

## JOINT MISSION STATEMENT<sup>1</sup> FOR A GREEN POWERED FUTURE MISSION

### The Mission

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To help achieve our climate goals, **emissions from the power sector need to fall by 80%** in the next two decades. Variable renewable energies (VRE) are essential to meeting these goals as recent analysis has shown that renewable energy sources **should meet 86% of power demand by 2050 with two-thirds generated by VRE such as solar and wind.**

Without a major acceleration in clean electricity innovation, however, these targets will not be achievable. In fact, power grids and the technologies in use today are insufficient on their own to deal with the **challenges of balancing the system and ensuring the security and reliability of the energy supply** when integrating very high shares of intermittent VRE.

**The Green Powered Future Mission aims to demonstrate that by 2030 power systems in different geographies and climates, are able to effectively integrate up to 100% variable renewable energies, like wind and solar, in their generation mix and maintain a cost-efficient, secure and resilient system.**

Capitalising on the successful results of MI Innovation Challenge [MI Innovation Challenge 1 on Smart Grids \(IC1\)](#), the Mission proposes to achieve its ambitious goal by developing, testing and demonstrating innovative solutions through joint R&D activities that address key barriers in three areas (Innovation Pillars):

- **Affordable and Reliable VRE technologies** - reducing cost and increasing efficiency, resilience, and reliability of VRE technologies in various climates and system configurations.
- **System Flexibility and market design** - unlocking a range of cost-effective flexibility options, including storage solutions, improving performance of smart power grids infrastructure and AI advanced control solutions.
- **System Integration, Data and Digitalisation** - creating the interfaces, digital tools, data systems and technologies to enable cross-sectoral flexibility and deliver a cost-efficient, fully integrated power system.

International collaboration is critical to achieving our ambition, ensuring that resources, knowledge and best practices are shared widely. As part of MI's commitment to a **decade of clean energy innovation** for its second phase, we launch this Mission to mobilise global action behind an ambitious goal that can truly lead to the transformation of our power systems, unlocking crucial tipping points in the cost and scale of innovative solutions to realise a *Green Powered Future*.

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<sup>1</sup> This joint statement builds on the [Mission Innovation 2.0 Launch Statement](#) and does not constitute a legally binding commitment. It will commence on 2 June 2021 and will continue in effect for 5 years. After this period, members may agree to extend it for a further five years to support the delivery of the Mission goal by 2030, subject to a review of Mission achievements.

By setting a global ambition and providing political momentum, the Mission will catalyse investments towards critical innovation challenges, thus moving faster towards the decarbonisation of power systems globally.

### **Mission Ambition**

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The Mission's co-leads and core coalition members (Tier 1) agree to carry out joint R&D, knowledge sharing and cooperation in the fields of affordable and reliable VRE, system flexibility and market design, and system integration, data and digitalisation, around the goal of a Green Powered Future.

### **Co-leads (and Core) Members of the Mission commit to:**

#### **1. Accelerate innovation to bring forward necessary technical and non-technical solutions to enable a renewable-powered future.**

To achieve this, our strong coalition of world leaders from MI countries, the private sector and international organisations intends to:

- **Develop megawatt-scale (10-100+MW) demonstration projects and smaller-scale pilots to test and demonstrate viable technological solutions that enable up to 100% VRE integration.** This includes, improving cost-efficiency and resilience of VRE technologies, unlocking a range of cost-effective flexibility options, and creating the digital tools for a fully integrated power system.
- **Seek to further increase the level of investments in R&D activities that address crucial innovation priorities identified by the Mission, up to double the initial budget over the next 10 years.** This includes studies, analysis and development of the necessary tools and best practices in policy, regulation, and markets to propel the system transformation worldwide.
- **Build a joint roadmap and carry out collaborative R&D activities** to identify the innovation areas where national and international efforts are needed to achieve secure and resilient power systems with up to 100% VRE integration in the next decade. The roadmap will be presented at COP26.

#### **2. Promote collaboration and sharing of knowledge, know-how and best practices to enable all countries to develop a power system that meets their renewable energy targets.**

To support this, the coalition will:

- **Facilitate the sharing of knowledge, insights and supporting tools generated from Mission's activities**, by engaging with MI countries, partner organisations and the wider clean energy sector through active working groups to coordinate and scale up research, testing and dissemination.
- **Ensure synergies with existing international initiatives operating in areas relevant to the Mission** by aligning the Mission's objectives and activities to these initiatives and providing input into related clean energy challenges not directly covered by the Mission.

#### **3. Work closely with other countries, the private sector and international organisations that share our ambitious vision for a renewable powered future.**

To create an impactful partnership, the coalition commits to:

- **Guarantee open and transparent Mission governance** by establishing clear decision-making processes, commitment requirements and robust mechanisms to track progress and evaluate members' contribution towards achieving the Mission goals.

- **Build a strong Mission team** by providing the necessary staff resources and expertise to ensure the successful coordination and delivery of the activities.
- **Welcome new members from governments and industry that can demonstrate equally ambitious commitments to making the clean energy revolution happen in the next decade.** Participation in the Mission is open to truly committed leaders that want to lead the way in global power system transformation.

In addition to the Co-leads and Core members efforts, support members (Tier 2) will contribute to the innovation efforts and to enhancing the impact of the Mission by actively engaging in knowledge sharing activities and promoting the dissemination of Mission findings globally.

**Members of the Mission will advance this work by adhering to the following Mission principles:**

- **Accelerate action:** we will target our efforts at crucial barriers and challenges to speed up innovation towards the stretch goal and stimulate more action. We will track progress against specific targets and tipping points in each pillar.
- **Build demand:** we will identify the ‘demand-pull’ efforts needed to diffuse and adopt innovative solutions that emerge from the Mission activities, encouraging countries and the private sector to support their widespread deployment at full scale.
- **Review, reflect, improve:** we will remain agile, review progress and modify actions to remain at the frontiers of innovation, addressing global priorities. Ministers and CEOs of the mission coalition will meet annually to review the Mission’s progress and agree upon actions. Additionally, the Mission will report annually to the whole MI community on its progress at each MI Ministerial.

## **Members**

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We will bring together a dynamic and delivery-focused high ambitious alliance between countries, corporations, investors and research institutes to accelerate innovation to achieve the vision of a **Green Powered Future**.

The following governments and organisations, with the support of national research centres, commit to demonstrate global leadership through active participation and cooperation towards demonstrating power systems that can integrate up to 100% variable renewable energy:

### **Co-leads**

- **China** – Ministry of Science & Technology (MOST)
- **Italy** – Ministry of the Ecological Transition (MITE), Ricerca sul Sistema Energetico (RSE)
- **United Kingdom** – Department for Business, Energy and Industrial Strategy (BEIS)

### **Core coalition members (Tier 1)**

- **India** – Department of Science and Technology (DST)
- **Saudi Arabia** – Ministry of Energy
- **IRENA** – International Renewable Energy Agency
- **World Bank Group**
- **Alperia SpA**, Italy
- **Areti SpA**, Italy

- **Enel Global Infrastructure & Networks**, Italy
- **National Grid ESO**, United Kingdom

### **Support members (Tier 2)**

- **Austria** – Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)
- **Brazil** – Energy Research Office (EPE)
- **Canada** – Natural Resources Canada/ Ressources Naturelles Canada (NRCan/ RNCan)
- **European Commission** – Directorate-General for Research & Innovation
- **Germany** – Federal Ministry for Economic Affairs and Energy (BMWI)
- **Japan** – Ministry of Economy, Trade and Industry (METI)
- **Netherlands** – Ministry of Economic Affairs and Climate Policy (MINEZK)
- **Republic of Korea** – Ministry of Trade, Industry and Energy (MOTIE)
  
- **Energy Networks Association (ENA)**, United Kingdom
- **Gestore dei servizi energetici (GSE)**, Italy
- **BSI Group**, United Kingdom

We are looking for committed world leaders from MI countries and the private sector to **lead the way in the global power system transformation and demonstrate the ambition to making the clean energy revolution happen in the next decade**. We call on all countries and organisations that share the same ambitious vision and are committed to enhance innovation efforts domestically and internationally to join our coalition and be at the forefront of a Green Powered Future.

### **Ministers' quotes**

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*“Achieving carbon neutrality will bring a transformation to our economy and society that will be led by a scientific and technological revolution as significant as all previous industrial revolutions.”*

**Wang Zhigang, Minister of Science and Technology (PRC)**

*“Italy is honoured to co-lead the Green Powered Future Mission with China and the United Kingdom and all the countries that already joined the Mission and others who will. The Mission represents a concrete action able to combine political aspiration with scientific vision, working together to ensure access to affordable, reliable and sustainable energy for all.”*

**Roberto Cingolani, Minister of Ecological Transition (Italy)**

*“The UK is proud to be at the forefront of international innovation efforts to develop greener and smarter grids. We believe that data and digitalisation are crucial enablers for the integration of variable renewables and we are committed to collaborate with countries and businesses to bring forward smart, cost-effective solutions to achieve our net-zero goals.”*

**Anne-Marie Trevelyan, Minister of State for Business, Energy and Clean Growth (UK)**