



**Verified Carbon
Standard**

100 MW SOLAR PROJECT IN BHADLA IN RAJASTHAN

Document Prepared by

WeAct Pty Ltd.

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity involves installation of 100 MWac solar power project in Bhadla in the state of Rajasthan, India. The main purpose of this project activity is to generate clean electricity through renewable source of solar energy and to supply electricity to the Indian grid system via Power Purchase Agreement (PPA) with Solar Energy Corporation of India (SECI).

The project activity has been commissioned in two phases; 30 MW of both plot no. P4 and P5 was commissioned on 16-Sep-2018. 20 MW of both plot no. P4 and P5 has been commissioned on 06-Oct-2018.

The solar power does not involve any fossil fuel consumption and hence the project does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

The details of the project are mentioned in the table:

Project Investors' Name*	Commissioning Date	Capacity in MWAC		Location (Village/State)
Clean Sustainable Energy Pvt. Ltd.	16 th September 2018	30 MW	50	Village: Bhadla, District: Jodhpur
	6 th October 2018	20 MW	MW	
	16 th September 2018	30 MW	50	
	6 th October 2018	20 MW	MW	
		(50 MW + 50 MW) = 100 MW		

*WeAct Pty Ltd will be acting as the authorized representative and the focal point for all the VCS actions.

The current monitoring period is considered from 01-October-2020 to 31-August-2021. The total GHG emission reductions or removals generated in this monitoring period are 206,113 tCO₂e (final calculated volume).

1.2 Sectoral Scope and Project Type

The project activity falls under the following Sectoral scope and Project Type:

Sectoral Scope : 01 - Energy industries (renewable / non-renewable sources)
 Project Type : I - Renewable Energy Projects

Methodology : ACM0002: Grid-connected electricity generation from renewable sources - Version 19¹

The project is not a grouped project activity.

1.3 Project Proponent

Organization name	Clean Sustainable Energy Pvt. Ltd.
Contact person	Prashant Choubey
Title	Senior Vice President
Address	3rd floor, PTI building, 4 Parliament Street, Delhi - 110001. India.
Telephone	+91-97113 02259
Email	prashant.choubey@avaada.com

Clean Sustainable Energy Pvt. Ltd. is acting as the Project Proponent (PP) having overall operational control and ownership of the Project activity.

1.4 Other Entities Involved in the Project

Organization name	WeAct Pty Ltd
Role in the Project	Authorized Representative
Contact person	Satish Duvvuru
Title	Director
Address	1/115 Chapal Street, Windsor, Victoria-3181, Australia.
Telephone	Ph: +61-409 135 580
Email	satish@weact.com.au

¹

https://cdm.unfccc.int/filestorage/5/8/1/58IAGB7SZUDE02VN6LYM30K41HFPRQ/EB100_repan06_ACM0002.pdf?t=ZU98cjY4N2N5fDCN8aDpZIXb8rt3Tkda9zM

WeAct Pty Ltd. is the “Authorized Representative”² of PP and the “Sole Focal Point” for all the communications with the DOE, VCS Board and Registry; and to take all the necessary actions for the project under VCS mechanism as and when required,

1.5 Project Start Date

Project Start Date: 16-Sep-2018.

As per VCS guidelines, the project start date is the date on which the project has been commissioned. The first phase of the project activity was commissioned as on 16th Sep 2018³.

1.6 Project Crediting Period

Crediting Period Start date : 16-Sep-2018

Crediting Period End date : 15-Sep-2028

Thus, a total crediting period of “10 years” has been proposed.

Also, the project activity adopts renewable crediting period of 10 years period which can be renewed for 2 times.

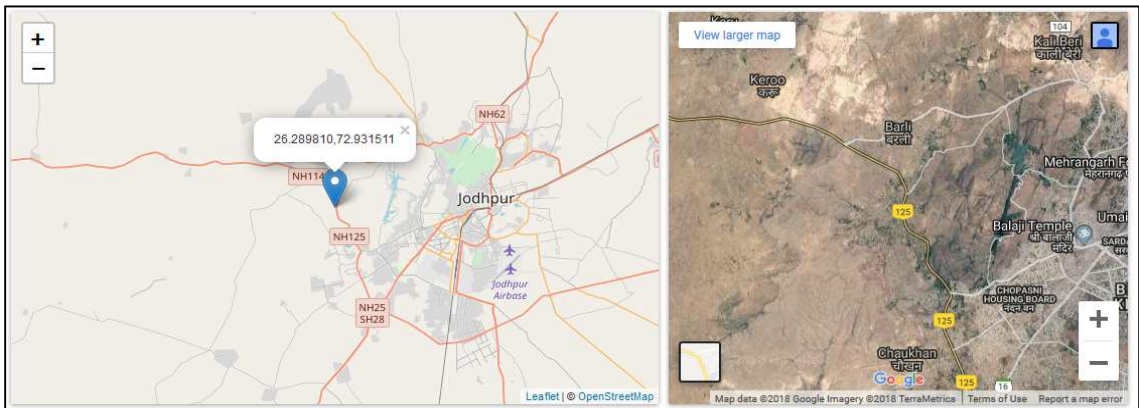
1.7 Project Location

The 100MW_{AC} solar PV Plant site is located in Bhadla village, Jodhpur district, in the Indian state of Rajasthan. The site is well connected by state highway state highway (SH) NH-15.

The geo-coordinates of the location are as follows:

Latitude : 26° 17' 23.316" N (or 26.289810)

Longitude : 72° 55' 53.436" E (or 72.931510)



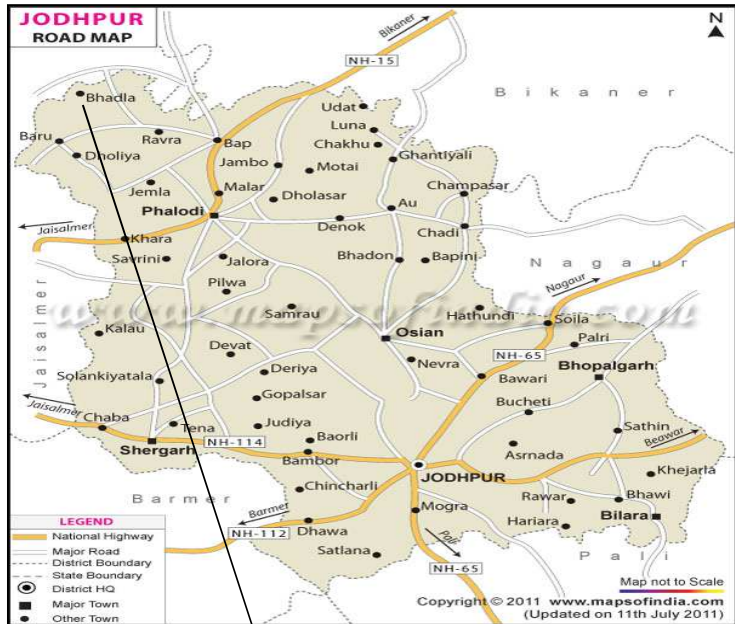
Bhadla is about 200 km north of Jodhpur and about 320 km west of Jaipur. The nearest village is Bap, which is approximately in the 50km radius from the Project site location. Location details of the project are given below in the figure:

² Communication Agreement has been executed in between PP and Authorized Representative.

³ Commissioning Certificates.



Showing State of Rajasthan



Bhadla village, Jodhpur district

1.8 Title and Reference of Methodology

- | | |
|--------------------------|---|
| Title of Methodology | : ACM0002: Grid-connected electricity generation from renewable sources - Version 19 ⁴ |
| Reference of Methodology | : The project activity meets the eligibility criteria of large-scale project as it is more than 15 MW |
| Type I | : Energy industries (renewable / non-renewable sources) |
| Category | : Approved Consolidated Methodology (ACM0002). |

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

- Tool to calculate the emission factor for an electricity system - Version 07.0 (EB 100, Annex 04)⁵

1.9 Participation under other GHG Programs

The project has not been developed under any other GHG mechanism or Programs.⁶

A declaration shall be submitted to DOE confirming the same.

⁴ https://cdm.unfccc.int/filestorage/5/8/1/58IAGB7SZUDE02VN6LYM30K41HFPRO/EB100_repan06_ACM0002.pdf?t=ZU98cj4N2N5fDCN8aDpZlXb8rt3Tkda9zM

⁵ https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v1.1.pdf/history_view

⁶ PP had evaluated the possibility of the project under Gold Standard Mechanism due to its high sustainable contributions associated with the project, in this regard an initial account opening and listing process was initiated by PP however the same was not pursued further and only VCS of VERRA is being considered for the project. Hence, project is not valid or involved under any other GHG Program. PP has submitted an official Declaration to VVB confirming this scenario and justification.

1.10 Other Forms of Credit

The Project has no intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

A declaration is being submitted to DOE confirming the same.

Emission Trading Programs and Other Binding Limits: The project activity is not a part of any emissions trading program or any other mechanism that includes GHG allowance trading (as identified in the project description). Therefore, PP hereby confirms that net GHG emission reductions or removals generated during this monitoring period have not be used for compliance under any such programs or mechanisms.

Other Forms of Environmental Credit: The project activity has not sought or received another form of GHG-related environmental credit, including renewable energy certificates, during this monitoring period.

1.11 Sustainable Development Contributions

Contribution to sustainable development:

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

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

As per para 3.16 of the VCS Standard (v4.2), the requirement prescribes that “The project proponent shall demonstrate how the project activities, or additional activities implemented by the project proponent, contribute to sustainable development, as defined by and tracked against the United Nations Sustainable Development Goals (SDGs). The project proponent

must demonstrate that a project contributes to at least three SDGs by the end of the first monitoring period, and in each subsequent monitoring period.”

In continuation, the project has achieved various SDGs during the current monitoring period which fulfils the requirement of minimum three SDG indicators. These contributions are separately reported in VERRA's prescribed SDGC Report and submitted to VERRA. Also during the verification process supporting documents related to such SD contributions were submitted to VVB; the summarized details of the contributions are provided under the table 1 below:

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	3.8	3.8.1 Coverage of essential health services	Implemented activities to increase	Due to the Covid-19 pandemic, no further changes this monitoring period.	The project aims to provide basic health services to the needy and old age people of the society. In Jan 2019, under blanket distribution program for needy and old age people, blankets were distributed to 1,500 beneficiaries in the society.
2)	4.3	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex	Implemented activities to increase	For October 2020-Aug 2021, 674.5 hours of training per employee was conducted for management level 8 and above. 241.8 hours of training per employee was conducted for permanent female employees. 4 hours of training was conducted for temporary /contractual employees. These figures are for Avaada Group.	For FY 20-21, 705.5 hours of training per employee was conducted for management level 8 and above. 263.5 hours of training per employee was conducted for permanent female employees. 4 hours of training was conducted for temporary /contractual employees. These figures are for Avaada Group.

3)	4A	4A. Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all	Implemented activities to increase	Due to the Covid-19 pandemic, no further changes this monitoring period.	From Jan 2019- March 2019, 147 students benefitted from the provision of teaching learning playing materials in government schools; 95 students benefitted through smart class set-up by installing smart board in schools; 45 students benefitted through up gradation of basic infra facility of school; 260 students were part of the celebration activities of special days in schools - Republic, Independence Day etc.; 243 girl students benefitted through Girl's Education promotional activities like quiz, sport activities etc. In April 2019, Ceiling fan was also installed in School which benefitted 55 students.
4)	5.5	5.5.2 Proportion of women in managerial positions	Implemented activities to increase	At present, 9 women employee are part of the senior Management of Avaada Group.	AEPL's female employee strength increased to 25% in 2021 from 12% in December 2018. The aim is to increase this figure to 30% by 2022.
5)	7.2	7.2.1 Renewable energy share in the total final energy consumption	Implemented activities to increase	About 220,009.33 MWh renewable electricity has supplied to Indian grid during the reported period that helps to increase the renewable energy share in the energy mix.	<p>The main purpose of this project activity is to generate clean electricity through renewable source of solar energy and to supply electricity to the Indian grid system via Power Purchase Agreement (PPA) with Solar Energy Corporation of India (SECI)</p> <p>About 220,009.33 MWh renewable electricity has supplied to Indian grid that helps to increase the renewable energy share in the energy mix.</p>

6)	8.5	8.5.2 Unemployment rate, by sex, age and persons with disabilities	Implemented activities to decrease	<p>In FY 20-21, 44 women were directly or indirectly hired out of 109 candidates by Avaada Group. From October 2020 till August 2021 a total of 10 women were directly or indirectly hired out of 26 candidates.</p> <p>At present, the company has 60 female employees.</p>	AEPL's female employee strength increased to 25% in 2021 from 12% in December 2018. The aim is to increase this figure to 30% by 2022.
7)	8.6	8.6.1 Proportion of youth (aged 15–24 years) not in education, employment or training	Implemented activities to decrease	10 Graduate Engineer trainees, 1 Management Trainee and 1 Post Graduate Engineer trainee were hired by Avaada Group.	From October 2020 till Aug 2021, 10 Graduate Engineer trainees, 1 Management Trainee and 1 Post Graduate Engineer trainee were hired by Avaada Group.
8)	8.8	8.8.1 Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status	Implemented activities to decrease	There have been no fatal and non-fatal occupational accidents in FY 20-21.	There have been no fatal and non-fatal occupational accidents in FY 20-21. Training sessions are held for workers periodically.
9)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By supplying 220,009.33 MWh clean electricity to Indian grid, the project avoided release of tCO ₂ in to the atmosphere during the reporting period.	Prevented the release of 206,113 tCO ₂ into the atmosphere in this monitoring period.

2 SAFEGUARDS

2.1 No Net Harm

Being renewable Solar PV power generation project there is no negative environmental and socio-economic impacts in fact project activity contributes positively by providing environment friendly power generation leading to sustainable development of the region. Also, the generation of employment directly supports upliftment of socio-economic status of region.

2.2 Local Stakeholder Consultation

The PP has conducted a Stakeholders Consultation meeting on 17th of Feb 2019 at the project site, which was before the project validation process. The local stakeholder's consultation has been conducted as per the standard guidelines and requirements followed under CDM & VCS mechanism which was approved in the registered VCS-PD.

The invitations had been sent to the relevant stakeholder of the regions in the vicinity along with public display of invitation letters for the stakeholder consultation so that maximum number of local stakeholders can be accounted.

The Identified local stakeholders at the project site:

- Local villagers,
- Panchayat members,
- Shopkeepers, suppliers, vendors and representatives of project developer.
- Employees

The stakeholders were made aware about the project activity and discussed about the various benefits arising out of the project activity.

Attendance records, summary of comments received and photographs of the stakeholder meet were documented & provided to DOE during registration of project activity.

There were no negative comments received during the meeting and stakeholders appreciated the proactive efforts taken by project proponent towards reducing emission.

For ongoing communication, the PP has also placed a grievance register onsite, wherein, the stakeholders can put down his/her feedback and the same if found genuine will be addressed.

However, being a solar PV based power generation project there is no feedback/grievance has been reported within this monitoring period. Therefore, no action has been undertaken.

2.3 AFOLU-Specific Safeguards

This is a non-AFOLU project. For non-AFOLU projects, this section is not required.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity involves the installation of Solar PV plant. The total installed capacity of the project is 100 MWac. The project is developed by Clean Sustainable Energy Pvt. Ltd.

Solar Power Project Technology Details⁷:

The technology employed, converts solar energy to electrical energy. In solar power generation, energy of solar is converted into mechanical energy and subsequently into electrical energy. The technology is an environment friendly technology since there are no GHG emissions associated with the electricity generation. There is no transfer of technology involved in the project activity.

Technical Details:

Module Model	Trina & Renesola: JC330/325M & TSM 330/325/320 W
Maximum Power (Pmax)	330/325/320 Wp
Module technology	Poly Crystalline
Orientation	20 Deg
Invertor: SUNGROW	
Model	PVS980-58-2091 kVA
No. of Inverters	48
Technical Lifetime of the SPV plant:	25 years

The project activity is in continuous operation since commissioning and there is no such incident reported during the current monitoring period which may impact the operation & capacity design of the project activity. Only a few regular events of routine maintenance occurred which are submitted as monthly tripping or shutdown records, also referred under Appendix 2. Therefore, no events have happened that may impact the GHG emission reductions or removals and monitoring in this monitoring Period.

Emission Reductions from anthropogenic sources:

The solar power generated from the project will be displacing the electricity generated from thermal power stations feeding into Indian grid and will be replacing the usage of diesel

⁷ The technical specification of the project has been provided to DOE during validation and will be provided during verification.

generators for meeting the power demand during shortage periods. Since, the solar power plant harvests energy from sustainable source of “solar energy” and also it does not use any fossil fuel for its operation the power generated from the project will certainly prevent the anthropogenic GHG emissions which is generally produced by the fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas etc. which contributes to the project’s baseline, i.e. Grid.

3.2 Deviations

3.2.1 Methodology Deviations

There are no methodological deviations applied during this monitoring period.

3.2.2 Project Description Deviations

There are no project description deviations applied during this monitoring period

3.3 Grouped Projects

This section is not applicable to the project activity as the project is not a grouped project activity.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid, CM, y}$
Data unit	tCO ₂ e/MWh
Description	Combined margin emission factor for Indian grid connected power generation in year y calculated using the latest version of “Tool to calculate the emission factor for an electricity system”
Source of data	CO ₂ baseline database (Version 14.0) published by CEA on December 2018
Value applied	0.93684
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated using OM and BM values as per Version 7.0 of methodological tool to calculate the emission factor for an electricity system and using data base of CEA.
Purpose of Data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	$EF_{grid, OM, y}$
Data unit	tCO ₂ e/MWh
Description	Simple operating margin emission factor for Indian grid
Source of data	CO ₂ baseline database (Version 14.0) published by CEA on December 2018
Value applied	0.9610
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated by taking weighted average of Simple Operating Margin of recent three years for Indian grid as per the “Tool to calculate the emission factor for an electricity system”, version 07.0.0
Purpose of Data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid, BM, y}
Data unit	tCO ₂ e/MWh
Description	Simple build margin emission factor for Indian grid
Source of data	CO ₂ baseline database (Version 14.0) published by CEA December 2018
Value applied	0.8644
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated by taking weighted average of Simple build Margin of recent three years for Indian grid as per the “Tool to calculate the emission factor for an electricity system”, version 07.0.0
Purpose of Data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	EG _{PJ, y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data	Joint Meter Readings based Apportioning note issued by Rajasthan DISCOM
Description of measurement methods and procedures to be applied	<p>Data Type: Measured</p> <p>Monitoring equipment: Energy Meters are used for monitoring</p> <p>Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually</p> <p>Archiving Policy: Paper & Electronic</p> <p>Calibration frequency: Once in 5 years.</p> <p>Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh.</p> <p>The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from joint meter reading and apportioning certificates/credit notes issued by Rajasthan Discom as per below equation:</p> $EG_{PJ,y} = EG_{Export} - EG_{Import} - \text{Transmission losses}$ <p>The calculation is done by DISCOM and the Project Developer has no control over the authority for the calculation. Based on the joint meter reading, apportioning certificates/credit notes, the project developer shall raise the invoice.</p>

	<p>The electricity exported to the grid by the project activity connected to the sub-station is measured by energy meters of accuracy class 0.2s. The electricity exported will be measured continuously using Main & Check meters.</p> <p>Export readings of Main, Check meters shall be taken on monthly basis by authorized officer of Rajasthan DISCOM in the presence of Project Developer or representative.</p> <p>Cross Checking: Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the project participant to the grid.</p>
Frequency of monitoring/recording	Monthly
Value monitored	220,009.33
Monitoring equipment	<p>The two parameters, import and export to the grid, are measured at the same location near the connection to the grid, through standard electricity metering instrument.</p> <p>The metering instruments will be installed at the grid-connected point to measure the amount of electricity going from and to the grid. The readings of electricity will be continuously measured by metering instrument itself and monthly recorded.</p>
QA/QC procedures to be applied	<p>This data will be directly used for calculation of emission reductions. Measurement results of electricity supplied to the grid and that delivered from the grid to the project will be crosschecked with records for sold electricity. The meter(s) will be calibrated annually in accordance with national standards and procedures.</p>
Purpose of the data	The Data/Parameter is required to calculate the baseline emission.
Calculation method	N/A
Comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

4.3 Monitoring Plan

Aim of monitoring:

The monitoring methodology specified in the methodology requires that the project-monitoring plan to consist of monitoring of quantity of net electricity supplied to the grid in the year *y*. In order to monitor the mitigation of GHG due to the project activity, the total energy exported needs to be measured. The net energy supplied to grid by the project activity multiplied by emission factor for regional grid, would form the baseline for the project activity.

Since the baseline emission factor is based on an ex-ante determination, monitoring of this parameter is not required. The sole parameter for monitoring is the net electricity exported to the grid.

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

The electricity generation from project activity is metered at 220/33 KV Adani Renewable Energy Park Pooling substation. All the plants (including the project activity solar plant and other solar project developer's solar plants) are connected to their dedicated individual feeder at this substation. Feeder wise metering arrangements are available to each of the developers to quantify the electricity delivered to the 220/400kV RVPNL GSS substation by individual project developer.

A common metering point at 400/220 KV RVPNL substation for both the line 1 & Line 2 coming from 33/220 kV Adani substation are available. The metering point at both substations consists of both main & check meters (ABT Meters). The meters located at 400/220 KV substation are considered for evaluating transmission losses.

The transmission losses between 220/33 KV Pooling substation and 400/220 KV RVPNL substation will be apportioned to each solar project developers in proportion to their generation. The difference of final apportioned value of export and import of the project activity is used for calculation of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations. The final value of export and import and net electricity for individual solar project developer will be provided by state Utility board in the form of JMR sheets. The process of apportioning, metering/feeder arrangement, meter calibration interval is under state Utility and PP does not have any control over it.

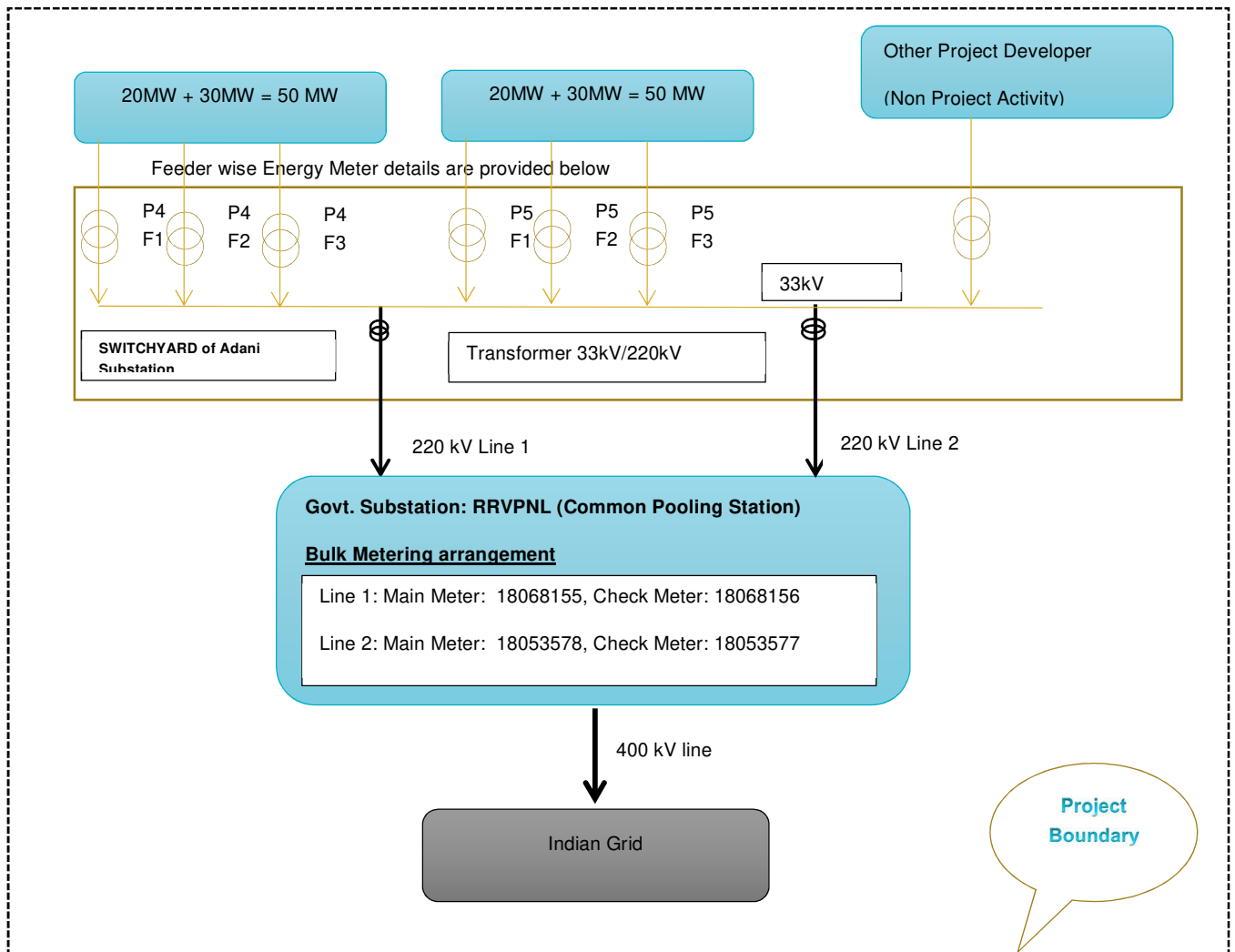
The meters are approved, tested & sealed by the State Utility. The meters are solely in the custody of State Utility. The frequency of calibration is once in 5 years or as per the clause mentioned in the PPA. All the meters are of 0.2s accuracy class.

The aggregated net monthly electricity supplied/exported by the project activity (100MW Capacity) is monitored, measured & metered continuously at the metering point shown in above diagram provided under section 2.3 of this JPD-MR. JMR report can be 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 & monitored values.

The metering arrangement, accuracy class of meters, calibration frequency and apportioning approach is under control of state electricity board and project developer do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter.

The monitoring layout and monitoring points under the project boundary:



Energy Meter details has been provided under Appendix-1.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project proponent. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment's for this project activity. The team shall comprise of the following members:

Responsibilities of O & M Head: Overall functioning and maintenance of the project activity and overall responsibility of compliance with the Monitoring Plan.

Responsibilities of Plant In-charge: Responsibility for Maintains the data records, ensures completeness of data, and reliability of data. Regularly verifying the monthly energy generation date with energy sales receipt or installed meters reading for identification of any discrepancies in data collection and taking suitable action to rectify them.

Responsibilities of Shift In-charge:

- Responsibility for day to day data collection and maintains day to day log book for monitored data.
- Responsibility for monthly and annual report generation and quality assurance of the data/reports and preliminary check of data for any discrepancies

QA/QC procedures: The energy meters at the feeders are maintained and owned by Rajasthan DISCOM. Neither the project proponent nor the site personnel have any control over it. The records will be cross-checked with the records of sold electricity to the Rajasthan DISCOM. The meters are calibrated by DISCOM at-least once in five years.

Data Archiving:

Monthly data shall be archived electronically and in paper form and stored for the entire crediting period and two years thereafter.

Emergency preparedness:

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

In the 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. In the unlikely event that the check meter fails it will also be repaired or replaced and stand by meter reading will be used.

In case of failure of all the meters simultaneously, a decision will be taken by RVPNL & project developers jointly as per the clause mentioned in the PPA and a generation statement will be issued by RVPNL based on their specific procedure. The RVPNL statement will form the basis for considering the amount of electricity delivered to the grid in that particular situation.

Training and maintenance requirements:

Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, in order to maximize the output from the solar plants, it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that O&M team is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute ease and comfort has been established. Each and every site personnel is provided with proper training to meet the requirements of the Operations and maintenance. This ultimately leads to creativity in problem solving.

Personnel training:

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the project staff will be trained as per project requirements.

Apportioning:

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

Apportioning Procedure for deduction of Aux & transmission losses in evacuation and providing net electricity delivered to grid for the individual project developers:

S.NO	Name of Transmission line at RVPNL GSS	Export (kWh)	Import (kWh)
1.	220kV D/C Transmission Line 1	Export 1	Import 1
2.	220kV D/C Transmission Line 2	Export 2	Import 2
	Total Electricity Received at RVPNL GSS	A = Export 1 + Export 2	E = Import 1 + Import 2

Meter Reading of Individual SPD at 33kV Level (220/33kV) Adani Renewable Park pooling station			
S.NO	Export/Import by all the Solar Power Developer (SPD) at 33kV feeder	Export (kWh)	Import (kWh)
1.	M/s CSEPL Plot 4 (P4)	$a = P4F1+P4F2+P4F3$	$d = P4F1+P4F2+P4F3$
2.	M/s CSEPL Plot 5 (P5)	$b = P5F1+P5F2+P5F3$	$e = P5F1+P5F2+P5F3$
N	M/s XYZ...	$c = P1F1+P1F2+....P1Fn$	$f = P1F1+P1F2+....P1Fn$
	Total Export at 33kV level Exp_{33kV}	B = a + b + c	F = d + e + f
I. Auxiliary & Transmission losses in Evacuation		C = B - A	D = E - F
1)			
II. Total Generation/Export & Total Import of individual SPD after deduction of Aux & Transmission losses in Evacuation		CSEPL (P4) Export = $SPD 1 = a - \{(a/A) \times C\}$	CSEPL (P4) Import = d $+ \{(d/E) \times D\}$
2)		CSEPL (P4) Export = $SPD 2 = b - \{(b/A) \times C\}$	CSEPL (P4) Import = e $+ \{(e/E) \times D\}$
3)		$SPD n = c - \{(c/A) \times C\}$	$SPD n = c + \{(c/A) \times C\}$
III. Total Export/Import by 33kv substation =		$= SPD1+SPD2+....SPDn$	$= SPD1+SPD2+....SPDn$

Net Generation (kWh) to be billed by individual SPD				
S. No	Name of SPD	Export/Generation Unit	Import/Consumption Unit	(kWh) Net Export
1	2	3	4	$5 = 3 - 4$
SPD 1	M/s CSEPL (P4)	SPD1-Total Exp	SPD1-Total Imp	Net Gen = Total Exp - Total Imp
SPD 2	M/s CSEPL (P5)	SPD2-Total Exp	SPD2-Total Imp	Net Gen = Total Exp - Total Imp
SPD 3	M/s XYZ...	SPDn-Total Exp	SPDn-Total Imp	Net Gen = Total Exp - Total Imp

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per procedure established in the registered PD:

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

$EF_{grid,CM,y}$: 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) (i.e., 0.93684 tCO₂/MWh).

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

BE_y : Baseline emissions in year y (tCO_{2e}/yr).

Here,

Monitoring Period:	Total Net Power Generated (MWh)	Baseline Emission Factor (tCO ₂ /MWh)	Total Emission Reduction (tCO ₂ / year)
01-Oct-2020 to 31-Aug-2021 (both the dates included)	220,009.33	0.93684	206,113*

* rounded down value has been considered.

5.2 Project Emissions

As per the methodology for renewable energy power generation project activities the project emission is 0 (PE_y = 0).

5.3 Leakage

As per the methodology leakage emission are not considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.

(LE_y = 0)..

5.4 Net GHG Emission Reductions and Removals

As per the applied methodology, emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y = Emission Reduction in tCO₂/year

BE_y = Baseline emission in tCO₂/year

PEy = Project emissions in tCO₂/year

LEy = Leakage Emissions in tCO₂/year

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2020 (01-Oct-2020 to 31-Dec-2020)	53,593	0	0	53,593
2021 (01-Jan-2021 to 31-Aug-2021)	152,520	0	0	152,520
Total	206,113	0	0	206,113

The net emission reductions achieved during the current monitoring period is around 24.38% higher than the ex-ante estimated ERs for the equivalent period (calculation shown in the ER sheet). This is because of higher generation achieved for a few months during the year 2020-2021. The generation of electricity depends upon many other climatic conditions, which are not within the control of the project participant. The higher generation during the current verification period is due to certain natural conditions such as more sunny days and hence better plant load factor which has increased the ERs.

However, the higher ERs does not have any impact on project additionality. This can be verified from the detail assessment submitted under the ER sheet (version 02), summarized as follows:

Justification for higher ERs			
PLF considered as per ex-ante estimate :	22.00%		
Actual PLF achieved during the current period :	25.12%		
Thus, variation in PLF :	3.12% more	Or 14.2%	<i>variation in ex-ante value.</i>

As per Registered VCS PD (Joint) and as demonstrated in the registered IRR sheet, the project remains additional with +/- 10% sensitivity analysis and also even under most favorable condition of PLF. As per sensitivity break-even analysis submitted in the registered IRR, project additionality (i.e. IRR) will reach benchmark only when there is variation of "24.10%" increase in PLF which results into a PLF of 27.30%.

Thus, it can be verified that current PLF reaches only 25.12% which is well below this break-even PLF (i.e. only 14.2% higher than the ex-ante PLF value against the break-even variation of 24.10%). Hence, there is no impact on project additionality due to higher PLF, thus the higher ERs.

APPENDIX 1: <ENERGY METER DETAILS>

Monitoring Equipment Details: Energy Meters

Calibration Frequency: Once in 5 years

Energy Meter Details	P4			P5		
	F1	F2	F3	F1	F2	F3
Main Meter	X0682811	X0682814	X0682817	X0682820	X0682823	X0682826
Check Meter	X0682810	X0682813	X0682816	X0682819	X0682822	X0682825
Stand By Meter	X0682809	X0682812	X0682815	X0682818	X0682821	X0682824

Energy Meter Details (P4 F1)	<u>Main Meter</u>	<u>Check Meter</u>	<u>Standby Meter</u>
<u>S. No</u>	X0682811	X0682810	X0682809
<u>Make</u>	<u>SECURE</u>	<u>SECURE</u>	<u>SECURE</u>
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	<u>0.2S</u>
<u>Calibration Date</u>	<u>19/10/2020</u>	<u>19/10/2020</u>	<u>19/10/2020</u>
Energy Meter Details (P4 F2)			
<u>S. No</u>	X0682814	X0682813	X0682812
<u>Make</u>	<u>SECURE</u>	<u>SECURE</u>	<u>SECURE</u>
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	<u>0.2S</u>
<u>Calibration Date</u>	<u>18/10/2020</u>	<u>18/10/2020</u>	<u>19/10/2020</u>
Energy Meter Details (P4 F3)			
<u>S. No</u>	X0682817	X0682816	X0682815
<u>Make</u>	<u>SECURE</u>	<u>SECURE</u>	<u>SECURE</u>
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	<u>0.2S</u>
<u>Calibration Date</u>	<u>18/10/2020</u>	<u>18/10/2020</u>	<u>18/10/2020</u>
Energy Meter Details (P5 F1)			
<u>S. No</u>	X0682820	X0682819	X0682818
<u>Make</u>	<u>SECURE</u>	<u>SECURE</u>	<u>SECURE</u>
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	<u>0.2S</u>
<u>Calibration Date</u>	<u>18/10/2020</u>	<u>18/10/2020</u>	<u>18/10/2020</u>
Energy Meter Details (P5 F2)			
<u>S. No</u>	X0682823	X0682822	X0682821

<u>Make</u>	<u>SECURE</u>	<u>SECURE</u>	<u>SECURE</u>
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	<u>0.2S</u>
<u>Calibration Date</u>	<u>18/10/2020</u>	<u>18/10/2020</u>	<u>18/10/2020</u>
Energy Meter Details (P5 F3)			
<u>S.No</u>	X0682826	X0682825	X0682824
<u>Make</u>	<u>SECURE</u>	<u>SECURE</u>	<u>SECURE</u>
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	<u>0.2S</u>
<u>Calibration Date</u>	<u>18/10/2020</u>	<u>18/10/2020</u>	<u>18/10/2020</u>
Dedicated Feeder & Metering arrangement (at Substation)			
<u>Line 1</u>	<u>Main Meter</u>	<u>Check Meter</u>	
<u>S. No</u>	18068155	18068156	
<u>Make</u>	<u>LNT</u>	<u>LN</u>	
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	
<u>Calibration Date</u>	<u>01/09/2020</u>	<u>01/09/2020</u>	
<u>Line 2</u>	<u>Main Meter</u>	<u>Check Meter</u>	
<u>S. No</u>	18053578	18053577	
<u>Make</u>	<u>LNT</u>	<u>LN</u>	
<u>Accuracy Class</u>	<u>0.2S</u>	<u>0.2S</u>	
<u>Calibration Date</u>	<u>01/09/2020</u>	<u>01/09/2020</u>	

APPENDIX 2: <TRIPPING DETAILS>

Tripping Details			
Month / Year	Inverter (In Min.)	IDT (In min.)	Grid Outage include failure of Transmission line & Power trafo (In Min)
Oct-20	482	18	0
Nov-20	369	5	0
Dec-20	90	0	153
Jan-21	765	11	0
Feb-21	544	0	0
Mar-21	885	1980	57
Apr-21	248	0	0
May-21	605	0	0
Jun-21	276	0	0
Jul-21	372	0	390
Aug-21	145	0	50