

TEMPLATE

MONITORING REPORT

PUBLICATION DATE 14.10.2020

VERSION v. 1.1

RELATED SUPPORT - TEMPLATE GUIDE Monitoring Report v. 1.1

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Key Project Information

GS ID (s) of Project (s)	GS 5519 ¹
Title of the project (s) covered by monitoring report	70 MW Bhadla Solar power plant by Fortum Finnsurya Energy Pvt Ltd (EKIESL-CDM-APRIL 16-01)
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	03
Version number of the monitoring report	04
Completion date of the monitoring report	01/09/2025
Date of project design certification	03/01/2018
Date of Last Annual Report	26/12/2024
Monitoring period number	2 nd (Crediting Period 02: 06/11/2022 to 05/11/2027 Inclusive of both the dates)
Duration of this monitoring period	01/10/2023 to 31/12/2024 (Inclusive of both days)
Project Representative	Infinite Environmental Solutions Limited
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 20.0 ²
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

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¹ <https://registry.goldstandard.org/projects/details/1371>

² <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

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	170,692	MWh
SDG 8: Decent Work and Economic Growth	Trainings Employees	24 14 (12 skilled & 2 semi skilled), <u>The income to all the workers is made as follows 384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled)</u>	No. of Trainings No. of Employees
SDG 13: Climate Action	Emission Reductions	153,796 ⁴	tCO ₂ e (GSVERs)

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	SDG 13: Climate Action (GSVERs) tCO ₂ e
01/10/2023	31/12/2023	29,179
01/01/2024	31/12/2024	124,617 ⁵

⁴ Capped value
⁵ Capped value

SDG 13: Climate Action (GSVERs) tCO₂e	153,796⁶
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SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Fortum FinnSurya Energy Pvt. Ltd. is the developer of the implemented project activity. The project activity involves installation of 70 MW (AC) (87.5 MWp) solar power project at Bhadla, Jodhpur, Rajasthan, India. The annual average of estimated electricity generation and estimated emission reduction over 5 years of crediting period will be 121,420 MWh/year and 112,980 tCO₂e per year. The project will replace anthropogenic emissions of greenhouse gases (GHG's) by displacing equivalent amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel-based power plant.

The 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 project activity is registered under CDM with UNFCCC ID -10403⁷ but will not claim credits for same monitoring period under GS4GG and CDM. Apart from this, the project is not registered with any other voluntary market-based mechanism such as Voluntary Carbon Standard (VCS)⁸, Global Carbon Council (GCC)⁹, I-REC¹⁰ and Indian REC¹¹ or any other mechanism. The GHG emissions reductions from the project activity are not accounted for within the relevant system of the host country/regional regulator. The VERs for the same vintage will not be claimed in another standard other than GS and are not included within and counted under regulated domestic mitigation target or NDC. Thus, there is no double accounting or double claiming with national climate policies or programs. Also, self-declaration for no double counting has been provided by the Project Developer.

⁶ Capped value

⁷ <https://cdm.unfccc.int/Projects/DB/Appendix1506003422.59/view>

⁸ <https://registry.verra.org/app/search/VCS>

⁹ <https://projects.globalcarboncouncil.com/>

¹⁰ <https://www.ecohz.com/i-recs>

¹¹ https://www.recregistryindia.nic.in/index.php/publics/registered_regens

The details of the project are mentioned in the table:

Project Investors' Name	Capacity	Connection with Grid	State	Date of commissioning
Fortum FinnSurya Energy Pvt. Ltd.	70 MW _{AC} (87.5 MWp)	Indian Grid	Rajasthan	31/03/2017

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Project Boundary

The project activity includes 70 MW installed capacity and is greenfield large solar power plants. The Project is located in village Bhadla of Jodhpur districts in Rajasthan state of India and having ~~two meters, main meter and check meter~~ installed at 132/220 kV RSDCL GSS – II pooling station ~~whereas standby meter is located at plant end.~~

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Project boundary has ascertained using ACM0002, version 20.0. The spatial extent of the project boundary includes the project power plant/unit and all power plants/ units connected physically to the electricity system that the project power plant is connected to.

Hence the project boundary includes the solar project activity, substation, grid and all power plants connected to the grid. The project activity evacuates power to the Indian grid.

Scenario existing prior to the implementation of the project activity:

As the project activity is the installation of a new grid-connected renewable power plant/unit. The scenario existing prior to the implementation of project activity is Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool 7: Tool to calculate the emission factor for an electricity system" (Version 7.0)¹².

Baseline Scenario

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

Sustainable Development

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment, Forest and

¹² <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

Climate Change (MoEFCC), has mentioned four indicators for the sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India. The project's contribution towards sustainable development has been addressed based on the following sustainable development aspects, in line with the requirements of the NCDMA:

- **Social well being**

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

- **Environmental well being**

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

- **Economic well being**

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

- **Technological well being**

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

A.2. Location of project

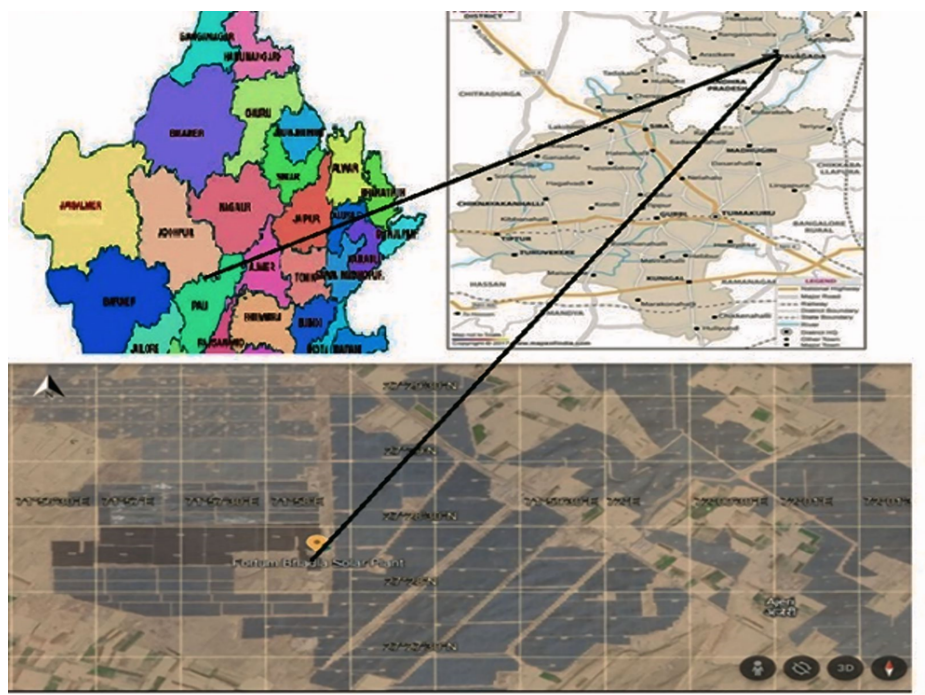
Latitude	: 27°28'7.00" North
Longitude	: 71°58'17.00" East
District	: Jodhpur
Village	: Bhadla

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State : Rajasthan

Country : India

The location of the project activity as visible in the Google maps is shown below:



Item	Description
District Headquarter	Jodhpur
Nearest Airport	Jodhpur, (227 km, 4 hrs drive)
Nearest railway station	Phalodi (83 km)
Road	National Highway
Nearest Port	Kandla (~800 km)
Water resource	Indira Gandhi Nahar Canal (2 km)





Project Satellite Image

Project Investors' Name	Capacity in MW _{AC}	Village	District	Latitude	Longitude
Fortum FinnSurya Energy Pvt. Ltd.	70MW	Bhadla	Jodhpur	27° 28' 7.00" North	71° 58' 17.00" East

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A.3. Reference of applied methodology

Title : "Grid-connected electricity generation from renewable sources".

Reference : Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 20¹³, EB 89, Annex 1)

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

¹³ <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

- Methodological Tool 07: Tool to calculate the emission factor for an electricity system
- Version 07.0 (EB 100, Annex 4)¹⁴
- Methodological Tool 01: Tool for the demonstration and assessment of additionality
- Version 07.0, EB 70 Annex 8¹⁵

A.4. Crediting period of project

Type of crediting period: Renewable

This is 2nd crediting period and Length of 2nd crediting period: 5 years (Renewable Crediting Period will be renewed twice maximum up to 15 years i.e., 5yrs+5yrs+5yr).

Start date of crediting period: 06/11/2022

End Date of crediting period: 05/11/2027

Length of crediting period: 5 years

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The project activity aims to harness solar energy through the installation of PV with a total installed capacity of 70 MW_{AC} (87.5 MWp) at Bhadla, Jodhpur, Rajasthan. The solar PV power plant have solar PV modules, inverters, transformers and other protection system and supporting components. The start date of project activity is 29/07/2016.

Brief description of the installed technology and equipment.

Technical detail of the equipment	Remark
Technology	Solar PV Module
Solar photovoltaic module	First solar series 4TM PV Module
No of Modules	112.5Wp: - 88800, 115Wp: - 587000, 117.5Wp: - 85200
Make	First Solar
Capacity	112.5Wp, 115Wp, 117.5Wp
No of inverters	70
Make	ABB
Capacity	1000kVA

¹⁴ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

¹⁵ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v7.0.0.pdf>

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No. of transformers	18 (ITD) + 2 (Power transformer) ¹⁶
Technical & Operational Lifetime	25 years
Cleaning Mechanism	Robotic Cleaning (60MW), Manual Cleaning (10MW)

Relevant dates for the project activity:

31/03/2017 is the date of commissioning of the project activity. The project is commissioned on 31/03/2017 date and supplying generated electricity to INDIAN grid. Although, no such events have happened during the reported monitoring period, which can alter the applicability of the applied methodology.

The project has undergone breakdown during current Monitoring period which is mentioned in Appendix 2.

B.1.1 Forward Action Requests

No FAR raised during previous performance review.

B.2. Post-Design Certification changes

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

There is no temporary deviation from certified key project information, Project design document, monitoring & reporting plan, applied methodology or applied standardized baseline.

B.2.2. Corrections

1. As per the registered GS PDD, "Fortum FinnSurya Energy Private Limited" was identified as the project developer for the activity. However, on 23 July 2018, a carbon credit transfer agreement was executed between "Fortum FinnSurya Energy Private Limited" and "Fortum India Private Limited." While Fortum FinnSurya Energy Private Limited remains responsible for the overall management of the 70 MW project activity, a GS4GG cover letter submitted to Gold Standard confirms the transfer of all carbon

¹⁶ Power transformer receives electricity from project activity and supply to the metering point at Pooling substation 132/220 kV GSS II.

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credit rights to "Fortum India Private Limited." Accordingly, "Fortum India Private Limited" is now acting as the project developer for this activity.

Furthermore, these corrections do not impact the baseline or the additionality of the project.

B.2.3. Changes to start date of crediting period

There have not been any changes to start date of crediting period.

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

There has not been any permanent change from registered monitoring plan, applied methodology or applied standardized baseline.

B.2.5. Changes to project design of approved project

There has not been any change in the PDD during the current monitoring period.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The monitoring plan is developed in accordance with the modalities and procedures for project activities and is proposed for grid-connected solar power project being implemented in Rajasthan, India. The monitoring plan, which is implemented by the project developer describes about 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 developer. PD has the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises of the following members:

Monitoring data:

The parameters monitored ex-post is the net electricity supplied to the grid ($EG_{PJ,y}$) in the year y.

Measurement Method:

The parameter $EG_{PJ,y}$ will be measured by a main meter installed at 132/220 kV RSDCL GSS – II pooling station at Bhadla Village. The Check meter at substation and a Standby meter at plant end are installed in case the main meter fails to work.

All the plants (including the project activity solar plant and other investors solar plant) are further connected to the metering point at Pooling substation 132/220 kV RSDCL GSS – II pooling station, and further electricity is transferred to 220/400 kV RRVNPL

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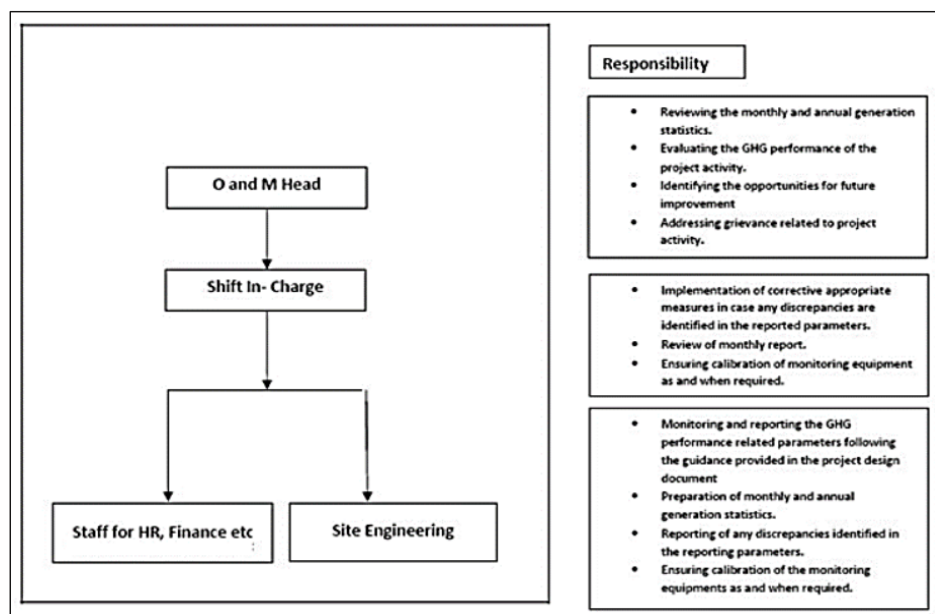
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substation. The on-grid electricity is monitored continuously and recorded monthly. The metering point consists of both main & check meters (ABT Meters) having accuracy class of 0.2s. The measurement results are cross-checked with records for sold electricity from the invoices. All data collected as part of the monitoring are archived electronically and kept at least for 2 years after the end of the last crediting period. All meters are calibrated once every five years which is in line with the Central Electricity Authority (Installation & Operation Meters) Regulations, 2006 that requires calibration of meters once every five years.

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The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PD Implemented the following structure for data monitoring, collection, data archiving and calibration of equipment's for this project activity. The team comprises of the following members:



Responsibilities of Site Engineering: Overall functioning and maintenance of the project activity

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

Responsibilities of Shift In-charge: Responsibility for day-to-day data collection and maintains day to day monitored data. In addition, the responsibility extends to maintaining records related to grievances received from stakeholders, ensuring that each grievance is documented with details such as the date received, nature of the issue, and actions taken to address it. This helps in tracking resolution progress and ensuring transparency.

Furthermore, the shift in charge is tasked with maintaining records pertaining to Sustainable Development Goals (SDG) parameters, such as training sessions conducted, employment records, and other relevant indicators.

Role of and Responsibility Project Developer- The project Developer is the legal owner of the project activity and is responsible for overall functioning of the plant. Project Developer is also responsible for providing required data/documents to project representative for Verification process.

Role and Responsibility of Project Representative- Project representative is responsible for GHG calculation and for entire procedure related to the issuance of GSVERs under GS4GG. Project representative is also responsible for addressing comments raised by VVB and GS4GG

Role of Jodhpur Vidhyut Vitran Nigam Limited (JDVVNL) and Rajasthan Solar Park Development Company Limited' (RSDCL)- JDVVNL & RSDCL have the responsibility of meter calibration

Data Measurement:

All the plants (including the project activity solar plant and other investors solar plant) are further connected to the metering point at Pooling substation 132/220 kV GSS II where the energy meters for each project activity at the pooling substation are installed separately and the billing is also done specifically on the individual energy meters. Further electricity is transferred to 220/400 kV RRVN substation. The metering point consists of both main & check meters (ABT Meters) having accuracy class of 0.2s.

The export/import (transmission) losses between these two substations are apportioned based on pooling substation readings. Apportioning is not done by PD; it is calculated by JDVVNL in loss sheet and provided to PD for raising invoice considering transmission

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loss. The apportioned value provided in loss sheet is considered while calculating net generation from invoice as follows-

Net Generation = Export-Import- Transmission loss

For ER calculation minimum of JMR and invoice is used as conservative approach.

The export and import energy are measured continuously using Main and Check meters located at the RSDCL GSS – II pooling station. The main meter is used for billing purpose and in case of any issues with main meter, check meter would be used. Standby meter is only used in failure of the main meter and check meter¹⁷. Readings of meters are taken on monthly basis by authorized officer of SEB (State Electricity Board) in this case Jodhpur Vidhyut Vitran Nigam Limited (JDVVNL) and Rajasthan Solar Park Development Company Limited' (RSDCL) in the presence of PD or representative of PD.

Based on the Meter Reading Statement to Fortum India Private Limited, invoices are raised. These invoices are used to cross checking the meter readings taken for the respective project activity.

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

Apportioning: In case the dates of a particular monitoring period will not match with the dates of the billing cycle, the net electricity exported to the grid will be calculated by apportioning the net electricity exported to grid, as recorded in the Monthly Generation Record/Joint Meter Reading statement, based on the number of days in the monitoring period and the number of days for which the Monthly Generation Record/Joint Meter Reading report was taken.

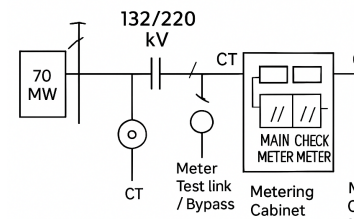
- Data collected by PD from energy meters installed at the plant end and recorded daily in the Daily Generation Report (DGR).
- The net electricity exported to the grid would be calculated from:

Net electricity exported to the grid = (A/B) * C

¹⁷ During current monitoring period no such scenario occurred.

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Where:

A= Number of days matching in billing period and monitoring period.

B= Total number of days of the billing period/month

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

Calculation of net electricity exported to the grid is calculated by both the approaches and conservative value among the two is used for calculation of emission reductions during that period.

Data collection and archiving:

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

Emergency preparedness

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

In case Main meter or Check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible. In the event that the Main meter will not be in service as a result of maintenance, repairs or testing, the Check meter will be used for readings. In case both the main and check meter are found to be outside the acceptable limits of accuracy or faulty or not functioning properly, both the meters will be calibrated immediately, and the error percentage found in the main meter during its calibration will be applied to its metered energy data for the entire period since its last calibration to obtain the corrected value of net electricity exported to the grid. [Standby meter is only used in failure of the main meter and check meter.](#)

Personnel training

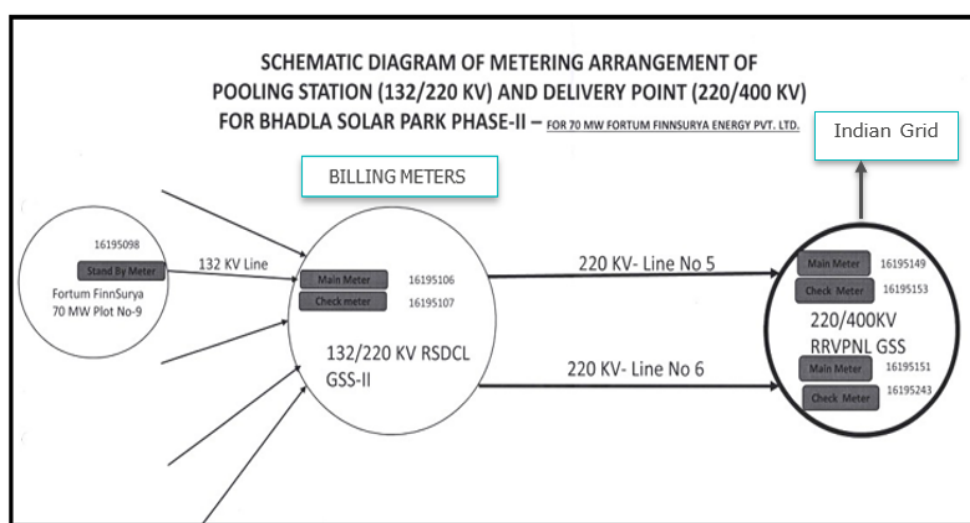
In order to ensure the proper functioning of the project activity and a properly monitoring of emission reductions, the staff has been trained. The plant helpers have

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been trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

Meter details

The billing meters (main and check meters) are installed at 132/220 kV RSDCL GSS – II pooling station. Schematic Diagram of metering arrangement of pooling station (132/220 kV) and delivery point (220/400 kV) for Bhadla Solar Phase II for 70 MW Fortum FinnSurya Energy Pvt. Ltd.



Calibration Details:

The calibration details of meters involved in the project activity is as below:

Meter Number	Meter Type	Make	Accuracy Class	Date of calibration	Due Date of next Calibration	Meter location
16195106	Main Meter	L&T	0.2s	01/03/2021 13/03/2023	12/03/2028	132/220 kV RSDCL GSS
16195107	Check meter	L&T	0.2s	01/03/2021 13/03/2023	12/03/2028	- II pooling station
16195098	Standby meter	L&T	0.2s	01/03/2021 13/03/2023	12/03/2028	Plant end

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The meters were calibrated by Darsh Calibrations Private Limited, which is a NABL accredited agency. The frequency of calibration is once in 5 years as per section B.7.1

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of the registered GS PDD version 03, which is in compliance with Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006¹⁸.

¹⁸ https://cea.nic.in/old/reports/regulation/CEA_metering_regulation_amendment_2019.pdf

SECTION D. DATA AND PARAMETERS

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

Data/parameter:	EF_{grid, OM, y}
Unit	tCO ₂ /MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 17, October 2021 ¹⁹
Value(s) applied	0.9522
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07.0" as 3-year generation weighted average using data for the years 2018- 19, 2019-20, & 2020-21. The data are obtained from "CO ₂ Baseline Database for Indian Power Sector" version 17, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data:	For the calculation of the Baseline Emission
Additional comments:	This parameter is fixed ex-ante for the entire crediting period.

Data/parameter:	EF_{grid, BM, y}
Unit	tCO ₂ /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 17, October 2021 ²⁰
Value(s) applied	0.8653
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07.0" as such the latest value of build margin, 2020-21 is taken. The data are obtained from "CO ₂ Baseline Database for Indian Power Sector" version 17, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data:	For the calculation of the Baseline Emission

¹⁹ https://cea.nic.in/wp-content/uploads/tpe_cc/2022/02/User_Guide_ver_17_2021.pdf

²⁰ https://cea.nic.in/wp-content/uploads/tpe_cc/2022/02/User_Guide_ver_17_2021.pdf

Additional comments:	This parameter is fixed ex-ante for the entire crediting period.
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Data/parameter:	EF_{grid, y}
Unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 17, October 2021 ²¹
Value(s) applied	0.9305
Choice of data or measurement methods and procedures	The combined margin emissions factor is calculated as follows: $EF_{grid, CM, y} = EF_{grid, OM, y} * W_{OM} + EF_{grid, BM, y} * W_{BM}$ Where: EF_{grid, BM, y} = Build margin CO₂ emission factor in year y (tCO₂/MWh) EF_{grid, OM, y} = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25%
Purpose of data:	For the calculation of the Baseline Emission
Additional comments:	This parameter is fixed ex-ante for the entire crediting period.

D.2 Data and parameters monitored

7.2.1 Renewable energy share in the total final energy consumption

Data/parameter:	EG_{PJ, y}
Unit	MWh/year
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
Source of data	Monthly joint meter reading reports (70MW)

²¹ https://cea.nic.in/wp-content/uploads/tpe_cc/2022/02/User_Guide_ver_17_2021.pdf

Value(s) applied	170,692																
Measurement methods and procedures	Plant end metering:																
	The electricity exported / supplied by the plant is first metered by plant end dedicated meter. This can be considered as stand by meter.																
	Metering at the substation:																
	All the plants (including the project activity solar plant and other investors solar plant) are further connected to Pooling substation 132/220 kV RSDCL GSS – II pooling station ²² , and further electricity is transferred to 220/400 kV RRVNL substation. The metering point consists of both main & check meters (ABT Meters) having accuracy class of 0.2s. The export/import (transmission) losses between these two substations are apportioned based on pooling substation readings. Apportioning is not done by PD; it is calculated by JDVVNL in loss sheet and provided to PD for raising invoice considering transmission loss. The apportioned value provided in loss sheet is considered while calculating net generation from invoice as follows-																
	<u>Net Generation = Export-Import- Transmission loss</u>																
	<u>For ER calculation minimum of JMR and invoice is used as conservative approach.</u>																
	The details of energy meters are as follows:																
	<table><tr><th>Meter</th><th>Serial Number</th><th>Accuracy Class</th><th>Date of calibration</th></tr><tr><td>Main</td><td>16195106</td><td>0.2s</td><td>13/03/2023</td></tr><tr><td>Check</td><td>16195107</td><td>0.2s</td><td>13/03/2023</td></tr><tr><td>Standby</td><td>16195098</td><td>0.2s</td><td>13/03/2023</td></tr></table>	Meter	Serial Number	Accuracy Class	Date of calibration	Main	16195106	0.2s	13/03/2023	Check	16195107	0.2s	13/03/2023	Standby	16195098	0.2s	13/03/2023
Meter	Serial Number	Accuracy Class	Date of calibration														
Main	16195106	0.2s	13/03/2023														
Check	16195107	0.2s	13/03/2023														
Standby	16195098	0.2s	13/03/2023														

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Deleted: The difference of final apportioned value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations.

²² The energy meters for each project activity at the pooling substation are installed separately and the billing is also done specifically on the individual energy meters

Monitoring frequency:	Measured continuously and the same is recorded once in a month.
QA/QC procedures:	The meters are approved, tested & sealed by the State Utility. The meters are in the custody of the State Utility. The frequency of calibration is once in 5 years. The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency and apportioning approach is under control of state electricity board and PD do not have any control on it. PD is getting value of net electricity supplied to grid and the same is considered the monitoring parameter.
Purpose of data:	Calculation of baseline emissions
Additional comments:	Monitoring equipment The bidirectional electronic energy meters with accuracy class 0.2s. Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of GS-VERs for this project activity, whichever occurs later.

SDG 8: Decent Work and Economic Growth

Data/parameter:	Quantitative employment and income generation				
Unit	Number				
Description	Number of people employed directly due to the project activity. Number of men and number of women employed by the project activity. Type of job like temporary/permanent or skilled/unskilled, etc also monitored and it is ensured that peoples will get equal payment for equal work.				
Source of data	Plant records				
Value(s) applied	Year	Total	Skilled	Semi-Skilled	Unskilled

	01/10/2023 to 31/12/2023	14	12	02	0
	01/01/2024 to 31/12/2024	14	12	02	0
	The above number of jobs are permanent and full-time in nature. Additional short-term services create temporary jobs. Females are not employed at the site until now. As per minimum wages notification, 2023 by Department of Labour Rajasthan dated 04/09/2023²³, the workers in Rajasthan under schedule – I, s. no. 24 are required to be paid minimum wages as mentioned below: • Unskilled Workers - 285 INR per day or 7410 INR per month • Semi-skilled Workers - 297 INR per day or 7722 INR per month • Skilled Workers – 309 INR per day or 8034 INR per month • Highly Skilled Workers - 359 INR per day or 9334 INR per month However, the income to all the workers in the project is made as follows: 384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled).				
	The total number of persons working in the plant would be calculated based on the daily log available at site. This parameter also monitors number of men/women employed by the project activity. The project activity ensures that “equal pay for work of equal value” for both men and women and there is no any discrimination against women. “The employment covers number of men and number of women employed by the project activity. The job is of permanent in nature for skilled and unskilled category. Also, it is ensued that peoples will get equal payment for equal work. The payment is based on				
Measurement methods and procedures					

²³ <https://labour.rajabsthan.gov.in/notification.aspx>

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	work and no any gender inequality for payment for work of equal value.
Monitoring frequency:	Monthly monitoring and annual compilation
QA/QC procedures:	The number of persons employed would be mentioned in the plant register, which can be crossed checked with daily attendance register.
Purpose of data:	To monitor the SDG 8 Indicator
Additional comments:	-

Data/parameter:	Quality of employment
Unit	Number
Description	Training of staff
Source of data	The training records for all the employees
Value(s) applied	Total:24 trainings
Measurement methods and procedures	Together with the technology supplier, the Project organize training for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures and data is maintained as training records
Monitoring frequency:	Annually
QA/QC procedures:	The training records for all the employees
Purpose of data:	To monitor the SDG 8 Indicator
Additional comments:	Together with the technology supplier the Project owner organize training for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures.

SDG 13: Climate Action

Data/parameter:	ER_y
Unit	tCO ₂ /year
Description	Emission reduction achieved per year
Source of data	Summarized in ER sheet of "GS_5519_ER Sheet". Calculated as per the registered PDD and as per methodology.

Value(s) applied	153,796 ²⁴
Measurement methods and procedures	The baseline emissions are the product of electrical energy baseline $EG_{PJ,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor. Calculated as per the registered PDD and as per methodology ACM0002 (Version 20.0) $BE_y = EG_{PJ,y} * EF_{grid, CM, y}$
Monitoring frequency:	As per monitoring period
QA/QC procedures:	Not applicable
Purpose of data:	Calculation of emission reductions
Additional comments:	Data would be achieved in paper & electronic form for two years after the end of crediting period or of the last issuance of the GS-VERs for this project activity, whichever occurs later.

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

Not Applicable for non-community service activities

D.4. Implementation of sampling plan

Sampling is not required, as the project activity is a solar power plant.

SECTION E. CALCULATION OF SDG IMPACTS

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

SDG 13: Climate Action

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:

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

Where;

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

²⁴ Capped value whereas actual ERs achieved during current monitoring period are 158,828 tCO₂

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$EG_{PJ, y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr).

$EF_{grid, CM, y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO₂/MWh).

$EG_{PJ, y}$ = 170,692 MWh

$EF_{CO_2, grid, y} = EF_{grid, CM, y, y} = 0.9305 \text{ tCO}_2\text{e/MWh}$

Hence,

$BE_y = 170,692 \text{ MWh} * 0.9305 \text{ tCO}_2\text{e/MWh}$

= 158,828 tCO₂e (Round down values)

As per Rule Clarification - assessment approach for reporting higher ex-post emission reductions²⁵ para 2.1.4 the emission reductions are capped to the upper bound of the sensitivity analysis range (+10%) for the monitoring period (annual emission reductions values) in which the higher ex-post emission reduction was reported so emission reductions are capped to 153,796 tCO₂e.

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

Item	Baseline value
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 153,796 ²⁶ tCO ₂ e

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

SDG 07: Affordable and Clean Energy

The value for affordable and clean energy is the summation of monthly net electricity supplied to the grid. The values are sourced from Monthly Joint Meter Reading records,

²⁵ <https://globalgoals.goldstandard.org/standards/RC-2022-assessment-approach-for-reporting-higher-ex-post-emission-reductions.pdf>

²⁶ Capped value

which can be crosschecked with the invoices. The summation for current monitoring period is 170,692 MWh.

During Monitoring period –01/10/2023 to 31/12/2024 (inclusive of both the dates)

Quantity of net electricity supplied to the grid (MWh) = 170,692 MWh.

SDG 8: Decent Work and Economic Growth

The monitoring parameter for the SDG 8 are Number of trainings provided to employees & O&M staff, equal payment for equal work for staffs involved in the project. During the project scenario, the following is achieved.

During Monitoring period - 01/10/2023 to 31/12/2024 (inclusive of both the dates)

Quality of Employment – 24 trainings

Quantitative employment and income generation - 14 employees (12 skilled and 2 semi-skilled)

The income to all the workers is made as follows: 384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled)

These can be crosschecked from the training records & employment records.

SDG 13: Climate Action

As per the Section 5.4, Para 31 of the applied Methodology ACM0002 version 20.0, "For most renewable energy power generation project activities, $PE_y = 0$.

However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

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

Where:

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

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO₂/yr)

$PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (tCO₂e/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO₂e/yr)"

For most renewable energy power generation project activities, $PE_y = 0$

As the project activity is the installation of a new grid-connected Solar power plant/unit and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ is equal to zero and thus, $PE_y = 0$.

E.3. Calculation of leakage

As per the applied methodology ACM0002 version 20.0, leakage emissions are not considered for the project activity. Hence, $LE_y=0$

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 13	Emission Reduction (tCO ₂ e)	153,796 ²⁷	0	153,796 ²⁸
SDG 7	MWh of renewable energy Generated (MWh)	0	170,692	170,692
SDG 8	SDG 8: Decent Work and Economic Growth	0	24 Trainings, 14 Employees <u>384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled)</u>	24 Trainings 14 Employees <u>384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled)</u>

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²⁷ Capped value
²⁸ Capped value

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 ²⁹ achieved during this monitoring period
		Capped Value -153,796 tCO ₂
SDG 13	112,980 tCO ₂ e/Year (365 days) 141,766 tCO ₂ e for the monitoring period (458 days)	(Actual Value- 158,828 tCO ₂ e)
SDG 7	121,420MWh/Year (365 days) 152,357 MWh for the Monitoring period (458 days)	170,692 MWh
SDG 8	10 people employment and 1 training per year <u>The income to all the unskilled workers are made on day-to-day basis better than the minimum wage requirements: 357 INR.</u>	24 Trainings 14 Employees ³⁰ <u>384 INR/day (unskilled),</u> <u>423 INR/day (semiskilled),</u> <u>486 INR/day (skilled) and</u> <u>612 INR/day (highly skilled)</u>

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

SDG 13:

It is to be noted here that as per the registered PDD of CP 2 estimated emission reduction to be achieved from the project activity for the current monitoring period is

$$= 112,980 * 458 \text{ (days)} / 365$$

$$= 141,767 \text{ tCO}_2\text{e}$$

SDG 7:

²⁹ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

It is to be noted here that as per the registered PDD estimated electricity generation to be achieved from the project activity for the current monitoring period is

$$\begin{aligned} &= 121,420 \text{ MWh/Year (365 days)} \\ &= 121,420 * 458(\text{days})/365 \\ &= 152,357 \text{ MWh} \end{aligned}$$

SDG 8:

As per the registered PDD employment to 10 people and 1 training per year was estimated. 14 employment (12 skilled & 2 semi-skilled) and 24 trainings were provided during the current MP which is conservative.

Also, as per registered PDD, all unskilled workers receive daily wages above the minimum wage requirement of INR 357/day whereas in the actual scenario daily wages are provided as 384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled)

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

SDG 13 & SDG 7:

The actual emission reductions achieved during the current monitoring period are 12.03% higher than the estimated ERs for the same period i.e. there is an increase in ex-post emission reductions. The variable due to which the emission reduction is increasing is higher Plant Load Factor (PLF). Based on the estimated Plant Load Factor (PLF) as per the Project Design Document (PDD), the expected PLF was 20.00%. However, during the monitoring period, the actual PLF achieved was 22.17%. This indicates an increase in PLF of 10.92%.

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 141,766 tCO₂e Whereas, actual emission reductions achieved are 158,828 tCO₂e, which is approximately 12.03 % higher than the estimated emission reductions but As per Rule Clarification - assessment approach for reporting higher ex-post emission reductions³¹ para 2.1.4 the emission reductions are capped to the upper bound of the sensitivity analysis range (+10%) for the monitoring period (annual emission reductions values) in which the higher ex-post emission reduction was reported so emission reductions are capped to 153,796 tCO₂e.

Therefore, the higher generation was influenced by factors like more sunshine hours and irradiance beyond the control of the project developer.

³¹ <https://globalgoals.goldstandard.org/standards/RC-2022-assessment-approach-for-reporting-higher-ex-post-emission-reductions.pdf>

SDG 8:

As per the registered PDD employment to 10 people and 1 training per year was estimated. However, the project 14 employment and 24 trainings were provided during the current MP which is conservative. Also, as per registered PDD, all unskilled workers receive daily wages above the minimum wage requirement of INR 357/day whereas in the actual scenario daily wages are provided as 384 INR/day (unskilled), 423 INR/day (semiskilled), 486 INR/day (skilled) and 612 INR/day (highly skilled)

SECTION F. SAFEGUARDS REPORTING

No safeguarding principles were added to the monitoring plan in the registered PDD. Therefore, the relative success and failures, or improvements to proposed mitigation measures is not applicable.

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.

As a part of continuous feedback from stakeholders, the grievances register is being placed at site office and is being continuously monitored and addressed through the grievances cell. The Input/Grievance Register is maintained at the project site plant office. Once a comment or grievance is received, it is documented and presented to the management during the monthly meetings, along with the actions taken to address it. If any input or approval is required from the management, this will be discussed and resolved during these monthly management meetings. The management also reserves the right to assess or carry out further investigations if deemed necessary.

Regarding the submission process, the current procedure involves direct submission at the plant office or via the authorized email ID. During the monitoring period no grievances have been received, the scan copies have been provided to the VVB.

Register Onsite:

S. No.	Date of Complaint	Topic	Date of resolution	Remark from PP
-	-	-	-	-

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

Not Applicable as there were no negative feedback logged during the previous monitoring periods which required to be monitored.

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

Not Applicable, as there was no legal contest that has arisen with the project during the monitoring period. The project activity is under the host country law and regulation as per the EIA guidelines notification 2006 (solar project activity not required for EIA) and there is no legal contest. And project activity also follow Photo Voltaic Cells attracts the provisions of the Hazardous and Other Waste (Management and Trans-Boundary Movement) Rules, 2016.

APPENDIX 1: Meter Calibration Details

Type	Meter Serial Number	Make	Accuracy Class	Calibration date	Due Date
Main Meter	16195106	L&T (Larsen & Toubro Limited)	0.2s	13/03/2023	12/03/2028
Check Meter	16195107	L&T (Larsen & Toubro Limited)	0.2s	13/03/2023	12/03/2028
Standby Meter	16195098	L&T (Larsen & Toubro Limited)	0.2s	13/03/2023	12/03/2028

APPENDIX 2: Breakdown Details

Date	Error description	Duration
23-Oct	SMB was down due to fault	5:09
23-Nov	Inverter was down due to fault	6:03
23-Dec	String was down due to Drizzling	107:34
24-Jan	String was down due to Fog	53:47
24-Feb	Inverter was down due to fault	2:29
24-Mar	Load Curtailment due to Trafo Problem	42:30
24-Apr	Load Curtailment due to Trafo Problem	14:15
24-May	SMB was down due to DC Cable Fault	9:20
24-Jun	Inverter was down due to fault	18:31
24-Jul	String was down ground fault	16:06
24-Aug	Broken Module String was down Due to Rain	4325:12
24-Sep	Broken Module String was down Due to Rain	2324:55
24-Oct	Inverter was down Due to fault	5:52
24-Nov	Inverter was down Due to fault	6:03
24-Dec	Inverter was down Due to fault	7:26

APPENDIX 3: Training Details

S. No.	Date	Topic of Training	Trainer	Trainee (Number)	Duration (HH:MM)
1	19/12/2024	What is STC?	Rahul Bhardwaj	10	01:00
2	03/12/2024	Site Specific Hazards	Rahul Bhardwaj	13	01:30
3	24/11/2024	What is PPEs?	Deepak Dogra	11	01:00
4	06/09/2024	Tool Box Training	Deepak Dogra	13	01:00
5	24/09/2024	Safety Training for Contractor	Deepak Dogra	14	01:30
6	24/05/2024	About TBT	Deepak Dogra	11	01:00
7	26/04/2024	Fortum's safety ground rules	Ganesh Paliwal	13	01:00
8	27/03/2024	What is LOTO	Deepak Dogra	13	01:00
9	21/03/2024	Mental Wellbeing	Anika Kakkar	14	01:00
10	07/03/2024	Cyber Security	Shubham	13	01:00
11	13/02/2024	Electric Shock Handling	Deepak Dogra	10	01:00
12	07/02/2024	Training for fire fighting	Deepak Dogra	11	01:00
13	27/01/2024	Fortum code of Conduct	Ganesh Paliwal	12	01:00
14	19/01/2024	ISO Awareness Program	Deepak Dogra	12	01:00
15	03/01/2024	First Aid Training	Rahul Bhardwaj	8	01:30
16	28/12/2023	Mock drill training	Deepak Dogra	3	00:30

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17	08/12/2023	Safety Training	Deepak Dogra	12	01:30
18	04/12/2023	Site Specific hazards and precautions and responses to hazards	Deepak Dogra	12	01:00
19	28/11/2023	POSH	Deepa	13	01:30
20	24/11/2023	E H S Training	Rahul Bhardwaj	16	01:00
21	26/10/2023	ISO Awareness Program	Deepak Dogra	12	01:00
22	18/10/2023	Electric Shock Handling	Deepak Dogra	11	01:00
23	10/10/2023	Response in case of Emergencies	Rahul Bhardwaj	10	01:00
24	04/10/2023	First Aid Training	Rahul Bhardwaj	9	01:00

Revision History

Version	Date	Remarks
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