



ENERGISING INDIA USING SOLAR ENERGY PROJECTS



Document Prepared by Infinite Environmental Solutions LLP

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity is a step towards supporting the implementation and installation of grid connected renewable solar energy power plants in India. The implementation of project activity ensures energy security, diversification of the grid generation mix and sustainable growth of the electricity generation sector in India. The main goal of project activity is to implement renewable energy projects in the country and the significant importance of revenues from sale of Verified Carbon Units (VCUs) to achieve this goal forms the basis of the implementation of this project activity.

The project activity is a voluntary action and each SPV is the Project Proponent for their project activity. Azure Power India Pvt Ltd as a parent company formed different SPVs (Special Purpose Vehicles) for solar projects and projects are developed by name of SPVs. There are no mandatory laws or regulations existing in India requiring PP or any other party to develop a programme for renewable generation plants. The project activity supports the development of new grid-connected renewable energy power plants in India and covers the solar energy technologies. It seeks to enable investment in large scale grid connected plants that export their generated output to the regional / national electricity grid in India.

This project activity follows methodology ACM0002 version 19.0. The electricity generated by renewable technology (solar) installed as part of the project activity are being supplied either to regional grid or supplied to the identified facility via regional grid through contractual wheeling agreement for captive consumption there by displacing the consumption of electricity from the regional grid electricity distribution system.

The details of the project and the state of installation are provided in Section 3.1 of the MR. In Azure Power Jupiter Pvt Ltd (30 MW) there are two sites Hardoi (20 MW) & Hamirpur (10 MW) and their commissioning dates are 19-September-2017 and 22-September-2017 respectively. The commissioning date of Azure Power Thirty Seven Pvt Ltd (100 MW) is 12-January-2018, Azure Power Venus Pvt Ltd (40 MW) is 14-April-2018 and Azure Power Thirty Six Pvt Ltd (50 MW) is 05- May-2018. The Azure Power Thirty Three Pvt Ltd (260 MW) has seven sites Dhari (30 MW), Gabat (30 MW), Vadol (40 MW), Netramali (40 MW), Sanes (50 MW), Muloj (40 MW), Vartol (25 MW) and their respective commissioning dates are 10-December-2018, 02-November-2018, 01- November2018, 07-March-2019, 13-March-2019, 22-February-2019, 09-March-2019. The Commissioning details of the project activity are also provided in section 3.1 of this monitoring report in tabulated form. Since commissioning, the project activity is continuously operating till date. No major breakdown is observed except scheduled maintenance activity and minor fault during monitoring period. The total AC capacity of the project activity is 480 MW and the power produced displaces an equivalent amount of power from the grid, which was mainly achieved by fossil fuel fired power plants. Hence, the estimated GHG emission reduction from the project activity was 852,639 tonnes of CO₂e and total GHG emission reductions for the chosen 10-year crediting period was 8,526,390 tonnes of CO₂e.

The total GHG emission reductions or removals generated in this current monitoring period (01-January2022 to 30-September-2022) is 686,829 tCO₂e.

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 19.00

The project is not a grouped project activity.

1.3 Project Proponent

Organization name	Azure Power India Pvt Ltd
Contact person	Mr. Sunil Hansu
Title	Operations and Maintenance
Address	5th Floor, Southern Park, D-II, Saket Place, Saket, New Delhi – 110017
Telephone	+91-8383084423
Email	Sunil.hansu@azurepower.com

1.4 Other Entities Involved in the Project

Organization name	Infinite Environmental Solutions LLP
Role in the Project	Project Consultant
Contact person	Mr. Jimmy Sah
Title	Head – Sustainability
Address	214-215 Milinda Manor, Opp. Next Treasure Island, 2 RNT Marg, Indore – 452001
Telephone	+91-9644130430
Email	jimmy@infisolutions.org

1.5 Project Start Date

19-September-2017¹ which is the date of commissioning of first phase of the Project. The SPV name is Azure Power Jupiter Pvt Ltd. Hence the project start date is 19-September-2017.

¹ As per the commissioning certificate.

1.6 Project Crediting Period

Crediting Period Start date: 19-September-2017

Crediting Period End date: 18-September-2027

Total number of years in the Crediting Period: 10 Years

Number of Crediting Period: 1 (First Crediting Period)

The project activity adopts renewable crediting period of 10 years period which can be renewed for maximum 2 times.

1.7 Project Location

Name of the SPVs	Village	Tehsil	District	State	Latitude	Longitude
Azure Power Jupiter Pvt Ltd	Bibiyapur	Hardoi	Hardoi	Uttar Pradesh	27°35'12.9" N	79°43'51.6"E
	Raniganj	Hamirpur	Hamirpur		25°54'18.4"N	79°55'10.1" E
Azure Power Thirty Seven Pvt Ltd	Rachur, Marchal, & Veljal	Veldana, Kalwakurthy & Talakondapalli	Nagar Kurnool & RangaReddy	Telangana	16°31'11.0"N	77°53'49.0"E
Azure Power Venus Pvt Ltd	Dakor	Orai	Jalaun	Uttar Pradesh	25°51'07.1"N	79°25'42.4"E
Azure Power Thirty Six Pvt Ltd	Gani & Sakunala	kurnool	kurnool	Andhra Pradesh	14°01'30.6"N	78°26'36.6"E
Azure Power Thirty Three Pvt Ltd	Dhari	Jambusar	Bharuch	Gujarat	22°04'01.0"N	72°37'01.0"E
	Semaliya	Bayad	Aravalli		23°13'37.3"N	73°22'34.6"E
	Vadol	Kapadvanj	Kheda		22°57'47.7"N	73°12'59.1"E
	Sanes	Bhavnagar	Bhavnagar		21°54'11.6"N	72°06'38.9"E
	Vartol	Khedbrahma	Sabarkantha		24°05'32.7"N	73°04'19.3"E
	Netramali	Idar	Sabarkantha		23°46'13.2"N	72°59'42.4"E
	Muloj	Modasa	Aravalli		23°30'52.9"N	73°26'28.3"E



1.8 Title and Reference of Methodology

The methodology for the project activity is approved methodology for large-scale project activities. The details of the methodology are as follows:

Methodology: ACM0002

Project Type: Type-I: Renewable Energy Projects

Title: ACM0002: Grid-connected electricity generation from renewable sources

Version No.: Version 19.0

Reference: CDM Methodology²

The methodology refers to following CDM Tools:

- Tool for the demonstration and assessment of additionality (Version 07.0.0, EB 70, Annex 8)³

² <http://cdm.unfccc.int/UserManagement/FileStorage/58IAGB7SZUDEO2VN6LYM30K41HFPRQ>

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

- Tool to calculate the emission factor for an electricity system - (Version 07.0 EB 100, Annex 04)⁴

1.9 Participation under other GHG Programs

The project activity has not been registered and is not seeking registration at moment under any other GHG programs. This project activity is not participating in any other GHG program.

1.10 Other Forms of Credit

Emission Trading Programs and Other Binding Limits: The project activity under consideration is not participating in any other Emission trading programme and other binding limits. The project activity is not participating at moment in any other emission trading programme and other binding limits. The GHG emission reductions generated during the current monitoring period have not been used for compliance of other mechanism.

Other Forms of Environmental Credit: The solar project activity neither has nor intends to generate any other form of GHG related environmental credit for GHG emission reductions or removals claimed under the VCS Program. The initial project activity is neither has nor intends to generate any other form of GHG related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

1.11 Sustainable Development Contributions

Contribution to sustainable development:

Ministry of Environment, Forest and Climate Change, 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 helps 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 may promote business with improved power generation.
- **Economic well-being:** The project is a clean technology investment in the region, which had not been taken place in the absence of the VCS benefits the project activity. It also helps to reduce the demand supply gap in the state. The project activity generates 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 leads to promotion of solar based power generation and encourages other entrepreneurs to participate in similar projects.

⁴ <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

- **Environmental well-being:** The project activity 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

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	13.0	13.2.2 Tons of greenhouse gas emissions avoided or removed	Implemented activities to increase	By installation of 480 MW Solar Energy Power Plant, project has prevented the release of 686,829 tons of carbon di-oxide into the atmosphere during the current monitoring period.	Since its Commissioning, the Project activity has avoided about 3,740,882 ⁵ tons of carbon emission into the atmosphere.
2)	7.2	7.2.1: Renewable energy share in the total final energy consumption	Implemented activities to increase	About 733,167 MWh, renewable electricity has been supplied to Indian grid during the reported period that helps to increase the renewable energy share in the energy mix.	Since its commissioning a total of about 3,993,255 ⁶ MWh of renewable electricity will be supplied to Indian grid that will help to increase the renewable energy share in the energy mix throughout the lifetime of project activity.

⁵ <https://registry.terra.org/app/projectDetail/VCS/1931>

⁶ [file:///Z:/1.%20Alloted%20Projects/VCS%20VER/VVER93 Azure 480MW%20Bundled/1.%20Document/Validation%20Documents/FVR-ValVer Azure%20Power.pdf](file:///Z:/1.%20Alloted%20Projects/VCS%20VER/VVER93%20Azure%20480MW%20Bundled/1.%20Document/Validation%20Documents/FVR-ValVer%20Azure%20Power.pdf)

2 SAFEGUARDS

2.1 No Net Harm

The project activity does not involve any major construction activity. It primarily requires the installation of the solar panels, interfacing the generators with the State Electricity Board by setting up HT transmission lines and installation of other accessories.

The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September-2013. This report clearly mentioned that solar project activity operations do not result in direct air pollution, noise pollution. Please refer below web link for the same⁷.

The project activity is a Solar project activity and so it falls under White category and has no significant impact on the environment. Solar projects activities are not included in the Schedule I of the EIA notification S.O.1533 (E) dated 14th September 2006⁸ and thus an EIA is not required.

Thus, there are not any significant impacts due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

2.2 Local Stakeholder Consultation

As a part of continual improvement process, feedback from the associated stakeholders is vital, therefore a dedicated Visitor register cum grievance register has been placed at the project site which is accessible to stakeholders to provide their feedback on the project. It is appropriate publicly accessible location at which local stakeholders can provide their feedback on the project. This location is also conducive to continuous and regular checks for stakeholder comments. For the global stakeholders, the suggestion and the grievance can be submitted to <http://www.azurepower.com/contact-us>

S.No.	SPVs Name	Invitation Notice Dates	LSHM Meeting Dates
1	Azure Power Jupiter Pvt Ltd	06-March-17	20-March-17
2	Azure Power Thirty Seven Pvt Ltd	31-December-16	15-January-17
3	Azure Power Venus Pvt Ltd	06-March-17	21-March-17
4	Azure Power Thirty Six Pvt Ltd	15-January-16	27-January-16
5	Azure Power Thirty Three Pvt Ltd	11-May-17	21-May-17

⁷ <https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf>

⁸ <http://envfor.nic.in/legis/eia/so1533.pdf>

However, no grievances received during the current monitoring period. Since no grievances received, no mitigation measures are required.

2.3 AFOLU-Specific Safeguards

This Section is not applicable here as the project activity is not an AFOLU project activity.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity is a step towards supporting the implementation and installation of grid connected renewable solar energy power plants in India. The implementation of project activity ensures energy security, diversification of the grid generation mix and sustainable growth of the electricity generation sector in India. The main goal of project activity is to implement renewable energy projects in the country and the significant importance of revenues from sale of Verified Carbon Units (VCUs) to achieve this goal forms the basis of the implementation of this project activity. The project activity is a voluntary action and each SPV is the Project Proponent for their project activity. Azure Power India Pvt Ltd as a parent company formed different SPVs (Special Purpose Vehicles) for solar projects and projects are developed by name of SPVs. There are no mandatory laws or regulations existing in India requiring PP or any other party to develop a programme for renewable generation plants.

The project activity supports the development of new grid-connected renewable energy power plants in India and covers the solar energy technologies. It seeks to enable investment in large scale grid connected plants that export their generated output to the regional / national electricity grid in India. This project activity follows methodology ACM0002 version 19.0

The electricity generated by renewable technology (solar) installed as part of the project activity are supplied to the Indian grid there by displacing the consumption of electricity from the regional grid electricity distribution system. As of 31-December-2013, the Southern grid has also been synchronized with the NEWNE grid, hence forming one unified Indian Grid. Thus, for this Project activity Indian Grid is applicable. The objective of the project activity is to develop a platform for reducing VCS Registration timelines and process costs for registration of individual projects under VCS.

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

Name of the SPVs	Capacity in MW	Connection with Grid	State	Usage of Electricity
Azure Power Jupiter Pvt Ltd	30	Indian Grid	Uttar Pradesh	Sale to grid

Azure Power Thirty Seven Pvt Ltd	100	Indian Grid	Telangana	Sale to grid
Azure Power Venus Pvt Ltd	40	Indian Grid	Uttar Pradesh	Sale to grid
Azure Power Thirty Six Pvt Ltd	50	Indian Grid	Andhra Pradesh	Sale to grid
Azure Power Thirty Three Pvt Ltd	260	Indian Grid	Gujarat	Sale to grid
Total	480 MW			

The commissioning details of the project are as follows:

S. No.	Name of the SPVs	Capacity (MW)	Commissioning Dates		
			Site	Capacity (MW)	Commissioning Date
1.	Azure Power Jupiter Pvt Ltd	30	Hardoi	20	19-September-2017
			Hamirpur	10	22-September-2017
2.	Azure Power Thirty Seven Pvt Ltd	100	12-January-2018		
3.	Azure Power Venus Pvt Ltd	40	14-April-2018		
4.	Azure Power Thirty Six Pvt Ltd	50	05-May-2018		
5.	Azure Power Thirty Three Pvt Ltd	260	Site	Capacity (MW)	Commissioning Date
			Dhari	35	02-November-2018
			Gabat	30	10-December-2018
			Vadol	40	01-November-2018
			Netramali	40	07-March-2019
			Sanes	50	13-March-2019
			Muloj	40	22-February-2019
			Vartol	25	09-March-2019
Total		480			

The total AC capacity of the project activity is 480 MW and the power produced displaces an equivalent amount of power from the grid, which is fed mainly by fossil fuel fired power plants. Hence, it results in reduction of GHG emissions. Estimated GHG emission reductions from the project activity is 852,639 tonnes of CO₂e per year and total GHG emission reductions for the chosen 10- year crediting period will be 8,526,390 tonnes of CO₂e.

The technical specifications of the plants are described below⁹:

Azure Jupiter Pvt Ltd (2 ×10 MW)

Details of Transformer

Make: Schneider/Type: Inverter duty,

Sr. No.: TBI/8092872/5, TBI/8092872/6, TBI/8092873/4

Details of solar inverter station (Invertor cum transformer unit)-

3 nos. of transformers

Sr. No: TBI/8092872/5, TBI/8092872/6, TBI/8092873/4

Azure Power Thirty Seven Pvt Ltd

Details of solar inverter station (Invertor cum transformer unit)-

20 nos. of 4 MVA transformers, 33/0.400/0.400/0.400kV

Sr. No: 891022/01 to 891022/20

10 nos. of 2 MVA Transformers, 33/0.400/0.400 kV

Sr. No.:8191023/01 to 8191023/10

Azure Power Venus Pvt Ltd

Details of solar inverter station (Invertor cum transformer unit)-

Invertor description-Make: ABB and Schneider Electric, Number of invertors-24 nos.

Azure Power Thirty Six Pvt Ltd

Details of Transformer

Make: Schneider/Type: Inverter duty,

6 Nos of 7 MVA, 33 kV/400 V

⁹ It is to be noted that in future there is possibility of change in module configuration of projects implemented; however total project capacity of each project will remain same as above. Please refer Appendix 2 for reference related to technical specification of the PV Modules & Inverters.

1 Nos of 10 MVA, 33 kV/400 V

Azure Power Thirty Three Pvt Ltd

Location	Technical Specifications
Dhari	Make: Schneider/Type: Inverter duty, 4 Nos of 8 MVA, 11 kV/575 V 1 Nos of 2 MVA, 11 kV/575 V 1 Nos of 1.4 MVA, 11 kV/330 V
Semaliya	Make: Schneider/Type: Inverter duty, 3 Nos of 10 MVA, 11 kV/630 V
Vadol	Make: Schneider/Type: Inverter duty, 2 Nos of 25 MVA, 11 kV/66 kV 4 Nos of 10 MVA, 11 kV/630 V 2 Nos of 5 MVA, 11 kV/630 V
Netramali	Make: Schneider/Type: Inverter duty, 3 Nos of 10 MVA, 11 kV/630 V 2 Nos of 10 MVA, 11 kV/630 V 1 Nos of 40 MVA, 11 kV/66 kV
Sanes	Make: Schneider/Type: Inverter duty, 1 Nos of 50 MVA, 11 kV/66 kV 5 Nos of 10 MVA, 11 kV/630 kV
Muloj	Make: Schneider/Type: Inverter duty, 4 Nos of 10 MVA, 11 kV/630 V 1 Nos of 40 MVA, 11 kV/66 kV
Vartol	Make: Schneider/Type: Inverter duty, 7 Nos of 5 MVA, 11 kV/630 V

There has been no major downtime of equipment's, overhaul times or exchange of equipment's in the project activity during the current monitoring period. The project underwent scheduled/planned breakdown and maintenance during the current monitoring period. The Plant underwent for a planned breakdown for 159.52 hours which is approximately 7.30% of the total working hours of the plant during the current monitoring period. The project is in continuous operation since commissioning.

Total GHG emission reductions achieved during this current monitoring period from 01-January-2022 to 30-September-2022 (First and last date included) of the project activity is 686,829 tCO₂e.

3.2 Deviations

2.1.1 Methodology Deviations

There is no request for methodology deviation applied neither during this monitoring period nor during previous monitoring periods.

2.1.2 Project Description Deviations

Deviation 1:

This deviation is a monitoring deviation applicable only to Azure Power Thirty Six Pvt Ltd (50 MW) located at Andhra Pradesh. The monitoring practice is updated (November 2018) and it's shifted to Deviation Settlement Mechanism (DSM) in order to more strengthen the national grid. The export and import values are omitted. In DSM, PP have to forecast energy generation in a daytime block (In India, 15 minutes each, total 96 blocks) well in advance. The invoicing is done on the forecasted value. The actual generation deviation from the forecasted values is penalized, it depends upon the deviation magnitude. Therefore, instead of export and import values, the net values are directly obtained for the emission reduction calculation. Total Energy schedule and the Actual values (which is the actual Net delivered) is maintained by the Southern Regional Power Committee (SRPC) Secretariat, Central Electricity Authority, Government of India. Regional Energy Account (monthly net export) for every month in respect of Southern Region has been uploaded on the SRPC website, www.srpc.kar.nic.in. Since the document is provided by government nodal agency, therefore no cross-checking is required.

The Deviation 1 in Project Description is applied previously during second monitoring period (01-July-2019 to 29-February-2020). The nature of deviation is permanent and has already been approved during previous verification.

Deviation 2:

The commissioning date for Azure Power Thirty Six Pvt Ltd was declared earlier Solar Energy Corporation of India (SECI) on 30-April-2018 but a physical inspection, commission committee declare final commissioning on 05-May-2018. Both dates are mentioned over the commissioning certificate. The deviation doesn't have any impact on additionality, methodology applicability, monitoring methodology and calculation of emission reductions.

The Deviation 2 in Project Description is applied previously during fifth monitoring period (01-August-2021 to 31- December-2021) and the nature of deviation is permanent and has been approved during previous verification.

Deviation 3:

This deviation is a monitoring deviation applicable for all the SPV's except Azure Power Thirty Seven Pvt Ltd (100 MW) located at Telangana. The monitoring practice is updated from JMR and is shifted to Deviation Settlement Mechanism (DSM) in order to strengthen the national grid. The export and import values are omitted. In DSM, PP have to forecast energy generation in a daytime block (In India, 15 minutes each, total 96 blocks) well in advance. The invoicing is done on the forecasted value. The actual generation deviation from the forecasted values is penalized, it depends upon the deviation magnitude. Therefore, instead of export and import values, the net values are directly obtained for the emission reduction calculation. Total Energy schedule and the Actual values (which is the actual Net delivered) is maintained by their respective Regional Power Committee (RPC) Secretariat, Central Electricity Authority, Government of India. Regional Energy Account (monthly net export) for every month in respect of any region in India has been uploaded on their respective Regional Power Committee websites. Since the document is provided by government nodal agency, therefore no cross-checking is required.

The nature of this deviation is permanent and will be practiced for monitoring mechanism of project activity throughout its lifetime.

Deviation 4:

For Azure Power Thirty Six Pvt Ltd. (Andhra Pradesh) and Azure Power Thirty Three Pvt Ltd (Sanes, Gujrat) the number of modules used in the sites are mentioned in the Appendix-2 correcting the editorial mistake in registered PDMR section 1.8 (page No. 7-9) without effecting the capacity of the respective project site.

3.3 Grouped Projects

The project activity is not a grouped project activity.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF grid, OM, y
Data unit	tCO ₂ /MWh
Description	Operating margin CO ₂ emission factor of in year y
Source of data	Calculated from CEA database, Version 14, December 2018
Value applied	0.9610

Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07” as 3-year generation weighted average using data for the years 2015-2016, 2016-2017 & 2017-2018. The data are obtained from “CO ₂ Baseline Database for Indian Power Sector” version 14, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission.
Comments	This parameter is fixed ex-ante for the entire crediting period

Data / Parameter	EF grid, BM, y
Data unit	tCO ₂ /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 14, December 2018
Value applied	0.8644
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07” as per the latest data available for the most recent year 2018. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 14, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF grid, CM, y
Data unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 14, December 2018 ¹⁰
Value applied	0.9368

¹⁰ http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

Justification of choice of data or description of measurement methods and procedures applied	The combined margin emissions factor is calculated as follows: $EF_{grid, CM, y} = EF_{grid, OM, y} * WOM + EF_{grid, BM, y} * WBM$ Where: $EF_{grid, BM, y} = \text{Build margin CO}_2 \text{ emission factor in year y (tCO}_2\text{/MWh)}$ $EF_{grid, OM, y} = \text{Operating margin CO}_2 \text{ emission factor in year y (tCO}_2\text{/MWh)}$ $WOM = \text{Weighting of operating margin emissions factor (\%)} = 75\%$ $WBM = \text{Weighting of build margin emissions factor (\%)} = 25\%$ Calculated as per "Tool to calculate the emission factor for an electricity system, version 07.0.0". The data is obtained from "CO₂ Baseline Database for Indian Power Sector" Version 14, December 2018, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	EG facility, y
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid during the monitoring period
Source of data	Credit note/ JMR/Form B reports/ monthly generation report from respective state electricity board/DISCOM/ REA statements/SLDC

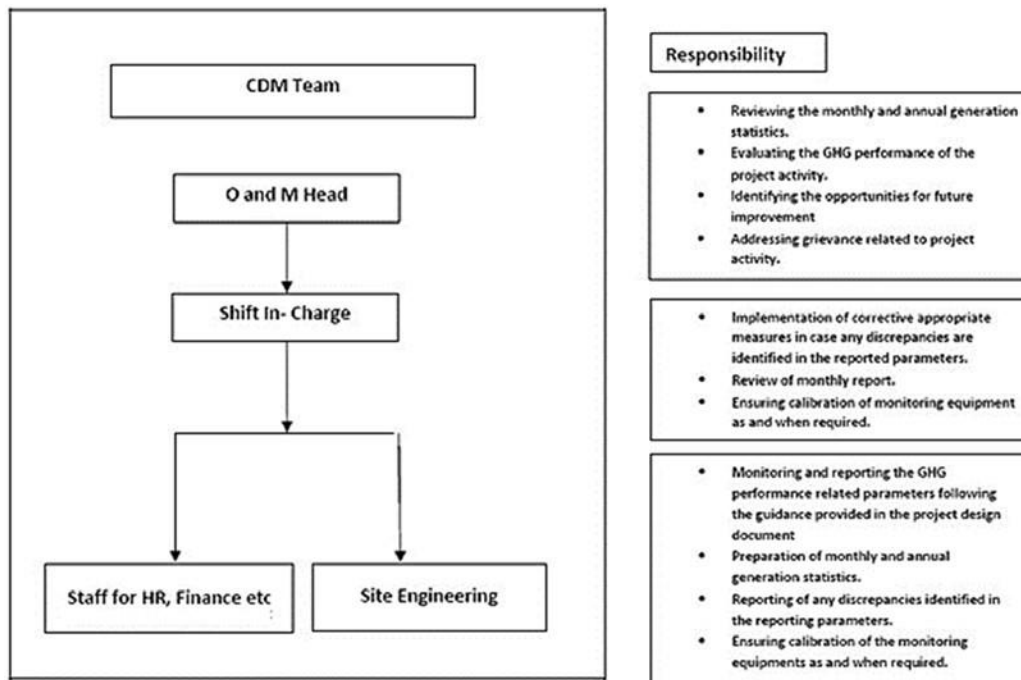
Description of measurement methods and procedures to be applied	Data Type: Measured Monitoring equipment: Energy Meters Archiving Policy: Paper & Electronic Class of meter: 0.2s. Calibration frequency: Once in five years The value of net electricity generation supplied to the grid as per Monthly electricity form B-Form /Credit Note or Joint Meter Reading Report forms the basis for calculation of the emission reductions, which can be cross checked from the invoice raised to DISCOM. Net electricity supplied to grid is calculated as the difference of the measured values of “export” and “import” of electricity through the dedicated SEB energy meter installed at the delivery point. Monthly meter readings are taken from the main and check meter installed at metering point and certified by the representatives of SEB Officials and the representatives of the project proponent for apportioning procedure refer section 4.3
Frequency of monitoring/recording	Continuous monitoring and monthly recording
Value monitored	733,167
Monitoring equipment	Monitoring equipment are energy meters installed at each of the project activity site. Readings can be cross checked with back up meter. The accuracy class of meters, calibration frequency of meters is totally under purview of state electricity board and PP do not have any control on it.
QA/QC procedures to be applied	The calibration of all the meters is undertaken at required intervals (once is five years as per CEA notification) and faulty meters are duly replaced immediately. The meters are of accuracy class 0.2s. The meter accuracy class and calibration interval are under purview of state electricity board and PP do not have any control on it. It is also noted that apportioning procedure is under control of state electricity board and PP do not have any control on it. The available parameter to PP is the net electricity supplied to grid and same parameter is mentioned as monitoring parameter. The Net electricity exported to the grid is cross checked against the invoice/JMR/REA statements raised by the PP towards the DISCOM.
Purpose of the data	Calculation of Baseline emissions
Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters.
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.

4.3 Monitoring Plan

The monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for grid-connected solar power project. The monitoring plan, which will be implemented by the project participant 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 participant.

PP has implemented the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity.

The team comprises of the following members:



Data Measurement

The export and import energy are measured continuously using above mentioned Main and Check meters located at the substations. Readings of meters shall be taken on monthly basis by authorized officer of SEB in the presence of PP or representative of PP. Based on the Meter Reading Statement, invoices are raised. These invoices can be used for cross checking the meter readings taken for the respective project activity.

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 VERs for the project activity whichever occurs later.

Emergency preparedness

The project activity has not resulted in any unidentified activity that can result in substantial emissions from the project activity.

However, in case of failures of either meters or any unforeseen circumstances, each plant is equipped with a Local Control System wherein the generation details are recorded in case of failure of primary monitoring. Monitoring system generation data can also be available from Local Control System reading which is being archived on a daily, monthly and yearly basis. For exceptional circumstances related to the failure of the metering system, immediate replacement would be carried out by the state level utility. Under such exceptional condition the secondary data monitored would be used up for energy accounting. The defective main energy meter will be replaced by the electricity utility accredited representative in presence of the operation and maintenance team personnel by a spare energy meter. Under condition of malfunctioning of both meters even if the solar panels continue to generate electricity the project participant cannot claim emission reduction/removal from the project activity for such duration.

Personnel training

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

The schematic location of the metering arrangement at respective sites are depicted below:

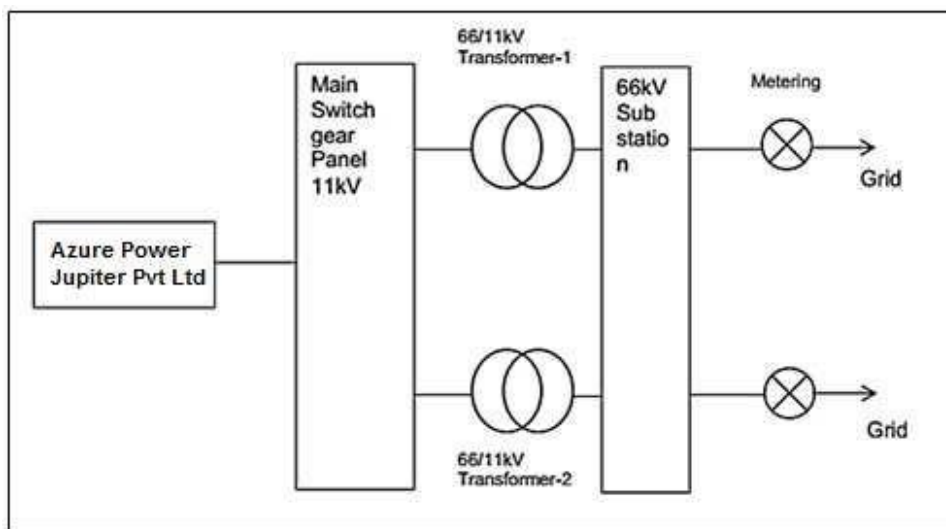


Figure 1. Azure Power Jupiter Pvt Ltd

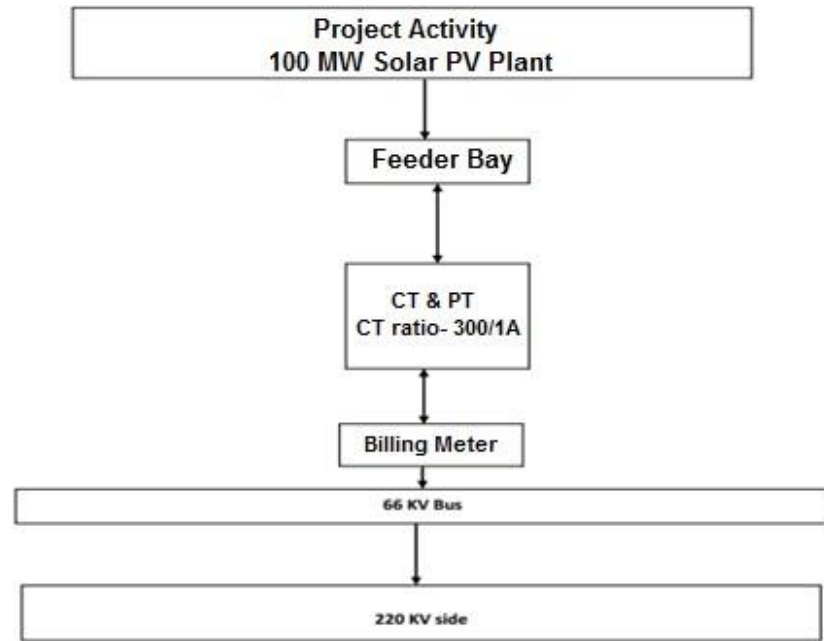


Figure 2. Metering arrangement for Azure Power Thirty Seven Pvt. Ltd

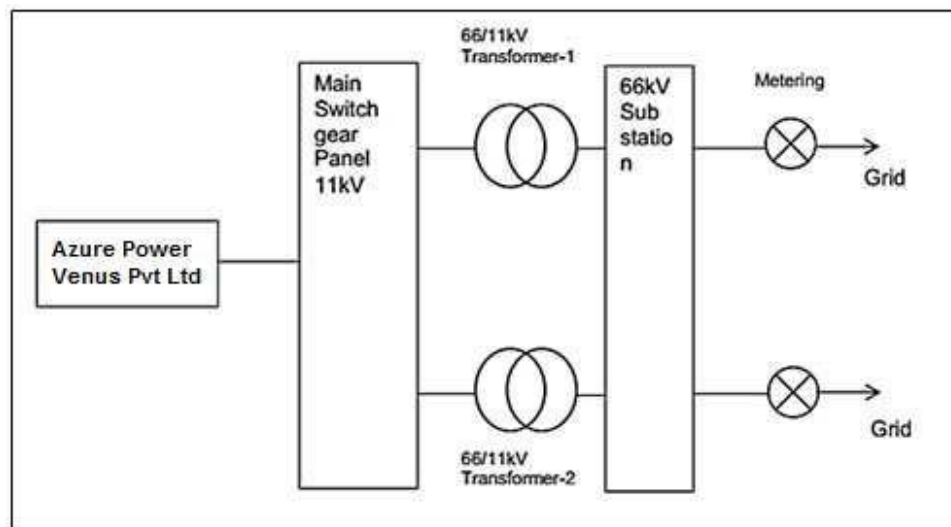


Figure 3. Metering arrangement for Azure Power Venus Pvt Ltd

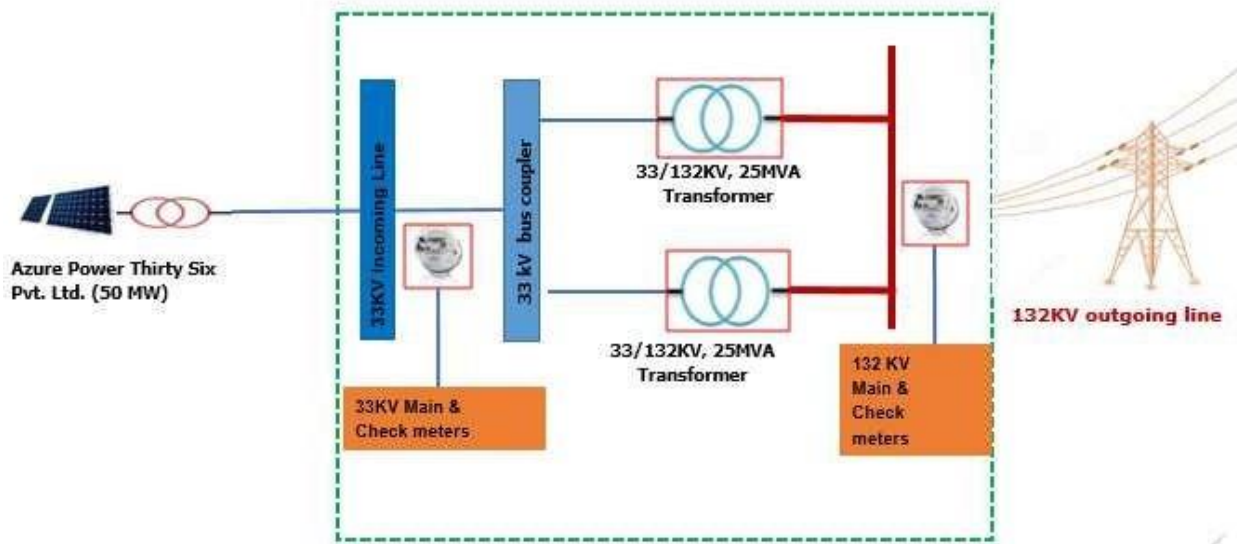


Figure 4. Metering arrangement for Azure Power Thirty Six Pvt. Ltd.

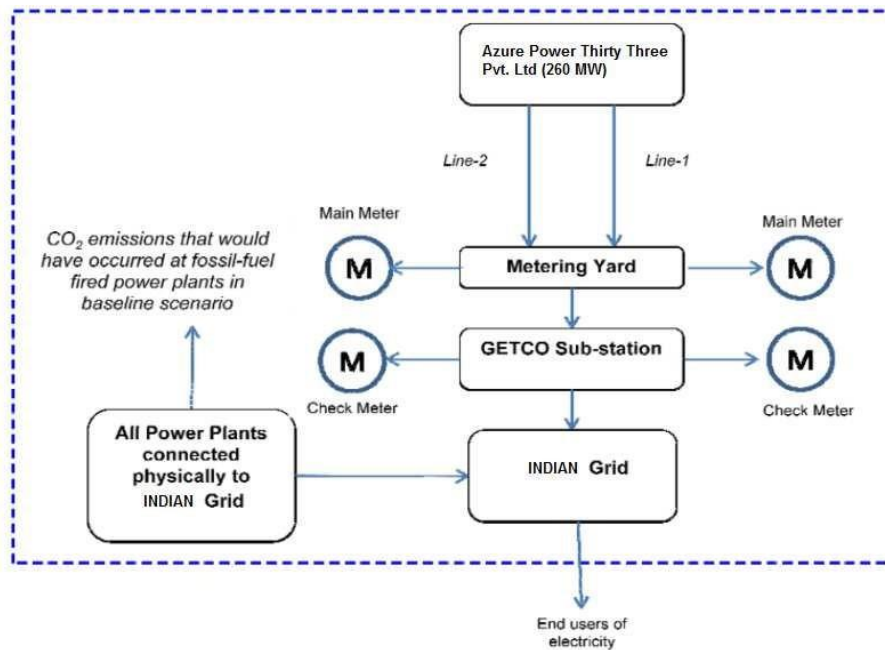


Figure 5. Metering arrangement for Azure Power Thirty Three Pvt. Ltd

Refer Appendix 1 for meter and calibration details.

The location of billing meters and the connected substation are tabulated below:

Name of the SPVs	Site	Capacity (MW)	Main Meter Details	Check Meter Details	Billing Energy Meter Location	Connected Substation
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Azure Power Jupiter Pvt Ltd	Hardoi	20	SL. No. : UP- 0202-A Make: L&T Accuracy class: 0.2 s	SL. No. : UP- 0203-A Make: L&T Accuracy class: 0.2 s	132KV Grid Substation, SRI MAU, Hardoi	SRI MAU, Hardoi
	Hamirpur	10	SL. No.: UP- 0008-A Make: L&T Accuracy class: 0.2 s	SL. No. : 0015197361 Make: L&T Accuracy class: 0.2 s	132KV Grid Substation, Hamirpur	Patara Village, Hamirpur
Azure Power Thirty Seven Pvt Ltd	Rachu, Marchal and Veljal	100	SL. No.: APZ00498 Make: Secure Accuracy class: 0.2 s	SL. No. : APZ00499 Make: Secure Accuracy class: 0.2 s	220/132 KV SS Kalwakurthy	Rachur, Kalwakurthy, Nagarkurnool

Azure Power Venus Pvt Ltd	Dakore	40	Aata Substation Circuit-I Main Meter SL. No. : UP3383-A Make: Secure Accuracy class: 0.2 s Aata Substation Circuit-II Main Meter: SL. No.: UP3381-A Make: Secure Accuracy class: 0.2 s	Aata Substation Circuit-I Check Meter: SL. No. : UP3384-A Make: Secure Accuracy class: 0.2 s Aata Substation Circuit-II Check Meter: SL. No. : UP3382-A Make: Secure Accuracy class: 0.2 s	400 KV, Bhadrikhi Substation, Orai, Uttar Pradesh	Bhadrikhi
Azure Power Thirty Six Pvt Ltd	Anantpuram	50	SL. No. : APZ00507 Make: Secure Accuracy class: 0.2 s	SL. No. : APZ00508 Make: Secure Accuracy class: 0.2 s	Anantppuram ultra mega Solar Park, Veligallu & Tumkunta Galiveedu, Kadapa	Veljal
Azure Power Thirty Three Pvt Ltd	Dhari	35	SL. No. : GJ-3977-A Make: EDM I Accuracy class: 0.2 s	SL. No. : GJ-3979-A Make: EDM I Accuracy class: 0.2 s	Energy Meter- At plant switchyard	Chhidra
	Semaliya	30	SL. No. : GJ-4049-A Make: EDM I Accuracy class: 0.2 s	SL. No. : GJ-4050-A Make: EDM I Accuracy class: 0.2 s	Energy Meter- At plant Switchyard	In D block Semaliya

	Vadol	40	<u>Line 1</u> SL. No. : GJ-3981-A Make: EDM I Accuracy class: 0.2 S <u>Line 2</u> SL. No. : GJ-3983-A Make: EDM I	<u>Line 1</u> SL. No. : GJ-3980-A Make: EDM I Accuracy class: 0.2 S <u>Line 2</u> SL. No. : GJ-3982-A Make: EDM I	Energy Meter- At Plant Switchyard	Malitadi
	Netramali	40	SL. No. : GJ-4096-A Make: EDM I Accuracy class: 0.2 s	SL. No. : GJ-4095-A Make: EDM I Accuracy class: 0.2 s	Energy Meter- At Plant Switchyard	Malitadi
	Sanes	50	SL. No. : GJ-4146-A Make: SECURE Accuracy class: 0.2 s	SL. No. : GJ-4627-A Make: SECURE Accuracy class: 0.2 s	Energy Meter- At Plant Switchyard.	Sanes
	Muloj	40	SL. No. : GJ-4093-A Make: EDM I Accuracy class: 0.2 s	SL. No. : GJ-4094-A Make: EDM I Accuracy class: 0.2 s	Energy Meter- At plant Switchyard	Sinavad
	Vartol	25	SL. No. : GJ-4047-A Make: EDM I Accuracy class: 0.2 s	SL. No. : GJ-4048-A Make: EDM I Accuracy class: 0.2 s	Energy Meter- At Plant Switchyard	Vartol (300m away from plant)

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline emission calculation for the project activity is attributable to the CO₂ Emission that could have been produced by the fossil fuel-based power plants in absence of the project activity. Therefore, the amount electricity supplied to the Indian grid is multiplied by the grid emission factor of Indian grid to calculate the baseline emissions reduced by the project activity.

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

Where,

BE_y = Baseline Emissions in year y ; tCO_2

$EG_{\text{facility}, y}$ = Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid during the monitoring period (MWh)

$EF_{\text{grid}, CM, y}$ = CO_2 emission factor of the grid in year y ; tCO_2/MWh

Thus,

$$BE_y = 733,167 * 0.9368$$

$$= 686,829 \text{ tCO}_2\text{e (Round down values).}$$

5.2 Project Emissions

As per methodology ACM0002 Version 19.0, for renewable energy projects, there is not any project emissions occurred.

Hence, $PE_y = 0$ ¹¹

5.3 Leakage

As per methodology ACM0002 Version 19.0, for renewable energy projects, there is not any leakage emissions occurred.

Hence, $LE_y = 0$ ¹²

5.4 Net GHG Emission Reductions and Removals

The net emission reduction would be:

$$ER_y = BE_y - PE_y - LE_y$$

$$= 686,829 - 0 - 0$$

$$= 686,829 \text{ tCO}_2\text{e}$$

¹¹ As per section 5.4, para 35 of CDM-EB116-A01 "Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources Version 21.0 Sectoral scope(s): 01

<https://cdm.unfccc.int/UserManagement/FileStorage/ZPFJL01OU2RYC6N3HASIXV7K84QBG9>

¹² As per section 5.6, para 61 of CDM-EB116-A01 "Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources Version 21.0 Sectoral scope(s): 01

<https://cdm.unfccc.int/UserManagement/FileStorage/ZPFJL01OU2RYC6N3HASIXV7K84QBG9>

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)
2022 ¹³ (01-January-2022 to 30-September-2022)	686,829	0	0	686,829
Total	686,829	0	0	686,829

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 637,727 tCO₂e, whereas actual emission reductions achieved are 686,829 tCO₂e, which is approximately 7.70% higher than the estimated emission reductions. The actual emission reduction is higher (7.70%) than the estimated value, as the current monitoring duration mainly comprises peak seasons of solar radiation but is within the sensitivity range. PLF for the current monitoring period for all the sites is within 10% of sensitivity analysis except Azure Power Thirty Three Pvt. Ltd. where PLF is higher by 15.51% that corresponds to IRR of 6.54%. Since all the projects are within the benchmark IRR of 14.18%, therefore the additionality of project activity remains intact.

¹³ The current monitoring period of the project activity is from 01-January-2022 to 30-September-2022.

APPENDIX 1: CALIBRATION DETAILS

Metering arrangement, monitoring practice, accuracy class, calibration frequency is under control of state electricity board, the PP do not have any control on monitoring practice and calibration of meters. Being Green field project activity and commissioned within 2 years, all meters are used for monitoring purpose are pre calibrated before installation as per state electricity board regulations, thus installed pre calibrated meters have validity of calibration till 5 years of commissioning date.

The Energy Meters details used for the respective SPV are tabulated below:

Name of the SPVs	Site	Capacity (MW)	Main Meter Details	Check Meter Details	Calibration Date ¹⁴	Due date
Azure Power Jupiter Pvt Ltd	Hardoi	20	SL. No. : UP-0202-A Make: L&T Accuracy class: 0.2 s	SL. No. : UP-0203-A Make: L&T Accuracy class: 0.2 s	18-September-2019	17-September-2024
	Hamirpur	10	SL. No. : 0015197361 Make: L&T Accuracy class: 0.2 s	SL. No. : UP-0008-A Make: L&T Accuracy class: 0.2 s	30-April-2019	29-April-2024
Azure Power Thirty Seven Pvt Ltd	Rachu, Marchal and Veljal	100	SL. No. : APZ00498 Make: Secure Accuracy class: 0.2 s	SL. No. : APZ00499 Make: Secure Accuracy class: 0.2 s	27-July- 2019	26-July- 2024
Azure Power Venus Pvt Ltd	Dakore	40	Aata Substation Circuit-I Main Meter SL. No. : UP3383A Make: Secure Accuracy class: 0.2 s Aata Substation Circuit-II Main Meter: SL. No. : UP3381A Make: Secure Accuracy class:0.2s	Aata Substation Circuit-I Check Meter: SL. No. : UP3384A Make: Secure Accuracy class: 0.2s Aata Substation Circuit-II Check Meter: SL. No. : UP3382A Make: Secure Accuracy class:0.2s	25-October-2017	24-October-2022

¹⁴ As Project is greenfield, meters installed for all SPVs were pre-calibrated.

Azure Power Thirty Six Pvt Ltd	Anantpuram	50	SL. No. : APZ00507 Make: Secure Accuracy class: 0.2 s	SL. No. : APZ00508 Make: Secure Accuracy class: 0.2 s	28-April- 2019	27-April- 2024
Azure Power Thirty Three Pvt Ltd	Dhari	35	SL. No. : GJ-3977-A Make: EDM Accuracy class: 0.2 s	SL. No. : GJ-3979-A Make: EDM Accuracy class: 0.2 s	01-November- 2018	31-October- 2023
	Semaliya	30	SL. No. : GJ-4049-A Make: EDM Accuracy class: 0.2 s	SL. No. : GJ-4050-A Make: EDM Accuracy class: 0.2 s	22-February- 2019	21-February- 2024
	Vadol	40	<u>Line 1</u> SL. No. : GJ-3981-A Make: EDM Accuracy class: 0.2 s <u>Line 2</u> SL. No. : GJ-3983-A Make: EDM	<u>Line 1</u> SL. No. : GJ-3980-A Make: EDM Accuracy class: 0.2 s <u>Line 2</u> SL. No. : GJ-3982-A Make: EDM	01-November- 2018	31-October- 2023
	Netramali	40	SL. No. : GJ-4096-A Make: EDM Accuracy class: 0.2 s	SL. No. : GJ-4095-A Make: EDM Accuracy class: 0.2 s	07-March-2019	06-March- 2024
	Sanes	50	SL. No. : GJ-4146-A Make: SECURE Accuracy class: 0.2 s	SL. No. : GJ-4627-A Make: SECURE Accuracy class: 0.2 s	01-October-2020	30-September- 2025
	Muloj	40	SL. No. : GJ-4093-A Make: EDM Accuracy class: 0.2 s	SL. No. : GJ-4094-A Make: EDM Accuracy class: 0.2 s	22-February- 2019	21-February- 2024
	Vartol	25	SL. No. : GJ-4047-A Make: EDM Accuracy class: 0.2 s	SL. No. : GJ-4048-A Make: EDM Accuracy class: 0.2 s	22-February- 2019	21-February- 2024

APPENDIX 2: TECHNICAL DETAILS

Technical Specification's										
SPV's	Location	Total Capacity	Module				Inverters			
		MW	Type	Make	Rating(Wp)	Quantity	Type	Make	Rating (Wp)	Quantity
Azure Power Jupiter Pvt. Ltd.	Hamirpur,UP	10	Polycrystalline	Hanwaa	315	31800	PVS800 Central	ABB	1MW	10
	Chiluah,UP	10	Polycrystalline	Hanwha	320	31400	PVS800-57	ABB	1000	10
	Bibiyaipur,Hardoi,UP	10	Polycrystalline	Hanwha	320	31400	PVS800-57	ABB	1000	10
Azure Power Thirty Seven Pvt. Ltd.	Telangana	100	POLY CRYSTALLINE	Chint, Risen	320	311108	Central	ABB	1MW	100
					325					
Azure Power Venus Pvt. Ltd.	UP	40	Polycrystalline	Hanwha SolarOne	320	148020	PVS 800 57B	ABB	1732000	19
			Polycrystalline	Hanwha Q Cells			PVS 980-58	ABB	2000000	4
Azure Power Thirty Six Pvt.Ltd.	Andhra Pradesh	50	POLY CRYSTALLINE MONO BI-FACIAL	Q cells Hanva, Renewsys, Warre, JA Solar	320, 325, 330, 540	190634	Central	ABB ABB TBEA	1.732MW 1MW 2.5MW	23 No's 1 No's 4 No's
Azure Power Thirty Three Pvt. Ltd.	Dhari,Gujrat	35	Polycrystalline	Risen, GCL, Talsun	330	61440	Central, Strings	Central - Schneider, Strings - Sungrow	Central - 2000, 680 String - 200	Cetral - 17 + 2 Strings - 13
					325	66240				
					335	7680				
	Gabat,Semali,Gujrat	30	POLYCRYSTALLINE	RISEN,TALESUN	325	48300	CENTRAL	TMEIC	2550	12
					330	67620				
	Malaitadi,Vadol,Gujrat	40	Polycrtalline	GCL,Risen & Talesun	330	76860	Central	TMEIC	2.55	16
					325	77280				
	Netramali,Gujrat	40	Polycrystalline	Waaree	325	22800	Central inverter	(TMEIC- Central)	2550	16
					330	160800				
	Sanes,Gujrat	50	Polycrystalline	Waaree	325	92160	PVH-12550E	TMEIC	2500	20
				Waaree	330	136800				
	Muloj	40	Polycrystalline	JA ,Waaree , Telesun, Risen	325	80640	Central String	(TMEIC- Central) (SUNGROW- String)	2550 200	TMEIC- 15 SUNGROW - 13
					330	183240				
	Vartol	25	Polycrystalline	Talesun, GCL	325	34560	Central inverter	TMEIC	2550kw	10
					330	11520				
					325	57960				

APPENDIX 3: BREAKDOWN DETAILS

SPV's Name	Date	B.D Duration (hrs)	Equipment	Equipment ID	Description
Azure Power Jupiter Pvt. Ltd.	1/6/2022	0.4	Inverter	ICR2 Inverter8	Inverter 8 stop due to grounding of string.
	2/23/2022	1.43	Inverter	ICR3 Inverter10	Inv 10 stop due to grounding of string.
	3/16/2022	10	SMB	Inverter 2 SMB	Strings are down.
	4/19/2022	0.07	Inverter	ICR2 Inverter5	Inv 5 stop due to malfunctioning in parallel connected igbt.
	5/14/2022	0.13	VCB	NA	Icr 2 trip due to over current & earth fault.
	6/3/2022	4	String	Inverter 9 SMB	During Rain Combiner no. 9.2 and CB 9.5 string get grounded due to which inv. Get ground fault.
	6/25/2022	10.25	Inverter	ICR3 Inverter9	ISU1 Fault at inverter- 09
	7/23/2022	0.97	Inverter	ICR3 Inverter10	Inv 10 stop due to grounding of string.
	8/15/2022	0.2	Inverter	ICR3 Inverter9	Inv 9 stop due to grounding of string.
	9/22/2022	1.5	Inverter	ICR3 Inverter10	Inverter 10 Negative section DC side Cooling Fan get faulty and Ext DI 1 fault with error code 1080
Azure Power Thirty Seven Pvt. Ltd.	1/7/2022	0.33	Inverter	ICR3 Inverter9	Inv tripped due to 4sq mm cables ground fault, Replaced new 4sq mm cables Inv on
	2/10/2022	0.83	SMB	Inverter17 SMB	Combiner box taken LC for 4sqmm cable underground laying work
	2/28/2022	0.23	Inverter	ICR4 Inverter12	Inverter tripped in ISU Fault, FO cable replaced and rectified
	3/17/2022	0.08	Inverter	ICR1 Inverter2	Inverter Tripped in short circuit fault, rested fault and charged
	4/11/2022	0.27	Inverter	ICR4 Inverter12	Inv tripped due to main contact fault, checked adden block tighten connections reset fault inv on now ok
	5/19/2022	0.37	Inverter	ICR6 Inverter19	Inv tripped due to ground fault checked all combiner boxes rectified ground fault inv start now ok
	6/27/2022	0.13	VCB	NA	Feeder-5 tripped due to ocef, checked all icr's no fault feeder charged now ok

	7/13/2022	12.25	String	NA	Due to rain inv-18 cb-6 st-4,6,9,19,21 and inv-15 cb-4 st-11, inv-1 cb-7 st-15,21 cb-6 st-6,7,21 and inv-12 cb-9 st-4,14 and inv-3 cb-5 st-15,16,19 and inv-3 cb-8 st-20,21,22 and inv-26 cb-2 st-17,19 cb-3 st-8,10,16 cb-8 st-1,9,12,13,14 strings open not rectified continuous rain fall at site
	8/17/2022	0.75	Inverter	ICR5 Inverter15	Inv-15 tripped due to ground fault checked all scb cb-1 st-20 cb-3 st-11 open string reset fault inv kept on
	9/16/2022	1.88	Cable - Higher Gauge	Inverter24 SMB	Inv-24 tripped due to ground fault checked all scb cb-6 150sq mm positive ground fault open cable inv kept on
Azure Power Thirty Six Pvt. Ltd.	1/3/2022	11	String	String-4	4 Sq mm cable found faulty due to rat bitten in bottom of the conduit.
	3/11/2022	12.15	Inverter	Inv-9,10,11,12,16,17,18,19,20,21,24	Inverters active power set point went to zero by connecting PPC controller
	5/7/2022	15	Cable - Higher Gauge	CB-27.5	150 sq mm underground cable fault
	8/26/2022	2	Strings	Strings-18	18 strings broken Modules has been removed instead of good module has been replaced.
Azure Power Thirty Three Pvt. Ltd.	1/8/2022	2	Inverter	ICR6_Sinv 9	S22 (-) 4 Sqm cable ground, rectified and taken on load
	1/23/2022	5.83	String	Inverter13 SMB	16 Mtr 4 Sqmm cable replaced in s11 and start the string.
	1/31/2022	0.13	Power Transformer	NA	Power Trafo Tripped in O/C & E/F, found normal so reset the relay and charge the trafo.
	2/15/2022	0.3	Power Transformer	NA	Plant Tripped due to Earth fault, Reset Relay 141 and Restarted the Plant
	3/1/2022	6.42	SMB	Inverter3 SMB	CB 3.3 Flash over during digging, Replaced New CB and load all 12 Strings

	4/4/2022	3.07	Inverter	ICR6_Sinv 2	Due to Voltage Transient, MCCB Tripped, checked for any fault or abnormality found Ok, Reset MCCB and Start the Inv.
	4/22/2022	0.75	Inverter	ICR1 Inverter1	Due to RTS (Event - 135), Inv.s (1, 5, 13) Late Started
	5/2/2022	1.32	RMU	NA	Icr 3 rmu tripped
	6/13/2022	2.52	Inverter	ICR2 Inverter5	CB 5.1 and CB 5.8 grounded, Isolated the CB 5.1 and CB 5.8 and load the Inv.
	7/23/2022	0.7	Cable - Higher Gauge	Inverter10 SMB	Cb 10.10 _higher gauge cable insulation failure part removed & installed new joint kit after cb on full load
	8/12/2022	3.77	SMB	Inverter10 SMB	Cb no 10.14 in ground fault
	9/6/2022	13	Cable - Lower Gauge	Inverter3 SMB	Lower gauge cable failure in CB-3.1, S-1, CB-7.12,S-7,CB-13.9,S-12,CB-4.8,S-11.Lower gauge cable failure due underground cable short circuit. We have checked the voltage of CB-3.1, S-1, CB-7.12, S-7, CB-13.9, S-12, CB-4.8,S-11 and it's shows grounding. We have replace the cable CB-3.1, S-1, CB-7.12, S-7, CB-13.9,S-12,CB-4.8,S-11 and checked the voltage of the string. There are no abnormalities in string so we have start it.
Azure Power Venus Pvt. Ltd.	1/1/2022	9.45	Inverter	INV-14.13,14,15	DC power cable puncher due to Inverter no-13 flashover
	2/22/2022	0.16	Inverter	INV-12	INV-12 tripped due to short ckt fault
	3/20/2022	9.3	Inverter	INV-1,1618,9	String GND due to Rodent issue and both Cable short due to laid in single conduit
	4/11/2022	1.52	Inverter	INV-12	Short circuit
	5/16/2022	6.3	Inverter	INV-23	String GND due to Rodent issue
	6/21/2022	3.09	Inverter	INV-13	INV-13 Due to 5 ohm Charging resister failure
	7/5/2022	0.08	Inverter	INV-06	INV- 06 tripped due to excess teperature
	8/26/2022	3.04	Inverter	INV-22	INV-22 tripped due AC contactor Fail to closed
	9/7/2022	0.55	Inverter	ICR-03	Icr-03 incomer surge arrester blast
Total BD Duration (hrs)		159.52			