SOLAR ENERGY PROJECT(S) BY SB ENERGY PRIVATE LIMITED

Document Prepared by Infinite Environmental Solutions LLP

Project Title	Solar Energy Project(s) by SB Energy Private Limited
Version	05
Report ID	VCS-1805-4MP
Date of Issue	05-January-2023
Project ID	1805
Monitoring Period	01-December-2021 to 30-June-2022 (Both dates included)
Prepared By	Infinite Solutions
Contact	214-215 Milinda Manor, Opp. Next Treasure Island, 2 RNT Marg, Indore – 452001. Landline No.: 0731-4050174 Email: jimmy@infisolutions.org Website: www.infisolutions.org

CONTENTS

1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The purpose of project activity is to implement renewable grid connected Solar energy projects in the country. The project activity is a voluntary action by Adani Renewable Energy Devco Private Limited (earlier known as SB Energy Private Limited). 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 electricity generated by the project renewable energy technology (solar PV) is supplied to the regional grid there by displacing the consumption of electricity from the regional grid electricity distribution system which is part of Indian grid and predominant by fossil fuel fired thermal power generation-based plants. Thus, serving the nation by contributing in sustainable development and reducing the anthropogenic GHG emissions equivalent to the generation by the project activity.

The monitoring period is from 01/12/2021 to 30/06/2022 (Both days inclusive). The total GHG emission reductions generated in this monitoring period are 1,788,472[1] tCO_2.

The registered project activity involves the installation of solar PV power Projects of 2,250 MW located in multiple states of India. However, Adani Renewable Energy Devco Private Limited (earlier known as SB Energy Private Limited) has decided to register three SPVs in other GHG scheme. Thus, remaining projects having 1650 MW capacities are considered in this project and for periodic verification. Details of the SPVs are as follows:

Sl No.	Owner of Project /SPV	Project Location	State	Project Capacity (MW)	Commissioning Date	Project ID	Remark
1	Adani Solar Energy AP Six Private Limited (earlier known as SBG Cleantech Project Co. Pvt Ltd)	Kurnool	Andhra Pradesh	182	27/02/2017	VCS 1805	Registered in VERRA only
				68	22/03/2017		
				100	28/03/2017		
2		Bhadla	Rajasthan	100	21/09/2018		

[1] Generation from only four SPVs have been considered as one is not yet commissioned and rest three SPVs are registered in other GHG Program.

Sl No.	Owner of Project /SPV	Project Location	State	Project Capacity (MW)	Commissioning Date	Project ID	Remark
	Adani Solar Energy Jodhpur three private limited (earlier known as SB Energy One Private Limited)			100	24/09/2018	GS 7071[2]	Registered in other GHG standard (Gold Standard)
				100	24/09/2018		
3	Adani Solar Energy Jodhpur four private limited (earlier known as SB Energy Three Private Limited)	Bhadla	Rajasthan	20	04/10/2018		Registered in other GHG standard (Gold Standard)
				20	04/10/2018		
				30	18/09/2018		
				30	18/09/2018		
4	Adani Solar Energy Jodhpur five private limited (earlier known as SB Energy Four Private Limited)	Bhadla	Rajasthan	200	03/05/2019, 09/07/2019	GS 7532[3]	Registered in other GHG standard (Gold Standard)
5	Adani Solar Energy AP	Ananthapur	Andhra Pradesh	250	20/12/2019, 11/03/2020		

[2] https://registry.goldstandard.org/projects/details/1455

[3] https://registry.goldstandard.org/projects/details/1972

Sl No.	Owner of Project /SPV	Project Location	State	Project Capacity (MW)	Commissioning Date	Project ID	Remark
	Seven Private Limited (earlier known as SB Energy Solar Private Limited)					VCS 1805	Registered in VERRA only
6	Adani Solar Energy RJ One Private Limited (earlier known as SB Energy Six Private Limited)	Jaisalmer	Rajasthan	600	Phase 1 (300 MW) – 14/06/2021 Phase-2 (300 MW) – yet to commission	VCS 1805	Registered in VERRA only
7	Adani Solar Energy KA Nine Private Limited (earlier known as SBG Cleantech Project Co Five Private Limited)	Pavagadaa	Karnataka	200	17/12/2019	VCS 1805	Registered in VERRA only
8	Adani Solar Energy AP Eight Private Limited (earlier known as SB Energy Seven Private Limited)	Kadappa	Andhra Pradesh	250	Yet to commission	VCS 1805	Registered in VERRA only

These are the SPVs of Adani Renewable Energy Devco Private Limited (earlier known as SB Energy Private Limited) and the project is promoted by Adani Renewable Energy Devco

Private Limited (earlier known as SB Energy Private Limited). Out of 2250 MW capacity, 1650 MW is considered under VCS mechanism. Out of 1650 MW capacity, 1100 MW capacity has been commissioned and rest 550 MW is yet to be commissioned.

1.2 Sectoral Scope and Project Type

The project activity under consideration is not a grouped project activity.

Sectoral Scope Applicable to project: 01 – Energy Industries (renewable/non-renewable Sources)

Project Type: I – Renewable Energy Projects

Title: ACM0002 Grid-connected electricity generation from renewable sources – Version 19

Reference: ACM0002 Version 19[4]

1.3 Project Proponent

Organization name	Adani Renewable Energy Devco Private Limited
Contact person	Sandip Saha
Title	Lead - Carbon Offset Market
Address	Adani Corporate House, 4th Floor - South Wing, Shantigram, SG Highway, Ahmedabad, India
Telephone	+91 79 2656 5555
Email	Sandip.saha@adani.com

1.4 Other Entities Involved in the Project

Organization name	Infinite Solutions
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

[4] http://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD

1.5 Project Start Date

The first project activity under consideration was commissioned and power generation started on 27/02/2017.

Hence the project start date is considered as 27/02/2017

1.6 Project Crediting Period

Project crediting period for project activity is taken as 10 years renewable twice.

Start date of the first crediting period: 27/02/2017

End date of the first crediting period: 26/02/2027

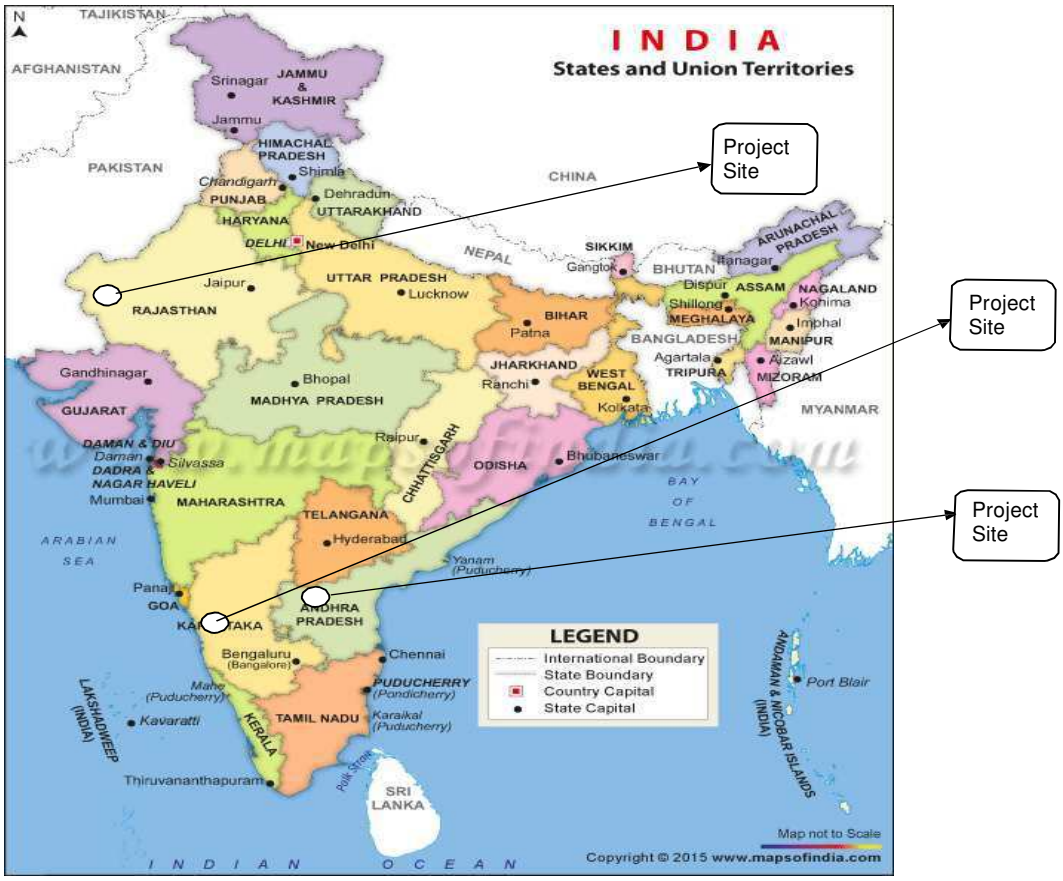
1.7 Project Location

The solar plants are located at various states of India and respective location is given below:

S. No.	Owner of Project/SPV	Project Location	State	Project Capacity (MW)	Geographical Coordinates
1	Adani Solar Energy AP Six Private Limited (earlier known as SBG Cleantech Project Co. Pvt Ltd)	Kurnool	Andhra Pradesh	182 68 100	15°41'01.02"N - 78°17'00.44"E
2	Adani Solar Energy AP Seven Private Limited (earlier known as SB Energy Solar Private Limited)	Ananthapur	Andhra Pradesh	250	13°59'32.08"N - 78°25'26.92"E
3	Adani Solar Energy RJ One Private Limited (earlier known as SB Energy Six Private Limited)	Phalodi, Jaisalmer	Rajasthan	600	26°57'12.41"N - 72°03'34.99"E
4	Adani Solar Energy AP Eight Private Limited (earlier known as SB Energy Seven Private Limited)	Kadappa	Andhra Pradesh	250	14°56'58.59"N - 78°13'12.84"E
5	Adani Solar Energy KA Nine Private	Pavagadaa	Karnataka	200	14°13'26.44"N - 77°25'47.83"E

S. No.	Owner of Project/SPV	Project Location	State	Project Capacity (MW)	Geographical Coordinates
	Limited (earlier known as SBG Cleantech Project Co Five Private Limited)				

The map of project site is as indicated in the following figure:



1.8 Title and Reference of Methodology

Title : Grid-connected electricity generation from renewable sources
Reference : The project activity meets the eligibility criteria of large-scale project as it is more than 15 MW
Methodology : ACM0002: Grid-connected electricity generation from renewable sources - Version 19[5]
Type I : Energy industries (renewable / non-renewable sources)
Category : Approved Consolidated Methodology (ACM0002)

[5] http://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD

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

Tool to calculate the emission factor for an electricity system[6] - Version 07.0 (EB 100, Annex 04)

Methodological Tool- Tool for the demonstration and assessment of additionality[7] - Version 07.0.0 (EB 70, Annex 08)

1.9 Participation under other GHG Programs

The project activity has not been registered under any other GHG program at this moment. However, three SPVs of this project activity have been registered in other GHG program. Below is the list of all SPVs under this project activity with other GHG scheme

S. No	Owner of Project/SPD	Project Location	State	Project ID	Remark
1	Adani Solar Energy AP Six Private Limited (earlier known as SBG Cleantech Project Co. Pvt Ltd)	Kurnool	Andhra Pradesh	VCS 1850	Registered in VERRA only
2	Adani Solar Energy Jodhpur three private limited (earlier known as SB Energy One Private Limited)	Bhadla	Rajasthan	GS 7071[8]	Registered in other GHG standard (Gold Standard)
3	Adani Solar Energy Jodhpur four private limited (earlier known as SB Energy Three Private Limited)	Bhadla	Rajasthan		Registered in other GHG standard (Gold Standard)
4	Adani Solar Energy Jodhpur five private limited (earlier	Bhadla	Rajasthan		Registered in other GHG standard (Gold Standard)

[6] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[7] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

[8] https://registry.goldstandard.org/projects/details/1455

S. No	Owner of Project/SPD	Project Location	State	Project ID	Remark
	known as SB Energy Four Private Limited)			GS 7532[9]	
5	Adani Solar Energy AP Seven Private Limited (earlier known as SB Energy Solar Private Limited)	Ananthapur	Andhra Pradesh	VCS 1850	Registered in VERRA only
6	Adani Solar Energy RJ One Private Limited (earlier known as SB Energy Six Private Limited)	Jaisalmer	Rajasthan	VCS 1850	Registered in VERRA only
7	Adani Solar Energy KA Nine Private Limited (earlier known as SBG Cleantech Project Co Five Private Limited)	Pavagadaa	Karnataka	VCS 1850	Registered in VERRA only
8	Adani Solar Energy AP Eight Private Limited (earlier known as SB Energy Seven Private Limited)	Kadappa	Andhra Pradesh	VCS 1850	Registered in VERRA only

The details of credits claimed from GS 7071 and GS 7532 are mentioned below along with their monitoring periods -

Project ID	Monitoring Period	CERs
GS 7071	01/01/2019 to 31/08/2019	608,592 tCO_{2e}
	01/09/2019 to 30/09/2020	989,457 tCO_{2e}
	01/10/2020 to 30/09/2021	943,156 tCO_{2e}

[9] https://registry.goldstandard.org/projects/details/1972

GS 7532	03/05/2019 to 31/07/2020	508,684 tCO_{2e}
	01/08/2020 to 30/09/2021	539,140 tCO_{2e}

1.10 Other Forms of Credit

As explained in section 1.9, few SPVs have not been registered under any other GHG program. However, 3 of the SPVs of this project activity mention in above section 1.9 registered under other GHG program (Gold Standard).

The Project activity has no intention and is not perusing registration 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 help 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 SOx, NOx, 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.

- **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 Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By installation of 1100 MW Solar Energy Power Plant, project has prevented the release of 17,88,472 tonnes of CO_2 into the atmosphere during the monitoring period	Prevented the release of 6,936,608 tonnes of CO_2 (1,331,623+673,926+3,142,587+1,788,472) into the atmosphere
2)	7.2	7.2.1: Renewable energy share in the total final energy consumption	Implemented activities to increase	About 18,87,570.98 MWh, renewable electricity has supplied to Indian grid during the reported period that helps to increase the renewable energy share in the energy mix.	Since Commissioning, about 7,320,963.86 MWh (1,405,410+711,267.88+3,316,715+18,87,570.98) renewable electricity has supplied to Indian grid that helps to increase the renewable energy share in the energy mix

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. This report also provides insights about socio-economic impacts of renewable energy projects (3.1.2) which is applicable for the project activity. Please refer below web link for the same[10].

Thus, there are no 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

At the time of project validation, a broad range of audiences (Local community, Village administration, Technology suppliers and Local vendors) were invited by several means (Invitation, Calls, Notice pasted on common area). Various channels were used to reach maximum number of participants. At the validation stage stakeholder meeting, it was announced that the grievances register would be placed at the site for localities for their feedback and complaints. The detail of the invitation date and stakeholder meeting date is as below:

Sr No.	Owner of Project/SPV[25]	Project Location	State	Date of LSC meeting
1	Adani Solar Energy AP Six Private Limited (earlier known as SBG Cleantech ProjectCo Private Limited)	Kurnool	Andhra Pradesh	12/09/2015
2	Adani Solar Energy Jodhpur three private limited (earlier known as SB Energy One Private Limited)	Bhadla	Rajasthan	14/09/2016
3	Adani Solar Energy Jodhpur four private limited (earlier known as SB Energy Three Private Limited)	Bhadla	Rajasthan	14/09/2016

[10] https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf

4	Adani Solar Energy Jodhpur five private limited (earlier known as SB Energy Four Private Limited)	Bhadla	Rajasthan	15/10/2018
5	Adani Solar Energy AP Seven Private Limited (earlier known as SB Energy Solar Private Limited)	Ananthapur	Andhra Pradesh	22/09/2018
6	Adani Solar Energy RJ One Private Limited (earlier known as SB Energy Six Private Limited)	Phalodi, Jaisalmer	Rajasthan	16/09/2018
7	Adani Solar Energy AP Eight Private Limited (earlier known as SB Energy Seven Private Limited)	Kadappa	Andhra Pradesh	13/01/2019
8	Adani Solar Energy KA Nine Private Limited (earlier known as SBG Cleantech ProjectCo Five Private Limited)	Pavagadaa	Karnataka	23/09/2018

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

However, there is no negative feedback / grievances has been reported within this monitoring period. Therefore, no any 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 proposed project activity involves the installation of Solar PV project. The total installed capacity of the project is 2,250 MW; which involves installation of Solar PV projects of different capacities located in Andhra Pradesh, Rajasthan and Karnataka states of India. Current Status for the project activity:

S.No.	Owner of Project/SPV	Project Location	State	Project Capacity (MW)	Commissioning Date	Current Status
1	Adani Solar Energy AP Six Private Limited (earlier SBG Cleantech Project Co. Pvt Ltd)	Kurnool	Andhra Pradesh	182	27/02/2017	SPV registered under VCS Project activity. PP has considered electricity generation from this SPV during current verification.
				68	22/03/2017	
				100	28/03/2017	
2	Adani Solar Energy Jodhpur three private limited (earlier known as SB Energy One Private Limited)	Bhadla	Rajasthan	100	21/09/2018	SPVs deregistered from the project activity
				100	24/09/2018	
				100	24/09/2018	
3	Adani Solar Energy Jodhpur four private limited (earlier known as SB Energy Three Private Limited)	Bhadla	Rajasthan	20	04/10/2018	
				20	04/10/2018	
				30	18/09/2018	
				30	18/09/2018	
4	Adani Solar Energy Jodhpur five private limited (earlier known as SB Energy Four Private Limited)	Bhadla	Rajasthan	200	03/05/2019, 09/07/2019	
5	Adani Solar Energy AP Seven Private Limited	Ananthapur	Andhra Pradesh	250	20/12/2019, 11/03/2020	SPVs registered under VCS Project activity.

S.No.	Owner of Project/SPV	Project Location	State	Project Capacity (MW)	Commissioning Date	Current Status
	(earlier SB Energy Solar Private Limited)					PP has considered electricity generation from this SPV during current verification.
6	Adani Solar Energy RJ One Private Limited (earlier SB Energy Six Private Limited)	Phalodi, Jaisalmer	Rajasthan	600	Phase 1 (300 MW)– 14/06/2021 Phase 2(300 MW)-Yet to be commissioned	
7	Adani Solar Energy KA Nine Private Limited (earlier SBG Cleantech Project Co Five Private Limited)	Pavagadaa	Karnataka	200	17/12/2019	
8	Adani Solar Energy AP Eight Private Limited (earlier SB Energy Seven Private Limited)	Kadappa	Andhra Pradesh	250	Yet to be commissioned	-

Out of 2250 MW capacity, 1650 MW is considered under VCS mechanism. Out of 1650 MW capacity, 1100 MW capacity has been commissioned and rest 550 MW is yet to be commissioned.

No such events took place during this monitoring period that may impact the GHG emission reductions for the project activity. Regular O&M activities were conducted but barring them the project activity has been exporting electricity continuously since commissioning. There were neither major breakdowns nor other events for the project activity during the monitoring period that may impact the GHG emission reductions for the project activity

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

Project deviation taken during the previous monitoring period:

During the last monitoring period, PP has updated in the MR that out of 8 SPV, 3 SPVs have been registered under GS mechanism and details of the same has been provided under section 1.9 of the MR.

S.No.	Owner of Project/SPD	Project Location	State	Project Capacity (MW)	GS ID / current project status
1	Adani Solar Energy Jodhpur three private limited (earlier known as SB Energy One Private Limited)	Bhadla	Rajasthan	300	GS 7071/ Deregistered from the VCS Project activity
2	Adani Solar Energy Jodhpur four private limited (earlier known as SB Energy Three Private Limited)	Bhadla	Rajasthan	100	
3	Adani Solar Energy Jodhpur five private limited (earlier known as SB Energy Four Private Limited)	Bhadla	Rajasthan	200	GS 7532/ Deregistered from the VCS Project activity

Project deviation applied during current monitoring period:

At the time of project registration, SB Energy Private Limited was the Project Proponent of this project activity. However, on 30-Mar-22, SB Energy Private Limited has renamed as Adani Renewable Energy Devco Private Limited. Thus, SB Energy Private Limited has gave up its rights and obligations in respect of the project and transferred all the rights to Adani

Renewable Energy Devco Private Limited. Thus, Adani Renewable Energy Devco Private Limited is the PP of this project. Further, name change of the all SPVs have also completed. Revised name of the PP and SPVs are mentioned below:

Sl No	Old Name	New Name
01	SBG Cleantech Project Co. Pvt Ltd	Adani Solar Energy AP Six Private Limited
02	SB Energy One Private Limited	Adani Solar Energy Jodhpur three private limited
03	SB Energy Three Private Limited	Adani Solar Energy Jodhpur four private limited
04	SB Energy Four Private Limited	Adani Solar Energy Jodhpur five private limited
05	SB Energy Solar Private Limited	Adani Solar Energy AP Seven Private Limited
06	SB Energy Six Private Limited	Adani Solar Energy RJ One Private Limited
07	SBG Cleantech Project co Five Private Limited	Adani Solar Energy KA Nine Private Limited
08	SB Energy Seven Private Limited	Adani Solar Energy AP Eight Private Limited
09	SB Energy Private Limited	Adani Renewable Energy Devco Private Limited

Thus, same change in project proponent have been accounted as Project Description deviations in line with section 3.18.2 of VCS standard version 4.3. However, this project deviation doesn't have an adverse impact in the applicability of the methodology, additionally or the appropriateness of the baseline scenario

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 in year y
Source of data	Calculated from CEA database, Version 13, June 2018
Value applied	0.9726
Justification of choice of data or description of	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07.0.0" as 3-year generation

measurement methods and procedures applied	weighted average using data for the years 2014-2015, 2015-2016 & 2016 - 2017. The data are obtained from "CO_2 Baseline Database for Indian Power Sector" version 13.0, 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 first 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 13, June 2018
Value applied	0.8723
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 2016-17. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 13, 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 first 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 13, June 2018
Value applied	0.9475
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 07.0.0". The data is obtained from "CO_2 Baseline Database for Indian Power Sector" Version 13, June 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 first crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{facility,y}$
Data unit	MWh
Description	Quantity of net electricity supplied (MWh) to the grid as a result of the implementation of the project activity in year y
Source of data	Credit Report /JMR as per Monthly Generation Report
Description of measurement methods and procedures to be applied	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Calibration frequency: One in five years Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. **1. For 350 MW Capacity – Kurnool – Andhra Pradesh** 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 certificates/credit notes issued by state electricity board as per below equation: $EG_{facility,y} = EG_{Export} - EG_{Import}$ The joint reading at metering point is carried out once in a month in presence of O&M officials and state electricity board personnel. The calculations/measurement of net electricity supplied to grid is under purview of state electricity board and the PP/Project activity owner has no role on it. PP/Project activity owner will get value of net electricity supplied to grid and hence this parameter is mentioned as a part of monitoring plan. Cross Checking:

	Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the PP to the State Electricity Board or invoices with third party. **2. For 250 MW – Andhra Pradesh & 200 MW – Pavagadaa(Karnataka)** The REA statement issued by SRPC(Southern Regional Power Committee) contains the information of the Scheduled Power, Actual Power, and the Deviation between actual & scheduled power. The scheduled power being feed into the grid can be cross-checked from the monthly Invoices raised by the PP. For ER calculations, the values of Actual power have been considered. **3. For 600 MW Capacity (Phase 1 -300 MW - Commissioned)– Phalodi – Rajasthan** The REA statement issued by NRPC(Northern Regional Power Committee) contains the information of Details of Inter-Regional Bilateral Exchanges (LUs) in which actual generation value can be cross-checked from the monthly Invoices raised by the PP.
Frequency of monitoring/recording	Continuous monitoring and monthly recording
Value monitored	1,887,570.98 MWh
Monitoring equipment	Monitoring equipment will be energy meter installed at the project activity site. Readings will 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 does not have any control on it. For detailed schedule of calibration of energy meters used in the project activity please refer Appendix- 1.
QA/QC procedures to be applied	The calibration of all the meters will be undertaken once in five years[11] and faulty meters will be duly replaced immediately. The meters will be of accuracy class 0.5s or higher. The meter accuracy class and calibration interval are under purview of state electricity board and PP/Project Activity owner do not have any control on it. It is also noted that apportioning procedure (if applicable for project activity) is under control of state electricity board and PP do not have any control on it. The

[11] http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

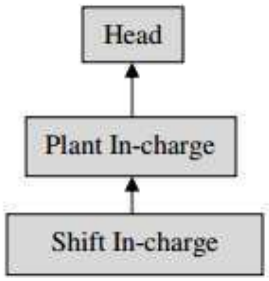
	available parameter to PP/project activity owner is the net electricity supplied to grid and same parameter is mentioned as monitoring parameter.
Purpose of the data	Calculation of baseline emissions
Calculation method	The parameter is measured and if any calculation is required, the calculation is based on measured parameters
Comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period

4.3 Monitoring Plan

The monitoring plan, which is implemented by the PP describes about the monitoring organisation, 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 results with the PP. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises of the following members*:*

Organisational Structure for Monitoring



PP has assigned the responsibility of operation and maintenance of project activity with relevant and authorised O&M contractors. The Plant In-charge and Shift In-Charge would be deployed by O&M contractors.

Responsibilities of Head: Overall functioning and maintenance of the data.

Responsibilities o f Plant In-charge: Responsibility for Maintains the data records, ensures completeness of data, and reliability of data (calibration of equipments).

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

In the event when the individual verification period dates and billing cycle dates of the project activity do not coincide, then the electricity export will be apportioned based on

number of days. The ratio of number of days under monitoring period and total number of days under billing cycle will multiplied to total electricity export to billing cycle.

For project activity which involves solar projects with common metering, apportioning will be followed to determine net electricity export to grid. The apportioning procedure is not under control of PP, thus value of net electricity supplied to grid is available to PP and same is mentioned as monitoring parameter. The value of net electricity supplied to grid is used for ER calculations.
It is to be noted that the metering arrangement, accuracy class of meters, feeder arrangements, calibration frequency of meters are under control of state electricity board and PP does not have any control on it. Thus, any deviation at actual site or during verification is accepted.

Data Measurement:

Projects activity comprises of installation Energy meters at a GSS Substation prior to the Delivery point.

1. 350 MW Kurnool – Andhra Pradesh
The electricity exported & imported are measured by Energy meter installed at substation. The electricity is fed in the Integrated Indian grid. Monitoring consists of metering the net electricity supplied to the grid ($EG_{facility,y}$). This parameter is based on the monthly JMRs undertaken by AP TRANSCO and PP which is continuously through energy meters. The PP will then raise monthly electricity sales invoices based on the JMR reading.

2. 250 MW – Anantapur (Andhra Pradesh) & 200 MW – Pavagadaa (Karnataka)
The parameter $EG_{PJ,y}$ is calculated using the difference of export and import value measured from the electricity meter. Thus, value of net electricity supplied is directly sources from the REA statement.

The REA statement issued by SRPC which provide the values of Scheduled Power, Actual Power, and the Deviation between actual & scheduled power for the month.

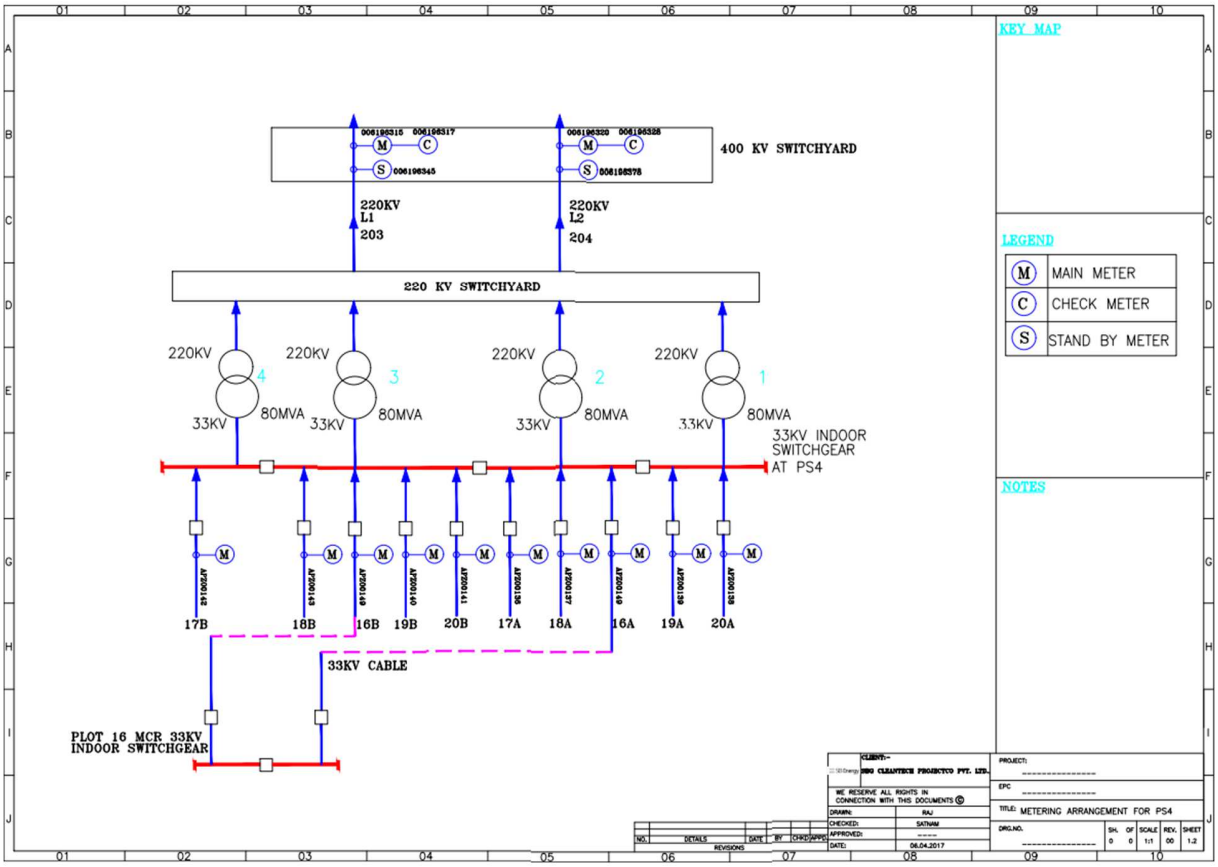
The actual power is used for emission reduction calculation. For billing purpose, the meter readings shall be measured on monthly basis and the PP has no control over the process. Based on the statement the Invoice is raised by PP on the scheduled energy and thus crosschecking of actual energy supplied to grid from invoices is not possible. The scheduled power being feed into the grid can be cross-checked from the monthly Invoices raised by the PP. For ER calculations, the values of Actual power have been considered.

The SRPC is a credible government body, and the REA statement is publicly available at the website of SRPC, which can be referred from https://www.srpc.kar.nic.in/html/all_uploads.html#gsc.tab=0

3. For 600 MW Capacity – Pokhran (300 MW) + Phalodi (300 MW) – Rajasthan
The REA statement issued by NRPC(Northern Regional Power Committee) contains the information of Details of Inter-Regional Bilateral Exchanges (LUs) in which actual generation value can be cross-checked from the monthly Invoices raised by the PP. The NRPC is a

credible government body, and the REA statement is publicly available at the website of NRPC, which can be referred from http://nrpc.gov.in/

Single Line diagram of Solar PV project being followed at site is as follows:



QA & QC Procedures to be followed

Necessary check meters as required would be installed, to operate in standby mode or when the main meters are not working. All meters will be calibrated at least once in five year as per CEA notification. Records of calibration certificates will be maintained for verification. Hence, high quality is ensured with the above parameters. The calibration of meters is under purview of state electricity board and CME/ project activity owner do not have any control on it.

Data Recording and Storage

For measuring the net energy supplied to grid by the project activity at the interconnection point, one set of Main meter and Check Meter shall be provided. Representatives of both project activity Owner and State Utility will be present to record the monthly meter readings. The state utility will prepare the credit report for the net energy supplied to the grid and same will be used as a basic document for monitoring and verification of the net energy supplied to the grid. Based on the monthly credit report, the project activity Owner shall raise an invoice to the utility. Utility will pay to the project activity Owner based on this document.

The above document will be kept at safe storage for verification of emission reductions generated from the project activity. The period of data storage will be 2 years beyond crediting period.

Emergency preparedness
The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. However, in case monitoring equipment get failed or found faulty, they shall be replaced with calibrated meters as quickly as possible. In case main meter get failed or found faulty, the reading of check meter will be considered.

Personnel training
In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff will be trained. The Shift In-charge and Plant In-charge will be trained in equipment operation, data recording, operation and maintenance and emergency procedures in compliance with the monitoring 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 CO_2 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.

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

Where,

BEy = Baseline Emissions in year y; tCO_2

$EG_{facility,y}$ = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

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

SPV wise details are as follows –

1. Adani Solar Energy AP Six Private Limited (earlier known as SBG Cleantech Project Co. Pvt Ltd) – 350 MW Kurnool, AP

Vintage 2021 = 81,506.80 MWH, Vintage 2022 = 715,061.18 MWH

Total Generation (MWH) = 81,506.80 + 715,061.18 = 796,567.98 MWH.

2. Adani Solar Energy AP Seven Private Limited (earlier known as SB Energy Solar Private Limited)– 250 MW Ananthapur, AP

Vintage 2021 = 43,748.74 MWH, Vintage 2022 = 307,828.88 MWH

Total Generation (MWH) = 43,748.74 + 307,828.88 = 351,577.61 MWH

3. Adani Solar Energy RJ One Private Limited (earlier known as SB Energy Six Private Limited) – 300 MW Phalodi, Rajasthan

Vintage 2021 = 55,330.61 MWH, Vintage 2022 = 397,214.72 MWH

Total Generation (MWH) = 452,545.32 MWH

4. Adani Solar Energy KA Nine Private Limited (earlier known as SBG Cleantech Project Co Five Private Limited) – 200 MW Pavagada, Karnataka

Vintage 2021 = 37,344.13 MWH, Vintage 2022 = 249,535.93 MWH

Total Generation (MWH) = 286,880.06 MWH

Total Generation from all SPVs for Vintage 2021 (MWH) = 81,506.80 + 43,748.74 + 55,330.61 + 37,344.13 = 217,930.27 MWH

Total Generation from all SPVs for Vintage 2022 (MWH) = 715,061.18 + 307,828.88 + 397,214.72 + 249,535.93 = 1,669,640.70 MWH

Total Generation from all SPVs for both Vintage 2021 & 2022 (MWH) = 217,930.27 MWH + 1,669,640.70 MWH = 1,887,570.98 MWH

Thus,

BEy = 1,887,570.98 * 0.9475

= 1,788,472 tCO_2e (round down values)

5.2 Project Emissions

As per methodology, for renewable energy projects, there is no any project emissions occurred.

Hence, $PE_y = 0$

5.3 Leakage

As per methodology, for renewable energy projects, there is no any leakage emissions occurred.

Hence, LEy= 0

5.4 Net GHG Emission Reductions and Removals

The net emission reduction would be:

ERy = BEy – PEy – LEy

= 17,88,472-0 -0

= 1,788,472 tCO_2e

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2021 (01/12/2021 to 31/12/2021)	206,488.00	0.00	0.00	206,488.00
2022 (01/01/2022 to 30/06/2022)	1,581,984.00	0.00	0.00	1,581,984.00
Total	**1,788,472.00**	**0.00**	**0.00**	**1,788,472.00**

APPENDIX 1: METER CALIBRATION DETAILS

350 MW – Kurnool – Andhra Pradesh:

Particular	Meter Serial No.	Accuracy Class	Recent Calibration Date	Validity
Pooling Station 203				
Main Meter	16196315	0.2 s	17/10/2019	16/10/2024
Check Meter	16196317	0.2 s	17/10/2019	16/10/2024
Stand by Meter	16196345	0.2 s	17/10/2019	16/10/2024
Pooling Station 204				
Main Meter	16196320	0.2 s	17/10/2019	16/10/2024
Check Meter	16196328	0.2 s	17/10/2019	16/10/2024
Stand by Meter	16196378	0.2 s	17/10/2019	16/10/2024

250 MW – Anantapur – Andhra Pradesh

Feeder details	Meter	Make	Accuracy Class	Serial No	Calibration date	Calibration due date
GSS (Feeder-I)	Main Meter	L&T	0.2 s	NP-9769-A	20/12/2019	19/12/2024
GSS (Feeder-I)	Check Meter	L&T	0.2 s	NP-9768-A	20/12/2019	19/12/2024
PSS (Feeder-I)	Stand by Meter	L&T	0.2 s	LT-0736-A	20/12/2019	19/12/2024
GSS (Feeder-II)	Main Meter	L&T	0.2 s	NP-9726-A	20/12/2019	19/12/2024
GSS (Feeder-II)	Check Meter	L&T	0.2 s	NP-9725-A	20/12/2019	19/12/2024
PSS (Feeder-II)	Stand by Meter	L&T	0.2 s	LT-0739-A	20/12/2019	19/12/2024

EHT/DISCOM Grid Connected substation Details: 220/400 KV PGCIL S.S., N.P. Kunta.

200 MW – Pavgada – Karnataka

EHT/DISCOM Grid Connected substation Details: KSPDCL Substation 5 - 66/220 KV which is further connected to PGCIL GSS.

ABT meters	Capacity	Plant End	Meter Make/Class	Meter Serial No	Calibration Date	Calibration Date Due Date
		Main Meter	L&T & 0.2 s	LT-0769-A	26/09/2019	25/09/2024

1) Block 23	25 MW	Check Meter	L&T & 0.2 s	LT-0764-A	26/09/2019	25/09/2024
	25 MW	Main Meter	L&T & 0.2 s	LT-0866-A	27/09/2019	26/09/2024
		Check Meter	L&T & 0.2 s	LT-0863-A	27/09/2019	26/09/2024
2) Block 24	25 MW	Main Meter	L&T & 0.2 s	LT -0874-A	27/09/2019	26/09/2024
		Check Meter	L&T & 0.2 s	LT-0871-A	27/09/2019	26/09/2024
	25 MW	Main Meter	L&T & 0.2 s	LT-0881-A	27/09/2019	26/09/2024
		Check Meter	L&T & 0.2 s	LT-0878-A	27/09/2019	26/09/2024
3) Block 25	25 MW	Main Meter	L&T & 0.2 s	LT-0870-A	27/09/2019	26/09/2024
		Check Meter	L&T & 0.2 s	LT-0880-A	01/10/2019	30/09/2024
	25 MW	Main Meter	L&T & 0.2 s	LT-0876-A	26/09/2019	25/09/2024
		Check Meter	L&T & 0.2 s	LT-0877-A	01/10/2019	30/09/2024
4) Block 26	25 MW	Main Meter	L&T & 0.2 s	LT-0872-A	27/09/2019	26/09/2024
		Check Meter	L&T & 0.2 s	LT-0778-A	26/09/2019	25/09/2024
	25 MW	Main Meter	L&T & 0.2 s	LT-0882-A	27/09/2019	26/09/2024
		Check Meter	L&T & 0.2 s	LT-0888-A	27/09/2019	26/09/2024

600 MW – Phalodi - Rajasthan

220/400/765 KV BHADLA SUBSTATION

Description	Main Meter- GSS	Check Meter - GSS	Standby Metr -ISS2
Meter Sr No	NS1125A	1127-A	1214-A
Meter Make	Secure	secure	secure
Accuracy	0.2 s	0.2 s	0.2 s
Calibration date	07/06/2021	07/06/2021	07/06/2021
Calibration due date	06/06/2026	06/06/2026	06/06/2026