

File No.: VIS(2022-23)-PL569-463-786

Dated: 26-04-2023

# PROJECT COMPLETION REPORT OF 12.82 MW GRID TIED SOLAR ROOF TOP POWER PLANT

SET-UP AT  
27 LOCATIONS IN INDIA

COMPANY/PROMOTER  
JYOTIKIRAN ENERGY MUMBAI PVT. LTD.

REPORT PREPARED FOR  
JYOTIKIRAN ENERGY MUMBAI PVT. LTD.

TO BE SUBMITTED AT

- Corporate Valuers
- Business/ Enterprise/ Equity Valuations
- Lender's Independent Engineer (BANK OF INDIA, SME BRANCH, SOUTH EXTENSION, DELHI)

- Techno Economic Viability Consultants (TEV)

- Agency for Specialized Account Monitoring (ASM)

- Project Techno-Financial Advisors

- Chartered Engineers

- Industry/ Trade Rehabilitation Consultants

- NPA Management

- Panel Valuer & Techno Economic Consultants for PSU Banks

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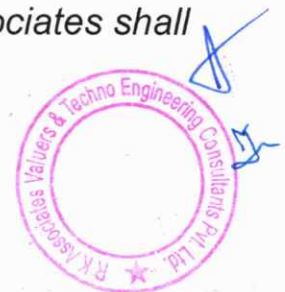
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## PART A

## REPORT SUMMARY

1.	Name of the Project	12,818.3 KW Grid Tied Solar Rooftop Photo Voltaic
2.	Project Location	29 locations across PAN India
3.	Name of the Borrower Company/ Promoter	M/s Jyotikiran Energy Mumbai Pvt. Ltd.
4.	Prepared for Organization	State Bank of India, SME Branch, South Extension, Delhi
5.	LIE Consultant Firm	M/s. R.K. Associates Valuers & Techno Engineering Consultants (P) Ltd
6.	Date of Survey	23-Jan-2023 to 25-Apr-2023
7.	Date of Report	26-04-2023
8.	Details & documents provided by	Mr. Prashant Malhotra, Senior Manager, Project Finance <b>E-mail:</b> <a href="mailto:pmalhotra@sunsource-energy.com">pmalhotra@sunsource-energy.com</a> <b>Mob:</b> +91 99538 90449  Mr. Shekhar Biswas Deputy Manager, Asset Management, <b>E-mail:</b> <a href="mailto:shekhar.biswas@sunsource-energy.com">shekhar.biswas@sunsource-energy.com</a> <b>Mob:</b> +91 88879 69504
9.	Survey in presence of	<ol style="list-style-type: none"> <li>Mr. Abhishek Jain Designation: Assistant Manager +91-9958277543</li> <li>Mr. Ajay Bisht Designation: Asset Management Executive +91-8368473577</li> <li>Mr. Gourav Goyal Designation: Assistant Manager +91-9599198719</li> <li>Mr. Tajuddin Menduk Designation: Executive +91-9967647262</li> <li>Mr. Vishal Kumar Bharti Designation: Assistant Manager +91-7749995790</li> <li>Mr. Harshit Designation: Site Engineer +91- 9140808517</li> </ol>
10.	Concerned Bank Officer	Ms. Neha Vidhyarthi, RMSME, SME, South EX <b>E-mail:</b> <a href="mailto:rmsme1.13913@sbi.co.in">rmsme1.13913@sbi.co.in</a> <b>Mob:</b> +91 73024 63636
11.	Report Type	Project Completion Report
12.	Purpose of the Report	Review, evaluate & comment on project present status details to facilitate bankers to take business decision on the Project.
13.	Scope of the Report	To examine the current status of installation/ Commissioning of the Project based on virtual site inspections and the details provided by the company.
14.	Documents produced for Perusal	<ol style="list-style-type: none"> <li>Copy of Commencement Orders</li> <li>Copy of NOCs</li> <li>Copy of Plant Layouts</li> </ol>



# PROJECT COMPLETION REPORT

12.8 MW SOLAR POWER PLANT

		<p>d. Energy Production data month-wise from the date of incorporation/ COD.</p> <p>e. Screenshot of AC Power/ AC Energy production graph for each site as of date.</p>
15.	<b>Annexure with the Report</b>	<ul style="list-style-type: none"><li>• Photographs</li><li>• Screenshot of AC Power/ AC Energy production Graphs</li><li>• Commencement Certificate</li></ul>





### PART B

### INTRODUCTION

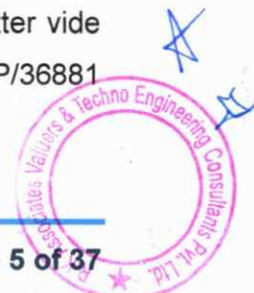
- 1. NAME OF THE PROJECT:** Grid Connected Solar Rooftop Photo Voltaic Solar Power Project to be installed and commissioned at 29 locations across PAN India with the capacity of 12,818.3 KW by M/s Jyotikiran Energy Mumbai Pvt. Ltd. (JEMPL) a SPV of SunSource Energy Private Limited.
- 2. PROJECT OVERVIEW:** SunSource Energy Private Limited (SSEPL) a company incorporated under the provisions of companies Act 2013, dated 18/01/2010. SunSource Energy Private Limited is a solar project development and turnkey execution company, founded by Mr. Adarsh Das and Mr. Kushagra Nandan in 2010.

The procurement activities in respect of the aforesaid Project on behalf of Ministry of New and Renewable Energy, Government of India has been entrusted to Solar Energy Corporation of India Limited (A Government of India Enterprise) incorporated under the Companies Act, 2013, having its Registered Office at D-3, 1<sup>st</sup> Floor, Wing - A, Prius Platinum Building, District Centre, Saket, New Delhi - 110 017 (hereinafter referred to as 'SECI'/'EMPLOYER').

SECI, therefore, invited sealed bids from eligible bidders to participate in Request for Selection (RfS) for Site Survey, Design, Manufacture, Supply, Erection, Testing and Commissioning including Warranty, Operation and Maintenance of Grid Connected Rooftop Solar PV Power System in different Zones of India as per RfS No.SECI/C&P/RfS/MNRE/97.5MW GCRT/R1/IND/082019 dated 29.08.2019 which further amended as per Amendment no. I dated 18.10.2019.

Further, Solar Energy Corporation of India has appointed Sunsource Energy Private Limited for setting up of 97.50MWp Grid Connected Rooftop Solar PV Scheme for government buildings in different zones of India under CAPEX/ RESCO Model, as per the LOA vide dated: 15/01/2020, Ref No.- SECI/C&P/RfS/MNRE/97.5MW GCRT/R1/IND/082019/LOA/ 35415.

Further in line with the provisions of the tender document SECI has given approval for the incorporation of Project company named M/s. Jyotikiran Energy Mumbai Pvt. Ltd. (JEMPL) an SPV company of M/s. Sunsource Energy Private Limited (SEPL) through letter vide Ref. No. SECI/C&P/RFS/MNRE/97.5MW GCRT/IND/R1/082019/PROJ COMP/36881



dated: 19.03.2020 to undertake and perform the obligations and exercise the rights of the Successful Bidder under the LOA. Projects have been sanctioned as per the different sanction letters all dated: 13.10.2021 by SECI after identification of the sites by M/s Jyotikiran Energy Mumbai Pvt. Ltd.

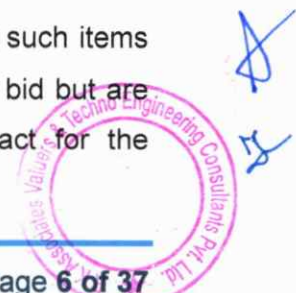
SunSource Energy Pvt. Ltd. has got the allocation of 8,000 KW<sub>p</sub> from SECI. However, under the scope of this report and information shared by the company, there are only 27 projects located across pan India having a total capacity of 12,818.3 KW<sub>p</sub>. Project under SECI are eligible for certain incentives. However, out of which 21 Projects to be implemented by JEMPL 8 are non SECI Projects which will not be eligible for incentive which are:

1. Marelli Motherson Automotive Lightning India Private Limited
2. Samarth Fablon Private Limited
3. Samarth Ad Protex Private Limited
4. Krishna Ishizaki Auto Limited
5. Schreiber Dynamix Dairies Private Limited
6. Crosslay Remedies Limited
7. Jindal India Limited

Sunsoure Energy Pvt. Ltd. has made an SPV Jyotikiran Energy Mumbai Pvt. Ltd. for setting up the project and Sunsource Energy Pvt. Ltd. has become the Turnkey contractor of all the projects for SPV Jyotikiran Energy Mumbai Pvt. Ltd.

The Scope of the Work for the successful bidder would essentially cover, but not limited to identification and Site Survey of Roof Tops, Site Visit, Solar Potential Assessment, Finalization of Feasibility Report for Identified Locations, Design, Engineering, Manufacture, Supply, Storage, Civil Works, Erection, Testing, Commissioning, Submission of Project Proposals and PCRs in SPIN Portal, ensuring net metering as per the concerned State/ UT Policies, Quality Control of the Grid Connected Solar PV Rooftop Project including Operation and Maintenance (O & M) of the Project for a period of 05 (Five) Years under PART-A and PART-C and for a period of 25 (Twenty Five) Years under PART-B after Commissioning of Project.

The scope of work under the Letter of Allocation (LOA) shall also include all such items which are not specifically mentioned in the Bidding Documents and/ or your bid but are necessary for the successful completion of the scope under the Contract for the





Implementation of 97.5MWp Grid Connected Rooftop Solar PV System Scheme for Government Buildings in different Zones of India under CAPEX/ RESCO Model, unless otherwise specifically excluded in the bidding documents or in this LOA.

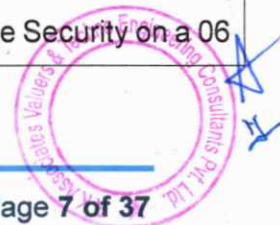
#### Other Conditions:

The details of Zone-wise allocated capacity along with project cost and/ or tariff as per the following break-up:

Zone No	CAPEX (Part-A)		RESCO (Part-B)		CAPEX (Part-C)	
	Capacity (in kWp)	Project Cost/kWp (in INR)	Capacity (in kWp)	Tariff/kWh (in INR)	Capacity (in kWp)	Project Cost/kWp (in INR)
Zone-1	-	-	2000	3.250	-	-
Zone-2	-	-	2000	3.300	-	-
Zone-3	-	-	4000	3.330	-	-

#### A. SCHEDULE FOR COMPLETION OF PROJECT/ SANCTION PERIOD:

S.NO.	MILESTONES	SCHEDULE FOR COMPLETION	PENALTY IN CASE OF NONCOMPLIANCE
1.	Complete a. The roofs identification and survey b. Submission of project sanction documents c. Commissioning of sanctioned Project(s)	By the date 20/04/2022.	a. In case of delay beyond this scheduled commissioning period, no incentive shall be disbursed to the Successful Bidder/ Developer. b. However, further period of 06 (Six) Months shall be allowed without incentives to the Successful Bidder/ Developer for completion of entire unexecuted allocated capacity. c. In such a condition Penalty/ LD on per day basis calculated for the Performance Security on a 06





			(Six) Months period would be levied. d. After 06 months [i.e. total 15 (Fifteen) Months/ 18 (Eighteen) Months, as the case may be, from the date of issuance of LOA], the project will get cancelled and the pro-rata PBG would be forfeited.
2.	Submission of project sanction documents by the bidder to SECI	Zone-1, Zone-2 and Zone-3: Maximum 06 (Six) Months Zone-4: 09 (Nine) Months from the date of issuance of allocation letter which can be extended depending upon the merit of the case.	If after 09 (Nine) Months/ 12 (Twelve) Months, as the case may be, from the date of issuance of Letter of Allocation the successful bidder could not submit Project Sanction Documents, in such case PBG for unsanctioned allocated capacity shall be forfeited.
3.	Time and date stamping photographs of the roofs and location details (Address) with SECI before taking sanction of the project	Before taking sanction of the project.	Project will not be sanctioned

**3. SCOPE OF THE REPORT:** To perform virtual site visit through video call, examine the commissioning/ installation status of Solar Power Plants set-up by the subject company.

*All the assessment carried out for the Project is done based on the documents and information provided to us and its correlation by the Engineering team through virtual site inspection and various other discussions with the Project proponents and thus forming an opinion out of it.*

*Component wise verification is not carried out but Project installation & commissioning has been verified as a whole.*

*Any kind of technical & economic feasibility of the Project is out-of-scope of this Report. This report is only limited & related to the verification and examination of what has already been setup.*



**4. PURPOSE OF THE REPORT:** To provide project completion status to the Bank based on the "in-scope points" mentioned above for facilitating them to take appropriate business decision on the Project.

**5. METHADODOLOGY ADOPTED:**

- a. To gather relevant data/ information/ documents related to Project planning, execution, current status.
- b. Study of Project Planning documents/ LoA/ Sanction Letter to know the scope of work of the company.
- c. To procure additional information, data, documents collection from the company.
- d. Study and analysis of the documents and information obtained from the company.
- e. Virtual site inspection of the sites for ascertaining the status of work and shadow analysis.
- f. Information compilation, analysis and reporting.

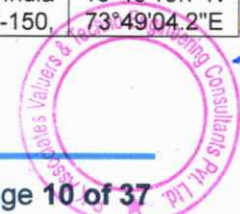




**PART C****PROJECT LOCATION AND CAPACITY**

As per the list of projects and information provided by the company, M/s JEMPL has proposed to set up 29 roof top Solar projects across pan India out of which 2 project are excluded. These 2 projects location has been changed and are out of the scope of this report. Details of the same has been tabulated below:

Sr. No.	Off-taker	Capacity (DC) KWp	Site Address	GPS Coordinates
1	Indian Institute of Science Education and Research (IISER)	606.0	Campus Rd. Mohanpur, Kolkata, West Bengal- 741246	22°57'54.1"N 88°31'29.4"E
2	Damodar Valley Corporation (Koderma Thermal Power Station) KTPS	1,137.5	Koderma, Bhanjidihi, Jharkhand-825421	24°23'27.8"N 85°33'31.4"E
3	Damodar Valley Corporation (Raghunathpur Thermal Power Station) RTPS	951.0	Raghunathpur, Dist- Purulia, Dumdumi-723133	23°36'46.9"N 86°39'29.8"E
4	Damodar Valley Corporation (Durgapur Steel Thermal Power Station) DSTPS	248.0	Grand Trunk Rd, Andal, West Bengal 713321	23°34'55.3"N 87°12'09.5"E
5	Pandit Bhagwat Dayal Sharma University of Health Sciences	488.4	UH2, PGIMS Road, Dariyao Nagar, Rohtak, Haryana 124001	28°53'06.9"N 76°36'31.8"E
6	ICAR - Central Institute of Agricultural Engineering(CIAE)	382.0	Nabi Bagh, Berasia Road, Bhopal - 462038, Madhya Pradesh	23°18'38.3"N 77°24'09.1"E
7	ICAR - Indian Institute of Millets Research	235.0	ICAR -Indian Institute of Millets Research, Rajendranagar, Hyderabad - 500030, Telangana	17°19'14.6"N 78°23'45.7"E
8	ICAR - Indian Institute of Rice Research	91.1	ICAR -Indian Institute of Rice Research, Rajendranagar, Hyderabad - 500030, Telangana	17°19'13.1"N 78°23'37.7"E
9	ICAR- National Research Centre on Meat, Hyderabad	117.9	Chengicherla, P.B No.- 19, Boduppal Post, 500092	17°26'10.1"N 78°36'53.6"E
10	ICAR- Indian Institute of Oilseeds Research, Hyderabad	131.0	Rajendranagar, near Prof Jayshankar Agricultural University, Rajendra Nagar Mandal, 500030	17°19'15.3"N 78°24'49.1"E
11	JC Bose University of Science & Technology	266.0	NH-2, Sector 6, Mathura Road, Faridabad-121006	28°22'00.1"N 77°18'59.3"E
12	DVC, Mejia Thermal Power Station	241.0	Durlabhpur, Bankura, 722183	23°28'00.6"N 87°07'52.0"E
13	DVC, Mejia Thermal Power Station	794.8	Durlabhpur, Bankura, 722183	23°28'00.6"N 87°07'52.0"E
14	DVC, Maithon Project	267.6	Maithon, DVC	23°46'42.8"N 86°48'42.0"E
15	DVC, Durgapur Steel Thermal Power Station	181.0	Durgapur Steel Thermal Power Station, DVC	23°34'55.3"N 87°12'09.5"E
16	ICAR- National Academy of Agricultural Research Management	235.0	ICAR, NAARM Rd, Acharya Ng Ranga Agricultural University, Rajendranagar mandal, Hyderabad, Telangana 500030	17°18'49.4"N 78°24'44.3"E
17	National Institute of Technology, Raipur	490.0	G.E. Road, Raipur - 492010, Chattisgarh	21°15'00.4"N 81°36'31.2"E
18	Biju Patnaik University of Technology	166.0	Chhend Colony, Rourkela, Odisha 769004	23°18'28.7"N 77°24'25.8"E
19	ICAR - Indian Institute of soil Science	95.5	Berasia Rd, Navi Bagh, Bhopal, Madhya Pradesh 462038	23°18'28.7"N 77°24'25.8"E
20	Odisha University of Agriculture and Technology, Bhubaneswar	182.0	Near Post Office, Unit 8, Surya Nagar, Bhubaneswar, Odisha 751003	20°15'54.5"N 85°48'41.0"E
21	Odisha University of Agriculture and Technology, Bhawanipatna	110.0	College of Agriculture, Bahadur Bagicha Pada, Bhawanipatna, Odisha 766001	19°55'07.8"N 83°09'30.7"E
22	Marelli Motherson Automotive Lighting India Private Limited	80.1	Marelli Matherson Automotive Lighting India Private Limited, Unit-2, Oat No. 148-150,	18°46'19.7"N 73°49'04.2"E

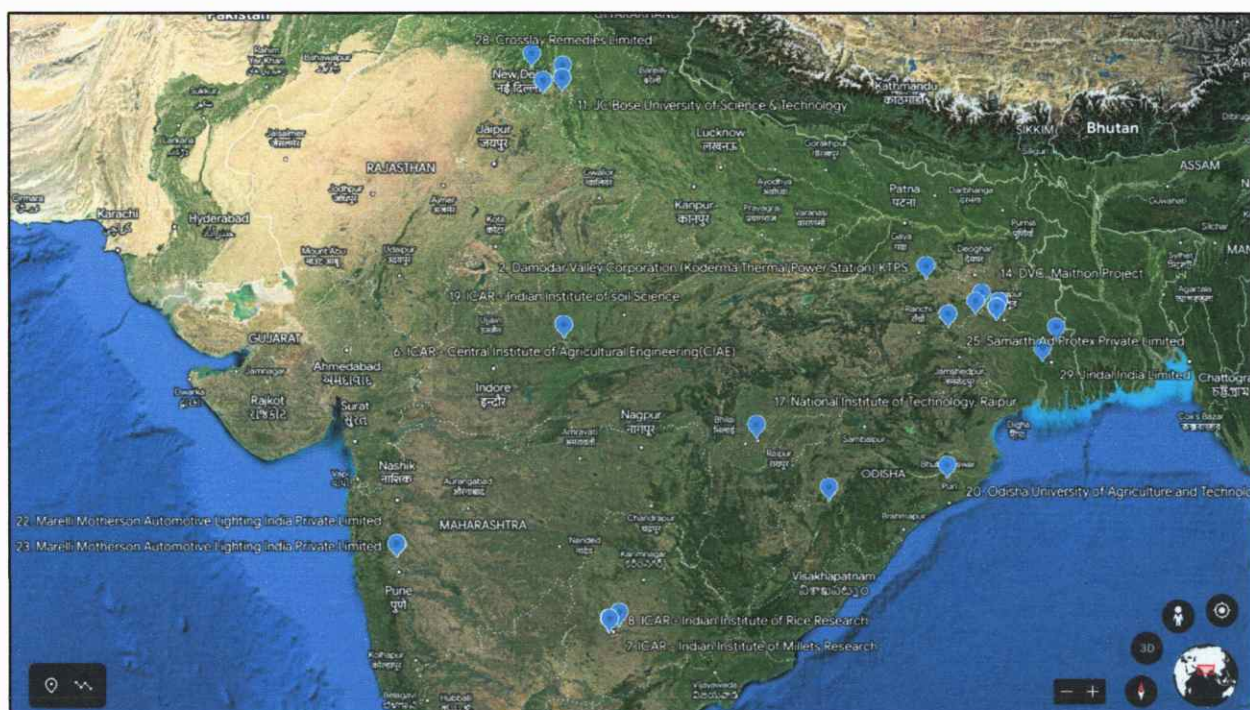




# PROJECT COMPLETION REPORT

## 12.8 MW SOLAR POWER PLANT

Sr. No.	Off-taker	Capacity (DC) KWp	Site Address	GPS Coordinates
			Village Ambethan, Taluka Khed, Chakan, Pune - 410501, Maharashtra, India	
23	Marelli Motherson Automotive Lighting India Private Limited	598.0	Marelli Motherson Automotive lighting India Pvt. Ltd. Gate No. 165/1-165/3 Village Ambethan, Taluka Khed, Chakan Pune 410501, Maharashtra, India	18°46'29.5"N 73°48'55.3"E
24	Samarth Fablon Private Limited	1,499.0	Samarth Fablon Pvt. Ltd. Puruliya, Near Aims College, Jhalda, Purulia-723202, West Bengal	23°22'06.1"N 85°59'27.7"E
25	Samarth Ad Protex Private Limited	1,485.0	Samarth Fablon Pvt. Ltd. Puruliya, Near Aims College, Jhalda, Purulia-723202, West Bengal	23°22'06.1"N 85°59'27.7"E
26	Krishna Ishizaki Auto Limited	515.0	58th KM, NH-8, Delhi-Jaipur-Highway, Village-Binola, Gurgaon, Haryana	28°18'31.5"N 76°52'35.0"E
27	Schreiber Dynamix Dairies Private Limited	4,300.0	E-94, MIDC, Bhigwan Road, Baramati, Maharashtra, 413133	
28	Crosslay Remedies Limited	392.4	Pushpanjali Crosslay Hospital, W 3, Sector 1, Vaishali, Ghaziabad, 201012 UP	28°38'04.2"N 77°19'58.8"E
29	Jindal India Limited	998.0	NH-6, Village & Mouza Ranihati, Kulai PO - Biki Hakola, PS - Panchala, District - Howrah, West Bengal - 711322	22°32'57.4"N 88°09'26.7"E
<b>Total</b>		<b>17,284.3</b>		
<b>Total excluding not implemented projects</b>		<b>12,818.3</b>	<b>Excluded-</b>	



View: Project Sites

Source: Google

Earth



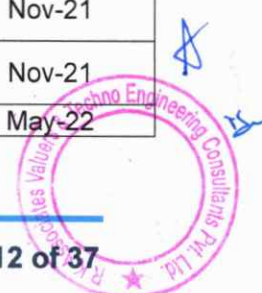


## PART D

## PROJECT WISE COD AND CURENT STATUS

As per the information and COD letters shared by the company along with verification of the same through virtual site survey, details has been tabulated below:

S. No.	Projects	Capacity (DC- kWp) As per COD Letter	Energization Date / COD	Date of Virtual Site Visit	Net Metering Starting Month
1	Indian Institute of Science Education and Research (IISER)	605.68	20-10-2021	13-03-2023	Nov-22
2	DVC Koderma Thermal Power Station	1,137.00	20-10-2021	21-02-2023	Feb-22
3	DVC (Raghunathpur Thermal Power Station) RTPS	165.49	20-10-2021	17-03-2023	Apr-22
3	DVC (Raghunathpur Thermal Power Station) RTPS	951.40	20-10-2021	17-03-2023	Apr-22
4	DVC,Durgapur Steel Thermal Power Station	247.90	20-10-2021	28-02-2023	Feb-22
5	Pandit Bhagwat Dayal Sharma University of Health Sciences	488.43	19-10-2021	27-03-2023	Jan-22
6	ICAR - Central Institute of Agricultural Engineering(CIAE)	381.90	20-10-2021	30-01-2023	Oct-22
7	ICAR - Indian Institute of Millets Research (IIMR)	234.83	20-10-2021	24-01-2023	Oct-21
8	ICAR - Indian Institute of Rice Research	91.12	20-10-2021	24-01-2023	Feb-22
9	ICAR-National Research Centre on Meat	117.92	20-10-2021	25-01-2023	Feb-22
10	Indian Institute of Oilseeds Research (IIOR)	131.32	20-10-2021	24-01-2023	Mar-22
11	JC Bose University of Science & Technology	265.99	20-10-2021	06-04-2023	Jan-22
12	DVC,Mejia Thermal Power Station	241.20	20-10-2021	15-03-2023 / 16-03-2023	Feb-22
13	DVC,Mejia Thermal Power Station	794.96	20-10-2021	15-03-2023 / 16-03-2023	Feb-22
14	DVC, Maithon Project	102.18	20-10-2021	27-02-2023	Apr-22
15	DVC,Durgapur Steel Thermal Power Station	180.56	20-10-2021	28-02-2023	Mar-22
16	ICAR-National Academy of Agricultural Research Management	234.50	20-10-2021	23-01-2023	Oct-22
17	National Institute of Technology, Raipur	490.10	19-10-2021	28-03-2023	Jul-22
19	ICAR - Indian Institute of soil Science	95.48	20-10-2021	30-01-2023	Feb-22
20	Odisha University of Agriculture and Technology, Bhubaneswar	181.57	20-10-2021	29-03-2023	Jul-22
21	Odisha University of Agriculture and Technology, Bhawanipatna	110.22	20-10-2021	25-04-2023	-
22	Marelli Motherson Automotive Lighting India Private Limited	80.10	20-10-2021	01-02-2023	Nov-21
23	Marelli Motherson Automotive Lighting India Private Limited	598.31	20-10-2021	01-02-2023	Nov-21
24	Samarth Fabalon Private Limited	1,499.21	20-10-2021	22-03-2023	May-22

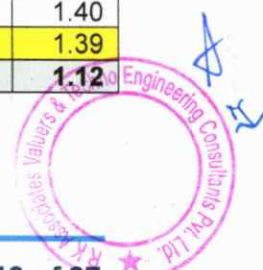




S. No.	Projects	Capacity (DC- kWp) As per COD Letter	Energization Date / COD	Date of Virtual Site Visit	Net Metering Starting Month
25	Samarth Ad Protex Private Limited	1,484.97	20-10-2021	22-03-2023	May-22
26	Krishna Ishizaki Auto Limited	514.56	20-10-2021	15-02-2023	Apr-22
28	Crosslay Remedies Limited	392.40	20-10-2021	08-02-2023	Jul-22
29	Jindal India Limited	998.00	20-10-2021	07-04-2023	-
<b>Total</b>		<b>12,817.29</b>			

## DC to AC Ratio

S. No.	Projects	Capacity (DC) kWp	Installed Inverter Capacity-AC (kW)	DC:A C
1	Indian Institute of Science Education and Research (IISER)	605.68	613	0.99
2	DVC Koderma Thermal Power Station	499.83	501	1.00
		422.77	415	1.02
		214.40	215	1.00
3	DVC (Raghuathpur Thermal Power Station) RTPS	165.49	168	0.99
3	DVC (Raghuathpur Thermal Power Station) RTPS	951.40	950	1.00
4	DVC,Durgapur Steel Thermal Power Station	247.90	246	1.01
5	Pandit Bhagwat Dayal Sharma University of Health Sciences	488.43	486	1.01
6	ICAR - Central Institute of Agricultural Engineering(CIAE)	381.90	380	1.01
7	ICAR - Indian Institute of Millets Research (IIMR)	234.83	233	1.01
8	ICAR - Indian Institute of Rice Research	91.12	90	1.01
9	ICAR-National Research Centre on Meat	117.92	120	0.98
10	Indian Institute of Oilseeds Research (IIOR)	131.32	130	1.01
11	JC Bose University of Science & Technology	265.99	265	1.00
12	DVC,Mejia Thermal Power Station	241.20	240	1.01
13	DVC,Mejia Thermal Power Station	794.96	795	1.00
14	DVC, Maithon Project	102.18	105	0.97
15	DVC,Durgapur Steel Thermal Power Station	180.56	180	1.00
16	ICAR-National Academy of Agricultural Research Management	234.50	235	1.00
17	National Institute of Technology, Raipur	490.10	491	1.00
19	ICAR - Indian Institute of soil Science	95.48	100	0.95
20	Odisha University of Agriculture and Technology, Bhubaneswar	181.57	180	1.01
21	Odisha University of Agriculture and Technology, Bhawani Patna	110.22	110	1.00
22	Marelli Motherson Automotive Lighting India Private Limited	80.10	60	1.34
23	Marelli Motherson Automotive Lighting India Private Limited	598.31	400	1.50
24	Samarth Fabalon Private Limited	1,499.21	1,160	1.29
25	Samarth Ad Protex Private Limited	1,484.97	1,180	1.26
26	Krishna Ishizaki Auto Limited	514.56	390	1.32
28	Crosslay Remedies Limited	392.40	280	1.40
29	Jindal India Limited	998.00	720	1.39
<b>Total</b>		<b>12,817.29</b>	<b>11,438</b>	<b>1.12</b>





# PROJECT COMPLETION REPORT

12.8 MW SOLAR POWER PLANT

## Power generation; Estimated v/s Actual:

S. No.	Projects	Capacity-DC KWp	Total	Total CUF (in %)	Time since Net Metering (in months)	Annual Production (MWh)		(A) : (B)
						Actual-As per Company (A)	Estimated-As per PVSyst Report at P90 (B)	
1	Indian Institute of Science Education and Research (IISER)	605.68	3,67,281	12%	7	629.63	828.30	0.73
2	DVC Koderma Thermal Power Station	1,137.00	15,76,821	14%	14	1,351.56	1,626.70	0.70
3	DVC (Raghunathpur Thermal Power Station) RTPS	165.49	1,15,964	8%	12	115.96	NA	--
3	DVC (Raghunathpur Thermal Power Station) RTPS	951.40	7,81,387	10%	12	781.39	1,341.00	0.71
4	DVC, Durgapur Steel Thermal Power Station	247.90	3,09,221	12%	14	265.05	344.90	0.72
5	Pandit Bhagwat Dayal Sharma University of Health Sciences	488.43	6,81,983	13%	15	545.59	659.50	0.74
6	ICAR - Central Institute of Agricultural Engineering(CIAE)	381.90	2,58,390	16%	6	516.78	591.60	0.65
7	ICAR - Indian Institute of Millets Research (IIMR)	234.83	4,57,525	15%	18	305.02	339.70	0.69
8	ICAR - Indian Institute of Rice Research	91.12	1,46,083	16%	14	125.21	136.40	0.67
9	ICAR-National Research Centre on Meat	117.92	1,83,118	17%	13	169.03	176.58	0.67
10	Indian Institute of Oilseeds Research (IIOR)	131.32	1,64,396	16%	11	179.34	193.70	0.68
11	JC Bose University of Science & Technology	265.99	3,63,430	13%	15	290.74	347.50	0.77
12	DVC, Mejia Thermal Power Station	241.20	2,88,761	12%	14	247.51	333.70	0.72
13	DVC, Mejia Thermal Power Station	794.96	8,80,984	11%	14	755.13	1,096.70	0.72
14	DVC, Maithon Project	102.18	97,589	11%	12	97.59	NA	
15	DVC, Durgapur Steel Thermal Power Station	180.56	2,00,204	12%	13	184.80	NA	
16	ICAR-National Academy of Agricultural Research Management	234.50	1,61,877	16%	6	323.75	349.60	0.67
17	National Institute of Technology, Raipur	490.10	2,74,629	9%	9	366.17	704.10	0.70
19	ICAR - Indian Institute of soil Science	95.48	1,69,656	18%	14	145.42	141.20	0.68
20	Odisha University of Agriculture Technology, Bhubaneswar	181.57	1,29,836	11%	9	173.11	249.00	0.73
21	Odisha University of Agriculture and Technology, Bhawani Patna	110.22	-	-	-	-	163.00	-
22	Marelli Motherson Automotive Lighting India Private Limited	80.10	1,32,702	14%	17	93.67	112.90	0.71
23	Marelli Motherson Automotive Lighting India Private Limited	598.31	9,68,784	13%	17	683.85	877.10	0.68

S. No.	Projects	Capacity-DC KWp	Total	Total CUF (in %)	Time since Net Metering (in months)	Annual Production (MWh)		(A) : (B)
						Actual-As per Company (A)	Estimated-As per PVSyst Report at P90 (B)	
24	Samarth Fabalon Private Limited	1,499.21	13,16,699	11%	11	1,436.40	2,024.00	0.74
25	Samarth Ad Protex Private Limited	1,484.97	14,39,703	12%	11	1,570.59	2,023.80	0.73
26	Krishna Ishizaki Auto Limited	514.56	5,49,120	12%	12	549.12	685.50	0.75
28	Crosslay Remedies Limited	392.40	2,74,629	11%	9	366.17	528.60	0.74
29	Jindal India Limited	998.00	-	-	-	-	1,317.00	-
<b>Total</b>		<b>12,817.29</b>	<b>1,22,90,772</b>	<b>- Complete Information Unavailable</b>				

**#Note:** For the power plants which are operational for a period less than 12 months, the actual production has been extrapolated to 12 Months to compare the actual annual production to that of the estimated annual production (at P90) mentioned in PVSyst reports.

### Remarks:

- As per the observations made during the virtual site visits, all the plants are operational as on the date of their respective site visit except the project located in Jindal India Limited (S. No. 29 above as highlighted) where installation work was in progress as on the date of its site visit. It was informed by the site in-charge that the same shall be completed within a month.
- Virtual site visit was conducted based on the availability of the respective site representatives on the particular project site confirmed through email from the client.
- The virtual site visit starts by asking the 'Live Location' of the site representative on WhatsApp.
- Then, a video call (recorded through screen recorder) is placed between the respective site representative and RKA's engineer on WhatsApp.  
(Screenshot of the same has been attached in Enclosure I: Photographs)
- During the virtual site visit, our major observations were regarding the condition, specifications' tag plate, installation status, etc. of all the equipments like Modules, Data Logger, ACDB, Lighting Arrester, Inverters, Isolator Box, etc. along with observing the cleaning of the modules and inverter readings.
- The main observation to check that the operational status of the solar plants was the generation status displayed in the inverters.





- As per the COD dated 02-12-21, out of a total power production allocation of 267.67 kWp at DVC-Maithon Project, power plant of production capacity of only 102.18 kWp has been installed here and the balance 165.49 kWp solar power plant has been shifted to Damodar Valley Corporation (Raghunathpur Thermal Power Station) RTPS.
- As per the information provided by the company's management, net metering is yet to start at the project site – Odisha University of Agriculture and Technology, Bhawani Patna and as on date of virtual site visit i.e. 25-Apr-2023 the plant was made operational to confirm us that it is in operational condition. COD of the same has been obtained on 20-Oct-2021.
- Out of the total capacity of all the plants combined i.e. ~12.82 MWp, COD has been obtained for a capacity of ~11.82 MWp and net metering has been done for ~11.71 MWp only.
- To ascertain the Project actual capacity installed we have checked the solar modules array, sought the Energy Production Data and total installed Inverter output capacity.
- As per our observations made in the table of power generation; Estimated v/s actual above, the actual production of the plants are on the lower side (23-35% less). Reason has been sought from the company for the same. Company has given the reason that some projects are under stabilization and additionally, certain project sites have encountered a reduction in irradiation levels in comparison to the initial projections, and certain sites have also experienced capacity breakdowns due to storms, resulting in an adverse effect on power generation. Moreover, as per our analysis one of the factor may be that some projects were operational in winter season and when they will operate in summer season shall give maximum output. Further, it is advised that the company can contact the OEM for the support required in maximizing the power output and achieve the rated CUF. Company can also check if the system including modules requires some recalibration in terms of angle & positioning to achieve the maximum output.
- As per analysis, total capacity of all the inverters installed in all the projects is 11,438 kW (AC Power Output) against the installed project capacity of 12,817.29 kWp (DC) of Solar modules. Which results in the DC to AC ratio of 1.12. Further, the industry average of DC:AC ranges between 1.3 to 1.6 however, to maximize system yield the DC:AC should be closer to 1.2.

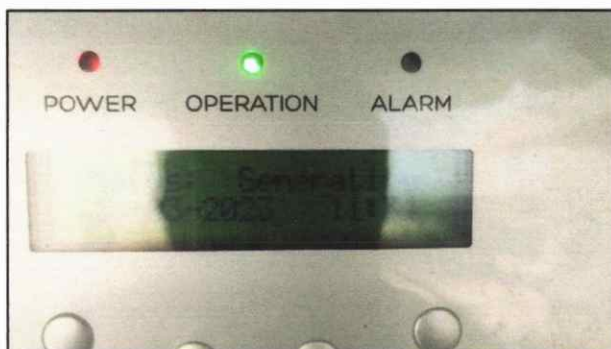
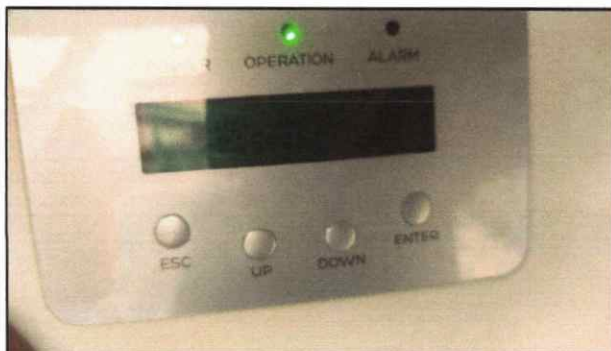




### ENCLOSURE: I- PHOTOGRAPHS

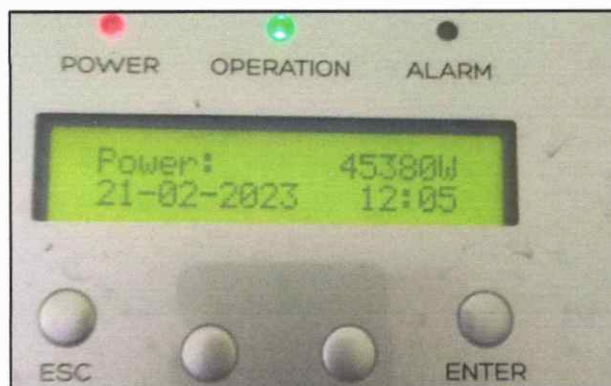
#### 1. Indian Institute of Science Education and Research (IISER)

13-Mar-23



#### 2. DVC - Koderma Thermal Power Station (KTPS)

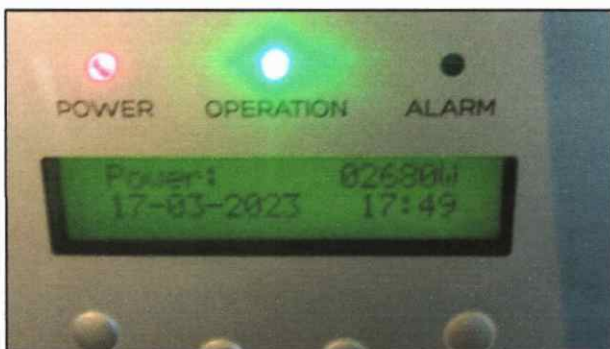
21-Feb-23





### 3. DVC-Raghunathpur Thermal Power Station (RTPS)

17-Mar-23



### 4. DVC-Durgapur Steel Thermal Power Station (DSTPS)

28-Feb-23

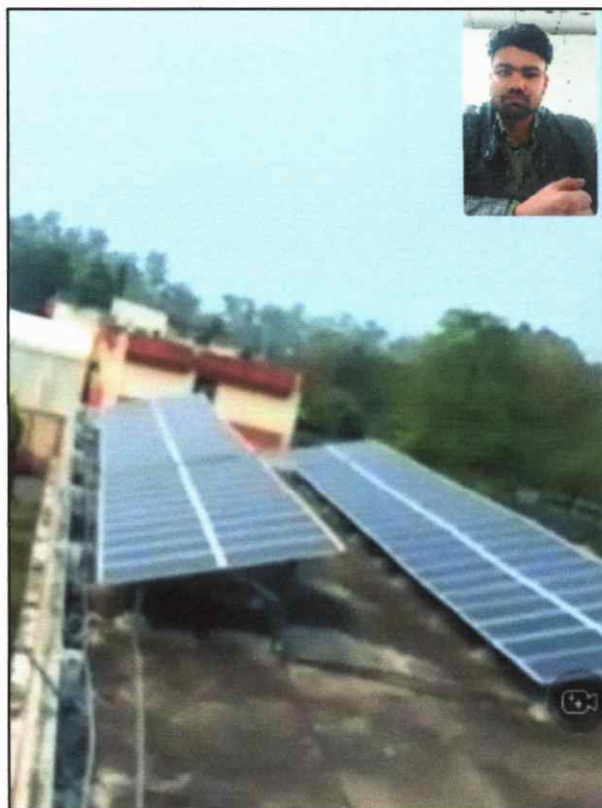




## 27-Mar-23



## 30-Jan-23





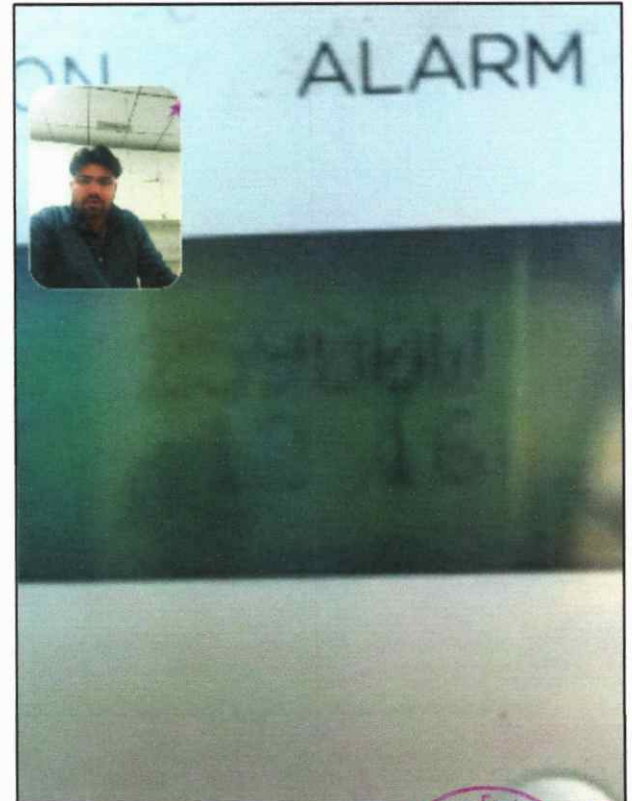
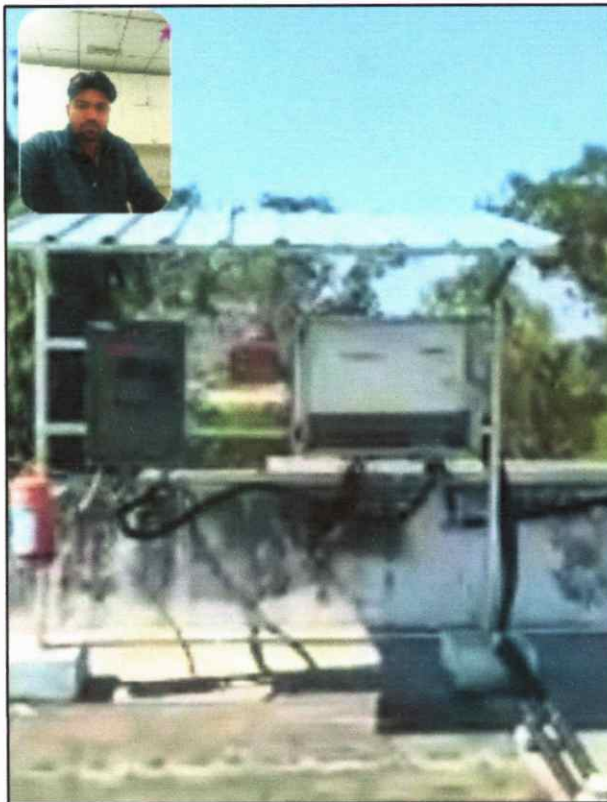
### 7. ICAR - Indian Institute of Millets Research

24-Jan-23



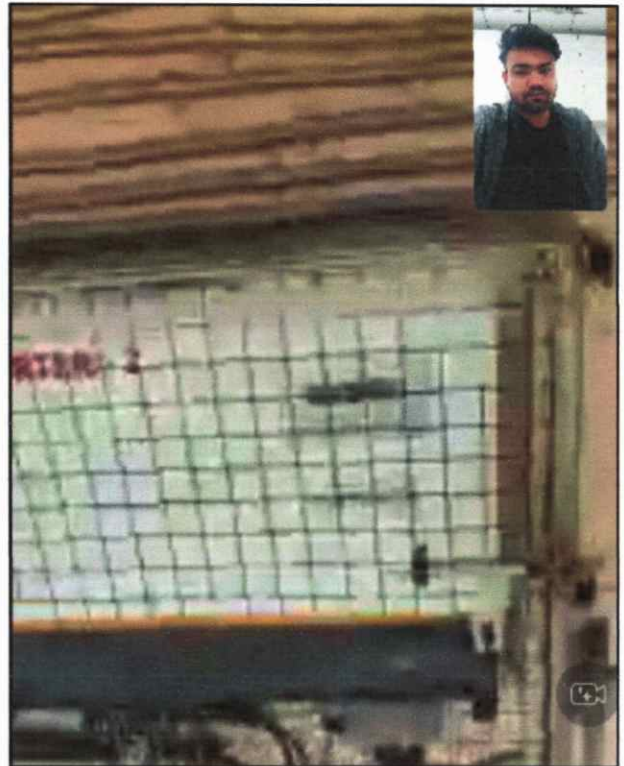
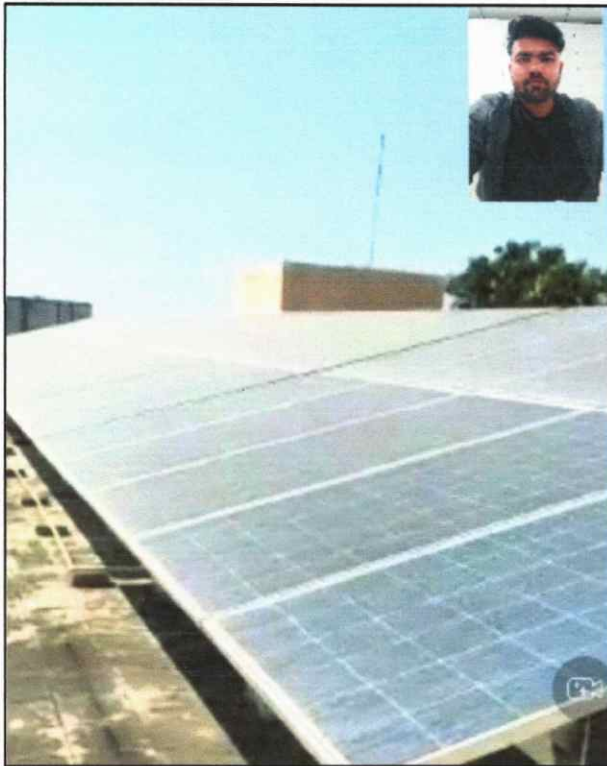
### 8. ICAR - Indian Institute of Rice Research

24-Jan-23



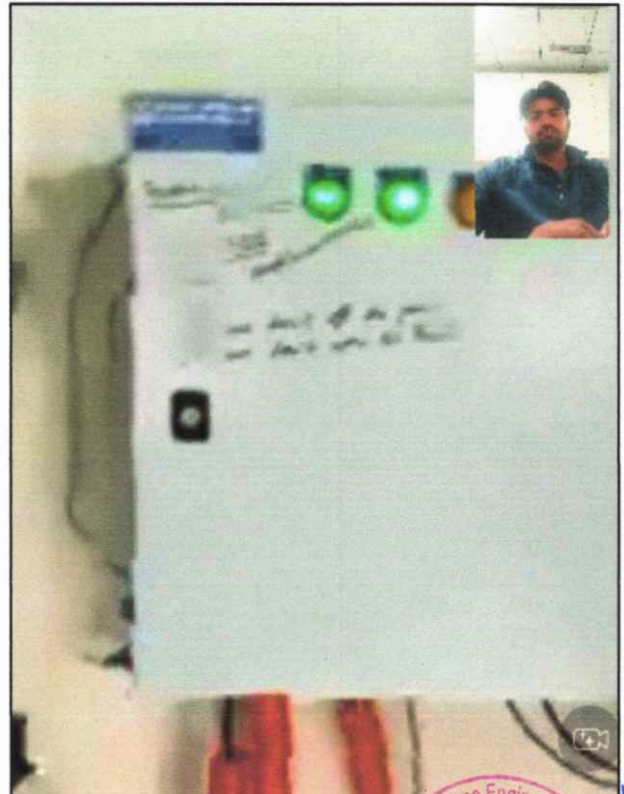
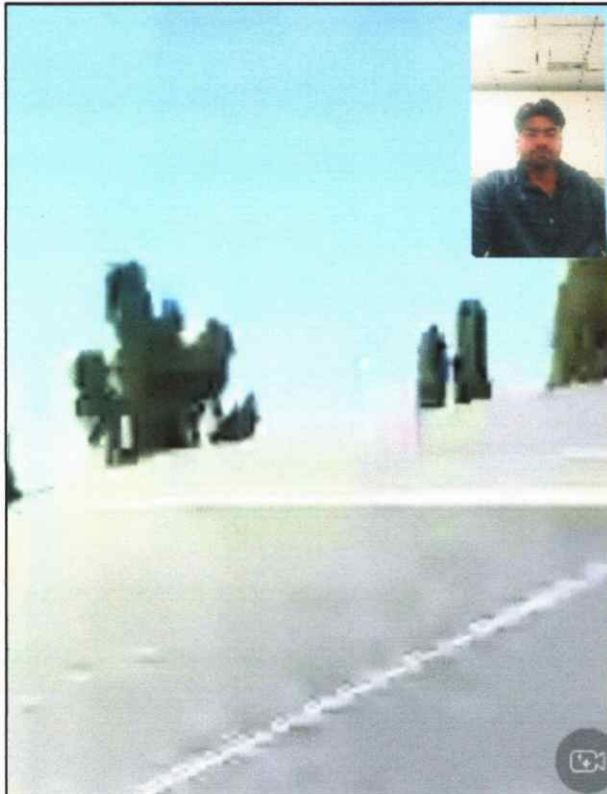
### 9. ICAR- National Research Centre on Meat, Hyderabad

25-Jan-23



### 10. ICAR- Indian Institute of Oilseeds Research, Hyderabad

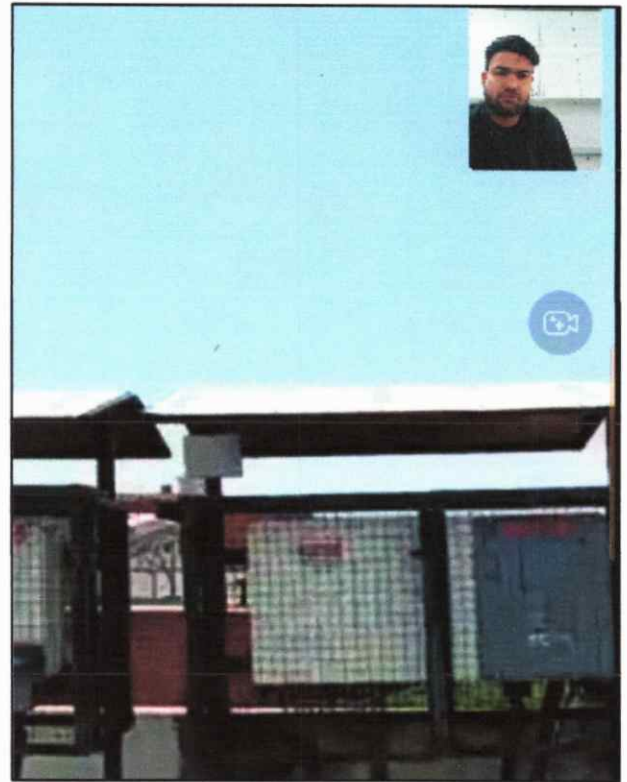
24-Jan-23





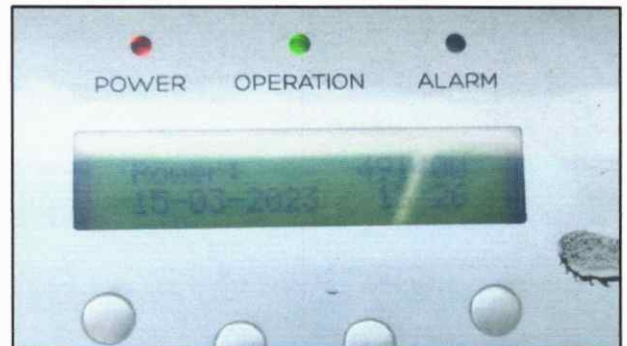
### 11. JC Bose University of Science & Technology

06-Apr-23



### 12. DVC, Mejia Thermal Power Station-241.2 kW

15-03-2023 / 16-03-2023





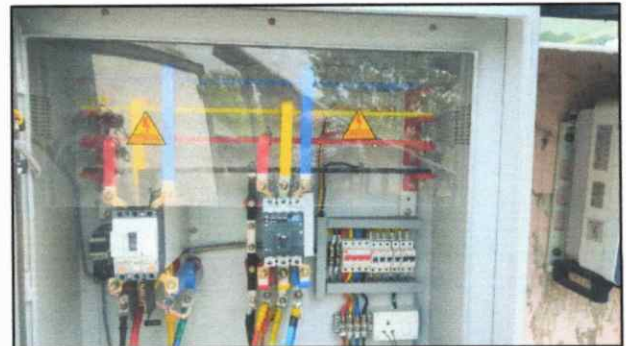
### 13. DVC, Mejia Thermal Power Station-794.8 kW

15-03-2023 / 16-03-2023



### 14. DVC, Maithon Project

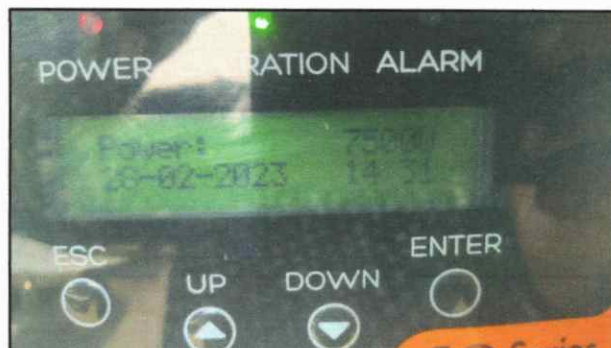
27-Feb-23





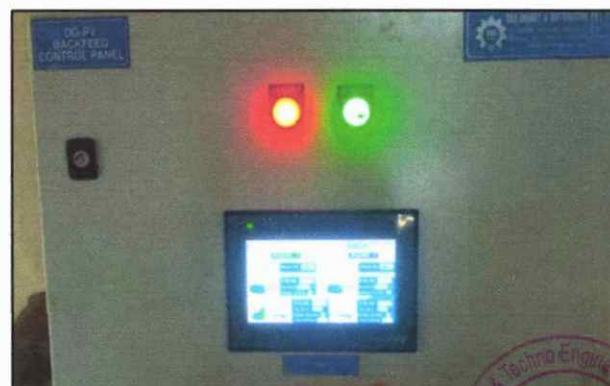
### 15. DVC, Durgapur Steel Thermal Power Station

28-Feb-23



### 16. ICAR- National Academy of Agricultural Research Management

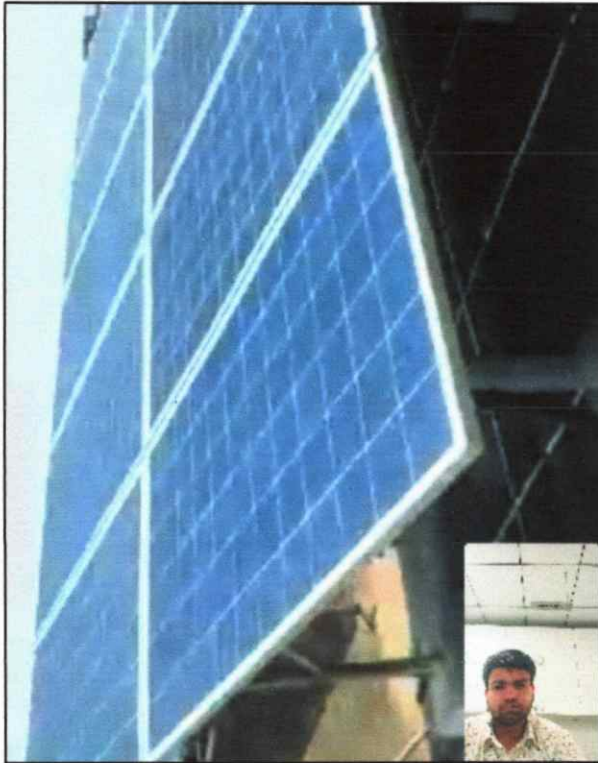
23-Jan-23





### 17. National Institute of Technology, Raipur

28-Mar-23



### 18. ICAR - Indian Institute of soil Science

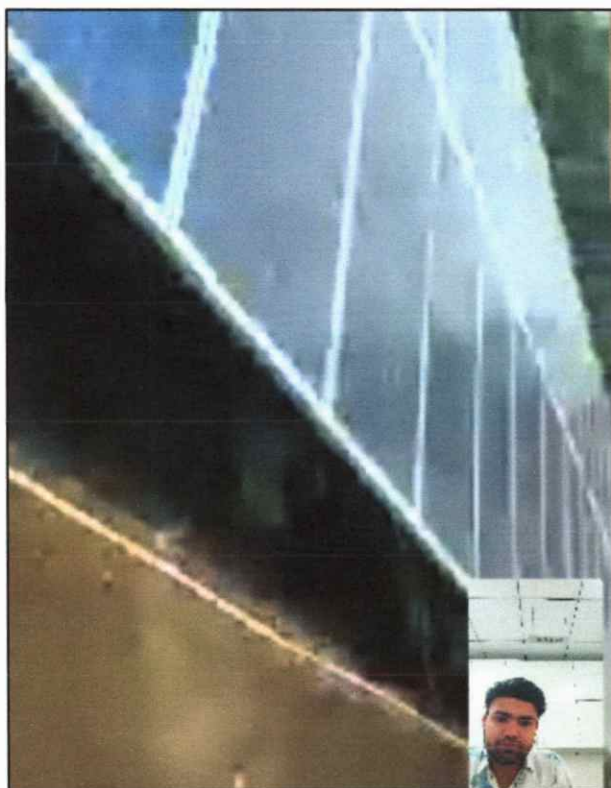
30-Jan-23





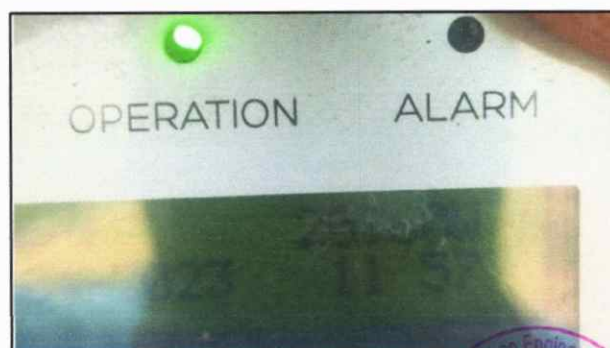
### 19. Odisha University of Agriculture and Technology, Bhubaneswar

29-Mar-23



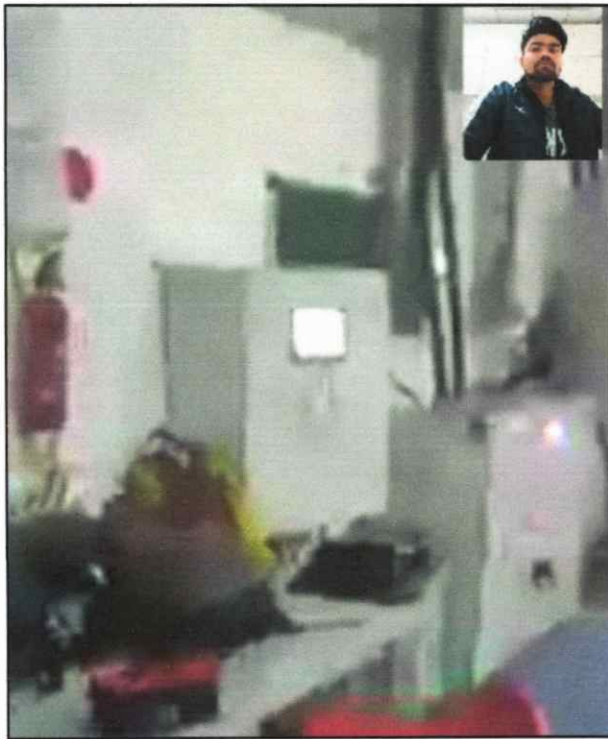
### 20. Odisha University of Agriculture and Technology, Bhawanipatna

25-Apr-23



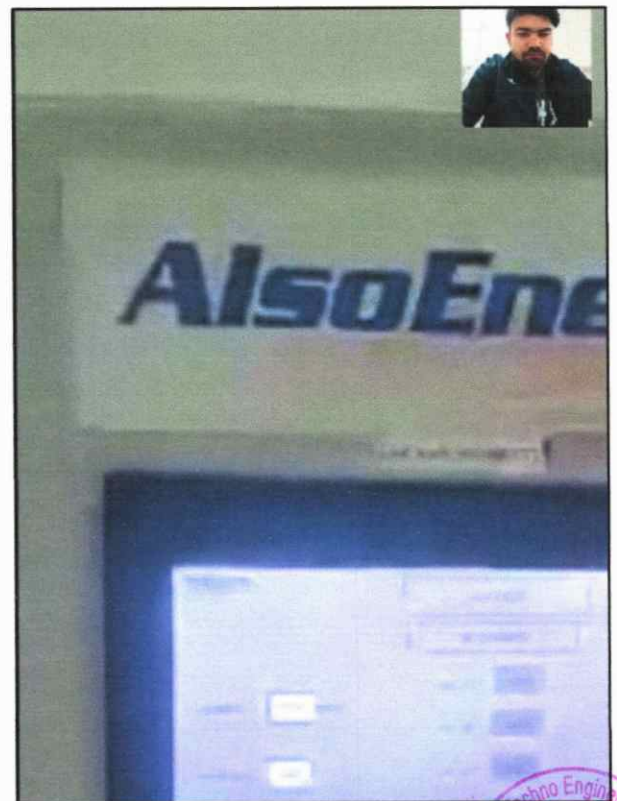
### 21. Marelli Mitherson Automotive Lighting India Private Limited-80.1 kW

01-Feb-23



### 22. Marelli Mitherson Automotive Lighting India Private Limited-598.31 kW

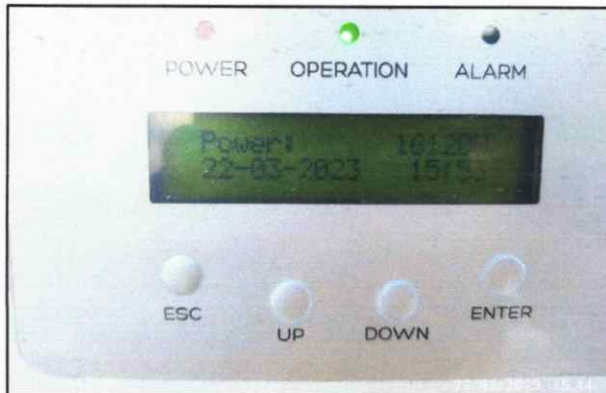
01-Feb-23





### 23. Samarth Fabalon Private Limited

22-Mar-23



### 24. Samarth Ad Protex Private Limited

22-Mar-23



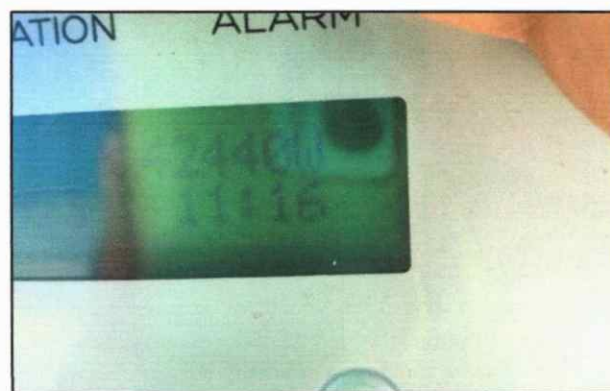
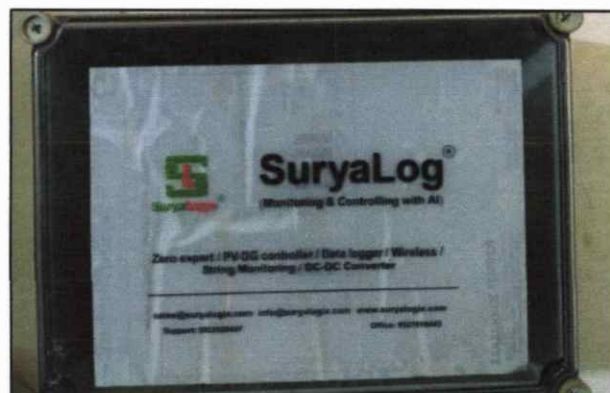


# PROJECT COMPLETION REPORT

12.8 MW SOLAR POWER PLANT

## 25. Krishna Ishizaki Auto Limited

15-Feb-23



## 26. Crosslay Remedies Limited

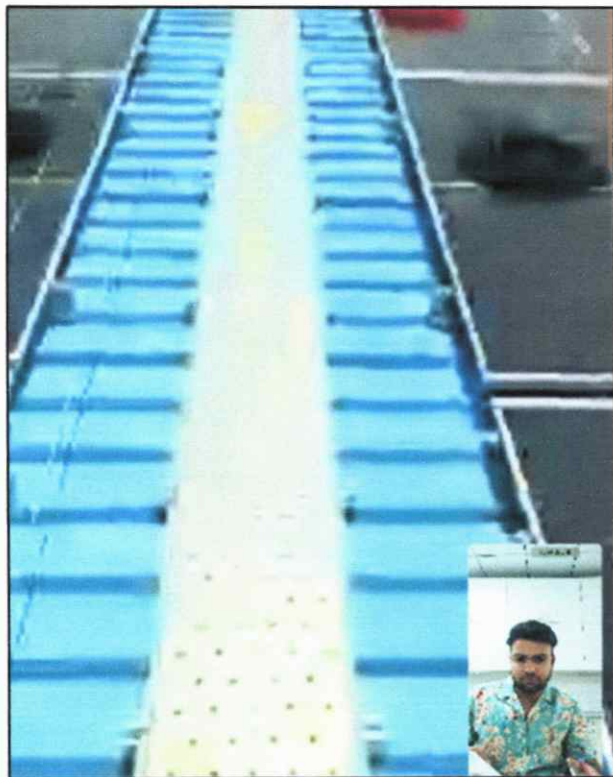
08-Feb-23





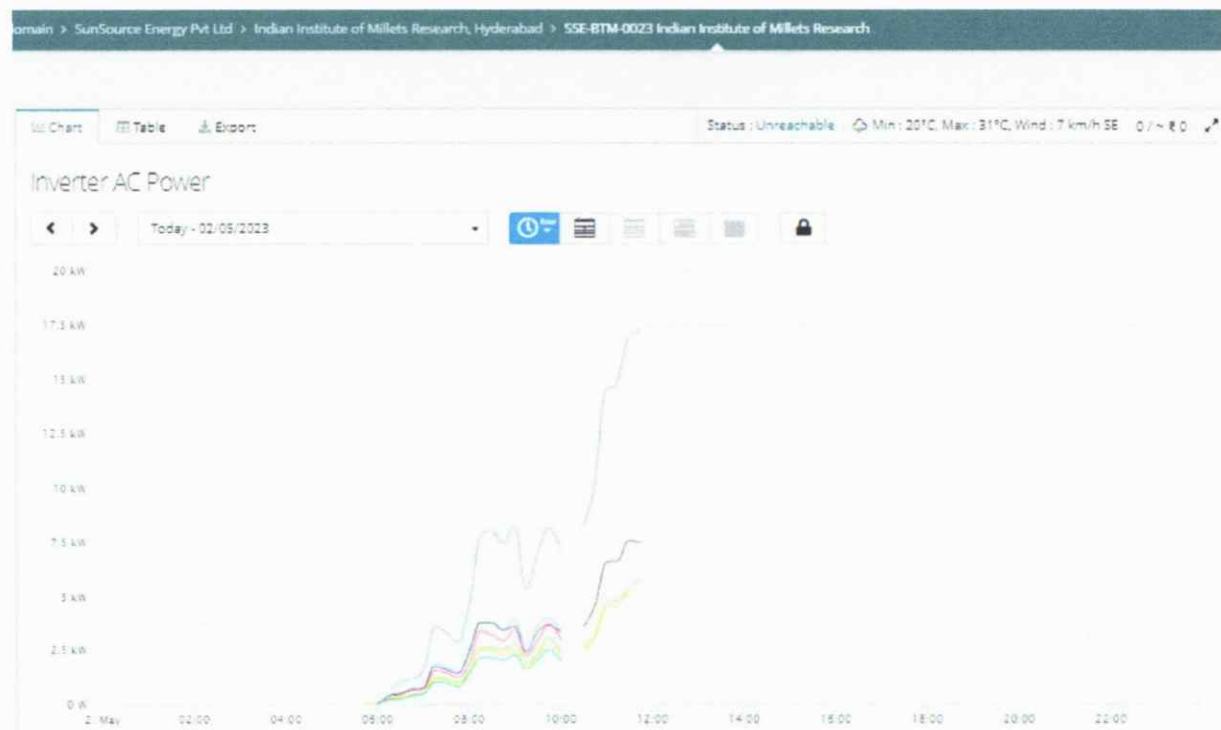
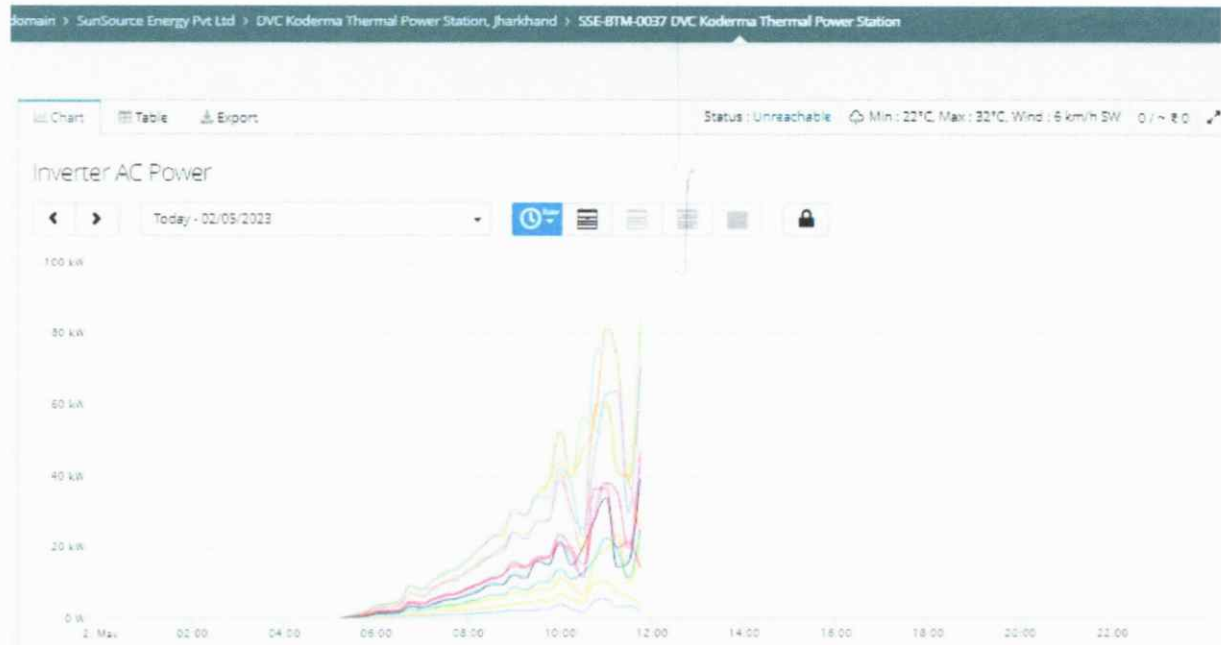
27. Jindal India Limited

07-Apr-23

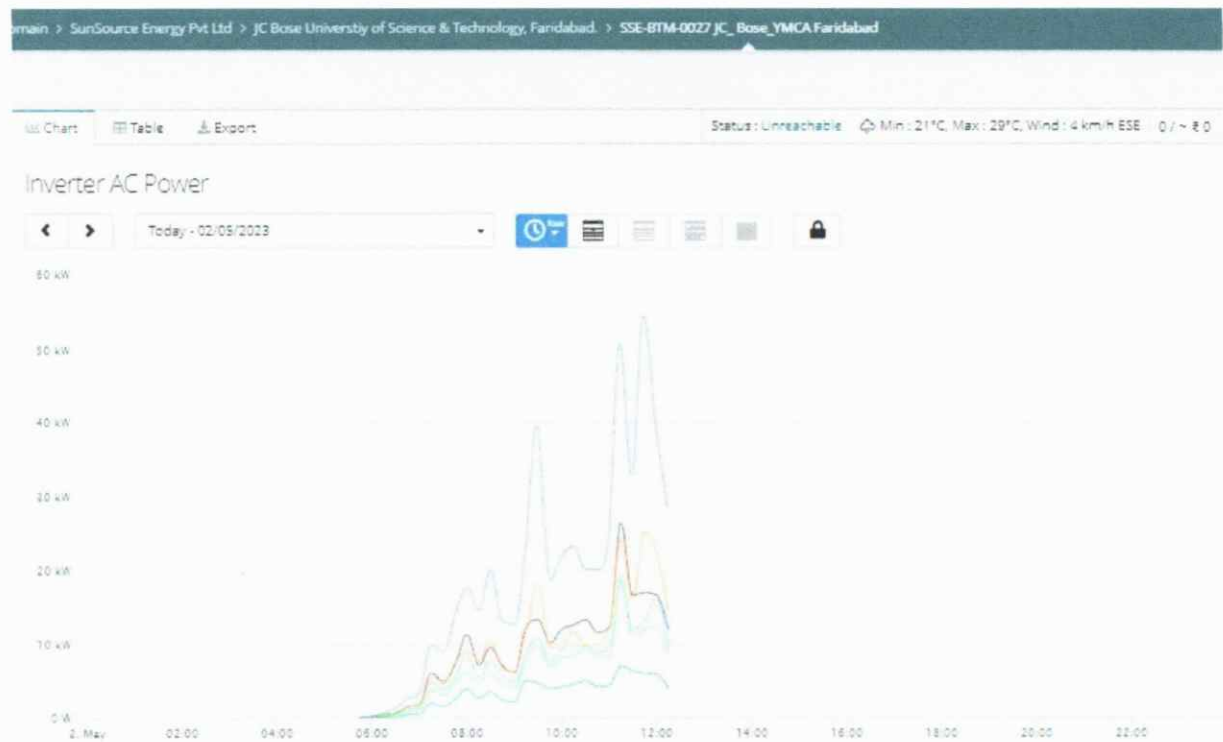
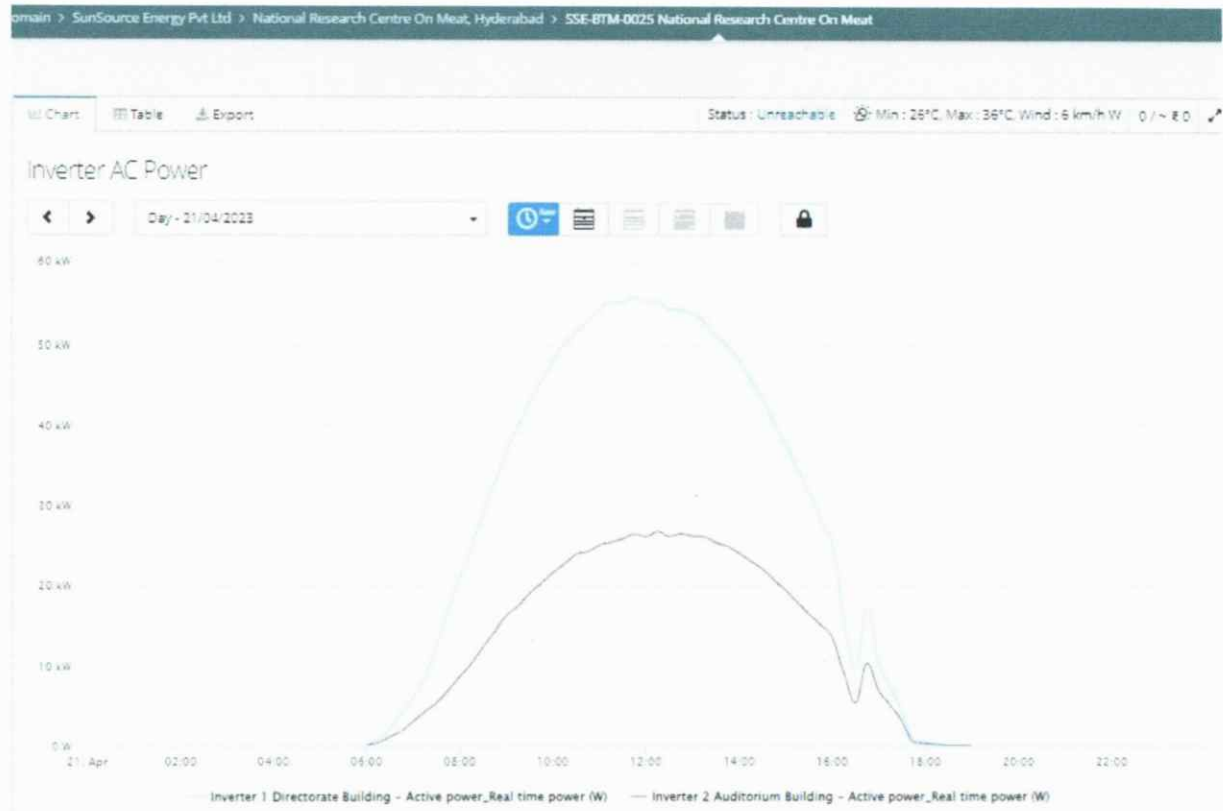


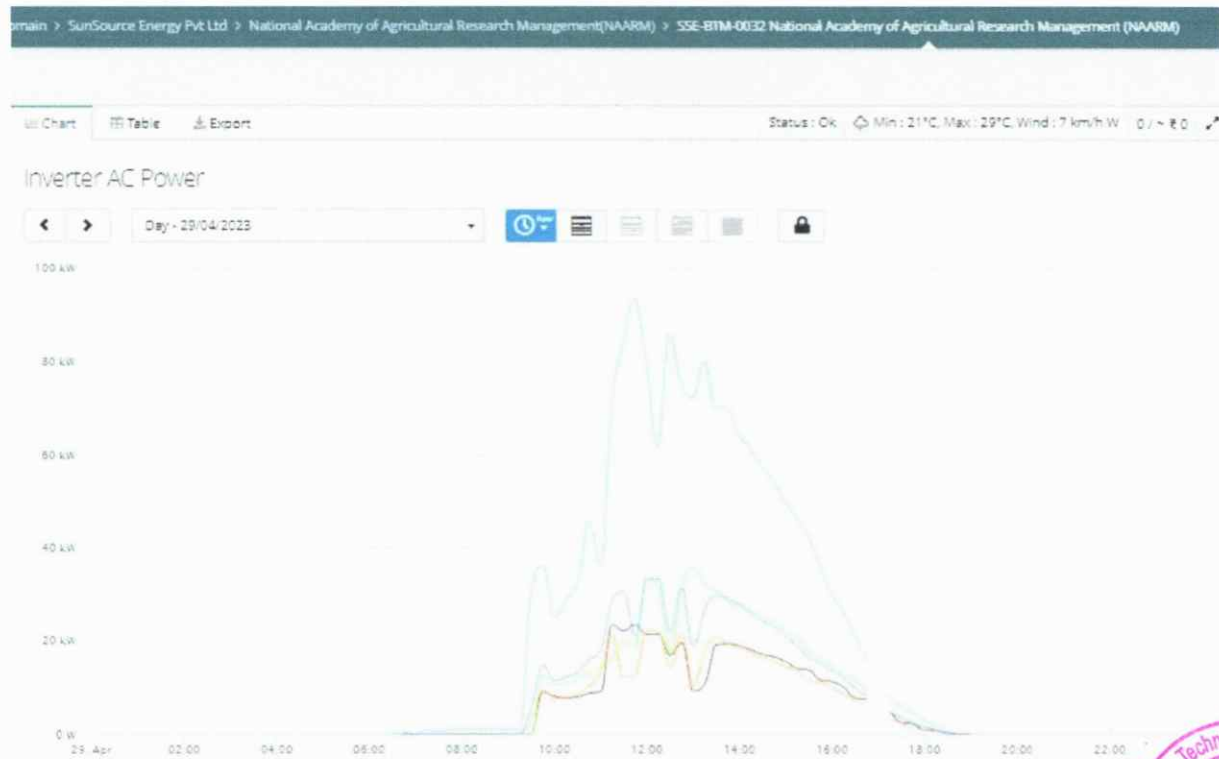
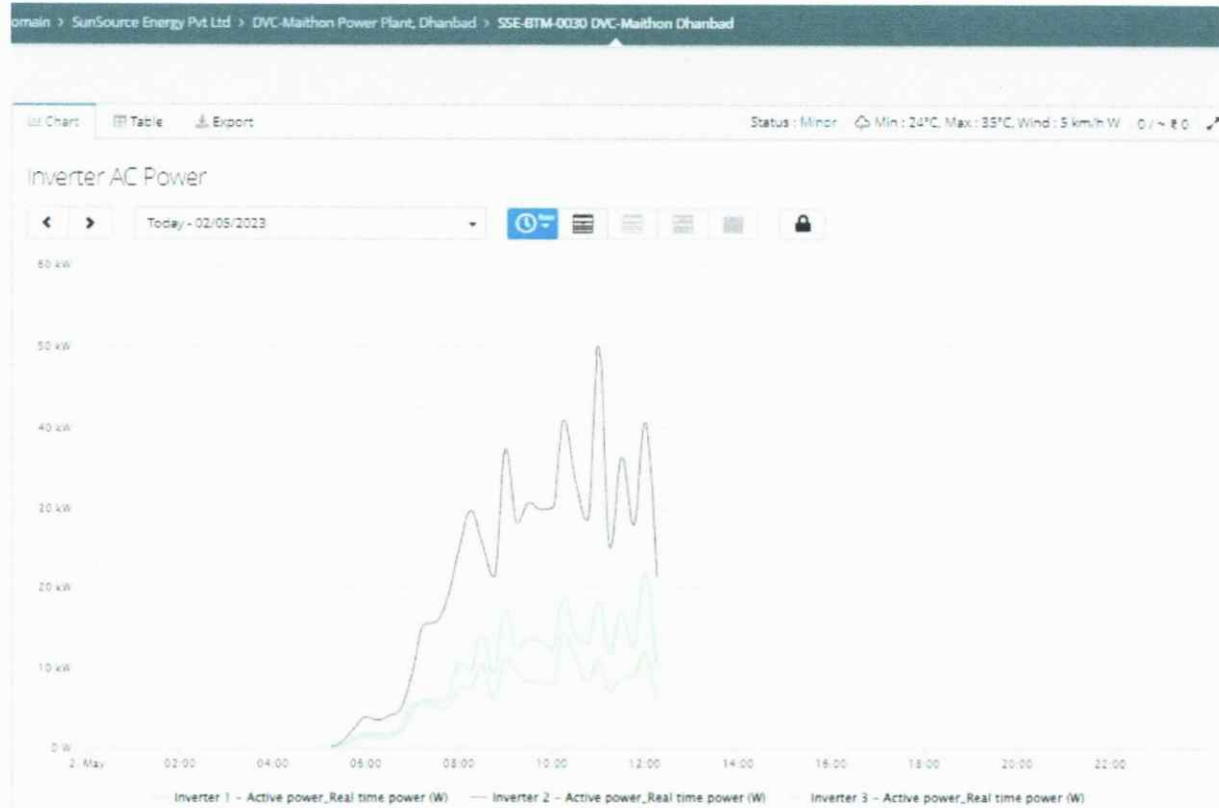
### ENCLOSURE – II: PROJECT RELATED DOCUMENTS

#### Inverters AC Power Utilization







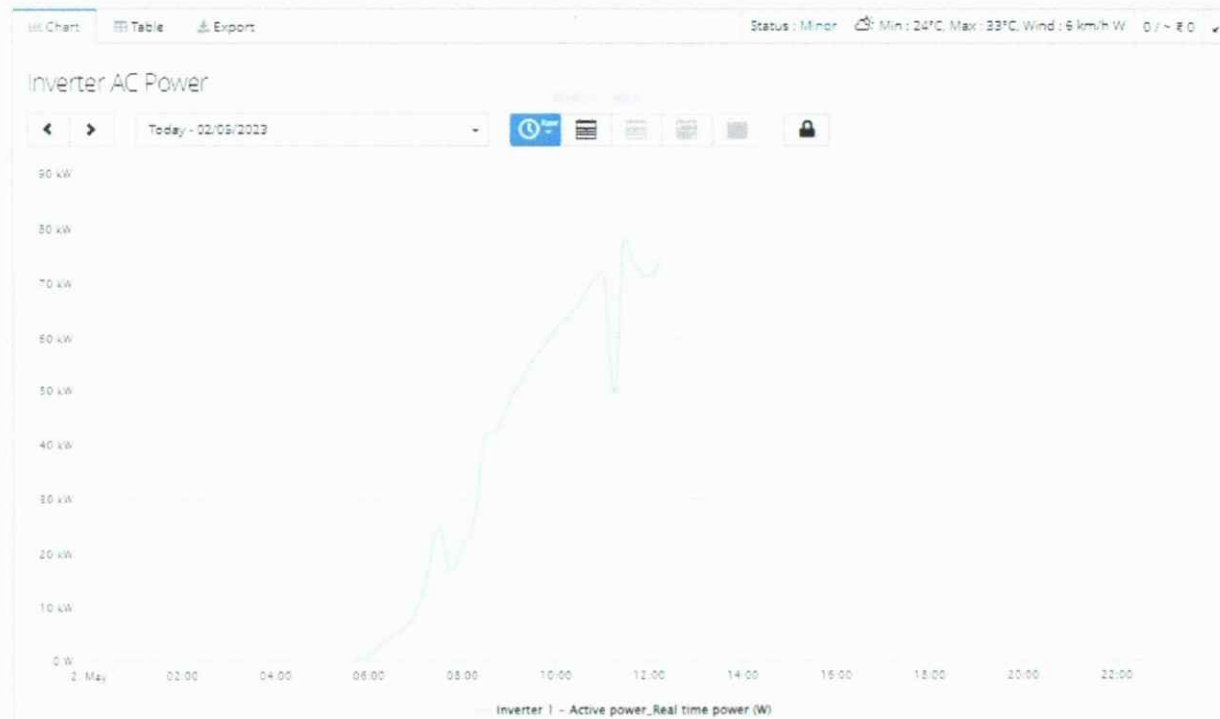




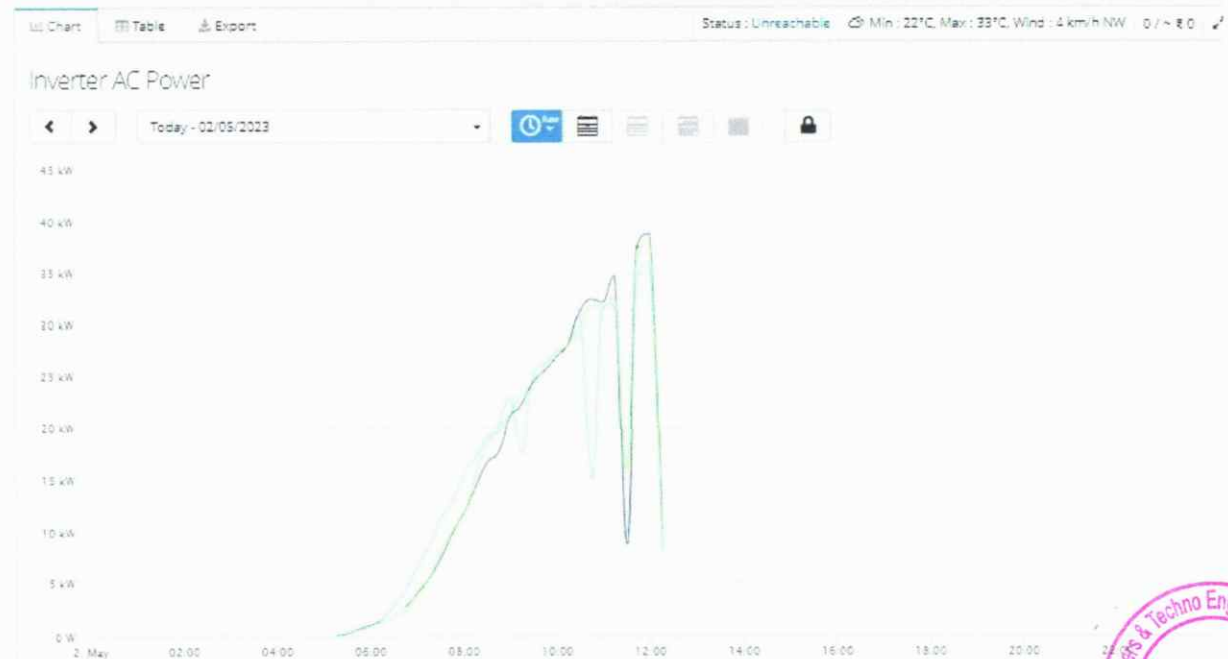
# PROJECT COMPLETION REPORT

## 12.8 MW SOLAR POWER PLANT

omain > SunSource Energy Pvt Ltd > Indian Institute of Soil Science, Bhopal > SSE-BTM-0034 Indian Institute of Soil Science



omain > SunSource Energy Pvt Ltd > Odisha University of Agriculture & technology, Bhubaneswar > SSE-BTM-0035 Odisha University of Agriculture & technology



### PART E

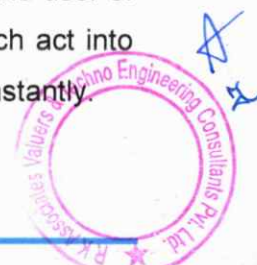
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Place : New Delhi

Date : 26-04-2023

No. of pages: 37

**VIRTUAL SURVEY DONE BY:** Adil Afaque

**PREPARED BY:** Adil Afaque

**REVIEWED BY:** Sr. V.P. Projects

**For R.K Associates Valuers & Techno Engineering Consultants Pvt. Ltd.**

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