



Gold Standard[®]
for the Global Goals

Climate Security & Sustainable Development

MONITORING REPORT

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VERSION v. 1.1

RELATED SUPPORT – TEMPLATE GUIDE Monitoring Report v. 1.1

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Key Project Information

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KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS7533
Title of the project (s) covered by monitoring report	100 MW Solar Power plant in Maharashtra
Version number of the PDD / VPA-DD (s) applicable to this monitoring report	05
Version number of the monitoring report	3.0
Completion date of the monitoring report	10/09/2021
Date of project design certification	16/06/2020
Date of Last Annual Report	NA
Monitoring period number	01
Duration of this monitoring period	30/12/2019 to 31/12/2020 (Both days included)
Project Representative	Juniper Green Energy Pvt. Ltd. Nisagra Renewable Energy Pvt. Ltd.
Host Country	India
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	ACM0002 "Grid-connected electricity generation from renewable sources" Version 19.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units / Products
SDG 7: Affordable and Clean Energy	MWh of renewable energy generated	188,357	MWh
SDG 8: Decent Work and Economic Growth	Trainings	24	Training
	Employees	42	Employees
	Income (INR)	32,834,961	INR
SDG 13: Climate Action	Emission Reduction	176,452	VERs

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	End Dates	SDG 7 : Affordable and Clean Energy	SDG 8: Decent Work and Economic Growth	SDG 13: Climate Action (VERs)
30/12/2019	31/12/2019	23 MWh	0 trainings 42 employees	21 tCO2
01/01/2020	31/12/2020	188,334 MWh	24 trainings 42 employees INR 32,834,961	176,431 tCO2
Total		188,357 MWh		176,452 tCO2

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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The main purpose of the project activity is to generate electrical energy through sustainable means using solar power resources, the generated green electricity has contributed to climate change mitigation efforts. This project activity is a large-scale solar project. Juniper Green Energy Private Limited and Nisagra Renewable Energy Private Limited are the project investors for this project activity. The project has replaced anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 224,617 tCO₂e per annum, thereon displacing 239,771 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/ fossil fuel-based power plant.

The project activity is the installation of a new grid-connected renewable power plant/unit and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

The details of the project are mentioned in the table:

Project Investors' Name	Capacity in MW	Capacity in MW _p	State
Juniper Green Energy Pvt. Ltd.	30 MW (10 MW x 3)	43.5 MW _p	Maharashtra
Nisagra Renewable Energy Pvt. Ltd.	70 MW (10 MW x 7)	101.5 MW _p	Maharashtra

The details of the total capacity commissioned is as below:

Project Name	Investors'	Commissioning Date	Capacity in MW	Village / Taluka	District
Nisagra Renewable Energy Pvt. Ltd.		31/12/2019	10 MW	Indave, Sindhkheda	Dhule
		30/12/2019	10 MW	Varul, Shirpur	Dhule
		07/01/2020	10 MW	Chhail, Sakri	Dhule
		29/03/2020	10 MW	Mukti	Dhule
		08/01/2020	10 MW	Bahirane, Baglan (Satana)	Nashik
		16/01/2020	10 MW	Dahidi, Malegaon	Nashik
		07/03/2020	10 MW	Vichkheda, Parola	Jalgaon
Juniper Green Energy Pvt. Ltd.		22/01/2020	10 MW	Vahelgaon, Nandgaon	Nashik
		23/01/2020	10 MW	Rajapur, Yeola	Nashik
		21/03/2020	10 MW	Dahiwad, Deola	Nashik

The projects have been selected through a competitive bidding process set up under the 'Mukhyamantri Sour Krishi Vahini Yojana' (or Chief Minister Agricultural Solar Feeder Scheme), a recent scheme that the state of Maharashtra has come up wherein the power generated has been directly fed into dedicated agricultural feeders. The projects are being set up under phase-I of the scheme and are among the first such projects in the country.

The PP has done various CSR activities in the current monitoring period are: -

S. No.	SDGs Indicator	Activity	Supporting evidence
1	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	The plantation taken place for following project site during monitoring period:- 1.Parola 2.Mukti 3.Kasare 4.Indave 5.Varul	Please refer Annex 1 for supporting evidence.

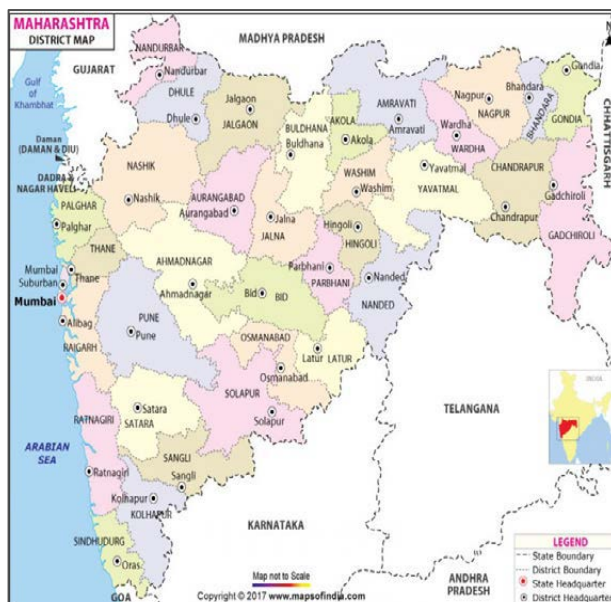
A.2. Location of project

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Host Country: India

Region/State/Province: Maharashtra

City/Town/Community: Nashik , Jalgaon , Dhule District



The Projects has been located in various villages of Nashik, Jalgaon & Dhule districts in Maharashtra state of India.

Project Investors' Name	Capacity in MW	Village / Taluka	District	Latitude	Longitude
Nisagra Renewable Energy Pvt. Ltd.	10 MW	Indave, Sindhkheda	Dhule	20° 19' 59.009" N	74° 40' 13.13" E
	10 MW	Varul, Shirpur	Dhule	21° 24' 25.565" N	74° 44' 15.691" E
	10 MW	Chhail, Sakri	Dhule	20° 53' 44.233" N	74° 16' 26.768" E
	10 MW	Mukti	Dhule	20° 52' 19.656" N	74° 56' 42.761" E
	10 MW	Bahirane, Baglan (Satana)	Nashik	20° 35' 56.762" N	74° 12' 7.588" E
	10 MW	Dahidi, Malegaon	Nashik	20° 42' 37.157" N	74° 33' 29.097" E
	10 MW	Vichkheda, Parola	Jalgaon	20° 53' 60" N	75° 5' 59.999" E
Juniper Green Energy Pvt. Ltd.	10 MW	Vahelgaon, Nandgaon	Nashik	20° 25' 23.7" N	74° 16' 49.7" E
	10 MW	Rajapur, Yeola	Nashik	20° 2' 58.1280" N	74° 29' 11.8248" E
	10 MW	Dahiwad, Deola	Nashik	20° 25' 12.110" N	74° 17' 59.999" E

A.3. Reference of applied methodology

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Title: Grid-connected electricity generation from renewable sources.

References: Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 19.0, EB 100 Annex 6)¹

<https://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD>

ACM0002 draws upon the following tools which have been used in the PDD:

- Methodological Tool: Tool to calculate the emission factor for an electricity system - Version 07.0
- Methodological Tool: Tool for the demonstration and assessment of additionality - Version 07.0.0²

¹ <https://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD>

² <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

A.4. Crediting period of project

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Type of crediting period: Renewable

Start date of crediting period: 30/12/2019

Length of crediting period: 5 years

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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The project activity aims to harness solar energy through the installation of PV with a total installed capacity of 100 MWac (corresponding to 145 MW_P). The solar PV power plant have solar PV modules, inverters, transformers and other protection system and supporting components.

The details of the total capacity commissioned is as below:

Project Name	Investors'	Commissioning Date	Capacity in MW	Village / Taluka	District
Nisagra Renewable Energy Pvt. Ltd.		31/12/2019	10 MW	Indave, Sindhkheda	Dhule
		30/12/2019	10 MW	Varul, Shirpur	Dhule
		07/01/2020	10 MW	Chhail, Sakri	Dhule
		29/03/2020	10 MW	Mukti	Dhule
		08/01/2020	10 MW	Bahirane, Baglan (Satana)	Nashik
		16/01/2020	10 MW	Dahidi, Malegaon	Nashik
		07/03/2020	10 MW	Vichkheda, Parola	Jalgaon
Juniper Green Energy Pvt. Ltd.		22/01/2020	10 MW	Vahelgaon, Nandgaon	Nashik
		23/01/2020	10 MW	Rajapur, Yeola	Nashik
		21/03/2020	10 MW	Dahiwad, Deola	Nashik

Technical Specifications at the time of commissioning:

A. Solar PV modules:

Module Make	Trina Solar
Module Model	Poly C-Si
Technology Used	Multi Crystalline
Capacity (p)	330Wp, 325 Wp
Switchgear Panel	
Make	Technocraft
Capacity	11 kV

B. Number of Modules installed:

Sr. No	Village	Number of Modules installed of each type
Juniper Green Energy Pvt. Ltd.		
1.	Dahiwad	325 Wp/330 Wp/375 Wp Total: 44,313
2.	Yeola, Rajapur	325/330 Wp Total 44100
3.	Vahelgaon	325/330 Wp Total 44064 Nos.
Nisagra Renewable Energy Pvt. Ltd.		
4.	Indave	325 Wp/330 Wp Total: 44232
5.	Kasare	325 Wp/330 Wp Total: 44,232 Nos
6.	Mukti	325 Wp/330 Wp Total: 44,400 Nos
7.	Parola	325 Wp/330 Wp Total: 43,584 Nos
8.	Tembhe, Malegaon	325 & 330 Wp Total: 44232 Nos
9.	Tingri	325 & 330 Wp Total: 44232 Nos
10.	Varul	325 Wp/330 Wp Total: 44064 Nos.

C. Inverters:

S.No.	Make	
1.	Manufacturer	Huawei
2.	Rated Capacity	160 KW
3.	No. of Inverters	63

D. Transformers

S.No.	Make	
1.	Manufacturer	Sudhir
2.	Type	ONAN Step up
3.	Capacity	5 MVA Each
4.	No. of Transformers	2
5.	Serial Numbers	SPL-949, SPL-951

E. Metering Equipment Details

S.No.	Make	Solar Plant End
1.	Manufacturer	Secure Make
2.	Type	ABT meters
3.	Accuracy Level	0.2s

The solar PV modules have a useful life of 25 years.

The project is registered on 16/06/2020 under Gold Standard. There is no changes from the project design that was envisaged at Design Certified PDD.

The project is not registered under any other carbon mechanism. Hence there is no double counting involved.

There was no major breakdown occurred during the current monitoring period except for minor operational and maintenance issues which are continuously being worked upon by the dedicated O&M contractor for the project.

B.1.1. Forward Action Requests

No FARs envisaged from previous verification and or Validation.

B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

Not Applicable

B.2.2. Corrections

Not Applicable

B.2.3. Changes to start date of crediting period

Not Applicable

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable

B.2.5. Changes to project design of approved project

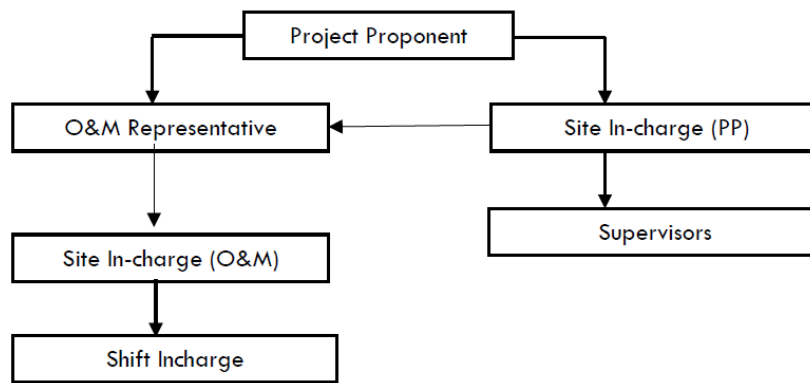
Not Applicable

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

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The monitoring plan is developed by the modalities and procedures for project activities and is proposed for grid-connected solar power projects/units being implemented in Maharashtra, India. The monitoring plan, which has been implemented by the project participant describes the monitoring organization, 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.



Responsibilities of Site In-charge (PP): Overall functioning and maintenance of the project activity, the Site in charge has been coordinate with the O&M operator as well as the site supervisors.

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

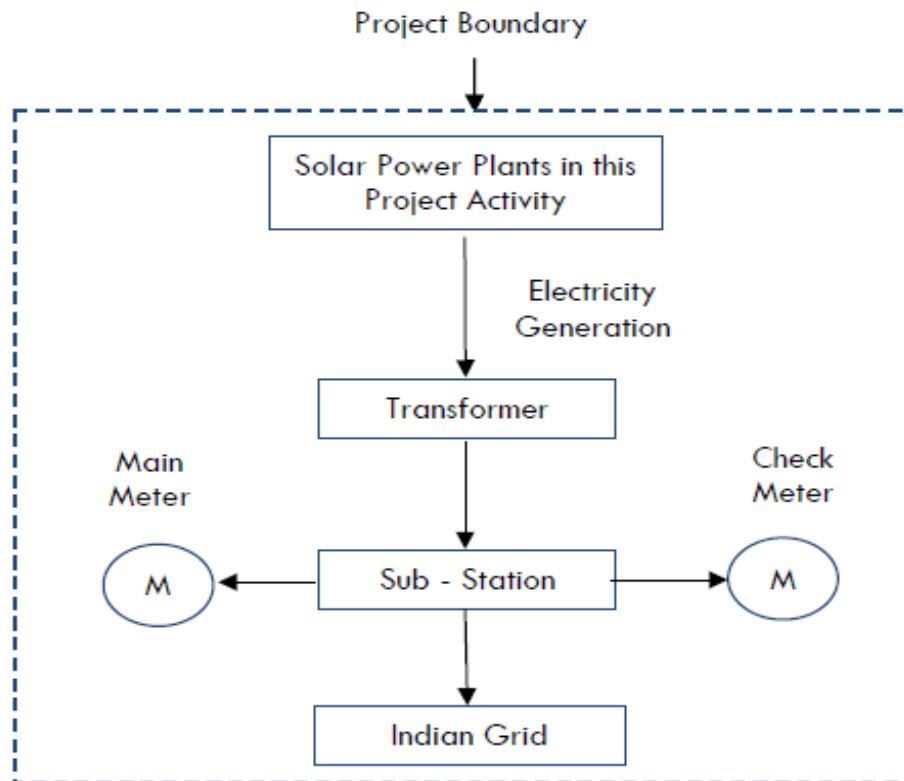
Responsibilities of Site In-charge (O&M Operator): Responsibility for maintaining the data records, ensures completeness of data, and reliability of data (calibration of equipment) as well as data recording for all the parameters.

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

Data Measurement

Project's activity comprises of installation Energy meters at a Pooling Substation before the Delivery point.

The export and import energy have been measured continuously using the above-mentioned meters installed at Substation. Export & Import readings of meters have been taken every month by authorized officer of MSEDCL in the presence of representative(s) of PP. The meter reading has been taken jointly and signed by the representatives of the MSEDCL and representative(s) of PP. Based on the readings, invoices/ monthly bills have been raised by PP. These invoices/ monthly bills can be used for cross-checking the meter readings taken for the respective project activity.



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

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

Data collection and archiving

Export & Import readings from the meters will be collected under the supervision of the O&M Team or authorized representatives of PP. The net electricity supplied to grid would be calculated based on export & import readings. Export and Import data would be recorded and stored in electronic &/or Paper format. The records are checked periodically by the Head (Operations) and discussed thoroughly with the O&M Team. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of GS ERs for the project activity whichever occurs later.

Mismatch in Monitoring Period and the Billing Period

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

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

Where,

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

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

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

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

Emergency preparedness

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

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

Personnel training

To ensure a proper functioning of the project activity and a proper monitoring of emission reductions, the staff has been trained. The plant helpers have been trained in equipment operation, data recording, reports writing, operation and maintenance, and emergency procedures in compliance with the monitoring plan.

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Relevant SDG Indicator 13: Take urgent action to combat climate change and its impacts

Data/parameter:	EF _{OM,y}
Unit	tCO ₂ e/MWh
Description	Operating Margin Emission Factor of Indian Grid
Source of data	Calculated from CEA database, Version 14, Dec 2018
Value(s) applied)	0.9610

Choice of data or measurement methods and procedures	Calculated as per “Tool to calculate the emission factor for an electricity system “The data are obtained from “CO2 Baseline Database for Indian Power Sector” version 14.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

Data/parameter:	EF _{BM, y}
Unit	tCO ₂ e/MWh
Description	Build Margin Emission Factor of Indian Grid
Source of data	Calculated from CEA database, Version 14, Dec 2018
Value(s) applied)	0.8644
Choice of data or measurement methods and procedures	Calculated as per “Tool to calculate the emission factor for an electricity system,” The data are obtained from “CO2 Baseline Database for Indian Power Sector” version 14.0, published by the Central Electricity Authority, Ministry of Power, and Government of India.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

Data/parameter:	EF _{CM, y}
Unit	tCO ₂ e/MWh
Description	Combined Margin Emission Factor of Indian Grid
Source of data	Calculated from CEA database, Version 14, Dec 2018
Value(s) applied)	0.9368
Choice of data or measurement methods and procedures	Calculated as per “Tool to calculate the emission factor for an electricity system,” The data is obtained from “CO2 Baseline Database for Indian Power Sector” version 14.0, published by the Central Electricity Authority, Ministry of Power, and Government of India.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comments	-

D.2. Data and parameters monitored

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Relevant SDG Indicator 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix

Data / Parameter	EG _{PJ,y}
Unit	MWh
Description	Quantity of net electricity supplied to the grid
Source of data	Generation statement provided by MSEDCL every month.
Value(s) applied	188,357 MWh
Measurement methods and procedures	Data Type: Measured Monitoring equipment: Energy Meters of accuracy class 0.2s Recording Frequency: Continuous monitoring a Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually. Archiving Policy: Paper &/or Electronic Calibration frequency: Once in 5 years as per CEA guidelines³ Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. The Net electricity supplied to the grid by the project activity be calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from Monthly Meter reading reports provided by MSEDCL as per below equation: $EG_{PJ,y} = EG_{Export} - EG_{Import}$ Cross Checking: Quantity of net electricity supplied to the grid has been cross checked from the Invoices/ Monthly Bill raised by the Project Participants to MSEDCL. Metering Details: Make: Accuracy: 0.2 S
Monitoring frequency	Monthly
QA/QC procedures	Calibration of all the meters ⁴ will be undertaken once in 5 years as per CEA guidelines. The meters will be of accuracy class 0.2s.
Purpose of data	The Data/Parameter is required to calculate the baseline emission.
Additional comment	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

Relevant SDG Indicator 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.

Data / Parameter	- Quantitative employment, - Quality of employment - Income generation
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³ https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver14.pdf

⁴ Energy Meter Calibration details has been provided under Appendix 1.

Unit	- Number (Trainings) - Number (employees) - INR (salary)																												
Description	- Number of Trainings provided to employees & O&M staff - Number of project employees with Number of male/female, permanent/temporary, age and person with disabilities. - Salary given to the employees of the project. The income to all the unskilled workers are made on day-to-day basis in line with the minimum wage requirements. Annual records of income paid to all the employees would be available.																												
Source of data	Training Records (HSE & HR) Salary Slip of the project employees.																												
Value(s) applied	The trainings & workshops will be given to the O&M staff are: - Trainings – 24 (please find below tables training details project site wise) - No of Employees – 42 (Out of 42 employees, 19 local & 23 non local) <table border="1"> <thead> <tr> <th>Project proponent</th><th>No of Employees</th></tr> </thead> <tbody> <tr> <td>Juniper Green Energy Pvt. Ltd.</td><td>13</td></tr> <tr> <td>Nisagra Renewable Energy Pvt Ltd</td><td>29</td></tr> <tr> <td>Total</td><td>42</td></tr> </tbody> </table> Sample salary slips are being provided to the DOE. Total expenses for the salary of the employees during the monitoring period i.e., 368 days is INR 32,834,961. The annual break of salary expenses is: <table border="1"> <thead> <tr> <th colspan="2">Juniper Green Energy Pvt. Ltd. – 30 MW (Capacity)</th></tr> </thead> <tbody> <tr> <td>Monitoring period</td><td>Total amount invested for salaries(INR)</td></tr> <tr> <td>2019(30/12/2019 to 31/12/2019)</td><td>-</td></tr> <tr> <td>2020 (01/01/2020 to 31/12/2020)</td><td>96,86,433</td></tr> <tr> <td>Total</td><td>9,686,433</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Nisagra Renewable Energy Pvt Ltd – 70 MW (Capacity)</th></tr> </thead> <tbody> <tr> <td>Monitoring period</td><td>Total amount invested for salaries (INR)</td></tr> <tr> <td>2019(30/12/2019 to 31/12/2019)</td><td>-</td></tr> <tr> <td>2020 (01/01/2020 to 31/12/2020)</td><td>23,148,528</td></tr> <tr> <td>Total</td><td>23,148,528</td></tr> </tbody> </table>	Project proponent	No of Employees	Juniper Green Energy Pvt. Ltd.	13	Nisagra Renewable Energy Pvt Ltd	29	Total	42	Juniper Green Energy Pvt. Ltd. – 30 MW (Capacity)		Monitoring period	Total amount invested for salaries(INR)	2019(30/12/2019 to 31/12/2019)	-	2020 (01/01/2020 to 31/12/2020)	96,86,433	Total	9,686,433	Nisagra Renewable Energy Pvt Ltd – 70 MW (Capacity)		Monitoring period	Total amount invested for salaries (INR)	2019(30/12/2019 to 31/12/2019)	-	2020 (01/01/2020 to 31/12/2020)	23,148,528	Total	23,148,528
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2020 (01/01/2020 to 31/12/2020)	23,148,528																												
Total	23,148,528																												
Measurement methods and procedures	- Training Attendance sheets. - Employee Records - Salary slip of the employees																												
Monitoring frequency	Once in a Monitoring period																												
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with daily attendance register. Salary slip can be checked for earnings of employees.																												
Purpose of data	Continuation of regular trainings/workshops for employees & O&M staff																												
Additional comment	-																												

Electrical training: -

S. No.	Location	No of participants	Date of Training
1	Tembhe	08	08/10/2020
2	Vehelgaon	06	09/10/2020
3	Dahiwad	06	10/10/2020
4	Sakri	05	13/10/2020
5	Indave	04	14/10/2020
6	Varul	06	20/10/2020

Code of conduct in ethics: -

S. No.	Location	No of participants	Date of Training
1	Mukti	05	03/07/2020
2	Rajapur	08	05/07/2020
3	Dahiwad	07	08/10/2020

LOTO training: -

S. No.	Location	No of participants	Date of Training
1	Kasare	03	21/03/2020
2	Vehelgaon	02	13/03/2020
3	Rajapur	02	13/03/2020
4	Tingri	04	07/03/2020
5	Varul	03	14/03/2020
6	Parola	03	18/03/2020
7	Tembhe	01	20/03/2020

Isolation & Safety training: -

S. No.	Location	No of participants	Date of Training
1	Indave	03	03/07/2020
2	Vehelgaon	03	03/07/2020
3	Kasare	03	03/07/2020
4	Parola	02	03/07/2020
5	Rajapur	04	03/07/2020

HT Panel & Transformer training: -

S. No.	Location	No of participants	Date of Training
1	Tingri	11	17/03/2020
2	kasare	08	18/03/2020

Fire protection & fire fighting training: -

S. No.	Location	No of participants	Date of Training
1	Mukti	14	12/04/2020

Relevant SDG Indicator 13: Take urgent action to combat climate change and its impacts

Data / Parameter	Air quality
Unit	tCO ₂
Description	Reduction in CO ₂ emission reduction due to implementation of project activity
Source of data	Calculated as per "Tool to calculate the emission factor for an electricity system,". The data are obtained from "CO ₂ Baseline Database for Indian Power Sector" version 14.0, published by the Central Electricity Authority, Ministry of Power, and Government of India.
Value(s) applied	176,452 tCO ₂
Measurement methods and procedures	Calculated from CEA database and Energy Generation
Monitoring frequency	Calibration and Testing of Meters will be done by the accredited agency as per norms. Once in 5 years as per CEA guidelines ⁵
QA/QC procedures	A check meter is also installed near to the export meter to cross check the electricity exported to the grid. The check meter reading would also be used in case of failure of export meter
Purpose of data	Calculation of baseline emissions
Additional comment	-

Safeguarding principal 4.3.5: Hazardous and non-hazardous waste

⁵ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Data / Parameter	• Hazardous and Non-hazardous Waste
Unit	-
Description	The manufacture, trade, release, and use of hazardous and non-hazardous chemicals and/or materials
Source of data	Plant Records
Value(s) applied	0
Measurement methods and procedures	Manual
Monitoring frequency	Once in a Monitoring period
QA/QC procedures	The waste has been disposed to the waste handlers and the firm has comply with all the local laws for monitoring and disposal.
Purpose of data	Analysis of safeguarding principle
Additional comment	-

D.3. Comparison of monitored parameters with last monitoring period

Data / Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
EG _{PJ,y}	188,357 MWh	-
Air quality	176,452 tCO ₂	-
Quality of employment	24 Trainings	-
Quantitative employment and income generation	42 Employees 32,834,961 INR	-

D.4. Implementation of sampling plan

>>

Sampling is not required for the given project activity.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

>>

In the baseline, there were no Social Development activities taking place; whereas baseline Emissions for electricity supplied by project activity, BE_y is calculated as:

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

Where,

BE_y = Baseline emissions in year y (tCO₂/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).

$EF_{CM,y}$ = 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” (tCO₂/MWh)

Thus, the estimated baseline situation of each SDG outcome are summarised as follows;

Item	Baseline estimate
SDG 7: Affordable and Clean Energy	No Activities in the baseline
SDG 8: Decent Work and Economic Growth	No Activities in the baseline
SDG 13: Climate Action	Emission of 176,452 tCO ₂

E.2. Calculation of project value or estimation of project situation of each SDG Impact

>>

SDG 7:

The monitoring parameter for the SDG 7 is Quantity of net electricity supplied to the grid during the year y. In the project situation, the project supplied 188,357 MWh electricity during the monitoring period. This can be crosschecked from JMR & Invoices.

During Monitoring period - 30/12/2019 to 31/12/2020

Quantity of net electricity supplied to the grid (MWh) = 188,357 MWh

SDG 8:

The monitoring parameter for the SDG 8 are Number of training provided to employees & O&M staff, Cost spent for O&M & Number of O&M staffs involved in the project. During the project scenario, the following is achieved:

During Monitoring period - 30/12/2019 to 31/12/2020

Quality of Employment – 24 trainings

Quantitative employment and income generation - 42 employees & INR 32,834,961

These can be crosschecked from the training records, O&M contract & employment records

E.3. Calculation of leakage

>>

As per applied methodology ACM0002, version 19.0 Leakage emissions are not considered for the project activity.

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
7	MWh of renewable energy generated	0	188,357	188,357
8	SDG 8: Decent Work and Economic Growth	0	24 Trainings 42 Employees 32,834,961 INR	24 Trainings 42 Employees 32,834,961 INR
13	Emission Reduction(tCO ₂ e)	0	176,452	176,452

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period
7	239,771 MWh/Year (365 days) 241,742 MWh for the Monitoring period (368 days)	188,357 MWh
8	1 training/annum 67 Jobs	24 Trainings 42 Employees 32,834,961 INR
13	224,617 tCO ₂ /Year 226,463 tCO ₂ for the monitoring period (368 days)	176,452 tCO ₂ e

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

>>

It is to be noted here that as per the estimated emission reduction to be achieved from the project activity for the current monitoring period is 226,463 tCO₂e

$$= 224,617 * 368 \text{ (days)} / 365$$

$$= 226,463 \text{ tCO}_2\text{e}$$

Whereas, actual emission reductions achieved are 176,452 tCO₂e, which is approximately - 22% lower than the estimated emission reductions.

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

The actual achieved emission reduction for this monitoring period is 22 % lower than estimated value in the PDD and is within the sensitivity range which does not breach even with the increase of 10% in line with the registered PDD The PLF chosen is for the lifetime of the project activity and generation in some years may significantly vary; this is due to the less number of sunshine hours during the monitoring period. The generation of electricity depends upon many other climatic conditions, and the availability of sunlight is not within the control of the project participant.

SECTION F. SAFEGUARDS REPORTING

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Safeguarding Principle 9.5 Hazardous and Non-hazardous Waste

Data / parameter:	Hazardous waste management
Mitigation Measures followed	Segregation of Hazardous waste (used fuel oil/paint/chemical containers, waste oil, lubricants, oil rags, contaminated soil, used batteries etc.) Proper disposal of the same through waste management authority Proper disposal of used Lube oil / transformer oil.
Source	Interview with maintenance staff.
Additional comments:	All the mitigation measures are implemented at the site. This is confirmed from site HSE log book and O&M team.

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/ mitigations.

>>

No grievance received during the monitoring period.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

>>

No grievances received in the current monitoring period, thus no follow up required.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

>>

No legal contest or dispute has been arisen with the project during the monitoring period.

APPENDIX 1: METERS CALIBRATION DETAILS

Project Proponent	Sr. No	Location	Main Meter	Check Meter	Calibration Date	Calibration Due date
Nisagra Renewable Energy Pvt. Ltd.	1	Indave – (5 MW -BAY1)	2872718	2872719	05/12/2019	04/12/2024
		Indave - (5 MW -BAY2)	2872736	2872737	05/12/2019	04/12/2024
	2	Varul – (5 MW -BAY1)	2872720	2872721	05/12/2019	04/12/2024
		Varul - (5 MW -BAY2)	2872722	2872723	05/12/2019	04/12/2024
	3	Sakri – (5 MW -BAY1)	2872724	2872725	05/12/2019	04/12/2024
		Sakri - (5 MW -BAY2)	2872726	2872727	05/12/2019	04/12/2024
	4	Mukti – (5 MW -BAY1)	2872728	2872729	05/12/2019	04/12/2024
		Mukti - (5 MW -BAY2)	2874871	2874872	05/12/2019	04/12/2024
	5	Bahirane – (5 MW -BAY1)	2872741	2874840	31/12/2019	30/12/2024
		Bahirane - (5 MW -BAY2)	2874845	2872643	31/12/2019	30/12/2024
	6	Dahidi – (5 MW -BAY1)	2874788	2868876	31/12/2019	30/12/2024

		Dahidi - (5 MW -BAY2)	2872626	2872742	31/12/2019	30/12/2024
	7	Parola – (5 MW -BAY1)	2892219	2892218	17/01/2020	16/01/2025
		Parola - (5 MW -BAY2)	2892222	2892221	17/01/2020	16/01/2025
Juniper Green Energy Pvt. Ltd.	8	Vahelgaon – (5 MW -BAY1)	2892214	2892211	06/01/2020	05/01/2025
		Vahelgaon - (5 MW -BAY2)	2892215	2892228	06/01/2020	05/01/2025
	9	Rajapur – (5 MW -BAY1)	2892216	2892213	06/01/2020	05/01/2025
		Rajapur - (5 MW -BAY2)	2892226	2892227	06/01/2020	05/01/2025
	10	Dahiwad – (5 MW -BAY1)	2892231	2892230	17/01/2020	16/01/2025
		Dahiwad - (5 MW -BAY2)	2892234	2892233	17/01/2020	16/01/2025

APPENDIX 2: MAJOR BREAKDOWN DETAILS

Date	Site	Breakdown Remark	Breakdown hour
18/03/2020	Shirpur - Block 1	33KV Dondaicha main line tripped due to earth fault	11.85
18/03/2020	Shirpur - Block 2	33KV Dondaicha main line tripped due to earth fault	11.85
5/Jul/2020	Malegaon Block-1	due to Failure at GSS	13.00
13/Jul/2020	Malegaon Block 2	33kV line Malegaon tripped due to Pin Insulator Damage	10.38
13/Jul/2020	Malegaon Block 1	33kV line Malegaon tripped due to Pin Insulator Damage	10.38
18/Sep/2020	Malegaon Block 2	Grid outage Due to 33kV line Malegaon tripped on Earth Fault	12.08
18/Sep/2020	Malegaon Block 1	Grid outage Due to 33kV line Malegaon tripped on Earth Fault	12.08
23/Sep/2020	Dhule Block 1	Due to GSS PT R & B Phase failure and in main 33kV line E/F issue	10.97
23/Sep/2020	Dhule Block 2	Due to GSS PT R & B Phase failure and in main 33kV line E/F issue	10.62
22/Oct/2020	Dhule Block 1	33kV Dhule main line tripped due to earth fault	11.52

22/Oct/2020	Dhule Block 2	33kV Dhule main line tripped due to earth fault	11.52
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ANNEX 1 – CSR Activity – Supporting Evidence

Project site - Parola

S.No	Photograph	Project site
1.		Project site - Parola

2.			Project site - Parola
3.			Project site - Mukti

4.	ENVIRONMENT, HEALTH AND SAFETY 	Project site - Kasare
5.		Project site - Indave

6.	ENVIRONMENT, HEALTH AND SAFETY   	Project site - Varul
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Revision History

Version	Date	Remarks
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1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption