



EU-India B2B Virtual Matchmaking Solar Thermal Applications

8TH APRIL, 2022

9:00 AM - 12:00 PM CET / 12:30 PM TO 3:30 PM IST

EU-India virtual B2B Matchmaking on Solar thermal applications- Event Proceedings



Contents

| | |
|---|----------|
| EU-India virtual B2B Matchmaking on Solar thermal applications | 2 |
| 1.1. Inaugural Session..... | 2 |
| 1.2. Keynote Address | 2 |
| 1.3. Launch of the “Advanced solar thermal technologies to address the challenges of Indian markets Report” | 4 |
| 1.4. Presentation of the report..... | 5 |
| 1.5. Q&A from the audience..... | 5 |
| 1.6. Closing remarks | 6 |
| Annexure 1: Names of Attendees..... | 7 |





EU-India virtual B2B Matchmaking on Solar thermal applications

On 8th April 2022, EU-India Clean Energy & Climate Partnership (CECP) project in collaboration with Solar Heat Europe and National Solar Energy Federation of India, hosted a B2B virtual matchmaking where EU companies were able to meet Indian stakeholders via the virtual B2Match platform. The event was registered by 61 participants from European Commission, EU Member States, Ministry of New and Renewable Energy (MNRE), Solar project developers, EPC, Financial Institutions, Manufacturers & System integrators, Research bodies, Academia, not for profit, etc. This was followed by 34 successful virtual B2B meetings on the platform. List of attendees is attached in **Annexure-1**

1.1. Inaugural Session

Mr. Joel Fernandes, Regional Director, European Business and Technology Centre (EBTC) welcomed the participants and presented the agenda and the broad objectives of the event. He emphasized the importance of today's discussion as it is a follow up to the virtual webinar conducted on 28th October 2021 to assess the current status, identify the sector needs, Research & Innovation (R&I) needs and relevance for cooperation between the EU and India in the area of solar thermal.

Mr. Edwin Koekkoek, First Counsellor, Energy and Climate Action, Delegation of the EU welcomed the participants virtually.

1.2. Keynote Address

Mr. Pedro Dias, Secretary General, Solar Heat Europe delivered a presentation to share the status of solar thermal in the EU. In his presentation he discussed about:

1. Solar Thermal Potential in Europe 2050:

- 2030 Solar thermal potential: solar thermal has the potential to reduce the emissions and European Commission revising its regulations to match a higher ambition in terms of CO₂ reductions. EU is now working on quickly reducing the dependency from fossil fuel imports, particularly gas, from Russia as sectors like cooling & heating depend on this gas supply. These measures indicate that by 2030, solar thermal will contribute 500 MWh of annual energy savings that could reach a turnover of 72 billion in Europe and replacing 48 BCM (Billion Cubic metres) of gas supply. By 2050, the segment which has the highest potential for growth is solar heating and cooling for industry. There is a substantial growth expected in the building sector and district heating, but clearly the biggest growth is expected in the provision of renewable heat for industry. The transformation to solar thermal systems will not only lead to savings, but also higher efficiency.
- Aspects from International Agencies: In the net zero by 2050 scenario, IEA indicated that evolution of rooftop solar will be considerable for both solar thermal and solar PV. There are currently 25 million solar PV installations and are expected to grow to 0.4 billion, while 250 million solar thermal installations in households are expected to grow to 1.2 billion. IRENA considers that the investments in renewable energy by 2050, can reach 2.5 trillion USD and 53% of this will be for solar thermal- in industry and in buildings.
- Information on cost reduction: There was a 68% cost reduction in SHIP projects commissioned between 2014 and 2020.



- **Thermal Energy Storage:** Thermal energy storage is extremely competitive and is present with every solar thermal system installed. To give an idea of the magnitude of the problem in Europe, the total electric power storage in 2020 was estimated at 5 GWh while the solar thermal storage is estimated at 180 GWh.

2. International Cooperation

Research & Innovation: One of the initiatives that is quite important in promoting this cooperation globally is the International Energy Agency-Solar heating and cooling (IEA SHC) program. Large countries like China, US and Turkey are some of the main markets under this program and it is recommended that India should also join the IEA SHC program. By joining this program, India will have access to the collaborative research work under this area done by the different countries.

Standards & Certifications: Quality Assurance is important and essential to gain consumer confidence. There are several initiatives around the world and India is stressing the importance of quality assurance to make sure that the sector progresses and provides a quality product which at the end increases confidence all over the world:

- quality assurance of not only the products, but also of the installation
- Have access to global solar certification network
- Make the link between the different regional certifications and try to establish relation between those regional certifications

3. **EU-India Cooperation:** This is crucial for growth of the sector in India as well as EU and may be promoted through:

- Proposals from study that covers joint events, manual/guide on solar thermal project development and knowledge sharing partnerships between EU and India
- Economic cooperation for manufacturing between EU & India that provide full solution for manufacturing set up in India
- Joint Research & Innovation for solar thermal specific research projects in India

The detailed presentation can be accessed [here](#)

Mr. Subrahmanyam Pulipaka, CEO, National Solar Energy Federation of India (NSEFI) discussed that India has high potential in terms of solar thermal. The key points made by him are as follows:

- In 2010, India had experimented with quite a few solar thermal technologies and the applications for solar thermal have taken backseat compared to solar PV in India
- Over the last three years NSEFI have continued relentless advocacy efforts in convincing the stakeholders from both the government and the private sector to give solar thermal the due respect that it deserves
- One of the key achievements is the ministry's new guidelines on rural livelihood generation using RE technologies and there are a lot of solar thermal applications that find space in that area like solar dryer, solar cold storage and other solar thermal based applications. Agriculture and agriculture food processing sector is also seeing the increasing use of solar thermal or heat applications in different parts of India. Ministry of fisheries is also promoting solar thermal dryers for storing and processing the fish.
- There are dedicated subsidies for states like Uttar Pradesh and Telangana for solar thermal storage applications, solar dryers and it is expected to double solar thermal installed capacity in the next 10 years. The drivers will be:
 - Application based solar thermal solutions like solar cooking





- Agrarian applications: Implementing integrated energy, food & water Nexus projects that imparts more value to the crop output before it goes out to market from existing agriculture field using solar powered pumps and solar powered dryers
- Developing domestic manufacturing
- Apart from the applications and the incentives, driving the demand and the storage technology is going to be the narrative for the next decade

India has the cheapest cost of energy when it comes to RE sources and there is a need for reliable storage. Today there are many Indian companies which are working closely with European counterparts in bringing solar thermal based storage technologies into Indian geography. The initial cost is expected to be a little bit on the higher side, but eventually it will come down.

Today when it comes to other storage technologies, it is pretty evident that India is dependent on other countries and their supply chains for sourcing raw material and that is why government has put a very emphasized focus on developing domestic manufacturing capabilities for storage technologies as well

Mr. Anil Kumar, Scientist D, Ministry of New and Renewable Energy, Government of India, shared Govt of India perspective and talked about various schemes available and steps being taken in this direction. He said that ministry had announced National Solar Mission in 2010 that set target of 20 million square meter of solar thermal technology by 2022, including the solar water heating system and the solar CSP systems. Against the target we achieved 11 million square metre by 2016-17 and since then, the industry is installing 0.5 to 0.6 million square meter installation per year. There are 8 regional test centers and out of which one test center in Pune is the test lab for Concentrating Solar Power (CSP) systems.

Ministry also supports the solar technology through Renewable Energy research and technology development program. This program has an objective to support the R&D project for the technology development and demonstration in the area of solar thermal technology. MNRE is already working on making industry competitive, self-sustainable and profitable by providing 100% financial assistance to the government institutions and up to 50% assistance to the industry or private institutions and research organizations or any international project. This financial assistance can go up to 70% of the project cost to the research institution or industry for the translating of technology from low Technology Readiness Levels (TRL) to high TRL. MNRE has a specialized area of solar thermal for improving the conversion efficiency and reducing the cost through improved design and deployment of high conversion temperature and alternative heat transfer fluids.

One more thrust area is commercial scale PV and solar thermal hybrid with storage. There is a potential for integration of existing coal-based power plant with CSP for preheating and hybridization. Solar thermal with supercritical carbon dioxide Brayton cycle which in which IISc Bangalore is already doing lot of research in this area

1.3. Launch of the “Advanced solar thermal technologies to address the challenges of Indian markets Report”

A report on “Advanced solar thermal technologies to address the challenges of Indian markets” was launched in this virtual matchmaking session, and the copy of the report was shared with the attendees. The study was commissioned under CECP project to assess the current status of solar thermal, identify the sector needs, Research & Innovation (R&I) needs and relevance for cooperation between the EU and India in the area of solar thermal. The report can be accessed [here](#)





1.4. Presentation of the report

Mr. Vibhash Garg, Director, PwC gave brief presentation on the report highlighting the existing scenario, potential, focus areas, need for R&I and recommendations. The report talks about the key industrial sectors wherein solar thermal makes sense and wherein solar thermal has found its place but there's still a lot to be achieved in terms of the proliferation of the technology. Industrial sectors such as Textile, automotive, food processing, breweries, chemical, dairy, paper & pulp, iron and steel, petroleum refineries, rubber and cement wherein we require temperatures in the range of 150 to 200 degrees centigrade can use solar concentrating thermal applications. Conventionally the focus of use of technology has been on cooking and process heating sector. The focus areas for R&I in solar thermal sector are:

- **Thermal energy storage:** Reducing intermittency and higher temperature heating/cooling applications
- **Improvements in collector design:** Reduced losses and improved efficiency measures
- **Digitization and performance monitoring:** Developing a customer centric view
- **Cost reduction measures**

Increasing collaboration in R&I areas can help mainstream solar thermal in Indian markets as an important technology solution for fossil fuel displacement. This also focuses on:

- Improving thermal performance
- Improving customer side experience: digitization and performance monitoring
- Improving application range
- Reduced costing and compact design
- Integrating storage: Increasing life and usage of the technology for longer duration

The detailed presentation can be accessed [here](#)

1.5. Q&A from the audience

- **Question from Mr. Costas Travasaros from Prime Laser Technology:** Mr. Travasaros sought inputs if there are any tax or duties on solar thermal systems or components coming from EU to India?
 - **Response from Mr. Palaniappan Chidambaram:** On the query, Mr. Chidambaram replied that around 10% duty is to be paid while importing solar thermal systems from EU to India
 - **Response from Mr. Vibhash Garg:** On the query, Mr. Garg replied that there are some components that are taxed on imports. Ex, Glass that is a major component of CST is from Germany
- **Question from Mr. Guglielmo Cioni from TVP Solar SA:** Mr. Cioni sought inputs on target audience of this report
 - **Response from Mr. Vibhash Garg:** The report focuses on policy makers as well as Industry, highlighting the sector needs and need for association between India & EU. The government is already aware of the challenges and the aim is to let them know what experts in this field think about the areas of research & innovation. If we indulge in R&I and get the right experts from India and Europe who can work together and come out with acceptable solution then acceptance of this technology in industries will increase.
- **Question from Mr. Guglielmo Cioni from TVP Solar SA:** Mr. Cioni sought inputs on the ways by which we can get a positive economic impact
 - **Response from Mr. Vibhash Garg :** With renewable energy, we are already reducing the CO₂ emissions. In solar thermal applications in India we have a different scheme that is Perform, Achieve and Trade scheme. There are standards that are defined for each industry on



specific fuel consumption per unit of output where in these systems are also finding space to reduce the inefficiencies and will be able to trade against RE certificates.

1.6. Closing remarks

Mr. Joel Fernandes, Regional Director, European Business and Technology Centre (EBTC), summarized the online consultation workshop. He also,

- Thanked all the speakers and the participants for sharing key insights around solar thermal in Europe and India
- Invited the attendees to join B2B meeting where 34 meetings were scheduled
- Requested participants to visit the CECP website www.cecp-eu.in to access key information, proceedings, and presentations from the session



Annexure 1: Names of Attendees

| S No. | Name of Attendee | Organization Name | Country |
|---------------|--------------------------|--|-------------|
| Europe | | | |
| 1 | Szymon Wojnicki | Energa Green Development | Poland |
| 2 | Anna Matenka | Corab S.A. | Poland |
| 3 | Pawel Piasny | Tauron Zielona Energia | Poland |
| 4 | Zofia ROGUSKA | The National Fund for Environmental Protection and Water Management of Poland | Poland |
| 5 | Piotr Cisek | Cracow University of Technology, Department of Energy | Poland |
| 6 | Przemyslaw Bukowski | Wroclaw University of Environmental and Life Sciences | Poland |
| 7 | Arkadiusz Dyjakon | Wroclaw University of Environmental and Life Sciences | Poland |
| 8 | Brijesh Patel | Indus EcoPartners | Germany |
| 9 | Wolfgang Kramer | Fraunhofer Institute for Solar Energy Systems | Germany |
| 10 | Marcus Jerk | Alanod GmbH & Co. KG | Germany |
| 11 | Mattia Marino | India IP SME Helpdesk | Belgium |
| 12 | Pedro Cabanillas del Caz | John Cockerill | Belgium |
| 13 | Alexandra Sutu | Solar Heat Europe | Belgium |
| 14 | Pedro Dias | Solar Heat Europe | Belgium |
| 15 | Mariana Toma | Institute of Research and Development for the Processing and Marketing of Horticultural Products "Horting" | Romania |
| 16 | Costas Travasaros | Prime Laser Technology | Greece |
| 17 | Francesca Meloni | Janus Energy | Italy |
| 18 | Guglielmo Cioni | TVP Solar SA | Switzerland |
| India | | | |
| 19 | Shwetabh Raj | Expert for India IP SME Helpdesk | India |
| 20 | Gaurav Sharma | European Business and Technology Centre | India |
| 21 | Parminder Sidhu | Soft Tech Renewable Energies | India |
| 22 | Gaurav Patel | Gujarat Energy Research and Management Institute (GERMI) | India |
| 23 | Aditya Ltd. | Akson's Solar Equipments Pvt. Ltd. | India |
| 24 | Rajesh Madusudanan | Self-employed | India |
| 25 | Chirodeep Bakli | IIT Kharagpur | India |
| 26 | Prateek Girdhar | PwC | India |
| 27 | Vivek Kodesia | Eden Renewables India | India |
| 28 | Palaniappan Chidambaram | SUNBEST | India |
| 29 | Vikrant Yadav | National Institute of Solar Energy | India |
| 30 | Edwin Koekoek | Delegation of the EU to India | India |
| 31 | Dr. Anil Kumar | Ministry of New and Renewable Energy | India |
| 32 | Jeet Acharya | KOSOL ENERGIE | India |
| 33 | Vibhash Garg | PwC | India |



| | | | |
|----|-----------------------|--|-------|
| 34 | Subrahmanyam Pulipaka | NATIONAL SOLAR ENERGY FEDERATION OF INDI | India |
| 35 | Ankita Tyagi | India IP SME Helpdesk | India |
| 36 | Hana Onderkova | India IP SME Helpdesk | India |
| 37 | Dixan Panchal | KOSOL ENERGIE PVT LTD | India |