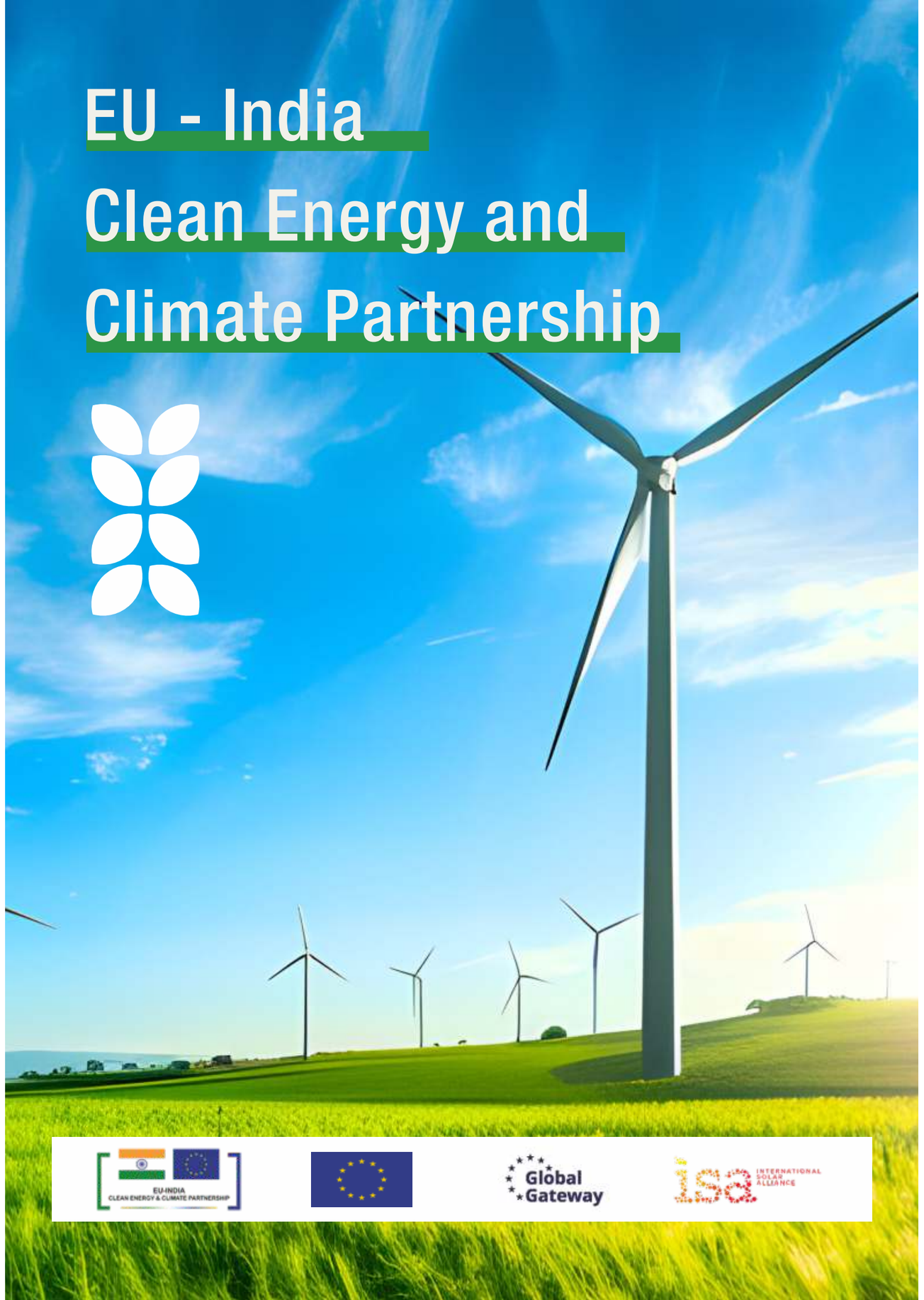
EU - India
Clean Energy and
Climate Partnership



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Abbreviations

ISA - International Solar Alliance

CECP - Clean Energy and Climate Partnership

TERI - The Energy and Resources Institute

NIAS - National Institute of Advanced Studies

C-STEP - Center for Study of Science, Technology & Policy

IRADE - Integrated Research and Action for Development

LeadIT - Leadership Group on Industry Transition

SPIN - Solar Photovoltaic Installation

PVTECH - Photovoltaic Technology

EPC - Engineering, Procurement, and Construction

FSPV - Floating Solar Photovoltaic

EIE - Environmental Insights Explorer

GCoM -Global Covenant of Mayors for Climate & Energy

F-gases - Fluorinated gases

FICEP - Financing Investment in Clean Energy Platform

GEEREF - Global Energy Efficiency and Renewable Energy Fund

WSDS - World Sustainable Development Summit

IUC - International Urban Cooperation

CDRI - Coalition for Disaster Resilient Infrastructure

SRI - Smart Readiness Indicator

EESL - Energy Efficiency Services Limited

NPEB - Net Positive Energy Buildings

GCRT - Grid Connected Rooftop

JRC - Joint Research Centre

EGEC - European Geothermal Energy Council

ISGF - Indian Smart Grid Forum

ISUW - India Smart Utility Week

FSR - Florence School of Regulation

CBA - Cost-Benefit Analysis

SRA - Scalability and Replicability Analysis

MNRE - Ministry of New and Renewable Energy

DISCOMS - Distribution Companies

OAEs - Own Account Enterprises

EIB - European Investment Bank

GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit

TTC - Trade and Technology Council

FOWPI - First Offshore Wind Project of India

FOWIND - Facilitating Offshore Wind in India

CEEW - Council on Energy, Environment and Water

MSSRF - M.S. Swaminathan Research Foundation

MRV - Monitoring reporting and verification

HPCL - Hindustan Petroleum Corporation Limited

BPCL - Bharat Petroleum Corporation Limited

IOCL - Indian Oil Corporation Limited

IISC - Indian Institute of Science

IIT Bombay - Indian Institute of Technology Bombay

FOWPI - First Offshore Wind Project of India

FOWIND - Facilitating Offshore Wind in India

ETS - Emissions Trading System Regulation

NECP - National Energy and Climate Plans

EVP - Executive-Vice President

NZE - Net Zero Energy

GG - Global Gateway

Clean Energy and Climate Action in the European Union

Introduction

In December 2019, the European Commission proposed the European Green Deal, a new growth strategy aimed at ensuring a resource-efficient and competitive economy, with no net emissions of greenhouse gases in 2050 and economic growth decoupled from resource use. Further decarbonising the energy system will be crucial to reaching the climate objectives in 2030 and 2050.

Completing the Energy Union and the clean energy transition will be of prime importance for modernising the European economy by moving from fossil fuels towards a decarbonised system. This transition is a clear opportunity to boost investment, growth, and jobs in Europe, while still ensuring a fair and just transition.

In 2009, the EU set ambitious energy and climate targets for 2020: a 20% reduction in greenhouse gas emissions, 20% in renewable energy and 20% in energy efficiency. These targets provided a clear direction, which drove investment in infrastructure, research, and innovation. Ten years later, the EU is largely on track to meet these goals. This demonstrates that it is possible to reduce emissions while simultaneously achieving GDP growth and a net increase in employment in the energy sector.

> **Renewable energy in Europe has become much cheaper. Solar and wind power now compete on market terms with other forms of power generation.**

The energy sector is responsible for more than 75% of the EU's greenhouse gas emissions. Increasing the share of renewable energy across the different sectors of the economy is therefore a key building block to reaching the goal of reducing net greenhouse gas emissions by at least 55% by 2030 and becoming a climate-neutral continent by 2050.

The revised Renewable Energy Directive which entered into force in November 2023 raises the EU's binding renewable target for 2030 to a minimum of 42.5%, up from the previous 32% target, with the aspiration to reach 45%. It means almost doubling the existing share of renewable energy in the EU.

Clean Energy Package
for all Europeans - key elements

The new “Clean Energy Package for all Europeans” has the following key elements:

1.

Energy Efficiency First: The new norms contain the principle of “energy efficiency first” and set a target to be 32.5% more efficient in our energy use by 2030. A particular emphasis is given to improving energy performance in the building sector.

2.

Showing leadership in the take-up of renewables: An ambitious new target of at least 32% of the European Union's gross final consumption of energy by 2030, which is broader than the energy consumed by the power sector. It includes all energy delivered to industry, transport, households, services including public services, agriculture, forestry and fisheries, the consumption of electricity and heat by the energy branch for electricity, heat and transport fuel production, and losses of electricity and heat in distribution and transmission. This will drive an acceleration of clean energy uptake in all sectors, and new laws to support public and private investment in the years ahead.

3.

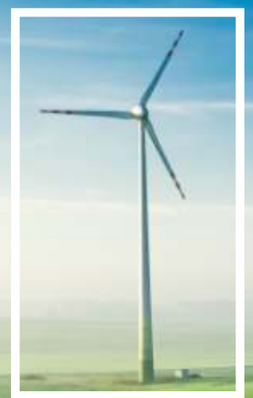
A new energy rulebook: While the binding targets are fixed at the EU level, the new rules establish that each country will decide how it contributes to these EU objectives by drafting a National Energy and Climate Plan (NECP) for 2021-2030. The European Commission will review the draft plans to ensure the EU can collectively fulfil its Paris Agreement commitments. The national plans also require the EU countries to outline a long-term strategy for at least the next 30 years. The new rules provide a stable enabling framework that will facilitate and encourage private investment in the clean energy transition.

4.

More rights for consumers: In addition to strengthening consumer rights—such as increasing transparency in household bills, providing greater choice, and offering more flexibility to change suppliers—the new rules will make it easier for individuals to generate their own energy, for instance through solar panels, as well as store it or sell it back to the grid.

5.

Increased security of supply due to a smarter and more efficient electricity market: Constantly adding higher volumes of variable renewables is a challenge. The new laws will increase our security of supply by helping integrate renewables into the grid and manage risks, and by improving cross-border cooperation. This will lead to a cleaner, more stable and more competitive electricity sector across Europe.



European Green Deal[1]

Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient and competitive economy, ensuring:

» No net emissions of greenhouse gases by 2050.

» Economic growth decoupled from resource use.

» No person and no place left behind.

Fit for 55[2]

Following the climate targets set in the Paris Agreement, the European Union aims to make Europe the first climate-neutral continent by 2050. As a first step, the Commission proposed an initial set of targets to be met by 2030. On 14 July 2021, the European Commission adopted "Fit for 55", a set of policy proposals preparing the implementation of the European Green Deal. In particular, Fit for 55 aims to reduce greenhouse gas emissions (GHG) by at least 55 percent by 2030.

This is the EU's plan to reduce greenhouse gas (GHG) emissions by at least 55% by 2030 compared to 1990 levels in line with the European Climate Law.

REPowerEU[3]

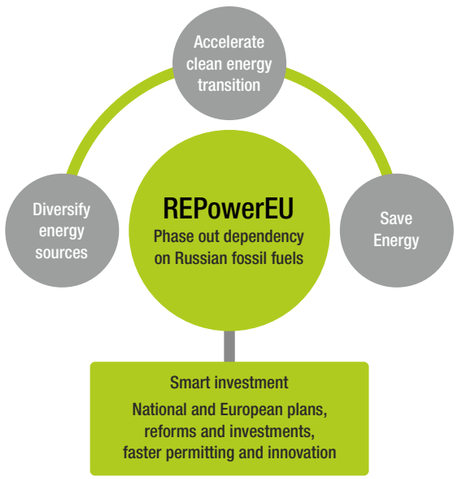
In response to the hardships and global energy market disruption caused by Russia's invasion of Ukraine, the European Commission is implementing its REPowerEU Plan. Launched in May 2022, REPowerEU is helping the EU to:

» Save energy

» Produce clean energy

» Diversify its energy supplies.

Through REPowerEU, the European Union protected its citizens and businesses from energy shortages, supported Ukraine by weakening Russia's war chest, and accelerated the transition to clean energy. Our joint efforts continue, and Europe is now more prepared and united than ever.



Key achievements

By acting together, the EU has:

» Reduced its dependency on Russian fossil fuels

» Saved almost 20% of its energy consumption

» Introduced the gas price cap and the global oil price cap

» Doubled the additional deployment of renewables.

[1]https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
[2]https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/
[3]https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en#:~:text=Producing%20clean%20energy,-Renewable%20energy%20is&text=The%20REPowerEU%20Plan%20is%20speeding,massive%20investment%20in%20renewable%20energy.&text=Since%202022%2C%20we%20have%20managed,new%20solar%20energy%20capacity%20installed

Actions

1.

Diversifying energy supply

Since September 2022, Russian gas has accounted for only 8% of all pipeline gas imported into the EU, compared to 41% of EU imports from Russia in August 2021.

With the REPowerEU plan, our energy supply is diversified mainly by:

- Establishing agreements with other third countries for pipeline imports
- Investing in the common purchase of Liquefied Natural Gas (LNG)
- Securing strategic partnerships with Namibia, Egypt and Kazakhstan to ensure a Secure and sustainable supply of renewable hydrogen
- Signing agreements with Egypt and Israel for the export of natural gas to Europe.

The EU needs to secure its energy supplies not only for the coming winter but also for the years ahead. This is why our partnerships focus on building a greener future, towards climate neutrality. The infrastructure we currently use for gas can be used for clean hydrogen in the future. Therefore, our investments today are also paving the way for a decarbonised economy in the future.

2.

Securing affordable energy supplies

Launched in April 2022, the EU Energy Platform played a crucial role in helping diversify our energy supply throughout the year. The platform helps coordinate EU action and negotiations with external gas suppliers to prevent EU countries from outbidding each other. The Platform is also leveraging the weight of the EU single market to achieve better conditions for all EU consumers.

Following Russia's invasion of Ukraine, the EU proposed a common gas procurement system to ensure affordable energy for Europeans and avoid supply disruptions. This system allowed the collective purchase of a share of their gas needs, preventing competition among within for scarce supplies. In May 2023, the EU managed to attract bids from a total number of 25 supplying companies equivalent to more than 13.4 billion cubic metres of gas (bcm). This comfortably surpasses the 11.6 bcm of joint demand that EU companies submitted through the first tender (under the AggregateEU mechanism). EU companies will now be able to negotiate the terms of the supply contracts directly with the supplying companies. Four more tenders followed by the end of 2023.

3.

Saving energy

Saving energy is the cheapest, safest and cleanest way to reduce our reliance on fossil fuel imports from Russia. Thanks to the actions of citizens, businesses and EU countries alike, the EU has overachieved its voluntary target to reduce gas demand by 15%. Natural gas demand declined by 18% between August 2022 and March 2024. This helped the EU save 125 billion cubic meters (bcm) of gas. All EU countries agreed to reduce their gas consumption by at least 15%.

4.

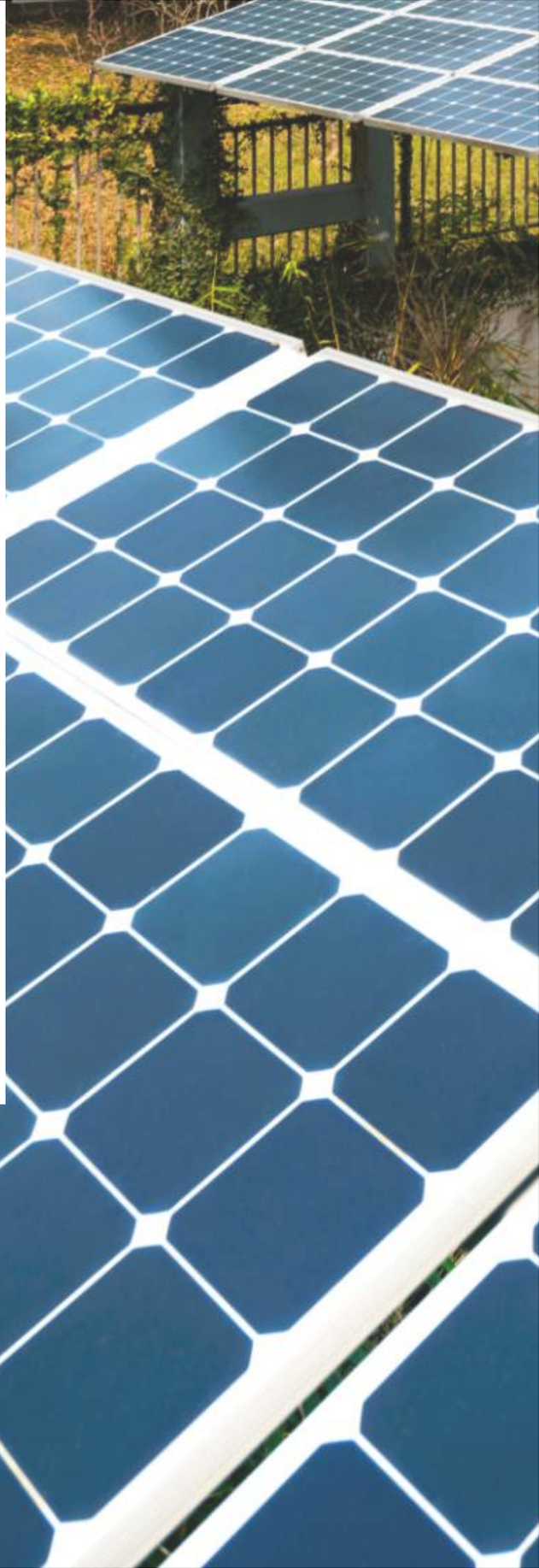
Investing in renewable

The REPowerEU plan is speeding up the green transition and promoting massive investment in renewable energy.

Over the last year, they have managed to increase their production and capacity:

- Reaching a record of almost 96 GW of new solar energy capacity installed. Increasing wind capacity by 33 GW
- Ensuring 45% of our electricity now comes from renewables

In March 2023, the EU agreed on stronger legislation to increase its renewables capacity, raising the EU's binding target for 2030 to 42.5%, with the ambition to reach 45% - this would almost double the existing share of renewable energy in the EU.



Overview of EU legislation focusing on energy:

1.

EU Emissions Trading System Regulation (ETS):[4] The EU Emissions Trading System is the EU's key tool for cutting greenhouse gas emissions from large-scale facilities in the power and industry sectors, as well as the aviation sector. The ETS covers around 45% of the EU's greenhouse gas emissions. Under the European Climate Law, EU Member States will work collectively to become climate-neutral by 2050. As a first milestone, the EU is aiming to reduce net emissions by at least 55% by 2030 compared to 1990. The revised EU ETS will contribute to delivering this target.

2.

Effort-sharing decision:[5] This Covers the sectors not in the ETS, accounting for some 55% of total EU emissions, such as housing, agriculture, waste, and transport (excluding aviation). EU Member States have taken on binding annual targets until 2020 for cutting emissions in these sectors compared to 2005. The targets differ according to national wealth – from a 20% cut for the richest countries to a maximum 20% increase for the least wealthy (although they were still projected to have to make efforts to limit emissions). Every year, the progress is monitored by the European Commission, with each country required to report its emissions. The non-ETS sectors will need to cut emissions by 30% by 2030 (compared to 2005) – this has been translated into individual binding targets for the Member States.

3.

Measures taken at the EU level will help Member States to reduce their emissions.:

» **In the area of transport:** CO2 emission standards for new cars and vans will cut emissions from road transport. The targets for 2015 (for cars) and 2017 (for vans) were already achieved in 2013. A 37.5% CO2 reduction target for new cars and 31% for new vans has been set for 2030. The new rules for Heavy Duty Vehicles will ensure that between 2025 and 2029, new trucks will emit an average of 15% less CO2 compared to 2019 emission levels. From 2030 onwards, they will be required to emit on average 30% less CO2. These targets are binding, and truck manufacturers that do not comply will have to pay a financial penalty in the form of an excess emissions premium. The EU legislation also addresses the quality of fuel, including the intensity of greenhouse gas emissions.

» **In the area of fluorinated gases:** In October 2016, the Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer adopted the Kigali Amendment. This amendment added hydrofluorocarbons (HFCs) to the list of controlled substances. The foreseen phase-down of HFCs could save around 80 gigatonnes CO2 equivalents until 2050 and will significantly contribute to fighting climate change. The EU is taking regulatory action to control Fluorinated gases (F-gases) as part of its policy to combat climate change. The first F-gas regulation was adopted in 2006, successfully stabilised EU F-gas emissions at 2010 levels. The current regulation, which took effect on 1 January 2015, enhances the existing measures and introduces several significant changes. By 2030, it will cut the EU's F-gas emissions by two-thirds compared with 2014 levels. In addition, the completed phase-out of ozone depleting substances, 10 years ahead of the schedule maintained under the Montreal Protocol, contributed to the mitigation of climate change.

4.

Regulation on the Governance of the Energy Union and Climate Action (EU):[6] The Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999, part of the Clean Energy for All Europeans package, entered into force in December 2018. It emphasizes the importance of meeting the EU's 2030 energy and climate targets and outlines collaboration between EU countries and the Commission to achieve the energy union's goals. The regulation aims to align strategies with the Paris Agreement, stimulate Member State cooperation, promote investor certainty, reduce administrative burdens, and ensure consistent reporting under international climate agreements. The governance mechanism relies on integrated national energy and climate plans (NECPs) for ten-year periods starting from 2021 to 2030, alongside integrated reporting, monitoring, and public consultation for transparency.

5.

Renewable Energy Directive:[7] The Renewable Energy Directive (2018/2001/EU) entered into force in December 2018, as part of the 'Clean Energy for All Europeans' package, aimed at maintaining the EU's status as a global leader in renewables and, more broadly, helping it to meet its emissions reduction commitments under the Paris Agreement. The amending Directive EU/2023/2413 entered into force on 20 November 2023. There will be an 18-month period to transpose most of the directive's provisions into national law, with a shorter deadline of July 2024 for some provisions related to permitting for renewables. It sets an overall renewable energy target of at least 42.5% binding at EU level by 2030 - but aiming for 45%.

6.

Energy Efficiency Directive:[8] To boost the energy performance of buildings, the EU has established a legislative framework that includes the revised Energy Performance of Buildings Directive (EU/2024/1275) and the revised Energy Efficiency Directive in place since 2018 (EU/2023/1791). Together, the directives promote policies that will help achieve a highly energy-efficient and decarbonized building stock by 2050, create a stable environment for investment decisions, and enable consumers and businesses to make more informed choices to save energy and money.

[4]https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en
[5]https://climate.ec.europa.eu/eu-action/effort-sharing-member-states-emission-targets/effort-sharing-2021-2030-targets-and-flexibilities_en

[6]https://energy.ec.europa.eu/topics/energy-strategy/energy-union_en
[7]https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en#directive-20182001eu
[8]https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive_en

EU-India cooperation in Clean Energy and Climate Action

Introduction

Clean energy and climate action are areas in which the objectives of the European Union and India strongly converge. Both the EU and India are keen on reducing their dependency on energy imports, diversifying their energy supply, and increasing their energy efficiency and share of renewable energy. Both parties are strongly committed to the implementation of the Paris Agreement. Therefore, the European Union and India are closely cooperating on ensuring affordable, clean and secure energy and on climate action.

7.

Electricity Directive and Electricity Regulation:[9] The EU electricity market is designed to incentivise the clean energy transition while delivering on key objectives of energy security and affordability. The Directive on common rules for the internal market for electricity (EU/2019/944) and the Regulation on the internal market for electricity (EU/2019/943) put the consumer at the centre of the clean energy transition, enabling active participation, with a strong framework for consumer protection. The rules allow more flexibility to accommodate the increasing share of renewable energy in the grid and contribute to the creation of green jobs and growth.
Meeting the 2030 climate and energy targets will require an additional €180 billion per year in the period 2021-2030; these sums clearly outstrip the resources available from public budgets. The EU and its Member States are the largest providers of public climate finance in the world.

Climate finance and main streaming

Meeting the 2030 climate and energy targets will require an additional €180 billion per year in the period 2021-2030; these sums clearly outstrip the resources available from public budgets. The EU and its Member States are the largest providers of public climate finance in the world.

In 2022, the European Union and its 27 Member States contributed €28.5 billion in climate finance from public sources and mobilised an additional amount of €11.9 billion of private finance to support developing countries to reduce their greenhouse gas emissions and adapt to the impacts of climate change. Over 54% of the public funding was dedicated to either climate adaptation or cross-cutting action (involving both climate change mitigation and adaptation initiatives) in developing countries. Close to half of the total funding was committed in the form of grants.[10]

It entails that projects should undergo a sustainability test, which may lead to the exclusion of projects, increasing the long-term dependency on fossil fuels. Another important aspect in this context is the climate-proofing of EU-funded infrastructure projects, ensuring their adequate resilience to the adverse impacts of climate change.
The EU budget could support only approximately 5-7% of the total required investment levels for mitigation. Most of the finance needed will have to stem from other public and private sources. To mobilize private climate investments, the Commission adopted in 2018, the EU Sustainable Finance Action Plan, aiming at reorienting capital flows towards sustainable investment to achieve sustainable and inclusive growth, managing financial risks stemming from climate change, environmental degradation and social issues, and fostering transparency and long-term financial and economic activity.

Climate (ETS)

The EU Emissions Trading System (ETS), which enshrines the “polluter pays” principle, is at the core of European climate policy and key to achieving the objective of EU climate neutrality. By putting a price on greenhouse gas (GHG) emissions, the ETS has triggered significant reductions in EU emissions, as industries have an incentive to reduce their emissions and invest in climate-friendly technologies.

[9] https://energy.ec.europa.eu/topics/markets-and-consumers/electricity-market-design_en
[10] https://www.consilium.europa.eu/en/policies/climate-finance/#Climate%20mainstreaming%20in%20EU%20expenditure

The India-EU Clean Energy and Climate Partnership

At the EU-India Summit in March 2016, India-EU Clean Energy and Climate Partnership was announced. The goal is to work together more closely to use more clean energy sources like wind and solar power and to help carry out the Paris Agreement. This partnership was later reconfirmed in the joint statement at the EU-India Summit in October 2017.

The leaders of the world's two largest democracies met in May 2021.

The EU was represented by the heads of the state or government of the 27 EU member states, Charles Michel, President of the European Council, and Ursula von der Leyen, President of the European Commission, gathered in Porto.

India was represented by the Prime Minister Shri Narendra Modi, who joined EU leaders via video conference. The EU High Representative for Foreign Affairs and Security Policy, Josep Borrell, also participated in the meeting. Commitments taken:

1.

Building Global Health Preparedness and Resilience – Covid-19 and Beyond

- Work together for defeating the pandemic through global cooperation and solidarity.
- Support universal, safe, equitable and affordable access to COVID-19 vaccines.
- Recognise the role of extensive immunisation as a global public good.
- Collaborate to ensure a better, safer, sustainable and inclusive recovery.
- Better prepare and respond to global health emergencies.
- Advance global health security, including by strengthening the World Health Organisation.

2.

Protecting Our Planet and Fostering Green Growth

- Address climate change, biodiversity loss and pollution making Biodiversity COP15, Climate COP26 and 2nd UN Ocean Conference a success.
- Accelerate the deployment of renewable energy, promote energy efficiency, collaborate on smart grid & storage technology, and modernise the electricity market.
- Work together to decarbonise the industrial sector and further accelerate transport electrification and cooling and cold chain efficiency.
- Support green and sustainable modernisation of the economies > Cooperate on food, nutrition and agriculture.
- Scale up cooperation on water management and work together to tackle air pollution.

3.

Fostering inclusive growth through trade, connectivity and technology

- Work together to ensure a swift post COVID-19 economic recovery.
- Promote sustainable growth and decent jobs.
- Open markets and create a level playing field.
- Enhance coordination on global economic governance, notably in the WTO and G20.
- Encourage interaction between EU and Indian businesses.
- Continue cooperation on space and transport, including aviation.
- Pursue digital transformation to create quality jobs and improve the lives of citizens, including through e- governance solutions.
- Encouraging people-to-people interactions will further advance cooperation and mobility in research and innovation.

4.

Striving For A Safer, Prosperous And More Democratic World

- Protect and promote human rights.
- Enhance parliamentary exchanges.
- Coordinate on regional issues of common interest.
- Commitment to a free, open, inclusive, and rules-based Indo-Pacific space.
- Enhance cooperation between EUNAVFOR Atalanta and the Indian Navy in the Indo Pacific region.
- Enhance synergies in the cooperation with African partners.
- Support for the comprehensive reform of the UN Security Council, to make it more effective, transparent, representative, and accountable.
- Strengthen cooperation on international security.
- Imminent signature of a Working Arrangement between Europol and India's Central Bureau of Investigations.

Climate and energy in the EU Strategy on India

The EU strongly values working with India, one of the largest and fastest-growing economies, on clean energy and climate action. This commitment is shown in the Joint Communication “Elements for an EU strategy on India” from November 2018 and the Council Conclusions on that strategy in December 2018. With India set to become the most populous country in the world, its energy needs will more than double in the next 20 years. It is currently the world's fourth largest emitter of greenhouse gases, although the CO2 emissions per capita are very low. The country is also highly vulnerable to climate change impacts and extreme weather, such as heat waves, droughts and floods. India's energy mix is currently dominated by coal, but the country has started implementing one of the world's largest clean energy transition programmes using its renewable energy potential. The EU-India cooperation can contribute to delivering reliable, sustainable, and affordable energy system while at the same time bringing together energy technology sectors from both sides.

The strategy proposes several actions related to clean energy and climate action, including:

- Continue the implementation of the EU-India Clean Energy and Climate Partnership through regular exchanges, establishing a climate change dialogue, and using it as a platform to coordinate multilateral and bilateral approaches to climate change and energy security.
- Support a clean energy transition through a contribution to India's flagship initiatives on offshore wind, solar power, smart grids, energy efficiency, energy access and affordability.
- Support the development and implementation of climate and energy action at the local level.
- Support the development and implementation of climate and energy action at the local level.
- Support the framework of the Global Covenant of Mayors for Climate and Energy in India.
- Strengthen global action on climate change, including the implementation of the Montreal Protocol on environment and clean energy, supported by enhanced cooperation in international forums on research and innovation.
- Support the implementation of the Paris Agreement and share knowledge on modelling and the development of low emissions scenarios to inform mid-century low greenhouse gas emission development strategies, as well as on climate change adaptation.
- Continue to actively support the International Solar Alliance, through the European Investment Bank.

Energy panel

High-level discussions on climate and energy-related issues take place between officials from the Government of India and EU institutions, inter alia, in the Energy Panel. Under the Energy Panel, four Joint Working Groups (JWG) have been established on:

- **Energy Security** co-chairs: Ministry of External Affairs/Ministry of Petroleum and Natural Gas, Government of India and Directorate-General for Energy (DG ENER), European Commission.
- **Renewable Energy** co-chairs: Ministry of New and Renewable Energy, Government of India and DG ENER, European Commission.
- **Energy Efficiency, Smart Grids and Electricity Markets** co-chairs: Ministry of Power, Government of India and DG ENER, European Commission.
- **Clean Coal** co-chairs: Ministry of Power and Ministry of Coal, Government of India and DG ENER, European Commission.

Climate dialogue

Both the 2016 Joint Declaration between the European Union and India on Clean Energy and Climate Partnership and the 2017 EU-India Joint Statement on Clean Energy and Climate Change refer to the establishment ofa EU-India High-level Dialogue on Climate Change . It aims to support the dialogue by working groups and events in areas of mutual interest and to further the objectives of the United Nations Climate Change Convention and the Paris Agreement. The dialogue was held for the first time on 28 April 2021.

At the EU-India Leaders' meeting on 8 May 2021, this first Joint Statement was released, and it was agreed to have regular meetings on the EU-India High-Level Dialogue on Climate Change and to organise related events that enable to broaden participation in the partnership with relevant authorities on both sides. This will help to enhance interaction on best available technologies and to provide a platform for engagement with all interested EU Member States.

Link with other Partnerships

In 2016, in addition to the Clean Energy and Climate Partnership, India and the EU also agreed to an India-EU Water Partnership, followed by a Memorandum of Understanding in that same year. The (re)use of water, cleaning of water, solar pumping, irrigation, and the need for increased resilience for floods and droughts are of course, strongly linked to climate change and the clean energy transition. The same is true for the Joint Declaration of Partnership for Smart and Sustainable Urban Development, which was agreed upon at the EU-India Summit in October 2017, and for the EU-India Resource Efficiency Initiative launched in 2017, funded by the EU and being implemented together with the Indian Ministry for Environment, Forestry and Climate Change (MoEFCC) and NITI Aayog. Developing smart and sustainable urban development, such as improving transportation to be cleaner and smarter, and efficiently using resource, by adopting a circular economy, are both essential for the transition to clean energy and for addressing climate change. Lastly, a new project on Biodiversity in Rajasthan will be launched at the end of 2024 in partnership with the Ministry of Agriculture and Farmers' Welfare and MoEFCC.

Activities by the EU Member States

Many EU Member States have established a strong and close cooperation with India in the domains of clean energy and climate action. It is therefore important that the European Union coordinates its activities closely with the EU Member States. The Delegation of the European Union to India therefore regularly organises meetings with the Environment, Climate and Energy Counsellors of the Member States, aiming at ensuring synergy and avoiding overlap.

Linkage between Global Gateway and Connectivity Partnership

Global Gateway (GG) aims to establish and reinvent global infrastructure project rules from Asia to Africa. The connection that places India at the center of the ongoing great-power struggle is at the core of GG. Its strength stems from the EU Strategy for Indo-Pacific Cooperation, which was adopted by the European Council in April 2021.

The EU's Indo-Pacific policy, as well as connectivity partnerships with Japan (2020) and India (2021), are essential regional building blocks. The Global Gateway intends to improve smart, clean, and secure connections in digital, energy, and transportation, as well as to strengthen health, education, and research systems throughout the world.

Economic development must be deoupled from resource usage to accomplish the goals of the European Green Deal. Green hydrogen is predicted to play a significant part in attaining the EU's goals of reducing greenhouse gas emissions by at least 55% by 2030 and reaching net zero emissions by 2050. As part of the Global Gateway and the EU-India Clean Energy and Climate Partnership, the EU is contemplating funding the promotion of green hydrogen and green ammonia in India. The Global Gateway has provided additional momentum to develop these relationships and harness investments from a diverse range of public and private sector players to achieve a greater impact for a green, digital, and resilient future.

The EU Global Gateway initiative and the EU India Connectivity Partnership both aim to improve connectivity and collaboration between the European Union and India but with differing regional focuses. Through investments in transportation, energy, digital infrastructure, and sustainable development, the EU Global Gateway intends to improve Europe's connection with adjacent areas such as Africa, Asia, and the Indo-Pacific. On the other hand, the EU-India connectivity relationship, is focused on developing a robust connection between the EU and India, with a focus on sustainable and digital connectivity, commerce, and investment. Both initiatives seek to strengthen economic linkages, promote sustainable development, and encourage people-to-people exchanges between the two areas, demonstrating their common commitment to collaboratively developing global connectivity. By synergising these initiatives, the EU and India can improve their relations, foster innovation, and effectively handle common connectivity and technological concerns.

Projects on Renewable Energy, Energy Efficiency and Climate Action

To foster robust collaboration between the European Union and India, it is imperative to establish not only administrative dialogues but also to initiate tangible activities and projects. These initiatives should synergize European and Indian enterprises, stakeholders, scientists, and civil society, thereby significantly contributing to the energy transition and the reduction of greenhouse gas emissions and air pollution across both regions.

EU-India Clean Energy and Climate Partnership (CECP)

The India-EU Clean Energy and Climate Partnership (CECP) is administered by the Delegation of the European Union to India. PricewaterhouseCoopers Private Limited (PwC India) serves as the implementing partner for this project, in collaboration with NIRAS A/S, and EUROCHAMBRES. The primary goal of the project is to enhance cooperation between the EU and India on climate change and energy, aiming to secure a clean, affordable, and reliable energy supply for all, and to make progress in the implementation of the Paris Agreement. Specifically, the project aims to further strengthen cooperation in these areas:

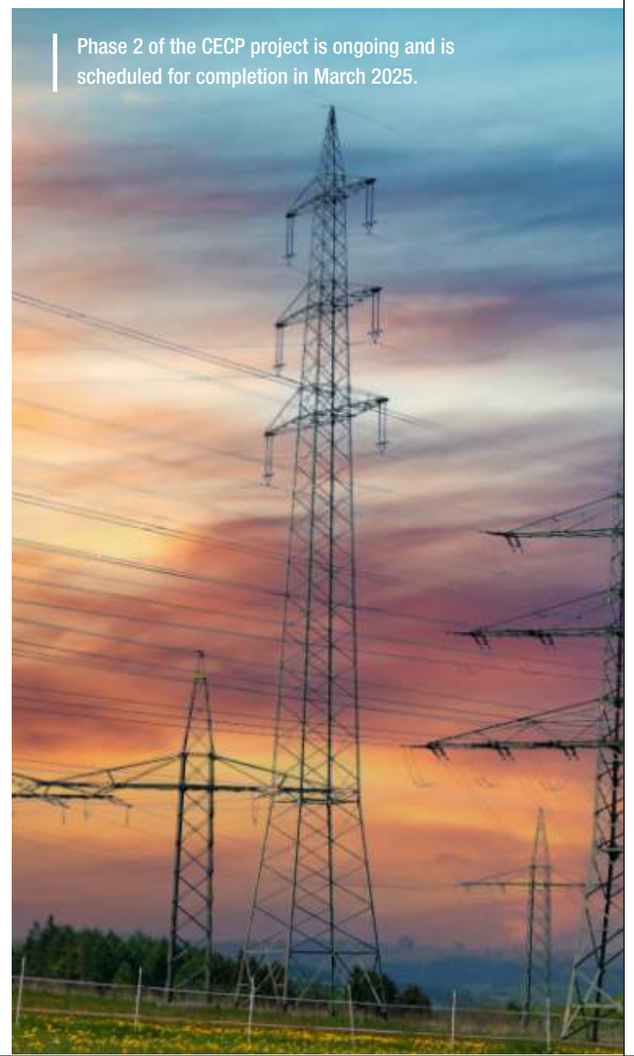
» **Policy Dialogue:** Exchange of experiences, best practices & views (webinars, workshops, study tours, field visits, demo projects).

» **Cooperation:** Organisation of key EU-India events, Research and Innovation, Development & implementation of technical solutions, financial investment in Renewable energy and Energy Efficiency, and Business to Business Engagement.

The project addresses issues such as energy efficiency in buildings (including the cooling sector) and industry, the development and deployment of renewable energy sources such as solar and offshore wind, smart grid applications, energy storage, energy recovery from waste, and increasing access to clean energy. It will also address climate mitigation and adaptation initiatives, accountability frameworks for mitigation, sustainable consumption and production patterns, and the financing of clean energy, energy efficiency, and climate action. The India-EU Clean Energy and Climate Partnership (CECP) project is a key initiative under the Clean Energy and Climate Partnership, launched in December 2018. It is financed by the European Union's Partnership Instrument and managed by the Delegation of the European Union to India. The project focuses on issues such as energy efficiency in buildings (including the Energy Conservation Building Code, nearly zero energy buildings, smart readiness indicators, and cooling) and industry, the development and deployment of renewable energy (including solar and offshore wind), smart grid applications, energy storage, energy recovery from waste, increasing access to clean energy, climate mitigation and adaptation initiatives, accountability frameworks for mitigation, sustainable consumption and production patterns, and sustainable financing for clean energy, energy efficiency, and climate action.

The specific objective of the proposed project is to facilitate the exchange of views on policy and regulatory approaches, governance, best practices, business solutions, market access, and research and innovation opportunities in the fields of renewable energy, energy efficiency, and climate change in India.

> Phase 2 of the CECP project is ongoing and is scheduled for completion in March 2025.



Key achievements of CECP Phase 1

The CECP project has successfully advanced EU-India cooperation, particularly in the areas of solar energy, offshore wind, bio energy, green hydrogen, energy efficiency in buildings, and enhancing financing for the clean energy sectors. This collaboration has also fostered increased engagement between EU and Indian policymakers, businesses, and financial institutions. The visibility of the EU and the Clean Energy and Climate Partnership has highlighted European principles and policies that support international partnerships on clean energy and climate change.

The partnership has garnered heightened political attention, as evidenced by statements adopted at EU-India summits and visits by high-profile EU leaders. Notably, the President of the European Commission travelled to India in April 2022, where she visited the International Solar Alliance and TERI, emphasizing the partnership and the need for increased cooperation in renewable energy and green hydrogen. Similarly, the Executive Vice President of the European Commission responsible for the European Green Deal visited in October 2021, meeting with all the energy ministers and the Minister for Environment, Forest, and Climate Change, and also underscoring the need to enhance collaboration in renewable energy, green hydrogen, and just transition.

In total, 77 events, workshops, webinars, and study tours have been organised, involving the participation of more than 20 Indian government officials and over 500 Indian and 100 European companies. A dedicated website (www.cecp-eu.in) and a Twitter account (@EU_India_CECP) have been established to support these efforts.

EU-Climate Dialogues Project

The “EU Climate Dialogues (EU-CD)” project funded by the European Union from February 2022 till June 2024 has the Ministry of Environment, Forest, and Climate Change (MoEFCC) as the nodal Ministry in India. It is being implemented by GIZ International Services as an implementation agency. The project has three focus areas:

» **Focus area 1: Technical exchange of best practices between Indian and EU experts on low carbon modelling tools**

The International Institute for Applied Systems Analysis (IIASA) in Austria is actively involved in the collaboration between India and the EU in developing modelling capacities and tools, as well as facilitating technical and knowledge exchange between India and European modelling teams. The Indian modelling teams involved in this collaboration are from TERI, MSSRF, NIAS, C-STEP and IRADE.

» **Focus area 2: Technical Inputs to Leadership Group on Industry Transition (LeadIT) Activities**

The project will support two detailed studies for providing input related to decarbonisation of the cement and steel sector with special focus on data collection. The project will organise four webinars, together with the Ministry and the Leadership Group on Industry Transition, including Capacity Building for smaller companies. The project will also organise one in-person outreach workshop related to LeadIT.

» **Focus area 3: Technical Support for State Level Climate Action**

To identify bottlenecks in implementation of the State Action Plans on Climate Change and identification of measures for effective implementation of State Action Plan on Climate Change (SAPCC), the project will support studies and capacity building programs in partner states including Delhi, Chhattisgarh, Punjab, Kerala and Gujarat.

EU-India former projects

India-EU Strategic Partnership for Implementation of the Paris Agreement (SPIPA)

In 2017, in the margins of the high-level segment of COP23, the former European Commissioner for Climate Action and Energy, Miguel Arias Cañete, launched new EU strategic partnerships for the implementation of the Paris Agreement. Globally, the SPIPA project was funded jointly by the European Union's Partnership Instrument and by the German Federal Government's International Climate Initiative. The countries under the project included all G20 countries, except the EU Member States, i.e., Argentina, Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey and the US. In India, the nodal partner ministry is the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India.

The project was being implemented through the EU Delegation with the support of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. For all countries, the total financing is €20 million from the EU's Partnership Instrument and co-financing of €5 million from the German International Climate Initiative. The financing for India amounted to €2 million till December 2021.

The objective of the EU's climate policy dialogue with India was to deepen the cooperation on climate - related topics including the reduction of greenhouse gases and enhanced resilience against climate change. It complemented the dialogue cooperation on clean energy and provided space for addressing crosscutting aspects such as innovation or the water-energy nexus. Based on the India-EU Climate Partnership interactions, the following activities were proposed:

- Networking, capacity building and knowledge management.
- Low carbon development modelling and long- term strategies related knowledge sharing.
- Monitoring reporting and verification (MRV) related knowledge sharing.
- Sector activities: Adaptation.
- Sector activities: Mitigation.

The SPIPA project had following key achievements:

1. Organised three Youth Climate Conclaves: This conclave was envisaged as a competitive and educative mode of action, wherein youth from across the country came together to join hands and address the issues related to climate change.
2. Supported revision of the State Action Plan on Climate Change (SAPCC) for five states: The project provided technical advisory support for the revision of SAPCCs in Chhattisgarh, Delhi, Haryana, Punjab and Kerala by engaging sectoral experts.
3. The project organised a Webinar on “India-EU Experience Sharing on Adaptation Planning and Implementation” on 30 June 2020.
4. Four climate change learning labs for awareness creation and capacity building have been established at the state level in Bihar, Kerala, Haryana and Gujarat.
5. Capacity building and technical exchange of best practices between Indian and EU experts on modelling tools with four Indian low-carbon modelling teams from CEEW, CSTEP, IRADE and TERI with Joint Research Centre (JRC), EU and IIASA were achieved.
6. A webinar was organised on 7 July 2022, on Market Ready Adaptation Technologies Tackling Real World Impacts of Climate Change Exchanges among EU, Indian and U.S. companies on 7 July 2022.
7. A study on enhancing climate-resilient financing for the MSME sector in India was prepared and submitted to the Ministry of MSME.
8. The project supported a pilot of Agricultural Demand Side Management (AgDSM) with grid-connected solar pumps through DPR and investment prospectus preparation.
9. Inputs for industry transition roadmaps for the Iron & Steel, Petrochemicals, Ammonia and Cement sector were prepared and submitted to MoEFCC as part of the Leadership Group on Industry Transition (LeadIT) initiative.

A detailed report of all activities implemented as part of the SPIPA project is available at:
https://www.cecp-eu.in/resource-center

EU – India technical corporation project: energy

The “EU-India Technical Cooperation Project: Energy” was operational since September 2014 and ended in September 2020. It had inter alia aided the Bureau of Energy Efficiency (Ministry of Power), Solar Energy Cooperation of India (SECI) and the Ministry of New and Renewable Energy (MNRE).

The primary aim was to create an enabling environment for the implementation of climate friendly energy efficient technologies by increasing awareness amongst public and private sectors.

The project included inter alia technical cooperation with the MNRE through the formation of a PV Rooftop Cell.

Clean Energy Cooperation with India (CECI)

Clean Energy Cooperation with India (CECI) aimed at enhancing India's energy generation capacity with the least carbon residual, thereby contributing to the mitigation of global climate change. Project activities supported India's efforts to secure energy supply within a well-established framework for strategic energy cooperation between the EU and India. The project facilitated the transfer of knowledge and technological know-how from the EU experience in the sector and its adaptability to the Indian context, also through the involvement of European businesses in the energy technologies sector (renewables, energy efficiency, electrical network equipment) and by fostering their cooperation with the Indian stakeholders.

The project focused on:

- Technical assistance and advisory services to the Ministry of New and Renewable Energies (MNRE) and Solar Energy Corporation of India (SECI) for the implementation and management of identified solar parks;
- Technical assistance and advisory services to the Ministry of New and Renewable Energies (MNRE) and National Institute of wind energy (NIWE) in the area of Offshore Wind Energy;
- Legal and policy support to the development and implementation of the Energy Conservation Building Code for the commercial building sector in India in collaboration with the Bureau of Energy Efficiency.

Cooperation in Solar Energy

Projects and initiatives undertaken under Solar Energy

Solar initiatives undertaken as part of the EU-India CECP project Phase II:

1.

EPC best practice guidelines for solar PV

To address the need for industry-wide best practices for EPC, SolarPower Europe joined forces with NSEFI, supported by the EU-India Clean Energy and Climate Partnership (CECP), to develop the Indian edition of the EPC Best Practice Guidelines. A joint Indian-European EPC working group was launched in September 2021, assembling 31 leading solar experts from India and Europe.

2.

EU-Odisha virtual workshop on floating solar projects

The state of Odisha, with an overall potential of generating 17.75 GW of electricity from FSPV, is proactively conducting feasibility studies across its water surface area for project development at utility scale. Under the Clean Energy Cooperation with India (CECI) project, feasibility studies on 12 water bodies were carried out in the state, namely, hydro reservoirs of Balimela, Upper Kolab, Indravati, Hirakud and Rengali and water irrigation reservoirs of Telengiri, Hariharjore, Mandira, Jambhira, Salandi, Sorada Ghai and Bhajanagar. The study was carried out based on strong desktop assessment with GIS analysis, site visits to the water bodies, environmental, social analysis and sample social consultation workshops.

3.

Virtual Roadshow - Roadshow 2 on “Solar energy technologies with Rajasthan”

The focus of this roadshow was on solar energy covering multiple technologies such as utility scale projects and solar parks, rooftop solar, floating solar and solar thermal. The state of Rajasthan leads the solar energy installations in the country with about 8GW capacity and has the potential to host about 142GW capacity installations. Further, the state hosts one of the largest solar parks in India at Bhadla, which has established the technical feasibility of large-scale solar projects at one location and has also helped realise low tariffs for the technology. In addition, the state has also witnessed investments and installations from a number of large-scale project developers. Thus, the state presents a potential state for the EU technology providers and investors to plan collaboration in the area of solar energy.

4.

Road ahead for rooftop solar at REI Expo 2021

As part of the CECP project, EU moderated a session on “Road ahead for Rooftop Solar” at the REI Expo, 2021 which witnessed participation from industry stakeholders from EU and India. During the session, the study commissioned under CECP was presented which analysed the rooftop market in India and identified possible barriers/challenges/issues that might limit the growth of the sector. Additionally, the rooftop market scenario in the EU has been analysed through this study, to understand the key drivers and innovative business models existing in the EU with the aim to recommend possible solutions suitable for India to further enhance rooftop solar PV uptake.

5.

“PV Waste Management in India” report launch

As part of the EU-India Technical Cooperation Project on renewable energy and energy efficiency in India, the “PV Waste Management in India” report was launched by the EU and India at the Solar India Summit under the 6th Smart Cities Indian Expo 2021.

The report was launched by the former Ambassador of the European Union, H.E. Ugo Astuto, Joint Secretary Mr. Dinesh Jagdale of the Ministry of New and Renewable Energy and the authors, i.e., SolarPower Europe, PV CYCLE and the National Solar Energy Federation of India. Both the EU and India have set very ambitious targets for renewable energy., India aims to install 500 GW of renewable energy capacity by 2030, with 280 GW of that coming from solar. However, this requires a feasible plan to manage and recycle the industrial waste, as the first-generation panels will start expiring in 25-30 years. In light of this background, the report compares the EU and Indian regulatory frameworks for managing end-of-life solar panels. It also assesses and analyses the PV waste market and processing capacities in India and shares recommendations for Indian stakeholders to take forward and adapt.

6.

Launch of the “Solar PV Resilient Supply Chains” Study at India Solar Manufacturing Summit

The summit witnessed the launch of Report on “PV Supply Chain Resilience & Sustainability” undertaken as a part of the EU-India Clean Energy & Climate Partnership Project. The key initiatives taken by various organizations to support the PV manufacturing in India was discussed along with insights into the pathway for measures that can be taken for resilient supply chain along with how the international solar community and states can collaborate for solar PV manufacturing. Additionally, a dedicated roundtable on building resilient PV Supply Chain was held with panellists from the US embassy, Australian High Commission and Smart Energy Council

Former projects under CECP

Developments in India's Solar Park scenario

The Government is implementing a Scheme for “Development of Solar Parks and Ultra Mega Power Projects” in the country.

Under this scheme, the Government sanctioned 50 Solar Parks with aggregate capacity of 37,990 MW in 12 states across the country, so far. Against this sanction, 11 Solar Parks with aggregate capacity of 8521 MW have been completed and 7 Solar Parks with aggregate capacity of 3985 MW have been partially completed. In these parks, solar projects of aggregate capacity of 10,237 MW have been developed.

1.

Technical Assistance (TA) for the Implementation and Management of Identified Solar Parks

- The project started in February 2016 and will end in August 2019 (42 months)
- Funding: €1.66 million
- Contractors: a consortium by IBF (Belgium) with NIXUS (Spain) and IDOM (Spain)
- Beneficiaries: Ministry of New and Renewable Energy (MNRE), Solar Energy Corporation of India (SECI), the local solar power park developers in each state. The TA has supported the states (agencies) of Haryana, Andhra Pradesh, Maharashtra, Chhattisgarh, Kerala, Odisha, Uttar Pradesh, Meghalaya, Assam, Arunachal, Nagaland, and has interacted with the states of Himachal Pradesh, Madhya Pradesh, Karnataka, Manipur and Mizoram (in total 16 states)

2.

Under the EU's technical assistance project to MNRE, a solar PV rooftop cell was established within the Ministry to enhance rooftop solar deployment in India. The cell started operations in July 2016 and supports MNRE in promoting Grid Connected and Small Power Plant Programs. Highlights of the activities undertaken by the cell includes the following:

- Enhancement of the Solar Photovoltaic Installation (SPIN) Portal, a national database of rooftop solar installations.
- Creation of an information guide on Grid Connected Rooftop (GCRT) Programs to raise public awareness.
- Development of a "Single Window Clearance Portal" for expediting program implementation in Delhi and Goa.
- Introduction of the PVTECH mobile app, providing information on Grid Connected Rooftop Solar PV Systems.
- Organising workshops, conferences, and stakeholder consultations.
- Preparation of reports on guidelines for solar-ready rooftops, operation, and maintenance contracts, and technical standards for rooftop solar installations in India.

Cooperation with the International Solar Alliance (ISA)

Introduction

The ISA was launched jointly at COP21 by India and France. It is an international organisation based in India, aiming at:

» Providing a platform for cooperation among solar resource rich countries with an ambition to undertake joint efforts required to reduce the cost of finance and technology;

» Mobilising more than US $1000 billion of investments needed by 2030 for massive deployment of solar energy, and pave the way for future technologies adapted to the needs;

» Working together towards the deployment of appropriate benchmarks, facilitating resource assessments, supporting R&D and demonstration facilities, encouraging innovative and affordable applications of solar technologies.

» Promoting solar technologies, new business models and investments.

» Facilitating capacity building for promoting solar technologies.

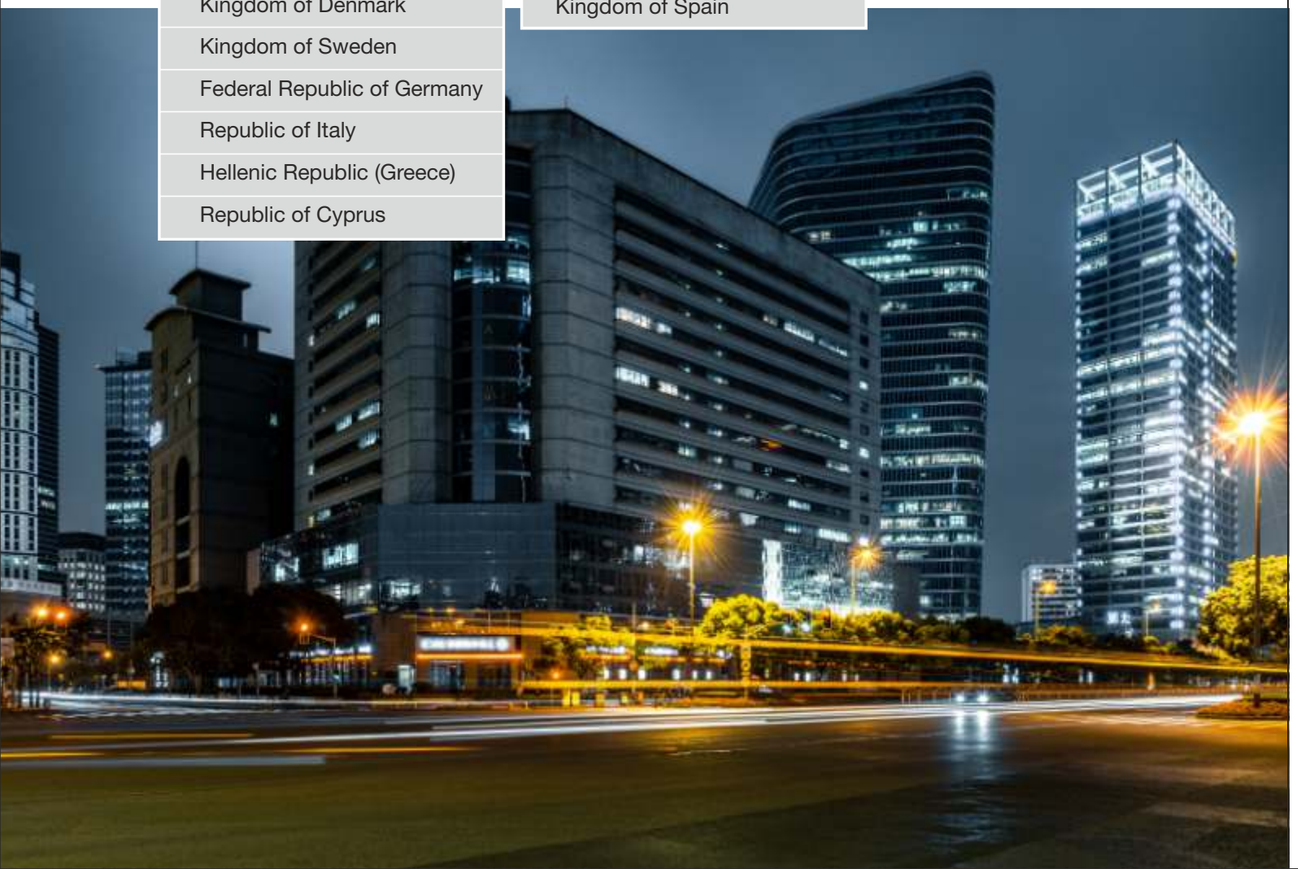
» Formulating projects and programmes.

» Developing an innovative financial mechanism.

» Building a common knowledge e-portal.

EU Member States are as follows:

EU Member States	Signatory Country
Republic of France	Grand Duchy of Luxembourg
Kingdom of the Netherlands	Hungary
Kingdom of Denmark	Kingdom of Spain
Kingdom of Sweden	
Federal Republic of Germany	
Republic of Italy	
Hellenic Republic (Greece)	
Republic of Cyprus	



Joint Declaration between the EU and the ISA

On 11 December 2018, during COP24 in Katowice, Commissioner Miguel Arias Cañete on behalf of the European Union and Director General and Mr Upendra Tripathy, on behalf of the International Solar Alliance, signed a Joint Declaration with the intention of further deepening the cooperation between the EU and the ISA. The Joint Declaration states that as a Partner Organisation, the EU, represented by the European Commission, will endeavour to be part of the ISA Assembly. This is also reflected in the Joint Communication on the Elements for an EU Strategy on India of 20 November 2018 and the Council Conclusions on that strategy of 10 December 2018. The objective of this project is to further deepen the links between the International Solar Alliance (ISA), its Member States and the international academic, financial and business communities, including the relevant communities in the European Union (EU). By doing so, the project, aims to put the weight of the European solar energy community behind the objectives of the ISA. During its implementation, the action will contribute to making the different communities, including those from Europe, more visible to the ISA Community and vice versa. The project aims to support and strengthen ISA's role as a solar energy platform, including concrete communication activities.

ISA logo

When the ISA was established, it was open for membership to the 121 countries falling between the Tropic of Cancer and Capricorn. Since then, ISA has expanded its prospective members to all countries that are part of the United Nations.

The ISA logo consists of 121 dots, each dot representing one of the 121 counties who can be part of the alliance with shared ambition to reduce the cost of solar finance and technology, mobilise over $1,000 billion of investments needed by 2030 for massive deployment of solar energy, and pave the way for future technologies adapted to the needs. Now, the dots in the logos represent all countries that are ISA's members.

The ISA logo was designed and developed by Andrzej Uwitniewski and Marek Zaborowski under the EU technical assistant project for the Ministry of New and Renewable Energy.

ISA activities till date

The ISA activities are organized under 9 programme areas. These are:

» Scaling Solar Application for Agricultural Use

» Scaling Solar Mini- Grids

» Scaling Solar E-Mobility & Storage

» Solarising Heating and Cooling Systems

» Solar for Green Hydrogen

» Affordable Finance at Scale

» Scaling Solar Roof Top

» Solar Park

» Solar PV Battery and Waste Management

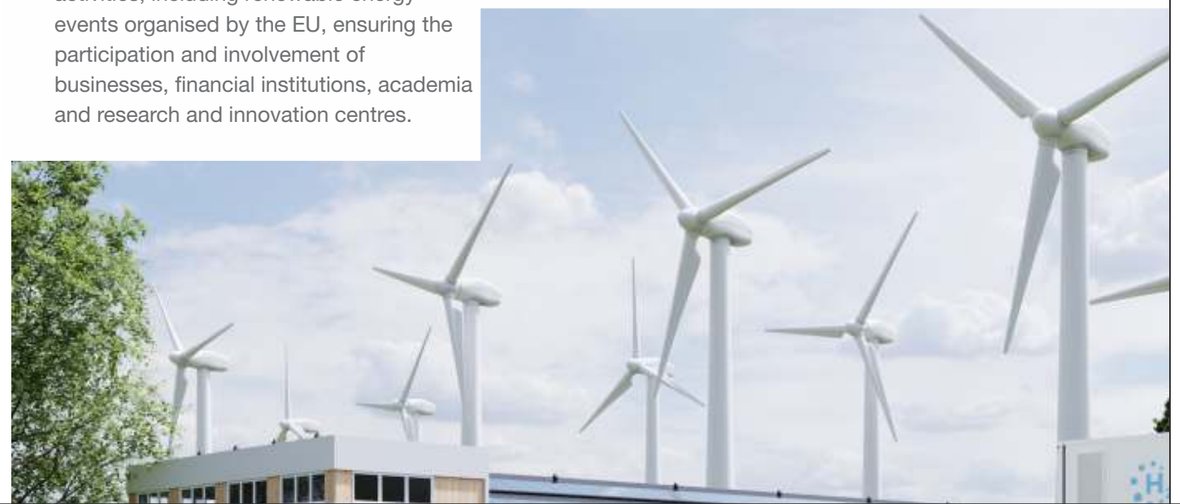
From September 2021 to September 2023 - Implemented by EPRD, Poland through a team of 4 experts supporting ISA.

Deliverables

- Develop knowledge and training products aligned with the needs of ISA and its Member States, especially the Least Developed Countries (LDCs) and Small Island Development States (SIDSs).
- Support the promotion of ISA through various communication channels.
- Strengthen the business component in the solar energy domain through dialogue forums; expert groups between the ISA, its Member States and the private sector including relevant EU businesses; the creation of a guidance document on emerging issues in solar investments; and a compilation of innovative case studies contributing to the development of solar energy and renewable energy uptake.
- Strengthen the academic network of the ISA through trainings developed by relevant stakeholders, including the EU; writing policy and guidance documents; and maintaining an active network of research and innovation stakeholders to support the priorities of ISA member countries.
- Strengthen the financial network of the ISA by organising events and dissemination of information on sustainable finance, financing tools, regulations and business models supporting a wider deployment of solar-based energy production technologies.
- Support relevant ISA annual events and activities, including renewable energy events organised by the EU, ensuring the participation and involvement of businesses, financial institutions, academia and research and innovation centres.

Key Achievements

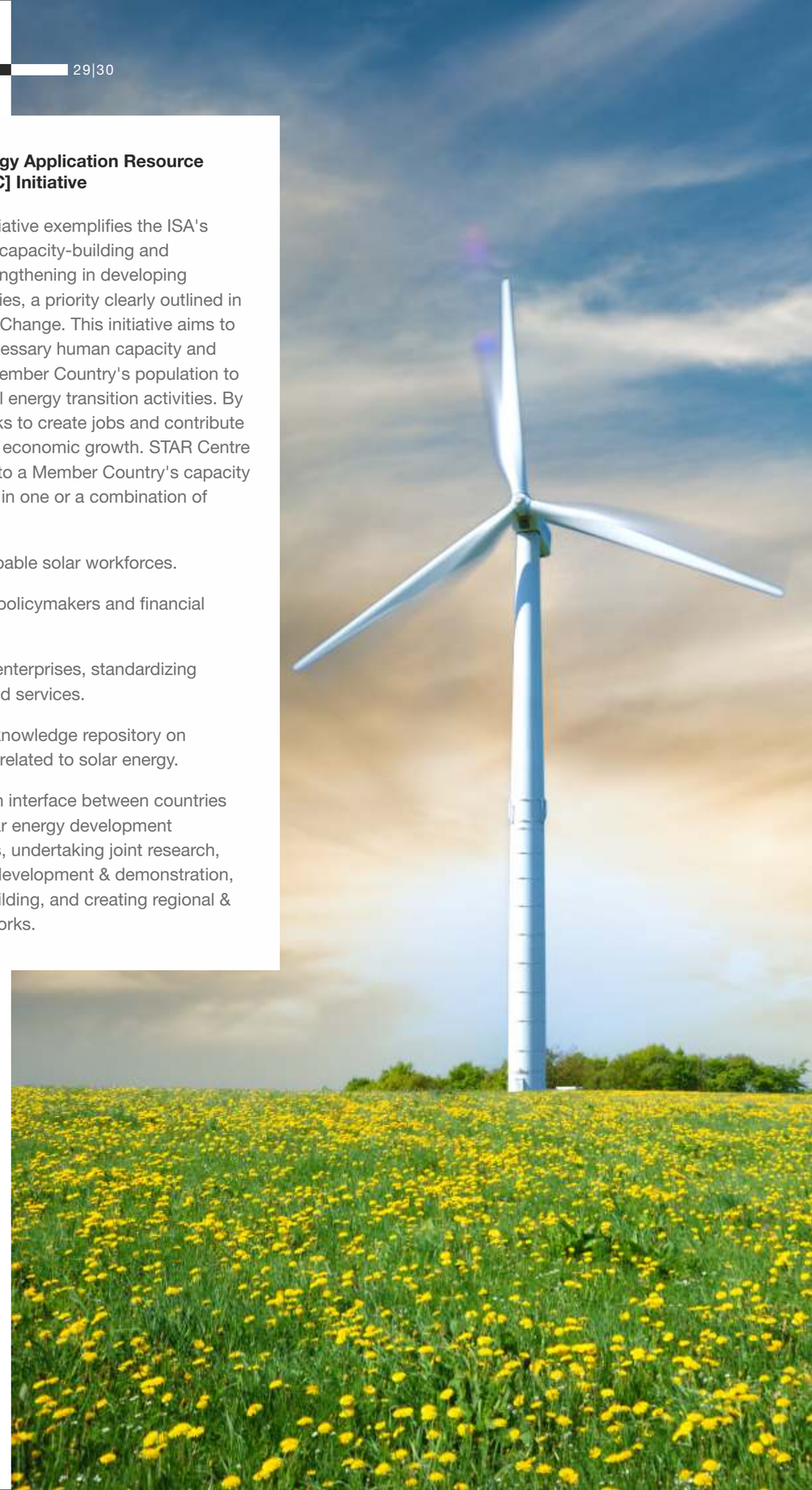
- Supported as the Knowledge Partner for ISA at COP 27.
- Prepared the document on the improvement of the ISA website and facilitated discussion on the improvement process.
- Supported 3 roundtables to introduce the ISA's 'Solar Finance Facility' in Nordic Region.
- Developing a Guidance Document aimed at Boosting Solarisation in SIDS and LDC.
- Researching, analysing and documenting a list of 200 innovative solar solution.
- Preparing a compilation of 50 case studies on innovative solar solution.
- Preparing a compilation of 63 training programs and events.
- Researching and compiling a list of Solar Finance Database of EU funded programmes and tools.
- Conducting 1 roundtable discussion for Research and Innovation stakeholders.
- Supporting ISA as Knowledge partner at the 2023 World Health Assembly.
- Supporting ISA at the Regional Committee meeting for Europe and other regions in June 2023 in Brussels.
- Communication support.



Solar Technology Application Resource Centre [STAR C] Initiative

The STAR C initiative exemplifies the ISA's commitment to capacity-building and institutional strengthening in developing Member Countries, a priority clearly outlined in ISA's Theory of Change. This initiative aims to develop the necessary human capacity and skills within a Member Country's population to drive substantial energy transition activities. By doing so, it seeks to create jobs and contribute to the country's economic growth. STAR Centre initiative caters to a Member Country's capacity -building needs in one or a combination of ways:

- Building capable solar workforces.
- Sensitizing policymakers and financial institutions.
- Incubating enterprises, standardizing products and services.
- Creating a knowledge repository on information related to solar energy.
- Acting as an interface between countries sharing solar energy development experiences, undertaking joint research, promoting development & demonstration, capacity building, and creating regional & global networks.



High-Level visits to the International Solar Alliance

President of the European Commission's visit to ISA headquarters

During their visit to the International Solar Alliance (ISA) Secretariat in Delhi, the President of the European Commission, H.E. Ursula von der Leyen, and Shri R. K. Singh, Minister of Power & New and Renewable Energy, Government of India along with the President of the ISA Assembly, addressed the industry on solar energy development at the ISA Headquarters.

The President of the European Commission, in her keynote address, said, “India and the European Union are closely aligned in the fight against climate change. Both India and the EU have embarked on their way to net zero emissions. And in both India and Europe, solar energy will play a key role to get there. Now, we need to step up EU-India cooperation in developing solar energy. We can learn from each other how to finance, promote, and deploy solar energy and how to secure global supply chains and material needed for solar panels.”

Frans Timmermans opening the ISA Summit

New Delhi, October 20: On the first day of his visit to India, European Commission Executive-Vice President (EVP) for the European Green Deal, Mr. Frans Timmermans participated in the opening session of the International Solar Alliance Assembly and confirmed the EU support to the initiative.

The EVP also announced the imminent launch of a project as described above, worth around 1 million Euro, funded by the EU, aiming at further strengthening the engagement of EU, EU Member States, and EU academic, business and financial communities with the International Solar Alliance.

Highlighting the important milestones achieved by the ISA since its launch in Paris in 2015, Frans Timmermans, said “With today's announcement, the EU will work more closely with ISA, for the promotion of solar projects all over the world, so that we can jointly scale up technological solutions that can help reach climate neutrality by 2050.” “Developing renewable energy will be the engine for our global recovery from the COVID crisis and to keep energy prices in check. It is fast becoming the most cost-effective option to generate electricity and address the needs of a rapidly growing population. Clean and efficient energy investments create new markets, offer new business opportunities and provide good numbers of local skilled jobs. It is more than climate action. Today it is simply smart business,” he added.

Cooperation in the area of Wind Energy

Introduction

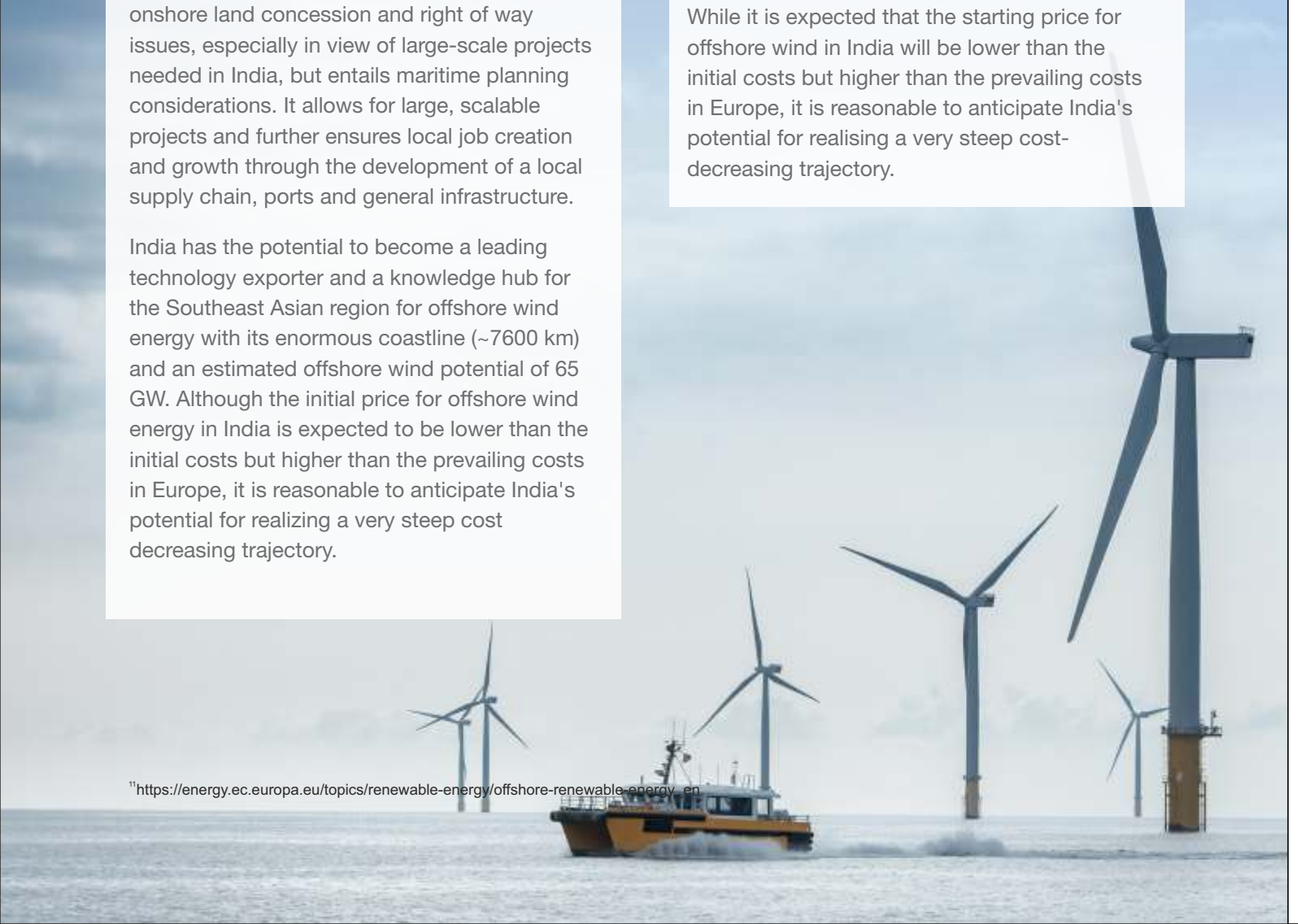
The cooperation between the European Union and India in wind energy focuses mostly on offshore wind. The European Union currently has an installed capacity of approximately 19.38[11] GW in 2023, making it one of the biggest offshore wind markets in the world.

Offshore wind is a local clean source of electricity that supports national energy security (i.e., reducing imports of fossil fuels) while contributing to reducing climate change and air pollution. It has a smoother generation profile, higher wind resource and production predictability than onshore wind. It avoids onshore land concession and right of way issues, especially in view of large-scale projects needed in India, but entails maritime planning considerations. It allows for large, scalable projects and further ensures local job creation and growth through the development of a local supply chain, ports and general infrastructure.

India has the potential to become a leading technology exporter and a knowledge hub for the Southeast Asian region for offshore wind energy with its enormous coastline (~7600 km) and an estimated offshore wind potential of 65 GW. Although the initial price for offshore wind energy in India is expected to be lower than the initial costs but higher than the prevailing costs in Europe, it is reasonable to anticipate India's potential for realizing a very steep cost decreasing trajectory.

In the area of Offshore Wind Energy, the cooperation between the EU and India is shaped through two-EU-funded projects, Facilitating Offshore Wind in India (FOWIND) and the First Offshore Wind Project of India (FOWPI). Whereas FOWIND focused on the identification of potential zones for development through baseline technical commercial analysis and preliminary resource assessment in the states of Gujarat and Tamil Nadu. FOWPI takes the next step with the provision of providing technical assistance in the implementation of the first offshore wind farm project of India.

While it is expected that the starting price for offshore wind in India will be lower than the initial costs but higher than the prevailing costs in Europe, it is reasonable to anticipate India's potential for realising a very steep cost-decreasing trajectory.



[11]https://energy.ec.europa.eu/topics/renewable-energy/offshore-renewable-energy_en

First Offshore Wind Project of India (FOWPI)

- First Offshore Wind Project of India (FOWPI)
- Project under Clean Energy Cooperation with India
- Timeline: January 2016 - July 2019
- EU funding: €3 million
- Implemented by: COWI
- Beneficiaries: Ministry of New and Renewable energy (MNRE) and National Institute on Wind Energy (NIWE)

Website: www.fowpi.in

Reports available

- Metocean Data Requirements.
- Metocean Study Report.
- Weather windows for installations.
- Foundation Design Report.
- Wind Turbine Layout and AEP Report.
- Procedures for Offshore Wind.
- Coastal Aspects and Port Requirements.
- Environmental Scoping Report and Consent Register.
- Recommendations on EIA Framework and Consenting Process.
- Comparison between LiDAR and Vortex Data.

Facilitating Offshore Wind in India (FOWIND)

- The project started in December 2013 and ended in March 2018
- EU funding: €4 million
- Implemented by: Global Wind Energy Council ASBL, Belgium, Garrad Hassan India Private Limited (trading as DNV GL), Center for Study of Science, Technology & Policy (CSTEP), Gujarat Power Corporation Limited (GPCL), World Institute of Sustainable Energy (WISE),
- Beneficiaries: Ministry of New and Renewable energy and National Institute on Wind Energy

Website: www.fowind.in

Reports available

- Offshore Wind Development in India: Report on Supply Chain, Ports and Logistics.
- Pre-feasibility Report for Offshore Wind Power Development in Tamil Nadu.
- Pre-feasibility Report for Offshore Wind Power Development in Gujarat.

FOWPI scope includes capacity building of local institutions, facilitation of technical dialogue and advisory for the first offshore wind farm of India, including offshore measurement campaign, wind turbine foundation, electrical network, geophysical works, coastal assessment, permits & procedures, environmental screening & scoping, financial modelling and others.

GWEC.NET website[12]

- Feasibility Study for Offshore Wind Farm in Tamil Nadu.
- Feasibility Study for Offshore Wind Farm in Gujarat.
- From Zero to Five GW: Offshore Wind Outlook for Gujarat and Tamil Nadu (2018-2032).
- Grid Integration Study for Offshore Wind Farm Development in Gujarat and Tamil Nadu.

[12]https://gwec.net/

Activities under CECP
first and then past activities

1.
Virtual roundtable on offshore wind

The overall objective of this virtual roundtable conference was to ensure that the latest European knowledge on what was needed in terms of ports was transferred to the potential Indian counterparts. The virtual roundtable focused on presenting the readiness of major offshore ports (Tamil Nadu and Gujarat) in India and subsequent sharing of technical knowledge by EU port players (in Belgium, Netherlands, Denmark, Germany and France) on actual requirements in port infrastructure for project development. Additionally, discussion on key learnings from FOWPI and other similar initiatives was also envisaged during the session.

2.
Tapping offshore wind at (REI) Expo 2021

As part of the CECP project, the EU moderated a session on “Tapping the Offshore Wind Energy Potential in India” at the REI Expo 2021 on 16 September 2021, which witnessed participation from industry stakeholders from the EU and India. During the session, the study commissioned under CECP on offshore wind was presented, which highlighted the skills that are needed, which might either be available already or will have to be developed through possible collaboration with training facilities/institutes in the EU. The presentation of the report was followed by a panel discussion amongst experts from the EU and India to discuss the current state of the offshore wind sector in India and the skilling requirements in India to support deployment of projects.

3.
RE-Invest session on EU-India cooperation on renewable energy with a focus on offshore wind

The virtual session provided a platform to discuss the cooperation between the EU and India in renewable energy, particularly the offshore wind sector. The new EU Strategy on Offshore Renewable Energy was presented, and the future of Indian Offshore wind industry was discussed, focusing on the required supply chain. The session aimed at identifying the current gaps in a potential offshore supply chain in India and assessing how Indian and European businesses can best tap into this promising renewable energy market. A report on “Supply Chain Study for Offshore Wind in India” drafted under the 'Business Support to the EU-India Policy Dialogues' project was also released during the session. The report identifies the challenges and opportunities to India's offshore wind industry and highlights the developments that are needed in order to achieve the desired cost reduction and scalability in the offshore wind industry.

Cooperation in the area of Green Hydrogen

Projects and initiatives undertaken in Green Hydrogen under the banner of EU-India CECP

1.
First EU-India Green Hydrogen Forum

The First EU India Hydrogen Forum was inaugurated by the European Commissioner for Energy Ms. Kadri Simson together with H.E. Mr R.K. Singh, Minister of Power and New and Renewable Energy, Government of India. The event was organised jointly by the Delegation of the European Union and the Ministry of New and Renewable Energy, in close cooperation with the Confederation of Indian Industry (CII) and Hydrogen Europe. The Forum served as a platform to exchange best practices, policy frameworks and production and application technologies for renewable hydrogen, as well as opportunities for EU-India cooperation in this area. The forum also delved into the 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. The event brought together EU-India businesses to discuss potential joint projects on hydrogen.

2.
Workshop on cooperation in green hydrogen towards sustainable energy transition

The main objective of the workshop was to bring together the stakeholders from India and the European Union on a common platform to discuss the technology, business and financing related to the green hydrogen establishment in India, to address the challenges related to commercial establishments, and to promote business partnerships.

3.

Workshop on cooperation in green hydrogen towards sustainable energy transition

In June 2022, Research and Information System for Developing Countries (RIS) in collaboration with the Ministry of External Affairs, India, and the Delegation of the European Union to India, organised a hybrid event, “Cooperation in Green Hydrogen Towards Sustainable Energy Transition”.

The main objective of the workshop was to bring together the stakeholders from India and European Union on a common platform to discuss the technology, business and financing related to the green hydrogen establishment in India, to address the challenges related to the commercial establishments, and to promote the business partnerships. In order to make green hydrogen commercially viable, the major focus was 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, India needs to augment its capacity in green hydrogen electrolysers and in storage units. Building close ties with the EU can help, especially since European firms are among the leaders in technologies including those related to electrolysers.

4.

Webinar on (A) Possible green hydrogen pilot(s) in India

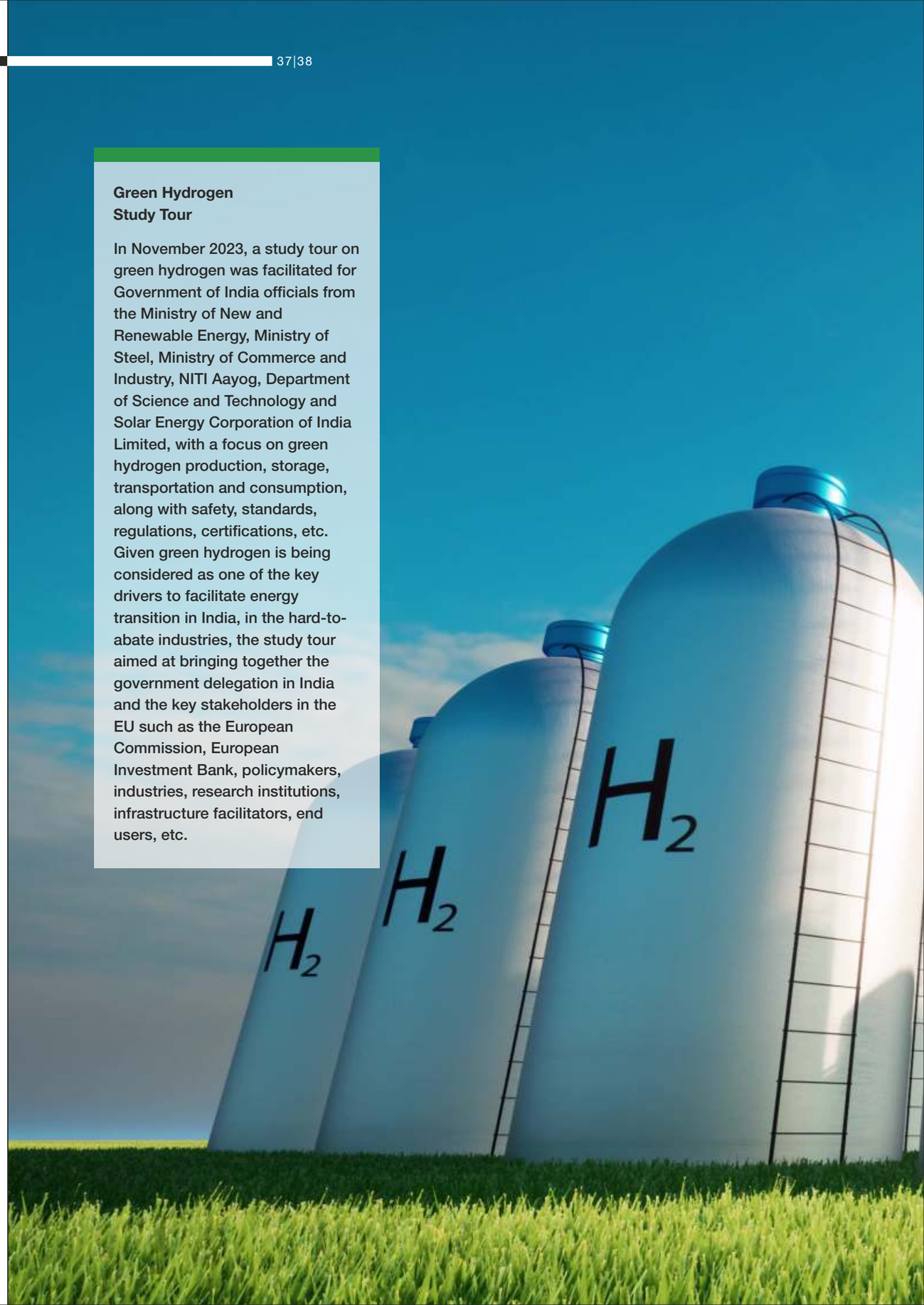
In October 2020, the Delegation of the European Union to India, in cooperation with the Directorate-General Energy, European Commission and the Solar Energy Corporation of India (SECI) organised a close-door webinar 'to discuss (a) possible green hydrogen pilot (s) in India.' The webinar was supported by the EU-India Clean Energy and Climate Partnership (CECP) project and was attended by more than 75 participants, representing policymakers, regulators, project developers, technology solution providers, manufacturers, energy performance contractors, think tanks, consultants and academia.

The virtual meeting was organised to connect European companies with SECI in order to explore possible cooperation in the area of green hydrogen. The objectives and intended outcomes of the webinar were:

- Sharing information on the hydrogen economy and strategy in Europe.
- Discuss possible hydrogen pilot project(s) proposed by SECI and key expectations from EU players.
- Share information on key applications/generation of hydrogen (low carbon and green approach) in the EU and highlighting successful case studies by EU technology suppliers.
- Introduction to EU hydrogen (technology) businesses from different EU Member States.
- Initiating further discussions between SECI and EU technology providers.

Green Hydrogen Study Tour

In November 2023, a study tour on green hydrogen was facilitated for Government of India officials from the Ministry of New and Renewable Energy, Ministry of Steel, Ministry of Commerce and Industry, NITI Aayog, Department of Science and Technology and Solar Energy Corporation of India Limited, with a focus on green hydrogen production, storage, transportation and consumption, along with safety, standards, regulations, certifications, etc. Given green hydrogen is being considered as one of the key drivers to facilitate energy transition in India, in the hard-to-abate industries, the study tour aimed at bringing together the government delegation in India and the key stakeholders in the EU such as the European Commission, European Investment Bank, policymakers, industries, research institutions, infrastructure facilitators, end users, etc.



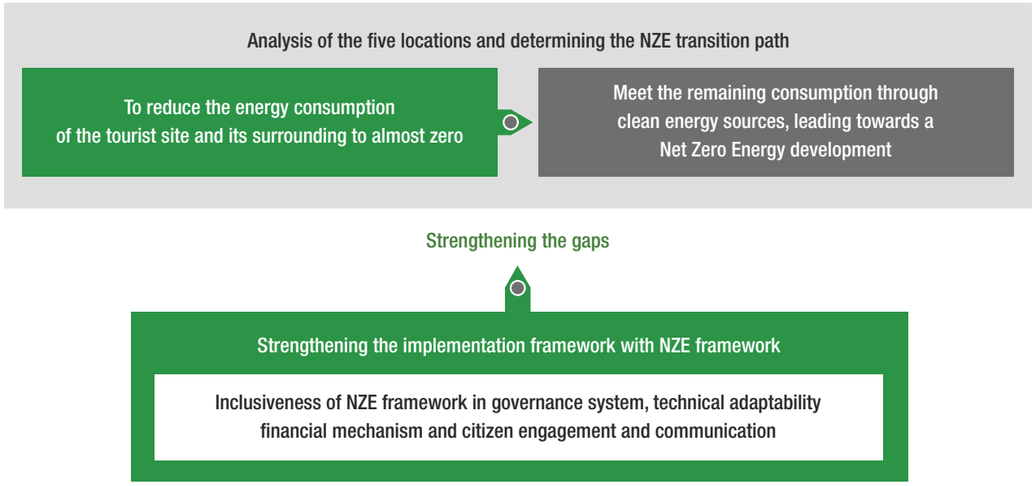
Cooperation in the area of Energy Efficiency

Current activities under EU-India cooperation in CECP:

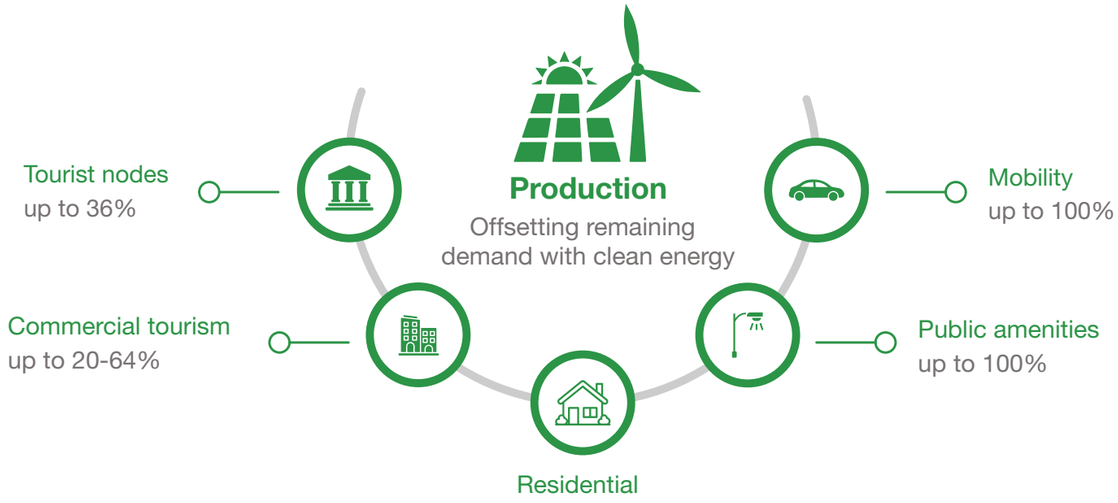
1.

Net Zero Tourist locations:

A feasibility study was conducted under the CECP phase 1 project at five tourist locations in India, with the objective to provide a framework for achieving the energy efficiency in the built-environment at the urban level and offsetting remaining energy demand via renewable integration or clean energy sources. The five tourist locations studied under the assignment are Leh Palace, Mahabaleshwar temple Gokarna, Fort Kochi, Sai Baba Temple Shirdi and Tirumala Tirupati Devasthanam. The area of study includes the main tourist location and surrounding areas up to 0.5 to 2 kms. The findings of the study are presented in the reports (Click here for NZE reports) and strategy paper (Click here for NZE strategy paper) in the EU CECP website along with other recommendations focusing on governance and possible financial mechanisms.



The study includes most common roadblocks and areas to support decarbonisation levers that can contribute to the formulation and achievement of Net Zero targets. The study on specific industries of the tourism sector, notably, hotels, shops, restaurants, cafes, institutional buildings, residential buildings, public amenities, and transportation, and offers a decarbonization framework with specific targeted actions and its implementation scenarios.



The study recommends the targeted actions and cost benefit analysis, as per the different built environment categories i.e., temple, commercial tourism and residential sectors, public amenities and transportation sector. For each of these categories, annual CO2 emissions, annual cost savings, incremental capital cost and simple payback have been calculated. However, these targeted actions have been categorised under three scenarios i.e., Conservative, Moderate, and Aggressive.

This report does not discuss the specific savings achievable per scenario. However, it provides a range of savings achievable in each sector before offsetting the residual CO2 emission through clean energy sources to achieve Net Zero status.

In extension to the phase 1 study under CECP project, phase 2 activities are proposed to provide technical assistance in promoting passive design strategies to achieve high-performance buildings.

2.

ACE E2: Adoption, Compliance, Enforcement for Energy Efficiency in Buildings

The aim of the project was to support the implementation of the nationally developed Energy Conservation Building Code (ECBC) for commercial buildings and to improve efficiencies in upcoming new buildings. Four Indian states, namely Bihar, Maharashtra, Madhya Pradesh, and Odisha were selected to provide this support. The project aimed at further increasing the required local involvement and commitment of state-designated agencies, urban local bodies, distribution companies (DISCOMS) and work departments in these states.

As a part of CECI, the project involved setting up ECBC cells (teams of experts) in states at respective state designated agencies, providing a situation analysis for each state to understand technical and administrative readiness, integrating ECBC guidelines in the state by-laws, revising the applicable schedule of rates for ECBC compliant materials, organising regional and national level (including all states and Union Territories) workshops and webinars on various relevant topics to create awareness and expertise.

This project trained 3,200 professionals including government officials, demonstrated ECBC compliance for approximately 0.364 million sq.ft. area of buildings, improved engagement of stakeholders in ECBC implementation and created common implementation forum for energy efficiency by engaging all states. The detailed description of the project can be found here.

3.

Buildings

Smart Readiness Indicators (SRI)

As a part of the CECP project, a report on "Analysis of the relevance of deploying Smart Readiness Indicator (SRI) in India" was launched on 19th May 2022 by the EU and BEE. This report is a strategic document which outlines the feasibility study conducted on smart technologies in building sector in India. It focuses on the present status and the potential of smart services for building sector across various technology domains and its possible impact on energy savings. It also discusses the EU strategy for adoption of SRI to assess the possible elements which are relevant to the Indian context and can be used as a reference for best practices by India.

A stakeholder consultation workshop was conducted on 05th May 2022 to understand the perspective of technology providers, building developers and consumers on the findings of the report and seek feedback on developing a roadmap for adoption of SRI in India. This workshop witnessed a participation of around 15 companies. The report can be accessed here.

Low embodied energy building materials

A research & innovation study report was developed that focused on the conventional materials used in India and their environmental footprint, the case for low embodied energy materials in India, their state-of-play and the programs focusing on their promotion, and the barriers and challenges they are faced with. The note also reviewed programs in the EU and the EU Member States to understand the advances and identify opportunities for learning and knowledge transfer. A total of 7 Indian and 6 European initiatives were analysed in the study. This was supported by a desk research study that has been conducted to assess the research & innovation initiatives being carried out in India and the EU with regards to low embodied energy building materials.

One stakeholder consultation webinar, in collaboration with BEE, was conducted on 27 May 2022, to discuss the findings of the study and to enable knowledge sharing and explore opportunities for research collaboration. Researchers from the EU and India presented their work on low embodied energy building materials and circularity in the construction sector. Stakeholders from BEE, architecture practices, research and academic institutions provided their inputs on possible areas for research & innovation opportunities and how an EU-India cooperation could support such initiatives. For a complete understanding, the report can be accessed here.

4.

Common Implementation Forum

The project aims to strengthen the policy dialogue and cooperation in energy efficiency policy implementation, focusing on aspects that would need further support and in the field that the EU has important experience and practices to share, and building upon earlier initiatives. It involves organizing 2-3 events annually where there will be direct interactions of stakeholders from the States and Union Territories, EU Member States, European Commission and European financial institutions.

Impact: This activity contributed to higher visibility of the EU energy efficiency policies and its implementation framework in the building sector for the clean energy transition in India and to the connection of European and Indian policy makers in the energy efficiency sector, thereby also providing a platform for policymakers from smaller Member States.

5.

Electrification

In the area of electrification, one strategy report titled 'Elements of Electrification Strategy for India' was developed with the Bureau of Energy Efficiency (BEE). The report explores the potential and elements for a possible strategy to drive electrification in India; the status of electrification in the main sectors, including industry, residential, transportation and services and their sub-sectors, opportunities to increase electrification; and possible strategies to drive this transition. The report looks at the European strategies and initiatives to increase electrification and the best practices in technology and policy frameworks and assesses their relevance in the Indian context. Based on the findings and learnings, the report provides several sectoral and sub-sectoral recommendations, primarily to increase electrification and explore alternative pathways for decarbonisation.

The final strategy document was launched on 19th May 2022 by Director General, BEE, during the 3rd virtual Common Implementation Forum. For further understanding of the project, you can visit the report here.

6.
Energy Efficiency First Principle

The Energy Efficiency First Principle is a foundational tenet in the EU's climate and energy governance, emphasizing the production of only essential energy while steering clear of stranded asset investments in pursuit of climate goals. Positioned as the 'first fuel,' the principle advocates a 'save before you build' approach, encouraging investments in energy efficiency by both the public and private sectors prior to more intricate or costly energy sources. The project enhances policy dialogue, focusing on operationalizing the Energy Efficiency First Principle and leveraging the EU's experience.

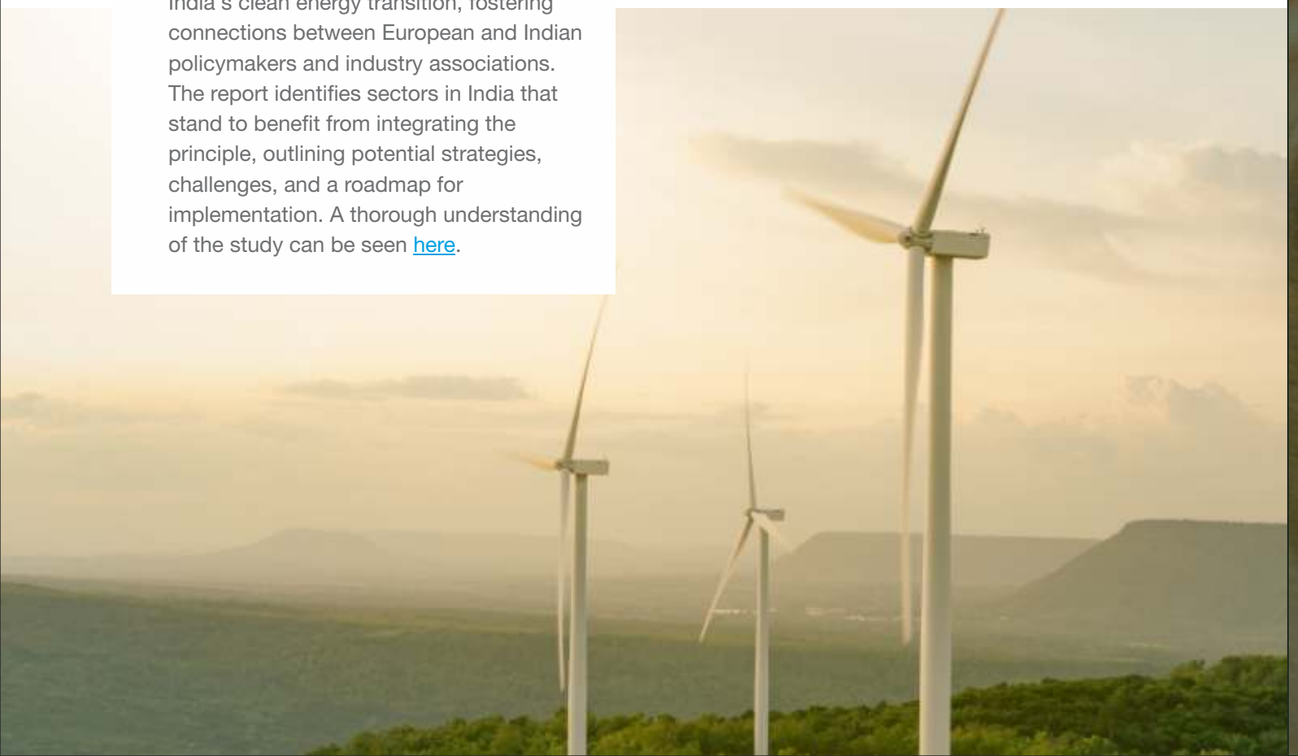
A brief desk study delves into key elements, examining their impact on the Energy Conservation Act and related policies. Executed under the EU-India Clean Energy and Climate Partnership, it assesses the principle's applicability in the Indian context, particularly in relation to high-impact policies affecting energy demand. The initiative elevates the visibility of the EU's Energy Efficiency First Principle in India's clean energy transition, fostering connections between European and Indian policymakers and industry associations. The report identifies sectors in India that stand to benefit from integrating the principle, outlining potential strategies, challenges, and a roadmap for implementation. A thorough understanding of the study can be seen here.

7.
Cold Chain

» A study was carried out in cooperation with Energy Efficiency Services Limited (EESL) on the cold chain sector in India to identify energy efficient and climate friendly cold chain cooling technologies, estimate the investment potential and identify barriers in the sector. The study resulted in a report, which was prepared as a result of literature reviews and stakeholder consultations with all relevant stakeholders.

As part of this, a study tour of European Union countries was made from 22May – 27 May 2022 by Indian cold chain stakeholders (government delegates) to gain an adequate know-how and experiential learning on sustainable technologies, practices, possible business and implementation models, and identify their applicability in India.

The final report (here) was launched on 13 December 2022 in EESL's office.



Roadshows

Under CECP project, a series of 4 roadshows on energy efficiency focusing on building and industry sectors were organised in 2022. The roadshow offered EU companies an opportunity to showcase their technologies to Indian stakeholders and mobilise key EU and Indian business innovators creating low emission technologies and service providers to collaborate.

1.
Roadshow on energy efficiency measures in the metals and steel sector with a focus on MSMEs of Haryana:

» On 13th May 2022, the EU-India CECP project, in collaboration with IamSMEofIndia (Integrated Association of Micro Small & Medium Enterprises of India) hosted their first roadshow on "Energy efficiency measures in the metals and steel sector with a focus on MSMEs of Haryana". The event was attended by 73 participants from the European Commission, representative from Haryana, MSME Development Institute, industrial energy efficiency suppliers etc. This was followed by 8 successful presentations from EU companies on the platform.

2.
Roadshow on Energy Efficiency through Ground Source Heat Pumps (GSHPs) with Himachal Pradesh:

» May 2022, the EU-India CECP project hosted their roadshow on "Energy efficiency through Ground Source Heat Pumps (GSHPs) with Himachal Pradesh". The event was attended by 76 participants, which included members from the European Commission, the European Geothermal Energy Council (EGEC), representative from Himachal Pradesh, the Indian Society of Heating, Refrigerating and Air-conditioning Engineers (ISHRAE), building developers etc. This was followed by the participation of 7 EU companies to showcase their technology offerings on the platform.

3.
Roadshow on Energy Efficiency in the textile sector with a focus on MSMEs in Punjab:

» In May 2022, EU-India CECP project in collaboration with IamSMEofIndia hosted their third roadshow on "Energy efficiency measures in the textile sector with a focus on MSMEs of Punjab". The event was attended by 88 participants from the European Commission, Representative from Punjab state, MSME Development Institute, FICO (Federation of Industrial and Commercial Organization), IamSME of India, industrial energy efficiency suppliers etc. This was followed by 7 presentations from EU companies on the platform.

4.
Roadshow on Energy efficiency through smart technologies in buildings in Karnataka:

» On 26th May 2022, EU-India CECP project hosted their roadshow on "Energy efficiency through smart technologies in buildings in Karnataka". The event was attended by 54 participants which included member from the European Commission, Representative from Karnataka state, The Indian Society of Heating, Refrigerating and Air-conditioning Engineers (ISHRAE), building developers, facilitation member companies, etc. This was followed by the participation of 9 EU companies to showcase their technology offerings on the platform.

Integration of renewable energy in the grid – Smart Grids and Power Market Design

Introduction

With Europe's and India's ambitious targets on renewable energy, it is a prerequisite to have smart and efficient networks to optimally utilise the renewable energy installed capacity. Since 2015, 13 EU-India Smart Grid Workshops have been held in Europe and India, involving European policymakers, network operators, regulators, and technology providers to discuss European and Indian demonstration projects, the evolving role of distribution system operators, and regulatory frameworks. Along with the workshops, joint EU-India smart grid demonstration projects are co-financed through the Horizon 2020 programme (ISUW 2021, ISUW 2020, and ISUW 2019). Recently, a High-Level Platform on Smart Grids has been established, aiming inter alia at creating a handbook for the replication of promising pilot projects, which has now been completed.

With ambitious targets of 500 GW of renewable energy in India by 2030, it is a pre-requisite to have smart and efficient networks to optimally utilize the renewable energy installed capacity. The importance of EU-India cooperation on Smart Grid has been underlined in the 2016 Clean Energy and Climate Partnership. EU-India Smart Grid workshops have been held in Nice, France (June 2015), Vienna, Austria (November 2015), Bornholm, Denmark (September 2016), New Delhi, India (March 2017, 2018, and 2019), and Florence, Italy (November 2018), involving Indian and European policymakers, network operators, regulators and technology providers in interactions on the following themes:

- European and Indian demonstration projects on energy storage to promote the integration of Renewable Energy and Electric Vehicle.
- Evolving role of distribution system operators in the context of smart grids.
- Upscaling and transferring promising demonstrations in Indian and European contexts.
- Regulatory Frameworks enable smart grid applications

1.

Recent Projects and Initiatives undertaken in Smart Grids and Energy Markets under the banner of the EU-India CECP and the India Smart Utility Week.

The Indian Smart Grid Forum (ISGF) has been organising its flagship annual event, India Smart Utility Week (ISUW) since 2015.

The ISUW 2022 was scheduled to be conducted in March 2022 on a digital platform. Similar to previous years, the European Union (EU) had partnered with ISUW 2022. During the event, the 11th EU-India workshop on Smart Grids was organised. Part A of the “11th EU-India workshop on Smart Grids” took place on 2nd March 2022, with discussions on the smart grid sector in India, including the report launched by the EU titled "Smart Grid Handbook for India: CBA and SRA for replication of Smart Grid Projects". Part B of the “11th EU-India workshop on Smart Grids” took place on 3rd March 2022, with a focus on EU-India smart grid projects and around energy communities and social innovation, along with panel discussions on "Securing green transition through customer understanding, and "Potential projects in the near future".

The 12th EU-India smart grid workshop took place in March 2023 at ISUW 2023. The workshop hosted sessions on “Joint EU- India Smart Grid Projects” and “Smart Grid Observatory''. The session on 12th EU - India Smart Grid workshop presented projects under the BRIDGE Program, relevant for the Indian power sector. These selected projects have successfully demonstrated and deployed flexibility solutions such as energy storage systems (ESS), virtual power plants (VPP), smart microgrids, grid integration of electric vehicles, and other behind-the-meter resources at grid scale. The session on the launch of the Smart Grid Observatory was organized with an aim to share data analytics, smart grid project experiences and discuss key elements to upscale energy storage in India, research frameworks, and institutional engagements between the EU and India followed by a panel discussion on potential avenues for India under each of these themes.

In March 2024, the 13th EU-India Smart Energy workshop took place at ISUW 2024. This workshop featured sessions on "Standards and Regulations for Green Hydrogen" and "Regional Energy Connectivity in South Asia". These sessions were conducted as panel discussions, with representatives from the EU, India, and other relevant regions. The session focusing on Green Hydrogen addressed the significance and transition toward Green Hydrogen as a clean fuel for industrial applications, particularly in the context of its growing importance in India. The session on Regional Energy Connectivity focused on the importance of interconnected regional grids, especially with the rise of renewable energy in electricity grids. The session also highlighted the energy scenario in South Asian regions and emphasized how these interconnected grids could mitigate energy shortages in South Asian countries and bolster energy security.

India smart utility week 2022

India smart utility week 2023

India smart utility week 2024

2.
Smart Grid High-Level Platform and Smart Grid Observatory

The EU-India High-Level Platform on Smart Grids, chaired by the Florence School of Regulation's – FSR Global and supported by the India Smart Grid Forum (ISGF) and Comillas University, was established under the EU-India Clean Energy and Climate Partnership (CECP) to support faster replication and roll-out of smart grids in India. The platform's format facilitated a series of multi-stakeholder dialogues, fed by real-time learning experiences from the world of academia and practice. In the first year of the platform, 30 key senior experts from the Indian and European power sectors identified and analysed smart grid use cases in both the European and Indian contexts by conducting a cost-benefit analysis (CBA) and scalability and replicability analysis (SRA). The first year of the platform resulted in the creation of a handbook on replicating and implementing smart grid solutions in India.

As a follow-up to the 'EU-India High-Level Platform on Smart Grids' initiative, the 1st High-Level Expert Panel under the Smart Grid Observatory was held in March 2024, and the 2nd High-Level Expert Panel was held in May 2024 in collaboration with Florence School of Regulation (FSR)Global. The 3rd High-Level Expert Panel was held in July 2024. Based on the learnings from the first year, the initiative aimed to develop a 'Smart Grid Observatory' for India in its second year, which would be supported by the high-level platform.

3.
6th EU-India workshop on energy regulation

As a part of the annual EU-India policy dialogues, the EU-India Clean Energy and Climate Partnership (EU-India CECP) in collaboration with the Florence School of Regulation (FSR), hosts a series of online webinars to discuss topics pertinent to the Indian power sector. To facilitate these discussions, EU-India CECP has been conducting the 'EU-India Regulatory Workshop Series' for the last 6 years. In its 6th edition, a series of online events are being conducted on concurrent topics for the years 2023-24. To enable clean energy transition in the Indian power sector, the country has been taking many key measures, right from setting ambitious targets in terms of renewable energy generation capacity, new market design regulations, and network planning both for national and trade beyond borders.

The first webinar on Interoperability was conducted in January 2024, and aimed at discussing the integration of distributed resources in the market and the necessity of standards for smart appliances to ensure interoperability. The second webinar on Resource Adequacy was conducted in February 2024. This debate aimed to facilitate discussions on the importance of Resource Adequacy. The third webinar on Offshore Wind Energy was conducted in April 2024. This virtual event aimed to foster discussions on the significance of offshore wind energy, particularly in the context of the European Union (EU) and India.

Cooperation in the area of Energy Security

Introduction

The European Union (EU) and India have joined forces to advance innovation and cooperation in the biofuels sector, reflecting their shared commitment to combating climate change and promoting sustainable, green growth. The EU is a pioneer in advanced biofuel technologies that utilize non-recyclable waste and residues as renewable alternatives to fossil fuels. Both regions are leveraging their legislative frameworks to ensure the biofuel sector contributes to clean and sustainable development. This collaboration aims to bring together the latest technical expertise and knowledge from the EU and Indian institutions and companies, addressing issues such as developing a sustainable advanced biofuels supply chain, attracting EU investment into India, and enhancing the readiness of the Indian market. By exploring available technologies, business models, and financing options, the EU and India are working towards scaling up the uptake of advanced biofuels, thus paving the way for a more sustainable future.[13]

Projects and initiatives undertaken under Energy Security – Biofuels

1.
Stakeholder Group for Advanced Biofuels (SGAB)

In February 2023, the kickoff meeting of the Stakeholder Group on Advanced Biofuel (SGAB) workshop took place. The SGAB comprised a small team of experts with equal representation from the EU and India and discussed priority topics for enhanced EU-India cooperation in view of addressing barriers to further deployment of advanced biofuels, promoting innovation, feedstock supply, and identifying research areas of mutual interest. The group involved experts from HPCL, BPCL, IOCL, IISC, IIT Bombay, Total Energies, Axens, Shell, CRES, and individual consultants who joined the group independently on a personal basis.

Multiple studies and research are being undertaken in this initiative, as well as webinars to create awareness on topics such as Sustainable Aviation fuels, Carbon accounting, etc.

2.
Study on prospects of Biogas in India

A report has been drafted on “Prospects for Biogas from cow dung” capturing the overview of biogas sector in India, the policy landscape for the biogas sector, supply chain aspects for biogas, analysis of the biogas sector in the EU and key learnings for India from the EU market.

[13]https://www.eeas.europa.eu/delegations/india/eu-india-come-together-explore-innovation-collaboration-advanced-biofuels-sector_en?s=167

Cooperation in area of Climate Action

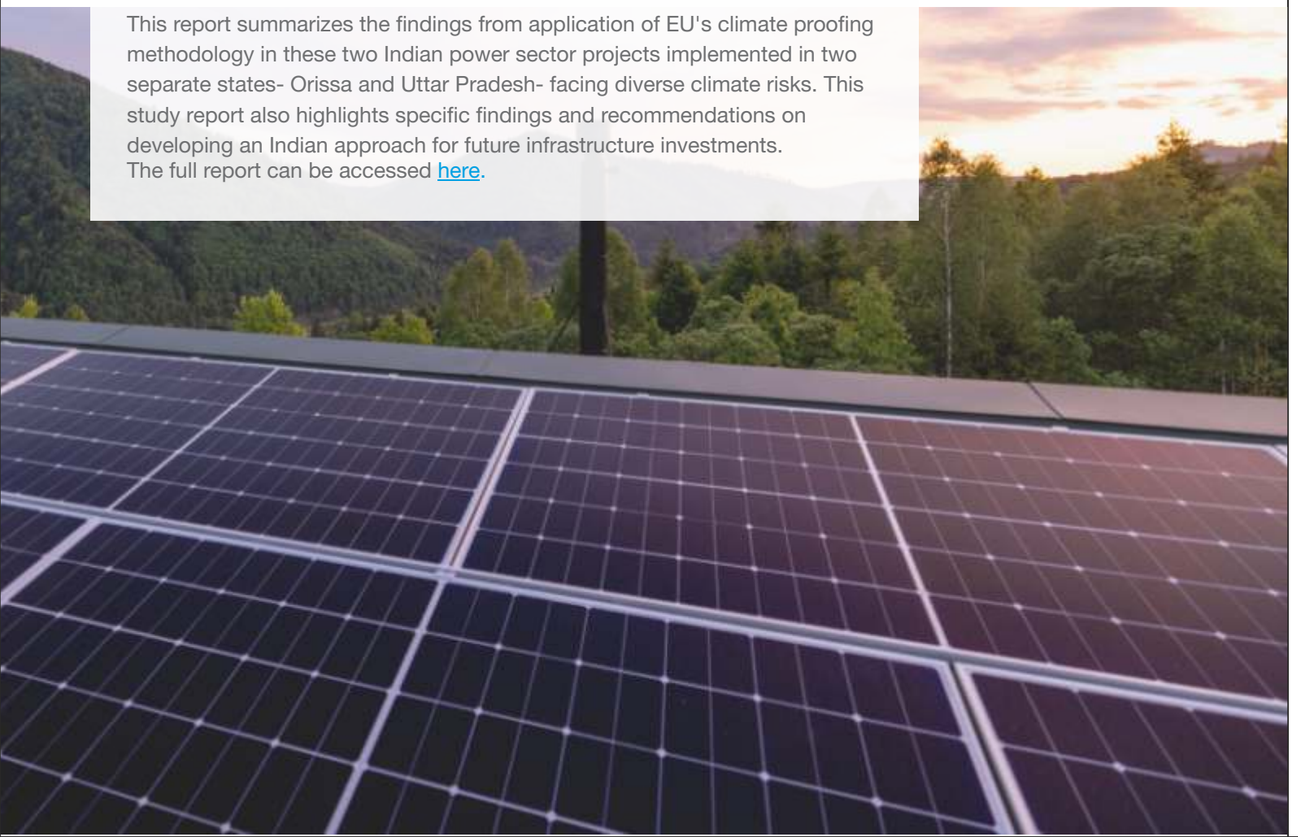
Activities in adaptation to climate change:

Disaster and Climate Impact of Investments in Infrastructure: cases from the power sector in India

Climate proofing is a process that integrates climate change mitigation and adaptation measures into the development of infrastructure projects. Currently, there are no climate-proofing methodologies applied to the infrastructure projects in the energy sector in India. A detailed climate proofing study was conducted in close collaboration with the technical experts from the Coalition for Disaster Resilient Infrastructure (CDRI) to assess the climate proofing of 11 kV agriculture feeders in flood-affected regions of Uttar Pradesh and LT lines through underground cabling in Odisha by applying the EU methodology for climate proofing.

This study aims at providing relevant insights in what it means to apply the climate proofing methodology outside of the EU, with possible India specific recommendations and lessons, as well as possible recommendations for replicability in other countries.

This report summarizes the findings from application of EU's climate proofing methodology in these two Indian power sector projects implemented in two separate states- Orissa and Uttar Pradesh- facing diverse climate risks. This study report also highlights specific findings and recommendations on developing an Indian approach for future infrastructure investments.
The full report can be accessed here.



A webinar on “Market Ready Adaptation Technologies”

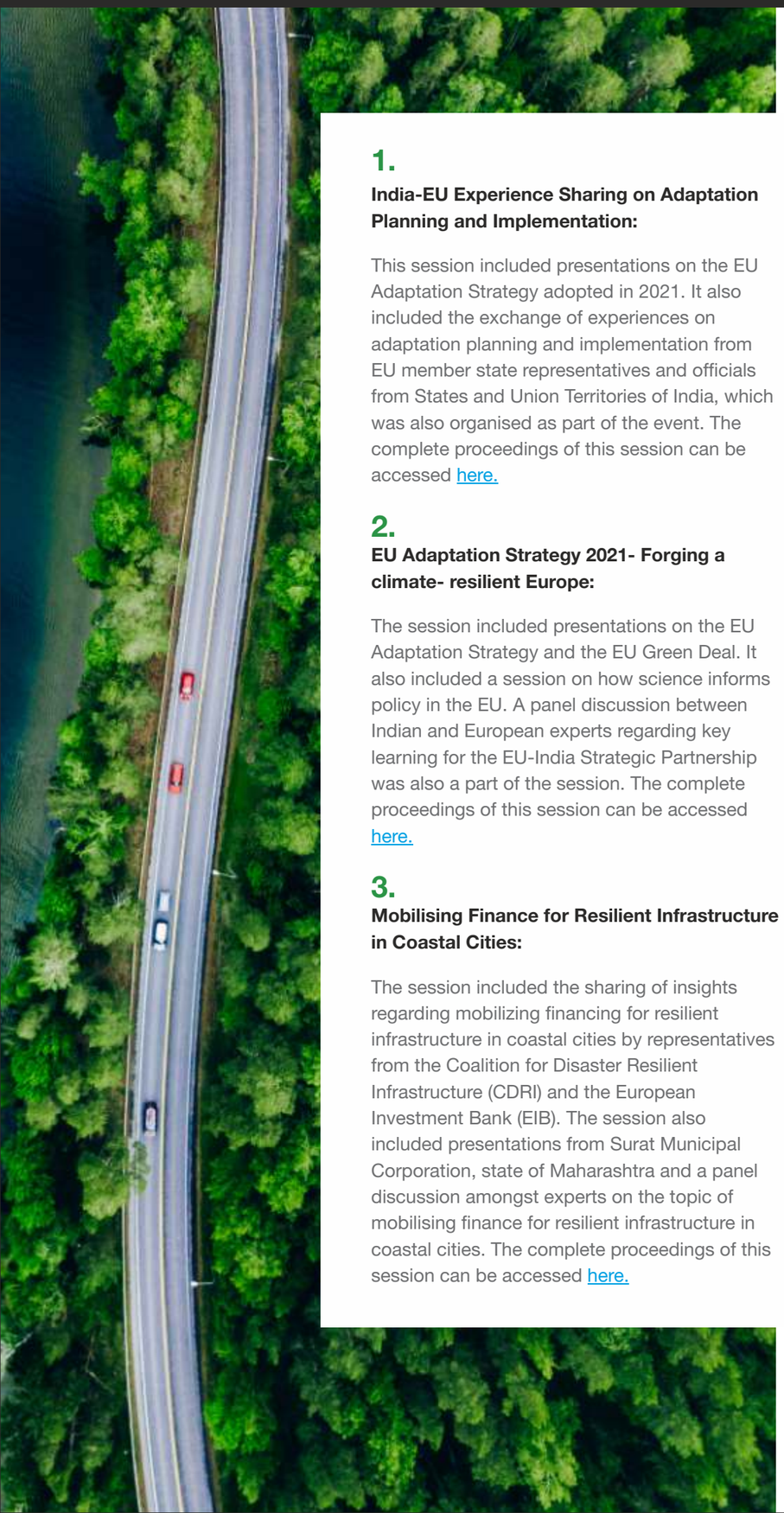
It was organised focusing on adaptation technologies, where Indian, European and U.S. companies showcased to a wide range of Indian stakeholders their market-ready adaptation technologies that could solve real- world problems being caused by climate change. The event created awareness and explored potential collaboration opportunities. It was organized by the Delegation of the European Union to India, the Embassy of the United States of America and the Ministry of Environment, Forest and Climate Change, Government of India, with support from the Strategic Partnership for the Implementation of the Paris Agreement project funded by the European Union and the German Federal Ministry of the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV). The webinar took place in July 2022. It began with a special address by the Ambassador of the European Union and Chargé D'Affaires of the Embassy of the United States of America, followed by a keynote address by the Additional Secretary of the Ministry of Environment, Forest and Climate Change. The event was comprised of two technical sessions on 'Infrastructure and Warning Systems' & 'Agricultural Sector' with presentations facilitated by interaction with the audience.

The complete proceedings of the webinar can be accessed here.

Support to the “Adaptation Futures Conference”

The SPIPA project supported the Adaptation Futures Conference from 4 to 8 October and organised a pre-conference webinar on 'India-EU Experience Sharing on Adaptation Planning and Implementation' in June 2020.
H.E. Mr. Ugo Astuto, Ambassador for the EU to India, addressed the inaugural session in October 2021, stressing the importance of adaptation in addition to mitigation. Ms. Clara De la Torre, Deputy Director-General, Directorate-General for Climate Action, European Commission, spoke on 6 October in an all-women Plenary Session on “Raising Ambition and Accelerating Adaptation Action”. The discussion made it evident that adaptation can be accelerated with inclusive gender policies, enhancing capacity building, empowering citizens, youth involvement, changing climate financing mechanisms, ensuring equity and justice, and with involvement of the private sector in the climate-related actions.

> **During the Adaptation Futures Conference the SPIPA project organized the following three sessions:**



1.

India-EU Experience Sharing on Adaptation Planning and Implementation:

This session included presentations on the EU Adaptation Strategy adopted in 2021. It also included the exchange of experiences on adaptation planning and implementation from EU member state representatives and officials from States and Union Territories of India, which was also organised as part of the event. The complete proceedings of this session can be accessed here.

2.

EU Adaptation Strategy 2021- Forging a climate- resilient Europe:

The session included presentations on the EU Adaptation Strategy and the EU Green Deal. It also included a session on how science informs policy in the EU. A panel discussion between Indian and European experts regarding key learning for the EU-India Strategic Partnership was also a part of the session. The complete proceedings of this session can be accessed here.

3.

Mobilising Finance for Resilient Infrastructure in Coastal Cities:

The session included the sharing of insights regarding mobilizing financing for resilient infrastructure in coastal cities by representatives from the Coalition for Disaster Resilient Infrastructure (CDRI) and the European Investment Bank (EIB). The session also included presentations from Surat Municipal Corporation, state of Maharashtra and a panel discussion amongst experts on the topic of mobilising finance for resilient infrastructure in coastal cities. The complete proceedings of this session can be accessed here.

Cycling4Life:

The G20 side event Cycling-4-LiFE, which was organized by the Department of Transport Govt. of NCT, the European Union Delegation of India, the German Embassy, the Netherland Embassy, and the Slovenian Embassy, was a significant initiative. Participants rode across the streets of New Delhi to spread the message that cycling is a vital solution for a clean, green, sustainable future. They emphasized that cycling is the most sustainable mode of transport for urban mobility and discussed ways to make it accessible to everyone in the most democratic manner.

Youth Climate Conclave (YCC):

The 4th edition of the YCC, which coincided with India taking up the role of G20 presidency, was interspersed with capacity-building sessions, group discussions, technical sessions on climate action and the role of youth. A debate competition was organized along with understanding youth priorities and actions for the development of the 'Youth Pledge' in a participatory manner. The participating youth proved to be very committed towards the cause of sustainable development. The best entries of the YCC photography competition, which was conducted online were showcased in Youth Climate Conclave Photography Exhibition organised at the Italian Cultural Centre, New Delhi.

The Conclave also included a study tour to TERIgram, a barren and desolate land converted into a sustainable habitat by TERI, which now houses state-of-the-art facilities for developing green technologies, along with a residency called RETREAT (Resource-Efficient TERI Retreat for Environmental Awareness and Training). Along with a visit to the International Solar Alliance and the National Institute of Solar Energy (NISE campus) in Gurugram.

The YCC was led by the Delegation of the European Union to India, United Nations Children's Fund (UNICEF) India, The Energy and Resources Institute (TERI), Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Council on Energy, Environment and Water (CEEW), and YuWaah with the Ministry of Environment Forest and Climate Change (MoEFCC) as Nodal Ministry.

As a follow-up to successful implementation of four editions of YCC, the 'Youth Climate Conclave (YCC) Boot Camp' (online), was organised as a part of the Green Diplomacy Week 2023, and the 5th edition of the YCC was launched on 12 August 2024 on the occasion of International Youth Day.

About YCC

Youth Pledge

Winners of Photography Competition

Financing

Introduction

The European Union strongly supports the transition to a low-carbon, more resource-efficient, and sustainable economy. This is part of the EU's efforts to achieve its climate and energy goals in line with the Paris Agreement and the 2030 UN Sustainable Development Goals (SDGs). To deliver on climate, environmental and social sustainability goals, major private and public investments are needed.

The EU and its Member States are the largest providers of public climate finance in the world, with €23.04 billion provided in 2021. The European Green Deal further underlined the need to mobilise private financial and capital flows to green investments.

Support to the World Sustainable Development Summit

The EU partnered with TERI's flagship event, WSDS 2023, with, inter alia, Dr. Sultan Al Jaber, the COP28 President-designate, Mr. Simon Stiell, the UNFCCC Executive Secretary, Mr. Bhupender Yadav, the Union Environment Minister, and Mr. Amitabh Kant, the G20 Sherpa.

The summit focused on the umbrella theme: Mainstreaming Sustainable Development and Climate Resilience for Collective Action.

The EU was very visible at the summit, with:

1.

Participation of the European Commissioner for Energy, H.E. Kadri Simson in the Plenary Session "Towards Energy Security and Inclusive Energy Transitions" in WSDS 2023. (video message)

2.

Participation of the Ambassador of the European Union to India, H.E. Mr Ugo Astuto in the Valedictory Session in WSDS 2023. Video recording of the valedictory session

> **The European Union also supported four thematic sessions on Thursday, 23rd February and participated in the youth plenary session on Friday, 24th February.**

The four thematic sessions were:

1 Towards People-Centric Smart City Development (Agenda and link to the video recording).

2 The relevance of the Energy Efficiency First Principle in an Indian context (Agenda and link to the video recording).

3 Urban Public Transportation Aiding Net-Zero Emission Target (Agenda and link to the video recording).

4 Water Management for Climate Resilience, Biodiversity and Food security (Agenda and link to the video recording).

WSDS 2023

video message

Video recording of the valedictory session

video recording_1

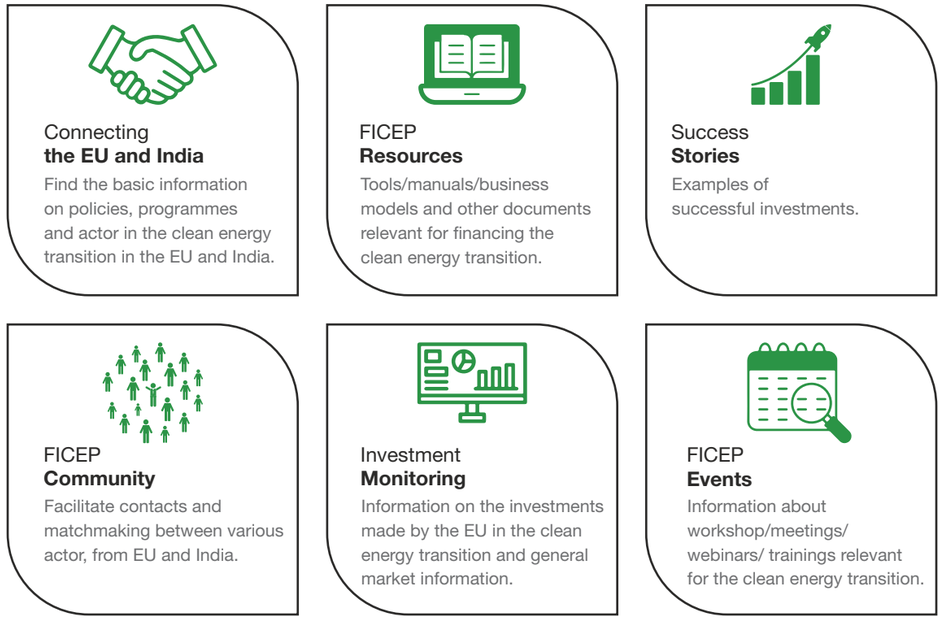
video recording_2

video recording_3

video recording_4

Financing Investment in Clean Energy Platform (FICEP)

The objective of the FICEP platform under the EU-India Clean Energy and Climate Partnership is to encourage investment in the clean energy transition in India and the EU. FICEP aims at acting as a catalyst for investments and is intended to inform and connect various actors in the energy sector, including initiators and innovators, project promoters and entrepreneurs, project developers, and the European and Indian financing community.



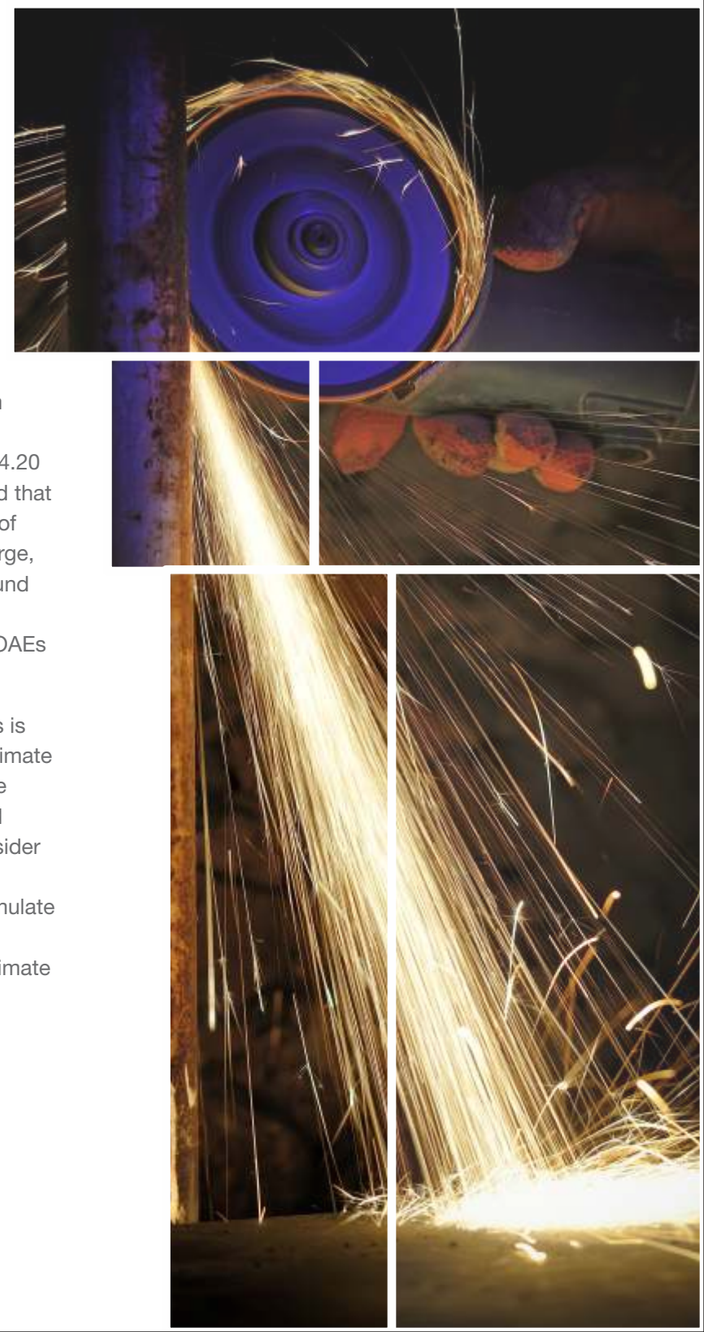
Sustainable financing plays an important role in achieving the targets under the UN 2030 agenda on Sustainable Development Goals (SDGs) and the Paris climate agreement. Sustainable finance or green financing comprises all forms of financial instruments such as green bonds and green funds that are to be used in sustainable development.

To develop greater EU-India cooperation on sustainable financing and encourage investment in the field of renewable energy systems and energy efficiency in India and the EU, the EU-India Clean Energy and Climate Partnership (CECP) has launched the EU-India Financing Investment in Clean Energy Platform (FICEP) during its phase 1. The platform features the following key functionalities. 1) Connecting EU and India, 2) Resources, 3) Success stories, 4) FICEP community, 5) Investment monitoring and, 6) FICEP events.

In Phase 1, FICEP focused on two areas – Decentralised Renewable Energy (off-grid and on-grid) and Energy Efficiency in buildings and industries. In Phase 2, additional focus areas such as Offshore Wind and Green Hydrogen will also be covered.

Enhancing Climate Resilience Financing for MSME Sectors

There is increasing evidence that climate change poses severe risks for Micro, Small and Medium Enterprises (MSMEs). Infrastructural damage, regulatory uncertainties, financial risks, market fluctuations, supply chain disruptions and reputational damage are some of the potential risks posed by climate change to MSMEs. 84 micro enterprises, SMEs from 18 states, MSMEs from 36 districts and 41 clusters belonging to 12 AEZs were interviewed. The interviewed sector was mostly from 3 identified sectors, processed food sector (32 per cent), tourism (29 per cent) and textiles (39 percent). MSMEs contribute about 30 percent of India's GDP and about 48 percent of exports. The sector employs around 111 million people. The Government of India has designed various policies and schemes for the growth of MSMEs sector-wise in the country. In India, MSMEs are concentrated mainly in ten states and nearly 93 percent of enterprises come from these ten states. Uttar Pradesh has the largest number of estimated MSMEs, with a share of 14.20 percent of MSMEs in the country. It is estimated that there are around 4500 MSME clusters in India, of which around 1300 are industrial, i.e., having large, medium, small, and micro enterprises, and around 3000 are artisanal clusters of handicrafts and handloom manufacturers consisting mostly of OAEs and around 200 service clusters.



The study highlights that the survival of MSMEs is highly dependent on reducing the impacts of climate change. There is an urgent requirement to make MSMEs aware of the government schemes and policies. Government/ policymakers could consider holding discussions with financial institutions, climate experts and MSME associations to formulate the vision document and roadmap for policies/schemes to meet the requirement of climate resilience financing.

Full report can be accessed here.

European Investment Bank (EIB)

The European Investment Bank (EIB) is the lending arm of the European Union and the world's largest multilateral lender by volume, boasting an impressive portfolio of over €500 billion in outstanding loans. In 2022 alone, the EIB provided financing worth €70 billion to various projects globally, with a strong focus on innovation, infrastructure, and climate action. As part of its commitment to climate initiatives, the EIB aims to dedicate at least 50% of its financing to climate action and environmental sustainability by 2025, striving to support the EU's Green Deal objectives.

In the context of EU-India relations, the EIB has significantly contributed to strengthening bilateral ties by funding various development projects in India. Since 1993, the EIB has invested over €4.5 billion in the country, supporting key sectors such as clean energy, urban development, and transport. Notably, the EIB has been a crucial partner in India's push for renewable energy, financing numerous solar and wind projects that are helping the country meet its ambitious renewable energy targets. In October 2017, the EIB signed an agreement with the Government of India for a loan of €500 million for the Bengaluru metro project cutting journey time in most cases from two hours by car to 15 minutes in air-conditioned carriages.

Through these collaborative efforts, the EIB not only facilitates economic growth and environmental sustainability but also reinforces the shared values and objectives that underpin the EU-India partnership. By continuing to support projects that align with India's strategic priorities and sustainable development goals, the EIB is playing a pivotal role in fostering a greener and more prosperous future for both regions.

List of useful websites

Delegation of the European Union to India

European Commission

Energy Union and Climate

European Investment Bank

Smart and Sustainable urbanization

City level assessments-CITTI

Funded by the European Union, the International Urban Cooperation (IUC) programme activities support the achievement of bilateral policy objectives, as well as major international agreements on urban development and climate change, such as the Urban Agenda, the Sustainable Development Goals, and the Paris Agreement. The IUC programme engages with major international financial institutions and partners to link city decision-makers with potential funders. EU businesses are an important partner for activities under the components of sustainable urban development and innovation cooperation for local and regional development.

We have supported one adaptation event and given presentations of our studies that are linked to our EU-India Clean Energy and Climate Partnership project (CECP) in the Mumbai First Climate Crisis Conference, “International Conference Climate Crisis 2.0: Mobilizing Finance for Coastal Cities” held in May 2022.

A Global Dialogue on Transformative Mitigation & Adaptation for Coastal Cities:

A strategy that aims to reduce the root causes of vulnerability to climate change in the long-term by shifting systems away from unsustainable or undesirable trajectories.

We have presented our initiative on Nearly Zero Energy Tourist Locations with a focus on Forte Kochi, which could be a replicable model for other coastal tourist locations like Mumbai (around Gate Way of India). The presentation focused on a feasibility study carried out in Fort Kochi and its neighbouring regions, examining the urban landscape, energy usage patterns, and carbon emissions from buildings, public facilities, and the transportation sector. It concluded with proposed interventions and recommendations to reduce energy demand and explored the potential for meeting the remaining demand through renewable energy sources.

Global Covenant on Mayors

The largest global alliance for city climate leadership

12804 CITIES, 1.146 BN PEOPLE, 24 BN TONS CO2 E BY 2030, 100+ GLOBAL PARTNERS

The cities and partners of the Global Covenant of Mayors for Climate & Energy share a long-term vision of supporting voluntary action to combat climate change. Together, we're working towards a resilient and low-emission society. This is a powerful and historic response to climate change from cities around the world. GCoM is the largest global alliance for city climate leadership, built upon the commitment of over 10,000 cities and local governments. These cities hail from 6 continents and 138 countries. In total, they represent more than 800 million people. By 2030, Global Covenant cities and local governments could account for 2.3 billion tons of CO2e of annual emissions reduction, matching yearly passenger road emissions from the U.S., China, France, Mexico, Russia, and Argentina combined.

Increasingly, cities and local governments across the globe are heeding the call to act. With nations working towards the goals of the Paris Climate Agreement, cities involvement could not be more urgent.

INVEST4CITIES INITIATIVE: CITY CLIMATE FINANCE

Invest4Cities is GCoM's initiative to increase the flow of public and private-sector investment in support of urban climate change mitigation and resilience projects. Invest4Cities focuses on creating better, more equitable access to finance for cities by advocating for regulatory shifts that support implementation and financing of cities' bold climate action commitments, accelerating city capacity and removing barriers to develop investor-oriented Climate Action Plans and projects, and unlocking large-scale financing instruments to support cites' actions.

This initiative is driven in collaboration with GCoM's city network partners, governments, and the global financial institutions that facilitate and accelerate funding and financing solutions for cities.

THE DATA4CITIES INITIATIVE: DATA-BASED SOLUTIONS

Data4Cities is GCoM's evidence-based foundational initiative to measure and manage cities and local governments' climate ambition and progress. The smart use of data-big and small- will tell us how and why climate change is happening, inform local climate mitigation and adaptation strategies, and provide the evidence that governments, private sector partners, and citizens need to increase their support for local climate action.

Data4Cities lays the foundations for standardized data by streamlining- with consistency and transparency- how and what climate information from cities is collected and what data can be made available to support cities to act, alongside the mechanisms used to analyze this information.

ENVIRONMENTAL INSIGHTS EXPLORER

The Environmental Insights Explorer (EIE), launched by GCoM and Google, is designed to make Google's significant data resources available to cities with the aim of accelerating measurement and planning stages for cities in favour of action. EIE can support cities in development of their emissions inventories by providing granular GHG emissions data estimates in four key areas: building emissions, transportation emissions, solar energy potential, and 20-year climate projections, as well as air quality, facilitating access to insights that can be used to act.

INNOVATE4CITIES INITIATIVE: RESEARCH & INNOVATION

Innovate4Cities identifies and tackles the data, information, and technology gaps that cities and local governments are prioritising on their climate action journey. If addressed, this knowledge would drive science-based, technology-driven, replicable sustainable action and implementation at the scale the world needs and cities demand. As GCoM's city-focused research and innovation initiative, Innovate4Cities also leverages local and regional insights to advocate for increased resources to support innovative solutions and cultivates cross-sector partnerships critical to meeting – and exceeding – the goals of the Paris Agreement.
Guided by GCoM's Research and Innovation Technical Working Group, Innovate4Cities encourages alliance partners to contribute, collaborate and co-design projects – involving cities, local governments, and cross-sector stakeholders – to meet the gaps identified in the City Research and Innovation Agenda.

Trade and Technology Council (TTC)

The EU-India Trade and Technology Council (TTC) was established on 6 February 2023 to strengthen the relationship of the EU and India as strategic partners. This TTC is the second bilateral forum for the EU and the first one established with any partner for India. It will deepen strategic engagement on trade and technology between both partners.

In a rapidly changing geopolitical environment, the EU and India have a common interest in ensuring security, prosperity and sustainable development based on shared values. The TTC will provide the political steer and the necessary structure to coordinate approaches and advance technical work. To lay the groundwork, both sides have agreed to work on critical areas such as connectivity, green technologies, and resilient supply chains. Three working groups have been formed, which will be working in the following areas:

1. **Strategic technologies, digital governance and digital connectivity:** This group will work jointly on areas of mutual interest such as digital connectivity, Artificial Intelligence, 5G/6G, high-performance and quantum computing, semiconductors, cloud systems, cybersecurity, digital skills and digital platforms.
2. **Green & clean energy technologies:** This group will focus on green technologies, including investment and standards, with emphasis on research and innovation. Areas to be explored could be clean energy, circular economy, waste management, plastic and litter in the ocean. It will also foster cooperation between EU and Indian incubators, SMEs and start-ups.
3. **Trade, investment and resilient value chains:** This group will work on the resilience of supply chains and access to critical components, energy, and raw materials. It will also work to resolve identified trade barriers and global trade challenges by promoting cooperation in multilateral fora. It will work towards promotion of international standards and cooperation on addressing global geopolitical challenges.

The European Union and India held their first ministerial meeting of the Trade and Technology Council (TTC) in May 2023 in Brussels. Key outcomes discussed with respect to work of working group 2 were:

» Cooperation on research and innovation is seen as an important vehicle to unlock potential and bring new and sustainable technologies to the market.

» The European Union aims to be climate neutral by 2050 and India by 2070. To reach these objectives, both partners will drive innovation and increase research efforts in view of safe and sustainable development.

» The EU and India will focus on wastewater management, including plastic litter and waste to hydrogen; recycling of batteries for e-vehicles and standards through pre-normative research. Cooperation on these topics should also strengthen the role of start-ups and building skills and capacity.

TRADE AND TECHNOLOGY COUNCIL (TTC)

During Commission President von der Leyen's visit to India in April 2022, she agreed with Prime Minister Modi of India to set up a Trade and Technology Council (TTC) to consider areas on trade nexus technology.

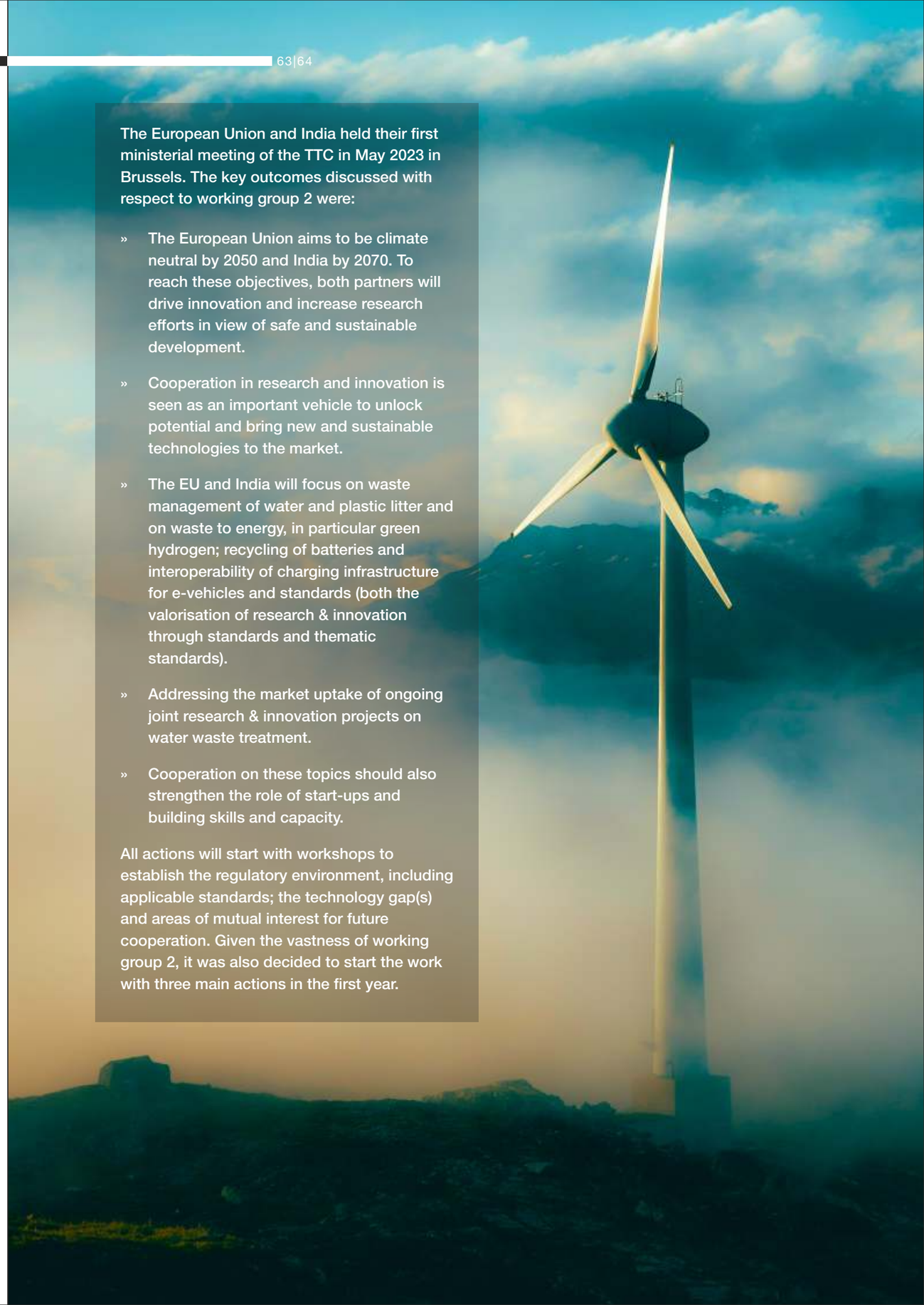
The TTC was established on 6 February 2023, aiming at facilitating trade in technology, which is becoming an increasingly important share of the trade flow with India given its commitment to zero net emissions by 2070. India is the second country after the US with whom such a forum has been concluded, which shows the increased political importance the EU attaches to India. Indeed, in a rapidly changing geopolitical environment, the EU and India have a common interest in ensuring security, prosperity and sustainable development based on shared values.

The TTC will provide the political steer and the necessary structure to coordinate approaches and advance technical work. To lay the groundwork, both sides have agreed to work on critical areas such as connectivity, green technologies, and resilient supply chains. Three working groups have been formed, which will be working in the following areas:

1. **Working Group 1 on Strategic technologies, Digital governance and Digital connectivity:** This group will work jointly on areas of mutual interest such as digital connectivity, Artificial Intelligence, 5G/6G, high performance and quantum computing, semiconductors, cloud systems, cybersecurity, digital skills and digital platforms.

2. **Working Group 2 on Green & Clean energy technologies:** This group will focus on green and clean energy technologies, including investment and standards, with emphasis on research and innovation. Areas to be explored could be clean energy, circular economy, waste management, plastic and litter in the ocean. It will also foster cooperation between the EU and Indian incubators, SMEs and start-ups.

3. **Working Group 3 on Trade, Investment and Resilient value chains:** This group will work on the resilience of supply chains and access to critical components, energy, and raw materials. It will also work to resolve identified trade barriers and global trade challenges by promoting cooperation in multilateral fora as well as encouraging the promotion of international standards and cooperation on addressing global geopolitical challenges.



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» **The European Union aims to be climate neutral by 2050 and India by 2070. To reach these objectives, both partners will drive innovation and increase research efforts in view of safe and sustainable development.**

» **Cooperation in research and innovation is seen as an important vehicle to unlock potential and bring new and sustainable technologies to the market.**

» **The EU and India will focus on waste management of water and plastic litter and on waste to energy, in particular green hydrogen; recycling of batteries and interoperability of charging infrastructure for e-vehicles and standards (both the valorisation of research & innovation through standards and thematic standards).**

» **Addressing the market uptake of ongoing joint research & innovation projects on water waste treatment.**

» **Cooperation on these topics should also strengthen the role of start-ups and building skills and capacity.**

All actions will start with workshops to establish the regulatory environment, including applicable standards; the technology gap(s) and areas of mutual interest for future cooperation. Given the vastness of working group 2, it was also decided to start the work with three main actions in the first year.