Project design document form

(Version 11.0)

BASIC INFORMATION	
Title of the project activity	10 MW Solar Power Project by Krishna Wind Farm Developers Pvt. Ltd.
Scale of the project activity	☐ Large-scale ☒ Small-scale
Version number of the PDD	04
Completion date of the PDD	12/11/2020
Project participants	M/s. Krishna Wind Farm Developers Pvt. Ltd.
Host Party	India
Applied methodologies and standardized baselines	Methodology: AMS – I.D.: Grid connected renewable electricity generation – Version 18.0
Sectoral scopes	Sectoral Scope: I – Energy industries (renewable / non-renewable sources)
Estimated amount of annual average GHG emission reductions	18,123 tCO_2e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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The implemented project activity is an initiative by the M/s. Krishna Wind Farm Developers Pvt. Ltd. (KWFDPL) to export renewable electricity produced by solar PV power project to the power deficit grid in order to decrease power shortage, diversify the grid and reduce greenhouse gas emissions.

Project Description

The purpose of the project activity is generation of electricity using the solar energy which has no associated greenhouse gas emissions. The project is being renewable energy project activity generate electricity using solar power.

KWFDPL has set up a Solar PV Power Project in Mohari Village, Jamkhed taluka, District Ahmednagar in Maharashtra state. This Installed solar power project is based on Poly Crystalline Silicon Photo Voltaic technology. Sun light with the help of PV modules will be converted into D.C. power which will then be combined to get the desired level of current and voltage. Now this D.C. output will be converted with the help of Inverters into the A.C. power of certain voltage and current level. At this stage current and voltage level can be stepped up with the help of transformers which then will be injected into the grid through distribution licensee substation.

The annual electricity generation from the installed project activity is 18,775 MWh. Electricity generation is carried out without causing any negative impact on the environment and will support climate change mitigation as it leads to emission reductions of 18,123 tCO_2e each year for the renewable crediting period of 7 years, renewable twice.

The project activity consist of installation of Poly Crystalline type 37,450 Solar PV modules having capacity of 325 Wp and 320 Wp of Canadian solar make and 8 nos. of invertor of Hitachi make with rating capacity 1250 KW.

The solar energy generated by the project will replace the fraction of thermal power supplied by the integrated Indian Grid to the states. In the absence of the project activity equivalent amount of power generation would have taken place in the integrated Indian grid connected power stations which is dominated by fossil fuel power generating stations. Thus, the generation from project activity will result in reduction of the greenhouse gas emissions and will help in achieving a low carbon development path for the state and the nation.

The project activity is commissioned on 07/08/2017.

The electricity generated from the project activity will be sold to integrated Indian grid through Power Purchase Agreement (PPA) with Solar Energy Corporation of India (SECI) dated 03/08/ 2016.

The installed project activity is not a component project activity (CPA) that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

Purpose of the project activity

The main purpose of the project activity is to generate electrical energy in sustainable means using solar PV modules and to contribute to climate change mitigation efforts.

Apart from generation of renewable electricity, the project has also been conceived for the following:

- To enhance the propagation of commercialisation of clean solar energy in the region.
- To contribute to the sustainable development of the region, socially, environmentally & economically.
- To reduce the prevalent regulatory risks for this project through revenues from the CDM.

Contribution of project activity to sustainable development

Government of India has stipulated following indicators for sustainable development in the interim approval guidelines[1] for CDM projects.

1. Social well-being
2. Economic well-being
3. Environmental well-being
4. Technological well-being

Social well-being:

- The project activity on its small way will help to development of plant site.
- The project contributes for social well-being on its small way by generating few job opportunities during the initial stage of project development, (e.g. civil works, construction activity) and during the operation of the project activity. (e.g. Security, O & M personnel).
- The project contributes on its small way along with other project activities like development of road network will help to access/strengthen the basic amenities to people leading to improvement in quality of life of people in the area and improved communication facilities in remote area.

Economic well-being:

- The project brings additional investment in the area to contribute in meeting increasing power demand of the people.
- Use of solar energy for electricity generation instead continuing the conventional practice reduces stress on the economy of the country.
- The project is contributes to diversification of the national energy supply, which is dominated by conventional fuel based generating units.

[1] Ministry of Environment and Forest web site: http://envfor.nic.in:80/divisions/ccd/cdm_iac.html

Environmental well-being:

- The project utilizes solar energy for generating electricity which otherwise would have been generated through the operation of power plants in the Integrated Indian grid, contributing to reduction in specific emissions (tons of emissions /MWh of energy generated) including GHG emissions.
- As Solar power project produce no end products in the form of waste (e.g. Particulate Matter, Fly ash, Water effluent etc.). This will help in reduction of overall pollution from power generation.
- Being a renewable resource, using solar energy to generate electricity contributes to conventional (e.g. fossil fuel) resource conservation and prevents subsequent degradation of other resources.
- Thus, the project causes no negative impact on the surrounding environment contributing to environmental well-being.

Technological well-being:

- The project activity will be making of use of the reliable and proven technology available locally to ensure that an environmentally safe technology is only being implemented in the installed project activity. Setting up of this project will also increase the private sector participation in this project category thereby contributing to more green power to the grid system.

In view of the above, the PP has considered that the project activity profoundly contributes to the sustainable development.

A.2. Location of project activity

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Host Party – India

State – Maharashtra

Mohari Village, Jamkhed taluka, District Ahmednagar

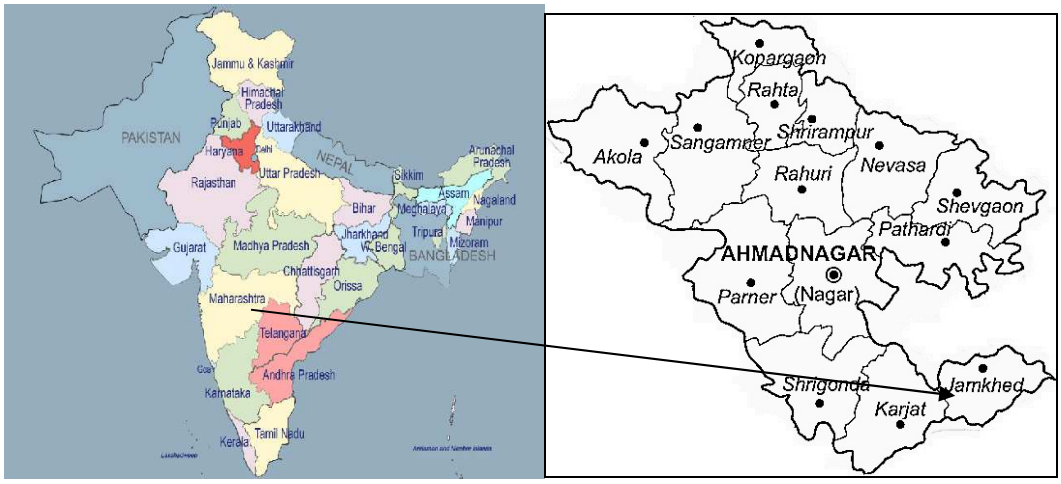
Physical/Geographical location

Project activity is being set up in Mohari Village, Jamkhed taluka, District Ahmednagar in Maharashtra state which is 110 km from Aurangabad Airport.

Geographical co-ordinates of the project are as below:

Village	Dist.	Latitude	Longitude
Mohari	Ahmednagar	$18^0$40'10.56" N (18.6696^0 N)	$75^0$31'18.48" E (75.5218^0 E)

Location map is as follows –



A.3. Technologies/measures

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This category comprises renewable energy generation units, such as photovoltaics that supply generated electricity to integrated Indian grid.

The solar energy generated by the project will replace the fraction of thermal power supplied by the integrated Indian grid. In the absence of the project activity equivalent amount of power generation would have taken place in the integrated Indian grid connected power stations which is dominated by fossil fuel power generating stations. Thus, the generation from project activity will result in reduction of the greenhouse gas emissions.

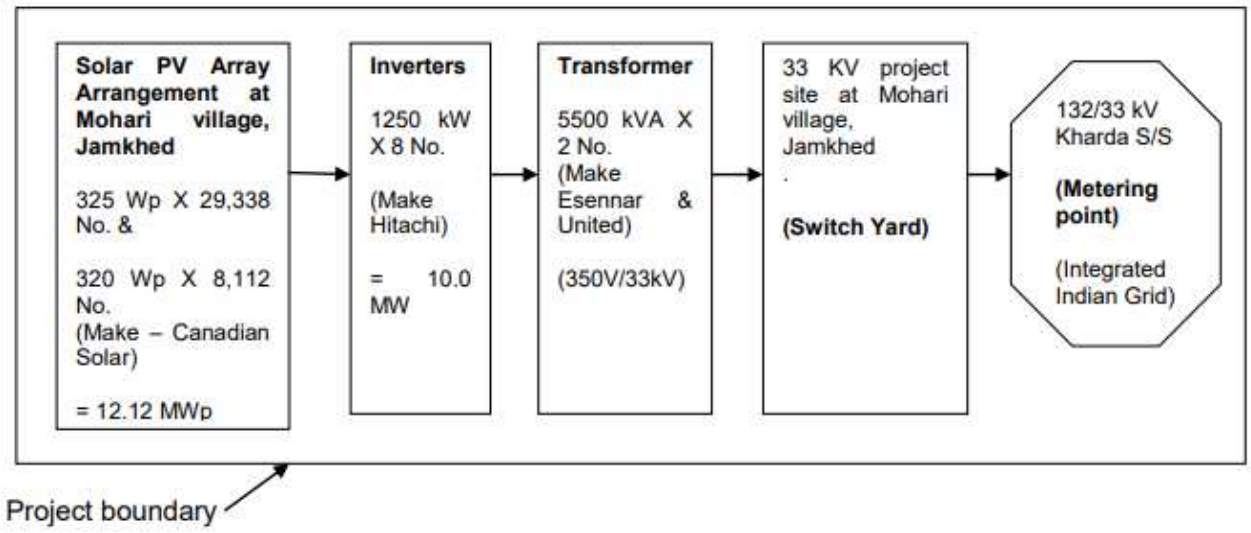
Technical description[2]

The project activity is solar photovoltaic based power generation project. The total installed capacity of the Solar PV power project is 12 MWp (DC). 8 number of “1250 KW” inverter will be installed at the plant site to convert the DC (Direct Current) power to AC (Alternate Current) Power. The installed plant will be predominantly south oriented and layout with PV panel of Poly Crystalline technology.

Photovoltaic module consists of several photovoltaic cells connected by circuits and sealed in and environmentally protective laminate, which forms the fundamental building blocks of the complete PV generating unit. Several PV panels mounted on a frame and grouped are termed as PV Array.

The DC electric power generated by the photo voltaic modules will be converted into AC power by inverter, which will be stepped up to 33 kV through a 5500 kVA X 2 no. transformer located at the plant.

[2] Solar PV generates DC Current and Inverter Converts DC into AC, hence 12.2 MWp represents the DC Capacity and 10 MW represents the AC Capacity.



The project is a Renewable Energy project which displaces the electricity from the Grid that is dominated by carbon intensive fossil fuel. The electricity generation from the project activity is an environmentally safe and sound power generation technology.

The project activity is using the reliable and proven technology available locally to ensure that an environmentally safe technology is only being implemented in the this project activity.

The modules installed in the project activity are Poly Crystalline modules. The number of modules installed in the project activity is 37,450 modules of 320Wp and 325Wp Canadian Solar make and 8 no. of inverter of Hitachi make with rating capacity 1250 kW are also used in the project activity.

The technology is well proven and safe. The other equipments would be installed in the project activity like inverters, junction Box & transformers are also well proven and safe.

The 10.00 MW solar power plant comprises of new Solar Photovoltaic modules, inverter and transformer as per following details –

Technical data of the solar cell modules:

Parameter	**Unit**	**Description**	
Type	-	Polycrystalline	
Number of PV Modules	-	37,450 (320Wp & 325Wp)	
Model	-	**CS6U – 320P**	**CS6U – 325P**
Nominal Power per PV Module	Wp	320 Wp	325 Wp
Rated voltage (Vmp) STC	V	36.8	37.0
Rated current (Imp) STC	A	8.69	8.78
Open circuit voltage (Voc) STC	V	45.3	45.5
Short circuit current (Isc) STC	A	9.26	9.34
Module efficiency	%	16.46	16.72
Dimensions	mm	1960 x 992 x 40 mm.	
Weight	Kg.	22.4	
Average Lifetime	Years	25	
Manufacturer	-	Canadian Solar	

Technical data of the inverter:

Parameter	Unit	Description
Model		HIVERTER –NP201i
Quantity	No.	8
Input data (DC) – Max. DC power	kWp	1500
MPPT Voltage range	V	DC 525 to 900
Maximum DC Input Voltage (OC)	V	1000
Minimum DC Input Voltage	V	525
Max. Input Current DC	A	2400
Output data (AC) – nominal power	kW	1250
AC Grid Connectoin		Three Phase
Max. AC Current	A	2214
Nominal Output Voltage	V	350
Output Voltage Range	V	350 $\pm$ 10%
Output Frequency Range		50 Hz or 60 Hz $\pm$ 5%
Max. efficiency	%	98.6
Manufacturer		HITACHI

Technical data of the transformer:

Parameter	Unit	Description	
Model		Outdoor type	
Rated capacity	kVA	5500	5500
HV No Load Voltage	kV	33	33
LV No Load Voltage	kV	0.350-0.350-0.350	0.350-0.350-0.350
Rated frequency	Hz	50	50
Manufacturer	-	United Transformers	Esennar Transformers

Solar power project operated & maintained indigenously.

A.4. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (host)	Private entity M/s. Krishna Wind Farm Developers Pvt. Ltd.	No

A.5. Public funding of project activity

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The project has not received any public funding from Annex I countries and Official Development Assistance (ODA). The project is a unilateral project.

A.6. History of project activity

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PP has Confirmed that,

(a) The installed CDM project activity is neither registered as a CDM project activity nor included as a component project activity (CPA) in a registered CDM programme of activities (PoA); (b) The installed CDM project activity is not a project activity that has been deregistered.

Also,

(a) The installed CDM project activity neither a CPA that has been excluded from a registered CDM PoA; nor

(b) Registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired exists in the same geographical location as the installed CDM project activity.

A.7. Debundling

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As per para 5.1 of methodological tool, "Assessment of de-bundling for small scale project activities", (EB 83, Annex 13, Version 04.0) – A proposed small scale project activity shall be deemed to be a de-bundled component of a large project activity if there is a registered small-scale project activity or an application to register another small-scale CDM project activity:

- With the same project participants
- In the same project category and technology / measures; and
- Registered within the previous 2 years; and
- Whose project boundary is within 1 km of the project boundary of the proposed small- scale activity at the closest point.

The project participant hereby confirms that they have not registered any small scale CDM activity or applied to register another small scale CDM project activity within 1 km of the project boundary, in the same project category and technology/measure in previous 2 years.

This means that the project activity does not fall under the de-bundled category and qualifies for small scale CDM Project.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines

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AMS-I.D.[3] "Grid connected renewable electricity generation" – Version 18.0

Tools referred in this methodology:

Tool to calculate the emission factor for an electricity system – version 07.0, EB100, Annex 4[4]

B.2. Applicability of methodologies and standardized baselines

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[3] https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK

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

Requirements with respect to technology/measure under AMS I. D. – Grid connected renewable electricity generation (Version 18.0)

Technology/measure	Justification
1. This methodology is applicable to project activities that (a) install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	The PP is installing new Solar PV based power generation project at site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant), hence the criterion is applicable for the project activity
2. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m^2; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m^2.	The present CDM project activity is not a hydro project, the project activity is Solar PV based power generation project, hence this criterion is not applicable.
3. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project activity is installation of new Solar PV based power generation project (i.e. only renewable component) and not the any addition to existing non-renewable component. Further the project total capacity is 10.0 MW_{AC} which is within the eligibility limit for small scale CDM project activity. Hence this criterion is not applicable.
4. Combined heat and power (co-generation) systems are not eligible under this category.	This is not a combined heat and power (co-generation) system. Hence this criterion is not applicable for the project activity.
5. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The project activity is Greenfield project and not involves any addition to the existing renewable power generation facility. Hence, this criterion is not applicable for the project activity.
6. In the case of retrofit or replacement,	The project activity is Greenfield project

to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	and not seek/involves any retrofit or modification of an existing facility for renewable energy generation. Hence this criterion is not applicable for the project activity.
7. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	The present CDM project activity is Solar PV based power generation project; hence this criterion is not applicable.
8. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The present CDM project activity is Solar PV based power generation project, hence this criteria is not applicable.

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

Applicability Criteria	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 the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option II.a and option II.b. If option II.a 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	Steps involved in calculation of Emission Factor are included in section B.6.2 of the PDD as per the requirement of the tool.

Applicability Criteria	Project Case
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 CO2 emission factor of bio fuels is zero.	The project is a solar project and there is no involvement of bio fuels.

The project activity is installation of 10.00 MW of solar PV modules and there would not be any change in the capacity of the project during its crediting period. Since the project generates and exports renewable electricity to the grid system and the capacity of the project activity is well below the qualifying limit of 15 MW. Hence the choice of project Type and category I.D (Version 18, EB 81, and Annex 24) is justified.

B.3. Project boundary, sources and greenhouse gases (GHGs)

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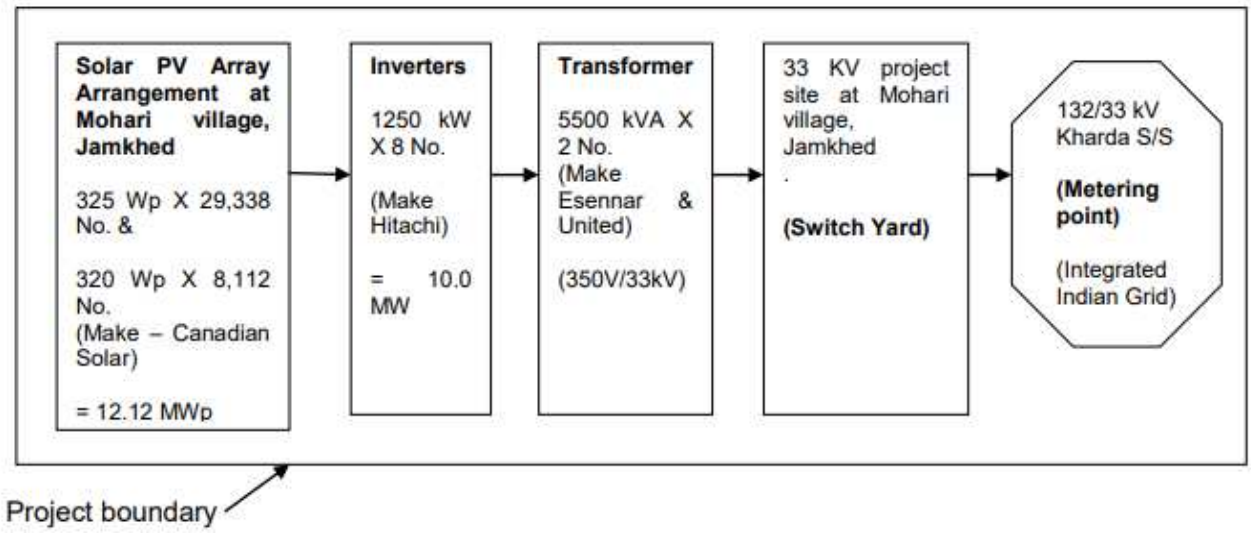
As per the para 18 of applied methodology (Version 18, EB 81) of AMS I. D. "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to".

Actual Arrangement of KWFDPL Solar Power Project of 10.00 MW is as below, project located in Mohari Village, Jamkhed taluka, District Ahmednagar in Maharashtra state which is under integrated Indian grid of India.



Source		GHG	Included?	Justification/Explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project activity	Green Field Project involving implementation of new solar power project: Electricity generation from the project activity	CO_2	No	Electricity generation from solar PV technology does not have any emission sources.
		CH_4	No	
		N_2O	No	

B.4. Establishment and description of baseline scenario

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As per para 19 of the methodology AMS I.D. (Version 18, EB 81, Annex 24) "The baseline scenario is that electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into grid."

As the project activity displaced electricity from Integrated Indian grid, hence Integrated Indian grid connected power plants are considered for the project baseline.

As per para 22 of the methodology AMS I.D. (Version 18, EB 81, Annex 24), "Baseline emissions include only CO_2 emissions from electricity generation in 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."

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

Where:

BE_y = Baseline emissions in year y (t CO_2)

$EG_{PJ,y}$ = 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)

$EF_{grid,CM,y}$ = Combined margin CO_2 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 CO_2/MWh)

B.5. Demonstration of additionality

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The table below is only applicable if the proposed project activity is a type of project activity which is deemed automatically additional, as defined by the applied approved methodology, tool, standardized baseline or specific renewable technologies/measures conferring automatic additional microscale CDM project activities proposed by a DNA and approved by the Board.

Specify the methodology, tool, standardized baseline or specific renewable technologies/measures conferring automatic additional microscale CDM project activities proposed by DNAs and approved by the Board, that establish automatic additionality for the proposed project activity (including the version number and the specific paragraph, if applicable).	As per methodological tool 21: Demonstration of additionality of small scale project activities (version 13.1) documentation of barriers is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small scale CDM thresholds (e.g. installed capacity up to 15 MW) , the positive list comprises of the following grid connected and off grid renewable electricity generation technologies (i) Solar technologies (photovoltaic and solar thermal electricity generation (ii) Off-shore wind technologies (iii) Marine technologies (wave/tidal) (iv) building integrated wind turbines or household rooftop wind turbines of a size up to 100 kW.
Describe how the proposed project activity meets the criteria for automatic additionality in the relevant methodology, tool, standardized baselines or specific renewable technologies/measures conferring automatic additional microscale CDM project activities proposed by a DNA and approved by the Board.	As the project is a grid connected photovoltaic project with 10.00 MW capacity, there is no requirement to demonstrate the additionality of the project.

In line with para 41 of CDM validation and verification standard (version 02.0), the installed CDM project activity is with a start date after 02/08/2008, accordingly the project participant has informed the Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status on 05/05/2017, which is within six months of the project activity start date (29/03/2017).

From the above it can be concluded that CDM was seriously considered in the decision to implement the project activity.

Chronology of events in reference to the Solar PV based power generation project implementation along with CDM is mentioned below:

Sr. No.	Date	Events
1	24/03/2017	Board resolutions
2.	03/08/2016	Power Purchase Agreement (PPA) between KWFDPL and SECI.
3.	29/03/2017	EPC contract between KWFDPL and MITCON
4.	05/05/2017	Prior intimation submitted to UNFCCC and NCDMA i.e. MoEF, India
5.	07/08/2017	Date of commissioning of the project activity

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B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

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As per the latest guidelines of the methodology AMS I.D. (Version 18, EB 81, Annex 24) to estimate the baseline emissions, the CO_2 emission factor is calculated as per the procedures laid in paragraph 12 (a), A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculate the Emission Factor for an electricity system'. (version 07.0, EB 100, Annex 4)

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

As per para 23 of the methodology AMS I.D. Version 18, the emission factor can be calculated in a transparent and conservative manner as follows:

a) A combined margin (CM) consisting of the combination of operating margin (OM) and Build margin(BM) according to the procedures prescribed in the "*Tool to calculate the Emission Factor for an electricity system"* (version 07, EB 100, Annex 4)

OR

b) The weighted average emissions (in t CO_2 / MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Calculation shall be based on data from an official source (where available) and made publically available.

From the above two options PP has chosen option (a) for calculation of grid emission factor.

The ex-ante CO_2 emission factor i.e. combined margin emission factor is calculated as per the "Tool to calculate the Emission Factor for an electricity system" (version 07.0, EB 100, Annex 4) as follows*:*

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

The project activity is located in the Maharashtra state of India. Hence the project electricity system not located partially or totally in Annex-I counties.

As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems". It also states that "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used."

Keeping this into consideration, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into five regional grids viz. Northern, Eastern, Western, North-

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

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.

PP has chosen the option I to calculate the operating margin and build margin emission factor.

Step 3: Select a method to determine 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 (Refer "Tool to calculate the emission factor for an electricity system", (version 07.0, EB 100, Annex 4)

(a) Simple operating margin;
(b) Simple adjusted operating margin;
(c) Dispatch data analysis operating margin;
(d) Average operating margin.

The data required to calculate Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers.

The choice of other two options for calculating operating margin emission factor depends on generation of electricity from low-cost/ must-run sources. In the context of the methodology low cost/must run resources typically include hydro, geothermal, wind, low-cost biomass, nuclear and solar generation.

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

	2011-12	2012-13	2013-14	2014-15	2015-16
Indian Grid	19.6%	16.9%	18.6%	16.8%	15.1%

Source: CO_2 Baseline Database for the Indian Power Sector - Central Electricity Authority (CEA)

The above data clearly shows that the percentage of total grid generation by low-cost/ must-run plants (on the basis of average of five most recent years) for the Indian grid is less than 50 % of the total generation.

Thus, the Average OM method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

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

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

(a) **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

(b) **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 CDM-PDD to the DOE for validation.

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

a) **Simple OM**

In the Simple OM method, the emission factor is calculated as generation - weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-operating cost and must-run power plants. Simple OM can be calculated using any of the two available methods. Option A has been selected where the data on fuel consumption and net electricity generation of each power plant/ unit is available. The CEA baseline is derived using the following formulae to calculate simple OM

$$EF_{grid,OMsimple,y} = \frac{\sum_{m} EG_{m,y} \times EF_{EL,m,y}}{\sum_{m} EG_{m,y}}$$

Where:

$EF_{grid,OMsimple,y}$ = Simple operating margin CO_2 emission factor in year *y* (tCO_2/MWh)

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)

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

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

Determination of $EF_{EL,m,y}$:

The emission factor of each power unit *m* is determined applying Option A1.

If for a power unit m data on fuel consumption and electricity generation is available, the emission factor ($EF_{EL,m,y}$) should be determined as follows:

$$EF_{EL,m,y} = \frac{\sum_i FC_{i,m,y} \times NCV_{i,y} \times EF_{CO2,i,y}}{EG_{m,y}}$$

Where:

$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)

$FC_{i,m,y}$ = Amount of fossil fuel type i consumed by power unit m in year y (Mass or volume unit)

$NCV_{i,y}$ = Net calorific value (energy content) of fossil fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,y}$ = CO_2 emission factor of fossil fuel type *i* in year *y* (tCO_2/GJ)

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit *m* in year *y*(MWh)

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

i = All fossil fuel types combusted in power unit *m* in year *y*

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

The Operating Margin (including imports) calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units using the CEA CO_2 data base for the Indian Grid.

The operating margin emission factor has been calculated using a 3-year data vintage[5]:

[5] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

Simple Operating Margin Emission Factors (t CO_2/MWh) (incl. Imports)			
	2013-14	**2014-15**	**2015-16**
Indian Grid	1.0002	0.9903	0.9655

Net Generation in Operating Margin (GWh) (incl. imports)			
	2013-14	**2014-15**	**2015-16**
Indian Grid	721,632	808,417	871,740

Weighted Generation Operating Margin (t CO_2/MWh)		
Indian Grid		0.9843

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

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 72:

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 CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.*

(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 PDD and is fixed for the entire crediting period.

The build margin emissions factor is the generation of weighted average emission factor (tCO_2/MWh) of all power units m during the most recent year y for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_{m} EG_{m,y} \times EF_{EL,m,y}}{\sum_{m} EG_{m,y}}$$

Where:

$EF_{grid,BM,y}$ –Build margin CO_2 emission factor in year y (tCO_2/MWh)

$EG_{m,y}$ –Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

$EF_{EL,m,y}$ –CO_2 emission factor of power unit m in year y (tCO_2/MWh)

m –Power units included in the build margin

y –Most recent historical year for which power generation data is available

Build Margin (tCO_2/MWh) (not adjusted for imports)[6]	
	2015-16
Indian Grid	**0.9083**

Step 6: Calculate the combined margin emissions factor

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 81:
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 weighted average CM method (option a) to calculate $\boldsymbol{EF}_{grid, CM, y}$

The combined margin emissions factor is calculated as follows:

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

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (tCO_2/MWh)
$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (tCO2/MWh)
W_{OM} = Weighting of operating margin emissions factor (%)
W_{BM} = Weighting of build margin emissions factor (%)

[6] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

For wind and solar projects, the default weights are as follows: w_{OM} = 0.75 and w_{BM} = 0.25 (owing to their intermittent and non-dispatchable nature).

$EF_{grid, CM, y}$ = $EF_{grid, OM, y}$ x 0.75 + $EF_{grid, BM, y}$ x 0.25

= 0.9843 × 0.75 + 0.9083 × 0.25

$EF_{grid, CM, y}$ = 0.9653 t CO_2/MWh

Thus, the CM emissions factor ($EF_{grid, CM, y}$) for the project has been calculated to be:

$EF_{grid, CM, y}$ = 0.9653 t CO_2/MWh

Baseline Emission Factor: 0.9653 t CO_2/MWh

Project Emissions (PE_y):

As per paragraph 39 of approved methodology AMS- I. D., (Version 18, EB 81, Annex 24), for most renewable energy project activities, PE_y = 0. However, for the following categories of project activities, project emissions have to be considered following the procedure described in the most recent version of ACM0002.

- Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, Electricity/fossil fuel consumption)
- Emissions from water reservoirs of hydro power plants

As this project activity is Solar PV based power generation project and not geothermal or hydro power plant hence project emissions are zero.

Leakage Emissions (LE_y):

As per paragraph 42 of the approved methodology AMS- I. D. (Version 18, EB 81, Annex 24), If the energy generating equipment is transferred from another activity, leakage is to be considered. The leakage emissions considered as zero t CO_2 as no such equipment shall be transferred from another project activity.

Emission Reductions (ER_y):

The emission reductions (ER_y) are calculated as per equation 9 under para 43 of AMS-I. D. (Version 18, EB 81, Annex 24).

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y	Emission reductions in year y (t CO_2e/y)
BE_y	Baseline Emissions in year y (t CO_2/y)
PE_y	Project emissions in year y (t CO_2/y)
LE_y	Leakage emissions in year y (t CO_2/y)

B.6.2. Data and parameters fixed ex ante

Data/Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2 e/ MWh
Description	Ex-ante Combined margin CO_2 emission factor for the Integrated Indian grid
Source of data	Baseline CO_2 Emission Database, Version 12 (published on May 2017)
Value(s) applied	0.9653
Choice of data or measurement methods and procedures	The inputs values of OM and BM have been calculated by Ministry of Power, Central Electricity Authority Govt. of India, hence are authentic and reliable. https://cea.nic.in/wpcontent/uploads/baseline/2020/07/user_guide_ver12.pdf The $EF_{grid, CM, y}$ calculation is based on the guidelines in "Tool to calculate the emission factor for an electricity system" (version 07.0, EB 100, Annex 4)
Purpose of data	Calculation of Ex-ante Combined margin CO_2 emission factor for the Integrated Indian grid
Additional comment	The PP has opted for ex-ante approach for the determination of combined margin emission factor where emission factor is fixed for the entire crediting period so the value need not to be monitored.

Data/Parameter	$EF_{OM,y}$
Data unit	tCO_2e / MWh
Description	Ex-ante operating margin CO_2 emission factor for the Integrated Indian grid
Source of data	Baseline CO_2 Emission Database, Version 12 (published on May 2017)
Value(s) applied	0.9843
Choice of data or measurement methods and procedures	The values for OM has been calculated based on latest last three years (2013-14, 2014-15 & 2015-16) average by Ministry of Power, Central Electricity Authority Govt. of India, hence are authentic and reliable. https://cea.nic.in/wpcontent/uploads/baseline/2020/07/user_guide_ver12.pdf The $EF_{grid\ OM, y}$ calculation is based on the guidelines in "Tool to calculate the emission factor for an electricity system" (version 07.0, EB 100, Annex 4)
Purpose of data	Calculation of Ex-ante Combined margin CO_2 emission factor for the Integrated Indian grid
Additional comment	The values are based on latest last three years average. The PP has opted for ex-ante approach for the determination of combined margin emission factor where emission factor is fixed for the entire crediting period so the value need not to be monitored.

Data/Parameter	$EF_{grid,BM,y}$
Data unit	tCO_2e / MWh
Description	Build margin (including import) CO_2 emission factor for the Integrated Indian grid
Source of data	Baseline CO_2 Emission Database, Version 12 (published on May 2017)
Value(s) applied	0.9083
Choice of data or measurement methods and procedures	The values for BM for the year 2015-16 has been calculated by Ministry of Power, Central Electricity Authority Govt. of India, hence are authentic and reliable. https://cea.nic.in/wpcontent/uploads/baseline/2020/07/user_guide_ver12.pdf The $EF_{grid\ BM, y}$ calculation is based on the guidelines in "Tool to calculate the emission factor for an electricity system" (version 07.0, EB 100, Annex 4)
Purpose of data	Calculation of Ex-ante Combined margin CO_2 emission factor for the Integrated Indian grid

Additional comment	The values are for the year 2015 -16

B.6.3. Ex ante calculation of emission reductions

>>

As per above section B.6.1 above, the emission reductions (ER_y) are calculated as per equation 9 under paragraph 43 of AMS-I. D. (Version 18, EB 81, Annex 24).

$$ER_y = BE_y – PE_y – LE_y$$

As, both PE_y and LE_y have been considered as zero for the project activity. Thus $ER_y = BE_y$

The basic assumption for calculating baseline emissions (BE_y) of the project activity is due to the displacement of grid electricity. Hence, for the baseline estimation energy baseline value is considered from the expected generation by the project activity.

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

Expected annual generation by the project activity (18,775 MWh) is considered as per plant load factor (PLF) 21.43%. for calculation of emission reduction (mentioned in the third-party energy production assessment report which is excluding the effects of PV module degradation.)

BE_y = 18,775 MWh * 0.9653 t CO_2 e/MWh

BE_y = 18,123 tCO_2 / yr (rounded down value)

Thus the annual ex-ante estimated emission reductions are **18,123** tCO_2 e.

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
25/12/2020 – 24/12/2021	18,123	0	0	18,123
25/12/2021– 24/12/2022	18,123	0	0	18,123
25/12/2022– 24/12/2023	18,123	0	0	18,123
25/12/2023– 24/12/2024	18,123	0	0	18,123
25/12/2024– 24/12/2025	18,123	0	0	18,123
25/12/2025– 24/12/2026	18,123	0	0	18,123
25/12/2026– 24/12/2027	18,123	0	0	18,123
Total	126,861	0	0	126,861
Total number of crediting years	7			
Annual average over the crediting period	18,123	0	0	18,123

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data/Parameter	$EG_{PJ, facility, y}$
Data unit	MWh
Description	Quantity of net electricity supplied by project activity to grid in year y (i.e. Integrated Indian grid power distribution company for the state of Maharashtra)
Source of data	Monthly Joint Meter Reading Report
Value(s) applied	18,775
Measurement methods and procedures	The electricity generated by the project plant is metered at the 132 kV /33 kV Kharda substation. This metering point consists of main & check meters and Standby meters (ABT Meters) having accuracy class of 0.2s. These meters are capable of measuring the electricity parameters on a real time basis. The Joint Meter Reading (JMR) is taken on a monthly basis. The monthly JMR report records both total export[7] & total import[8] of the power plant in kWh. The total export reading for a given billing month is obtained by subtracting initial reading (taken in previous month) from the final reading (taken in billing month). The difference is multiplied by the applicable meter constant /multiplying factor. Similar procedure is followed to arrive the total import reading. Recording procedure: The monthly electricity generation is measured by a dedicated meter (with accuracy class 0.2s) installed at metering point. Meter reading taken jointly, will be signed by the representatives of the KWFDPL and distribution licensee. Archiving Policy: Paper & electronic: Responsibility: The distribution licensee and KWFDPL is responsible for joint reading measurement at the delivery point (substation). Further, the project site In charge / PP would be responsible for co-ordination required for calibration of the meter. However, the calibration will be carried out by the state electricity utility only. Calibration Frequency: Once in a five year[9].
Monitoring frequency	Continuous monitoring, hourly measurement and monthly recording
QA/QC procedures	The net electricity supplied units/units for credit can be cross checked with the records/invoice for sold electricity. The meters will jointly inspected / tested as per the terms of PPA. Joint inspection and testing will also be carried out as and when difference in monthly meter readings exceeds the sum of maximum error as per accuracy class of the meter. In case the meters are found to operate outside the permissible limits, the meters will be either replaced immediately or calibrated. Error correction will be applied to meter reading. Metering system will be maintained as per CEA regulations, 2006 as mentioned in clause 7.1 of PPA for Meters or metering system. In the event that main meter is not in service as a result of maintenance, repairs or testing, then the check meter shall be used during the period the main meter is not in service and the generation record used from the reading of the check meter.

[7] MSEDCL termed this as 'Import' in all relevant documents like PPA, JMR etc.
[8] MSEDCL termed this as 'Export' in all relevant documents like PPA, JMR etc.

[9] https://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Purpose of data	To calculate base line emission from project activity in year y.
Additional comment	Data will be archived during the whole crediting period & be kept at least for 2 years after the end of the last crediting period.

B.7.2. Sampling plan

>>

Data and Parameters mentioned in the above section B.7.1 is not determined by any sampling approach. The electricity generation is monitored continuously and monthly recorded by the distribution licensee in presence of PP. Hence no sampling plans applicable for the project activity.

B.7.3. Other elements of monitoring plan

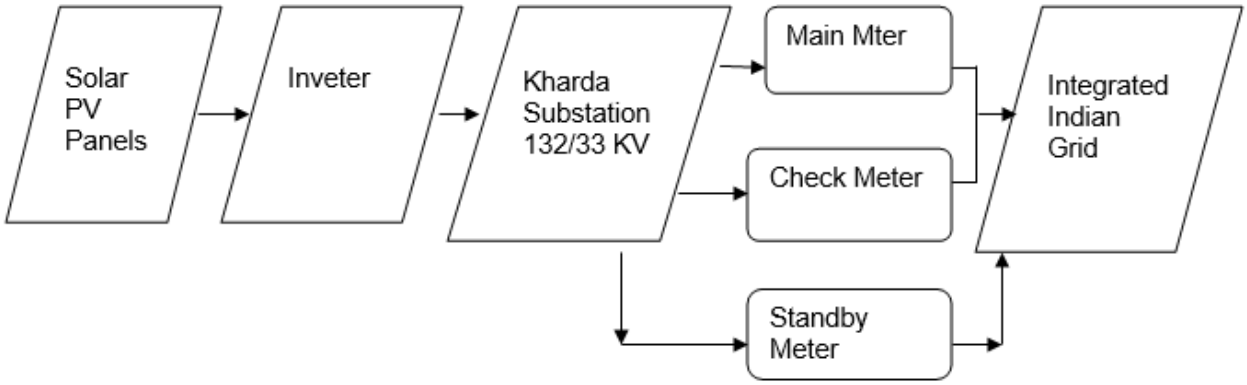
>>

The main meter, check meter and standby meters are installed at the DISCOM substation. The reading is noted down in the presence of distribution licensee representative and the representative of KWFDPL.Accordingly, the generation monthly generation report is prepared by state utility.

The monthly generation report mentions the electricity exported to the grid inter connection point.

- Main meter installed at the DISCOM substation (Kharda S/S 132/33 KV) is responsible for accounting the net electricity exported to the grid. The reading is recorded by this meter by state electricity utility representative in the presence of the representative of KWFDPL.

- Metering arrangement –



- The State Utility and the Power Producer shall jointly read the Metering System on the first (1st) day of every month at the delivery point.
- In the event that the Main Metering System is not in service as a result of maintenance, repairs or testing, then the Backup Metering System (i.e. Check Meter) shall be used during the period, the Main Metering System is not in service and the provisions above shall apply to the reading of the Backup Metering System.
- The Main Metering System and the Backup Metering System shall be sealed in the presence of representative of Power Producers and state utility.

- When the main metering system and/or Backup Metering System and/or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, re-calibrated or replaced by the Power Producer and/or state utility at Power Producer's cost, as soon as possible.
- All the main, check meters and standby meters shall be calibrated once in a five year.
- In case, both the main meters and check meter are found to be beyond permissible limit of error, both the meters shall be calibrated immediately and the correction applicable to main meters shall be applied to the energy registered by the main meter at the correct energy for the purpose of energy accounting / billing for the actual period during which inaccurate measurements were made, if such period can be determined or, if not determinable, shall be shorter of:

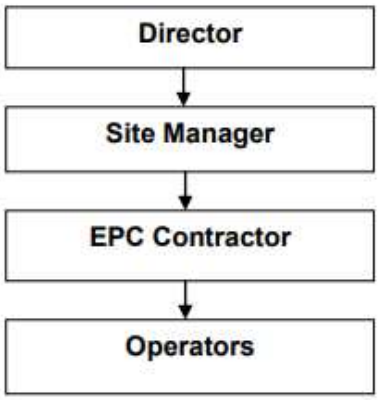
(a.) The period since the immediately preceding test of the relevant Main meter, or

(b.) One hundred and eighty days immediately preceding the test at which the relevant Main meter was determined to be defective or inaccurate.

The project proponent has proposed the following operational & management structure in order to monitor the emission reduction. The organization structure for the installed power plant envisages a project manager as the in-charge for the entire power plant operations. He will be positioned at site and will directly report to the Director. He will be assisted by O & M contractor and operators.

The entire operation & Maintenance including deployment of operator and other staff is with Rays Power Ltd. The day-to-day operation like planning the routine maintenance, safety and environmental control will be placed under the care of the Site manager.

The organizational structure and responsibilities on project operation, monitoring, data recording and ER calculation has been mentioned below:



Designation	Responsibility
Director	▪ Overall performance monitoring ▪ Project Execution

Site Manager	▪ Operation ▪ Verification of Data ▪ Site visit to check authenticity of data and take corrective action, whenever necessary ▪ Storage of data ▪ Operation, monitoring and verification of Data ▪ Data recording ▪ Storage of data ▪ Archive data
EPC Contractor & Operators	▪ Operation and maintenance ▪ Data recording ▪ Storage of Data

SECTION C. Start date, crediting period type and duration

C.1. Start date of project activity

>>
29/03/2017 (EPC contract between KWFDPL and MITCON)

C.2. Expected operational lifetime of project activity

>>
25 years

C.3. Crediting period of project activity

C.3.1. Type of crediting period

>>
Renewable crediting period for 7 years each (3 X 7 Years). This is first crediting period of the project activity.

C.3.2. Start date of crediting period

>>
25/12/2020 or Date of submission of complete request for registration by the DOE whichever is later.

C.3.3. Duration of crediting period

>>
7 years

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

>>
As per the notification from MoEF dated September 14, 2006[10] and its amendment notification S.O.-3067(E) dated 1/12/2009[11], the list of project activities which require prior environmental

[10] http://envfor.nic.in/legis/eia/so1533.pdf
[11] http://moef.nic.in/downloads/rules-and-regulations/3067.pdf

clearance is stipulated. This does not include the installed small scale project activity type as it involves solar power generation. Hence the installed project activity does not require any Environmental impact analysis.

D.2. Environmental impact assessment

>>
Not applicable

SECTION E. Local stakeholder consultation

E.1. Modalities for local stakeholder consultation

>>
The process of the local stakeholder consultation undertaken, complies with the relevant requirements in the project standard regarding:

(a) The scope of local stakeholder consultation; Local stakeholder consultation was carried out in line with CDM requirements. The scope of local stake holder consultation was to understand the potential direct positive and negative impacts that the proposed CDM project activity may have

(b) The minimum group of stakeholders to be involved;
• Local community
• Local village administration
• Technology suppliers
• Local vendors

(c) The means for inviting stakeholders' participation; All the stakeholders have been invited through public notice (dated 15/03/2017) which were displayed at primary school building & gram panchayat office. Further, few stakeholders were invited individually to attend the stakeholders meeting and the meeting was held on 24/03/2017.

(d) The information to be made available to stakeholders; A summary of the proposed CDM project activity, explaining the project activity in simple, nontechnical terms, information on the projected scope, lifetime and a description of the direct impacts of the proposed CDM project activity. The means to provide comments about the proposed CDM project activity.

(e) The conduct of consultation.
Meeting was conducted on 24/03/2017 at Location Project Activity Site Office at Mohari village, Jamkhed taluk, Ahmednagar district of Maharashtra state.

In the introductory speech, the representatives of Project Participant welcomed the gathering and given a brief about the CDM project activity. Subsequent to the introductory speech, stakeholders were explained about the electricity generation from solar project is an environmentally friendly power generation technology contributing to reduction in GHG emissions. They were also explained about the benefits of the solar power projects like, increasing energy availability and improving quality of power and its assistance to the local population by providing employment opportunities to both skilled & unskilled labours.

Meeting Details:

Date of Meeting	Venue	Time	Language for mode of communication
24/03/2017	Solar power project site, Mohari village	11.30 am to 01.30 pm.	Local language (Marathi) & in English

E.2. Summary of comments received

>>

Meeting started with opening speech by representative of project participant. The representative of project participant explained Technical aspects of project to stakeholders. He also explained about social, environmental & economic benefits of the project. He also elaborated about CDM & its requirement for the current project.

No negative comments have been received in context of the project. Stakeholders were supportive for the implementation of the project as a CDM project, and they believe that solar power project is environmentally safe and may help them.

Other issues discussed during the meeting are as follows-

- Job opportunities during day - to - day maintenance and security of project site.
- Other work pertaining to these projects will help the local villagers also such as hiring of transport services, civil contracts, etc.

E.3. Consideration of comments received

>>

S.No.	Query	Response
1	The local residents – Mr. Sagar Hake raised his concern about free electricity.	Mr. Rahul Kulkarni (MITCON) clarified that installed solar power plant is grid connected project activity, and project activity will help power deficit Maharashtra state grid in order to decrease power shortage.

2	Mr. Chandrasen Dole raised his concern about preference for local people in employment at project site.	Mr. Saudagar Gund (MITCON) Clarified that project contributed for social well-being on its small way by generating some job opportunities during the initial stage of project development (e.g. civil works, construction activity) and during the operation of the project activity local people will be given preference for job opportunities like Security, O & M work etc.

The Panchayat President, Panchayat members and other stakeholders accepted the assurance given by the representative of project proponent.

SECTION F. Approval and authorization

>>

The project activity has received Host Country Approval (HCA) from host country DNA i.e. NCDMA, MoEF, India. (No. 13008/81/2017-CC dated 15/04/2019)

Appendix 1. Contact information of project participants

Organization name	M/s. Krishna Wind Farm Developers Pvt. Ltd.
Country	India
Address	B - 1402,14th floor, Plot no. 211, Dalamal Tower, Free Press Journal Marg, Mumbai – 400021, Maharashtra, India
Telephone	020-2553 4322
Fax	-
E-mail	dhawal.marghade@mitconindia.com
Website	-
Contact person	Mr.Dhawal Marghade

Appendix 2. Affirmation regarding public funding

- The project has not received any public finding and Official Development Assistance (ODA).
- The project is unilateral project.

Appendix 3. Applicability of methodologies and standardized baselines

Please refer above section B.2 for applicability of selected methodology

Appendix 4. Further background information on ex ante calculation of emission reductions

Please refer above section B.6.3 for ex- ante calculation of emission reductions.

Appendix 5. Further background information on monitoring plan

Please refer above section B.7.3 for detail monitoring information.

Appendix 6. Summary report of comments received from local stakeholders

Please refer above section E.2 for detail information.

Appendix 7. Summary of post-registration changes

Not applicable

Document information

Version	*Date*	*Description*
11.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Make editorial improvements.
10.1	28 June 2017	Revision to make editorial improvement.
10.0	7 June 2017	Revision to: • Improve consistency with the "CDM project standard for project activities" and with the PoA-DD and CPA-DD forms; • Make editorial improvement.
09.0	24 May 2017	Revision to: • Ensure consistency with the "CDM project standard for project activities" (CDM-EB93-A04-STAN) (version 01.0); • Incorporate the "Project design document form for small-scale CDM project activities" (CDM-SSC-PDD-FORM); • Make editorial improvement.
08.0	22 July 2016	EB 90, Annex 1 Revision to include provisions related to automatically additional project activities.
07.0	15 April 2016	Revision to ensure consistency with the "Standard: Applicability of sectoral scopes" (CDM-EB88-A04-STAN) (version 01.0).
06.0	9 March 2015	Revision to: • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Make editorial improvement.
05.0	25 June 2014	Revision to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from F-CDM-PDD to CDM-PDD-FORM; • Make editorial improvement.
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b.
04.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the project design document form for CDM project activities" (EB 66, Annex 8).

Version	*Date*	*Description*
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12 Initial adoption.

Decision Class: Regulatory
Document Type: Form
Business Function: Registration
Keywords: project activities, project design document