BUNDLED SOLAR PHOTOVOLTAIC PROJECT BY ACME

Document Prepared By EKI Energy Services Ltd.

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1 PROJECT DETAILS

1.1 Summary Description of the Project and its Implementation Status

The proposed grouped 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 will be the Project Proponent for their project activity. ACME Cleantech Solutions Private Limited as a parent company formed different SPV (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 will support the development of new grid-connected renewable energy power plants in India and will cover 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.

All project activity instances within this grouped project activity will consist of single solar renewable technology. Also an individual project activity instance will either be small-scale project activity instance (having methodology AMS I.D version 18) or large-scale project activity instance (having methodology ACM0002 version 19.0).

The electricity generated by renewable technology (solar) installed as part of the grouped project activity will be supplied either to the regional grid and/or will be supplied to the identified facility via regional grid through a contractual wheeling agreement for captive consumption 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 synchronised with the NEWNE grid, hence forming one unified Indian Grid. Thus for this Project activity instances Indian Grid is applicable.

The objective of the grouped project activity is to develop a platform for reducing VCS Registration timelines and process costs for registration of individual projects under VCS. All the project instances i.e. renewable energy generation solar PV plants to be included in this grouped project will be from within India only. Hence the location and geographical boundary of the grouped project can be defined as India.

The commissioning dates of the project activity bundle have been mentioned below.

Activity Instance	SPV Name	State	Capacity (MW)	Date of Commissioning
1	Sunworld Solar Power Pvt Ltd	Telangana	30	15-11-2017
	ACME Ranga Reddy Solar Power Pvt Ltd		30	02-06-2017
	ACME Medak Solar Energy Pvt Ltd		45	14-07-2017
	ACME Nizamabad Solar Energy Pvt Ltd		50	11-09-2017
	ACME PV Powertech Private Limited (Sadashivpet)		50	07-07-2017
	ACME Solar Power Technology Private Limited		50	05-02-2018
	ACME Rewari Solar Power Pvt Ltd	Karnataka	50	31-01-2018

	Acme Kurukshetra Solar Energy Pvt Ltd		50	31-01-2018
	ACME Bhiwadi Solar Power Pvt Ltd	AP	50	01-07-2018
	ACME Hisar Solar Power Private Limited		50	21-06-2018
	ACME Karnal Solar Power Private Limited		50	15-06-2018
	ACME Kaithal Solar Power Private Limited	Karnataka	40	24-01-2018
	ACME Babadham Solar Power Private Limited		40	22-01-2018
	ACME Koppal Solar Energy Private Limited		40	15-04-2018
	ACME Vijayapura Solar Energy Pvt Ltd		40	23-01-2018
	ACME Rewa Solar Energy Pvt Ltd	Rajasthan	100	24-09-2018
	ACME Chittorgarh Solar Energy Pvt. Ltd	Rajasthan	250	Yet to be commissioned
2	ACME Karimnagar Solar Power Pvt Ltd	Telangana	15	02-03-2017
3	Purvanchal Solar Power Pvt Ltd		15	23-02-2017
4	Rewanchal Solar Power Pvt Ltd		15	24-03-2017
5	Neemuch Solar Power Pvt Ltd		15	25-03-2017
6	ACME Fazilka Power Pvt Ltd (Nandipet)		15	13-03-2017
7	ACME Narwana Solar Power Pvt Ltd (Lingampet)		15	24-02-2017
8	ACME Warangal Solar Power Pvt Ltd		15	03-03-2017
9	Devishi Renewable Energy Pvt Ltd	Uttarakhand	12.5	19-02-2017
10	Devishi Solar Power Pvt Ltd		12.5	19-02-2017
11	Sunworld Energy Pvt Ltd		12.5	10-02-2017
12	ACME Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	Telangana	10	26-09-2017
13	ACME Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)		10	17-09-2017
14	ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)		10	11-09-2017
15	ACME Mahbubnagar Solar Energy Pvt Ltd-3 (PADMAJIWADI)		10	09-09-2017
16	ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)		10	12-09-2017
Total			**1,207.5**	

The total AC capacity of the project activity is 1,207.5 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. GHG emission reductions from the project activity will be 2,078,589 tonnes of CO_2e and total GHG emission reductions for the chosen 10 year crediting period will be 20,785,890 tonnes of CO_2e.

During this monitoring period, the actual emission reductions to be achieved are 484,608 tCO_2e.

More project activity instances will be included in the grouped project activity in future. These new instances will also be grid connected solar renewable energy power plants that will contribute to GHG emission reductions. These new project activity instances will be of small scale or large scale project activity.

In this process there is no consumption of any fossil fuel and hence the project does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment. In the Pre- project scenario the equivalent amount of electricity delivered to the grid by the project activity, would have otherwise been generated by the operation of grid-connected fossil fuel based power plants and by the addition of new generation sources.

1.2 Sectoral Scope and Project Type

The project activity falls under consideration of the grouped project activity. The project activity instances as part of the grouped project will have the following parameters

Sectoral Scope: 01 - Energy industries (renewable / non-renewable sources)
Project Type : I - Renewable Energy Projects
Project Category:
For each project activity instances will apply only solar technology. However each project activity instances will be either small scale or large scale and not the combination of two.

For large scale project activities, below large scale methodology will be applied
Methodology : ACM0002: Grid-connected electricity generation from renewable sources - Version 19.0[1]

For small scale project activities, below small scale methodology will be applied
AMS-I.D." Grid Connected renewable electricity generation – Version 18.0[2]

The project activity under consideration is a grouped project activity.

1.3 Project Proponent

Organization name	ACME Cleantech Solutions Private Limited
Contact person	Anurag Jain
Title	Manager EHS
Address	Plot No.152, Sector – 44, Gurugram -122 002, Haryana, India
Telephone	+91 95898 99649
Email	info@acme.in

ACME Cleantech Solutions Private Limited as a parent company of all project activity instances formed as different SPV (Special Purpose Vehicles) for solar projects and projects are developed by name of SPVs.

1.4 Other Entities Involved in the Project

Organization name	EKI Energy Services Ltd.
Role in the project	Project Consultancy
Contact person	Mr. Prakash Kr. Sahu
Title	Project Manager
Address	Office No 201, Plot No 48, Scheme 78, Part 2, Vijay Nagar, Indore-452010, Madhya Pradesh
Telephone	+91 9931158863
Email	prakash@enkingint.org

[1] http://cdm.unfccc.int/UserManagement/FileStorage/58IAGB7SZUDEO2VN6LYM30K41HFPRQ

[2] http://cdm.unfccc.int/UserManagement/FileStorage/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC

1.5 Project Start Date

The first project activity instance of the grouped project under consideration was commissioned and power generation stared on 10/02/2017.The project activity instance is SPV Sunworld Energy Pvt Ltd under ACME group. Hence the project start date is defined as follows:

Project start date: 10/02/2017

The commissioning details are mentioned in Section 1.1.

1.6 Project Crediting Period

Crediting Period Start date: 10-February-2017[3]

Crediting Period End date: 09-February-2027

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

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

Project Scale	
Project	
Large project	✓

As per section 3.9.1 of VCS standard Version 3.7, the projects are classified as follows:

1) Projects: Less than or equal to 300,000 tonnes of CO_2e per year

2) Large projects: Greater than 300,000 tonnes of CO_2e per year

Year	Estimated GHG emission reductions or removals (tCO_2e)
Year 1	2,078,589
Year 2	2,078,589
Year 3	2,078,589
Year 4	2,078,589
Year 5	2,078,589
Year 6	2,078,589
Year 7	2,078,589
Year 8	2,078,589
Year 9	2,078,589
Year 10	2,078,589
Total estimated ERs	20,785,890
Total number of crediting years	10
Average annual ERs	2,078,589

[3] Start date of crediting period is 10/02/2017, as on this day 1st set of Solar PV Plant associated to the one of the bundle starts its commercial operations. Accordingly end date of the crediting period is also been revised.

The above annual estimation for initial project activity instances is based on estimated PLF and total capacity of all project activity instances, irrespective of commissioning date of project activity instances, thus in actual emission reductions vary based on actual PLF and commissioning date of project activity instance.
The first project activity instance categorised as large project and rest project activity instances are categorised as projects.
The estimation of emission reductions for each project activity instance is as below

Activity Instance	SPVs	Capacity (MW)	PLF	Net Generation (MWh/year)	Baseline Emission factor (tCO_2/MWh)	Baseline emissions (tCO_2e/year)	Project emissions (tCO_2e/year)	Leakage Emissions (tCO_2e/year)	Emission reductions (tCO_2e/year)
1	Sunworld Solar Power Pvt Ltd	30	19.00 %	49,932	0.9475	47,310	0	0	47,310
	ACME Ranga Reddy Solar Power Pvt Ltd	30	19.00 %	49,932	0.9475	47,310	0	0	47,310
	ACME Medak Solar Energy Pvt Ltd	45	19.00 %	74,898	0.9475	70,965	0	0	70,965
	ACME Nizamabad Solar Energy Pvt Ltd	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	ACME PV Powertech Private Limited (Sadashivpet)	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	ACME Solar Power Technology Private Limited	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	Acme Rewari Solar Power Pvt Ltd	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	Acme Kurukshetra Solar Energy Pvt Ltd	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	ACME Bhiwadi Solar Power Pvt Ltd	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	ACME Hisar Solar Power Private Limited	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	ACME Karnal Solar Power Private Limited	50	19.00 %	83,220	0.9475	78,850	0	0	78,850
	ACME Kaithal Solar Power Private Limited	40	19.00 %	66,576	0.9475	63,080	0	0	63,080
	ACME Babadham Solar Power Private Limited	40	19.00 %	66,576	0.9475	63,080	0	0	63,080
	ACME Koppal Solar Energy Private Limited	40	19.00 %	66,576	0.9475	63,080	0	0	63,080
	ACME Vijayapura Solar Energy Pvt Ltd	40	19.00 %	66,576	0.9475	63,080	0	0	63,080

	ACME Rewa Solar Energy Pvt Ltd	100	23.50 %	205,860	0.9475	195,052	0	0	195,052
	ACME Chittorgarh Solar Energy Pvt. Ltd	250	23.50 %	514,650	0.9475	487,630	0	0	487,630
2	ACME Karimnagar Solar Power Pvt Ltd	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
3	Purvanchal Solar Power Pvt Ltd	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
4	Rewanchal Solar Power Pvt Ltd	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
5	Neemuch Solar Power Pvt Ltd	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
6	ACME Fazilka Power Pvt Ltd (Nandipet)	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
7	ACME Narwana Solar Power Pvt Ltd (Lingampet)	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
8	ACME Warangal Solar Power Pvt Ltd	15	22.15 %	29,105	0.9475	27,576	0	0	27,576
9	Devishi Renewable Energy Pvt Ltd	12.5	20.00 %	21,900	0.9475	20,750	0	0	20,750
10	Devishi Solar Power Pvt Ltd	12.5	20.00 %	21,900	0.9475	20,750	0	0	20,750
11	Sunworld Energy Pvt Ltd	12.5	20.00 %	21,900	0.9475	20,750	0	0	20,750
12	Acme Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	10	22.15 %	19,403	0.9475	18,384	0	0	18,384
13	Acme Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)	10	22.15 %	19,403	0.9475	18,384	0	0	18,384
14	ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)	10	22.15 %	19,403	0.9475	18,384	0	0	18,384
15	ACME Mahbubnagar Solar Energy Pvt Ltd-3 (PADMAJIWADI)	10	22.15 %	19,403	0.9475	18,384	0	0	18,384
16	ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)	10	22.15 %	19,403	0.9475	18,384	0	0	18,384
	Total	**1,207.5**		**2,193,786**		**2,078,589**	**0**	**0**	**2,078,589**

1.8 Description of the Project Activity

The proposed project activity involves the installation of Solar Power Projects. The total capacity of the project is 1,207.5 MW. The project is promoted by **ACME Cleantech Solution Private Limited with different SPVs**. The project activity would use solar energy to generate direct current form photovoltaic modules that will be converted into alternating current by inverters. The project activity instances under grouped project activity will be grid connected and will install a new power plant (i.e solar PV) at a site where no renewable power plant was operating prior to the implementation of the project activity (green-field plant). The generated electricity will be supplied to grid or uses grid network for captive or third party sale.

The project activity instances will be wither small scale project activities (with power generation capacity less than 15 MW) or large scale project activities (with power generation capacity more than 15 MW). However project activity follows AMS I.D. Version 18 or ACM0002 Version 19.0 based on scale of project activity instances.

Baseline Scenario:

As per the applicable methodology, a Greenfield power plant is defined as “a new renewable energy power plant that is constructed and operated at a site where no renewable energy power plant was operated prior to the implementation of the project activity”.

As the project activity falls under the definition of a Greenfield power plant, the baseline scenario as per applied methodology is the following:

The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.

Hence, pre-project scenario and baseline scenario are the same.

The estimated lifetime of the project activity is considered as 25 years for solar technology. This may increase depending on the operation & maintenance of the plant.

Details of the commissioning of respective projects are mentioned in Section 1.1 and coordinates of the projects are mentioned in Section 1.9.

The Project activity is a new facility (Greenfield) and the electricity generated by the Project will be exported to the Indian Grid. The Project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the Project.

Emission Reductions from anthropogenic sources:

The solar power generated from the Project will be displacing the electricity generated from thermal power stations feeding into Indian grid and will be replacing the usage of diesel generators for meeting the power demand during shortage periods. Since, the solar power is Green House Gas (GHG) emissions free, the power generated will prevent the anthropogenic GHG emissions generated by the fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas. The estimation of GHG reductions by this project is limited to carbon dioxide (CO_2) only.

All project activity instances are photovoltaic (PV) plant/unit, the project activity instances would use solar energy to generate direct current from photo voltaic modules that will be converted into alternating current by inverters. The technical specifications of the plants are tabulated below:

ACME Karimnagar Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	255,260 Wp & 265 Wp Modules of make - Risen/Byd
No. of modules	74088
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp,Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Purvanchal Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	255,260 Wp & 265 Wp Modules of make - Risen
No. of modules	75600
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Rewanchal Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260 Wp & 265 Wp Modules of make - Risen/Byd
No. of modules	62208
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
Neemuch Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260 Wp & 265 Wp Modules of make - Talesun
No. of modules	73824
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)

Technical & Operational Lifetime	25 years
ACME Fazilka Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	255,260 Wp & 265 Wp Modules of make - Risen
No. of modules	74640
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
Sun World Solar Power Pvt. Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260 Wp & 265 Wp Modules of make - Talesun/Byd/Yingli
No. of modules	133008, Installation WIP
Total Number of Invertors	24
Transformer numbers and KVA ratings	6 x 5 MVA & 1 Power trafo 25/30MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Ranga Reddy Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260 Wp & 265 Wp Modules of make - Byd
No. of modules	141504
Total Number of Invertors	24
Transformer numbers and KVA ratings	6 x 5MVA & 1 x 30MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Medak Solar Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260,265 Wp & 270 Wp Modules of make - Talesun/BYD/GCL
No. of modules	220176
Total Number of Invertors	36

Transformer numbers and KVA ratings	9 x 5 MVA & 2 x 20/25 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Narwana Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	255 Wp & 260 Wp Modules of make -Byd
No. of modules	74544
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1.25 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Warangal Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260,265 Wp & 270 Wp Modules of make - GCL
No. of modules	73056
Total Number of Invertors	12
Transformer numbers and KVA ratings	3 x 5 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V&360V AC, 1.25 MWp, Inverter make:-TBEA/Sungrow)
Technical & Operational Lifetime	25 years
ACME Nizamabad Solar Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25 degrees and 3 degrees
Solar photovoltaic module	260,265 Wp & 270 Wp Modules of make - Talesun/GCL
No. of modules	243816
Total Number of Invertors	20
Transformer numbers and KVA ratings	10 x 5 MVA & 2 x 25MVA
Central inverters of nominal AC power output, KVA rating , make etc	(360V AC, 2.5 MWp, Inverter make:-Sungrow)
Technical & Operational Lifetime	25 years
ACME PV Powertech Private Limited	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 25

	degrees and 3 degrees
Solar photovoltaic module	265,270 Wp & 275 Wp Modules of make - Risen/Byd/GCL
No. of modules	234936 Installation WIP
Total Number of Invertors	20
Transformer numbers and KVA ratings	10 x 5 MVA & 2 x 20/25MVA
Central inverters of nominal AC power output, KVA rating , make etc	(360V AC,2.5 MWp, Inverter make:-Sungrow)
Technical & Operational Lifetime	25 years
Devishi Renewable Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 20 degrees and 3 degrees
Solar photovoltaic module	255Wp & 260 Wp Modules of make -Byd
No. of modules	60144
Total Number of Invertors	12
Transformer numbers and KVA ratings	1 x 4.5 MVA & 2 x 4MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
Devishi Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 20 degrees and 3 degrees
Solar photovoltaic module	255Wp & 260 Wp Modules of make -Byd
No. of modules	60144
Total Number of Invertors	12
Transformer numbers and KVA ratings	1 x 4.5 MVA & 2 x 4 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1 MWp, Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
Sunworld Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Photovoltaic modules on Fixed Tilt at 15 degrees and 3 degrees
Solar photovoltaic module	260Wp & 265 Wp Modules of make -Byd
No. of modules	58512
Total Number of Invertors	12
Transformer numbers and KVA ratings	1 x 4.5 MVA & 2 x 4MVA
Central inverters of nominal AC power output, KVA rating , make etc	(380V AC,1 MWp,Inverter make:-TBEA)
Technical & Operational Lifetime	25 years
ACME Solar Power Technology Private Ltd	
Technical detail of the equipment	**Remark**

Technology	Photovoltaic modules on Fixed Tilt at 15 degrees and 3 degrees
Solar photovoltaic module	265 Wp &270 Wp Modules of make GCL/Yingli
No. of modules	216095 Installation WIP
Total Number of Invertors	20
Transformer numbers and KVA ratings	9 x 5MVA , 2 x 2.5MVA & 2 x 20/25 MVA
Central inverters of nominal AC power output, KVA rating , make etc	(360V AC,2.5 MWp, Inverter make:-Sungrow)
Technical & Operational Lifetime	25 years
ACME Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	
Technical detail of the equipment	**Remark**
Technology	Poly-SI
Solar photovoltaic module	Trina Solar (320Wp, 325Wp, 330Wp)
No. of modules	41880
Total Number of Invertors	08
Transformer numbers and KVA ratings	1 transformer 50KVA (Make-Powerware), 2 transformer 5000KVA (Make-AUM)
Central inverters of nominal AC power output, KVA rating , make etc	Make- Tbea, PV power- 3500KWp, Max DC voltage-1000V, MPPT volt. 550-950V, Rated AC power- 2500KW, Rated AC voltage- 380V,
Technical & Operational Lifetime	25 years
ACME Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	Talesun & ZnShine- make (rated 325 W, 320 W and 315 Watts)
No. of modules	42120
Total Number of Invertors	04 Nos. (2500 kW*4)
Transformer numbers and KVA ratings	02 Nos., 5000 kVA each
Central inverters of nominal AC power output, KVA rating , make etc	2500 kW, TBEA- make
Technical & Operational Lifetime	25 years
ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	BYD-260W/265W
No. of modules	1) Jollywood: 18300 modules , 2) Trina :21200 TOTAL: 39500
Total Number of Invertors	52368 No's
Transformer numbers and KVA ratings	Make-Tbea, AC OutPut Power-1250KW
Central inverters of nominal AC power output, KVA rating , make etc	Sr.No's;20329,20330 Rating:33kv/380v

Technical & Operational Lifetime	25 years
ACME Mahbubnagar Solar Energy Pvt Ltd-3 (PADMAJIWADI)	
Technical detail of the equipment	**Remark**
Technology	1) Jollywood :- Monocrystalline 2) Trina :- Polycrystalline
Solar photovoltaic module	1. JOLLYWOOD : 370 Wp :- Voc = 47.7V,Isc = 9.98A 2. TRINA : a. 320wp = Voc = 47.7V,Isc = 9.98A b. 325wp = Voc = 45.6V,Isc = 9.19A c. 330Wp = Voc = 45.5V,Isc = 9.15A
No. of modules	1) Jollywood: 18300 modules , 2) Trina :21200 TOTAL: 39500
Total Number of Invertors	8
Transformer numbers and KVA ratings	02 Numbers and 5000 KVA,33KV/(380V*2)
Central inverters of nominal AC power output, KVA rating , make etc	MAKE : TBEA , Model : TC 1250KH-M , Rated output Power :1250 KW , Voltage : 380v AC , Currents :1899 Amps
Technical & Operational Lifetime	25 years
ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	BYD -250W,260W and 265MW
No. of modules	51960
Total Number of Invertors	8
Transformer numbers and KVA ratings	2 No's , 5MVA, Make - AUM
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Vijayapura Solar Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	ZN shine, Resin,Trina solar (315Wp,320Wp, 325Wp, 330Wp)
No. of modules	167600
Total Number of Invertors	32
Transformer numbers and KVA ratings	01 Nos. Power Transformer- 40000KVA 07 Nos. Inverter Transformer- 5000 KVA 02 Nos. Inverter Transformer- 2500 KVA
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Bhiwadi Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	Resin, ZN shine (315 Wp, 320 Wp, 325 Wp)

No. of modules	207600
Total Number of Invertors	20
Transformer numbers and KVA ratings	04 Nos. Inverter Transformer- 10000KVA 02 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	2500KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Hisar Solar Power Private Limited	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	Telsun, Resin, ZN shine, Adani (320 Wp, 325 Wp, 330 Wp)
No. of modules	206360
Total Number of Invertors	20
Transformer numbers and KVA ratings	04 Nos. Inverter Transformer- 10000KVA 02 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	2500KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Babadham Solar Power Private Limited	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	ZN shine, Yngli,Resin,Trina solar (315Wp,320Wp, 325Wp)
No. of modules	168240
Total Number of Invertors	32
Transformer numbers and KVA ratings	01 Nos. Power Transformer- 40000KVA 08 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Kaithal Solar Power Private Limited	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	ZN shine, Yngli,Trina solar (320Wp, 325Wp)
No. of modules	16731632
Total Number of Invertors	32
Transformer numbers and KVA ratings	01 Nos. Power Transformer- 40000KVA 08 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
Acme Rewari Solar Power Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline

Solar photovoltaic module	Trina, Resin (320Wp, 325Wp, 330Wp)
No. of modules	207040
Total Number of Invertors	40
Transformer numbers and KVA ratings	02 Nos. Power Transformer- 25000KVA 10 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
Acme Kurukshetra Solar Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	Trina, Resin (320Wp, 325Wp, 330Wp)
No. of modules	208520
Total Number of Invertors	40
Transformer numbers and KVA ratings	02 Nos. Power Transformer- 25000KVA 10 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Karnal Solar Power Private Limited	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	Telsun, Resin, ZN shine, Adani (320 Wp, 325 Wp, 330 Wp)
No. of modules	206360
Total Number of Invertors	20
Transformer numbers and KVA ratings	04 Nos. Inverter Transformer- 10000KVA 02 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	2500KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Koppal Solar Energy Private Limited	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	ZN shine, Yngli,Resin,Trina solar (315Wp,320Wp, 325Wp)
No. of modules	168240
Total Number of Invertors	32
Transformer numbers and KVA ratings	01 Nos. Power Transformer- 40000KVA 08 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	1250KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Rewa Solar Energy Pvt Ltd	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline

Solar photovoltaic module	Telsun, Resin, ZN shine, Adani (320 Wp, 325 Wp, 330 Wp)
No. of modules	400000
Total Number of Invertors	20
Transformer numbers and KVA ratings	04 Nos. Inverter Transformer- 10000KVA 02 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	2500KVA, TBEA
Technical & Operational Lifetime	25 years
ACME Chittorgarh Solar Energy Pvt. Ltd	
Technical detail of the equipment	**Remark**
Technology	Polycrystalline
Solar photovoltaic module	Telsun, Resin, ZN shine, Adani (320 Wp, 325 Wp, 330 Wp)
No. of modules	400000
Total Number of Invertors	20
Transformer numbers and KVA ratings	04 Nos. Inverter Transformer- 10000KVA 02 Nos. Inverter Transformer - 5000 KVA
Central inverters of nominal AC power output, KVA rating , make etc	2500KVA, TBEA
Technical & Operational Lifetime	25 years

1.9 Project Location

The project activity is located in the Indian states of Telangana, Uttarakhand, Karnataka, Andhra Pradesh and Rajasthan.

Activity Instances	Village	District	State	Name of the SPVs	Latitude	Longitude
01	Jagathiyal	Karimnagar	Telangana	Sunworld Solar Power Pvt Ltd	18.8 N	78.9 E
	Siricilla	Karimnagar	Telangana	ACME Ranga Reddy Solar Power Pvt Ltd	18.4 N	78.8 E
	Annathsagar,	Medak	Telangana	ACME Medak Solar Energy Pvt Ltd	18.1 N	78.3 E
	Beeravelly	Adilabad	Telangana	ACME Nizamabad Solar Energy Pvt Ltd	19.1 N	78.3 E
	AnanthaSagar	Medak	Telangana	ACME PV Powertech Private Limited (Sadashivpet)	17.62 N	77.95 E
	Bhongir	Nalgonda	Telangana	ACME Solar Power Technology Private Limited	17.50 N	78.88 E
	Pavgada	Tumkur	Karnataka	Acme Rewari Solar Power Pvt Ltd	14.2 N	77.5 E
	Pavgada	Tumkur	Karnataka	Acme Kurukshetra Solar Energy Pvt Ltd	14.2 N	77.5 E
	Bhiwadi	Kadapa	Andhra Pradesh	ACME Bhiwadi Solar Power Pvt Ltd	14.0 N	78.50 E
	Hisar	Kadapa	Andhra Pradesh	ACME Hisar Solar Power Private Limited	14.0 N	78.50 E
	Karnal	Kadapa	Andhra Pradesh	ACME Karnal Solar Power Private Limited	14.0 N	78.50 E
	Chitaguppa	Kaithal	Karnataka	ACME Kaithal Solar Power Private Limited	17.7 N	77.2 E
	Amaravati	Raichur	Karnataka	ACME Babadham Solar Power Private Limited	16.0 N	76.9 E

	Bidi	Belagavi	Karnataka	ACME Koppal Solar Energy Private Limited	15.5 N	74.6 E
	Malchapur	Bidar	Karnataka	ACME Vijayapura Solar Energy Pvt Ltd	17.9 N	77.4 E
	Bhadla	Jodhpur	Rajasthan	ACME Rewa Solar Energy Pvt Ltd	27.46 N	71.97 E
	Bap, Bhadla	Jodhpur	Rajasthan	ACME Chittorgarh Solar Energy Pvt. Ltd	27.50 N	71.99 E
02	Kalvasrirampur	Karimnagar	Telangana	ACME Karimnagar Solar Power Pvt Ltd	18.5 N	79.5 E
03	Manthini	Karimnagar	Telangana	Purvanchal Solar Power Pvt Ltd	18.65 N	79.7 E
04	Jangaon	Karimnagar	Telangana	Rewanchal Solar Power Pvt Ltd	17.7 N	79.2 E
05	Gudhur	Karimnagar	Telangana	Neemuch Solar Power Pvt Ltd	18.9 N	78.60 E
06	Nandipet	Karimnagar	Telangana	ACME Fazilka Power Pvt Ltd (Nandipet)	18.9 N	78.1 E
07	Lingampet Bayampally	Nizamabad	Telangana	ACME Narwana Solar Power Pvt Ltd (Lingampet)	18.24 N	78.13 E
08	Mallaram	Karimnagar	Telangana	ACME Warangal Solar Power Pvt Ltd	18.02 N	79.28 E
09	Kailashpuri, Gadarpur	Udham Singh Nagar	Uttarakhand	Devishi Renewable Energy Pvt Ltd	29 N	79.2 E
10	Kailashpuri, Gadarpur	Udham Singh Nagar	Uttarakhand	Devishi Solar Power Pvt Ltd	29 N	79.2 E
11	Ratanpura	Udham Singh Nagar	Uttarakhand	Sunworld Energy Pvt Ltd	29.2 N	79.1 E
12	Kalwakurthy	Mehboobnagar	Telangana	Acme Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	16.4 N	77.6 E
13	Mothkur	Yadadri	Telangana	Acme Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)	16.4 N	77.6 E
14	Kalwakurthy	Mehboobnagar	Telangana	ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)	16.4 N	77.6 E
15	Kalwakurthy	Mehboobnagar	Telangana	ACME Mahbubnagar Solar Energy Pvt Ltd-3 (PADMAJIWADI)	16.4 N	77.6 E
16	Nagaram	Peddapally	Telangana	ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)	18.69 N	79.63 E

Click here for Google Map of this Project activity.

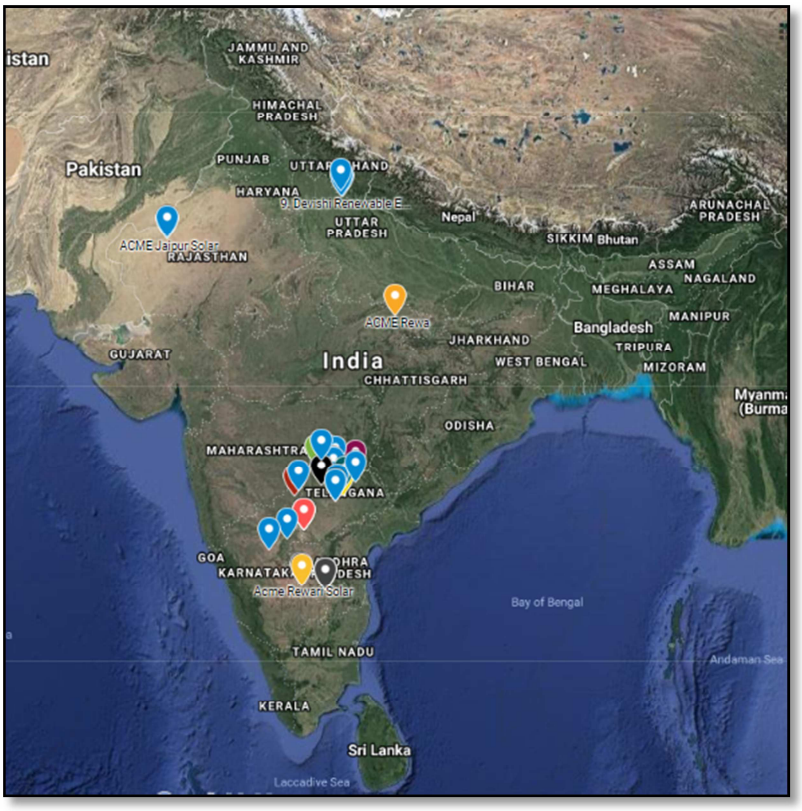

Figure 1. Project Geo Location

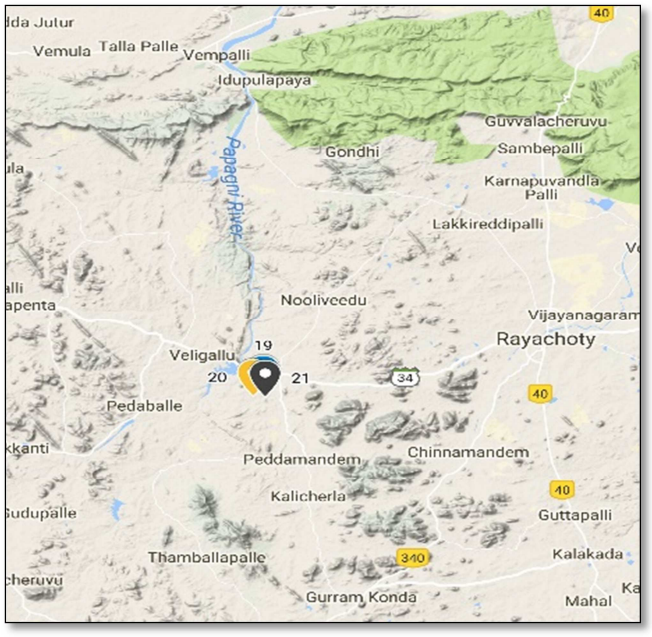

Figure 2. Andhra Pradesh

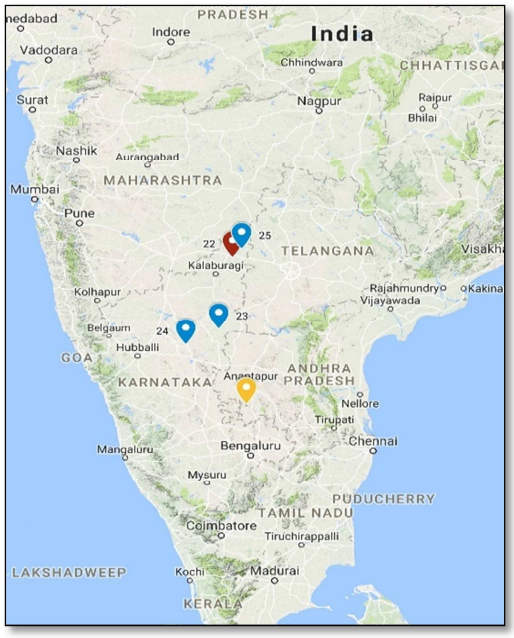

Figure 3. Karnataka

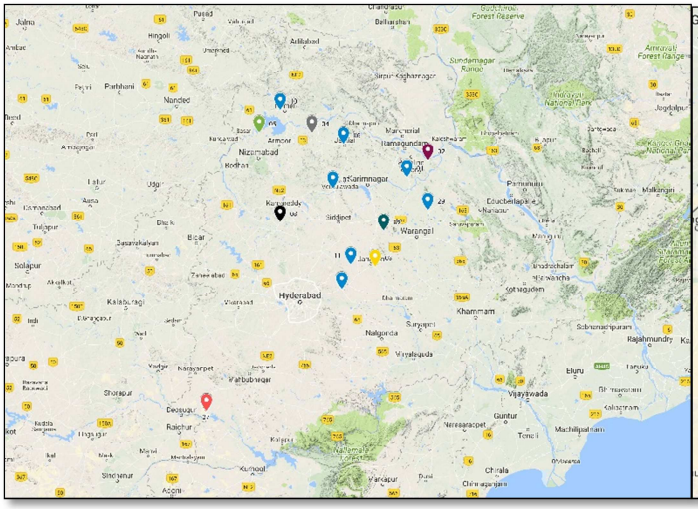

Figure 4. Telangana

Figure 5. Uttarakhand

Figure 6. Rajasthan

1.10 Conditions Prior to Project Initiation

The project is a Greenfield solar power project and does not involve generation of GHG emissions for the purpose of their subsequent reduction, removal or destruction. Prior to the initiation of the project activity, the equivalent amount of electricity would have been drawn from grid connected or new power plants, in Indian Grid. The grid is predominantly coal based and therefore is a major source of carbon dioxide emissions in India. The main emission in the pre project scenario is the power plants connected to the Indian Grid, and main GHG involved is CO_2. The baseline identified in section 2.4 is same as the pre-project scenario.

1.11 Compliance with Laws, Statutes and Other Regulatory Frameworks

The Project has received necessary approvals for development and commissioning for each PV Plant from the state Nodal agencies and is in compliance to the local laws and regulations.

The relevant national laws and regulations pertaining to generation of energy in India are:

- Electricity Act 2003

- National Electricity Policy 2005
- Tariff Policy 2006

The Project activity conforms to all the applicable laws and regulations in India:

- Power generation using solar energy is not a legal requirement or a mandatory option.
- There are state and sectoral policies, framed primarily to encourage solar power projects. These policies have also been drafted realizing the extent of risks involved in the projects and to attract private investments.
- The Indian Electricity Act, 2003 (May 2007 Amendment) does not influence the choice of fuel used for power generation.
- There is no legal requirement on the choice of a particular technology for power generation.

1.12 Ownership and Other Programs

1.12.1 Project Ownership

The renewable energy technology installed at site of each of the project activities as part of the proposed project activity are under ownership of respective SPV/Project Proponent. These SPVs are a part of ACME Cleantech Solutions Private Limited. The Power Purchase Agreement (PPA) for the project activity and commissioning certificate for project activity are the supporting documents to demonstrate the project ownership.

This demonstrates the right of use according to clause 3.11.1 (3) of VCS Standard (v3.7) – "a project ownership arising by virtue of a statutory, property or contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals".

1.12.2 Emissions Trading Programs and Other Binding Limits

The grouped project activity under consideration is not participating in any other Emission trading programme and other binding limits.

The all project activity instances are 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.

1.12.3 Other Forms of Environmental Credit

The proposed grouped 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 instances are 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.

1.12.4 Participation under Other GHG Programs

The proposed grouped project activity has not been registered and is not seeking registration at moment under any other GHG programs.

The initial project activity instances are not participating in any other GHG program.

1.12.5 Projects Rejected by Other GHG Programs

The proposed grouped project activity is not participating in other Environmental credits, other GHG programs and has not been rejected by other GHG programs.

The initial project activity instances are not participating in other Environmental credits, other GHG programs and have not been rejected by other GHG programs.

1.13 Additional Information Relevant to the Project

Eligibility Criteria

The project is a grouped project and following are the eligibility criteria for inclusion of new project activity instances into the grouped project activity:

1) Applicability Conditions: The project activity instances shall meet applicability conditions for applicable methodology (either AMS I.D version 18.0 or ACM0002 Version 19.0) as defined in section 2.2

2) Geographical Area: The project activity instances to be included in the grouped project activity will be activities involving renewable electricity generation power plants with grid connection using solar technology located within India

3) Baseline scenario: All Project Activity Instances shall meet the baseline definition as defined in respective methodology and as explained in section 2.4

4) Technology type: The project activity instances to be included in the grouped project activity will be Greenfield activities involving renewable electricity generation power plants with grid connection using solar technology.

5) Additionality: The project activity instances to be added as part of the grouped project will meet additionality criteria as set out in the methodology.

For small scale project activity instances - As per Guidelines on the Methodological Tool for the demonstration of additionality of small- scale project activities - Version 12.0.0 (EB 99, Annex 3), a positive list of grid-connected renewable electricity generation technologies are listed that are automatically defined as additional, without further documentation of barriers.

The positive list comprises of the following grid-connected renewable electricity generation technologies of installed capacity up to 15 MW:

1) Solar technologies (photovoltaic and solar thermal electricity generation);
2) Off-shore wind technologies;
3) Marine technologies (wave, tidal).
4) Building-integrated wind turbines or household rooftop wind turbines of a size up to 100 kW;

Since the small scale project activity instances involve solar photovoltaic electricity generation projects, it can be concluded from the above list that this project activity is automatically additional and does not require demonstration of barriers.

For large scale project activity instances: For large scale project activity instances, investment analysis will be followed and additionality tool “Tool for the demonstration and assessment of additionality” and methodological tool “Investment Analysis” will be used.

Thus each project activity instance will follow consistent characteristics in terms of additionality based on scale of project activity instances.

6) Start Date: The start date of each project activity instance under the grouped project should not be prior to the start date of the grouped project. The start date of each project activity instance will be determined through documentary evidence.

7) Conditions that avoid double counting of emission reductions like unique identifications of project and claiming emission reduction only under one GHG program.

8) The Grouped Project specific requirements stipulated by the Entity responsible for coordinating and managing grouped project for conducting local stakeholder consultations and environmental impact assessment (EIA), as applicable.

9) The project activity using solar project will supply electricity to grid or to users through grid network.

The following table demonstrates how the initial project activity instances being included in the grouped project activity fulfil above mentioned eligibility conditions:

Sr. No	Eligibility Criteria	Project Activity instances eligibility
1	**Applicability Conditions**: The project activity instances shall meet applicability conditions for applicable methodology (either AMS I.D version 18 or ACM0002 Version 19.0) as defined in section 2.2	All initial project activity instances meet respective applicability conditions of methodology ACM0002 Version 19.0 (for project activity instances having capacity greater than 15 MW) and AMS I.D Version 18.0 (for project activity instances having capacity less than 15 MW), hence this eligibility criteria is fulfilled. Please refer section 2.2 of this document for applicability criteria.
2	**Geographical Area**: The project activity instances to be included in the grouped project activity will be activities involving grid connected renewable electricity generation using solar technology located within India.	All initial project activity instances being included in the grouped project are located within geographic boundaries of India. Hence this condition is fulfilled. Please refer commissioning certificate, PPA for Geographical area of project activity.
3	**Baseline scenario:** All Project Activity Instances shall meet the baseline definition as defined in respective methodology and as explained in section 2.4	All initial project activity instances have same baseline as per methodology as detailed in subsequent sections. Hence this eligibility criterion is fulfilled. Please refer section 2.4 of this document for baseline scenario.
4	**Technology type:** The project activity instances to be included in the grouped project activity will be Greenfield activities involving grid connected renewable electricity generation using solar PV technology. The electricity should be supplied to grid, or to third party or to be used for captive purpose etc.	All initial project activity instances being included in the grouped project activity are solar PV power plants connected to grid and are green field activities. The generated electricity is supplied to grid. Hence this condition is fulfilled. Please refer PO / Commissioning certificate/PPA for the technology of project activity.
5	**Additionality:** The project activity instances to be added as part of the grouped project will meet additionality criteria as set out in	The first project activity instance being included in grouped project activity is large scale projects and their additionality is demonstrated as discussed in section 2.5 of this document.

	respective methodologies - for Small Scale Project instances the methodology applicable will be AMS-I.D and for Large Scale Project instances methodology applicable will be ACM0002. For small scale project, project activity instance will be auto additional. For large scale projects - investment analysis will be followed and additionality tool and methodological tool "Investment Analysis" will be used.	The project activity instance 2 to 16 are small scale project and is auto additional as discussed in section 2.5 of this document. Hence this condition is fulfilled. Please refer section 2.5 of this document for additionality.
6	**Start Date:** The start date of each project activity instance under the grouped project should not be prior to the start date of the grouped project. The start date of each project activity instance will be determined through documentary evidence.	The start date of grouped project is considered as 10/02/2017 which is commissioning date of project activity instance Sunworld Energy Pvt Ltd and start date of all other project activity instances is after this date. Hence this condition is fulfilled. Please refer section 1.5 of this document or commissioning certificate for start date of grouped project activity.
7	Conditions that avoid double counting of emission reductions like unique identifications of project and claiming emission reduction only under one GHG program.	For initial project activity instances being included in grouped project activity, PP declaration has been provided and these project activity instances are not participating in any other GHG program. Hence this condition is fulfilled. Please refer PP declaration for no double accounting of GHG emission reductions.
8	The Grouped Project specific requirements stipulated by the Entity responsible for coordinating and managing grouped project for conducting local stakeholder consultations and environmental impact assessment (EIA), as applicable	For initial project activity instances being included in grouped project activity, EIA and local stakeholder consultation has been performed, the details of the event has been detailed in section 5.3
9	The project activity using solar PV project will supply electricity to grid or to users through grid network.	For initial project activity instances being included in grouped project activity, are supplying electricity to grid. Please refer PPA of the project activity for same.

Leakage Management

Since the project activity instances to be included into the grouped project activity are renewable energy projects based on solar technology, no leakage emissions are considered.

Thus leakage management plan and implementation of leakage and risk mitigation measures are not applicable for this grouped project activity.

Commercially Sensitive Information

Not applicable. No any commercially sensitive information has been excluded from the public version of the project description. There is no commercially sensitive information.

Sustainable Development

Contribution to sustainable development:

Apart from generation of renewable electricity, the grouped project activity and project activity instances proposed to be included under it would contribute to the sustainable development of the region - socially, environmentally and economically. Ministry of Environment and Forests, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. The project contributes to sustainable development using the following ways.

- **Social well-being:** The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation.

- **Economic well-being:** The project is a clean technology investment in the region, which would not have been taken place in the absence of the VCS benefits the project activity will also help to reduce the demand supply gap in the state. The project activity creates local employment generation which helps economic well-being of local people.

- **Technological well-being:** The successful operation of project activity would lead to promotion of solar based power generation and would encourage other entrepreneurs to participate in similar projects

- **Environmental well-being**: Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions.

Further Information

Not Applicable.

2 APPLICATION OF METHODOLOGY

2.1 Title and Reference of Methodology

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

Methodology: ACM0002
Project Type: Type-I: Renewable Energy Projects
Title: Grid-connected electricity generation from renewable sources
Version No.: Version 19.0;
Reference: CDM Methodology[4]

The methodology refers to following CDM Tools:

- Tool for the demonstration and assessment of additionality[5] (Version 07.0.0, EB 70, Annex 8)
- Tool to calculate the emission factor for an electricity system[6] - (Version 07.0 EB 100, Annex 04)

[4] http://cdm.unfccc.int/UserManagement/FileStorage/58IAGB7SZUDEO2VN6LYM30K41HFPRQ

[5] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

The methodology for small scale project activity instances will be the approved methodology for small-scale CDM project activities. The details of the methodology are as follows:

Methodology: AMS I.D
Project Type: Type-I: Renewable Energy Projects
Title: Grid connected renewable electricity generation
Version No.: Version 18;
Reference: CDM Methodology[7]

The methodology refers to following CDM Tools:

- Tool to calculate the emission factor for an electricity system[8] - (Version 07.0 EB 100, Annex 04)

2.2 Applicability of Methodology

The project activity under the project activity will meets the applicability conditions of the approved consolidated baseline and monitoring methodology ACM0002, Version 19.0, Sectoral Scope 1, as described below:

Applicability Criterion	Project Case
This methodology is applicable to grid-connected renewable power generation project activities that: • install a Greenfield power plant; • involve a capacity addition to (an) existing plant(s); • involve a retrofit of (an) existing operating plants/units; • involve a rehabilitation of (an) existing plant(s)/unit(s) or • involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a Renewable Energy Project i.e. Solar Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". Hence the project activity meets the given applicability criterion.
The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The proposed project activity is installation of a new grid connected solar renewable energy power plant and hence this condition is met.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	The proposed project activity does not involve any capacity additions, retrofits or replacements and therefore this condition is not applicable.
In case of hydro power plants, one of the following conditions shall apply: • The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or	The proposed project activity under project activity is a grid connected solar renewable energy power project. This condition is applicable only for hydro power plants and not applicable for solar projects.

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

[7] https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK

[8] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

• The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m^2; or • The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m^2.	Hence this criterion is not applicable.
The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m^2, all of the following conditions shall apply: • The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m^2; • Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; • Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be; ✓ Lower than or equal to 15 MW; and ✓ Less than 10 per cent of the total installed capacity of integrated hydro power project.	The proposed project activity under project activity is a grid connected solar renewable energy power project. This condition is applicable only for hydro power plants and not applicable for solar projects.
In the case of integrated hydro power projects, project proponent shall: • Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or • Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The proposed project activity is a grid connected solar renewable energy power project. This condition is applicable only for hydro power plants and not applicable for solar projects.
Methodology is not applicable to the following • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; • Biomass fired power plants/units	The proposed project activity is the installation of a new grid connected solar renewable energy power project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the project activity. This project activity does not involve any biomass based power plants and hence this criterion is not applicable to the project activity.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the	The proposed project activity is a new grid connected solar renewable energy power plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.

power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	
Applicability conditions of "Tool to calculate the emission factor for an electricity system"	
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	This condition is applicable. OM, BM and CM are estimated using the tool for calculating baseline emissions.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	Since project activity is grid connected, this condition is applicable and the emission factor has been calculated accordingly.
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity is located in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.
Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	Each project activity is grid connected renewable energy project and CO_2 emission factor is not considered for biofuels.

Tool to calculate the emission factor for an electricity system[9] - Version 07.0 (EB 100, Annex 04)

Applicability Criterion	**Project Case**
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project is a grid connected Greenfield solar power project and thus the tool is applicable.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are	Steps involved in calculation of Emission Factor is included in section B.6.3 of the PDD as per the requirement of the tool

[9] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

Applicability Criterion	Project Case
primarily due to constraints in generation and not to other aspects such as transmission capacity.	
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project is located in non-Annex I country and hence the tool is applicable
Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	The project is a solar project and there is no involvement of biofuels.

The small Scale project activity instances under grouped project activity will meets the applicability conditions of the approved consolidated baseline and monitoring methodology AMS I.D, Version 18.0, Sectoral Scope 1, as described below

Applicability	Project activity vis-à-vis applicability Conditions
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid. (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity is a Renewable Energy Project i.e. Solar Photo Voltaic Power Project which falls under applicability criteria option 1(a) or option 1 (b). Hence the project activity meets the given applicability criterion.
2. Illustration of respective situations under which each of the methodology (i.e. "AMS-I.D.: Grid connected renewable electricity generation", "AMS-I.F.: Renewable electricity generation for captive use and mini-grid" and "AMS-I.A.: Electricity generation by the user) applies is included in the appendix[10].	The 1st option or 3rd option (of Table 2 of AMS I.D. Version 18, EB 61 is applicable (please refer footnote) as project supplies electricity to national grid.
3. This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	The project activity instance is installation of new solar based electricity generation green field plants (not addition to existing system). Option "a" is applicable.
4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is	The project is solar power project and thus the criterion is not applicable to this project activity.

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	Project type	AMS-I.A	AMS-I.D	AMS-I.F
1	Project supplies electricity to a national/regional grid		√	
2	Project displaces grid electricity consumption (e.g. grid import) and/or captive fossil fuel electricity generation at the user end (excess electricity may be supplied to a grid)			√
3	Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)		√	
4	Project supplies electricity to a mini grid[10] system where in the baseline all generators use exclusively fuel oil and/or diesel fuel			√
5	Project supplies electricity to household users (included in the project boundary) located in off grid areas	√		

greater than 4 W/m^2; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m^2.	
5. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The small scale project activity instances involves only renewable component with capacity less than 15 MW. Unit does not co-fire fossil fuels. Hence the criterion is not applicable to the project activity.
6. Combined heat and power (co-generation) systems are not eligible under this category.	The Project activity is a renewable solar energy project and is not a combined heat and power system. Hence the criteria is not applicable to the project activity
7. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct [11] from the existing units.	The project activity is Greenfield and there is no existing power generation facility at the site. Hence the criteria is not applicable to the project activity
8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	Not applicable, the solar project is a Green field project activity and this project is not the enhancement or up gradation project.
9. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	The Project activity is a renewable solar Photovoltaic power project and is not a landfill gas, waste gas, waste water treatment and agro-industries projects or recovered methane emissions project. Hence the criteria is not applicable to the project activity
10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The Project activity is a renewable solar Photovoltaic power project and is not a biomass project. Hence the criterion is not applicable to the project activity.

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

  Applicability Criteria has been demonstrated in section on additionality below.

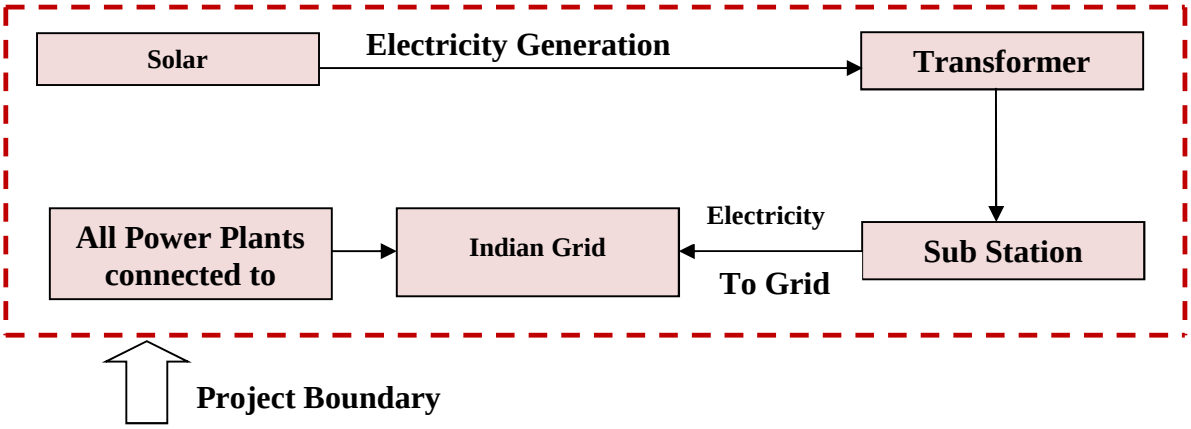
The project activity qualifies as Type I during every year of the crediting period in accordance with applicable provisions for project activity eligibility as discussed above. Also the total installed capacity of project activity is 1,207.5 MW consisting of small scale and large scale project activity instances and respective methodology will be applicable for that project activity instances.

[11] Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered "physically distinct".

2.3 Project Boundary

As per AMS I.D, Version 18.0 and ACM0002 version 19.0 - "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to".

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



The GHG emission sources considered for the project boundary and their explanations are as follows:

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Other	No	No CO_2 emissions are emitted from the project
Project	Greenfield Solar Power Project Activity.	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	Project activity does not emit other forms of GHG emissions

2.4 Baseline Scenario

As per the applicable methodology, a Greenfield power plant is defined as "a new renewable energy power plant that is constructed and operated at a site where no renewable energy power plant was operated prior to the implementation of the project activity".

As per AMS I.D, Version 18.0 and ACM0002 version 19.0; *"Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".*

Hence, the baseline for the project activity is the equivalent amount of power from the INDIAN grid.

The combined margin ($EF_{grid,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) (having weightage 75%) and build margin (BM) (having weightage 25%). Calculations for this combined margin must be based on data from an official source of CEA database (where available) and made publically available.

The combined margin of the INDIAN National Grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,CMy}$	0.9475 tCO_2/MWh	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO_2 Emission Database, Version 13.0, June 2018 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9726 tCO_2/MWh	Operating margin CO_2 emission factor for the project electricity system in year y	Calculated as the last 3 year (2014-15, 2015-16, 2016-17) generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 13.0, June 2018 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8723 tCO_2/MWh	Build margin CO_2 emission factor for the project electricity system in year y	Baseline CO_2 Emission Database, Version 13.0, June 2018 published by Central Electricity Authority (CEA), Government of India

2.5 Additionality

Additionality Assessment for small scale project activity Instances

As per Guidelines on the Methodological Tool for the demonstration of additionality of small- scale project activities[12] - Version 12.0.0 (EB 99, Annex 3), a positive list of grid-connected renewable electricity generation technologies are listed that are automatically defined as additional, without further documentation of barriers.

The positive list comprises of the following grid-connected renewable electricity generation technologies of installed capacity up to 15 MW:

1. Solar technologies (photovoltaic and solar thermal electricity generation);
2. Off-shore wind technologies;
3. Marine technologies (wave, tidal).
4. Building-integrated wind turbines or household rooftop wind turbines of a size up to 100 kW;

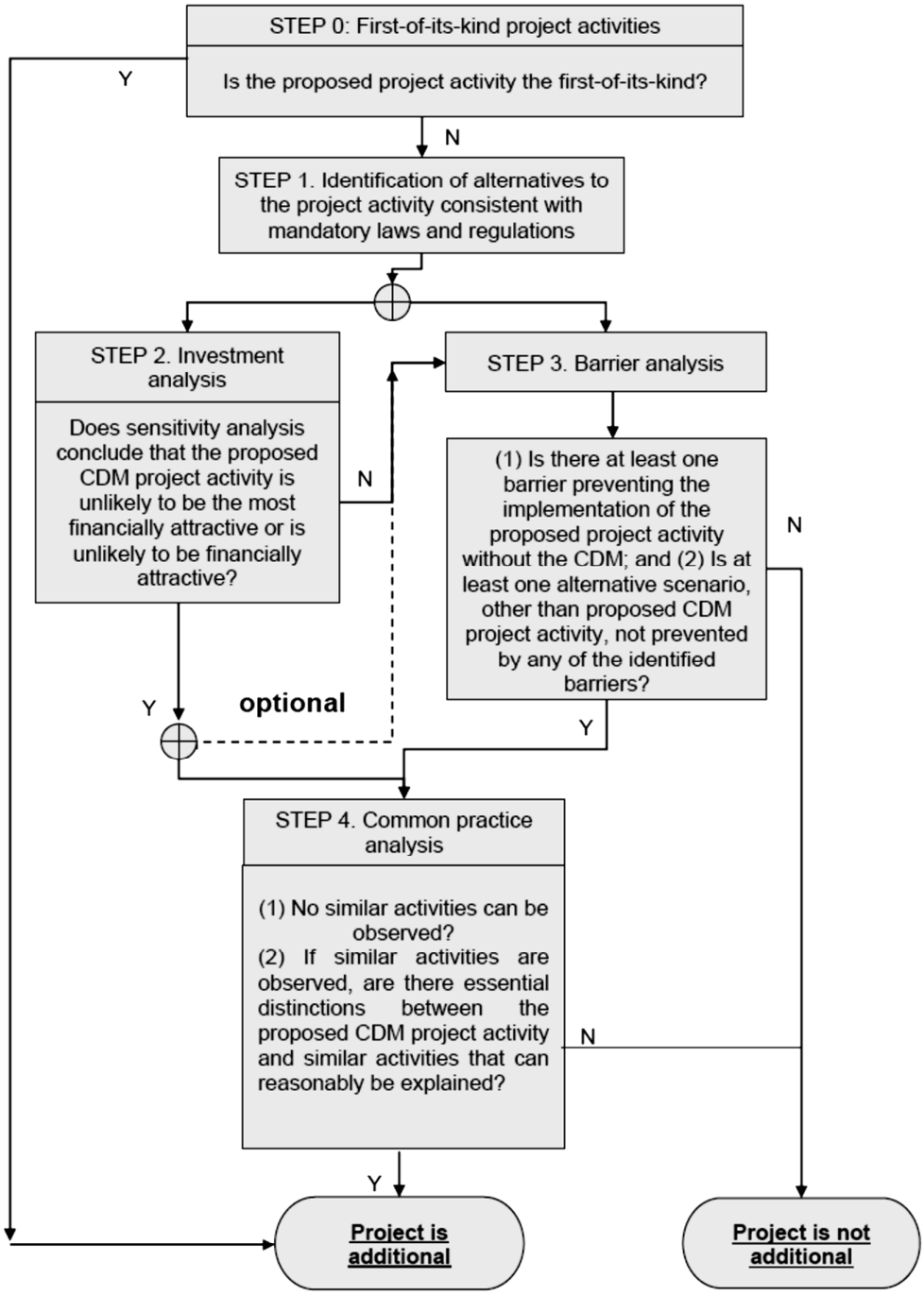
Since the project activity instances is a solar photovoltaic electricity generation project of capacity less than 15 MW, it can be concluded from the above list that the project activity is automatically additional and does not require demonstration of barriers.

[12] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v12.pdf

Thus, it is well established that the proposed small scale project activity instances are auto additional.

Additionality Assessment for large scale project activity Instances

The present VCS project generates power using solar energy which is a renewable, zero emission source of energy. Baseline considerations for the project are based on approved consolidated baseline methodology ACM0002 (Version 19.0). The methodology requires the project investor to determine the additionality based on "Methodological Tool- Tool for the demonstration and assessment of additionality", Version 7.0.0. The step-wise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs:



In line with VCS Standard version 3.7, the additionality of the Project activity is ascertained in line with the applicable guidance from the UNFCCC. The demonstration of additionality for the proposed Project activity is being carried out in accordance with the additionality tool provided by the UNFCCC i.e. "Tool for demonstration and assessment of Additionality" Version 07.0.0,. The tool provides a step-wise approach to demonstrate additionality which is displayed below:

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The proposed project activity is not the first-of-its-kind. Hence not applicable.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity:

Identify realistic and credible alternative(s) available to the project participants or similar project developers that provide outputs or services comparable with the proposed VCS project activity.

The purpose of the project activity is to generate electrical power using solar energy and feed the electricity generated to the grid. Hence, the following alternatives are considered:

Alternative 1: The proposed project activity not undertaken as a VCS project activity.

The PP could proceed with the implementation of the project without Carbon credit benefits. The electricity produced from the renewable energy project would have been sold to the grid. This is in compliance with all applicable legal and regulatory requirements and can be a part of the baseline. However, the Project activity is not feasible without revenues from sale of Carbon Credits. This argument has been discussed in step 2 of the Additionality section.

Alternative 2: No proposed project activity and equivalent amount of energy would have been produced by the grid electricity system through its currently running power plants and by new capacity addition to the grid i.e. Continuation of the present situation.

The PP would have continued without investment in Project activity with usual business activities. The grid would continue with the fossil fuel based power projects and this would result in GHG emissions. Hence, the new capacity add-on from a fossil fuel based power plant is appropriate, realistic & credible baseline alternative for the project activity.

Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above.

Thus though two alternatives are mentioned above as per step of additionality tool, the first alternative is not possible as project activity is not viable without carbon credit benefits and second alternative is the baseline scenario for the project activity as per methodology as mentioned in section 2.4 of joint VCS PD & MR.

It is to be noted that being the green field project activity, "the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

Sub-step 1b: Consistency with mandatory laws and regulations:

The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution. (This sub-step does not consider national and local policies that do not have legally-binding status.).

The relevant national laws and regulations pertaining to generation of energy in India are:

- Electricity Act 2003
- National Electricity Policy 2005
- Tariff Policy 2006

The Project activity conforms to all the applicable laws and regulations in India:

- Power generation using solar energy is not a legal requirement or a mandatory option.
- There are state and sectoral policies, framed primarily to encourage solar power projects. These policies have also been drafted realizing the extent of risks involved in the projects and to attract private investments.
- The Indian Electricity Act, 2003 (May 2007 Amendment) does not influence the choice of fuel used for power generation.
- There is no legal requirement on the choice of a particular technology for power generation.

Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity.

Step 2: Investment analysis

Determine whether the proposed project activity is economically or financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of emission reductions credits. To conduct the investment analysis, use the following sub-steps:

Sub-step 2a: Determine appropriate analysis method

The Project activity envisages to export the power to Indian grid and the revenues from the sale would be generated in accordance with the terms and tariffs established in the Power Purchase Agreement (PPA). Thus, simple cost analysis (Option I) cannot be used as the analysis method as the sale of the units of generated electricity shall result in a revenue stream during the operations of the Project activity.

In the absence of the project activity grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity.

After eliminating Option I and Option II, the use of Benchmark analysis (Option III) is the method of analysis that has been selected as the most suitable method. This method determines the attractiveness of the project activity for the investors, as well as provides a measure of the viability of the investment to generate revenues during its operation, as compared with other avenues and investment options. Hence, the Benchmark analysis method is to be employed for analysis of the said project.

Sub-step 2b (Option III): Apply benchmark analysis

The investment analysis using Benchmark analysis approach (Option III) has been chosen. Further, this method illustrates the evaluation of the Project by the PP before the decision to undertake the project was taken and management approval granted.

Choice of Financial Indicator:

According to the "Tool for demonstration and assessment of Additionality", *the financial indicator can be based either on (1) project IRR or (2) equity IRR. There is no general preference between the approaches (1) or (2). The benchmark chosen for analysis shall be fully consistent with the choice of approach.* Therefore in accordance with the guidance, the relevant financial indicator for project activity has been chosen as post tax equity IRR.

Choice of Benchmark:

As per Investment Analysis tool, Required/expected returns on equity are appropriate benchmarks for an equity IRR. The Equity IRR is considered as the financial indicator and the benchmarks used is cost of equity. Hence the benchmarks used are applicable to the project activity and the type of IRR calculation presented

At the time of decision made of project activity, Version 06 and version 07 of methodological tool "Investment Analysis" was the latest available tool for respective instance calculations, hence PP has considered the same tool for default value of return on equity. The default value of Return on Equity for Group-1 projects in India is 11.10%. The IRR calculations have been done as per the latest version of the Investment analysis tool.

As per paragraph 7 of Appendix A of the above mentioned document, "In situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used".

Default Value Benchmark:

The investment analysis has been carried out in Nominal terms. Accordingly, Default value has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India).
PP has calculated Benchmark based on WPI mean inflation rate. As per Para 17 of Appendix of EB 92, Annex 05, the inflation forecast should be for the duration of the crediting period. However, since RBI provides forecast inflation only for 5 & 10 years, the project investor has calculated benchmark using 10 years durations and the same is considered as Benchmark for the project activity.

The benchmark has been computed in the following manner:

Nominal Benchmark[13] = {(1+Real Benchmark)*(1+Inflation rate)}-1

Where,
Real Benchmark = 11.10% (as per Appendix of Annex 12, EB 85)
Inflation rate = Projected Inflation Rate for India in next 10 years (RBI Forecast)

[13]As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

Based on decision made for the large scale project activity, the inflation rate is taken from RBI forecast. Large scale project activity instance with investment decision date is tabulated below:

Project Activity instance	PP Name	MW	Investment Decision Date
01	Sunworld Solar Power Pvt Ltd	30	11-10-2017
	ACME Ranga Reddy Solar Power Pvt Ltd	30	01-11-2016
	ACME Medak Solar Energy Pvt Ltd	45	01-11-2016
	ACME Nizamabad Solar Energy Pvt Ltd	50	10-11-2016
	ACME PV Powertech Private Limited (Sadashivpet)	50	10-12-2016
	ACME Solar Power Technology Private Limited	50	10-12-2016
	ACME Rewari Solar Power Pvt Ltd	50	16-06-2017
	ACME Kurukshetra Solar Energy Pvt Ltd	50	16-06-2017
	ACME Bhiwadi Solar Power Pvt Ltd	50	17-12-2017
	ACME Hisar Solar Power Private Limited	50	17-12-2017
	ACME Karnal Solar Power Private Limited	50	17-12-2017
	ACME Kaithal Solar Power Private Limited	40	17-12-2017
	ACME Babadham Solar Power Private Limited	40	17-12-2017
	ACME Koppal Solar Energy Private Limited	40	17-12-2017
	ACME Vijayapura Solar Energy Pvt Ltd	40	17-12-2017
	ACME Rewa Solar Energy Pvt Ltd	100	15-04-2018
	ACME Chittorgarh Solar Energy Pvt. Ltd	250	15-04-2018

The calculations of benchmark and IRR calculations are prepared in excel spreadsheet and same is submitted to DOE. The Appendix 1 mentioned the result of IRR, Benchmark and sensitivity analysis.

Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III):

The Post tax Equity IRR is evaluated for the entire lifetime of the project activity, i.e. 25 years. It is calculated based on the cash outflows from and cash inflows into the project activity.
The IRR and Benchmark analysis are calculated in excel spreadsheet and same will be submitted to DOE during validation of project activity.

Based on result of IRR excel spreadsheets, equity IRR is less than Benchmark.

This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark). Thus it can be easily concluded that project activity is additional & is not business as usual scenario.

Sub-step 2d: Sensitivity Analysis

Addressing Guidance of EB 85, Annex 12, following factors has been subjected to sensitivity analysis:
1. PLF
2. O&M Cost
3. Project Cost
4. Tariff

The rationale of sensitivity is, "The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis."

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favourable conditions.

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per Third Party PLF report in line with **"Guidelines for the reporting and validation of Plant load factors" stated in EB48 Annex11 option 3(b)**. Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third Party Report based on long term data.
Sensitivity Parameter 2 : O&M
The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. Hence, the reduction in the O&M cost is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The actual project cost is lower than the DPR cost. Since the Purchase Order cost is firm, there is no possibility of project cost going below this level. However, Sensitivity is carried out for threshold level below which benchmark is not breached.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/-10% even then the benchmark is not breached.

Outcome of Step 2:

This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark Equity IRR) for any of the investor. Thus it can be easily concluded that project activity is additional & is not business as usual scenario.

Step 3: Barrier analysis

Barrier analysis has not been used.

Step 4: Common practice analysis

For the concerned project instances, the Common Practice Analysis has been carried out.

ACME Cleantech Solutions Private Limited as a parent company formed different SPV (Special Purpose Vehicles) for solar projects and projects are developed by name of SPVs. Thus common practise analysis has been carried out for the large scale bundled project activity instance 1.

The project activity involves generation of electricity from Solar energy. The project activity is located in the state of Andhra Pradesh, Telangana, Uttarakhand, Karnataka and Rajasthan in India and the policy applicable for the Solar power projects is regulated by State Electricity regulation Commission (SERC) of the respective state. The policies/tariff for each state is regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states. The projects implemented in different states are claimed as different since the

policies and regulations differ in each state. Hence Andhra Pradesh, Telangana, Karnataka, Uttarakhand and Rajasthan state is considered as Geographical area for the project activity.

Stepwise approach for common practice analysis has been carried out as per Methodological tool "Common Practice", version 03.1 EB84, Annex 7:

Step (1): Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity. Since grouped project activity instance 1 is of large scale, capacity of group instance 1 has been considered for the CPA analysis.

Range	Capacity	Unit
+50%	1,522.5	MW
Capacity of the proposed project activity	1,015.0	MW
-50%	507.5	MW

Step (2): Identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

(a) The projects are located in the applicable geographical area;

(b) The projects apply the same measure as the proposed project activity;

(c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;

(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;

(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;

(f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows:

a) As the projects are located in Rajasthan, Andhra Pradesh, Uttarakhand, Karnataka and Telangana state of India, therefore, projects in the geographical area of Rajasthan, Andhra Pradesh, Uttarakhand, Karnataka and Telangana have been chosen for analysis. The project activity involves generation of electricity from solar energy. The project activity is located in the different states in India and the policy applicable for the solar projects is regulated by respective state policy. The policies/tariff for each state is regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states. The project implemented in different states are claimed as different since the policies and regulations differ in each state. Each state have different policies regarding renewable energy, hence Rajasthan, Uttarakhand, Andhra Pradesh, Karnataka and Telangana state is considered as geographical region for common practise analysis.

b) The project activity is a green-field solar power project and uses measure (b) "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies". Therefore, projects applying same measure (b) are candidates for similar projects.

c) The energy source used by the project activity is solar energy. Hence, only solar PV projects have been considered for analysis.

d) The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.

e) The capacity range of the projects is within the applicable capacity range from 507.5 MW to 1522.5 MW.

f) The start date of the large scale project activity instance is 10-02-2017. Therefore projects, which have started commercial operation before 10-02-2017, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned condition are
N_{Solar} = 0

Above conclusion are based on publically available data by Ministry of New & Renewable Energy, Government of India for State wise commissioning status of grid connected Solar PV Power Projects is as on 31/03/2017 and for all project activity instances, the start date is before 31/03/2017[14] and this is a conservative approach. The start date of respective project activity instance is mentioned in CPA analysis excel sheet.

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all}.

CDM project activities, which have got registered or are under validation, have been excluded in this step. The list of the Solar PV projects identified is provided to the DOE.

N_{all} = 0

Step (4): Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff}.

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria:

1. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on this criteria, there are no any different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – For proposed project activity, there are no any different technology project considered out of similar identified projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating N_{diff} projects.

N_{diff} = 0

Step (5): Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

Calculate $F=1-N_{diff}/N_{all}$
$F = 1-(0/0) = 1$

As per methodological tool “common practise” version 03.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all}-N_{diff}$ is greater than 3.

Thus if both conditions are fulfilled, then project activity will be a common practise otherwise, the project activity is treated as not a common practise.

Outcome of Common Practise analysis:

[14] http://mnre.gov.in/file-manager/UserFiles/state-wise-commissioned-grid-connected-solar-power-projects.htm

As,

i. F = 1; is less than 0.2
ii. N_{all}-N_{diff} = 0; is not greater than 3

The project activity does not satisfy any of the above condition. Hence, project activity is not a common practice.

Thus, the proposed project activity is not a "common practice" within a sector in the applicable geographical area.

The above discussions show that Solar PV power development of such magnitude is not a common practice and the project activity is not financially attractive; hence the project activity is additional.

2.6 Methodology Deviations

Not Applicable

3 ESTIMATED GHG EMISSION REDUCTIONS AND REMOVALS

3.1 Baseline Emissions

As per the approved consolidated Methodology ACM0002 version 19.0 and AMS I.D. Version 18.0 that Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid- connected power plants. The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (tCO_2/yr)

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

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

As per methodology, combined grid emission factor as per the "Tool to calculate the emission factor for an electricity system" version 07 is calculated as below.

CO_2 Baseline Database for the Indian Power Sector, Version 13, May 2018[15] published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

As per the "Tool to calculate the emission factor for an electricity system" Version 07.0, EB 100, Annex 4, the following steps have been followed.

(a) **Step 1:** Identify the relevant electricity systems;

(b) **Step 2:** Choose whether to include off-grid power plants in the project electricity system (optional);

(c) **Step 3:** Select a method to determine the operating margin (OM);

(d) **Step 4:** Calculate the operating margin emission factor according to the selected method;

[15] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver13.pdf

(e) **Step 5:** Calculate the build margin (BM) emission factor;

(f) **Step 6:** Calculate the combined margin (CM) emission factor.

Step 1: Identify the relevant electricity systems

As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems". It also states that "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used". Keeping this into consideration, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into five regional grids viz. Northern, Eastern, Western, North-eastern and Southern.

However since August 2006, however, all regional grids except the Southern Grid had been integrated and were operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids were treated as a single grid named as NEWNE grid from FY 2007-08 onwards for the purpose of this CO_2 Baseline Database. As of 31 December 2013, the Southern grid has also been synchronised with the NEWNE grid, hence forming one unified Indian Grid. Since the project supplies electricity to the Indian grid, emissions generated due to the electricity generated by the Indian grid as per CM calculations will serve as the baseline for this project.

Table: Geographical Scope of Indian Electricity Grid

Northern	Eastern	Western	North-Eastern	Southern
Chandigarh	Bihar	Chhattisgarh	Arunachal Pradesh	**Andhra Pradesh**
Delhi	Jharkhand	Gujarat	Assam	**Karnataka**
Haryana	Orissa	Daman & Diu	Manipur	Kerala
Himachal Pradesh	West Bengal	Dadar & Nagar Haveli	Meghalaya	Tamil Nadu
Jammu & Kashmir	Sikkim	Madhya Pradesh	Mizoram	Puducherry
Punjab	Andaman & Nicobar	Maharashtra	Nagaland	Lakshadweep
Rajasthan		Goa	Tripura	**Telangana**
Uttar Pradesh				
Uttarakhand				

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

The Project Participant has chosen only grid power plants in the calculation.

Step 3: Select a method to determine the operating margin (OM)

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described under Step 4:

(a) Simple OM; or

(b) Simple adjusted OM; or

(c) Dispatch data analysis OM; or

(d) Average OM.

The data required to calculate Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers. The choice of other two options for calculating operating margin emission factor depends on generation of electricity from low-cost/ must-run sources. In the context of the methodology low cost/must run resources typically include hydro, geothermal, wind, low cost biomass, nuclear and solar generation.

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
India	19.6%	16.9%	18.6%	16.8%	15.1%	14.6%

Data Source: Central Electricity Authority (CEA) database Version 13, June'2018[16]

The above data clearly shows that the percentage of total grid generation by low-cost/ must-run plants (on the basis of average of five most recent years) for the Indian grid is less than 50 % of the total generation. Thus the Average OM method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

For the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either of the two following data vintages:

(a) **Ex-ante option:** if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.

OR

(b) **Ex-post option:** if the ex-post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

PP has chosen ex-ante option for calculation of Simple OM emission factor using a 3-year generation-weighted average, based on the most recent data available at the time of submission of the PD to the DOE for validation.

OM determined at validation stage will be the same throughout the crediting period. There will be no requirement to monitor & recalculate the emission factor during the crediting period.

Step 4: Calculate the operating margin emission factor ($EF_{grid,OMSimple,y}$) according to the selected method

The operating margin emission factor has been calculated using a 3 year data vintage:

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2014-15	2015-16	2016-17
INDIAN Grid	810,011	871,753	916,278

[16] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver13.pdf

Simple Operating Margin (tCO_2/MWh) (incl. Imports)			
	2014-15	2015-16	2016-17
INDIAN Grid	0.9903	0.9655	0.9636

Weighted Generation Operating Margin	
INDIAN Grid	**0.9726**

STEP 5: Calculate the build margin emission factor ($EF_{BM,y}$)

Option 1 as described above is chosen to calculate the build margin emission factor for the project activity. BM is calculated ex-ante based on the most recent information available at the time of submission of PDD and is fixed for the entire crediting period.

Build Margin (tCO_2/MWh) (not adjusted for imports)	
	2016-17
INDIAN Grid	**0.8723**

(With sample group constituting most recent capacity additions to the grid comprising 20% of the system generation)

STEP 6: Calculate the combined margin (CM) emissions factor

Combined Margin – The combined margin is the weighted average of the simple operating Margin and the build margin. In particular, for intermittent and non-dispatchable generation types such as wind and solar photovoltaic, the Tool to calculate the emission factor for an electricity system, Version 07.0.0, EB 100, Annex 4, allows to weigh the operating margin and Build margin at 75% and 25%, respectively for wind and solar projects and 50% and 50%, respectively for hydro and biomass projects.

The baseline emission factor is calculated using the combined margin approach as described in the following steps:

Calculation of Baseline Emission Factor EF_y

The baseline emission factor $\mathbf{EF_y}$ is calculated as the weighted average of the Operating Margin emission factor $\mathbf{(EF_{OM,y})}$ and the Build Margin emission factor $\mathbf{(EF_{BM,y})}$:

$$\mathbf{EF_y = w_{OM} * EF_{OM,y} + w_{BM} * EF_{BM,y}}$$

Where,

$\mathbf{w_{OM}}$	75% weight for solar energy projects
$\mathbf{w_{BM}}$	25% weight for solar energy projects
$\mathbf{EF_{OM,y}}$	calculated as described in Steps 3&4 above (tCO_2/MWh)
$\mathbf{EF_{BM,y}}$	calculated as described in Steps 5 above (tCO_2/MWh)

Baseline Emission factor (INDIAN Grid) = 0.75*0.9726 + 0.25*0.8723
= 0.9475 tCO_2/MWh

The baseline emission factor is ex-ante parameter and will remain constant throughout the crediting period.

3.2 Project Emissions

As per the approved consolidated Methodology AMS I.D. Version 18.0 and ACM0002 (Version 19.0) para 36: "For most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

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

Where:
PE_y = Project emissions in year y (t CO_2e/yr)
$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO_2/yr)
$PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_2e/yr)
$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO_2e/yr)

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

3.3 Leakage

No other leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.

3.4 Estimated Net GHG Emission Reductions and Removals

As per the para 43 of AMS I.D, version 18.0, the formula to calculate the emission reduction is $ER_y = BE_y – PE_y – LE_y$

As per the para 57 of ACM0002, version 19.0, the formula to calculate the emission reduction is $ER_y = BE_y – PE_y$

As the project activity is a solar project, there is no any leakage emissions from the project activity.

Hence, $LE_y = 0$

Therefore, Emission Reductions for this project activity are calculated as follows:

$ER_y = BE_y – PE_y$

Where:

ER_y	=	Emission reductions in year *y* (t CO_2e/yr)
BE_y	=	Baseline emissions in year *y* (t CO_2/yr)
PE_y	=	Project emissions in year *y* (t CO_2e/yr)

Therefore, Net GHG Emission Reductions and Removals are calculated as follows:
$ER_y = BE_y – PE_y$

Year	Estimated baseline	Estimated project	Estimated leakage	Estimated net GHG emission

	emissions or removals (tCO_2e)	emissions or removals (tCO_2e)	emissions (tCO_2e)	reductions or removals (tCO_2e)
Year 1	2,078,589	0	0	2,078,589
Year 2	2,078,589	0	0	2,078,589
Year 3	2,078,589	0	0	2,078,589
Year 4	2,078,589	0	0	2,078,589
Year 5	2,078,589	0	0	2,078,589
Year 6	2,078,589	0	0	2,078,589
Year 7	2,078,589	0	0	2,08,589
Year 8	2,078,589	0	0	2,078,589
Year 9	2,078,589	0	0	2,078,589
Year 10	2,078,589	0	0	2,078,589
Total	20,785,890	0	0	20,785,890

4 MONITORING

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[17]
Value applied	0.9726
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 2014-2015, 2015-2016 & 2016-2017. The data are 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 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[17]
Value applied	0.8723
Justification of choice of	Calculated as per "Tool to calculate the emission factor for an

[17] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver13.pdf

data or description of measurement methods and procedures applied	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 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, May 2017[17]
Value applied	0.9475
Justification of choice of data or description of measurement methods and procedures applied	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year *y* (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year *y* (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= 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 "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 crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{PJ,y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y
Source of data	Credit note/ JMR/Form B reports/ monthly generation report from respective state electricity board/DISCOM
Description of measurement methods and procedures applied	The value of net electricity generation supplied to the grid as per Monthly electricity form B /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 will be 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.

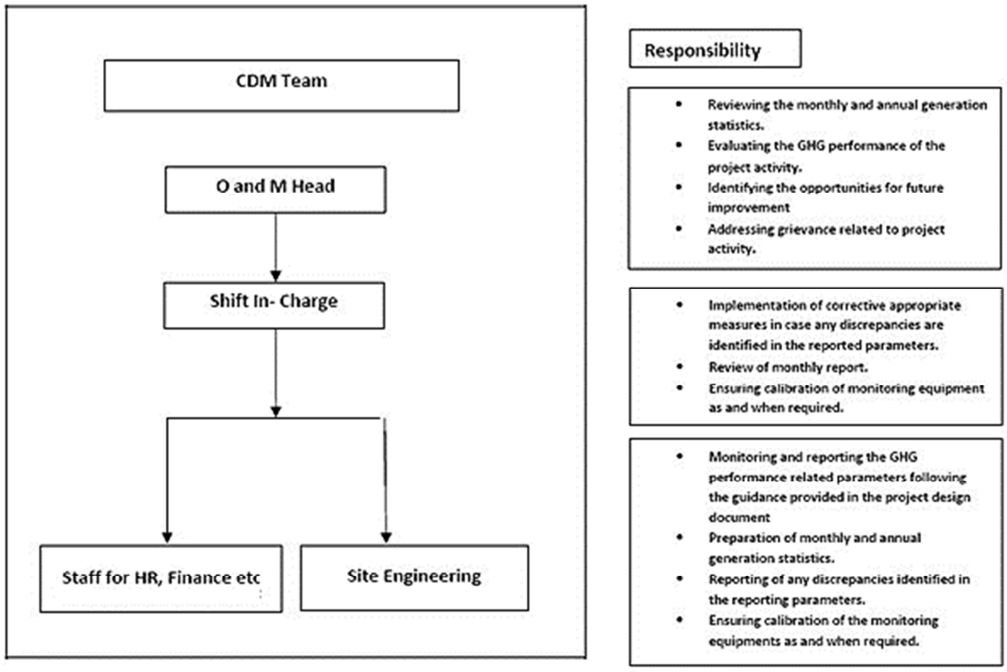
	Monthly meter readings are taken from the main and check meter installed at metering point and certified by the representatives of SEB Officials and the representatives of the project proponent for apportioning procedure refer section 4.3
Frequency of monitoring/recording	Continuous monitoring, hourly measurement and at least monthly recording
Value applied:	2,193,786 MWh
Monitoring equipment	Monitoring: Bidirectional Tri vector meter will be used Data type: Measured Type of meter: Static type meter (Main & Check). Both are Bidirectional meters. Class of meter: 0.2s. Calibration frequency: One in five years[18]
QA/QC procedures applied	The calibration of all the meters will be undertaken at required intervals (once is five years as per CEA notification) and faulty meters will be duly replaced immediately. The meters will be of accuracy class 0.5 or more. The meter accuracy class and calibration interval is under purview of state electricity board and PP does 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 will be cross checked against the invoice raised by the PP towards the DISCOM
Purpose of data	Calculation of Baseline emissions
Calculation method	-
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 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 rests with the project participant. 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:

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



Data Measurement

The export and import energy will be 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 will be 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 will be collected in the presence of the plant in-charge. Export and Import data would be 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 will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.

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 plant helpers will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

5 SAFEGUARDS

5.1 No Net Harm

The project activity does not involve any major construction activity. It primarily requires the installation of the WTGs, 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 same[19].

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.

5.2 Environmental Impact

The project activity has no significant impact on the environment. Solar projects are not included in the Schedule I of the EIA notification S.O.1533 (E) dated 14th September 2006[20] and thus an EIA is not required.

5.3 Local Stakeholder Consultation

The local stakeholder consultations for all the project activity instances have been carried out. The details of which are as follows: The Local Stakeholder consultation documents is provided to DOE during validation of project activity.

Project Instance	SPVs Names	Invitation Dates	LSHM Dates
1	Sunworld Solar Power Pvt Ltd	30-09-2017	11-10-2017
	ACME Ranga Reddy Solar Power Pvt Ltd	22-10-2016	01-11-2016
	ACME Medak Solar Energy Pvt Ltd	22-10-2016	01-11-2016
	ACME Nizamabad Solar Energy Pvt Ltd	31-10-2016	10-11-2016
	ACME PV Powertech Private Limited (Sadashivpet)	30-11-2016	10-12-2016
	ACME Solar Power Technology Private Limited	01-12-2016	10-12-2016
	ACME Rewari Solar Power Pvt Ltd	06-06-2017	16-06-2017
	ACME Kurukshetra Solar Energy Pvt Ltd		
	ACME Bhiwadi Solar Power Pvt Ltd	07-12-2017	17-12-2017
	ACME Hisar Solar Power Private Limited		
	ACME Karnal Solar Power Private Limited		
	ACME Kaithal Solar Power Private Limited	07-12-2017	17-12-2017
	ACME Babadham Solar Power Private Limited		
	ACME Koppal Solar Energy Private Limited		
	ACME Vijayapura Solar Energy Pvt Ltd		
	ACME Rewa Solar Energy Pvt Ltd	05-04-2018	15-04-2018
	ACME Chittorgarh Solar Energy Pvt. Ltd	05-04-2018	15-04-2018
2	ACME Karimnagar Solar Power Pvt Ltd	31-10-2016	10-11-2016
3	Purvanchal Solar Power Pvt Ltd		
4	Rewanchal Solar Power Pvt Ltd		
5	Neemuch Solar Power Pvt Ltd		
6	ACME Fazilka Power Pvt Ltd (Nandipet)	08-03-2017	18-03-2017
7	ACME Narwana Solar Power Pvt Ltd (Lingampet)	03-10-2016	13-10-2016
8	ACME Warangal Solar Power Pvt Ltd	22-10-2016	01-11-2016

[19] http://mnre.gov.in/file-manager/UserFiles/report-on-developmental-impacts-of-RE.pdf

[20] http://envfor.nic.in/legis/eia/so1533.pdf

9	Devishi Renewable Energy Pvt Ltd	08-07-2016	20-07-2016
10	Devishi Solar Power Pvt Ltd		
11	Sunworld Energy Pvt Ltd		
12	ACME Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	03-10-2016	13-10-2016
13	ACME Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)		
14	ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)	03-10-2016	10-11-2016
15	ACME Mahbubnagar Solar Energy Pvt Ltd-3 (PADMAJIWADI)		
16	ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)		

Project representatives explained the project benefits and how project would help to fight against climate change and no any negative comments received during the local stakeholder round. The Minutes of meeting with commenting sheet from LSH, invitation letter receipt copy is submitted to the DOE for further check. Few queries raised during local stakeholder consultation are addressed satisfactorily.

Villagers were totally in support for setting up of these kinds of projects in the region. The PP also placed a grievance register onsite in where the stakeholder can put down his/her complain and the same if found genuine will be addressed immediately.

5.4 Public Comments

The project activity was published for public comment and no any comments were received during the one month commenting period.

6 ACHIEVED GHG EMISSION REDUCTIONS AND REMOVALS

6.1 Data and Parameters Monitored

Data / Parameter	$EG_{PJ,y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y
Source of data	Credit note/ JMR/Form B reports/ monthly generation report from respective state electricity board/DISCOM
Description of measurement methods and procedures applied	The value of net electricity generation supplied to the grid as per Monthly electricity form B /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 will be 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	Continuous monitoring, hourly measurement and at least monthly

monitoring/recording	recording
Value applied:	511,472.085 MWh
Monitoring equipment	Monitoring: Bidirectional Tri vector meter will be used Data type: Measured Type of meter: Static type meter (Main & Check). Both are Bidirectional meters. Class of meter: 0.2s. Calibration frequency: One in five years
QA/QC procedures applied	The calibration of all the meters will be undertaken at required intervals (once is five years as per CEA notification) and faulty meters will be duly replaced immediately. The meters will be of accuracy class 0.2s. The meter accuracy class and calibration interval is 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 will be cross checked against the invoice raised by the PP towards the DISCOM
Purpose of data	Calculation of Baseline emissions
Calculation method	-
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.

6.2 Baseline Emissions

The baseline emission calculation for the project activity instances is attributable to the CO_2 Emission that could have been produced by the fossil fuel based power plants in absence of the proposed project activity. Therefore the amount electricity supplied to the Indian grid will be multiplied by the grid emission factor of Indian grid to calculate the baseline emissions reduced by the proposed project activity.

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

Where,

$\mathbf{BE_y}$	=	Baseline Emissions in year y; tCO_2
$\mathbf{EG_{facility,y}}$	=	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
$\mathbf{EF_{grid,CM,y}}$	=	CO_2 emission factor of the grid in year y; tCO_2/MWh

Thus

BE_y = 511,472.085 * 0.9475

= 484,608 tCO_2e (round down values)

Note that above value of emissions is summation of rounded down for each SPV, thus overall value is less than simply multiplication of 511,472.085 * 0.9475.

6.3 Project Emissions

As per methodology AMD I.D. Version 18.0 and ACM0002 Version 19.0, for renewable energy projects, there is no any project emissions occurred.

Hence, $PE_y = 0$

6.4 Leakage

As per methodology AMD I.D. Version 18.0 and ACM0002 Version 19.0, for renewable energy projects, there is no any leakage emissions occurred.

Hence, $LE_y = 0$

6.5 Net GHG Emission Reductions and Removals

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)
10/02/2017 to 31/12/2017	343,762	0	0	343,762
01/01/2018 to 28/02/2018	140,846	0	0	140,846
Total	**484,608**	0	0	**484,608**

Vintage wise emission reductions for each project activity instances are as follows:

Activity Instance	**SPVs**	**Capacity (MW)**	**Net electricity (kWh)**	**2017**	**2018**	**Total**
1	Sunworld Solar Power Pvt Ltd	30	15264917	5649	8814	14463
	ACME Ranga Reddy Solar Power Pvt Ltd	30	36286899	25872	8509	34381
	ACME Medak Solar Energy Pvt Ltd	45	57514883	38643	15852	54495
	ACME Nizamabad Solar Energy Pvt Ltd	50	44879307	25541	16982	42523
	ACME PV Powertech Private Limited (Sadashivpet)	50	59635869	39750	16754	56504
	ACME Solar Power Technology Private Limited	50	3693952	-	3500	3500
	Acme Rewari Solar Power Pvt Ltd	50	7070400	-	6699	6699
	Acme Kurukshetra Solar Energy Pvt Ltd	50	5682600	-	5384	5384
	ACME Bhiwadi Solar Power Pvt Ltd	50	-	-	-	-
	ACME Hisar Solar Power Private Limited	50	-	-	-	-

	ACME Karnal Solar Power Private Limited	50	-	-	-	-
	ACME Kaithal Solar Power Private Limited	40	556875	-	528	528
	ACME Babadham Solar Power Private Limited	40	661667	-	627	627
	ACME Koppal Solar Energy Private Limited	40	-	-	-	-
	ACME Vijayapura Solar Energy Pvt Ltd	40	625000	-	592	592
	ACME Rewa Solar Energy Pvt Ltd	100	-	-	-	-
	ACME Chittorgarh Solar Energy Pvt. Ltd	250	-	-	-	-
2	ACME Karimnagar Solar Power Pvt Ltd	15	24543347	18561	4693	23254
3	Purvanchal Solar Power Pvt Ltd	15	26745880	20418	4923	25341
4	Rewanchal Solar Power Pvt Ltd	15	16852247	11744	4223	15967
5	Neemuch Solar Power Pvt Ltd	15	27368029	21065	4866	25931
6	ACME Fazilka Power Pvt Ltd (Nandipet)	15	26674059	20553	4720	25273
7	ACME Narwana Solar Power Pvt Ltd (Lingampet)	15	28870178	22305	5049	27354
8	ACME Warangal Solar Power Pvt Ltd	15	27699800	21242	5003	26245
9	Devishi Renewable Energy Pvt Ltd	12.5	18927560	15553	2380	17933
10	Devishi Solar Power Pvt Ltd	12.5	19345467	15920	2409	18329
11	Sunworld Energy Pvt Ltd	12.5	18952350	15470	2487	17957
12	Acme Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	10	7124818	3925	2825	6750
13	Acme Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)	10	7368881	4392	2590	6982
14	ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)	10	9781838	5900	3368	9268
15	ACME Mahbubnagar Solar Energy Pvt Ltd-3 (PADMAJIWADI)	10	9686174	5521	3656	9177
16	ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)	10	9659091	5738	3413	9151
	Total	**1,207.5**	**511472085**	**343762**	**140846**	**484608**

The actual emission reduction is lower than -5.80%% from the estimated emission reduction which is conservative.

APPENDIX 1: Input Parameters for Additionality Assessment For Respective Project Activities

Assumptions and Values considered for Financial and Sensitivity Analysis of Sunworld Solar Power Pvt Ltd are as follows:

SPV Name - Sunworld Solar Power Pvt Ltd	Equity IRR without CDM	Benchmark (Equity IRR)
	4.68%	15.32%

Assumption and financial of the project

Details of the project		Source	Link
State where the project is situated	Telangana	As per DPR	
Total Capacity (MW)	30.00	As per DPR	
Expected Date of Commissioning	27-Oct-17	As per DPR Section 1.9	
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	49,932,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	39.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	12.00	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	2,400.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	600.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)		Calculated	-

	48	Value	
Repayment instalments value (INR Mn.)	37.500	Calculated Value	-
1st instalment from (Qtr. end)	31-Mar-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	375.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	2,025.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	202.50	Calculated Value	
Net Depreciable Value (INR Mn.)	1,822.50	Calculated Value	
Residual Value (INR Mn.)	577.50	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2015-16**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5, 11 and 12	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	6.90%	4.68%	13.15%	16.55%
O&M	10.34%	4.68%	9.37%	-92.54%
Project Cost	12.65%	4.68%	7.80%	-18.29%
Tariff Rate	6.90%	4.68%	13.15%	16.55%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Ranga Reddy Solar Power Private Limited are as follows:

SPV Name - ACME Ranga Reddy Solar Power Private Limited	Equity IRR without CDM	Benchmark (Equity IRR)
	5.13%	15.32%

Assumption and financial of the project			
Details of the project		**Source**	**Link**
State where the project is situated	Telangana	As per DPR	
Total Capacity (MW)	30.00	As per DPR	
Expected Date of Commissioning	24-Mar-17	As per DPR	Section 1.9
Life of the plant (Yrs.)	25	CERC Order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	As per DPR, pg no 16 and Page 1, 1.7, 7.7	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	49,932,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	39.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	12.00	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	2,400.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	600.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-

Repayment instalments value (INR Mn.)	37.500	Calculated Value	-
1st instalment from (Qtr. end)	30-Jun-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	375.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	2,025.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	202.50	Calculated Value	
Net Depreciable Value (INR Mn.)	1,822.50	Calculated Value	
Residual Value (INR Mn.)	577.50	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2015-16**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5, 11 and 12	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	2.74%	5.13%	7.77%	33.66%
O&M	5.56%	5.13%	4.49%	-159.30%
Project Cost	7.24%	5.13%	3.51%	-33.24%
Tariff Rate	2.74%	5.13%	7.77%	33.65%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Medak Solar Energy Pvt Ltd are as follows:

SPV Name - ACME Medak Solar Energy Pvt Ltd	Equity IRR without CDM	Benchmark (Equity IRR)
	4.51%	15.32%

Assumption and financial of the project			
Details of the project		**Source**	**Link**
State where the project is situated	Telangana	As per DPR	
Total Capacity (MW)	45.00	As per DPR	
Expected Date of Commissioning	19-May-17	As per DPR	
Life of the plant (Yrs.)	25	As per DPR	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	74,898,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	58.50	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	17.97	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,593.40	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,695.05	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	898.35	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,695.05	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	56.147	Calculated Value	-

1st instalment from (Qtr. end)	30-Sep-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	562.50	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,030.90	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	303.09	Calculated Value	
Net Depreciable Value (INR Mn.)	2,727.81	Calculated Value	
Residual Value (INR Mn.)	865.59	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2015-16**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5, 11 and 12	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	Equity IRR			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	2.16%	4.51%	7.15%	36.90%
O&M	5.16%	4.51%	3.85%	-175.99%
Project Cost	6.62%	4.51%	2.94%	-35.22%
Tariff Rate	2.16%	4.51%	7.15%	36.90%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Nizamabad Solar Energy Pvt Ltd are as follows:

SPV Name - ACME Nizamabad Solar Energy Pvt Ltd	Equity IRR without CDM	Benchmark (Equity IRR)
	5.15%	15.32%

Assumption and financial of the project

Details of the project		Source	Link
State where the project is situated	Telangana	As per DPR	
Total Capacity (MW)	50.00	As per DPR	
Expected Date of Commissioning	27-Nov-17	As per DPR	Section 1.9
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	As per DPR, pg no 16 and Page 1, 1.7, 7.7	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	65.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	19.46	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,891.40	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,918.55	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	972.85	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,918.55	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-

Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	60.803	Calculated Value	-
1st instalment from (Qtr. end)	31-Mar-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9

Sensitivity Analysis:

Sensitivity Analysis	Equity IRR			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	2.76%	5.15%	7.84%	35.79%
O&M	5.79%	5.15%	4.50%	-167.94%
Project Cost	7.31%	5.15%	3.53%	-34.19%
Tariff Rate	2.76%	5.15%	7.84%	35.79%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME PV Powertech Private Limited are as follows:

SPV Name - ACME PV Powertech Private Limited (Sadashivpet)	Equity IRR without CDM	Benchmark (Equity IRR)
	5.49%	15.32%

Assumption and financial of the project			
Details of the project		**Source**	**Link**
State where the project is situated	Telangana	As per DPR	
Total Capacity (MW)	50.00	As per DPR	
Expected Date of Commissioning	26-Jul-17	As per DPR	**Section 1.9**
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%		-

Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	65.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	19.13	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,825.80	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,869.35	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	956.45	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,869.35	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	59.778	Calculated Value	-
1st instalment from (Qtr. end)	31-Dec-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,200.80	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	320.08	Calculated Value	
Net Depreciable Value (INR Mn.)	2,880.72	Calculated Value	
Residual Value (INR Mn.)	945.08	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2015-16**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html

Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5, 11 and 12	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	2.92%	5.49%	8.47%	30.32%
O&M	6.18%	5.49%	4.78%	-142.94%
Project Cost	7.87%	5.49%	3.77%	-30.54%
Tariff Rate	2.92%	5.49%	8.47%	30.32%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Solar Power Technology Private Limited are as follows:

SPV Name - ACME Solar Power Technology Private Limited	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	5.49%	**15.32%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Telangana	As per DPR	
Total Capacity (MW)	50.00	As per DPR	
Expected Date of Commissioning	26-Jul-17	As per DPR	**Section 1.9**
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-

Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	65.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	19.13	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,825.80	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,869.35	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	956.45	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,869.35	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	59.778	Calculated Value	-
1st instalment from (Qtr. end)	31-Dec-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,200.80	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	320.08	Calculated Value	
Net Depreciable Value (INR Mn.)	2,880.72	Calculated Value	
Residual Value (INR Mn.)	945.08	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2015-16**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-

			201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5, 11 and 12	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	2.92%	5.49%	8.47%	30.32%
O&M	6.18%	5.49%	4.78%	-142.94%
Project Cost	7.87%	5.49%	3.77%	-30.54%
Tariff Rate	2.92%	5.49%	8.47%	30.32%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Rewari Solar Power Pvt Ltd are as follows:

SPV Name - ACME Rewari Solar Power Pvt Ltd	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	5.65%	**15.21%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Karnataka	As per DPR	
Total Capacity (MW)	50	As per DPR	
Expected Date of Commissioning	26-Feb-18	As per DPR	
Life of the plant (Yrs.)	25	As per DPR	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			

O & M Expenses (INR Mn.)	65.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	19.13	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,825.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,868.75	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	956.25	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,868.75	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	59.766	Calculated Value	-
1st instalment from (Qtr. end)	30-Jun-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,200.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	320.00	Calculated Value	
Net Depreciable Value (INR Mn.)	2,880.00	Calculated Value	
Residual Value (INR Mn.)	945.00	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5,	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html

		11 and 12	
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.16%	5.65%	8.49%	31.40%
O&M	6.31%	5.65%	4.98%	-147.90%
Project Cost	7.93%	5.65%	3.96%	-31.63%
Tariff Rate	3.16%	5.65%	8.49%	31.40%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Kurukshetra Solar Energy Pvt Ltd are as follows:

SPV Name - ACME Kurukshetra Solar Energy Pvt Ltd	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	5.65%	**15.21%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Andhra Pradesh	As per DPR	
Total Capacity (MW)	50	As per DPR	
Expected Date of Commissioning	26-Feb-18	As per DPR	
Life of the plant (Yrs.)	25	As per DPR	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 15
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 34
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			

O & M Expenses (INR Mn.)	65.00	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2015/orders/SO4.pdf pg no 33
Insurance (INR Mn.)	19.13	CERC order	http://www.cercind.gov.in/2015/orders/SO5.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,825.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,868.75	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	956.25	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,868.75	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	59.766	Calculated Value	-
1st instalment from (Qtr. end)	30-Jun-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,200.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	320.00	Calculated Value	
Net Depreciable Value (INR Mn.)	2,880.00	Calculated Value	
Residual Value (INR Mn.)	945.00	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			

Financial Year	**FY 2016-17**		
Income tax rate (%)	30.00%	As Per Income Tax Rule, Pg 29, Para E(I)	http://indiabudget.nic.in/budget2015-2016/ub2015-16/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Education cess (%)	3.00%	As Per Income Tax Rule, Pg 5, 11 and 12	http://taxguru.in/income-tax/income-tax-rates-fy-201314-ay-201415.html
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.16%	5.65%	8.49%	31.40%
O&M	6.31%	5.65%	4.98%	-147.90%
Project Cost	7.93%	5.65%	3.96%	-31.63%
Tariff Rate	3.16%	5.65%	8.49%	31.40%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Bhiwadi Solar Power Pvt Ltd are as follows:

SPV Name - ACME Bhiwadi Solar Power Pvt Ltd	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	6.66%	**14.88%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Andhra Pradesh	As per DPR	
Total Capacity (MW)	50	As per DPR	
Expected Date of Commissioning	27-Aug-17	As per DPR	
Life of the plant (Yrs.)	25	As per DPR	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.p

			df pg 26
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	60.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	18.50	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,700.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,775.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	925.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,775.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	57.813	Calculated Value	-
1st instalment from (Qtr. end)	31-Dec-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	CERC order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,075.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	307.50	Calculated Value	
Net Depreciable Value (INR Mn.)	2,767.50	Calculated Value	
Residual Value (INR Mn.)	932.50	Calculated Value	-
IT Depreciation			

IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		
Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.99%	6.66%	9.81%	26.18%
O&M	7.40%	6.66%	6.00%	-136.35%
Project Cost	9.23%	6.66%	4.82%	-27.00%
Tariff Rate	3.99%	6.66%	9.81%	26.18%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Hisar Solar Power Private Limited are as follows:

SPV Name - ACME Hisar Solar Power Private Limited	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	6.66%	**14.88%**

Assumption and financial of the project			
Details of the project		**Source**	**Link**
State where the project is situated	Andhra Pradesh	As per DPR	
Total Capacity (MW)	50	As per DPR	
Expected Date of Commissioning	27-Aug-17	As per DPR	
Life of the plant (Yrs.)	25	CERC Order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26

Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	60.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	18.50	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,700.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,775.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	925.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,775.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	57.813	Calculated Value	-
1st instalment from (Qtr. end)	31-Dec-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	CERC Order :Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,075.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	307.50	Calculated Value	
Net Depreciable Value (INR Mn.)	2,767.50	Calculated Value	
Residual Value (INR Mn.)	932.50	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html

Income Tax			
Financial Year	**FY 2016-17**		
Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	Equity IRR			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.99%	6.66%	9.81%	26.18%
O&M	7.40%	6.66%	6.00%	-136.35%
Project Cost	9.23%	6.66%	4.82%	-27.00%
Tariff Rate	3.99%	6.66%	9.81%	26.18%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Karnal Solar Power Private Limited are as follows:

SPV Name - ACME Karnal Solar Power Private Limited	Equity IRR without CDM	Benchmark (Equity IRR)
	6.66%	14.88%

Assumption and financial of the project

Details of the project		Source	Link
State where the project is situated	Andhra Pradesh	As per DPR	
Total Capacity (MW)	50	As per DPR	
Expected Date of Commissioning	27-Aug-17	As per DPR	
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26
Annual generation (kWh)	83,220,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-

Tariff rate at the decision making (INR/kWh)	5.59	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	60.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	18.50	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	3,700.00	As Per DPR, pg no 7, section 1.5	
Loan Amount (INR Mn.)	2,775.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	925.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	2,775.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	57.813	Calculated Value	-
1st instalment from (Qtr. end)	31-Dec-17	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	625.00	CERC order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	3,075.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	307.50	Calculated Value	
Net Depreciable Value (INR Mn.)	2,767.50	Calculated Value	
Residual Value (INR Mn.)	932.50	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		

Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.99%	6.66%	9.81%	26.18%
O&M	7.40%	6.66%	6.00%	-136.35%
Project Cost	9.23%	6.66%	4.82%	-27.00%
Tariff Rate	3.99%	6.66%	9.81%	26.18%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Kaithal Solar Power Private Limited are as follows:

SPV Name - ACME Kaithal Solar Power Private Limited	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	6.87%	**15.50%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Karnataka	As per DPR	
Total Capacity (MW)	40	As per DPR	
Expected Date of Commissioning	8-Jun-18	As per DPR	Section 1.9
Life of the plant (Yrs.)	25	As per DPR	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26
Annual generation (kWh)	66,576,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	4.79	As per DPR, pg no 9, Section	-

		1.8	
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	48.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	12.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	2,400.00	KERC Order, pg 11	http://www.karnataka.gov.in/kercold/Downloads/COURT-ORDERS-2016/TARIFF_FY-17/Solar_Tariff_2016/Solar_Rooftop_Photovoltaic_Tariff-ORDER-dated-02.05.2016.pdf
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	600.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	37.500	Calculated Value	-
1st instalment from (Qtr. end)	30-Sep-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	500.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	1,900.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	190.00	Calculated Value	
Net Depreciable Value (INR Mn.)	1,710.00	Calculated Value	
Residual Value (INR Mn.)	690.00	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		

Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	7.35%	6.87%	14.09%	14.11%
O&M	11.49%	6.87%	9.92%	-68.47%
Project Cost	13.31%	6.87%	8.42%	-17.13%
Tariff Rate	7.35%	6.87%	14.09%	14.12%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Babadham Solar Power Private Limited are as follows:

SPV Name - ACME Babadham Solar Power Private Limited	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	6.87%	**15.50%**

Assumption and financial of the project			
Details of the project		**Source**	**Link**
State where the project is situated	Karnataka	As per DPR	
Total Capacity (MW)	40	As per DPR	
Expected Date of Commissioning	8-Jun-18	As per DPR	
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26
Annual generation (kWh)	66,576,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision		As per DPR, pg	-

making (INR/kWh)	4.79	no 9, Section 1.8	
Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	48.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	12.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	2,400.00	KERC Order, pg 11	http://www.karnataka.gov.in/kercold/Downloads/COURT-ORDERS-2016/TARIFF_FY-17/Solar_Tariff_2016/Solar_Rooftop_Photovoltaic_Tariff-ORDER-dated-02.05.2016.pdf
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	600.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	37.500	Calculated Value	-
1st instalment from (Qtr. end)	30-Sep-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	500.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	1,900.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	190.00	Calculated Value	
Net Depreciable Value (INR Mn.)	1,710.00	Calculated Value	
Residual Value (INR Mn.)	690.00	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		

Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	Equity IRR			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.90%	6.87%	9.88%	26.74%
O&M	7.69%	6.87%	5.99%	-117.44%
Project Cost	9.13%	6.87%	4.89%	-29.45%
Tariff Rate	3.90%	6.87%	9.88%	26.74%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Koppal Solar Energy Private Limited are as follows:

SPV Name - ACME Koppal Solar Energy Private Limited	Equity IRR without CDM	Benchmark (Equity IRR)
	6.87%	15.50%

Assumption and financial of the project

Details of the project		Source	Link
State where the project is situated	Karnataka	As per DPR	
Total Capacity (MW)	40	As per DPR	
Expected Date of Commissioning	8-Jun-18	As per DPR	
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26
Annual generation (kWh)	66,576,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	4.79	As per DPR, pg no 9, Section 1.8	-

Escalation in tariff rate	0.0%	As per DPR, pg no 9, Section 1.8	-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	48.00	CERC order	DPR
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	12.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	2,400.00	KERC Order, pg 11	http://www.karnataka.gov.in/kercold/Downloads/COURT-ORDERS-2016/TARIFF_FY-17/Solar_Tariff_2016/Solar_Rooftop_Photovoltaic_Tariff-ORDER-dated-02.05.2016.pdf
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	600.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	37.500	Calculated Value	-
1st instalment from (Qtr. end)	30-Sep-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	500.00	CERC order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	1,900.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	190.00	Calculated Value	
Net Depreciable Value (INR Mn.)	1,710.00	Calculated Value	
Residual Value (INR Mn.)	690.00	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		
Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf

Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.90%	6.87%	9.88%	26.74%
O&M	7.69%	6.87%	5.99%	-117.44%
Project Cost	9.13%	6.87%	4.89%	-29.45%
Tariff Rate	3.90%	6.87%	9.88%	26.74%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Vijayapura Solar Energy Pvt Ltd are as follows:

SPV Name - ACME Vijayapura Solar Energy Pvt Ltd	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	6.87%	**15.50%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Karnataka	As per DPR	
Total Capacity (MW)	40	As per DPR	
Expected Date of Commissioning	8-Jun-18	As per DPR	
Life of the plant (Yrs.)	25	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 21
Generation of electricity			
PLF (%)	19.00%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26
Annual generation (kWh)	66,576,000	Calculated Value	
Annual Degradation per year	0.30%	As per DPR, Section 7.8	-
Tariff rate at the decision making (INR/kWh)	4.79	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	0.0%		-

Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	48.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 26
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf pg 25
Insurance (INR Mn.)	12.00	CERC order	http://www.cercind.gov.in/2016/orders/SORE.pdf
Financial parameters			
TOTAL COST (INR Mn.)	2,400.00	KERC Order, pg 11	http://www.karnataka.gov.in/kercold/Downloads/COURT-ORDERS-2016/TARIFF_FY-17/Solar_Tariff_2016/Solar_Rooftop_Photovoltaic_Tariff-ORDER-dated-02.05.2016.pdf
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	600.00	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	1,800.00	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	As per banking practice	-
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	37.500	Calculated Value	-
1st instalment from (Qtr. end)	30-Sep-18	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	500.00	CERC Order: Estimate Acre land required @ 5 acre/mw and 2.5 mn/acre	http://www.cercind.gov.in/2015/orders/SO5.pdf pg no 9
Gross Depreciable Value (INR Mn.)	1,900.00	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	190.00	Calculated Value	
Net Depreciable Value (INR Mn.)	1,710.00	Calculated Value	
Residual Value (INR Mn.)	690.00	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2016-17**		
Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html

Service Tax (%)	15.00%	As Per Income Tax Rule	http://taxguru.in/income-tax/income-tax-rate-chart-assessment-year-201516-financial-year-201415.html
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/keybud/keybud2017.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	3.90%	6.87%	9.88%	26.74%
O&M	7.69%	6.87%	5.99%	-117.44%
Project Cost	9.13%	6.87%	4.89%	-29.45%
Tariff Rate	3.90%	6.87%	9.88%	26.74%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Rewa Solar Energy Pvt Ltd are as follows:

SPV Name - ACME Rewa Solar Energy Pvt Ltd	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	7.16%	**15.05%**

Assumption and financial of the project			
Details of the project		**Source**	**Link**
State where the project is situated	Rajasthan	As per DPR	
Total Capacity (MW)	100	As per DPR	
Expected Date of Commissioning	16-Jun-19	As per DPR	**1.9**
Life of the plant (Yrs.)	25	As per DPR, Rerc Order Para 48	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Generation of electricity			
PLF (%)	23.50%	RERC Order Para 54	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Annual generation (kWh)	205,860,000	Calculated Value	
Annual Degradation per year	0.50%	RERC Order Para 54	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Tariff rate at the decision making (INR/kWh)	2.44	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate	₹ 0.05	As per DPR, pg no 9, Section 1.8	-

Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	70.00	RERC Order Para 56	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.85%	RERC Order Para 56	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Insurance (INR Mn.)	-		-
Financial parameters			
TOTAL COST (INR Mn.)	5,127.80	RERC Order Para 21 iv	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Loan Amount (INR Mn.)	3,845.85	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	1,281.95	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	3,845.85	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	12.00%	MPERC 2016 Order, Section 5.8.7	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	80.122	Calculated Value	-
1st instalment from (Qtr. end)	30-Sep-19	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	240.00	RERC Order Para 21 iv	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Gross Depreciable Value (INR Mn.)	4,887.80	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	488.78	Calculated Value	
Net Depreciable Value (INR Mn.)	4,399.02	Calculated Value	
Residual Value (INR Mn.)	728.78	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2017-18**		
Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf

Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Final Tax rates			
Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	4.69%	7.16%	9.83%	26.58%
O&M	7.71%	7.16%	6.61%	-144.24%
Project Cost	9.94%	7.16%	5.41%	-25.21%
Tariff Rate	5.09%	7.16%	9.43%	29.87%

Assumptions and Values considered for Financial and Sensitivity Analysis of ACME Chittorgarh Solar Energy Pvt Ltd are as follows:

SPV Name - ACME Chittorgarh Solar Energy Pvt Ltd	**Equity IRR without CDM**	**Benchmark (Equity IRR)**
	6.14%	**15.05%**

Assumption and financial of the project

Details of the project		**Source**	**Link**
State where the project is situated	Rajasthan	As per DPR	
Total Capacity (MW)	250	As per DPR	
Expected Date of Commissioning	16-Jun-19	As per DPR	Section 1.9
Life of the plant (Yrs.)	25	As per DPR, Rerc Order Para 48	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Generation of electricity			
PLF (%)	23.50%	RERC Order Para 54	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Annual generation (kWh)	514,650,000	Calculated Value	
Annual Degradation per year	0.50%	RERC Order Para 54	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Tariff rate at the decision making (INR/kWh)	3.00	As per DPR, pg no 9, Section 1.8	-
Escalation in tariff rate			-
Transmission & Wheeling Losses (%)	0.00%		-
Operation and maintenance cost and Insurance			

O & M Expenses (INR Mn.)	350.75	RERC Order Para 56	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.85%	RERC Order Para 56	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Insurance (INR Mn.)	-		-
Financial parameters			
TOTAL COST (INR Mn.)	10,618.50	RERC Order Para 21 iv	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Loan Amount (INR Mn.)	7,963.88	As Per DPR, pg no 7, section 1.5	
Equity Investment (INR Mn.)	2,654.63	As Per DPR, pg no 7, section 1.5	
Term loan			
Loan Amount (INR Mn.)	7,963.88	As Per DPR, pg no 7, section 1.5	-
Interest rate (%)	11.00%	RERC Order	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Loan Tenure (Qtr.)	48	Assumption	-
Moratorium Period (Qtr.)	-	Assumption	
Repayment Period (Qtr.)	48	Calculated Value	-
Repayment instalments value (INR Mn.)	165.914	Calculated Value	-
1st instalment from (Qtr. end)	30-Sep-19	Considered from the next Quarter End	-
Book Depreciation (SLM Method)			
Land	600.00	RERC Order Para 21 iv	http://rerc.rajasthan.gov.in/TariffOrders/Order272.pdf
Gross Depreciable Value (INR Mn.)	10,018.50	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	1,001.85	Calculated Value	
Net Depreciable Value (INR Mn.)	9,016.65	Calculated Value	
Residual Value (INR Mn.)	1,601.85	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	80.00%	IT act	http://www.taxafin.com/Income_Tax/Tax_Rates/Depreciation_Rates.html
Income Tax			
Financial Year	**FY 2017-18**		
Income tax rate (%)	30.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Corporate Tax / MAT (%)	33.00%	As Per IT rule	https://www.bankbazaar.com/tax/corporate-tax.html
Service Tax (%)	15.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Surcharge (%)	10.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Education cess (%)	3.00%	As Per Income Tax Rule	https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/fb/bill.pdf
Final Tax rates			

Income tax rate (%)	33.99%	Calculated Value	
MAT (%)	37.39%	Calculated Value	
Service Tax (%)	15.45%	Calculated Value	

Sensitivity Analysis:

Sensitivity Analysis	**Equity IRR**			
Variation %	**-10%**	**Normal**	**10%**	**Breaching Value**
PLF	1.37%	6.14%	9.89%	20.18%
O&M	7.17%	6.14%	3.63%	-57.79%
Project Cost	8.44%	6.14%	3.30%	-22.05%
Tariff Rate	1.37%	6.14%	9.89%	20.18%

APPENDIX 2: METER DETALIS

Since metering arrangement, monitoring practice, accuracy class, calibration interval 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 current monitoring period is within 2 years of commissioning date, thus all meters initial calibration is valid for current monitoring period. The meters are tested by state electricity board during commissioning, thus all meters have valid calibration period during current monitoring period.
The below mentioned meter and calibration details are for current monitoring period, and the same will be changed in future.

The Energy Meters details used for commissioned project activity is as below.

Project Instance Number	Name of the SPVs	Capacity (MW)	Main Meter Details	Check Meter Details	Calibration Date	Due date
1	Sunworld Solar Power Pvt Ltd	30	SL. No. APZ00191 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00192 Make: Secure Accuracy class: 0.2 s	15-11-17	14-11-22
	ACME Ranga Reddy Solar Power Pvt Ltd	30	SL. No. APZ00197 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00198 Make: Secure Accuracy class: 0.2 s	02-06-17	01-06-22
	ACME Medak Solar Energy Pvt Ltd	45	SL. No. APZ00188 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00189 Make: Secure Accuracy class: 0.2 s	14-07-17	13-07-22
	ACME Nizamabad Solar Energy Pvt Ltd	50	SL. No. APZ00194 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00195 Make: Secure Accuracy class: 0.2 s	11-09-17	10-09-22
	ACME PV Powertech Private Limited (Sadashivpet)	50	SL. No. APZ00200 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00201 Make: Secure Accuracy class: 0.2 s	07-07-17	06-07-22
	ACME Solar Power Technology Private Limited	50	SL. No. APZ00185 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00186 Make: Secure Accuracy class: 0.2 s	05-02-18	04-02-23
	ACME Rewari Solar Power Pvt Ltd	50	Line 1 (25 MW) SL. No. 17151088 Make: L&T Class: 0.2s Line 2 (25 MW) SL. No. 17151076 Make: L&T Class: 0.2s	Line 1 (25 MW) SL. No. 17151035 Make: L&T Class: 0.2s Line 2 (25 MW) SL. No. 17151090 Make: L&T Class: 0.2s	31-01-18	30-01-23
	ACME		For RR No.	For RR No.	31-01-18	30-01-23

	Kurukshetra Solar Energy Pvt Ltd	50	KSPDCL-R2-A21 Main Meter-17125700 Accuracy Class-0.2s For RR No. KSPDCL-R2-A22 Main Meter-17151006 Accuracy Class-0.2s	KSPDCL-R2-A21 Check Meter-17125702 Accuracy Class-0.2s For RR No. KSPDCL-R2-A21 Check Meter-17151039 Accuracy Class-0.2s		
	ACME Bhiwadi Solar Power Pvt Ltd	50	SL. No. APZ00264 Make: Secure Accuracy Class: 0.2s	SL. No. APZ00265 Make: Secure Accuracy Class: 0.2s	01-07-18	30-06-23
	ACME Hisar Solar Power Private Limited	50	SL. No. APZ00226 Make: Secure Accuracy Class: 0.2s	SL. No. APZ00227 Make: Secure Accuracy Class: 0.2s	21-06-18	20-06-23
	ACME Karnal Solar Power Private Limited	50	SL. No. APZ00260 Make: Secure Accuracy Class: 0.2s	SL. No. APZ00261 Make: Secure Accuracy Class: 0.2s	15-06-18	14-06-23
	ACME Kaithal Solar Power Private Limited	40	SL. No. 17054932 Accuracy class: 0.2 s	SL. No. 17054938 Accuracy class: 0.2 s	24-01-18	23-01-23
	ACME Babadham Solar Power Private Limited	40	SL. No. 16113468 Accuracy class: 0.2 s	SL. No. 17069195 Accuracy class: 0.2 s	22-01-18	21-01-23
	ACME Koppal Solar Energy Private Limited	40	SL. No. 17115504 Accuracy class: 0.2 s	SL. No. 17069212 Accuracy class: 0.2 s	15-04-18	14-04-23
	ACME Vijayapura Solar Energy Pvt Ltd	40	SL. No. 17054962 Accuracy class: 0.2 s	SL. No. 17054957 Accuracy class: 0.2 s	23-01-18	22-01-23
	ACME Rewa Solar Energy Pvt Ltd	100	SL. No. 18053541 Make: L&T Accuracy Class: 0.2s	Check Meter: 18053542 Make: L&T Accuracy Class: 0.2s	24-09-18	23-09-23
	ACME Chittorgarh Solar Energy Pvt. Ltd	250	Yet to be commissioned			
2	ACME Karimnagar Solar Power Pvt Ltd	15	SL. No. APZ00131 Make: Secure Apex 150 Accuracy class: 0.2 s	SL. No. APZ00132 Make: Secure Apex 150 Accuracy class: 0.2 s	02-03-17	01-03-22
3	Purvanchal Solar Power Pvt Ltd	15	SL. No. APZ00101	SL. No. APZ00102	23-02-17	22-02-22

			Make: Secure Accuracy class: 0.2 s	Make: Secure Accuracy class: 0.2 s		
4	Rewanchal Solar Power Pvt Ltd	15	SL. No. APZ00106 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00107 Make: Secure Accuracy class: 0.2 s	24-03-17	23-03-22
5	Neemuch Solar Power Pvt Ltd	15	SL. No. APZ00111 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00112 Make: Secure Accuracy class: 0.2 s	25-03-17	24-03-22
6	ACME Fazilka Power Pvt Ltd (Nandipet)	15	SL. No. APZ001116 Make: Secure Accuracy class: 0.2 s	SL. No. APZ001115 Make: Secure Accuracy class: 0.2 s	13-03-17	12-03-22
7	ACME Narwana Solar Power Pvt Ltd (Lingampet)	15	SL. No. APZ00126 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00127 Make: Secure Accuracy class: 0.2 s	24-02-17	23-02-22
8	ACME Warangal Solar Power Pvt Ltd	15	SL. No. APZ00121 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00122 Make: Secure Accuracy class: 0.2 s	03-03-17	02-03-22
9	Devishi Renewable Energy Pvt Ltd	13	SL. No. UKD02401 Make: Secure Accuracy class: 0.2 s	SL. No. UKD02402 Make: Secure Accuracy class: 0.2 s	19-02-17	18-02-22
10	Devishi Solar Power Pvt Ltd	13	SL. No. UKD02400 Make: Secure Accuracy class: 0.2 s	SL. No. UKD02399 Make: Secure Accuracy class: 0.2 s	19-02-17	18-02-22
11	Sunworld Energy Pvt Ltd	13	SL. No. UKD02407 Make: Secure Accuracy class: 0.2 s	SL. No. UKD02412 Make: Secure Accuracy class: 0.2 s	10-02-17	09-02-22
12	ACME Yamunanagar Solar Power Pvt Ltd-1 (KOSGI)	10	SL. No. APZ00321 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00322 Make: Secure Accuracy class: 0.2 s	26-09-17	25-09-22
13	ACME Yamunanagar Solar Power Pvt Ltd-2 (MOTHKUR)	10	SL. No. APZ00316 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00317 Make: Secure Accuracy class: 0.2 s	17-09-17	16-09-22
14	ACME Mahbubnagar Solar Energy Pvt Ltd-2 (GODHUR)	10	SL. No. APZ00301 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00302 Make: Secure Accuracy class: 0.2 s	11-09-17	10-09-22
15	ACME Mahbubnagar	10	SL. No. APZ00312	SL. No. APZ00313	09-09-17	08-09-22

	Solar Energy Pvt Ltd-3 (PADMAJIWADI)		Make: Secure Accuracy class: 0.2 s	Make: Secure Accuracy class: 0.2 s		
16	ACME Mahbubnagar Solar Energy Pvt Ltd-1 (MANTHANI)	10	SL. No. APZ00306 Make: Secure Accuracy class: 0.2 s	SL. No. APZ00307 Make: Secure Accuracy class: 0.2 s	12-09-17	11-09-22