



7th December 2021

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Study visit of EU delegation to
Solar Energy Corporation of
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International Solar Alliance (ISA)



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On 7th December 2021, under the European Union (EU) - India Clean Energy and Climate Partnership (CECP) project (www.cecp-eu.in), a delegation of representatives of EU Member States visited key solar related agencies and institutions situated in National Capital Territory (NCT) of Delhi, including the Solar Energy Corporation of India (SECI), National Institute of Solar Energy (NISE) and International Solar Alliance (ISA).

The objective of the study visit was to bring together the EU Member States and key agencies and institutions to learn about the objectives, role and activities of these 3 institutions in the field of solar energy. Further, it was aimed at EU member states informally discussing about the key initiatives taken in India in this sector and discuss potential areas of collaboration with India and with the ISA.

The delegation consisted of representatives from the EU, Austria, Czech Republic, Denmark, France, Italy, Netherlands, Poland, Spain; and was supported by the CECP project team from PricewaterhouseCoopers Private Limited (PwC).

1.1. Meeting at Solar Energy Corporation of India (SECI)

The delegation first visited the headquarters of SECI (<https://www.seci.co.in/>), situated in New Delhi. The delegation met with senior officials of SECI, including the Managing Director (MD), Ms. Suman Sharma, IRS. The meeting started with a warm welcome by the MD, SECI, along with a round of introduction by the SECI and EU delegation. The MD, SECI delivered a brief address to the members, covering the following:

- SECI's continuous support to the Government of India and other relevant stakeholders will help India progress towards the revised renewable energy (RE) capacity target of 500 Giga Watt (GW), to be achieved by the year 2030.
- Brief about the key work undertaken by SECI in the RE sector including tenders for solar, wind and hybrid projects.
- India's ambition in areas such as Offshore wind, green hydrogen, etc. which have immense potential in India but yet to be tapped on large scale.
- SECI is coming up with 4000 Mega Watt Hour (MWh) of battery storage tender soon, to be implemented at each of the four Regional Load Dispatch Centers (RLDCs) in India.

Mr. Edwin Koekkoek, First Counsellor EU Delegation to India, briefed SECI, through a presentation, about the EU-India cooperation under the 2016 Clean Energy and Climate Partnership. It was discussed that the EU and India are working together in the area of energy efficiency, solar energy, offshore wind, smart grid and power markets, energy storage, hydrogen, etc. Further, the EU is working towards developing a platform - Financing Investment in Clean Energy Platform (FICEP) to facilitate EU-India collaboration on financing in the areas of clean energy. It was discussed that the EU-India Energy Panel met recently and agreed on a concrete work programme for the period 2021-23. Edwin also mentioned the webinar planned for 16th December 2021 in coordination with the Ministry of Heavy Industries, Government of India and NITI Aayog on the manufacturing and deployment of battery storage systems in India, particularly on 50GWh Advanced Chemistry Cell (ACC) battery manufacturing tender.

SECI expressed interest in collaboration on various areas including on the business models for rooftop solar study undertaken by the EU and on energy storage. SECI mentioned that a separate meeting can be planned between EU and SECI to discuss the report in detail.

The team at SECI delivered a presentation highlighting the key activities and achievements of SECI in the solar energy sector in India, which included:

- Key areas of operations of SECI, financial standing, achievements in terms of projects commissioned till date with support from SECI -
 - SECI has issued and awarded 50GW tenders of RE till date,
 - Facilitated power trading of 20 Billion Units (BUs) in the year 2021-22,
 - Power Sale Agreement (PSA) of 31GW with 29 Distribution Companies (Discoms) in India,
 - Under construction of various projects including 20MW (AC)/50MW (DC) solar with 50MWh of Battery Energy Storage System (BESS) in Leh, India; 200MW hybrid including 140MW solar and 60MW of wind with 120Mh of BESS in Andhra Pradesh.
 - 100MW of floating solar project in pipeline,
 - 10,000 MW RE is planned in Ladakh including Ultra Mega Power Projects,
 - Working towards greening of islands- Lakshadweep, Andaman and Nicobar islands in India
 - Implementation of solar parks in states like Andhra Pradesh, Karnataka, Uttar Pradesh, Madhya Pradesh, Kerala, etc.
- Further, SECI is working in the upcoming areas such as green hydrogen and has signed Memorandum of Understanding (MoU) with oil and gas companies.
- SECI is also analyzing data for forecasting, designing and implementation of projects.

SECI mentioned that it responsible for the offshore wind tender, for which cost-reducing measures are very important.

The EU Delegation referred to the FOWIND¹ and FOWPI² studies on offshore wind, FOWIND estimating an offshore wind potential of 65 GW in India;

The representative from Denmark mentioned the work undertaken in India in the offshore wind sector, with a full-time expert stationed at IREDA to work on this area. The representative would be keen on close cooperation with SECI.

SECI mentioned that they are coming up with a tender in the waste to energy area, along with the Government of Uttar Pradesh. At present, the tender is in consultation with stakeholders and will be rolled out soon.

The representative from Italy mentioned that they are keen to explore collaboration in the areas of solar energy and green hydrogen. Further, the institutional framework between Italian and Indian companies can help collaborate.

The representative from France expressed interest on collaborating in the areas of solar, wind, offshore wind, etc. as the country desires to increase RE share to 50% in the electricity mix, while the country is currently sourcing electricity mainly from nuclear. A separate meeting between SECI, and France may be planned to discuss common areas of interest in detail.

The representative from IGEF indicated curiosity to understand Agri-solar PV in detail as under the IGEF project, the same has been supported. SECI mentioned that a tender of 10MW of Agri-solar PV has been launched in Tamil Nadu and a good response has been received. Further, SECI is awaiting approval from MNRE on subsidy. SECI further shared that the state of Punjab is already undertaking Agri-Solar PV projects. In addition, SECI is planning to come up with 5MW Agri-PV solar projects in Jammu and Kashmir for saffron cultivation.

The representative from Austria sought information from SECI on subsidy available for RE projects and any specific technology focused while bidding for a particular RE technology projects. SECI clarified that initially the RE projects were supported by Viability Gap Funding (VGF); however, it was withdrawn later as lower tariffs were discovered. Furthermore, SECI clarified that there is no specific thrust on technologies but mainly on the output and the performance parameters from the projects.

¹ <https://www.cecp-eu.in/resource-center/post/fowind-website/home>

² <https://www.cecp-eu.in/resource-center/post/fowpi-website/home>

On the offshore wind, SECI mentioned that MNRE would decide upon the subsidy to support the projects. It was also discussed that civil structure is the main cost in such projects, and the costs are not expected to reduce drastically. Subsequently, the tariffs may continue to remain high, through the Discoms in India are price sensitive.

While discussing further areas of collaboration, the representative from Denmark mentioned that it is supporting skill development in the areas of offshore wind and is sending Government of India's officials to Denmark for training and capacity building. The duration of such courses range from two weeks to one month for fellowship, which are developed by experts from Denmark Technical University (DTU). The delegation offered to include SECI's officials to these courses, which can be further customized to suit the need of SECI.

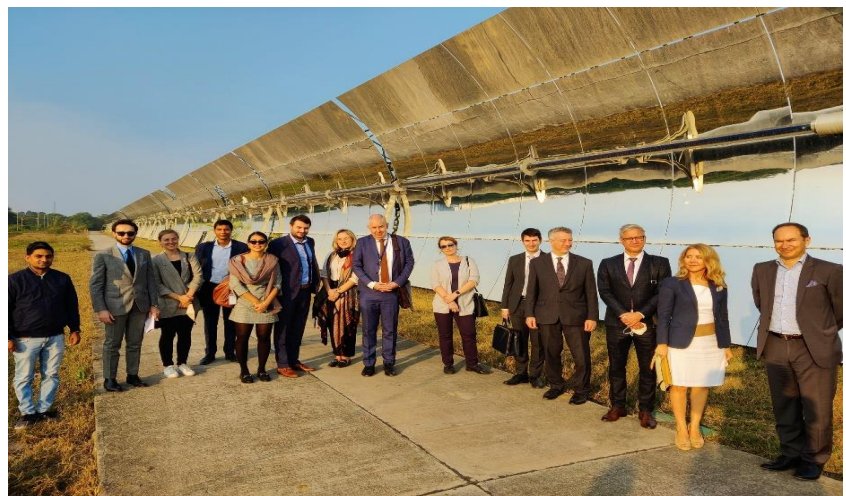
Towards the end, SECI indicated its interest to enter into MoU with other countries to collaborate on common areas of interest; and explore opportunities for executing projects internationally.



1.2. Visit to National Institute of Solar Energy (NISE) facilities

The delegation then visited NISE (<https://nise.res.in/>) in Gurugram (Gwal Pahari, Faridabad – Gurugram Road), Haryana, India, where it was warmly welcomed by His Excellency Director General (DG) of International Solar Alliance (ISA), Dr. Ajay Mathur and Deputy Director General of NISE, Dr. Chandan Banerjee. After a brief round of introduction, the officials of NISE took the delegation for visit to various solar technology projects installed within the large campus. The following projects/facilities were showcased, and details were explained to the delegation, along with addressing queries as the delegation had:

- Containerized solar cold storage room with solar panels mounted on the top of the container,
- Solar powered mineral water ATM,
- Solar thermal plant with tube collectors,
- Solar dryer for drying the agriculture produce such as spices,
- Power electronics lab where a variety of sample solar inverters are tested for performance, before being approved for installation in the country,
- Battery testing facility to showcase steps involved in testing of a battery to be implemented with a solar project,
- Solar module strength testing lab where durability of module and glass are tested against a certain weight,
- Solar based hydrogen plant,
- Solar pumping system,
- Solar thermal power plant with parabolic trough technology, solar
- Bifacial solar PV panels
- Ground mounted solar power plant with crystalline, thin film and amorphous silicon based modules



1.3. Meeting with International Solar Alliance (ISA)

After the visit to NISE the delegation met the DG of ISA, Dr. Ajay Mathur and other key officials in the ISA Secretariat (<https://isolaralliance.org/>), situated in the same campus as NISE. The meeting started with a round of introduction of the officials from ISA and the EU delegation.

His Excellency Dr Mathur addressed the delegation and shared that the:

- Solar energy has been at the forefront of addressing climate concerns and it should be the source of choice for electricity;
- Solar offers many benefits such as jobs, economy, environment, etc;
- Solar is perceived expensive due to upfront capital cost; hence it is important to reduce this cost; though there is no recurring cost with this technology, offering advantage;
- A mix of capacity building, project development measures, and conducive policies can bring down the cost of capital.
- Emphasized that the EU is an important partner and would like to work together to expand the reach of solar energy in every geography.

The officials from ISA then delivered a presentation covering following points about ISA:

- Launched in 2015 at COP-21 by Hon'ble Prime Minister of India, Mr. Narendra Modi and former President of France, Mr. Francois Hollande,
- 101 countries have signed the ISA framework agreement, and 80 countries have signed and ratified the ISA framework agreement,

- Discussed ISA's focus on Energy Access, Energy Security and Energy Transition, along with priority areas, key activities, outcomes and impact envisaged,
- Role of solar energy by 2050 for ambitious energy transition,
- ISA governance structure, constituting of vice president countries from each of the four regions,
- Plans to mobilize USD 1 Trillion in solar investments by 2030,
- Green Grids Initiative — One Sun One World One Grid (GGI-OSOWOG) (<https://isolaralliance.org/work/osowog/>) initiative to foster interconnected solar energy infrastructure at global scale.
- Initiatives in the areas of capacity building with member countries,
- Programmatic support available to member countries,
- Discussed the nine active programmes of ISA,
- 43GW of project concept proposal received from member countries so far,
- Project implementation support offered to member countries, technology wise.

The EU representative emphasized the importance the EU attaches to its cooperation with the ISA. The representative briefed about activities in energy efficiency, renewable energy, grid connection finance with India under the EU-India CECP which can also be relevant for the ISA.

The EU delegation sought information on the process to be followed by a country in order to become ISA member. The ISA shared details and process of becoming member.

The meeting concluded with a group photo.

