



## Mission Innovation 2.0

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### Why in News

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Recently, the Union Minister of Science & Technology addressed the **Mission Innovation (MI)** to mark the beginning of phase-2 of the mission or Mission Innovation 2.0.

**India played a leadership role** in MI Steering Committee and is a member of the Analysis and Joint Research and Business & Investor Engagement sub-groups.

### Key Points

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- **Mission Innovation:**

- **Formation:**

- Mission Innovation was **announced on 30<sup>th</sup> November 2015**, on the sidelines of the **Paris Climate Agreement** to undertake ambitious measures to combat **climate change**.

- **Membership:**

- It is a global initiative of **24 countries and the European Union** to accelerate global clean energy innovation.

- **Principle:**

- Commitment by all members to seek to **double their clean energy innovation investments over five years** in selected priority areas.
    - Each **member according to its own priorities, policies, processes, and laws independently determines the best use of its funding** and defines its own Research & Development priorities and path to reach the doubling goal.
    - In many cases, MI members prioritise parts of their whole energy innovation budget within their baseline.

- **Objectives:**

- Enhance the **public sector investment** to a substantial level.
    - Increased **private sector engagement** and investment.
    - Increase **international collaboration**.
    - **Raising awareness** of the transformational potential of innovation.

- **Innovation Challenges (IC):**

- Innovation challenges are a **major part of the mission innovation** that is aimed at leveraging research, development, and demonstration (RD&D) in technology areas that could ultimately result in **effective ways to reduce greenhouse gas emissions, increasing energy security, and creating new opportunities for clean economic growth**.
    - There are **8 innovation challenges** under the mission innovation:
      - IC1 – **smart grids**, IC2 – **Off-grid access to electricity**, IC3 – **Carbon capture**, IC4 – **Sustainable biofuels**, IC5 – **Converting sunlight**, IC6 – **Clean energy materials**, IC7 – **Affordable cooling and heating of buildings**, IC8 – **Renewable and clean hydrogen**.
    - The first phase has shown that work done under ICs have mobilized in a relatively short period, relying on members' leadership and voluntary efforts to advance IC objectives.
    - These resources have dramatically accelerated the availability of the advanced technologies that will define a future global energy mix which is clean, affordable, and reliable.

- **Mission Innovation 2.0:**

To achieve the shared goal of accelerating innovation, all the members have agreed to develop a **second phase (2.0)** that includes:

- An **enhanced Innovation Platform** building on current activities to strengthen the global clean energy innovation ecosystem and to accelerate learning.
- **New public-private innovation alliances** – Missions – built around ambitious and inspirational goals backed by voluntary commitments that can lead to tipping points in the cost, scale, availability, and attractiveness of clean energy solutions.

- **Indian Initiatives Aligned with the Mission:**

- **Clean Energy International Incubation Centre:**

To support the start-up innovation ecosystem, the **Clean Energy International Incubation Centre** established by the Department of Biotechnology, India under a Public Private Partnership model has played a crucial role.

- **Increased Solar Capacity:**

- India has **increased solar installed capacity** by 13 times and expanded its non-fossil fuel-based power generation to 134 Gigawatts, about 35% of total power generation.

The **National Solar Mission** (a part of the **National Action Plan on Climate Change**) helped India to increase its solar capacity.

- India has embarked on an **ambitious target of having 450 Gigawatts of renewable energy by 2030.**

- **Biofuels:**

- India is also working to considerably increase the proportion of the **biofuel blend in petrol and diesel:**

- **Ethanol Blending Programme (EBP):** It aims at **blending ethanol with petrol**, thereby bringing it under the category of biofuels and saving millions of dollars by cutting fuel imports.

- The **2018 Biofuel Policy** has the objective of reaching 20% ethanol-blending and 5% biodiesel-blending by the year 2030.

- Five Centres of excellence in Bioenergy supported by Department of Biotechnology in India are **working on both fundamental and translational research for advanced bio-fuels like biobutanol, biohydrogen and biojet fuels.**

- **Ujjwala Yojana:**

- **Pradhan Mantri Ujjwala Yojana (PMUY)** which is the **world's most extensive clean cooking fuel programme** was launched in **2016** and is implemented by the Ministry of Petroleum and Natural Gas through its Oil Marketing Companies.

- Through PMUY, initially, 5 crores below poverty line (BPL) households were targeted for providing deposit free LPG connections to BPL households by 31<sup>st</sup> March, 2019. This target has been achieved.

- India has released around **150 million connections so far.**

- **Avoided Emission Framework for a sustainable future:**

- **India and Sweden under a partnership** have developed an Avoided Emission Framework for a sustainable future.

- Under this partnership, **eight companies have been selected to demonstrate an initial 100 million tons of potential CO<sub>2</sub> emission reduction by 2030.**



# A GLOBAL INITIATIVE WORKING TO ACCELERATE CLEAN ENERGY INNOVATION



## 1 GOAL

To **accelerate** the pace of clean energy innovation to achieve performance breakthroughs and cost reductions to provide widely **affordable** and **reliable** clean energy solutions.

## 25 MEMBERS

Launched in 2015 at COP21 in **PARIS**

MI Members represent about 80% of global government investment in clean energy RD&D

## 4 OBJECTIVES



Substantial boost in public sector investment



Increased private sector engagement and investment



Increasing international collaboration



Raising awareness of the transformational potential of energy innovation



## 8 INNOVATION CHALLENGES

Global collaborations to accelerate innovation in key technology areas



**IC1**  
Smart Grids



**IC2**  
Off-grid Access to Electricity



**IC3**  
Carbon Capture



**IC4**  
Sustainable Biofuels



**IC5**  
Converting Sunlight



**IC6**  
Clean Energy Materials



**IC7**  
Affordable Heating and Cooling of Buildings



**IC8**  
Renewable and Clean Hydrogen



## 19 MISSION INNOVATION CHAMPIONS

A program for recognizing and supporting the next wave of energy technology leaders

## 6 MAJOR COLLABORATORS

<b>BEC</b>	Breakthrough Energy Coalition
<b>GCoM</b>	Global Covenant of Mayors for Climate and Energy
<b>IEA</b>	International Energy Agency
<b>IRENA</b>	International Renewable Energy Agency
<b>WBG</b>	World Bank Group
<b>WEF</b>	World Economic Forum



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