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Standard**

RENEWABLE SOLAR POWER PROJECT BY ADANI GREEN ENERGY LIMITED



Document Prepared by EKI Energy Services Limited

Project Title	Renewable Solar Power Project by Adani Green Energy Limited
Version	04
Report ID	VVER 303
Date of Issue	09-August-2021
Project ID	1815
Monitoring Period	01-January-2020 to 31-December-2020 (Inclusive of both the dates)
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1 PROJECT DETAILS

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1.1 Summary Description of the Implementation Status of the Project

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy sources. The project activity involves total capacity of 990 MW solar power project which are installed in Chhattisgarh, Karnataka, Maharashtra, Rajasthan and Uttar Pradesh states of India. The solar projects have been developed by the SPVs of Adani Green Energy Limited.

Over the 10 years of first crediting period, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 1,553,021 tCO_{2e} per year, there on displacing 1,639,080 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant.

The details of the project and their location of installation are mentioned in the table below:-

Name of SPVs	Capacity in MW	Date of Commission	Connection with Grid	State	Usage
Parampujya Solar Energy Private Limited	100 MW	40 MW on 16-December-2017	Indian Grid	Chhattisgarh	Sale to SECI Limited
		10 MW on 08-March-2018			
		40 MW on 14-December-2017			
		10 MW on 08-March-2018			
	20 MW	22-February-2018		Maharashtra	Sale to SECI Limited
	100 MW	50 MW on 06-December-2017		Karnataka, Pavagada	Sale to NTPC Limited
		50 MW on 15-December-2017			
	40 MW	20 MW on 08-March-2018		Karnataka, Kallur	Sale to SECI Limited
		20 MW on 30-April-2018			
	50 MW	03-January-2018		Karnataka, Pavagada	Sale to NTPC Limited
Wardha Solar (Maharashtra) Private Limited	350 MW	100 MW on 12-February-2018	Indian Grid	Karnataka	Sale to SECI Limited
		50 MW on 27-February-2018			
		40 MW on 26-February-2018			
		50 MW on 29-January-2018			
		50 MW on 14-February-2018			
		50 MW on 17-December-2017			

		10 MW on 08-March-2018	Monitoring Report: VCS Version 4.0		
Kodangal Solar Parks Private Limited	20 MW	05-January-2018		Karnataka	Sale to State Discom
Prayatna Developers Private Limited	20 MW	10 MW on 29-September-2017		Rajasthan, Bhadla Solar Park	Sale to NTPC Limited
		10 MW on 11-October-2017			
Adani Green Energy (UP) Limited	240 MW	20 MW on 30-January-2018		Karnataka	Sale to State Discom
		20 MW on 02-March-2018			
		20 MW on 09-March-2018			
		20 MW on 13-October-2017			
		20 MW on 18-November-2017			
		20 MW on 22-December-2017			
		20 MW on 18-October-2017			
		20 MW on 08-January-2018			
		20 MW on 28-September-2017			
		20 MW on 28-March-2018			
Adani Green Energy (UP) Limited	50 MW	20 MW on 02-October-2017		Uttar Pradesh	Sale to State Discom
		20 MW on 27-January-2018			
Adani Green Energy (UP) Limited	50 MW	10-May-2019			

All the SPVs are of Adani Green Energy Limited. The project is promoted by Adani Green Energy Limited.

Sectoral Scope : 01 - Energy industries (renewable / non-renewable sources)

Project Type : I - Renewable Energy Projects

Project Category : Grid-connected electricity generation from renewable sources
ACM0002- Version 19.0

Tools referred with above methodology are:

Tool to calculate the emission factor for an electricity system¹ - Version 07.0 (EB 100, Annex 04)

Scenario existing prior to the implementation of project activity:

The scenario existing prior to the implementation of the project activity, is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-

¹ <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

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”.

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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 paragraph 22 of Section 5.2.1 of applied methodology is the following:

If the project activity is the installation of a Greenfield power plant, 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”.

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

Total emission reductions achieved in this monitoring period:

During the Current Monitoring Period from 01-January-2020 to 31-December-2020 (First and last date included) the project activity has supplied 2,052,382.33 MWh of electricity, and thus contributing to the GHG reductions 1,944,499 tCO₂e (Round-down value).

1.2 Sectoral Scope and Project Type

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

Sectoral Scope : 01 : Energy industries (renewable / non-renewable sources)

Project Type : I - Renewable Energy Projects

Project Category : Grid-connected electricity generation from renewable sources

ACM0002- Version 19.0²

The project is not a grouped project activity.

1.3 Project Proponent

Organization name	Adani Green Energy Limited
Contact person	Mr. Alpesh Gedia

² <http://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD>

Title	Associate Manager- Business Development
Address	5B- Sambhav Press Building, Judges Bungalow Road, Bodakdev, Ahmedabad
Telephone	+91 9099055194
Email	alpeshk.gedia@adani.com

1.4 Other Entities Involved in the Project

Organization name	EKI Energy Services Limited
Role in the Project	<i>Project Manager</i>
Contact person	Ishani S
Title	<i>Project Manager</i>
Address	EnKing Embassy, Office No 201, Plot 48, Scheme 78, Part 2, Vijay Nagar, Indore- 452010, Madhya Pradesh, India.
Telephone	
Email	shital.ekiesl@gmail.com

1.5 Project Start Date

Start date of the project activity is the earliest date of interconnection with the grid i.e. 28-09-2017. This is the date of commissioning of 20 MW solar project activity by Adani Green Energy (UP) Limited.

The details of the commissioning dates of the individual project activity are mentioned in the section 1.1 of this report.

1.6 Project Crediting Period

Crediting Period Start date : 28-September-2017

Crediting Period End date : 27-September-2027

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

1.7 Project Location

The details of the project locations are mentioned in the table below:

Name of SPVs	Capacity (MW)	Village(s)	Tehsil / Mandal	District	State
Parampujya Solar Energy	100 MW	Rani & Bundeli	-	Dhamdha	Chhattisgarh

Private Limited	20 MW	Kilaj	Tuljapur	Osmanabad	Maharashtra
	100 MW	Thirumani, Rayacherlu, Vallur, Balasamudra	Pavagada	Tumkur	Karnataka
	40 MW	Kallur, Balgera & Kudgunti	Yelburga	Koppal	
	50 MW	Thirumani, Rayacherlu, Vallur, Balasamudra	Pavagada	Tumkur	
Wardha Solar (Maharashtra) Private Limited	100 MW	Madhuvanahalli	Kollegal	Chamarajnar	
	50 MW	Maskal	Aurad	Bidar	
	40 MW	Nalwar	Chittapura	Kalaburagi	
	50 MW	Rajeshwar & Handral	Basavakalyana	Bidar	
	50 MW	Hattigudur & Bommanahalli	Shahapur	Yadgir	
	50 MW	Yatnal	Vijayapura	Vijayapura	
	10 MW	Kallur, Balgera & Kudgunti	Yelburga	Koppal	
Kodangal Solar Parks Private Limited	20 MW	Hebbal	B.Bagewadi	Vijayapur	
Prayatna Developers Private Limited	20 MW	Kanasar	Bap	Jodhpur	Rajasthan
Adani Green Energy (UP) Limited	20 MW	Kadaramandalagi	Byadagi	Haveri	Karnataka
	20 MW	Guddehosur	Chanapatana	Ramanagara	
	20 MW	Talekoppa	Gubbi	Tumkur	
	20 MW	Chikkahalli	Holenarasipura	Hassan	
	20 MW	-	Jewargi	Kalaburagi	
	20 MW	-	K. R. Pet	Mandya	
	20 MW	Thirthbandathi	Malur	Kolar	
	20 MW	Gejjaraguppe	Magadi	Ramanagara	

	20 MW	Kalkare	Periyapatna	Mysuru	
	20 MW	Chikkasulikere	Ramanagara	Ramanagara	
	20 MW	Akkur	T.Narasipura	Mysuru	
	20 MW	Vederahalli & Rettanahalli	Tiptur	Tumakuru	
Adani Green Energy (UP) Limited	50 MW	Badanpur	-	Jhansi	Uttar Pradesh

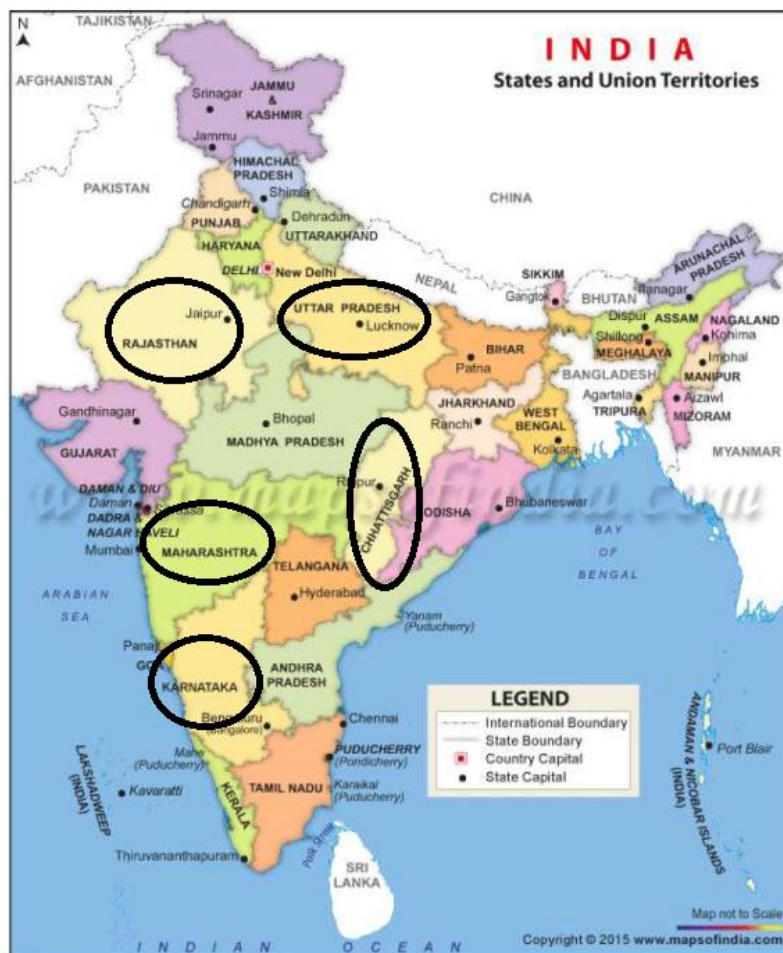
The Geo-coordinates of the project site is mentioned below:

Name of SPVs	Capacity (MW)	Latitude	Longitude
Parampujya Solar Energy Private Limited	100 MW	21° 31' 19.20" N 21° 31' 58.8" N	81° 12' 03.60" E 81° 14' 42.0" E
	20 MW	17° 56' 38.40" N	76° 16' 15.60" E
	100 MW	14° 15' 29.39" N 14° 14' 06.70" N	77° 29' 14.68" E 77° 27' 12.76" E
	40 MW	15° 34' 05.05" N	76° 02' 02.90" E
	50 MW	14° 14' 45.60" N	77° 27' 03.60" E
Wardha Solar (Maharashtra) Private Limited	100 MW	18° 21' 4.62" N	77° 18' 53.02" E
	50 MW	18° 11' 4.62" N	77° 24' 53.02" E
	40 MW	16° 55' 57.28" N	76° 59' 34.58" E
	50 MW	17° 47' 30.96" N	77° 1' 5.07" E
	50 MW	18° 11' 4.62" N	77° 18' 53.02" E
	50 MW	18° 10' 4.62" N	77° 24' 53.02" E
	10 MW	18° 20' 4.62" N	77° 16' 53.02" E
Kodangal Solar Parks Private Limited	20 MW	16° 27' 25.20" N	75° 56' 52.80" E
Prayatna Developers Private Limited	20 MW	27° 26' 39.31" N	71° 58' 1.75" E
Adani Green Energy (UP) Limited	20 MW	12° 13' 51.70" N	77° 03' 38.50" E
	20 MW	14° 41' 48.21" N	75° 29' 18.78" E
	20 MW	12° 49' 54.48" N	76° 12' 50.63" E
	20 MW	13° 16' 57.95" N	76° 25' 17.47" E
	20 MW	12° 50' 16.89" N	77° 58' 58.70" E
	20 MW	12° 37' 12.03" N	77° 07' 40.37" E
	20 MW	12° 40' 48.0" N	76° 35' 42.0" E
	20 MW	12° 25' 48.0" N	76° 11' 02.40" E
	20 MW	16° 49' 01.20" N	76° 33' 00.00" E
	20 MW	13° 00' 54.00" N	77° 13' 30.0" E
	20 MW	12° 48' 18.0" N	77° 09' 25.20" E

	20 MW	13° 24' 43.20" N	76° 45' 36.0" E
Adani Green Energy (UP) Limited	50 MW	25° 22' 02.31" N	78° 18' 30.01" E

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The project locations have been in **Chhattisgarh, Maharashtra, Karnataka, Rajasthan** and Uttar Pradesh states of India. The map of India is shown as below:



1.8 Title and Reference of Methodology

Title	: Grid-connected electricity generation from renewable sources
Reference	: The project activity meets the eligibility criteria of large scale project as it is more than 15 MW
Methodology	: ACM0002: Grid-connected electricity generation from renewable sources - Version 19.0 ³
Type I	: Energy industries (renewable / non-renewable sources)
Category	: Approved Consolidated Methodology (ACM0002)

³ <http://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD>

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

- Tool to calculate the emission factor for an electricity system⁴ - Version 07.0 (EB 100, Annex 04)
- Methodological Tool- Tool for the demonstration and assessment of additionality⁵ - Version 07.0.0 (EB 70, Annex 08)

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1.9 Participation under other GHG Programs

The project has neither been registered nor seeking registration under any other GHG programs. The project is seeking registration only in VCS program.

1.10 Other Forms of Credit

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

However it can be crosschecked that PP is not claiming REC benefits, the same can be verified with the REC accreditation body of India⁶

1.11 Sustainable Development

The four indicators¹ stipulated by the NCDMA, MOEF&CC (National CDM Authority) which is the DNA (Designated National Authority) of India, for defining sustainable development are:

- Social well being
- Economic well being
- Environmental well being
- Technological well being

The Project participant contribution from the project activity towards sustainable development in accordance to NCDMA is explained below:

Social well-being:

- The project is implemented in a rural area that does not have proper roads and other infrastructure facilities. The project activity would augment infrastructural development like roads etc. in the area, thus benefitting local communities.

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

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

⁶ https://recregistryindia.nic.in/index.php/general/publics/accredited_regens_pdf

- The project activity would lead to enhanced direct and indirect employment opportunities at all levels from unskilled to skilled workers.

Economic well-being:

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- The project activity involves capital investments, thus leading to the overall development of the region.
- The project activities would also lead to enhanced business opportunities for local stakeholders like consultants, suppliers, manufacturers, contractors etc. All this would lead to improved financial security and overall development of the region.

Environmental well-being:

- The project activity being solar power project will have minimum environmental impact.
- Contribute in bridging the demand-supply gap of electricity by producing green energy
- The electricity generated by the project activity will be supplied to the Unified Indian grid, which otherwise would have been generated by fossil fuel fired power plants in the grid.
- The project activity also helps in conservation of depleting fossil fuels which at present are predominantly used for power generation.

Technical well-being:

The project activity is a clean and eco-friendly type of power generation in comparison to fossil fuel based projects. This not only helps reduce environmental pollution but also helps in conserving fossil fuels

2 SAFEGUARDS

2.1 No Net Harm

The project activity has no significant impact on the environment. Solar PV projects are not included in the Schedule I of the EIA notification S.O.1533 (E) dated 14th September 2006 and thus an EIA is not required. Ministry of Environment & forests vide their OM J-11013/41/2006 - IA II (I) dated 13th May 2011, has re-affirmed this and exempted solar power plants from EIA and Environmental Consent requirement. Further, no socio-economic impacts have been identified from the project and hence no mitigations measures are applicable.

2.2 Local Stakeholder Consultation

As a part of continuous feedback from stakeholders, there were no other major comments or protest raised by the stakeholders and they 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.

During the current monitoring period, positive feedback are received regarding site operation. No any grievances received during the current monitoring period, therefore, no any mitigation measures are required. In case of grievances, the nature of probable resolution is discussed with the plant head office and implemented by the site in charge.

2.3 AFOLU-Specific Safeguards

Not Applicable

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity involves the installation of solar project. The total installed capacity of the project is 990 MW Solar project located at Chhattisgarh, Karnataka, Maharashtra, Rajasthan and Uttar Pradesh states in India. The project is promoted by **Adani Green Energy Limited**.

The Project activity is a new facility (Greenfield) and the electricity generated by the project is exported to the Indian electricity grid. The project is therefore displacing 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.

In the Pre- project scenario the entire 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.

The project results in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 1,553,021 tCO_{2e} per year, thereon displacing 1,639,080 MWh/year amount of electricity from the grid over the 10 years crediting period.

The project activity harnesses solar energy through installation of Solar PV project with total installed capacity of 990 MW solar power project.

The technical specification for 100 MW solar project by Parampujya Solar Energy Private Limited at Chhattisgarh.

Sl. No.	Technical details of the equipment ⁷	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- JKM 320PP-72

⁷ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 100 MW.

3	Number of Inverters , Inverter Make & Model	1163 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22

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The technical specification for 20 MW solar project by Parampujya Solar Energy Private Limited at Karnataka.

Sl. No.	Technical details of the equipment ⁸	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- Lion Series
3	Number of Inverters , Inverter Make & Model	465 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22

The technical specification for 100 MW solar project by Parampujya Solar Energy Private Limited at Karnataka.

Sl. No.	Technical details of the equipment ⁹	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- JKM 320PP-72
3	Number of Inverters , Inverter Make & Model	1163 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22

The technical specification for 40 MW solar project by Parampujya Solar Energy Private Limited at Karnataka.

Sl. No.	Technical details of the equipment ¹⁰	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- Lion Series

⁸ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 20 MW.

⁹ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 100 MW.

¹⁰ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 40 MW.

3	Number of Inverters , Inverter Make & Model	931 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	20

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The technical specification for 50 MW solar project by Parampujya Solar Energy Private Limited at Karnataka.

Sl. No.	Technical details of the equipment ¹¹	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- JKM 320PP-72
3	Number of Inverters , Inverter Make & Model	1163 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22

The technical specification for 350 MW solar project by Wardha Solar (Maharashtra) Private Limited at Karnataka.

Sl. No.	Technical details of the equipment ¹²	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- JKM 320PP-72
3	Number of Inverters , Inverter Make & Model	1163 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22

The technical specification for 20 MW solar project by Prayatna Developers Private Limited at Rajasthan.

Sl. No.	Technical details of the equipment ¹³	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- JKM 320PP-72
3	Number of Inverters , Inverter Make & Model	466 Inverters Huawei/ SUN2000-43kTL-IN-C1

¹¹ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 50 MW.

¹² It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 350 MW.

¹³ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 20 MW.

4	Modules per String	20
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The technical specification for 20 MW solar project by Kodangal Solar Parks Private Limited at Karnataka.

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Sl. No.	Technical details of the equipment ¹⁴	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Manufacturer	Model capacity- 320 Wp Manufacturer- MSPVL/Suntech
3	Number of Inverters , Inverter Make & Model	465 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22/20

The technical specification for 240 MW solar project by Adani Green Energy (UP) Limited at Karnataka.

Sl. No.	Technical details of the equipment ¹⁵	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Manufacturer	Model capacity- 117.5 Wp Manufacturer- First Solar
3	Number of Inverters , Inverter Make & Model	466 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	11

The technical specification for 50 MW solar project by Adani Green Energy (UP) Limited at Jhansi, Uttar Pradesh.

Sl. No.	Technical details of the equipment ¹⁶	Description
1	Technology Used	Solar PV technology (Poly-Crystalline)
2	Modules capacity and Model	Model capacity- 320 Wp Model- JKM 320PP-72
3	Number of Inverters , Inverter Make & Model	1163 Inverters Huawei/ SUN2000-43kTL-IN-C1
4	Modules per String	22

¹⁴ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 20 MW.

¹⁵ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 240 MW.

¹⁶ It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 50 MW.

The details of the project commissioning dates are mentioned in the section 1.1. of the MR.

3.2 Deviations

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3.2.1 Methodology Deviations

There is no methodology deviation.

3.2.2 Project Description Deviations

There is no Project Description deviation applicable for this monitoring period. This is 3rd verification and there is no change in project design as descriptions are in line with approved PDD.

3.3 Grouped Projects

It is not grouped project activity. Hence it is not applicable.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF_{grid,OM,y}
Data unit	tCO ₂ /MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 13, June 2018 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 2014-15, 2015-16 & 2016-17. 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}
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¹⁷ http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver13.pdf

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 ¹⁸
Value applied	0.8723
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07” as per the latest data available for the most recent year 2016-17. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 13, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 13, June 2018 ¹⁹
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 CO₂ emission factor in year y (tCO₂/MWh) $EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25%
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

For Karnataka Site

Data / Parameter	$EG_{PJ,y}$
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¹⁸ http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver13.pdf

¹⁹ http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver13.pdf

Data unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations.
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	1698031.43
Monitoring equipment	The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.
QA/QC procedures to be applied	The meters are approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years.²⁰ The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.
Purpose of the data	Calculation of baseline emissions
Calculation method	Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh – Import, kWh
Comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

For Rajasthan Site

Data / Parameter	$EG_{PJ,y}$
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²⁰ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Data unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations.
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	47154.60
Monitoring equipment	The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.
QA/QC procedures to be applied	The meters is approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years.²¹ The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.
Purpose of the data	Calculation of baseline emissions
Calculation method	Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh – Import, kWh
Comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

For Chhattisgarh Site:

Data / Parameter	$EG_{PJ,y}$
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²¹ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Data unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations.
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	198178.32
Monitoring equipment	The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.
QA/QC procedures to be applied	The meters is approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years.²² The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.
Purpose of the data	Calculation of baseline emissions
Calculation method	Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh – Import, kWh
Comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

For Maharashtra Site

Data / Parameter	$EG_{PJ,y}$
Data unit	MWh/y

²² http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh
Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations.
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	42967.72
Monitoring equipment	The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.
QA/QC procedures to be applied	The meters is approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years.²³ The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.
Purpose of the data	Calculation of baseline emissions
Calculation method	Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh – Import, kWh
Comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

For Uttar Pradesh Site

Data / Parameter	$EG_{PJ,y}$
Data unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh

²³ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations.
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	66050.25
Monitoring equipment	The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.
QA/QC procedures to be applied	The meters is approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years.²⁴ The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.
Purpose of the data	Calculation of baseline emissions
Calculation method	Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh – Import, kWh
Comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

4.3 Monitoring Plan

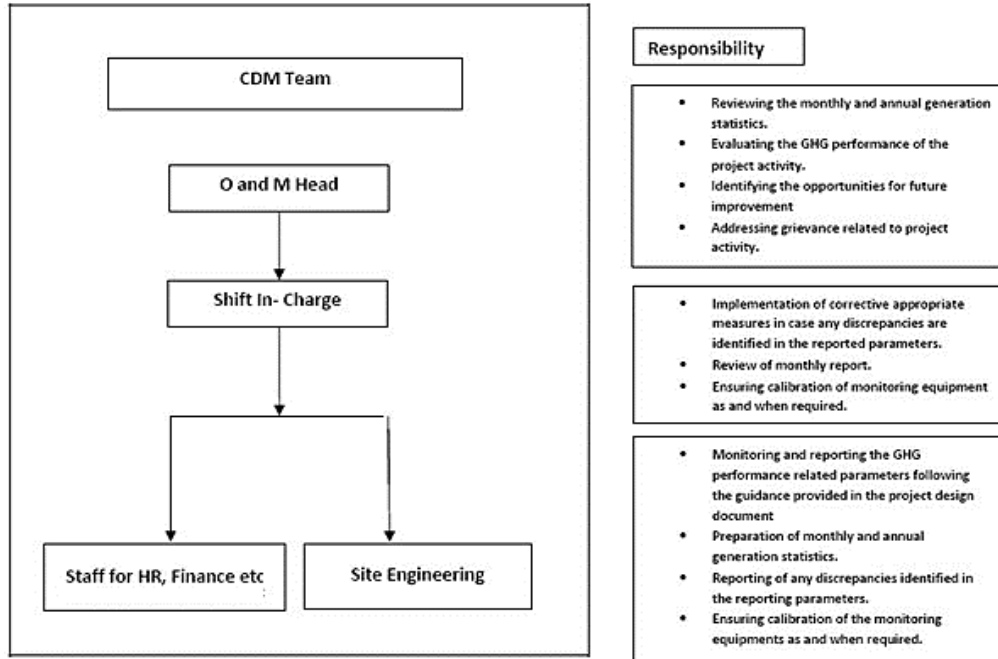
The monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for grid-connected solar power project being implemented. The monitoring plan, which will be implemented by the project participant describes about the monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PP proposed the following structure for

²⁴ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

data monitoring, collection, data archiving and calibration of equipments for this project activity. The team comprises of the following members:

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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 to PP, 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.

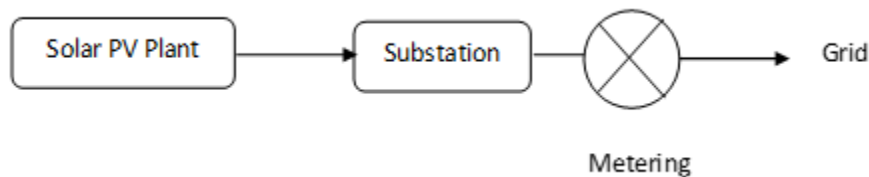
Personnel training

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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.

Metering Arrangement

Line diagram with metering arrangement for the solar project activity is shown below.



The metering arrangement for all the three solar sites are the same. Each solar plant have their own dedicated metering arrangement at the substation end. The metering arrangement is under control of state electricity board and may change in future.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

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

Where:

BE_y :	Baseline emissions in year y (tCO ₂ e/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 VCS 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 e/MWh)

Parameter	Unit	Value
$EG_{PJ, y}$	MWh	2,052,382.33
$EF_{grid,CM,y}$	tCO ₂ e/MWh	0.9475
BE_y	=	2,052,382.33 * 0.9475
BE_y	=	1,944,499 tCO ₂ e (Round down value)

5.2 Project Emissions

Not Applicable, since project emissions from the solar project activity is zero as per ACM0002 methodology.

5.3 Leakage

Not Applicable, since leakage emissions from the solar project activity is zero as per ACM0002 methodology.

5.4 Net GHG Emission Reductions and Removals

In reference to section 5.1 of this MR, the Baseline emission has been calculated using the formula given below: -

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

Where:

BE_y : Baseline emissions in year y (tCO₂e/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 VCS project activity in year y (MWh/yr)

$EF_{grid,CM,y}$: Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂e/MWh)

Hence,

$$BE_y = 2,052,382.33 * 0.9475 = 1,944,499 \text{ tCO}_2\text{e (Round down value)}$$

As per Section 5.7 of ACM0002 methodology (version 19), Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

$E R_y$ = Emission reductions in year y (t CO₂e/yr)

$B E_y$ = Baseline emissions in year y (t CO₂/yr)

$P E_y$ = Project emissions in year y (t CO₂e/yr)

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Hence, ER_y = 1,944,499 – 0

= 1,944,499 tCO₂e (Rounded Down Figure)

The breakdown of GHG emission reductions and removals by vintages has been summarized in the table below: -

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2020	1,944,499	0	0	1,944,499
Total	1,944,499	0	0	1,944,499

During the current Monitoring Period from 01-January-2020 to 31-December-2020, actual emission reductions achieved are 1,944,499 tCO₂e whereas estimated emission reductions was 1,557,275 tCO₂e. The project witnessed an increase of 24.87% in emission reductions as compared to ex-ante emissions, which is due to natural phenomena and nature dependent and cannot be controlled by the Project Proponent.

Since this is the 3rd verification of the project activity, the net electricity generated for these monitoring periods, emission reduction (actual as well as estimated) and its percentage change is as below: -

Monitoring Period			Total Net Electricity Supplied EGPJ,y (MWh)	ER Achieved (tCO ₂ e)	% Change in ER (Actual vs Estimated)
1st	28-Sep-17	30-Sep-18	1060786.385	1004735	-36%
2nd	1-Oct-18	31-Dec-19	2526964.283	2394094	-24%
3rd (Current)	1-Jan-20	31-Dec-20	2052382.327	1944499	25%
					-11.71%

The IRR of the project activity was demonstrated based on the generation amount of the entire crediting period. It is noted the electricity generation amount from the first to present monitoring period is still 11.71% lower from the estimated in the registered VCS PD.

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Based on the above, it can be confirmed that there is no impact on the additionality of the project activity despite increase of emission reduction achieved during monitoring period.

Appendix 1: Meter Calibrations

Name of SPVs	Capacity in MW	Date of Commission	Meter Details	Due date of calibration ²⁵
Parampujya Solar Energy Private Limited	100 MW	40 MW on 16-December-2017	Main Meter: CSE41285	13-December-2022
		10 MW on 08-March-2018	Check Meter: CSE41269	
		40 MW on 14-December-2017	Main Meter: XE554165	
		10 MW on 08-March-2018	Check Meter: CSE41282	

²⁵ At the time of commissioning, newly calibrated meters were installed. Hence during the current monitoring period, no delay in error factor is applicable. Still time to time meter calibrations for all the sites were carried out.

Name of SPVs	Capacity in MW	Date of Commission	Meter Details	Due date of calibration ²⁵
	20 MW	22-February-2018	Main Meter: 02832472	21-February-2023
			Check Meter: 02832473	
	100 MW	50 MW on 06-December-2017	T2P5 Main Meter 17117921	05-December-2022
			T2P5 Check Meter 17117922	
			T2P6 Main Meter 17117919	
			T2P6 Check Meter 17117920	
		50 MW on 15-December-2017	R1P11 Main Meter 17117925	
			R1P11 Check Meter 17117929	
			R1P12 Main Meter 17117923	
			R1 P12 Check Meter 17117924	
	40 MW	20 MW on 08-March-2018	Main Meter 17051235	07-March-2023
		20 MW on 08-March-2018	Check Meter 17117581	
	50 MW	03-January-2018	T2P09 Main Meter 17117883	02-January-2023

Name of SPVs	Capacity in MW	Date of Commission	Meter Details	Due date of calibration ²⁵
		Monitoring Report: VCS Version 4.0	T2P09 Check Meter 17117894	
			T2P10 Main Meter 17117809	
			T2 P10 Check Meter 17117859	
Wardha Solar (Maharashtra) Private Limited	350 MW	100 MW on 12-February-2018	Main Meter 17117914	11-February-2023
			Check Meter 17117907	
			Main Meter 17117916	
			Check Meter 17117908	
		50 MW on 27-February 2018	Main Meter 17117793	26- February-2023
			Check Meter 17117794	
		40 MW on 26- February -2018	Main Meter 17069221	25- February-2023
			Check Meter 17069179	
		50 MW on 29-January-2018	Main Meter 16113406	28-January-2023
			Check Meter 16113453	
		50 MW on 14-February-2018	Main Meter 17069189	13-February-2023
			Check Meter 17069203	
		50 MW on 17-December-2017	Main Meter 10 MW 17117817	16-December-2022
			Check Meter 10 MW 17117854	

Name of SPVs	Capacity in MW	Date of Commission	Meter Details	Due date of calibration ²⁵
			Main Meter 40 MW 17051106	
			Check Meter 40 MW 17117820	
		10 MW on 08-March-2018	Main Meter 17051089	07- March-2023
			Check Meter 17051157	
Kodangal Solar Parks Private Limited	20 MW	05-January-2018	Main Meter 17117910	04-January-2023
			Check Meter 17117915	
Prayatna Developers Private Limited	20 MW	10 MW on 29-September-2017	Main Meter RJB 90451	28- September-2022
			Check Meter RJB 90452	
		10 MW on 11-October-2017	Main Meter RJB 90453	
			Check Meter RJB 904524	
Adani Green Energy (UP) Limited	240 MW	20 MW on 30-January-2018	Main Meter 17115575	29-January -2023
			Check Meter 17115581	
		20 MW on 02-March-2018	Main Meter 16113303	01-March-2023
			Check Meter 16113423	
		20 MW on 09-March-2018	Main Meter 17117830	08-March-2023
			Check Meter 17117909	
		20 MW on 13-October-2017	Main Meter 17117831	12-October-2022
			Check Meter 17117835	

Name of SPVs	Capacity in MW	Date of Commission	Meter Details	Due date of calibration ²⁵
		20 MW on 18-November-2017	Main Meter 17117797	17- November-2022
			Check Meter 17117798	
		20 MW on 22-December-2017	Main Meter 17117852	21- December-2022
			Check Meter 17117857	
		20 MW on 18-October-2017	Main Meter 17115582	17-October-2022
			Check Meter 17115571	
		20 MW on 08-January-2018	Main Meter 17117800	07- January-2023
			Check Meter 17117801	
		20 MW on 28-September-2017	Main Meter 17071231	27- September -2022
			Check Meter 17071234	
		20 MW on 28-March-2018	Main Meter 17117842	27- March -2023
			Check Meter 17117863	
Adani Green Energy (UP) Limited	50 MW	20 MW on 02-October-2017	Main Meter 17071202	01- October -2022
			Check Meter 17071210	
		20 MW on 27-January-2018	Main Meter 17071202	26- January -2023
			Check Meter 17071210	
		50 MW on 10-May-2019	Main Meter 16193103	09-May-2024
			Check Meter 15197803	

Appendix 2: MAJOR BREAKDOWN DETAILS

DATE	Plant Name	DOWNTIME	UPTIME	Duration of Break down (Hrs)	FAULTDESCRIPTION
05-March-2020	Yatnal	06:00:00	19:00:00	13:00:00	HT Cable 300Sqmm Ground Fault Between Block 07 & MCR Indoor Incomer 03
05-March-2020	Yatnal	06:00:00	19:00:00	13:00:00	HT Cable 300Sqmm Ground Fault Between Block 07 & MCR Indoor Incomer 03
09-March-2020	Rastapur	06:30:00	18:40:00	12:10:00	Cable damage
09-March-2020	Rastapur	06:30:00	18:40:00	12:10:00	Cable damage
13-March-2020	Madhuvanhalli-1	06:24:00	18:35:00	12:11:00	240 s q mm cable failure
14-March-2020	Madhuvanhalli-1	06:26:00	18:36:00	12:10:00	240 s q mm cable failure
14-March-2020	Rastapur	06:26:00	19:00:00	12:34:00	MCCB Problem
14-March-2020	Rastapur	06:26:00	19:00:00	12:34:00	MCCB Problem

15-March-2020	Madhuvanhalli-1	06:24:00	18:36:00	12:12:00	240 s q mm cable failure
15-March-2020	Yatnal	06:29:00	18:40:00	12:11:00	block 2 MCCB 23 trip due to B Phase ground
15-March-2020	Yatnal	06:29:00	18:40:00	12:11:00	block 2 MCCB 23 trip due to B Phase ground
16-March-2020	Madhuvanhalli-1	06:22:00	18:36:00	12:14:00	240 s q mm cable failure
17-March-2020	Madhuvanhalli-1	06:25:00	18:35:00	12:10:00	240 s q mm cable failure
18-March-2020	Madhuvanhalli-1	06:25:00	18:35:00	12:10:00	240 s q mm cable failure
18-March-2020	Madhuvanhalli-1	06:25:00	18:35:00	12:10:00	240 s q mm cable failure
18-March-2020	Madhuvanhalli-1	06:25:00	18:35:00	12:10:00	240 s q mm cable failure
21-March-2020	Rawara	07:34:00	20:05:00	12:31:00	Buchholz Tripped,Check found IDT LV1 Y phase bushing internal problem
21-March-2020	Rawara	07:34:00	20:05:00	12:31:00	Buchholz Tripped,Check found IDT LV1 Y phase bushing internal problem
23-March-2020	Yatnal	06:25:00	18:47:00	12:22:00	MCCB Got Trip Due to 240 Sqmm LT Cable R -Phase Ground Fault
23-March-2020	Yatnal	06:25:00	18:47:00	12:22:00	MCCB Got Trip Due to 240 Sqmm LT Cable R -Phase Ground Fault
24-March-2020	Yatnal	06:24:00	18:34:00	12:10:00	MCCB Got Trip Due to 240 Sqmm LT Cable R -Phase Ground Fault
24-March-2020	Yatnal	06:24:00	18:34:00	12:10:00	MCCB Got Trip Due to 240 Sqmm LT Cable R -Phase Ground Fault

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
Jhansi	02-April-2020	16:03:00	16:28:00	00:25:00	Grid Fail
AGETL	04-April-2020	11:34:00	11:59:00	00:25:00	dc earth fault
Pavagada-3	08-April-2020	13:00:00	13:25:00	00:25:00	Line 1, 612 bay at T2 substation side tripped due to change in relay setting by KSPDCL people in directional over current relay.
Maskal	08-April-2020	06:30:00	10:37:00	04:07:00	3CX240 Sqmm cable R Phase ground fault

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
PDPL-01	11-April-2020	10:35:00	11:00:00	00:25:00	emergency stop
PDPL-01	11-April-2020	16:30:00	16:55:00	00:25:00	ac over current
Madhuvanhalli-1	14-April-2020	06:06:00	18:35:00	12:29:00	240 SQMM cable fault
Madhuvanhalli-1	14-April-2020	12:00:00	12:25:00	00:25:00	MCCB Thermal trip
Madhuvanhalli-1	15-April-2020	12:30:00	12:55:00	00:25:00	MCCB Thermal trip
Madhuvanhalli-2	15-April-2020	12:25:00	12:50:00	00:25:00	MCCB Thermal trip
Madhuvanhalli-1	17-April-2020	06:05:00	18:33:00	12:28:00	240 SQMM CABLE FAULT
Madhuvanhalli-1	18-April-2020	06:05:00	18:42:00	12:37:00	240 SQMM CABLE FAULT
Madhuvanhalli-1	19-April-2020	06:05:00	18:36:00	12:31:00	240 SQMM CABLE FAULT
Madhuvanhalli-1	20-April-2020	06:02:00	18:36:00	12:34:00	240 SQMM CABLE FAULT
KSPL	25-April-2020	09:10:00	09:35:00	00:25:00	SC Fault 1W
KSPL	25-April-2020	09:26:00	09:51:00	00:25:00	dc earth fault
PDPL-01	25-April-2020	12:05:00	12:30:00	00:25:00	DC Earth Fault/DC CB ON failure
KSPL	26-April-2020	07:00:00	07:25:00	00:25:00	dc earth fault
Ramnagara	27-April-2020	10:46:00	11:11:00	00:25:00	66KV line tripped from KPTCL end
Ghani	27-April-2020	10:00:00	10:25:00	00:25:00	Load reduced from 44 MW to 29 MW
Telengana DCR	27-April-2020	05:50:00	15:39:00	09:49:00	NA
PDPL-01	29-April-2020	06:17:00	06:42:00	00:25:00	DC CB ON FAILURE
AGETL	30-April-2020	07:00:00	10:16:00	03:16:00	dc earth fault
KSPL	30-April-2020	07:00:00	07:25:00	00:25:00	dc earth fault
KSPL	30-April-2020	07:00:00	10:16:00	03:16:00	dc earth fault
RREL	30-April-2020	07:00:00	09:02:00	02:02:00	Inv Drive Power Failure

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
PDPL-01	04-May-2020	06:00:00	07:19:00	01:19:00	DC CB On Failure
AGETL	05-May-2020	11:07:00	11:32:00	00:25:00	Temperature Abnormal
RREL	05-May-2020	07:00:00	07:25:00	00:25:00	DC CB On Failure
Chattisgarh-01	05-May-2020	14:49:00	15:14:00	00:25:00	132kV SAJA & TELKHEDA LINE TRIPPED FROM DHAMDHA SUBSTATION
RSPL	07-May-2020	11:34:00	11:59:00	00:25:00	string cable minor issue due to rain
KSPL	10-May-2020	13:10:00	13:35:00	00:25:00	sCB 5 string 11th found series MC4 burned
AGETL	11-May-2020	11:43:00	13:02:00	01:19:00	RAINING
Telangana DCR	11-May-2020	12:45:00	13:10:00	00:25:00	MCCB Over Heat
RREL	13-May-2020	07:00:00	07:25:00	00:25:00	string cable minor issue due to water logging
KREL	14-May-2020	11:15:00	11:40:00	00:25:00	AC Over Current
Rastapur	14-May-2020	17:55:00	18:20:00	00:25:00	IDT Trip due to flash over in LT Panel-2 ASB-19 MCCB
AGETL	17-May-2020	10:25:00	10:50:00	00:25:00	IGBT SAT Trip V1
PDPL-01	24-May-2020	06:04:00	06:29:00	00:25:00	DC earth fault
Madhuvanhalli-1	24-May-2020	05:55:00	18:25:00	12:30:00	LT Cable Fault in Y & B Phase
Madhuvanhalli-1	24-May-2020	05:55:00	18:25:00	12:30:00	LT Cable Ground Fault
KSPL	25-May-2020	07:00:00	07:25:00	00:25:00	1no charging resistor fault
Madhuvanhalli-1	25-May-2020	06:00:00	18:37:00	12:37:00	LT Cable Fault in Y & B Phase
Madhuvanhalli-1	25-May-2020	06:00:00	18:37:00	12:37:00	LT Cable Ground Fault
Tiptur	26-May-2020	09:41:00	11:00:00	01:19:00	Grid supply failure due to power transformer tripped at 220KV Arsikere SS
PDPL-02	27-May-2020	06:00:00	06:25:00	00:25:00	DC CB on failure
Chattisgarh-02	31-May-2020	18:48:00	20:50:00	02:02:00	Manually turned off for LT-Panel maintenance purpose

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
KSPL	01-June-2020	12:29:00	12:54:00	00:25:00	DC Earth Fault, minor fault
PDPL-01	05-June-2020	06:09:00	08:11:00	02:02:00	dc over voltage
PDPL-01	05-June-2020	13:30:00	13:55:00	00:25:00	emergency stop
Nalwar	06-June-2020	09:34:00	15:22:00	05:48:00	Power Curtailed to 33 MW instructed by KPTCL, due to Nalwar-Shahpur transmission line conductor cut.
Yatnal	06-June-2020	18:54:00	19:19:00	00:25:00	Grid tripped From Nandhial substation due to over load
AGETL	10-June-2020	09:58:00	12:00:00	02:02:00	scb 7 300 sq mm cable checked ,found faulty
Madhuvanhalli-1	11-June-2020	06:06:00	18:40:00	12:34:00	MCCB Failure
Rastapur	12-June-2020	20:14:00	23:30:00	03:16:00	Trafo PM & Oil leakage Attend purpose.
Tiptur	14-June-2020	15:50:00	16:15:00	00:25:00	Grid Supply failure due to KPTCL 110kv incomer breaker triped.
AGETL	16-June-2020	12:26:00	14:28:00	02:02:00	DC side CT FRC cable issue
PDPL-02	16-June-2020	17:21:00	17:46:00	00:25:00	Ambeint temperature
Telengana DCR	16-June-2020	11:48:00	13:07:00	01:19:00	incomer-2 Tripped on over current&Earth fault due to out door tower LA flashover
AGETL	18-June-2020	07:00:00	07:25:00	00:25:00	dc breaker feedback cable problem
Shorapur	20-June-2020	23:08:00	23:33:00	00:25:00	Due to 110 Kv main transformer tripped at remote end KPTCL, Shorapur
PDPL-02	21-June-2020	13:24:00	13:49:00	00:25:00	igbt sat trip
PDPL-02	25-June-2020	11:00:00	12:19:00	01:19:00	DC Earth Fault
Madhuvanhalli-2	28-June-2020	05:49:00	18:20:00	12:31:00	LT Cable Fault
Rastapur	01-July-2020	06:30:00	19:01:00	12:31:00	MCCB tripping malfuntion
PDPL-02	03-July-2020	12:05:00	12:30:00	00:25:00	IGBT Heat Sink Over temperature
AGETL	04-July-2020	07:00:00	07:25:00	00:25:00	DC CB Off Failure

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
RSPL	07-July-2020	07:00:00	07:25:00	00:25:00	DC CB On Failure
Gubbi	09-July-2020	16:10:00	16:35:00	00:25:00	Grid failure from 220KV Anthrasnahally SS due to Relay testing team checking relay test at 220KV SS.
PDPL-02	10-July-2020	06:15:00	06:40:00	00:25:00	AC CB ON failure
PDPL-01	13-July-2020	07:00:00	10:16:00	03:16:00	negative earth fuse fail
Madhuvanhalli-1	15-July-2020	06:15:00	18:45:00	12:30:00	240 Sq.mm cable damage
Madhuvanhalli-1	15-July-2020	06:15:00	18:45:00	12:30:00	240 Sq.mm cable damage
AGETL	16-July-2020	07:00:00	09:02:00	02:02:00	IGBT SAT Trip v2 ph
H Narsipura	21-July-2020	18:06:00	19:25:00	01:19:00	Grid down, tripped from 220KV SS Kadavinakote
Kallur- 40 MW	21-July-2020	10:09:00	10:34:00	00:25:00	220 kV kushtagi SS 100 MVA-1 Tripped due to over load
Kallur- 10 MW	21-July-2020	10:09:00	10:34:00	00:25:00	220 kV kushtagi SS 100 MVA-1 Tripped due to over load
Pavagada-2	23-July-2020	06:10:00	18:44:00	12:34:00	LT Panel to ASB 240sqmm cable fault
Pavagada-2	23-July-2020	06:10:00	18:44:00	12:34:00	LT Panel to ASB 240sqmm cable fault
Pavagada-2	23-July-2020	06:10:00	18:44:00	12:34:00	LT Panel to ASB 240sqmm cable fault
Madhuvanhalli-1	23-July-2020	06:08:00	18:40:00	12:32:00	240 Sq.mm cable damage
Kallur- 40 MW	24-July-2020	11:09:00	14:25:00	03:16:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders
Kallur- 10 MW	24-July-2020	11:09:00	14:25:00	03:16:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders
PDPL-01	25-July-2020	06:30:00	06:55:00	00:25:00	dc earth fault
Gubbi	26-July-2020	10:22:00	10:47:00	00:25:00	Grid failure from 220 KV Antrasnahalli Substation due to Maintenance work
Kallur- 40 MW	26-July-2020	11:28:00	15:35:00	04:07:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
Kallur- 10 MW	26-July-2020	11:28:00	15:35:00	04:07:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders
AGETL	27-July-2020	06:30:00	06:55:00	00:25:00	DC CB Off Failure
RREL	27-July-2020	10:54:00	11:19:00	00:25:00	V1 Phase
H Narsipura	27-July-2020	13:16:00	14:35:00	01:19:00	Grid down, tripped from 220KV SS Kadavinakote
KSPL	03-August-2020	06:30:00	06:55:00	00:25:00	EXT DI4 FAULT
Jhansi	06-August-2020	07:50:00	09:09:00	01:19:00	dc earth in scb 16 stg 08 & 04
RREL	07-August-2020	09:13:00	09:38:00	00:25:00	DC EARTH FAULT
Ghani	07-August-2020	06:00:00	18:30:00	12:30:00	ASB to LT panel cable fault
KREL	08-August-2020	12:29:00	12:54:00	00:25:00	Short Circuit Fault 1V
AGETL	09-August-2020	09:23:00	09:48:00	00:25:00	DC Earth Fault
RSPL	09-August-2020	09:55:00	17:29:00	07:34:00	25% LOAD RESTRICTION
KREL	09-August-2020	09:55:00	17:29:00	07:34:00	25% LOAD RESTRICTION
RREL	09-August-2020	09:55:00	17:29:00	07:34:00	25% LOAD RESTRICTION
Madhuvanhalli-1	10-August-2020	13:10:00	13:35:00	00:25:00	ASB Isolation for Inverter Replacement
Shorapur	11-August-2020	23:11:00	23:36:00	00:25:00	Due to 110KV Main line tripped at Remote end
KREL	17-August-2020	06:30:00	06:55:00	00:25:00	NA
Rastapur	17-August-2020	06:19:00	18:50:00	12:31:00	240 mmsq Cable faulty
Rastapur	21-August-2020	06:13:00	18:49:00	12:36:00	240sqmm cable R phase Faulty
Telengana DCR	23-August-2020	06:00:00	18:30:00	12:30:00	4 sq mm cable insulation failure
Nalwar	23-August-2020	15:05:00	15:30:00	00:25:00	Nalwar-Shahapur line tripped, distance protection activated, Plant delivers power through Nalwar-Shahabad line only
AGETL	24-August-2020	09:08:00	09:33:00	00:25:00	V1 Phase

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
Madhuvanhalli-2	25-August-2020	12:10:00	12:35:00	00:25:00	Thermal Trip
KSPL	27-August-2020	07:38:00	08:03:00	00:25:00	DC Earth Fault
AGETL	28-August-2020	06:30:00	07:49:00	01:19:00	AC breaker trip
Nalwar	28-August-2020	07:58:00	15:32:00	07:34:00	Power Curtailed to 15 MW due to Nalwar-Shahabad line LC taken by KPTCL and plant charged through Nalwar-Shahpur line
KSPL	29-August-2020	06:30:00	06:55:00	00:25:00	DC Earth Fault
RREL	29-August-2020	07:05:00	07:30:00	00:25:00	DC EARTH FAULT
RREL	01-September-2020	06:30:00	06:55:00	00:25:00	DC Earth Fault
RREL	01-September-2020	06:30:00	06:55:00	00:25:00	SC Fault
Ramnagara	04-September-2020	16:13:00	18:15:00	02:02:00	dc cb on failure
PDPL-01	04-September-2020	06:40:00	07:05:00	00:25:00	negative earth fuse fail
KREL	05-September-2020	10:48:00	11:13:00	00:25:00	Earth Fault
Madhuvanhalli-1	05-September-2020	06:09:00	18:40:00	12:31:00	Power Curtailed to 35 MW instructed by KPTCL, due to Nalwar-Shahpur transmission line conductor cut.
Madhuvanhalli-1	05-September-2020	06:09:00	18:40:00	12:31:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders
RREL	07-September-2020	08:23:00	08:48:00	00:25:00	Earth Fault
Shorapur	08-September-2020	12:38:00	13:03:00	00:25:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
Maskal	08-September-2020	12:23:00	16:30:00	04:07:00	220 KV Suzlon line-II B phase protection CT got flash over at 220 KV RS Kushtagi end
KREL	12-September-2020	06:30:00	06:55:00	00:25:00	Grid failure from KPTCL Bidadi S/S.
PDPL-01	12-September-2020	16:40:00	17:05:00	00:25:00	For T2 maintenance
Madhuvanhalli-1	15-September-2020	12:45:00	13:10:00	00:25:00	MCCB connected to inverter12&13 tripped.
Bagewadi	22-September-2020	13:04:00	14:23:00	01:19:00	Auto Reset
Madhuvanhalli-1	24-September-2020	12:30:00	12:55:00	00:25:00	300 SQ MM CABLE FAULT
KSPL	26-September-2020	08:43:00	09:08:00	00:25:00	EXT DI4 fault
Rastapur	27-September-2020	11:28:00	15:35:00	04:07:00	Feedback Card Failure
Madhuvanhalli-2	27-September-2020	11:55:00	12:20:00	00:25:00	aC Over Current
RREL	28-September-2020	06:30:00	06:55:00	00:25:00	50 MW outgoing feeder R phase CT Flashover
Gubbi	28-September-2020	15:25:00	15:50:00	00:25:00	LT Panel -2 Inverter off due to ASB-17 240 sqmm. cable R phase grounded.
AGETL	29-September-2020	11:00:00	11:25:00	00:25:00	DC CB On Failure
KSPL	29-September-2020	11:00:00	11:25:00	00:25:00	DC Earth fault

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
RSPL	29-September-2020	11:00:00	11:25:00	00:25:00	AC Over Current
KREL	29-September-2020	11:00:00	11:25:00	00:25:00	DC Earth Fault
RREL	29-September-2020	11:00:00	11:25:00	00:25:00	Power curtailment due to low power consumption at 220kV Kushatagi SS & its downstream feeders
PDPL-01	01-October-2020	09:10:00	09:35:00	00:25:00	DC Earth fault
Madhuvanhalli-2	01-October-2020	13:15:00	13:40:00	00:25:00	Charging Resistor failure
AGETL	01-November-2020	06:30:00	07:49:00	01:19:00	DC Earth fault
KSPL	03-November-2020	11:04:00	11:29:00	00:25:00	Grid Supply Failed from Byadgi Subsation due to parellel line fault (33KV Kaganhalli Feeder Tripped)
KSPL	04-November-2020	16:21:00	17:40:00	01:19:00	Grid Supply Failed from Byadgi Subsation due to parellel line fault (33KV Kaganhalli Feeder Tripped)
AGETL	05-November-2020	11:45:00	12:10:00	00:25:00	EXT DI4 fault
KSPL	05-November-2020	06:30:00	06:55:00	00:25:00	EXT DI4 fault
KSPL	05-November-2020	09:29:00	09:54:00	00:25:00	W2phase
RREL	05-November-2020	06:30:00	08:32:00	02:02:00	IGBT Sat trip
KREL	06-November-2020	08:20:00	11:36:00	03:16:00	DC CB OFF failure

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
AGETL	07-November-2020	08:05:00	08:30:00	00:25:00	DC EARTH FAULT
AGETL	07-November-2020	13:30:00	13:55:00	00:25:00	EXT DI4 fault
RREL	07-November-2020	06:30:00	07:49:00	01:19:00	EXT DI4 fault
KSPL	09-November-2020	12:37:00	13:02:00	00:25:00	50% LOAD RESTRICTION
KSPL	13-November-2020	11:27:00	11:52:00	00:25:00	25% LOAD RESTRICTION
KSPL	13-November-2020	06:30:00	07:49:00	01:19:00	25% LOAD RESTRICTION
RREL	15-November-2020	10:59:00	11:24:00	00:25:00	dC EARTH FAULT
AGETL	17-November-2020	07:00:00	07:25:00	00:25:00	DC EARTH FAULT
KSPL	17-November-2020	07:46:00	09:05:00	01:19:00	u1 phase
AGETL	18-November-2020	08:52:00	12:08:00	03:16:00	EXT DI4 fault
KSPL	18-November-2020	08:23:00	09:42:00	01:19:00	Q Power
KSPL	19-November-2020	06:30:00	08:32:00	02:02:00	Inverter fuse failure
RSPL	20-November-2020	11:32:00	11:57:00	00:25:00	DC Earth fault

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
AGETL	21-November-2020	10:32:00	10:57:00	00:25:00	EXT DI4 fault
KSPL	21-November-2020	06:30:00	07:49:00	01:19:00	DC Earth fault
RREL	21-November-2020	06:30:00	07:49:00	01:19:00	DC Earth fault
KSPL	23-November-2020	06:30:00	08:32:00	02:02:00	DC Earth fault
KSPL	23-November-2020	06:30:00	08:32:00	02:02:00	dC CB Off Failure
KREL	23-November-2020	11:17:00	11:42:00	00:25:00	Negative earth fuse failure
KSPL	26-November-2020	08:35:00	09:00:00	00:25:00	dc cb off failure
AGETL	28-November-2020	14:02:00	15:21:00	01:19:00	110KV grid failure from Shahabad
KSPL	01-December-2020	06:30:00	07:49:00	01:19:00	33KV AB Cable Line-01 B-Phase Insulation Failure
KSPL	01-December-2020	08:09:00	08:34:00	00:25:00	DC CB On Failure
KREL	03-December-2020	06:30:00	08:32:00	02:02:00	EXT DI4 fault
RREL	03-December-2020	06:30:00	08:32:00	02:02:00	EXT DI4 fault
AGETL	04-December-2020	06:30:00	08:32:00	02:02:00	Q Power

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
KSPL	05-December-2020	16:33:00	16:58:00	00:25:00	SCB OFF
KSPL	05-December-2020	11:58:00	12:23:00	00:25:00	Grid failed from 66KV substation
KSPL	05-December-2020	10:49:00	11:14:00	00:25:00	25% LOAD RESTRICTION
AGETL	06-December-2020	11:15:00	11:40:00	00:25:00	EXT DI4 fault
KSPL	06-December-2020	06:30:00	06:55:00	00:25:00	Inverter Fuse Failure
KSPL	07-December-2020	06:30:00	07:49:00	01:19:00	25% LOAD RESTRICTION
KSPL	08-December-2020	06:30:00	07:49:00	01:19:00	DC CB On Failure
AGETL	10-December-2020	10:34:00	10:59:00	00:25:00	Dc earth fault
KSPL	11-December-2020	06:30:00	06:55:00	00:25:00	emergency stop
KSPL	11-December-2020	07:36:00	08:01:00	00:25:00	33kv line tripped
Kilaj	12-December-2020	15:58:00	18:00:00	02:02:00	Grid failure due to Main supply failure at Kothipura 220 KV SS
KSPL	14-December-2020	08:02:00	08:27:00	00:25:00	Block-6 shutdown taken for LV-1 & 2 Bushings replacement
KSPL	14-December-2020	09:25:00	09:50:00	00:25:00	EXT DI4 fault

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
KSPL	16-December-2020	07:54:00	08:19:00	00:25:00	dC Earth fault
AGETL	17-December-2020	09:29:00	10:48:00	01:19:00	Dc earth fault
KREL	17-December-2020	09:50:00	13:57:00	04:07:00	Auto Reset
Jhansi	17-December-2020	16:14:00	16:39:00	00:25:00	w2phase
RREL	19-December-2020	13:13:00	13:38:00	00:25:00	U1&V2 PHASE
KSPL	20-December-2020	16:15:00	16:40:00	00:25:00	Net Loss
Kanasar	20-December-2020	12:51:00	13:16:00	00:25:00	dc earth fault
KSPL	24-December-2020	08:38:00	09:03:00	00:25:00	EXT DI4 fault
KSPL	24-December-2020	08:38:00	09:03:00	00:25:00	dC earth fault
RREL	24-December-2020	06:30:00	07:49:00	01:19:00	Dc earth fault
AGETL	26-December-2020	06:30:00	08:32:00	02:02:00	25% LOAD RESTRICTION
PDPL-01	26-December-2020	12:20:00	12:45:00	00:25:00	Auto Reset
KSPL	27-December-2020	08:45:00	09:10:00	00:25:00	DC Earth fault

PLANTNAME	DATE	DOWNTIME1	UPTIME1	Duration of Break down (Hrs)	FAULTDESCRIPTION
RREL	28-December- 2020	16:07:00	16:32:00	00:25:00	Ground card fuse failire
Ramnagara	28-December- 2020	17:04:00	19:06:00	02:02:00	Recharge Alarm
AGETL	29-December- 2020	08:17:00	09:36:00	01:19:00	u1 PHASE
KSPL	31-December- 2020	15:29:00	15:54:00	00:25:00	