includes the Solar Project activity, sub-station, grid and all power plants connected to grid. For further details, kindly refer to the B.3 section of PDD.

A.1.1. Eligibility of the project under Gold Standard

The project type is a 250 MW large scale Solar Power Plant which generates power using Solar Energy. The project activity belongs to the type of Renewable energy that generate and deliver power to the Indian grid. The project applies methodology ACM0002 Version 20, which is an approved methodology under Gold Standard. The project has been submitted to GS4GG for preliminary review before 24/01/2020 and hence meets the eligibility criteria published in latest version 1.2 of Renewable Energy Activity Requirement.

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

Eligibility Criteria Category	Description	Justification	Criterion met?
Types of Project	The project type is a large-scale Solar Power Plant which generates power using Solar	The Solar Power Plant Project is conceived as a grid connected large	Yes

	Energy. The project activity belongs to the type of Renewable energy that generate and deliver power to the Indian grid. The project applies methodology ACM0002 Version 20, which is an approved methodology under Gold Standard.	solar power plant within the category of renewable energy supply. See section A.1.	
Location of Project:	The Project activity is located at Jodhpur district in Rajasthan Further details have been provided in section A.4 of this report.	The Power purchase agreement between PP and SECI. It has been submitted to the DOE.	Yes
Project Area, Project Boundary and Scale:	Project Area and Boundary are defined in line with the applicable Methodologies ACM0002. The project activity includes 250 MW installed capacity and is greenfield large solar power plants with an installed capacity above or equal to 15 MW to be qualified as a large-scale solar plant (in accordance with UNFCCC rules).	The Project is located at Jodhpur district in Rajasthan. The project has an installed capacity of 250 MW which is more than 15 MW, therefore applies as a Large-Scale project. See section A.1	Yes
Host Country Requirements:	The project activity follows the Social wellbeing, Environmental wellbeing, Economic wellbeing and Technological wellbeing.	Projects is in compliance with India's legal, environmental, ecological and social regulations.	Yes
Contact Details:	Project Participant: Mahindra Renewables Private Limited	GS4GG-Cover Letter	

	Name of the contact person: Mr. Saurabh Mehta Email: mehta.saurabh2@mahindra.com		
Legal Ownership and Other Rights:	The project activity is being developed by the PPs	The PPA is in the name of Mahindra Renewables Private Limited and has been submitted to the DOE.	Yes
Official Development Assistance (ODA) Declaration:	The project had private funding and funding from bank. The PP hereby confirms that there is no public funding from Annex 1 countries and no diversion of Official Development Assistance (ODA) involved in the project activity. The project is funded by bank.	The Project Owner declares that the project has not directly or indirectly received or benefited from official development assistance. An ODA declaration (i.e., GS Annex D) has been submitted to DOE.	Yes
ESIA	The Environmental social impact assessment study report dated 26/11/2019	The ESIA study is done for analysing the project impacts by the third party	Yes
NOC	No Objection certificate from Gram Panchayat	NOC is required for utilizing the panchayat lands for Solar PV Technology implementation. It is obtained on October 2019	Yes

General Eligibility Criteria under Renewable Energy Activity Requirements

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

Project Location : The project is located in India.

Project scale : The project activity is a 250 MW (solar) project and thus qualifies under large scale projects.

Suppressed Demand: This project does not account for a suppressed demand baseline scenario.

Stacking : As the project does not account for a suppressed demand baseline scenario and since it is not registered under the REC mechanism of India as described below, stacking is not applicable for this project activity.

The project proponent hereby confirms that there would not be double counting of credits for any particular monitoring period. The project is not registered under the REC mechanism of India and the same can be cross-checked at <https://recregistryindia.nic.in>

A declaration mentioning the same is hereby submitted from the Project Developer.

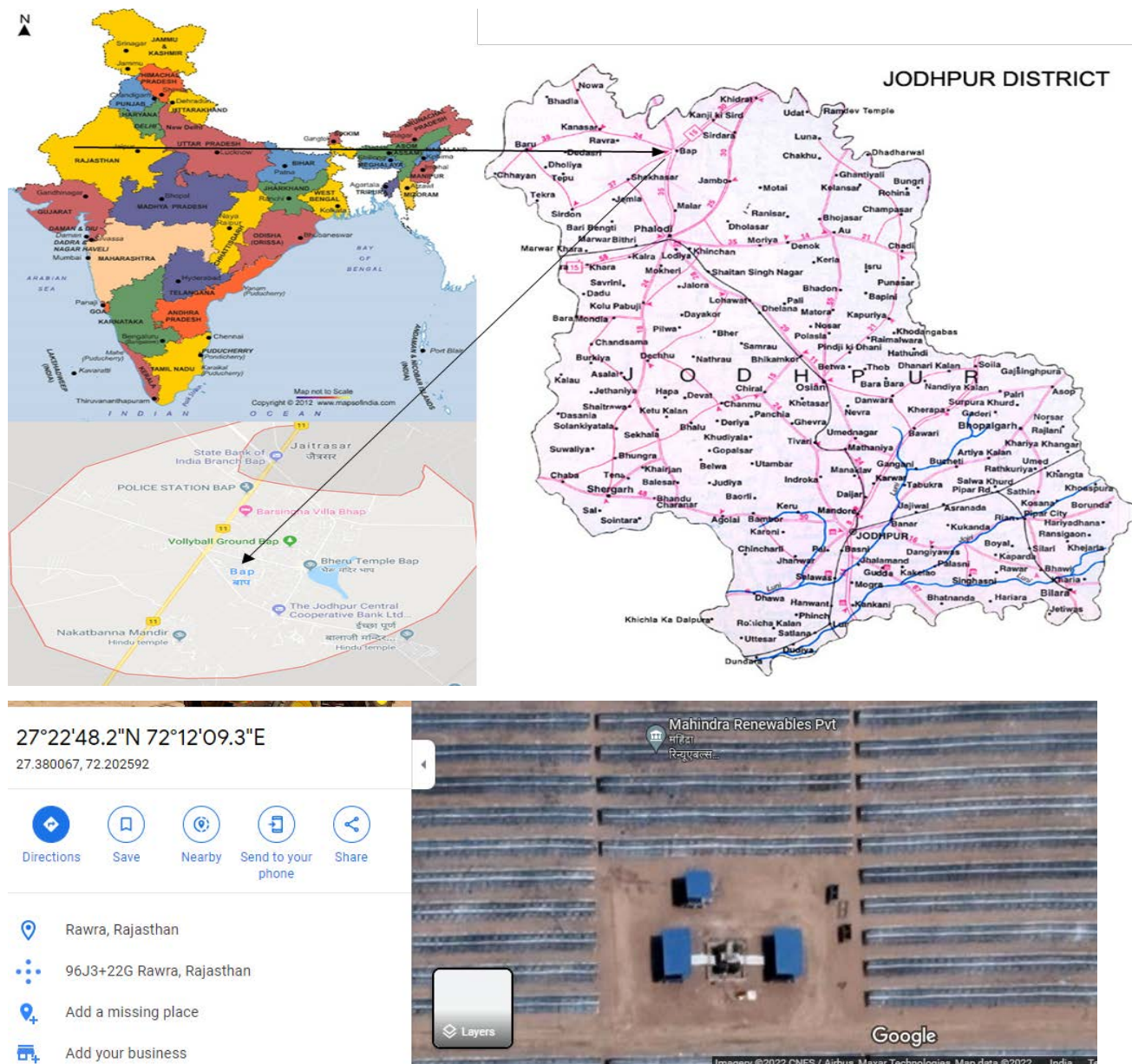
A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

>> The project participants Mahindra Renewable Energy Limited is the legal owners of the project and have the legal rights for the credits that shall be generated by this project activity.

A.2 Location of project

>>

The project activity is located at Jodhpur district in Rajasthan. The unique identification of this project will be provided at the time of implementation. A pictorial representation of the location of the project activity on the map of India is provided as follows:



Project location	Geo-Coordinate
Village: Bhiv Ji ka Gaon, Bap District: Jodhpur State: Rajasthan, India	Latitude: 27°22'48.24"N, Longitude: 72°12'9.33"E

A.3 Technologies and/or measures

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The project activity involves installation of 250 MW grid connected solar photovoltaic power plant. The PV system will mainly consist of PV modules, module mounting structures, inverters, regulators, monitoring devices etc.

Item	Description
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Plant Capacity	250 MW _{AC} / 362 MW _{DC}	
Solar PV Module		
Make	Jinko	Canadian Solar
Type	Cheetah HC 72M 390-410 Watt	Ku Max HIGH EFFICIENCY POLY MODULE CS3U- 35SI360I36SI370P
Cell Type	Monocrystalline	Polycrystalline
Dimensions	2008x1002x40 mm (79.06x39.45x1.57 inch)	2000 x 992 x 35 mm (78.7 x 39.1 x 1.38 in)
Weight	22.5 kg (49.6 lbs)	22.5 kg (49.6 lbs)
Frame	Anodized Aluminium Alloy	Anodized aluminium alloy, crossbar enhanced
Solar Inverter	Central	
Power Transformer	a) HV Rating: 220 kV b) MV Rating 33 kV c) Capacity of Transformer: 100 MVA (As per design requirement)	
UPS and Battery	At Inverter Station area: Capacity: 2 kVA (Capacity as per Design) At Main Control Room Capacity: 7.5 kVA (Capacity as per Design)	
Weather Monitoring System	Pyrometer, Anemometer, Anemoscope, temp sensor & Data logger	
Electrical Characteristics		
3-phase alternating current - Nominal frequency is 50 Hz - Final Voltage at Delivery Point is 400/220/132/66kV		

The project activity is expected to operate at a plant load factor of 26.19% exporting 565,587 MWh of electrical energy to the National grid of India, throughout its entire life span of 25 years. This will result in average annual reduction of 526,285 tCO₂ per annum from the project activity. The project activity does not involve any technology transfer.

Baseline Scenario

As the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following as per applied methodology: “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

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

Purpose of the Project

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

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

SDG13: Climate Action: The project would lead to reduction of approx. 526,285 tCO₂ per annum due to implementation of project activity.

SDG 7: Affordable and Clean Energy: The project is expected to generate 565,587 MWh of clean energy per annum

SDG 8: Decent Work and Economic Growth: The project is expected to provide direct employment to around 15 persons. The project leads to Trainings & workshops which are conducted for the O&M staff of the PP.

A.4 Scale of the project

>> As per the section 9.1.1 of the GHG Emission reductions and sequestration product requirements’ GSVER Projects may be registered as ‘large scale’, ‘small scale’ (for the applicability of methodologies and tools only) or ‘microscale’. Scale is defined in the relevant Activity Requirements or where these do not exist then per following paragraphs. All Projects exceeding the small scale thresholds are defined as large scale. Small scale projects are defined following CDM project standard for project activities,

as below: Type 1-Renewable energy Projects: maximum output capacity of 15 MW(e) or 45MW(th).

In this context:

Renewable energy project activities with a maximum output capacity of 15 megawatts (or an appropriate equivalent) are small scale project activity under Type A and project activities of more than 15 MW are considered as large-scale CDM project activity. As the project activity is of 250 MWac capacity, as per the Gold standard manual for project developers¹, hence clearly it is Large Scale project.

A.5 Funding sources of project

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

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

B.1. Reference of approved methodology (ies)

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Title : Grid-connected electricity generation from renewable sources.

References : Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" Version 20.0

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

Tools: Tool for the demonstration and assessment of additionality 7.0

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

¹ https://www.goldstandard.org/sites/default/files/documents/developermanual_gs-ver_v.1.pdf

Tool to calculate the emission factor for an electricity system 7.0

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

B.2. Applicability of methodology (ies)

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As per ACM0002 (Version 20.0, EB 105 Annex 3), “This methodology applies to project activities that include retrofitting, rehabilitation (or refurbishment), replacement or capacity addition of an existing power plant or construction and operation of a Greenfield power plant”. The project activity meets the applicability conditions of the approved consolidated baseline and monitoring methodology ACM0002, Version 20.0, Sectoral Scope 1 for Greenfield projects as described below:

Applicability	Project activity vis-à-vis applicability Conditions
This methodology is applicable to grid-connected renewable energy power generation project activities that: a) Install a Greenfield power plant; 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) (d) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is installation of a new grid connected renewable solar power plant/ unit at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable.
The methodology is applicable under the following conditions: (a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, 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 proposed project activity is an installation of a new grid connected (solar) power plant/ unit and hence criteria under point (a) is met. The project does not involve any capacity additions, retrofits or replacements and therefore this criteria under point (b) is not applicable.

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; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using 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 proposed project activity is an installation of a new grid connected (solar) power plant/ unit and not Hydro power plant, therefore this criterion is not applicable for this project activity.
In the case of integrated hydro power projects, project proponent shall: • Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or • Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five	The proposed project activity is an installation of a new grid connected (solar) power plant/ unit and not Hydro power plant, therefore this criterion is not applicable for this project activity.

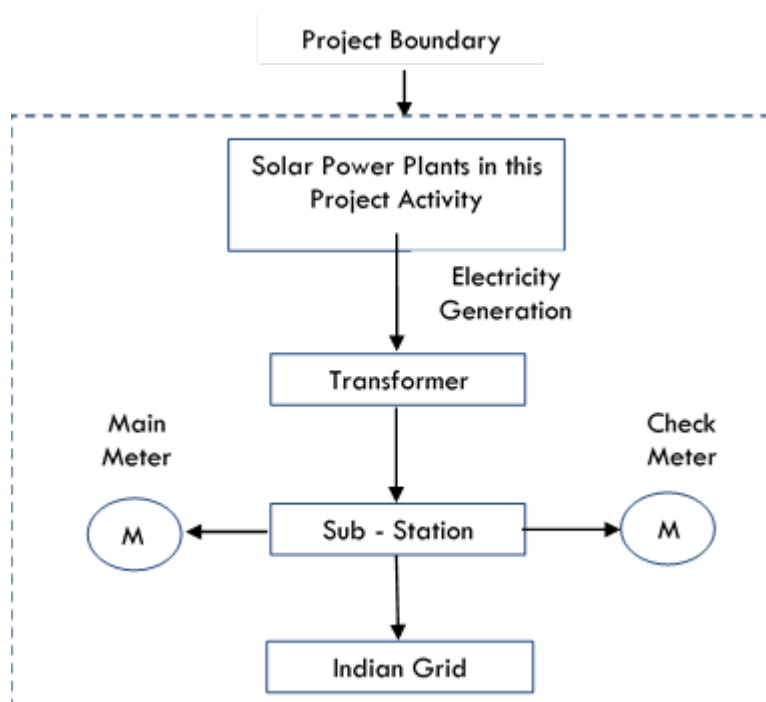
years prior to implementation of CDM project activity.	
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	The project activity is installation of a new grid connected (solar) power project/ unit and does not involve switching from fossil fuel to renewable energy, therefore criterion described in point (a) is not relevant to the project activity. This is a (solar) power plant/ unit and not a biomass fired plant, therefore criterion described in point (b) is not applicable to the project activity.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The project activity is a new grid connected (solar) power plant/ unit and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.
Applicability conditions of “Tool to calculate the emission factor for an electricity system”, - Version 7.0	
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	This condition is applicable. OM, BM and CM are estimated using the tool under section B.6.3 for calculating baseline emissions.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 2: be met. Namely, the total capacity of off-grid Procedures related to off-grid power generation” should power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors	Since the project activity is grid connected, this condition is applicable and the emission factor has been calculated accordingly.

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.	The project activity is located in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.
Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project activity is a grid connected (solar) power project/ unit and does not involve emission from biofuels. Therefore, this criterion is not applicable.

B.3. Project boundary

Project boundary has ascertained using ACM0002 (Version 20.0, EB 105, Annex 3) - "The spatial extent of the project boundary includes the project power plant/unit and all power plants/units connected physically to the electricity system that the CDM project power plant is connected to."

Hence the project boundary includes the Solar Project activity, sub-station, grid and all power plants connected to grid. The proposed project activity will evacuate power to the Indian grid.



Source		GHGs	Included ?	Justification / Explanation
Baseline	Grid connected electricity generation	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
Project	Greenfield Solar Power Project Activity auxiliary consumption	CO ₂	Yes	Major emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source

B.4. Establishment and description of baseline scenario

>> The power generation and consumption ratio in India has established that in India, if there is no renewable technology implementation, the power import is from Indian Grid, that does not require any capital investment cost for the project proponent. As per the data from the Ministry of Power² the coal based power generation constitute over 58.6 % of total power generation. Hence the most applicable baseline is from fossil fuel based power generation through National Grid and there are no legal provisions in India that prevents power import from Grid and the Indian Power system is government by Electricity act, 2013 and CERC regulations that changes time to time. There is not much private DISCOMS for supplying power and most of the power distributions are through State Discom. As per the National Electricity policy³, the Indian power system are governed by Central and State Government bodies and there is no such provisions that prevent the power import from Grid. Hence the baseline scenario will be the power import from the national Grid.

As per the approved consolidated Methodology ACM0002 (Version 20.0, EB 105, Annex 3) "If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the 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 " Tool to calculate the emission factor for an electricity system" version 7.0.

The project activity involves setting up of solar plant to generate the power from solar radiations and supply to the grid. In the absence of the project activity, the equivalent

² <https://powermin.gov.in/en/content/power-sector-glance-all-india>

³ <https://powermin.gov.in/en/content/national-electricity-policy>

amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM), in accordance with the Tool to calculate the emission factor for an electricity system – Version 7.0. Calculations for this combined margin must be based on data from an official source (where available) and made publicly available. In India, Central Electricity Authority (CEA), Government of India provides this data, and accordingly the same has been used.

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

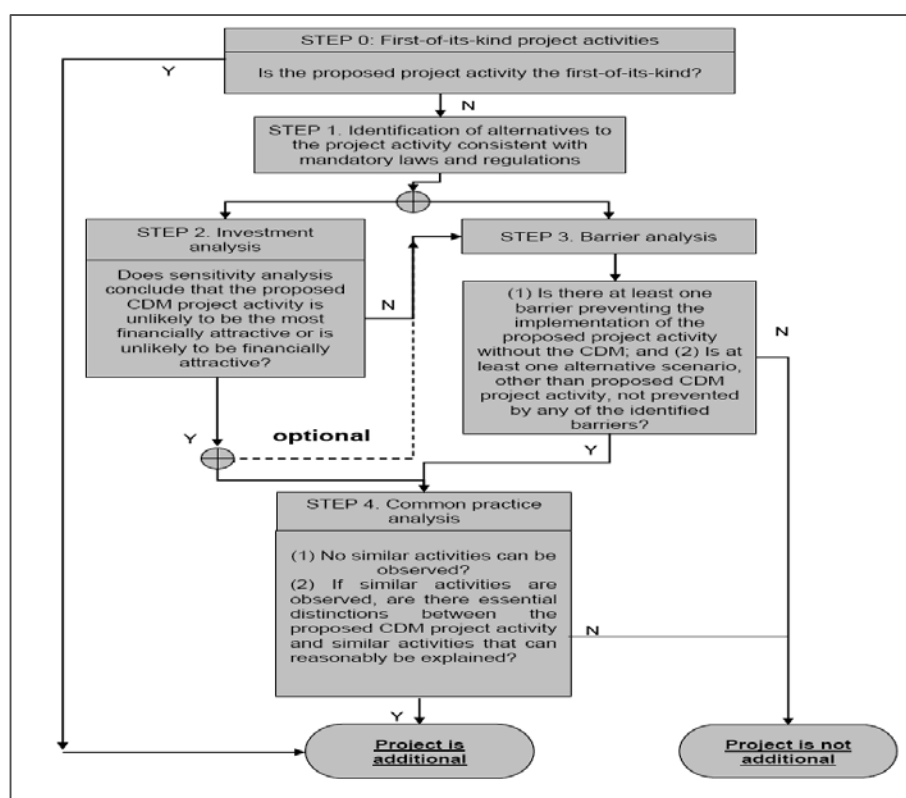
Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9305 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated ⁴ as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 17 published by Central Electricity Authority (CEA) October 2021, Government of India.
$EF_{grid,OM,y}$	0.9522tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3-year (generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 17, published by Central Electricity Authority (CEA) October 2021, Government of India.
$EF_{grid,BM,y}$	0.8653tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year 2020-21	Baseline CO ₂ Emission Database, Version 17, published by Central Electricity Authority (CEA) October 2021, Government of India.

⁴ <https://cea.nic.in/cdm-co2-baseline-database/?lang=en>

B.5. Demonstration of additionality

The proposed project generates power using solar 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, EB 105, Annex 3).

Thus, the project follows section 5.3.2 of the applied methodology which requires the project proponent to determine the additionality based on “Tool for the demonstration and assessment of additionality”, Version 7.0. The step-wise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs:



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, this step is not applicable.

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

As per the applied methodology ACM0002 version 20.0; Para 41, if the project activity is the installation of a Greenfield power plant, 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 plant and by the addition of new generation sources. As the baseline scenario is prescribed by applied methodology, hence no further analysis is carried out to identify alternatives.

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

As per the approved consolidated Methodology ACM0002 (Version 20.0, EB 105, Annex 3) "If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the 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 " Tool to calculate the emission factor for an electricity system" version 7.0.

Hence the solar power plant installation (present project activity) is a greenfield installation and in the absence of the project activity, there is no presence of any pre project scenario and the likely baseline scenario as identified in the section B.4 of the PDD is the power import from the national grid, that is mainly operated by coal based power plants.

Outcome of Step 1a- The power generation from the fossil fuel (Coal based) power plant from the national grid is the identified alternative scenario apart from another renewable technology (Solar based) based Power generation (Project activity).

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 per local regulation, 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 factories act 1948

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

Outcome of Step 1b: The identified alternatives are in compliance with the local laws/regulations.

Step 2: Investment Analysis

The project activity identified is financially less attractive but, it is implemented by considering GCC credits and lesser GHG emission reductions into the atmosphere.

Sub-step 2a: Determine appropriate analysis method

As per “Tool for the demonstration and assessment of additionality” (version 07.0.0), for financial analysis of the project, the following three options are available:

Option I: Simple Cost Analysis

Option II: Investment Comparison Analysis

Option III: Benchmark Analysis

The project will generate revenues from sale of electricity; therefore, Option I is not applicable. Option II also does not apply since there is no comparable investment alternative available to the project participant. The most appropriate financial analysis method is therefore option III: the benchmark analysis, where the returns on investment in the project activity are compared to benchmark returns that are available to any investors in the country.

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

Project Participants have considered Post-Tax Equity IRR for investment analysis at the time of decision-making. As Project Participants is only interested in the returns project

is generating on the portion of investment costs, which is financed by them in the form of equity.

As per Para 15 of EB 105, Annex 6 states that Required/expected returns on equity are appropriate benchmarks for an equity IRR. Therefore, the Expected return on equity is considered appropriate benchmark.

Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for Investment Analysis.

Default Value Benchmark:

As per para 19 of EB105, Annex 6 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 A in EB105, Annex 6 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = 10.24%⁵

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

Nominal Benchmark⁶ = $\{(1 + \text{Real Benchmark}) * (1 + \text{Inflation rate})\} - 1$

Where:

- Default value for Real Benchmark = 10.24% (as per Appendix of EB105, Annex 6)
- Inflation Rate forecast for by International Monetary Fund⁷
- Inflation forecast (Inflation, end of period consumer prices) = 5.21%

Hence Benchmark = $(1 + 10.24) \times (1 + 5.21) - 1$
= 15.98 %

As a conservative approach, benchmark of 15.98% has been selected for this project activity.

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

⁵ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf>

⁶ As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

⁷ <https://www.imf.org/en/Publications/WEO/weo-database/2018/April/weo-report?c=534,&s=PCPIEPCH,&sy=2016&ey=2023&ssm=0&scsm=1&ssc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1>

Key assumptions supporting the financial projections

Details of the project		Source
State where the project is situated	Rajasthan	
Capacity in AC (MW) (Bhiv Ji Gaon, Jodhpur)	250.0	As per DPR
Total Capacity in AC (MW)	250.0	As per DPR
Total Capacity in DC (MW)	362.5	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (%)	26.19%	As per DPR
Total Annual generation (kWh)	57,35,61,000	Calculated Value
Cumulative PLF (%)	26.19%	Calculated Value
Annual degradation from 2nd year onwards (%)	0.70%	As per DPR
Tariff rate at the decision making (INR/kWh)	2.53	As per DPR
Operation and maintenance cost and Insurance		
O & M Expenses (INR Mn.)	62.50	As per DPR
Escalation in the operational expenses (%)	5.00%	As per DPR
O & M free for (Yr.)	-	
Insurance (INR Mn.)	-	
Financial parameters		
TOTAL COST (INR Mn.)	11,767.50	As per DPR
Equity Investment (INR Mn.)	2,941.88	As per DPR
Loan Amount (INR Mn.)	8,825.63	As per DPR
Term loan		
Margin (%)	25.00%	As per DPR
Loan Amount (INR Mn.)	8,825.63	As per DPR
Interest rate (%)	9.15%	As per DPR
Loan Tenure (Qtr.)	80	As per DPR
Moratorium Period (Qtr.)	4	As per DPR
Repayment Period (Qtr.)	76	Calculated Value
Repayment instalments value (INR Mn.)	116.127	Calculated Value
1st instalment from (Qtr. end)	30-Sep-21	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	90	As per DPR
O&M Expenses (Days)	30	As per DPR
Interest on Working Capital Debt	11.25%	As per DPR

Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	Calculated Value
Gross Depreciable Value (INR Mn.)	11,767.50	Calculated Value
Salvage Value (%)	10.00%	As per Case No. 204 of 2018 of MERC Order dated 18.08.2018, pg 96
Salvage value (INR Mn.)	1,176.75	Calculated Value
Net Depreciable Value (INR Mn.)	10,590.75	Calculated Value
Residual Value (INR Mn.)	1,176.75	Calculated Value
IT Depreciation (SLM Method)		
IT Depreciation Rate (%)	7.69%	As Per Income Tax, Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2020-21	
Income tax rate (%)	30.00%	Tax rates applicable to a domestic company
MAT (%)	18.50%	
Surcharge (%)	12.00%	
Health and Education Cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	34.94%	Calculated Value
MAT (%)	21.55%	Calculated Value

Considering the input values, Equity IRRs is given below: -

Project Participants' Name	Equity IRR without CDM	Benchmark (Equity IRR)
Mahindra Renewables Private Limited	8.73 %	15.98 %

The CDM project activity cannot be considered as financially attractive as the equity IRR for the project activity is less than the Benchmark.

Sub-step 2d: Sensitivity Analysis

As per Guidance 27 & 28 of EB 105, Annex 06, following factors has been subjected to sensitivity analysis:

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

The rationale of sensitivity is, "The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis."

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 favourable conditions.

Probability to breach the benchmark:
Sensitivity Parameter 1: PLF
PLF considered in financials is as per "Guidelines for the reporting and validation of Plant load factors" stated in EB48 Annex11 ⁸ . Variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based.
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
Estimated Project Cost for financial analysis is considered as available at the time of decision making. However, even if we consider the actual cost of the project even then the benchmark is not breached. Moreover, the Sensitivity is carried out for +/-10%.
Sensitivity Parameter 4: Tariff Rate
The tariff is determined by PPA which is fixed for the entire project life of 25 years. Hence, there is no probability to get variation for the same.

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

Stepwise approach for common practice analysis has been carried out as per Methodological tool “Common Practice”, version 03.1 EB84, Annex 7⁹:

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

Range	AC Capacity	Unit
+ 50 %	375	MW
Capacity of the proposed project activity	250	MW
-50 %	125	MW

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

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the proposed project activity.
- 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;
- 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.
- The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;
- 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:

- As the projects located in Rajasthan state of India, therefore, projects in the geographical area of Rajasthan have been chosen for analysis.
- The project activity is a green-field solar 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”.

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https://cdm.unfccc.int/filestorage/Q/T/V/QTVKOZI95D3HJU12FCRLAPMB7XWNSY/eb84_repan07.pdf?t=ZE58cjJtZGI4fDA82X5dITAPgHpOOq2HkV8l

Therefore, projects applying same measure (b) are candidates for similar projects.

- c) The energy source used by the project activity is solar. Hence, only solar 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 125 MW to 375 MW.
- f) The start date of the project activity is 07/02/2020.

Numbers of Similar projects identified based on same fuel source (Solar energy input Technology) which fulfil above-mentioned conditioned are

$$N_{\text{solar}} = 7$$

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} .

CDM project activities, which have got registered or are under validation have been excluded in this step. The list of the power plants¹⁰ identified is provided to the DOE. After excluding the registered and under validation projects the total number of projects,

$$N_{\text{all}} = 2$$

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 24, "Tool on Common practice", Investment climate on the date of the investment decision, inter alia: (i) Access to technology(ii) Subsidies or other financial flows; (iii) Promotional policies; (iv) Legal regulations.

In India the Power generation from the renewable technologies are governed by MNRE (Ministry of New and Renewable Energy) and each states can formulate their one policies like Tarrif determination/schemes to improve the renewable energy technology implementation and hence there is no project identified is differential to the one another and hence the $N_{\text{diff}} = 0$

Step (5): calculate factor $F = 1 - N_{\text{diff}} / N_{\text{all}}$ 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.

¹⁰ <https://cea.nic.in/old/reports/others/planning/rpm/Plant-wise%20details%20of%20RE%20Installed%20Capacity-merged.pdf>

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

$$F = 1 - (0 / 2) = 1$$

Outcome of Step 4:

As,

- i. $F = 1$; is not less than 0.2**
- ii. $N_{all} - N_{diff} = 2 - 0 = 2$; less than 3**

As the project activity does not satisfy condition (i) and (ii) both, the proposed project activity is not a “common practice” within a sector in the applicable geographical area.

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

Demonstration of Parallel and continuing actions:

Project Timelines	Date
Letter of Award	16/09/2019
Date of Notification to CDM EB & NCDMA	06/01/2020

B.5.1 Prior Consideration

>> As per rule update by Gold Standard¹¹ The project start date and the stakeholder consultation date determines the project as (a) Regular Projects, for which the Stakeholder Consultation (1st round) has been conducted before the Project Start Date. (b) Retroactive Projects, for which the Stakeholder Consultation (1st round) is conducted after the Project Start Date. “In order to be eligible under Gold Standard a retroactive project must submit the required documents to Gold Standard (time of first submission) within one year of its start date”. The GS documents were uploaded on the Sustaincert on 17/01/2020 which is within one year from the project start date. The revised chronology given in the section B.5.1 states the importance of carbon revenue, the project developer shown on developing the project under carbon credits. Due to pandemic situation, the Stakeholder meeting and feedback round happened together as per the Gold Standard Stakeholder consultation requirement.

Project Timelines	Date
Letter of Award	27/7/2018
PPA	28/12/2018

¹¹ <https://globalgoals.goldstandard.org/101-par-principles-requirements/>

DPR	15/2/2019
GS listing date	17/1/2020
Purchase order	7/02/2020(Project start date)
GS-Stakeholders consultation round and feedback round invitation	5/08/2020
Physical local stake holders meeting	6/09/2020
Commissioning date	14/05/2021

The project has considered carbon revenue parallel with the project implementation. The project met the GS requirement of Retroactive project and the prior notification to NCDMA and CDM entrust the importance of carbon revenue and demonstration of continuous real action. Due to the prevailing uncertainty the project did not get validated under CDM mechanism. The pandemic is the reason for the project to be considered as retroactive and combined stakeholder consultation and feedback round happened for the project activity.

B.5.2 Ongoing Financial Need

>> Not Applicable as project is not applying for Design Certification Renewal

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

Sustainable Development Goals Targeted	SDG Impact	
	Indicator (Proposed or SDG Indicator)	
SDG 7: Affordable and Clean Energy	7.2: By 2030, increase substantially the share of renewable energy in the global energy mix Target: 565,587 MWh per annum	7.2.1: Renewable energy share in the total final energy consumption
SDG 8: Decent Work	8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young	8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities

and people and persons with
Economic disabilities, and equal pay for
mic work of equal value
Growth Target:
h • Training: 1 no's annually
Employment of 15 staff

SDG 13: Climate Action	13.2: Integrate climate change strategy/ plan which increases their ability to measures into national policies, adapt to the adverse impacts of climate strategies and planning Target: 526,285 tCO ₂ per annum	13.2.1: Number of countries that have communicated establishment or operationalization of an integrated policy/ change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
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B.6.1 Explanation of methodological choices / approaches for estimating the SDG Impact

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

SDG 7 : Affordable and Clean Energy

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 565,587 MWh of clean energy per annum.

SDG 8: Decent Work and Economic Growth

The project leads to Trainings & workshops which are conducted for the O&M staff of the PP. It is expected that a minimum of 1 training (either of the above) would be carried out annually. The project will also provide employment to approximately 15

persons including O&M staff, management, outsourced jobs as well as security guards during the O&M phase.

SDG13: Climate Action:

The project leads to mitigation of 526,285tCO₂ per annum.

As per the approved consolidated Methodology ACM0002 (Version 20.0, EB 105, Annex 03), Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

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

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

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

Baseline Emissions:

Baseline Emissions for the amount of electricity supplied by project activity, BE_y is calculated as

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

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).

Calculation of EG_{PJ, y}

The calculation of EG_{PJ, y} is different for Greenfield plants, Retrofits and replacements, and Capacity additions

The project activity is the installation of solar projects, and it is a green field project. So the formula in option (a) i.e., greenfield plants is used to calculate the value of EG_{PJ,y}. In accordance with para 41 of the applied methodology:

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

Where:

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)

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

The proposed project activity falls under Indian grid, which constitutes of both fossil fuels and non-fossil fuels sources of electricity generation. Emission reductions due to the project activity are considered to be equivalent to the baseline emissions, since the solar project would not lead to any project emission and leakage emissions. Emission reductions are related to the electricity exported by the project and the emission coefficient of the grid system.

Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin and build margin factors according to the procedures prescribed in the latest tool for calculating the emission factor for an electricity system. The steps of calculation are as follows:

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, all the 5 zones have been synchronized and called as Indian Grid.

As of 31 December 2013, all regional grids had been integrated and were operating in synchronous mode, i.e., at same frequency, hence forming one unified Indian Grid. Hence, unified Indian Grid is the relevant electricity system for the purpose of estimating Grid Emission Factor.

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

Option I is opted for the project activity i.e., only grid connected power plants are included in the calculation.

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

According to the tool, the calculation of the operating margin emission factor is based on one of the following methods:

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

Any of the four methods can be used for calculating OM. However, the simple adjusted OM and dispatch data analysis OM cannot be currently applied in India due to lack of necessary data however, the simple OM method (option a) can only be used if low cost/must-run resources constitute less than 50% of total grid generation in:

1. average of the five most recent years, or
2. based on long-term averages for hydroelectricity production.

The Share of Low Cost / Must-Run (% of Net Generation) in the generation profile of the different grids in India in the last five years is as follows:

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

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Indian Grid	15.1%	14.6%	14.3%	14.5%	17.0%	16.5

Source: CO₂ Baseline Database for the Indian Power Sector - Central Electricity Authority (CEA), version 17

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

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 Verifier 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 simple OM emission factor is calculated as the generation-weighted average CO₂ emissions per unit net electricity generation (t CO₂/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

Following tables shows the simple OM and Net generation respectively for the recent three years: Simple Operating Margin Emission Factors (t CO ₂ /MWh) (incl. Imports)			
	2018-19	2019-20	2020-21
Indian Grid	0.9603	0.9555	0.9405

Net Generation in Operating Margin (GWh) (incl. imports)			
	2018-19	2019-20	2020-21
Indian Grid	995,957	965,009	958,218

Therefore, the 3 years net generation weighted OM average for Indian grid comes out to be 0.9522 tCO₂/MWh.

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

Option 1 as described above is chosen 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 PDD and is fixed for the entire crediting period.

Build Margin (tCO ₂ /MWh) (not adjusted for imports)	
	2020-21
INDIAN Grid	0.8653

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

The emission factor EF_y of the grid is represented as a combination of the Operating Margin (OM) and the Build Margin (BM). Considering the emission factors for these two margins as EF_{OM,y} and EF_{BM,y} then the EF_y is given by:

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

Where:

EF _{grid,BM,y}	= Build margin CO ₂ emission factor in year y (t CO ₂ /MWh)
EF _{grid,OM,y}	= Operating margin CO ₂ emission factor in year y (t CO ₂ /MWh)
W _{OM}	= Weighting of operating margin emissions factor (per cent)
W _{BM}	= Weighting of build margin emissions factor (per cent)

According to “Tool to calculate the emission factor for an electricity system” the weights for OM and BM are 0.75 and 0.25 respectively.

$$EF_y = 0.9522 * 0.75 + 0.8653 * 0.25$$

$$= 0.9305 \text{ tCO}_2/\text{MWh}$$

Using the values for operating and build margin emission factor provided in the CEA database and their respective weights for calculation of combined margin emission factor, the baseline carbon emission factor (CM) is 0.9305 tCO₂e/MWh.

Project Emission

As per the ACM0002 ver-20.0, Project Emission for most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

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

Where:

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

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

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

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

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

Leakage Emissions

No leakage emissions are considered in the project activity. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g., extraction, processing, transport). Since the emissions sources are small, it is neglected.

B.6.2 Data and parameters fixed ex ante

Data/parameter	$EF_{OM,y}$
Unit	tCO ₂ e/MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 17 ¹²
Value(s) applied	0.9522(Detail Calculation has been provided in ER Sheet)

¹² <https://cea.nic.in/cdm-co2-baseline-database/?lang=en>

Choice of data or Measurement methods and procedures	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07.0.0” as 3-year generation weighted average using data for the years 2018-19, 2019-20 & 2020-21. The data are obtained from “CO ₂ Baseline Database for Indian Power Sector” version 17.0, published by the Central Electricity Authority ,October 2021 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 _{BM, y}
Unit	tCO _{2e} /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 17 for the year 2020-21
Value(s) applied	0.8653
Choice of data or Measurement methods and procedures	The data are obtained from “CO ₂ Baseline Database for Indian Power Sector” version 17.0, published by the Central Electricity Authority October 2021, 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 _{CM, y}
Unit	tCO _{2e} /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 17 ,October 2021
Value(s) applied	0.9305
Choice of data or Measurement methods and procedures	The combined margin emissions factor is calculated as follows:

	$EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid, BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh) $EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75 % W_{BM} = Weighting of build margin emissions factor (%) = 25%
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

B.6.3 Ex ante estimation of SDG Impact

>>

SDG 7: Affordable and Clean Energy-Project expected to generate 565,587 MWh clean energy every year

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

SDG13: Climate Action - The project leads to mitigation of 526,285 tCO₂ per annum.

Calculation of outcome for SDG13: Climate Action

Baseline emissions

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

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

Where,

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

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y = 0.9305 t CO₂/MWh.

Project Participant	Capacity	PLF (%)	Generated Power	Net generation with Degradation	Baseline Emission Factor	Baseline emissions
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			(MWh/year)	factor(0.70%)	(tCO ₂ /MWh)	(tCO ₂ /year)
Mahindra Renewables Private Limited	250 MW	26.19%	573,561	565,587	0.9305	526,285

$$BE_y = 565,587 * 0.9305 \text{ t CO}_2/\text{year} = 526,285 \text{ tCO}_2/\text{year}$$

Project emissions

$$PE_y = 0$$

Leakage

No leakage emissions are applicable.

Emission reductions

$$ER_y = BE_y - PE_y = 526,285 - 0 = 526,285 \text{ tCO}_2/\text{year}$$

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

SDG-13: Climate action

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0	533,705	533,705
Year 2	0	529,969	529,969
Year 2	0	526,259	526,259
Year 4	0	522,576	522,576
Year 5	0	518,917	518,917
Total	0	2,631,426	2,631,426
Total number of crediting years	5		
Annual average over the crediting period	0	526,285	526,285

The proposed project activity falls under Indian grid, which constitutes of both fossil fuels and non-fossil fuels sources of electricity generation hence in baseline, the affordable and Clean Energy generated was 0. Since the project is a solar energy

project, therefore the Affordable and Clean Energy produced by the project is 565,587 MWh per year.

The degradation leads to a steady decline in the performance of the project components. However, the degraded PV module continues to perform its most important function and it can still produce electricity from sunlight. Moreover, when the degradation exceeds the critical threshold, the degradation state may cause more problems. So, for the same PP has taken the 0.70% degradation factor per year. Calculations considering yearly degradation can be referred from ER sheet.

SDG 8: Decent Work and Economic Growth

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 2	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 3	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 4	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Year 5	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs
Total	0 Training, 0 Jobs	5 Training, 15 Jobs	5 Training, 15 Jobs
Total number of crediting years	5		
Annual average over the crediting period	0 Training, 0 Jobs	1 Training, 15 Jobs	1 Training, 15 Jobs

There was no training in the baseline however the training and jobs generated by the project activity is 1 and 15 jobs.

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0	573,561	573,561
Year 2	0	569,546	569,546

Year 3	0	565,559	565,559
Year 4	0	561,600	561,600
Year 5	0	557,669	557,669
Total		2,827,936	2,827,936
Total number of crediting years	5		
Annual average over the crediting period	565,587		

SDG -7: Affordable and clean energy

The proposed project activity falls under Indian grid, which constitutes of both fossil fuels and non-fossil fuels sources of electricity generation hence in baseline, the estimated emission is 526,285 tCO₂ per year. Since the project is solar energy project, therefore the project does not emit any GHG.

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 7.2.1: Affordable and Clean Energy

Data / Parameter	EGPJ,grid,y
Unit	MWh
Description	Quantity of net electricity supplied to the grid
Source of data	Measured by Electricity meter.
Value(s) applied	565,587MWh
Measurement methods and procedures	Data Type: Continuous monitoring

Monitoring equipment: Energy Meters of accuracy class 0.2s

Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually.

Archiving Policy: Paper &/or Electronic

Calibration frequency: Once in 5 years as per CEA guidelines¹³

Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from Monthly Meter reading reports provided by SECI.

Cross Checking:

Quantity of net electricity supplied to the grid will be cross checked from the Invoices/ Monthly Bill raised by the Project Participants to SECI.

Meter number	Calibration date	Accuracy class	
NS1126A	25/02/2020	0.2 S	MCR line ABT Main meter at our end
NS1128A	25/02/2020	0.2 S	Main meter at bhadla

13

http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf, page 12

			2 PGCIL end
	NS1129A	25/02/2020	0.2 S Check meter at bhadla 2 PGCIL end
Monitoring frequency	Monthly		
QA/QC procedures	Calibration of all the meters will be undertaken once in 5years as per CEA guidelines. The meters will be of accuracy class 0.2s. The electricity imported to Grid will be cross checked by Statement of net export of power to the grid at the plant site(JMR/REA/B-Form)		
Purpose of data	The Data/Parameter is required to calculate the baseline emission		
Additional comment	Data will be archived electronically for a period of 2 years beyond the end of crediting period.		

SDG 8.5.1: Decent Work and Economic Growth

Data / Parameter	- Quantitative employment, - Quality of employment - Income generation
Unit	- Number (Trainings) - Number (employees) - INR (salary)
Description	- Number of Trainings provided to employees & O&M staff - Number of project employees with Number of male/female, permanent/temporary, age and person with disabilities. - Salary given to the employees of the project. The income to all the unskilled workers are made on day to day basis in line with the minimum wage requirements.

	Annual records of income paid to all the employees would be available.
Source of data	• Training Records (HSE & HR) • Salary Slip of the project employees.
Value(s) applied	The trainings & workshops will be given to the O&M staff are: • HSE Training Record - Soft Skill Training It is expected that a minimum of 1 training (either of the above) would be carried out annually. The training programs help in making the workforce efficient and skilled at their job. This not only helps the company but adds to growth of individual employees. Thus, the project has a positive impact on the parameter. The total number of staff (including O&M staff, management, outsourced jobs as well as security guards) employed by the O&M service provider and Project Proponent for the operation & maintenance of the project activity are around 15. The skilled worker and unskilled worker classification depends on the project needs. The skilled worker for a solar PV implementation is required for operating the plant and maintaining the plant. The unskilled worker will be used for day-to day basis for loading and unloading and sweeping activities. The wage rates can be referred from the Indian labor act Labor bureau, Government of India notifications¹⁴

¹⁴ <https://labour.gov.in/sites/default/files/MW%20PDF.pdf>

	The unskilled labor for the project activity Is cleaner, loading/unloading watchman. Our project activity falls under category Area B. hence the following cost is used. Cleaner- Rs 466/day, watchman-Rs 617/day, loading /unloading-Rs 466/day
Measurement methods and procedures	• Training Attendance sheets. • Employee Records • Salary slip of the employees
Monitoring frequency	Once in a Monitoring period
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with daily attendance register. Salary slip can be checked for earnings of employees
Purpose of data	Continuation of regular trainings/workshops for employees & O&M staff
Additional comment	-

SDG 13.2.1

Data / Parameter	CO2 Emissions Reduction
Unit	tCO ₂
Description	Reduction in CO ₂ emission reduction due to implementation of project activity
Source of data	Calculated as per "Tool to calculate the emission factor for an electricity system,". The data are obtained from "CO ₂ Baseline Database for Indian Power Sector" version 17.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Value(s) applied	526,285 tCO ₂ emission reductions estimated per annum

Measurement methods and procedures	Calculated from CEA database and Energy Generation
Monitoring frequency	Calibration and Testing of Meters will be done by the accredited agency as per norms. Once in 5 years as per CEA guidelines ¹⁵
QA/QC procedures	A check meter is also installed near to the export meter to cross check the electricity exported to the grid. The check meter reading would also be used in case of failure of export meter
Purpose of data	Calculation of baseline emissions
Additional comment	The data will be archived for crediting period+2 years

B.7.2 Sampling plan

>>

The data and parameters monitored in section B.7.1 above are not determined by a sampling approach.

B.7.3 Other elements of monitoring plan

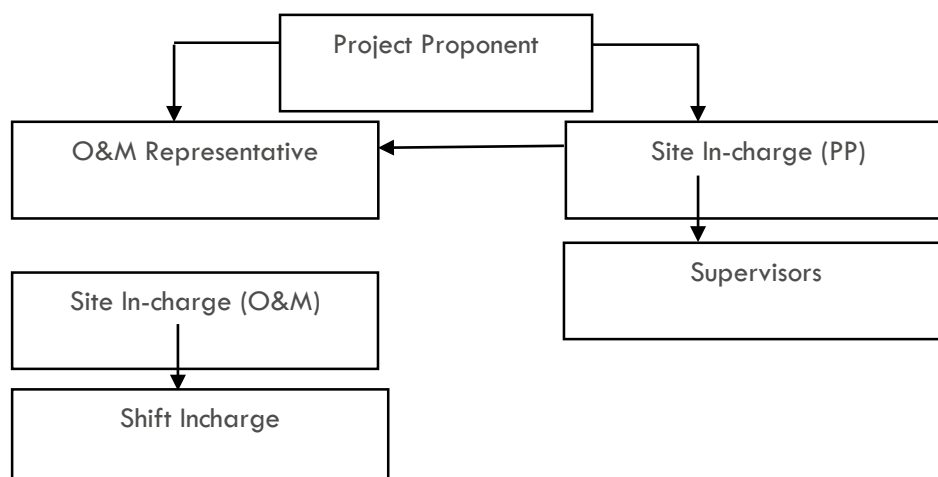
>>

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

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant.

¹⁵http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2506.pdf, page 12

The monitoring team is composed of the following staff:



Responsibilities of Site Incharge (PP): Overall functioning and maintenance of the project activity, the Site incharge shall coordinate with the O&M operator as well as the site supervisors.

Responsibilities of O&M Representative: Co-ordination between Site incharge of the O&M operator as well as the project participant and further report to PP head office.

Responsibilities of Site In-charge (O&M Operator): Responsibility for maintaining the data records, ensures completeness of data, and reliability of data (calibration of equipment) as well as data recording for all the parameters.

Responsibilities of Shift In-charge: Responsibility for day-to-day data collection and maintains day to day monitored data.

Data archiving policy: All monitored data will be archived electronically for a period of two years after the end of the crediting period or the last issuance of CERs, whichever occurs later.

Data Measurement: Projects activity comprises of installation Energy meters at a Pooling Substation prior to the Delivery point.

The export and import energy will be measured continuously using above mentioned meters installed at Substation. Export & Import readings of meters shall be taken on

monthly basis by authorized officer of SECI in the presence of representative(s) of PP. The meter reading will be taken jointly and signed by the representatives of the SECI and representative(s) of PP. Based on the readings, invoices/ monthly bills will be raised by PP. These invoices/ monthly bills can be used for cross checking the meter readings taken for the respective project activity.

In case of pooling of multiple Projects at the same Substation, power from multiple Projects will be pooled at a Pooling Substation prior to the Delivery point and the combined power will be fed at Delivery point through a common transmission line from the Pooling Substation. In such cases, sub-meters also to be set up at pooling substation for individual projects in addition to the meters at Delivery Point.

It is to be noted that though the PP or their representatives are available during meter reading, the calculations of net electricity supplied to grid is completely under purview of SECI and PP does not have any control on it. Also, accuracy class of meters and calibration frequency is under purview of SECI/DISCOM officer and PP does not have any control on it. PP gets the monthly credit report from where net electricity supplied to grid is obtained and used for emission reduction calculations.

Data collection and archiving

Export & Import readings from main and check meters will be collected under the supervision of the O&M Team or authorized representatives of PP. The net electricity supplied to grid would be calculated based on export & import readings. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of GS VER's for the project activity whichever occurs later.

Mismatch in Monitoring Period and the Billing Period

In case the dates of a particular monitoring period do not match with the dates of the billing period, the net electricity exported to the grid would be calculated from:

$$D = (A/B) * C$$

A = Difference of number of days which are not matching of billing period and monitoring period.

B = Number of days of the billing period/ month which was not matched with the monitoring period.

C = Net Electricity supplied to the grid for that given billing period/ month.

The calculated value after apportioning would be used for calculation of emission reductions during that period.

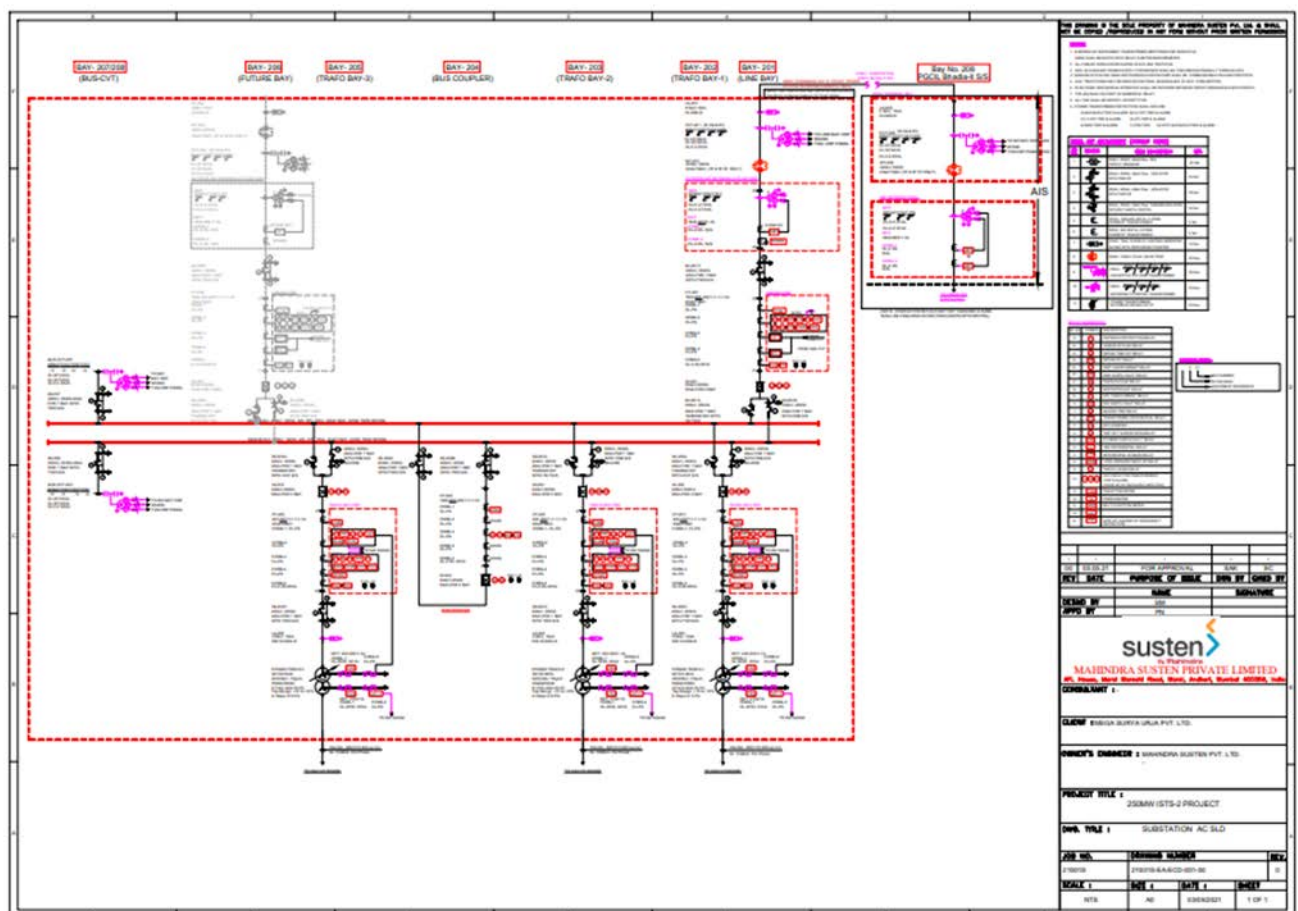
Emergency preparedness

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 unlikely event of failure of both Main meter &/or Check meter installed at sub-station, where both the faulty meters are required to repair or replaced simultaneously, the meters shall be replaced immediately by the spare meter kept available at the site.

Personnel training

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff 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

Plant single line diagram



SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

>> EPC Contract date 07/02/2020

C.1.2 Expected operational lifetime of project

>>25 years 00 Month

C.2. Crediting period of project

C.2.1 Start date of crediting period

>>14/05/2021¹⁶.

C.2.2 Total length of crediting period

>>5 years (Renewable Crediting Period i.e. it will be renewed twice maximum up to 15 years i.e., 5yrs+5yrs+5yr)

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.

Principles	Mitigation Measures added to the Monitoring Plan
Principle 2. Gender Equality	The project proponent is committed to the employee's equal pay for equal work during all phases of the project. Please refer section B.7.2.1 above, same has been considered as monitoring parameter under SDG 8 (8.5.1)

¹⁶ Commissioning Date

Principle 6.1 Labor Rights	The Project Developer ensures the training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.
Principle 9.5 Hazardous and Non-hazardous Waste	The waste will be disposed to the waste handlers and the firm will comply with all the local laws for monitoring and disposal.

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

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	Response: Project participants do not involve and promote any discrimination about the gender differences. As per Gold Standard Gender Policy, para 13(i) "Foundational gender-sensitive requirement - This strengthens Gold Standard's 'do no harm' approach and addresses safeguard to prevent or mitigate adverse impacts on women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standard certification and includes compliance with the gender 'do no harm' safeguards, gender gap analysis and gender sensitive stakeholder consultations." The project does not seek to graduate to gender-grade GS certification and thus foundational gender sensitive requirements have been described. The Foundational gender-sensitive minimum standards have been demonstrated as per the below: HR Policy takes into account various gender sensitive measures such as: 1. There is no gender pay gap and there is transparency in pay and opportunities for promotion and advancement. There is no discrimination between employees by: (1) paying a wage to employees of one sex or gender identity at an equal rate; and (2) providing equivalent employment opportunities as defined by the law, based on sex and gender identity.
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	2. There are Gender Unbiased Leave policies, working hours, compliance to minimum wage standards, no harassment policy in the organization. Thus, the project does not involve and is not complicit in any form of discrimination based on gender difference.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	Response: India is party to “Convention on the Elimination of All Forms of Discrimination against Women” and the project has aligned its policies which does not discriminate on gender.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	Response: - The project does not seek to graduate to gender-grade GS certification and thus foundational gender sensitive requirements have been justified. As per GS4GG GENDER EQUALITY REQUIREMENTS & GUIDELINES, “Gold Standard may require that the Project seek the input of an Expert Stakeholder and to include their recommendations in the Project design. For projects seeking gender-responsive certification, the Gold Standard VVBs audit teams shall include gender consultants with relevant sector expertise to verify the gender claims of the project”. The Project participants do not involve and promote any discrimination about the gender differences. The same is ensured into HR Policy, hence no expert Stakeholder inputs are required. Further the questions raised in the Gold Standard Safeguarding Principles & Requirements document are described under Appendix 1.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	No Expert is required to assist with Gender issues at the Stakeholder Consultation as the stakeholders were invited in a ‘gender-sensitive’ manner and efforts has been made to solicit input from women and marginalised groups. As per the GS Stakeholder guidelines, section 1.1.2 “All Gold Standard projects shall “take gender issues into account”. This requires local stakeholder consultation processes to reach a

wide range of community representatives in ways that ensure equal and effective participation of both women and men, and that gender issues are fully factored into comprehensive social and environmental impact assessments.”

Since the project is applying retroactively for GS registration, the Stakeholder Feedback Round was held at project site jodhpur district Rajasthan on 05/09/2020 and start date is 07/02/2020

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

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

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

>> As per the requirement of GS Stakeholder Engagement and Consultation Requirement, The stakeholder consultation shall comprise of a minimum of two rounds of consultations including:

- a. mandatory physical meeting with local stakeholders, and

b. stakeholder feedback round lasting for at least 30 days

As per Stakeholder consultation requirement, For a retroactive project, the project developer shall conduct, at a minimum, a physical meeting before project submission for preliminary review.

3.6.7 | For a retroactive project, the project developer may conduct the physical meeting(s) combined with the stakeholder feedback round where the physical meeting has not taken place as a part of any previously held stakeholder consultation(s). However, the project developer shall conduct this combined consultation before project submission for preliminary review. A combined consultation shall ensure compliance with all the requirements outlined in this document. Special attention must be paid to taking into account stakeholder feedback and modifying project design, where reasonable.

In line with the requirement, the PP has conducted a stakeholder meeting and feedback consultation round in line with GS4GG requirements and guidelines to incorporate all the feedback received for the project activity if any. However, there is no negative feedback received for the project activity.

The Stakeholder consultation round has been conducted on 05/09/2020 at 11:00 am. at Plant Office: Mahindra Renewables Pvt. Ltd. Bhinv Ji Ka Goan, Tehsil Bap District Jodhpur, Rajasthan and receive feedback from all the possible stakeholders to the project.

- Identified Stakeholders for the project activity:
- Local villagers,
- Community members,
- O&M operators and employees,
- Local government bodies,

Apart from these the stakeholders as identified by Gold Standard Board, i.e. Gold standard partnered NGOs and DNA of India (MoEF) were also invited.

All the stakeholders have been invited through via public notice which were displayed to the nearby areas, also emails were sent to the global stakeholders meeting on 05/08/2020 i.e., 30 days prior to the Stakeholder Feedback Round. The SFR was conducted on 05/09/2020. The expert stakeholders have been intimated for the SFR round and along with the invitations they were provided with a public link where all the

project related documents are available from 12/06/2020. All the documents have been made available to public through website: <http://infisolutions.org/gs-7664/> for 2 months. They are free to comment either online or during the actual SFR meeting. There were no negative comments from the stakeholders through any means of communication channels (E mails, Phone calls, Grievance Register available at the project site). The nearby village from the project site is in 1 km radius (Rawra) and it is easily accessible by normal mode of transport by the people in case of any grievances. The documentation is available permanently to stakeholders at project site & company's website.

The agenda for the meeting was as follows.

- Introduction of the Project Participant.
- Solar power project details
- About GS mechanism
- Benefits from the Solar power project
- Grievance Mechanism for stakeholders
- Yearly monitoring process for Sustainable development
- Feedback/Questions from Stakeholders
- Question and Answer session.

In the introductory speech, Mr. Saurabh Mehta (Representative of Project Participant at Site) welcomed the gathering and gave a brief about the project activity & project participant. He further explained the whole process right from inception of the project till the current execution levels. He briefly explained how this project applies to Gold standards mechanism. He explained how such Solar power projects help in providing clean energy and thereby help in mitigating impacts due to Global Warming. He briefly explained the gist of Gold standards prerequisites and sustainability projects in the country. He also discussed the sustainable development matrix parameters with the impacts on each by the project along with the monitoring plan for the sustainable development indicators related to the project activity. In the process it was also explained that the impacts assessment process would be done yearly. He also explained how the project participants propose to set up a Grievance procedure where any comment/suggestion could be provided. In line with the Annex W of GS Requirement – he explained how Project Proponent (Mahindra Renewables Pvt. Ltd) proposes to establish continuous input and grievance procedure. As part of the process a Grievance register shall be maintained at the site and same shall be revised to follow the GS

template. The Minutes of LSH meeting of feedback round along with List of Attendees, copy of Public Notice and invitation, emails are submitted to the DOE. The Minutes of LSH meeting of feedback round along with List of Attendees, copy of Public Notice and invitation, emails are submitted to the DOE.

Summary of the comments Received:

The representative of project participant explained about the power generation process from this solar plant and emphasized on the positive impacts that this project would leave on the local community via:

This would improve the standard of living of the local community. In addition, as this project would utilize available Solar resource to generate power and there would be no associated emissions which would help in maintaining the environment clean.

No comments were received through email during SFR round.

The villagers raised various queries and clarification provided is as summarized below:

Comments	Response
Comment 1: How would locals be employed by the company?	Response: Employment opportunities are available in both technical and non-technical areas. For technical jobs qualified persons have been employed, however for non-technical jobs like security and transportation, construction preference has been for employment of local persons.
Comment 2: Is there any child labor requirement exist for the project activity?	Response: No, the project does not have any such requirements. PP strictly opposes the child labour.
Comment 3: What will be the impacts on rains due to the operation of Solar power projects?	Response: There is no impact on weather/rains due to operation of Solar power projects.
Comment 4: Is there any toxic or pollutants emitted on land, air	Response: No, Solar power project does not involve any such pollutants emission on land, air and water and is emission free power generation technology.

and water from the operation of Solar power plants?	
Comment 5: What kind of CSR projects has been carried out in the area.	Response: PP may carry out various CSR activities in the region like providing such as health camps, distribution of furniture & sports kits in schools, toilet requirements in government schools, drinking water requirements.
Comment 6: Would such CSR activities also be carried out in other areas which are not near the project activity.	Response: The implementation of CSR activities have been started with the villages which are near to the site, however these activities would be spread gradually over new areas which have not yet been covered.
Comment 7: what impact does the project have in reducing the shortage of electricity faced in the area.	Response: The electricity generated by the project helps the grid to meet its demand and as a result over the past few years the hours for electricity shutdowns has decreased and now electricity is available with only minor disruptions.

E.2 Final continuous input / grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	Input/Grievance Register to be maintained at project site O&M provider office (administrative office).
GS Contact (mandatory)	help@goldstandard.org
Other	PP Representative Email address mentioned in the Grievance Book:

Mr. Saurabh Mehta and his mobile number is +91 9930674683 shall be available for any stakeholder to comment.

Email id: Mehta.saurabh2@mahindra.com

SustainCert: info@sustain-cert.com

DOE: Mr. Pankaj Kumar

Email id: pank.kumar2019@gmail.com

The comments mentioned shall be recorded in the grievance register and shall be processed.

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

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

Assessment Questions / Requirements	Justification of Relevance (Yes / potentially / no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal	Yes	1. The Project is not in conflict with the economic livelihood or other issue of the local community. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. 2. Project activities are not expected to cause any human rights abuse. As a member of United Nations¹⁷ and part of UN Agreement on Human Rights¹⁸, it is ensured by law in India that no action can be taken against human rights. The Human Rights Policy also states that the PP will embrace the diversity of individuals, always treat	Not required

¹⁷ <https://labour.gov.in/lcandilasdivision/india-ilo>

¹⁸ <https://www.ilo.org/newdelhi/lang--en/index.htm>

Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion	Yes	one another with dignity and respect, and not engage in any acts of direct or indirect discrimination based on protected characteristics; Also, will take action when others engage in conduct that violates this policy.¹⁹	
Principle 2. Gender Equality			
The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women 1. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work	Yes Yes	1. The Project do not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. For this project, every employee is treated with respect and afforded equitable treatment. The grievance register has maintained at site to take stakeholder feedback. There is no any sexual harassment and/or any forms of violence against women. 2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work. The project has equal opportunity for both men and women.	Not required

¹⁹ <http://www.mfcindia.org/main/bgpapers/bgpapers2013/am/bgpap2013c.pdf>

2. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	Yes	3. The project activity does not involve in any form of discrimination in any kind. India also ratified relevant ILO core conventions on equality, namely Equal Remuneration Convention (Convention No 100) and Discrimination (Employment and Occupation) Convention (Convention No 111) in 1997²⁰. 4. Summary of opinions and recommendations of an Expert Stakeholder is required in case of Gender responsive project activity.	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	Yes	The project proponent is committed to the employee's workplace health & safety during all phases of the project. All employees will attend health & safety trainings. This is issued in the Labour code on Occupational Safety, Health and Working Conditions and UN Agreement on Human Rights ²¹ .	Workplace Health & Safety trainings will be conducted regularly during the project operation.

²⁰ https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_650119.pdf

²¹ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	As per the EIA report, there are no protected archaeological and cultural heritage sites are reported within the project footprint". Law on Cultural heritage is protected against alteration, damage or removal by the "law on cultural heritage ²² ".	Not required
> >		The site below gives the list of cultural heritage sites in India by UNESCO from which it is clear that the project site does not form a cultural heritage site. Source: http://whc.unesco.org/en/statesparties/in	
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project does not involve any settlement areas. Thus, this project does not cause the physical or economic relocation of peoples. The project activity does not involve any alteration of existing roads as well as it does not add additional traffic. Since the site located isolated area, the traffic volume is negligible. Hence, there is no additional burden to the existing traffic. In addition, the project proponent built new roads for those sites which do not have road access.	Not required
> >			

²² <https://cpwd.gov.in/Publication/ConservationHertBuildings.pdf>

Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	Project activity is a solar power plant planned in the land acquired by the project activity is mostly barren land	Not required
>>			
Principle 4.3 Land Tenure and Other Rights			
Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	No	There are no uncertainties regarding land tenure, access rights, usage rights or land ownership. The Solar Panels are all developed on government land and some private land and all of them will belongs to PP. Moreover, the project is not located with close proximity of any forest.	Not required
>>		There are no uncertainties regarding land tenure, access rights, usage rights or land ownership. The Solar panel are developed by the Mahindra Renewables Private Limited and will belongs to them. They will have the all the rights to use and maintain the same.	
Principle 4.4 Indigenous people			
Are indigenous peoples present in or within the area of influence of the	No	No indigenous peoples are present in or within the area of influence of the Project; Also, no land is claimed by any indigenous peoples. The Solar plant is located at safe	Not Required

Project and/or is the Project located on land/territory claimed by indigenous peoples?		distance. Thus, project activity does not have impact on Indigenous Peoples	
Principle 5. Corruption			
The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	MRPL does not involve and is not complicit in any kind of corruption. India has ratified UN convention against Corruption in 2011 ²³ .	Not required
Principle 6.1 Labour Rights			
The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions	Yes	The project proponent and their subcontractors complying with all relevant national laws regarding child labor. MRPL will not employ children in any shape or form for their works. India has ratified ILO “C138 – Minimum Age Conventions” and “C182 – Worst Forms of Child Labour Convention”²⁴. 2.The project respects fundamental right of employee. There is law in India since 1926 by The Trade Unions Act, 1926 which protects rights of industrial trade unions and	Not required

²³ https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XVIII-14&chapter=18&clang=en#EndDec

²⁴ https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102691

Workers shall be able to establish and join labour organisations Working agreements with all individual workers shall be documented and implemented and include: Working hours (must not exceed 48 hours per week on a regular basis), AND Duties and tasks, AND Remuneration (must include provision for payment of overtime), AND Modalities on health insurance, AND Modalities on termination of the contract with provision for voluntary resignation by employee, AND		their members. PP and appointed contractors will not involve in any form of forced or compulsory labor. India has ratified ILO “C029 – Forced Labor Convention” ²⁵ 3. The working agreements with all individual workers are available which contains the guidelines that define how employees work, and the working environment to feel safe and free to learn, explore and discover. 4. The notice at every site of is displayed containing abstract of sections 3 A & 14 of The Child and Adolescent Labour (Prohibition and Regulation) Act, 1986. 5. The project owner is committed to the safe and healthy working conditions all phases of the project. All employees will attend trainings health & safety²⁶. This issue is protected by Labour code and UN Agreement on Human Rights²⁷.	
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²⁵ <http://ncw.nic.in/acts/TheTradeUnionsAct1926.pdf>

²⁶ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

²⁷ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

Provision for annual leave of not less than 10 days per year, not including sick and casual leave. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion) The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures			
Principle 6.2 Negative Economic Consequences			
Does the project cause negative economic consequences during and after project implementation?	No	The project activity is a renewable solar power generation project and generates various employment opportunity for the locals throughout its lifetime. Thus, there is no negative economic consequences during and after project implementation.	Not required
>>			
Principle 7.1 Emissions			

Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project reduces Greenhouse Gas (GHG) emissions and fossil fuel usage compared to the baseline scenario.	Not required
>>			
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	No. The project activity is a grid connected renewable energy based Solar power generation project. There is no use of Wood or Biomass in the project activity. On the contrary the project generates renewable energy and supplies to the grid. Hence, it's not required to be monitored.	Not required
>>			
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project being a solar power project thus there is no impact of water resources. The plant area does not have large rivers and streams, only small gaps flow. In the dry season, there is almost no water, only water in the rainy season	Not required
>>			

Principle 8.2 Erosion and/or Water Body Instability			
Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?	No	There is absence of sensitive ecological area (Reserve Forest area) in the core area of project. The removal of herbaceous vegetation from the soil and loosening of the topsoil generally causes soil erosion. However, such impacts would be primarily confined to the project site during initial periods of the construction phase and would be minimized through adoption of mitigation measures like paving and surface treatment and water sprinkling.	Not required
> >			
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	The project will be established at the desert/barren land which was not used for production of crops and other products for a long time.	Not required
> >			
Principle 9.2 Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project is susceptible to decreased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme conditions.	Not required
> >			

Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The solar plant does not affect the herbal life. The ESIA has been conducted for the project. On visual inspection during site visit, it appeared that there is no presence of any big trees in the project area; so, there is no clearing of any trees for the construction of solar power project. The proposed project site is not located in any environmental sensitive area. However, proposed project site is occupied by scrub vegetation, thorny vegetation was also observed during site visit.	Not required
> >			
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No	Being a Solar power project activity, it falls under the list of White category projects declared by Central Pollution Control Board of India, Govt of India. This means project activity does not potentially result in release of pollutants to the environment.	Not required
> >		Nevertheless, the project takes a precautionary approach regarding environmental challenges and is not complicit in practices contrary to the precautionary principle. The environment is protected by several Laws and Regulations in India. The purpose of the "Law on Environmental Protection" is to protect the environment	

		with principles of sustainable development and environment ²⁸ . The project owner also follows necessary procedures for environmental safety at the project.	
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Potentially	All hazardous and non-hazardous wastes will be disposed as per the local regulations. Hazardous waste viz. waste oil used oil, used grease, wastes or residues containing oil, empty barrels/ containers/ liners wastes or residues Containing oil etc. will be collected and stored in paved and enclosed area with secondary containment and subsequently sold to authorized recyclers/ Transfer storage disposal facility (TSDF) in compliance with RSPCB norms. Hazardous Waste authorization as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 should be obtained from RSPCB.	The Project develop is responsible to monitor the disposal of hazardous/non-hazardous waste at the end of the life time and can be checked through vendor receipts
>>			
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of	No	Not applicable for solar power plants.	Not required

²⁸ file:///C:/Users/hp/Downloads/The-Environment-Protection-Act-1986.pdf

pesticides and/or fertilisers?			
> >			
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	No, the project does not involve harvesting of forest. The Solar Panels are all developed on government & private land and all of them will belongs to PP under the lease agreement for the project lifetime only. Moreover, the project is not located with close proximity of any forest.	Not required
> >		ESIA study clearly reveals that project activity does not involve harvesting of forest.	
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	No. The project does not modify the quantity or nutritional quality of food available.	Not required
> >			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	No. Not applicable for solar project.	Not required
> >			

Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	No forest land is involved in this project. There is no direct threat to wild species. Nevertheless, measures must be taken to avoid all forms of man animal conflict. Adequate safeguards must be followed during construction and operation phase to prevent unwanted utilization of fertile land, forest land and forest resources.	Not required
> >			
Principle 9.11 Endangered Species			
Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? AND/OR Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	No. There were no endangered species found in the project boundary. The project area comprises of non-forest wastelands and fallow lands. It is sparsely covered by shrubs and thorny bushes. There are no plantations or orchards. Study area is plain land with sparse vegetation. There was no sighting of any known rare, endangered or ecologically significant animal and plant species. The ESIA concluded the same.	Not required

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APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Mahindra Renewables Private Limited
Registration number with relevant authority	U40100DL2020PTC359633
Street/P.O. Box	Sector 10
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Salutation	
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Middle name	
First name	Saurabh
Department	
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Direct tel.	
Personal e-mail	Mehta.saurabh2@mahindra.com

APPENDIX 3- LUF ADDITIONAL INFORMATION

Not Applicable

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

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

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