

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 7760
Title of Project	Clean Electricity Generation by Solar Power Project in Rajasthan
Time of First Submission Date	20/01/2020
Date of Design Certification	29/09/2021
Version number of the PDD	05
Completion date of version	22/11/2021
Project Developer	Azure Power Forty Three Pvt. Ltd.
Project Representative	EKI Energy Services Limited
Project Participants and any communities involved	Azure Power Forty Three Pvt. Ltd
Host Country (ies)	India
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	Not Applicable
Methodology (ies) applied and version number	ACM0002- Grid-connected electricity generation from renewable sources - Version 20
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in Error! Reference source not found.)	Estimated Annual Average	Units or Products
SDG 13- Climate Action	Emission reductions	1,136,050	tCO ₂ e/yr
SDG 7– Affordable and Clean Energy Contribution to Climate Security & Sustainable Development	MWh of renewable energy generated	1,215,546.76	MWh
SDG 8 – Decent Work and Economic Growth	Number of trainings and hiring through project	1 training/annum and employment to 10 persons	Number of trainings and Employment generated through project.

SECTION A. DESCRIPTION OF PROJECT

A.1. Purpose and general description of project

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Azure Power Forty three Pvt. Ltd. is the promoter of the proposed project activity. The project is a renewable project activity which involves installation of 600 MW solar power project in Rajasthan and is connected with PGCIL's, Jalasar, Jamsar, Bikaner substation. The project will replace average anthropogenic emissions of greenhouse gases (GHG's) estimated to be 1,136,050 tCO₂e per year, thereon displacing 1,215,546.76 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant.

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

Name of the SPVs	Capacity in MW	Connection with Grid	State	Usage of Electricity
Azure Power Forty Three Pvt. Ltd	600 MW	Indian Grid	Rajasthan	Sale to grid

The project activity is promoted by Azure Power Forty Three Pvt. Ltd. Thus Azure Power Forty Three Pvt. Ltd is acting as PP for the project activity. The listing date of this project activity is 15/09/2020 and the date for LSC report is 18/01/2020.

The Azure Power Forty Three Pvt. Ltd has signed a power purchase agreement with Solar Energy Corporation of India Limited for the sale and transfer of power generated by this project activity with 31/10/2018. The first purchase order for this project activity was issued on 31/01/2020. The commissioning details of the project activity is given below:-

Name of the SPVs	Capacity	State	Commissioning date
Azure Power Forty Three Pvt. Ltd.	150 MW	Rajasthan	15/12/2020
	100 MW		30/01/2021
	50 MW		08/02/2021
	50 MW		25/06/2021
	50 MW		08/08/2021
	200 MW		Yet to commission

Sectoral Scope : 01 - Grid-connected electricity generation from renewable sources

Methodology : ACM0002: Grid-connected electricity generation from renewable sources- Version 20.0¹

Project Type : I. Renewable energy projects

Tools referred with above methodology are:

- Tool to calculate the emission factor for an electricity system² - Version 07.0 (EB 100, Annex 04)
- Methodological Tool- Tool for the demonstration and assessment of additionality³ - Version 07.0.0 (EB 70, Annex 08)
- Methodological Tool- Investment analysis⁴ - Version 09.0.0 (EB 101, Annex 11)

Scenario existing prior to the implementation of project activity:

The scenario existing prior to the implementation of the project activity, is electricity delivered to the grid by the project activity that 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".

Baseline Scenario:

As per the applicable methodology, a Greenfield power plant is defined as "a new renewable energy power plant that is constructed and operated at a site where no

¹ <https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

² <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

³ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

⁴ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

renewable energy power plant was operated prior to the implementation of the project activity”.

As the project activity falls under the definition of a Greenfield power plant, the baseline scenario as per paragraph 22 of Section 5.2.1 of applied methodology is the following: 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 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.

Contribution to sustainable development

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

- **Social well-being:** The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation.
- **Economic well-being:** The project is a clean technology investment in the region, which would not have been taken place in the absence of the carbon credit benefits the project activity will also help to reduce the demand supply gap in the state. The project activity will generate power using zero emissions Solar based power generation which helps to reduce GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities.
- **Technological well-being:** The successful operation of project activity would lead to promotion of Solar based power generation and would encourage other entrepreneurs to participate in similar projects.
- **Environmental well-being:** Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions.

A.1.1. Eligibility of the project under Gold Standard

The project activity meets the eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements -v1.4⁵ as described below:

⁵ <https://globalgoals.goldstandard.org/202-ar-renewable-energy-activity-requirements/>

- **Project Type:** Solar power is an approved project type and does not require any specific approval from Gold Standard. The project applies methodology ACM0002, Version 20⁶, Sectoral Scope: 01, which is an approved methodology under Gold Standard.
- **Project Location:** The project is located in India. The project activity is not located in HCV areas. Thus, the project is eligible. Refer section A.2 for the geo-coordinates.
- **Project Area, Boundary and Scale:** The project activity follows the UNFCCC approved methodology and project Area and Boundary is defined in line with methodological requirement. The project activity is a 600 MW Solar PV project and thus qualifies under large scale projects (Non Micro Scale). This Renewable project estimates issuing emission reductions greater than 10,000 tCO₂e, thus the project falls under Non Microscale categories.
- **Host Country Requirements:** The projects has obtained all the requirement for the commissioning of the project from the Government of India.
- **Contact Details:** Please refer Appendix 2 for the contact details. Azure Power Forty Three Pvt. Ltd. is acting as project proponent (PP) of project activity.
- **Legal ownership:** Please refer section A.1.2 for the legal ownership details.
- **Other Rights:** Solar PV electricity generation project doesn't required any continuous natural war material to operate, solar isolation is required only. Therefore, no any further consent to utilize resources are required.
- **Official Development Assistance (ODA) Declaration:** Refer Section A.5 for the information of funding sources of projects.

The project activity results in displacement of electricity from thermal power stations while contributing to sustainable development of India. Hence, the project contributes to the Gold Standard Vision and Mission.

As per section 1 Scope and Applicability of 202-GS4GG-Renewable-Energy-ActivityRequirements-v1.4, the project activity conforms (a) Gold Standard for the Global Goals Principles & Requirements (and associated documents) AND (b) Gold Standard Renewable Energy Activity Requirements.

As per the 202-GS4GG-Renewable-Energy-Activity-Requirements-v1.4⁷, section 2

Eligible Project Types is described below:

- As per the section 2.1.2 (a), this project is generating electricity using renewable energy sources i.e. from solar energy.

⁶ https://globalgoals.goldstandard.org/standards/101_V1.2_PAR_Principles-Requirements.pdf

⁷ <https://globalgoals.goldstandard.org/202-ar-renewable-energy-activity-requirements/>

- As per the section 2.1.2 (b), this project is electricity generation through photovoltaic and supplying energy to an INDIAN unified grid.
- The project is grid connected renewable energy project. This project have submitted for the preliminary review before 24 Jan 2020, therefore this project is eligible.
- Section 2.1.4 is not required as the project satisfy the eligibility condition of section 2.1.3.
- The project activity is solar photovoltaic and not specific Renewable Energy project types like Hydropower, projects using biomass resources etc., hence as per criteria 2.1.5 additional eligibility criteria are prescribed in Annex A (Additional Eligibility criteria for specific project types) of 202-GS4GGRenewable-Energy-Activity-Requirements-v1.4 document is not applicable for the project activity.
- The project activity is not seeking the renewable Energy Labels, hence criteria 2.1.6 of VERs, hence 202-GS4GG-Renewable-Energy-Activity-Requirementsv1.4 document is not applicable for project activity.

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

Azure Power Forty Three Pvt. Ltd is the project proponent (PP) of project activity. This PP have the legal right to control and operate the project activities.

The project ownership has been demonstrated through below supporting documents:

- **Contract with EPC contractor** – The purchase order on the name of Azure Power Forty Three Pvt. Ltd. indicates that PP have the legal right to control and operate the project activities.

Based on above evidences, the project ownership is with the Azure Power Forty Three Pvt. Ltd. is acting as project proponent (PP) of project activity.

A.2. Location of project

Host Country : India
 Region/State/Province etc. : Rajasthan
 Village : Jamsar
 District : Bikaner
 State : Rajasthan

Physical/Geographical location

The project is located in the state of Rajasthan in India

Name of the PP	Village	District	Latitude	Longitude
Azure Power Forty Three Pvt. Ltd	Jamsar	Bikaner	28°18'56.5"N	73°25'32.7"E



Figure 1. Location of Proposed Solar Project activity

A.3. Technologies and/or measures

The project activity aims to harness solar energy through installation of PV with total installed capacity of 600 MW.

Technical Specification of plants are tabulated below:

The details of equipment installed at Azure Power Forty Three Pvt. Ltd. are as follows:

Equipment	Technical Specifications
PV Module	Make: Jinko
	Rating: 335 Wp or above
	PV Technology: Crystalline
	Number Of modules: Aprx. 2126656 Nos
	PV System Mounting Structure: Seasonal Tilt Jan/ Feb/ March: 30° April/May/ June/ July/Aug: 5°

	Sept/Oct/Nov/Dec: 30°
Inverter	Make: Sungrow
	Type: Central /String
	Rating: 3125 kW
	Number of Inverters: 96 Nos.

A.4. Scale of the project

The project is a large scale project utilizing solar PV modules to generate electricity. The project activity using UNFCCC methodology and having capacity as 600 MW, thus falls under large scale category.

As per section 3.2.3 of 200-GS4GG-Renewable-Energy-Activity-Requirements-v1.4, This Renewable project estimates issuing emission reductions greater than 10,000 tCO₂eq, thus the project falls under Non Microscale categories.

A.5. Funding sources of project

There is no public funding from Annex 1 countries and no diversion of Official Development Assistance (ODA) involved in the project activity

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

B.1. Reference of approved methodology (ies)

Title : Grid-connected electricity generation from renewable sources⁸
Reference : The project activity meets the eligibility criteria of large scale project as it is more than 15 MW
Methodology : ACM0002: Grid-connected electricity generation from renewable sources - Version 20.0⁹
Type I : Energy industries (renewable / non-renewable sources)
Category : Approved Consolidated Methodology (ACM0002)
 Tools referred with above methodology and applicable for project activity are:

- Tool to calculate the emission factor for an electricity system¹⁰ - Version 07.0 (EB 100, Annex 04)
- Tool for the demonstration and assessment of additionality¹¹- Version 07.0.0 (EB 70, Annex 08)
- Methodological Tool- Investment analysis¹² - Version 09.0.0 (EB 101, Annex 11)

B.2. Applicability of methodology (ies)

The project activity involves generation of grid connected electricity from renewable solar energy. The project activity has an installed capacity of 600 MW which will qualify for a large GS project activity under large scale methodologies. The project status is corresponding to the methodology ACM0002 version 20.0 and applicability of methodology are discussed below:

Applicability	Project activity vis-à-vis applicability Conditions
This methodology is applicable to grid-connected renewable power generation project activities that: • install a Greenfield power plant; • involve a capacity addition to (an) existing plant(s);	The project activity is a Renewable Energy Project i.e. Solar Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". Hence the project activity meets the given applicability criterion.

⁸ <http://cdm.unfccc.int/methodologies/PAmethodologies/approved>

⁹ <https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

¹⁰ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

¹¹ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

¹² <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v7.0.pdf>

• involve a retrofit of (an) existing operating plants/units; • involve a rehabilitation of (an) existing plant(s)/unit(s) or • involve a replacement of (an) existing plant(s)/unit(s).	
The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The project activity is an installation of a new grid connected solar PV power plant and hence this condition is met.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	The project activity does not involve any capacity additions, retrofits or replacements and therefore this condition is not applicable.
In case of hydro power plants, one of the following conditions shall apply: • The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or • 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 • The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m². • The project activity is an integrated hydro power project involving multiple	The project activity is a grid connected renewable solar energy project. This condition is applicable only for hydro power plants and not applicable for solar projects. Therefore this condition is not applicable for project activity.

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: • The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m²; • Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; • Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be; • Lower than or equal to 15 MW; and • Less than 10 per cent of the total installed capacity of integrated hydro power project.	
In the case of integrated hydro power projects, project participant 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	The project activity is a grid connected renewable solar energy project. This condition is applicable only for hydro power plants and not applicable solar projects. Therefore this condition is not applicable for project activity.

flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	
Methodology is not applicable to the following • 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; • Biomass fired power plants/units	The project activity is an installation of a new grid connected renewable energy project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the project activity.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the 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 renewable solar energy plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.

Tool to calculate the emission factor for an electricity system¹³- Version 07.0 (EB 100, Annex 04)

Applicability Criterion (with Para number reference)	Project Case
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project is a grid connected Greenfield Solar power project and thus the tool is applicable.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In	Steps involved in calculation of Emission Factor is included in section B.4 of the GS4GG PDD as per the requirement of the tool

¹³ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project is located in non-Annex I country and hence the tool is applicable
Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project is a Solar project and there is no involvement of biofuels.

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

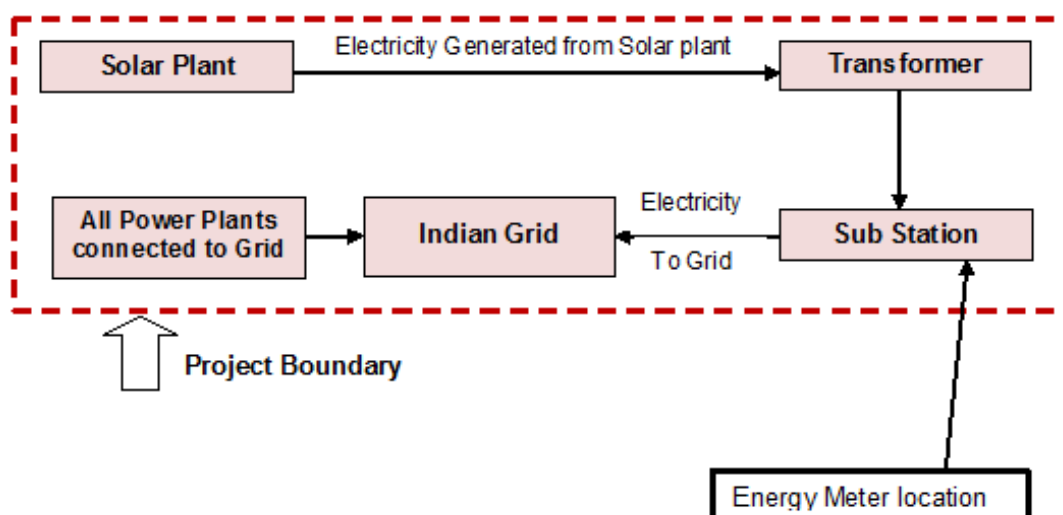
Applicability Criteria has been demonstrated in section on additionality below.

The project activity qualifies as Type I during every year of the crediting period in accordance with applicable provisions for project activity eligibility as discussed above. Also the total installed capacity of project activity is 600 MW which is applicable as per large scale project activities methodology ACM0002: Grid-connected electricity generation from renewable sources Version 20.0. The project capacity will be always remain the same and hence the project activity will always be large scale project activities throughout the crediting period and thereafter.

B.3. Project boundary

As per ACM0002 version 20.0 - "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to".

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



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
		Other	No	No other emissions are emitted
Project scenario	Greenfield Solar PV Power Project Activity.	CO ₂	No	No CO ₂ emissions are emitted from the project
		CH ₄	No	Project activity does not emit CH ₄
		N ₂ O	No	Project activity does not emit N ₂ O
		Other	No	No other emissions are emitted from the project.

B.4. Establishment and description of baseline scenario

As per the approved consolidated Methodology ACM0002 (Version 20.0) para 22: "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 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.

The project activity involves setting up of solar projects to harness the power of sun to produce electricity and supply to grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants.

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

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

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

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9346 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 16.0, Mar 2021 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9568 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3 year (2017-18, 2018-19, 2019-20) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 16.0, Mar 2021 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8682 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 16.0, Mar 2021 published by Central Electricity Authority (CEA), Government of India

The grid emission factor is fixed ex-ante and remains constant throughout the crediting period.

As per the approved consolidated Methodology ACM0002 (Version 20.0) para 39:

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

Where:

- BE_y = Baseline emissions in year y (t CO₂/yr)
- $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
- $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO₂/MWh)

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

CO₂ Baseline Database for the Indian Power Sector, Version 16, Mar 2021¹⁴ published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

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

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

Step 1: Identify the relevant electricity systems

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

However since August 2006, however, all regional grids except the Southern Grid had been integrated and were operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids were treated as a single grid named as NEWNE grid from FY 2007-08 onwards for the purpose of this CO₂ Baseline Database. As of 31 December 2013, the Southern grid has also been synchronised with the NEWNE grid, hence forming one unified Indian Grid. Since the

¹⁴ <https://cea.nic.in/cdm-co2-baseline-database/?lang=en#jqho>

project supplies electricity to the Indian grid, emissions generated due to the electricity generated by the Indian grid as per CM calculations will serve as the baseline for this project.

Table: Geographical Scope of Indian Electricity Grid

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

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

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.

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

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

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

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described under Step 4:

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

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

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

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
India	16.8%	15.1%	14.6%	14.3%	14.5%	17%

Data Source: Central Electricity Authority (CEA) database Version 16, Mar 2021¹⁵

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

The simple OM emission factor is calculated as the generation-weighted average CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

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

Ex-ante option: if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.

OR

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

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

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

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

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

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2017-18	2018-19	2019-20
INDIAN Grid	9,60,693	9,95,957	965,009

Simple Operating Margin (tCO₂/MWh) (incl. Imports)
--

¹⁵ <https://cea.nic.in/cdm-co2-baseline-database/?lang=en#jzfx>

	2017-18	2018-19	2019-20
INDIAN Grid	0.9543	0.9603	0.9555

Weighted Generation Operating Margin	
INDIAN Grid	0.9568

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

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

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

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

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

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

Build Margin (tCO₂/MWh) (not adjusted for imports)	
	2019-20
INDIAN Grid	0.8682

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

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

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

(a) Weighted average CM; or

(b) Simplified CM.

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

The combined margin emissions factor is calculated as follows:

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

Where:

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

$EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (t CO₂/MWh)

W_{OM} = Weighting of operating margin emissions factor (per cent)

W_{BM} = Weighting of build margin emissions factor (per cent)

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

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

$$\begin{aligned} \text{Therefore, } EF_{grid,CM,y} &= 0.9568 * 0.75 + 0.8682 * 0.25 \\ &= \mathbf{0.9346 \text{ tCO}_2\text{e/MWh}} \end{aligned}$$

Baseline emission factor (EF_y)

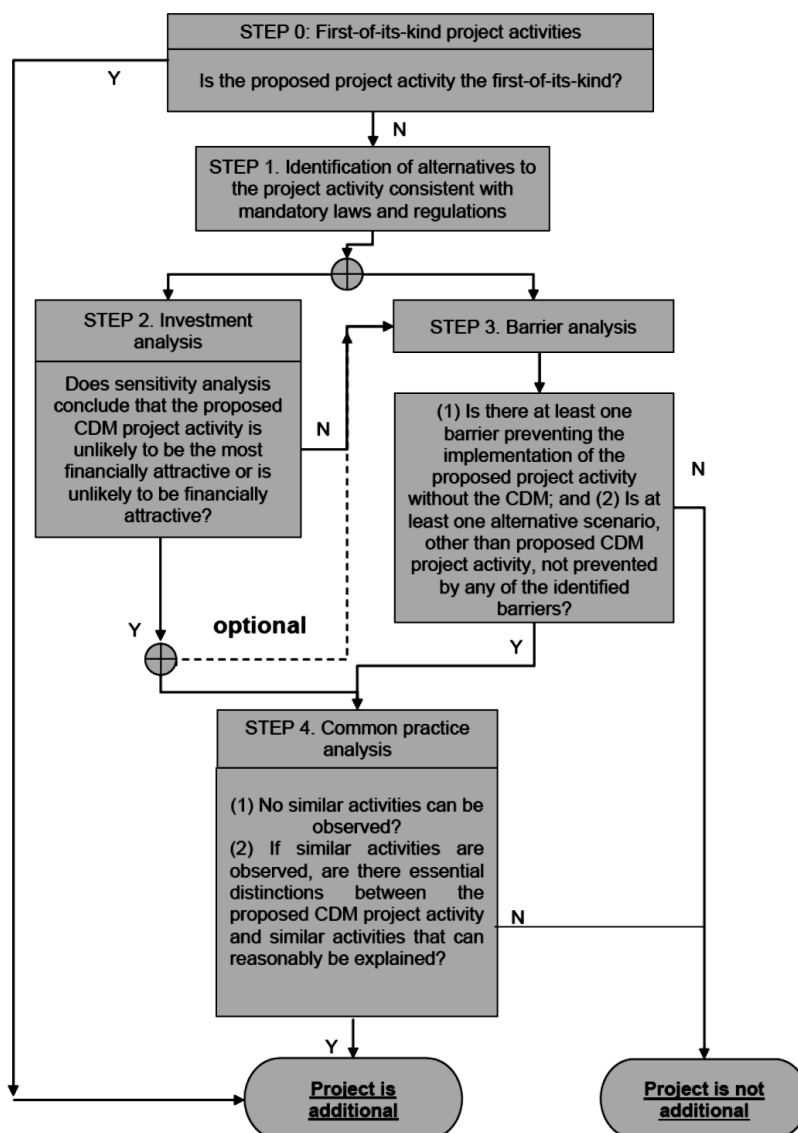
The baseline emission factor is calculated using the combined margin approach as described in Step 6 above:

Therefore, $EF_y = EF_{grid,CM,y} = 0.9346 \text{ t CO}_2\text{/MWh}$.

$$\begin{aligned} BE_y &= 1,215,546.76 \times 0.9346 \\ &= \mathbf{1,136,050 \text{ tCO}_2\text{e}} \end{aligned}$$

B.5. Demonstration of additionality

The proposed GS project generates power using Solar PV energy which is a renewable, zero emission source of energy. Baseline considerations for the project are based on approved consolidated baseline methodology ACM0002 (Version 20.0). The methodology requires the project participant to determine the additionality based on "Tool for the demonstration and assessment of additionality", Version 7.0.0. The step-wise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs:



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

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

The proposed project activity is not the first of its kind. Hence, this step is not applicable.

Outcome of Step 0: The proposed project is not the first-of-its-kind, hence, proceed to Step 1.

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 22, if the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity

generated 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.

Step 2: Investment Analysis

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

Sub-step 2a: Determine appropriate analysis method

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 participant has considered Post-Tax Equity IRR for investment analysis at the time of decision-making. As Project participant 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.

The guidance of Investment Analysis is used for project activity. As per guidance 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.

Appropriateness of using benchmark analysis for additionality demonstration and its conformity to guidance 16 of Annex 11, EB 101¹⁶ -

¹⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

Considering the fact that the alternative to the project is the supply of electricity from the grid & the choice of the developer is to invest or not to invest, benchmark analysis has been considered appropriate to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest. Benchmark analysis has been considered appropriate for demonstration of additionality, which is in conformity with guidance 16 of Annex 11 EB 101.

Benchmark Calculation

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

Since the choice of benchmark is based upon parameters that are standard in the market, hence as per Guidance 19 of EB 101 Annex 11, "the cost of equity should be determined either by: (a) selecting the values provided in the Appendix; or by (b) calculating the cost of equity using CAPM". Hence as per option (a), the default value for India is being considered as per the value provided in Appendix of EB 101 Annex 11¹⁷. The benchmark thus selected complies as per the relevant guidelines on Investment Analysis.

Further as per guidance 16 of EB 101 Annex 11, "In situations where an investment analysis is carried out in nominal terms and the available IRR benchmarks are in real terms, project participants shall convert the real term values of benchmarks to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period". Following the above guidance, the default value is being converted to nominal values by adding inflation rate for 10 years¹⁸, as per the inflation forecast rate provided by Reserve Bank of India.

Default Value Benchmark:

The investment analysis has been carried out in Nominal terms. Accordingly, Default value has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India). PP has calculated Benchmark based on WPI mean inflation rate. As per Para 17 of Appendix of EB101, Annex 11, the inflation forecast should be for the

¹⁷ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

¹⁸ Since RBI provides inflation forecast only for 5 years and 10 years, hence inflation forecast for 10 years is being considered keeping in view length of crediting period to be 7 years.

duration of the crediting period. However, since RBI provides forecast inflation only for 5 & 10 years, the project investor has calculated benchmark using 10 years durations and the same is considered as Benchmark for the project activity.

The benchmark has been computed in the following manner:

$$\text{Nominal Benchmark}^{19} = \{(1 + \text{Real Benchmark}) * (1 + \text{Inflation rate})\} - 1$$

Where,

Real Benchmark = 9.79% (as per Appendix of EB 101, Annex 11)

Inflation rate = 3.80 % (Projected Inflation Rate for India in next 10 years (RBI Forecast))

Based on decision made for the large scale project activity, the inflation rate are taken from RBI forecast.

Benchmark estimation:

Appendix A in EB 101, Annex 11 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = 9.79%

Inflation Forecast for India as per RBI website²⁰:

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

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

The IRR and Benchmark analysis are calculated in excel spreadsheet and same will be submitted to DOE during validation of project activity.

Input Values for 600 MW Azure Power Forty Three Pvt. Ltd are as follows:

SPV Name - Azure Power Forty three Pvt. Ltd.	Equity IRR without CDM	Benchmark (Equity IRR)
	8.64%	13.96%

Assumption and financial of the project

Details of the project		
State where the project is situated	Rajasthan	As per DPR
Total Capacity (MW)	600.00	As per DPR

¹⁹ As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

²⁰ <https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=18965>

Expected Date of Commissioning	30-Nov-20	As per DPR
Life of the plant (Yrs.)	25	RERC Jaipur Order dated 9.10.2017, pg 17
Generation of electricity		
PLF (%)	23.15%	As per DPR
Annual generation (kWh)	1,216,764,000	Calculated Value
Annual Degradation per year	0.50%	RERC Jaipur Order dated 9.10.2017, pg 19 ²¹
Tariff rate at the decision making (INR/kWh)	2.53	As per PPA
Escalation in tariff rate	0.0%	
Transmission & Wheeling Losses (%)	0.00%	
Operation and maintenance cost and Insurance		
O & M Expenses (INR Mn.)	270.00	As per DPR
O & M free for (Yr.)	-	
Escalation in the operational expenses (%)	5.72%	RERC order ²²
Insurance (INR Mn.)	43.00	CERC order ²³
Financial parameters		
TOTAL COST (INR Mn.)	21,501.60	RERC Order ²⁴
Loan Amount (INR Mn.)	16,126.20	As Per DPR
Equity Investment (INR Mn.)	5,375.40	As Per DPR
Term loan		
Loan Amount (INR Mn.)	16,126.20	As Per DPR
Interest rate (%)	12.00%	As per banking practice
Loan Tenure (Qtr.)	48	Assumption
Moratorium Period (Qtr.)	-	Assumption
Repayment Period (Qtr.)	48	Calculated Value
Repayment instalments value (INR Mn.)	335.963	Calculated Value
1st instalment from (Qtr. end)	31-Mar-21	Considered from the next Quarter End
Book Depreciation (SLM Method)		

²¹ <http://103.203.137.141/merc-user-files/tariff-orders>

²² <http://merc.rajasthan.gov.in/TariffOrders/Order268.pdf>

²³ <http://www.cercind.gov.in/2016/orders/SO17.pdf>

²⁴ <http://merc.rajasthan.gov.in/TariffOrders/Order268.pdf>

Land	7,500.00	Section 4 pg 11CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre ²⁵
Gross Depreciable Value (INR Mn.)	14,001.60	Calculated Value
Salvage Value (%)	10.00%	
Salvage value (INR Mn.)	1,400.16	Calculated Value
Net Depreciable Value (INR Mn.)	12,601.44	Calculated Value
Residual Value (INR Mn.)	8,900.16	Calculated Value
IT Depreciation		
IT Depreciation(%)	40.00%	IT act ²⁶
Income Tax		
Financial Year	FY 2019-20	
Income tax rate (%)	30.00%	As Per Income Tax Rule ²⁷
Corporate Tax / MAT (%)	33.00%	As Per IT rule ²⁸
GST (%)	18.00%	As Per Income Tax Rule ²⁹
Surcharge (%)	12.00%	As Per Income Tax Rule ³⁰
Health & Education cess (%)	4.00%	As Per Income Tax Rule ³¹
Final Tax rates		
Income tax rate (%)	34.9440%	Calculated Value
MAT (%)	38.44%	Calculated Value
GST (%)	18.7200%	Calculated Value

²⁵ <http://www.cercind.gov.in/2016/orders/SO17.pdf>

²⁶ https://www.incometaxindia.gov.in/_layouts/15/dit/mobile/viewer.aspx?path=https://www.incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm&k&IsDlg

²⁷ <https://www.indiabudget.gov.in/budget2018-2019/ub2018-19/fb/bill.pdf>

²⁸ <https://www.indiabudget.gov.in/budget2018-2019/ub2018-19/fb/bill.pdf>

²⁹ <https://www.indiabudget.gov.in/budget2018-2019/ub2018-19/fb/bill.pdf>

³⁰ <https://taxguru.in/income-tax/income-tax-slabs-ay-201819-fy-201718.html>

³¹ <https://taxguru.in/income-tax/education-cess-increased-3-4-health-education-cess-fy201819-effect-taxpayers-tax-liability.html>

Sub-step 2d: Sensitivity Analysis

Addressing Guidance of EB 101, Annex 11, 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 for is as per the Detailed Project report of the project activity, being available at the time of investment making decision to go ahead with the project activity.
Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third Party Report based on long term data.
Sensitivity Parameter 2 : O&M
The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. Hence, the reduction in the O&M cost is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The actual project cost is lower than the DPR cost. Since the Purchase Order cost is firm, there is no possibility of project cost going below this level. However, Sensitivity is carried out for threshold level below which benchmark is not breached.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/-10% even then the benchmark is not breached.

Sensitivity Analysis of the project are as follows:

Equity IRR without CDM	Benchmark (Equity IRR)
8.64%	13.96%

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	6.65%	8.64%	10.63%	25.66%
O&M	8.95%	8.64%	8.32%	-178.58%
Project Cost	10.24%	8.64%	7.24%	-27.62%
Tariff Rate	6.65%	8.64%	10.63%	25.66%

Based on result of IRR excel spreadsheets, equity IRR is less than Benchmark for all mentioned projects.

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

Step 3: Barrier analysis

Barrier analysis has not been used.

Step 4: Common practice analysis

For the concerned project activity, the Common Practice Analysis has been carried out.

Azure Power Forty Three Pvt. Ltd is the project promoter for the proposed project activity. Thus common practice analysis has been carried out for the total capacity of the project activity.

The project activity involves generation of electricity from Solar energy. The project activity is located in the state of Rajasthan in India and the policy applicable for the Solar power projects is regulated by State Electricity regulation Commission (SERC) of the respective state. The policies/tariff for each state is regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states. The project implemented in different states are claimed as different since the policies and regulations differ in each state. Hence, Rajasthan is considered as Geographical area for the project activity.

Stepwise approach for common practice analysis has been carried out as per Methodological tool "Common Practice", version 03.1 EB84, Annex 7:

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

Range	Capacity	Unit
+50%	900	MW
Capacity of the proposed project activity	600	MW
-50%	300	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 project is located in the state of Rajasthan in India, therefore, projects in the geographical area Rajasthan have been chosen for analysis. The project activity involves generation of electricity from solar energy. The policies/tariff for each state is regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states. The project implemented in different states are claimed as different since the policies and regulations differ in each state. Each state have different policies regarding renewable energy, hence Rajasthan is considered as geographical region for common practice 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". Therefore, projects applying same measure (b) are candidates for similar projects.

- c) The energy source used by the project activity is solar energy. Hence, only solar PV 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 900 MW to 300 MW.
- f) The start date of the large scale project activity is 30/01/2020. The purchase order is issued on this date.

Numbers of Similar projects identified which fulfil above-mentioned condition are is tabulated below:-

Sr. No.	Project Title	State	Capacity	GS No./weblink	Reference
1.	300 MW Solar PV Plant at Bhadla , Rajasthan	Rajasthan	300	https://registry.goldstandard.org/projects/details/2571	
2.	400 MW Solar PV Plant at Bhadla , Rajasthan	Rajasthan	400	https://registry.goldstandard.org/projects/details/1455	

N_{Solar} = 2

Above conclusion are based upon latest publically available data by:

1. List of Solar Projects in Rajasthan (RRECL- Website) as on 31.10.2016. The projects of having capacity of 300 MW to 900 MW was being considered from publically available data till Oct 2016.
<http://energy.rajasthan.gov.in/content/dam/raj/energy/rrecl/pdf/Activities/Solar/4.37%20Details%20of%20commissioned%20Solar%20Projects.pdf>
2. Plant wise details of all India renewable energy projects as on 20.03.2020
<https://cea.nic.in/wp-content/uploads/2020/04/Plant-wise-details-of-RE-Installed-Capacity-merged.pdf>

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 Solar PV projects identified is provided to the DOE.

N_{all} = 0

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

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

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

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

$$N_{diff} = 0$$

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

$$\begin{aligned} \text{Calculate } F &= 1 - N_{diff}/N_{all} \\ F &= 1 - (0/0) = 1 \end{aligned}$$

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

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

Outcome of Common Practise analysis:

As,

- i $F = 1$; is greater than 0.2
- ii $N_{all}-N_{diff} = 0$; is not greater than 3

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

B.5.1. Prior Consideration

The earliest Purchase Order date of the project activity is 30/01/2020 by Azure Power Forty Three Pvt. Ltd. The project has been submitted for preliminary review on 20/01/2020. Therefore the timeline for submission is within one year.

B.5.2. Ongoing Financial Need

Since the project is large scale project, the tariff signed is also at the lower side as compared to the general trend in India. Tariff are one of the lowest tariff in India. Therefore in order to sustain and operate the project the revenue from GS certification is required.

B.6. Sustainable Development Goals (SDG) outcomes

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact
		Indicator (Proposed or SDG Indicator)
SDG 13-Climate Action	13.2: Integrate climate change measures into national policies, strategies and planning	The project is helping in Emission reductions in tCO₂ by implementing renewable energy projects in host country i.e. in India. (13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other))

SDG 8 – Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	8.5- By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	1. No. of trainings provided to the employees (8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training) 2. Employment generated due to project activity (8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities)
SDG 7 – Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all	7.2-By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption

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

SDG Goal	Methodological choices/approaches for estimating the SDG outcome
SDG 7 –Affordable and Clean Energy : Ensure access to affordable, reliable, sustainable and modern energy for all	Measurement Method: - Electricity produced and supplied to the grid is monitored through energy meter. Net electricity will be calculated by state electricity board and O&M operator on monthly basis and provided in the share certificate/monthly report or equivalent. The other parameters used for net electricity supplied to grid are mentioned in monitoring plan. QA/QC Process: This parameter is monitored monthly and value of parameter will be cross checked with invoices. The meters will be calibrated on regular frequency.

SDG 8 – Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	Measurement Method: - Training and employment generation is monitored through training records, staff register or letter from O&M contractor for training and employment details or HSE/HR records QA/QC Process: This parameter is based on records, data and no any QA/QC procedure required. The DOE can confirm this parameter with interview with PP or Site incharge or employees for training and employment generation.
SDG 13 – Climate Action : Take urgent action to combat climate change and its impacts	Measurement Method: - The emission reduction parameter is calculated as product of net electricity supplied to grid and grid emission factor. The grid emission factor is ex-ante parameter and determined based on data obtained from “CO₂ Baseline Database for Indian Power Sector” version 14, published by the Central Electricity Authority, Ministry of Power, Government of India. This is in line with “Tool to calculate the emission factor for an electricity system, version 7.0”. The emission reductions are calculated as per registered PDD and as per methodology requirement. QA/QC Process: This parameter is calculated, and no any QA/QC procedure required.

B.6.2. Data and parameters fixed ex ante

SDG13 (Indicators 13.2.1)

Data/parameter	SDG 13
Unit	EF_{grid,OM,y}
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 16.0, Mar 2021 ³²
Value(s) applied	0.9568

³²<https://cea.nic.in/cdm-co2-baseline-database/?lang=en#iaez>

Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2017-18, 2018 and 2018-19 and 2019-20. The data is obtained from "CO ₂ Baseline Database for Indian Power Sector" version 16.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

SDG 13 (Indicators 13.2.1)

Data/parameter	SDG 13
Unit	EF_{grid,BM,y}
Description	tCO ₂ /MWh
Source of data	Build Margin CO ₂ emission factor in year y
Value(s) applied	Calculated from CEA database, Version 16.0, Dec 2021 ³³
Choice of data or Measurement methods and procedures	0.8682
Purpose of data	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2019-20. The data is obtained from "CO ₂ Baseline Database for Indian Power Sector" version 16.0, Mar 2021, published by the Central Electricity Authority, Ministry of Power, Government of India.
Additional comment	For the calculation of the Baseline Emission

³³ <https://cea.nic.in/cdm-co2-baseline-database/?lang=en#iaez>

SDG 13 (Indicators 13.2.1)

Data/parameter	SDG 13
Unit	EF_{grid,CM,y}
Description	tCO ₂ /MWh
Source of data	Combined Margin CO ₂ emission factor in year y
Value(s) applied	Calculated from CEA database, Version 16.0, Mar 2021 ³⁴
Choice of data or Measurement methods and procedures	0.9346
Purpose of data	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%
Additional comment	For the calculation of the Baseline Emission

B.6.3. Ex ante estimation of SDG Impact

SDG 13 – Climate Action :

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

$$E_{RY} = B_{EY} - P_{EY} - L_{EY}$$

Where,

ER_Y = Emission Reduction in tCO₂/year

³⁴<https://cea.nic.in/cdm-co2-baseline-database/?lang=en#iaez>

BE_y = Baseline emission in tCO₂/year
 PE_y = Project emissions in tCO₂/year
 LE_y = Leakage Emissions in tCO₂/year

Baseline Emission (BE_y)

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

$$BE_y = EGP_{J,y} * EF_{grid,y}$$

Where,

EGP_{J,y} = Total quantity of net electricity delivered to the recipient facility

EF_{grid,y} = Baseline emission factor
 = 0.9346 tCO₂/MWh

$$BE_y = 1,215,546.76 * 0.9346$$

$$= 1,136,050 \text{ tCO}_2/\text{year}$$

Since ER_y = BE_y

Therefore, ER_y = 1,136,050 tCO₂/year

Name of the SPVs	Capacity	PLF (%)	Generated Power (MWh) p.a.	Baseline Emission Factor (tCO ₂ /MWh)	Baseline Emissions (tCO ₂ /year)
Azure Power Forty Three Pvt. Ltd	600	23.15 %	1,215,546.76	0.9346	1,136,050

SDG 7 – Affordable and Clean Energy:

The project activity will generate 1,215,546.76 MWh of affordable and clean energy.

SDG 8 : Decent Work and Economic Growth

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

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

SDG 13 Climate Action

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

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

Where,

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

$EF_{grid,CM,y}$ = Baseline emission factor = 0.9346 tCO₂/MWh

$$\begin{aligned} BE_y &= 1,215,546.76 * 0.9346 \\ &= 1,136,050 \text{ tCO}_2/\text{year} \end{aligned}$$

Since $ER_y = BE_y$

Therefore, $ER_y = 1,136,050 \text{ tCO}_2/\text{year}$

Year	Baseline estimate	Project estimate	Net benefit
15/12/2020 to 14/12/2021	1,137,187	0	1,137,187
15/12/2021 to 14/12/2022	1,136,618	0	1,136,618
15/12/2022 to 14/12/2023	1,136,050	0	1,136,050
15/12/2023 to 14/12/2024	1,135,482	0	1,135,482
15/12/2024 to 14/12/2025	1,134,914	0	1,134,914
Total	5,680,250	0	5,680,250
Total number of crediting years	05		
Annual average over the crediting period	1,136,050	0	1,136,050

SDG 7 : Affordable and Clean Energy

Net generation per year= 1,215,546.76 MWh/year

Year	Baseline estimate	Project estimate	Net benefit
15/12/2020 to 14/12/2021	0	1216763.32	1216763.32
15/12/2021 to 14/12/2022	0	1216154.94	1216154.94
15/12/2022 to 14/12/2023	0	1215546.86	1215546.86
15/12/2023 to 14/12/2024	0	1214939.09	1214939.09
15/12/2024 to 14/12/2025	0	1214331.62	1214331.62
Total	0	60,77,733.79	60,77,733.79

Total number of crediting years	05		
Annual average over the crediting period	0	1,215,546.76	1,215,546.76

SDG 8 : Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project provides employment at least 10 persons. Also project activity improves the quality of employment by giving training to employee. Thus minimum 1 training per year will be conducted by the project activity.

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

SDG 13 (Indicators 13.2.1)

Data / Parameter	ER_y
Unit	tCO ₂ e/year
Description	Emission reductions achieved per year
Source of data	As per Estimated ER sheet. During the verification, the results shall be obtained from the Actual ER sheet.
Value(s) applied	1,136,050 (estimated)
Measurement methods and procedures	The baseline emissions are the product of electrical energy baseline EG _{PJ,y} expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor.
Monitoring frequency	As per monitoring period
QA/QC procedures	Not Applicable
Purpose of data	To Monitor the SDG 13 Indicator
Additional comment	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of GS-VERs for this project activity, whichever occurs later.

SDG 7 (Indicators 7.2.1)

Data / Parameter	EG_{PJ, y}
Unit	MWh/year
Description	Quantity of net electricity generation supplied by the project plant/unit in year y in MWh
Source of data	Monthly joint meter reading reports

Value(s) applied	1,215,546.76 (estimated)
Measurement methods and procedures	The electricity exported / supplied by the project activity is measured through meters (ABT Meters) having accuracy class of 0.2s. It is difference of export and import of project activity.
Monitoring frequency	Continuous measurement & monthly recording
QA/QC procedures	The frequency of calibration is once in 5 years ³⁵ . The monthly electricity supplied by the project activity in the JMR report is cross checked with invoices. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering.
Purpose of data	To Monitor the SDG 7 Indicator
Additional comment	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later. Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of GS-VERs for this project activity, whichever occurs later.

SDG 8 (Indicators 8.5.1)

Data / Parameter	Number of employment generation
Unit	Number
Description	Number of people employed directly due to the project activity
Source of data	Plant records or The training records for all the employees/Letter from O&M contractor for employment generation/ DOE interview with employees, local stakeholders etc
Value(s) applied	10
Measurement methods and procedures	This parameter also monitor number of men/women employed by the project activity. The project activity ensures that "equal pay for work of equal value" for both

³⁵ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

	men and women and there is no any discrimination against women. "The employment covers number of men and number of women employed by the project activity. The job is of type temporary/permanent or skilled/unskilled, etc. Also it is ensued that peoples get equal payment for equal work. The payment is based on work and no any gender inequality for payment for work of equal value. Further preference would be given to the local people for employment in skilled and unskilled jobs based upon their skills and competency. PP has provided salary slips and employment agreement of persons directly getting employment opportunity from the project activity. Further the average hourly earnings of a person are higher than the local level. For e.g a person is getting a monthly salary of INR 62,000 then his average hourly earnings will be as follows: $= 62,000/30 = \text{INR } 2066.$ This is higher than the average wage per day in India (Average daily earnings of highly skilled workers for Zone C is INR 609). The same can be verified at the time of verification. The Project thus provides employment opportunities and pays salaries and welfares and also helps to increase the income and living standards of the employees. No occupational injuries has been reported In the current monitoring period.
Monitoring frequency	Monthly monitoring and annual compilation
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with attendance register.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

SDG 8 (Indicators 8.6.1)

Data / Parameter	Quality of Employment
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Unit	number
Description	Number of trainings provided per year
Source of data	Plant records or The training records for all the employees/Letter from O&M contractor for employment generation/ DOE interview with employees, local stakeholders etc.
Value(s) applied	1 training per year
Measurement methods and procedures	Together with the technology supplier, the Project organise training for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures.
Monitoring frequency	Monthly monitoring and annual compilation
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with attendance register.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

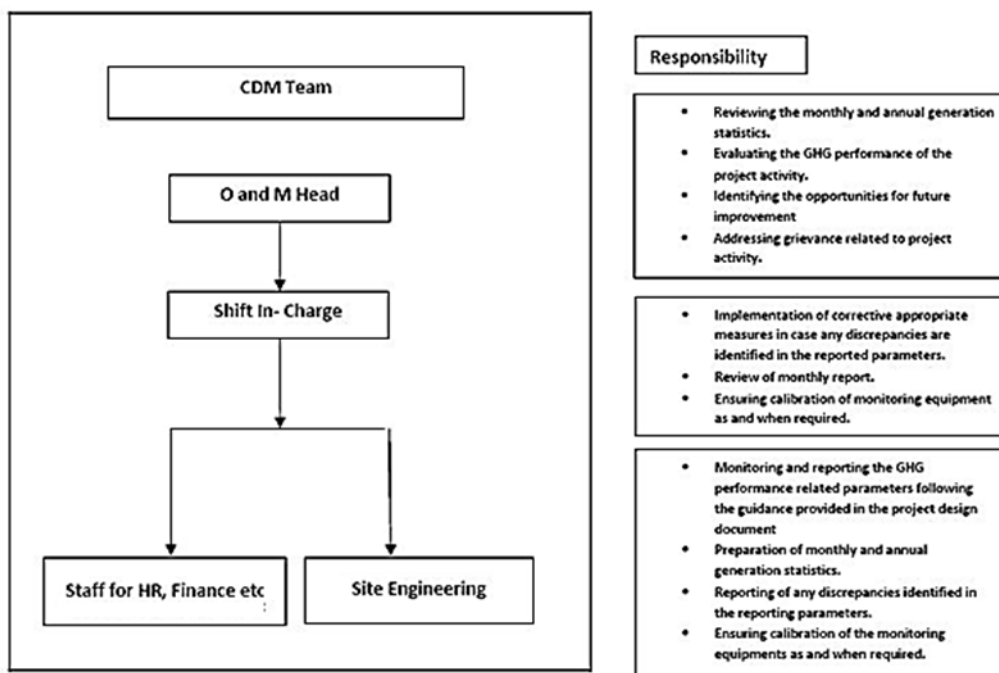
B.7.2. Sampling plan

No sampling is required

B.7.3. Other elements of monitoring plan

The monitoring plan is developed in accordance with the modalities and procedures for GS project activities and is proposed for grid-connected solar power project 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. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipments for this project activity. The team comprises of the following members:



Data Measurement

The export and import energy will be measured continuously using meters. Readings of meters shall be taken on monthly basis by authorized officer of EPC contractor in the presence of PP or representative of PP. Based on the Meter Reading Statement, the electricity being produced by the project activity will be evaluated. The metered data can be cross checked with other suitable data source (like daily generation report). Human resource (training and employment) documents will stored at the site as well at the head office. There will be dedicated training in order to enhance the soft and technical skills of the associates.

Data collection and archiving

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

Emergency preparedness

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

Personnel training

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

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

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

Apportioning:

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

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1. Start date of project

Start date of the project activity is 30/01/2020.

C.1.2. Expected operational lifetime of project

25 years 00 months

C.2. Crediting period of project

C.2.1. Start date of crediting period

Start date of crediting period is 15/12/2020.

C.2.2. Total length of crediting period

5 Years 00 months (renewable twice)

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.

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

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	As per Gold Standard Gender Policy, p. 10 "Foundational gender-sensitive requirement – This strengthens Gold Standard’s ‘do no harm’ approach and addresses safeguards to prevent or mitigate adverse impacts on women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standard certification and includes compliance with the gender ‘do no harm’ safeguards, gender gap analysis and gender sensitive stakeholder consultations." The project activity is a renewable energy project and does not involve any discrimination between men and women. The project does not adversely impact women or men. The PP have policies (Code of Conduct) in place and they don't differentiate between women and men
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	India is party to "Convention on the Elimination of All Forms of Discrimination against Women" and the project is aligned its labour policies which does not discriminate on gender.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	There is no expert required for the Gender Safeguarding Principles & Requirements for this project activity. The explanations for completing the following gender assessment questions are given below: 1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? No, the Project being a Solar PV project does not reduce access to or control of resources for women. 2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential

	increased burden on women or social isolation of men)? No, the Project beneficiaries in terms of employment and social upliftment of the area are common for both the gender. Further the project has carried out various CSR activities leading to welfare of community at large. 3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)? No, the CSR activities carried out by the project proponent are discussed with the community consisting both the genders. 4. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)? Yes the project takes into account gender roles and abilities of women/men. Job profile is allocated based on the type of work to be carried out. Further during the stakeholder consultation meeting, due consideration was being taken to account to ensure maximum participation from all the sections of society irrespective of any gender biasness. Thus the invitation was being given to the local people and the
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	people attended the meeting wholeheartedly wherein they were being briefed about the project benefits. The meeting witnessed equal participation from men and women and they were in full support for the project implementation. The gender requirements were discussed in the meeting and the invitees were being briefed how the project will involve participation from both the genders of the society in terms of project execution particularly employment and there will be no gender discrimination being followed. 5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities? No, on the contrary the project leads to increased availability of electricity in the regional grid thereby uplifting the living standards. 6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits? No, since the project is a renewable electricity generation project, thus it will not have discriminated against women. 7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and
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	managing environmental goods and services? No, in fact, the project leads to improved electricity in the regional grid thereby leading to less usage of fuel for lighting. 8. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards? No, in fact, due to improved electricity availability the usage of fuel for lighting would be reduced as well as indoor air quality would be improved.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	There is no expert required to assist with Gender issues at the Stakeholder Consultation. Explanation given below is fulfilling the gender requirements. The project is applying for regular GS registration. The LSC conducted as part of the project activity has involved around 20 participants including local villages, NGOs, government officials, suppliers, employees and general stakeholders.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

Azure Power Forty Three Pvt. Ltd organized stakeholder consultation with the objective to inform the interested stakeholders on the environmental and social impacts of the project activity and discuss their concerns regarding the project activity. The project proponent invited the local stakeholders for their feedback and comments on 01-07-2019 with the help of public notice, and thereafter also conducted a stakeholder consultation meeting at the plant site on 10-07-2019.

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

1. Own employees
2. Local population

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

The respective common question summarised from the respective sites are mentioned below:

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

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

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

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

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

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

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

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

Mr. Project Representative asked to the participants, if they had suggestions/feedback to the project activity. No adverse feedback was given by stakeholders. They applauded the project activity being coming at their region and they believed that the project would attract more industries to come in their region with clean energy generation projects, leading to more employment opportunities.

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

E.1. Summary of stakeholder mitigation measures

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

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

Also the global stakeholder feedback round is being initiated on 17/09/2020 after the listing of the project activity at GS4GG on 20/01/2020.

Stakeholder feedback Round:

The SFR had been planned for 60 days after listing project with GS. The email was being sent to relevant stakeholders like NGOs, DNA officials, Gold Standard officials along with project documents. As a result email had been sent to relevant stakeholders on 17/09/2020 wherein relevant stakeholders had been requested to give their feedback for the project which ended on 17/11/2020, however no any comments received during this period

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)	Grievance register are places at the respective site for the local stakeholders. Global stakeholders https://www.azurepower.com/contact-us can log their grievances through the provided link. A dedicated committee is formulated to handle the grievances at top priority.
GS Contact (mandatory)	help@goldstandard.org

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

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 Declaration of Human Rights 2. The Project shall not discriminate with regards to	No	The Project is not in conflict with the economic livelihood of the local community. The Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. Further, the Project meets the local labor law requirements thus does not cause any human rights abuse. The India has ratified the United Nations Human Rights Rules and regulations. The India ratified the same as per web link³⁶ given below:-	Not applicable

³⁶ http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

participation and inclusion		The project adheres to the host country's commitment to: Universal Declaration of Human Rights (UDHR) International Covenant on Economic, Social and Cultural Rights, India Accession 10/04/79³⁷. International Covenant on Civil and Political Rights India Accession 10.04.79³⁸.	
Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. 2. Projects shall apply the principles of	No	The Project promotes gender equality and the empowerment of women. The Project does not cause any discrimination against women. The project Proponent does not indulge in discrimination on basis of gender, race, religion, sexual orientation.	Not Applicable

³⁷ <http://hrlibrary.umn.edu/research/ratification-india.html> and http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

³⁸ <http://hrlibrary.umn.edu/research/ratification-india.html> and http://tbinternet.ohchr.org/_layouts/TreatyBodyExternal/Treaty.aspx?CountryID=79&Lang=EN

nondiscrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		The project abide by the Factories Act that prohibits any form of discrimination and is in accordance with the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), India ratified it on 09/07/1993 with certain reservations³⁹ And International Convention on the Elimination of All Forms of Racial Discrimination; India ratified the convention on 03/12/1968 with certain reservation⁴⁰. There is no any possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits.	
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³⁹ http://nhrc.nic.in/documents/india_ratification_status.pdf

⁴⁰ http://nhrc.nic.in/documents/india_ratification_status.pdf

and <http://www.un.org/womenwatch/daw/cedaw/>

and <http://www.refworld.org/docid/3ae6b3940.html>

		The Project can not adversely affect men and women in marginalised or vulnerable communities. Project has taken into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities. Project has taken into account gender roles and the abilities of women or men to benefit from the Project's activities. The Project design does not contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities. Project does not reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and	
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		implementation or access to opportunities and benefits. Project does not limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services. The proposed Project would not expose women and girls to further risks or hazards. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women for Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. • Slavery, imprisonment, physical and mental drudgery,	
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		punishment or coercion of women and girls. • Restriction of women's rights or access to resources (natural or economic). • Recognise women's ownership rights regardless of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources. Projects applies the principles of non discrimination, equal treatment, and equal pay for equal work. The equitable participation of men and women is followed in the identified tasks/activities. The project activity ensures the participation of women or men in Project activities and they are getting benefits based on pregnancy, maternity/paternity leave, or marital status. These	
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		conditions does not limit the access of women or men, as the case may be, to Project participation and benefits. The project activity follows country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not have exposure to increased health risks and shall not adversely affect the health of the workers and the community. Necessary health and safety measures will be taken during construction and operation phase, as well as throughout the operational lifetime of the project activity, also staffs will be trained to be able to work with high voltages and occupational health and safety.	Not applicable
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	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage. The explanation regarding this is provided by project owner.	Not applicable
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 has received the necessary approvals from the local authorities and does not lead to any resettlement. India (the Ministry of Rural development have the "The National Rehabilitation and Resettlement Policy, 2013 https://dolr.gov.in/sites/default/files/Right%20to%20Fair%20Compensation%20and%20Transparency%20in%20Land%20Acquisition%20C%20Rehabilitation%20and%20Resettlement%20Act%202013.pdf The project activity do not have any major impact on land use patterns.	Not applicable

		In accordance with Article 1 of the International Covenant on economic, Social and Cultural Rights the program does not complicit in involuntary resettlement. No Expropriation has been conducted on any land involved in project activity. Land used for this project activity is taken on the basis of sub-lease. The land is taken on lease on mutual consent between land owner and PP for a period of 50 years.	
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	The project has received the necessary approvals from the local authorities and does not lead to any resettlement. There are no any uncertainties with regards land tenure, access rights, usage rights or land ownership. Thus land tenure and other rights are with PP.	Not applicable
Principle 5. Corruption			

1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not contribute to or reinforce corruption of any kind. Indulgence in corruption is an illegal activity in the host country and the local labor compliance takes into account of the same. The project abides by the United Nations Convention Against Corruption. India ratification 09.05.11⁴¹	Not applicable
Principle 6.1 Labour Rights			
1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards	No	Forced labor is an illegal activity in the host country and the local labor compliance takes into account of the same. Further, India is a party to ILO and forced labour is illegal in India.	Not applicable

⁴¹ <http://www.unodc.org/unodc/en/treaties/CAC/signatories.html>

embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organisations 3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for		The project does not employ any form of forced or compulsory labour. Employees can quit their Services at any time. The project complies with the Factories Act in India that prohibits forced or compulsory labour⁴². The project activity does not involve any child labour.	
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⁴² <http://www.ilo.org/dyn/natlex/docs/WEBTEXT/32063/64873/E87IND01.htm>

payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an <u>Expert Stakeholder</u> opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training			
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of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures			
Principle 6.2 Negative Economic Consequences			
1. Does the project cause negative economic consequences during and after project implementation?	No	No potential risks to the local economy. The financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period.	Not applicable.
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not lead any increase in greenhouse gas emissions over the Baseline Scenario.	Not applicable.
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	The project activity supplies energy to national grid and project activity displaces equivalent quantity of electricity which would have been generated by fossil fuel dominated grid connected power plants.	Not applicable.
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 is renewable energy technology (Solar PV based power generation Technology) and does not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s).	Not applicable
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	The project is renewable energy technology (Solar PV based power generation Technology) and does not affect Erosion and/or water body stability.	Not applicable

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 proponent has implemented Environment Health Safety and Social guideline which takes into account the same. The project activity involves barren land and does not involve use of land and soil for production of crops or other products. The project does not involve any landscape modification or soil. Hence there is no any impact of this principle.	Not applicable
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 renewable energy technology (Solar PV based power generation Technology). The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions. Thus this section is Not Applicable.	Not Applicable.
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 project is renewable energy technology (Solar PV based power generation Technology). The Project not be negatively impacted by the use of genetically modified organisms or GMOs. Thus this section is Not Applicable.	Not Applicable
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No	The project has received environmental clearance from the State Pollution control Board. Further the EHSS guidelines takes into account the same. The project does not lead to release of any hazardous substances that pose threat to the environment. Rather it aims at reducing the air pollution that is prevalent due to use of fossil fuel power plants. The project promotes environmental protection through the use of	Not Applicable

		cleaner technology. The project abides by the stipulations of the Indian Environment Protection Act 1986 ⁴³ .	
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project is renewable energy technology (Solar PV based power generation Technology). The project does not involve generation of Hazardous and Non-hazardous Waste. Standard procedure is followed at site during operation and maintenance.	Not Applicable
Principle 9.6 Pesticides & Fertilisers			

⁴³ <http://envfor.nic.in/legis/env/env1.html>

Will the Project involve the application of pesticides and/or fertilisers?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. There are no any involvement of pesticides and/or fertilisers. Thus this principle is Not Applicable.	Not Applicable
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. The project activity does not involve any harvesting of forests. Thus this principle is Not Applicable.	Not Applicable
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	The project is renewable energy technology (Solar PV based power generation Technology) power generation. The Project does not modify the quantity or nutritional quality of food available. Thus this principle is Not Applicable	Not Applicable.
Principle 9.9 Animal husbandry			

Will the Project involve animal husbandry?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. The Project does not involve animal husbandry. Thus Not Applicable.	Not Applicable
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 cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage.	Not Applicable
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	There are no any endangered species identified at project site and also no species have the route through area. The project activity does not impact other endangered species through transboundary affects.	Not Applicable
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APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Azure Power Forty Three Pvt. Ltd
Registration number with relevant authority	3rd Floor, Asset 301-304 and 307, World Mark 3, Aerocity, New Delhi-110037.
Street/P.O. Box	Aerocity
Building	Worldmark 3, Asset 301-304 & 307, 3rd Floor
City	New Delhi
State/Region	New Delhi
Postcode	110037
Country	India
Telephone	-
E-mail	-
Website	https://www.azurepower.com
Contact person	Mr. Sunil Hansu
Title	Mr.
Salutation	Manager
Last name	Hansu
Middle name	-
First name	Sunil
Department	Operation and Maintenance
Mobile	+91-9468442097
Direct tel.	-
Personal e-mail	-

APPENDIX 3- LUF ADDITIONAL INFORMATION

Not Applicable as this project is electricity generation using solar energy.

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

Not Applicable

Revision History

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