

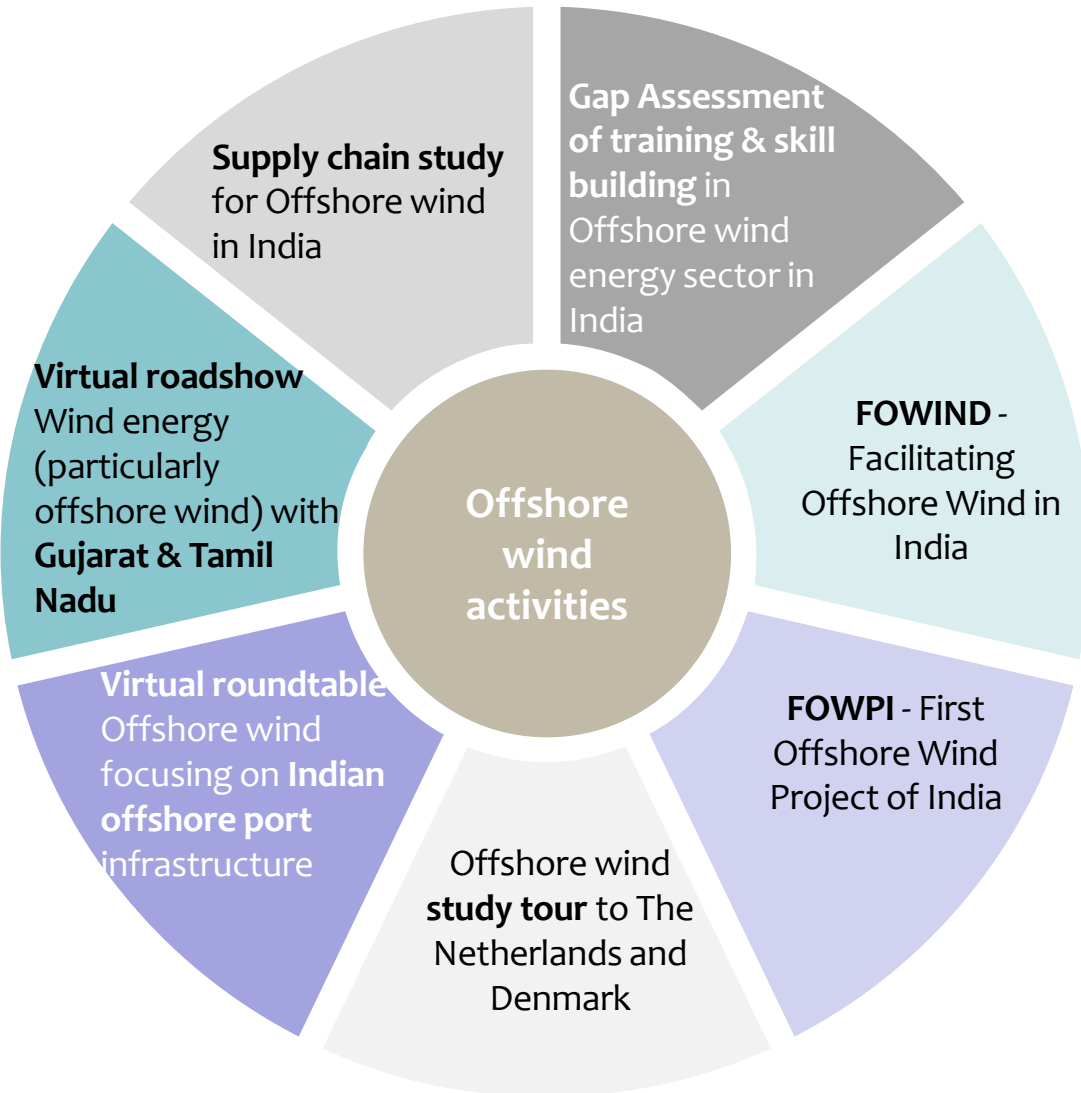


Offshore wind & Green hydrogen activities under EU – India Clean Energy & Climate Partnership (CECP)

Delegation of The European Union to India



Offshore wind activities



Supply chain study for Offshore wind in India

- Objective - **Highlight gaps**, and to clarify the **supply chain** and **infrastructure required** for efficient (and cost effective) offshore wind
- Aimed at **informing businesses** in the offshore wind sector about the **supply chain** for a potential offshore wind sector **in India**.
- Outline an **outlook for Indian domestic market**
- Highlight **opportunities related to jobs, manufacturing, R&D**
- Reflect **challenges for companies** in terms of coordination, long-term certainty & at the same time **opportunities related to knowledge transfer, supply chain**, etc.



Report - https://www.cecp-eu.in/uploads/documents/events/Supply_Chain_study_for_off-shore_wind_in_India.pdf

Offshore wind activities (2/3)

Gap Assessment of training and skill building in Offshore wind energy sector in India

- **Stocktaking current situation** of active institutions, available **training**, key **gaps**, training requirements & provide possible **recommendations** for **strengthening** the **ecosystem** in **India**.
- Identification of the **gaps & skills required in the sector value chain** i.e., development phase, construction phase and operation phase
- **Mapping of EU's technical expertise** in training and capacity building
- Key **recommendations to improve Offshore wind sector skill base** in India



Report - https://www.cecp-eu.in/uploads/documents/events/57/Gap_Assessment_of_training_Off_shore_wind.pdf

Offshore wind study tour to The Netherlands and Denmark

- **Ports of Maasvlakte & Eemshaven in the Netherlands; Esbjerg in Denmark.**
- **Meetings with European companies** to understand their expertise & possible role in Indian context.
- Participated in **WindEurope Offshore 2019** conference in **Copenhagen**.



Virtual roadshow – Wind energy (particularly offshore wind) with Gujarat & Tamil Nadu

- Objective – **Identify & support opportunities for EU business engagement** and laying the framework for **future pilot projects in India**.
- **Identified EU technologies** in the sectors & offered **EU companies the possibility to showcase their technologies to Indian Industry**.
- Followed by **12 virtual presentations from EU companies** on the platform.

Offshore wind activities (3/3)

FOWPI - First Offshore Wind Project of India

- Provided **TA in implementation of 200 MW project** near Gulf of Khambhat, **Gujarat**
- Focused upon:
 - Building of **knowledge banking & capacity building**
 - Preliminary **drawing of farm layout and energy yield estimates**
 - **Environmental impact assessment- scoping**
 - Preliminary **electrical services**
 - Coastal and onshore identification
 - **Financial modelling**
 - **Permits & procedures**

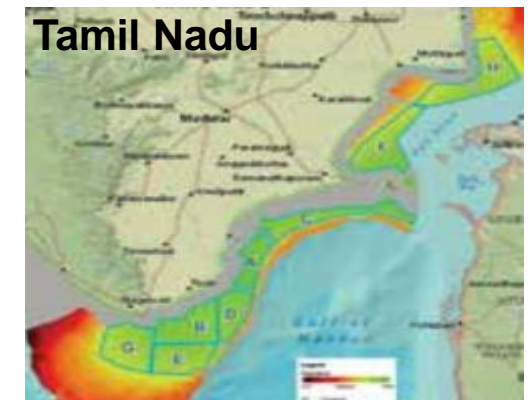
<https://www.cecp-eu.in/resource-center/post/fowpi-website/home>

FOWIND - Facilitating Offshore Wind in India

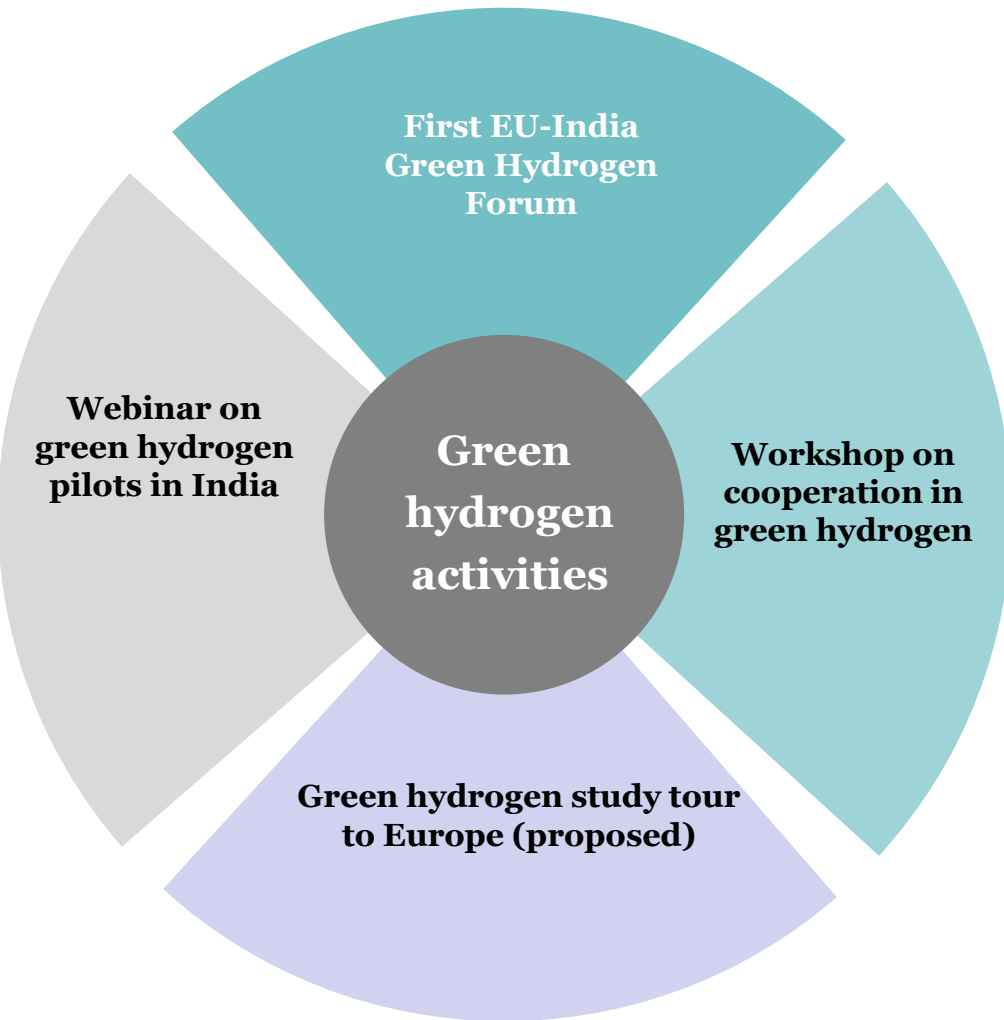
- Feasibility study for **Gujarat & Tamil Nadu** cover the following aspects:
 - **Wind resource assessment**
 - Wave and current study
 - **Geotechnical** conditions
 - Selection of **potential wind sites**
 - **Turbine** selection
 - Windfarm layout
 - **Energy yield estimation**
 - Electrical concept
 - **Foundation concept**
 - **Installation and logistics**
 - **Risks**

Virtual roundtable – Offshore wind focusing on Indian offshore port infrastructure

- Objective – Assess **transfer of latest European knowledge**
- **Readiness of major offshore ports (Tamil Nadu and Gujarat)** in India and subsequent **sharing of technical knowledge** by EU port players
- Discussed ‘**Gap Assessment of Training and Skill building in Offshore Wind Energy Sector in India**’ study conducted under EU India CECP



Green hydrogen activities



First EU-India Green Hydrogen Forum

- Inaugurated by European Commissioner for Energy Ms. Kadri Simson with H.E. Mr. R.K. Singh, Minister of Power and NRE, Government of India.
- Forum served as a platform to exchange best practices, policy frameworks & production and application technologies for green hydrogen as well as opportunities for EU-India cooperation in this area.
- Potential for international hydrogen trade, the role of international standards, including sustainable transportation, the legal requirements for the certification of renewable hydrogen and research and innovation.
- Brought together EU-India businesses to discuss potential joint projects

<https://www.cecp-eu.in/events/post/first-eu-india-green-hydrogen-forum>

Webinar on possible green hydrogen pilot(s) in India

- Organized a close door webinar with DG Energy – European Commission & SECI
- Objective was to connect European companies with SECI in order to explore possible cooperation in the area of Green hydrogen.
- Witnessed participation from 75 participants, representing policymakers, regulators, project developers, technology solution providers, manufacturers, energy performance contractors, think tanks, consultants and academia.

<https://www.cecp-eu.in/events/post/webinar-on-a-possible-green-hydrogen-pilots-in-india>

Green hydrogen activities

Workshop on cooperation in green hydrogen towards sustainable energy transition

- Discussion on **technology, business and financing** related to the green hydrogen establishment in India between EU & Indian stakeholders
- Address **challenges** related to the **commercial establishments**, and to promote the **business partnerships**.
- Discussions to **decrease the cost of green hydrogen** from around \$3.5-4.5 per kg today to \$1 per kg in a decade's time
- Discussed **importance of EU – India partnership** in as European firms are among the leaders in technologies including those related to electrolyser.
- **Facilitated discussion on business and technology** collaboration and on **financing green hydrogen** development.

<https://www.cecp-eu.in/events/post/workshop-on-cooperation-in-green-hydrogen-towards-sustainable-energy-transition>

Green hydrogen study tour to EU Member States (proposed)

- Proposed to conduct a **study tour to EU Member States & green hydrogen projects, in coordination with MNRE**
- Objective is to **familiarize Indian government stakeholders** from **ministries & key departments** on **green hydrogen development** in EU & explore **opportunities** for **collaboration**
- Offer an opportunity to **meet & interact** with **European Commission**, green hydrogen **alliances** in **EU** to understand the **key drivers** of green hydrogen development in **EU** which can be a **learning for India**

Initiatives undertaken by EU Member States on green hydrogen strategy

Belgium

Launched its “Hydrogen Vision and Strategy” in October 2021 to turn Belgium into an import and transit hub for clean hydrogen in Europe

Czech Republic

Hydrogen Strategy is being developed for a climate neutral Europe, which reflects the European Green Deal objective of climate neutrality by 2050

Denmark

Denmark published its power to-X and hydrogen strategy with an aim to use Power-to-X to produce hydrogen and other green fuels for decarbonizing industries

Germany

The National Hydrogen Strategy for Germany was announced in June 2020, aimed at increasing the role of green hydrogen in the energy transition process.

Estonia

Launched its hydrogen strategy to explore scope of a future proof business model, transition to clean energy & obtaining a strategic position

Spain

Hydrogen Roadmap has been developed to setup large capacities of electrolyser, increase green hydrogen consumption & promote export

France

Launched a first hydrogen plan followed in 2020 by a €9bn national decarbonized hydrogen strategy with a dual objective of technological development and ecological transition.

Italy

National Guidelines set the long-term vision for hydrogen deployment - 5 GW of electrolysis capacity by 2030 & € 10Bn investment

The Netherlands

Launched the “National Hydrogen Strategy” to support sustainable hydrogen, based on electrolysis & sustainable biogenic feedstocks.

Austria

Set out a strategy to install 1GW electrolyser by 2030, promote adoption of green hydrogen across sectors; international partnerships

Poland

Through its strategy, Poland plans to setup 20GW electrolyser by 2040 & achieve carbon neutrality by 2050 by implementing hydrogen across sectors including heat, power & transportation

Sweden

Developed strategy to achieve electrolysis & RE infrastructure by 2030 & green hydrogen value chain by 2045 across sectors including transportation



Thank You