

## Announcements at the 8<sup>th</sup> Mission Innovation Ministerial

21<sup>st</sup> July 2023, Goa

The [8<sup>th</sup> Mission Innovation Ministerial](#) and [14<sup>th</sup> Clean Energy Ministerial](#), hosted by the Government of India, took place alongside the G20 in Goa, India. The alignment with G20 put clean energy innovation in the political spotlight and boosted the momentum of Mission Innovation's initiatives. At the four-day event, Ministers, CEOs, academics, innovators and civil society participated in a high-level plenary, public-private roundtables and high-level dialogues, side events and a technology showcase.

Mission Innovation members showcased the progress of the Mission Innovation Missions and Innovation Platform initiatives. The seven MI 'Missions' provide the mechanism to drive international collaboration and coordination, allowing governments to work together and with the private sector to target investment and action. The Missions are two years into the delivery of their ambitious 10-year action plans to achieve tipping points in the cost and scale of clean energy solutions. Mission members announced their inspiring plans for the year ahead.

Members announced strengthened engagement with the Clean Energy Transition Partnership. This will provide a mechanism for MI members, Missions and Innovation Communities to implement collaborative funding programmes, a key element in galvanising the collaboration required to achieve Mission Innovation's goal of making clean energy affordable, attractive and accessible for all.

To improve the efficiency of the RD&D cycle, members will deliver a programme of workshops and events through the MI Think Tank. It will foster knowledge sharing and the exchange of best-practices between members of the MI community and beyond on cross-cutting issues.

Members reaffirmed their commitment to sustained and strengthened cooperation across sectors and key technologies as they work to accelerate the clean energy revolution and called on others to join them.

### Mission Innovation's Announcements

**In 2022, MI Members invested 10.6B\$ in some of the highest priority areas for clean energy innovation<sup>1</sup>, an increase of 0.75B\$ (7%)<sup>2</sup> in the first year of MI 2.0 (2021-2022)**

The biggest increases in research and innovation (R&I) investment include energy storage, hydrogen production, storage, infrastructures and end-uses, and carbon capture and storage. Whilst overall R&I investments have increased, more is needed to accelerate clean energy transitions globally. MI's Missions covering the power, hydrogen, shipping, industry, cities, carbon dioxide removal and biorefineries sectors are flagship initiatives stimulating further investment in research and innovation in these areas. Countries and organisations from around the world are invited to join them.

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<sup>1</sup> Renewable energy, electricity transmission and distribution, energy storage, hydrogen, industry decarbonization and biofuels

<sup>2</sup> IEA (2023) *Energy Technology RD&D Budgets database*

## 94B\$ Clean Energy Technologies Demonstration Challenge

Last Year at the U.S. hosted Global Clean Energy Action Forum, 16 countries [announced](#) they had collectively mobilized \$94 billion for clean energy technology demonstrations as part of the CEM 13/MI-7. The Clean Energy Technologies Demonstration Challenge showed the collective force CEM/MI can make when they work towards a joint goal. One year later, a number of countries have followed up at the India hosted CEM14/MI-8 to share their progress. So far more than \$33 billion has been allocated towards clean energy demonstration projects. This includes:

- Australia has committed to providing over \$860 million in funding to the Australian Renewable Energy Agency for projects in the areas of hydrogen, electric vehicles, industrial decarbonisation, community batteries, community microgrids and sustainable aviation fuels.
- Canada has allocated more than \$1.2 billion to clean energy demonstration projects, and is on track to meet or exceed its \$2 billion commitment.
- The European Union has invested \$7 billion out of the \$28 billion committed through 2027 through the Horizon Europe programme that moves key technologies to market readiness, InvestEU which contributes to the production of over 4 716 MW of electricity from renewable energy sources, as well as funding for the third Large-Scale Call of the Innovation fund.
- Norway made progress in their Longship CCS project including on storage and transport through project "Northern Lights," which is now 80% complete. They continued support to the development of hydrogen hubs and use of hydrogen and innovative technologies in industrial facilities, heavy duty EVs and corresponding infrastructure.
- and the United States issued funding announcements worth \$25 billion – \$3 billion over their commitment at CEM13 / MI-7 - to accelerate deployment, market adoption, and equitable transition to a decarbonized energy system.

The US looks forward to holding the first Clean Energy Technologies Demonstration Challenge Taskforce meeting in the coming months to discuss reporting framework to track continued progress.

## Brazil and Sweden join Carbon Management Challenge

Brazil and Sweden joined the Carbon Management Challenge (CMC), a global effort launched by several countries, including many MI members. Countries that launched the CMC are Australia, Canada, Denmark, Egypt, the European Union, Japan, Norway, the Kingdom of Saudi Arabia, the United Arab Emirates, the United Kingdom and the United States at the April Major Economies Forum. Canada, the United Kingdom and the United States announced they would co-sponsor the initiative and invited others to join them in leading the effort. Participants will call on other governments to join the CMC by COP28, and on the private sector to play a leadership role in deploying carbon management technologies.

The CMC aims to accelerate the use of carbon capture, utilization and storage and carbon dioxide removal technologies as a necessary complement to aggressive deployment of zero carbon energy and energy efficiency. The International Energy Agency (IEA) estimates that we must manage 1.2 Gt of CO<sub>2</sub> annually by 2030 to limit global warming to 1.5°C above preindustrial levels.

The CMC builds on Mission Innovation’s Carbon Dioxide Removal Mission and the Clean Energy Ministerial’s Carbon, Capture, Utilization and Storage Initiative to accelerate the use of carbon management technologies. Countries and implementation partners are invited to join the CMC ahead of its official launch at COP28.

### **The Green Powered Future Mission Releases its National Pilots Report**

At the Global Clean Energy Action Forum (GCEAF) in September 2022, the Green Powered Future Mission (GPFM) announced that members would establish five demonstrators in five continents, each using up to 80% variable renewable energy by 2024 (“5 Demos in Five Continents”). The project raises ambition to implement at least 20 national pilot projects and enables countries to share progress and lessons learned on a continental level.

This year, at MI-8, the GPFM is releasing its National Pilots Report, a major milestone in achieving the goals of the 5 Demos in Five Continents project. The report summarizes information from 80 ongoing and planned pilot projects in Mission member countries. Each pilot project tackles one or more of the 50 most urgent innovation priorities identified in the Mission’s [Action Plan 2022-2024](#). The report also elaborates on the Mission’s plans for three continental task forces, which will monitor progress and facilitate information sharing among countries and proponents. The published report can be found on the [GPFM webpage](#).

### **The Green Powered Future Mission Formalizes its Collaboration with the Clean Energy Transition Partnership and Announces a Multilateral Research Programme**

The GPFM and the Clean Energy Transition Partnership (CETPartnership) are launching a joint open call, dedicated to “innovative solutions for system flexibility: renewables production, storage, and system integration.” Through the joint call module, the Mission and the CETPartnership aim to advance key innovation priorities for power system decarbonization and transformation, while enhancing international cooperation in these areas. The funding call is expected to be open for applications by September 2023. Information will be available on the [GPFM webpage](#).

### **The Net-Zero Industries Mission Launches the Net-Zero Industries Award**

The Net-Zero Industries Mission (NZIM) has issued a call for submissions to the inaugural Net Zero Industries Award. The award will recognize outstanding projects and individuals who make an important contribution to the decarbonization of industry. Awards will be given in three categories: (1) projects and solutions, (2) young talent, and (3) female innovators. The deadline for submissions is September 15, 2023. Award winners will be announced at COP28. Further details on the award, including how to submit nominations are available on the [NZIM webpage](#).

### **The Urban Transitions Mission Welcomes Applications to Join the UTM City Cohort**

The Urban Transitions Mission (UTM) has an open call for pioneering cities to join the UTM City Cohort. Participating cities work with the Mission to help test, pilot, and scale up net-zero solutions while supporting knowledge sharing, decision making, and capacity building across all levels of government.

The UTM City Cohort was first launched in 2022, with 48 cities from 24 countries announced as part of the first cohort. This year, the Mission seeks to recruit 250 new cities. With tailor-made approaches and inclusive frameworks and guidance, the UTM welcomes cities from the Global North and Global South to join the journey toward a net-zero, resilient and inclusive future. Cities that are signatories to the Global Covenant of Mayors for Climate and Energy and that have more than 50,000 inhabitants are welcome to join. Subnational governments – such as provinces and counties – as well as groupings of municipalities are also welcome to apply.

The call will be open until August 21, 2023, with the new cohort set to be announced at COP28. More information about the program and how to apply can be found on the [UTM website](#).

### **The Urban Transitions Mission Showcases their Global Knowledge Exchange Platform**

At the GCEAF in September 2022, the UTM announced that Mission members would set up a global knowledge exchange centre for clean energy solutions for urban environments. Funded by the European Commission, and developed under the framework of the Horizon Europe programme, the “[Urban Transitions Mission Centre](#)” (UTMC) platform went live in June 2023.

The UTMC is an online platform that supports UTM cities, partners, and stakeholders to connect across regional and national borders and access evidence-based solutions and best practices for urban transitions to net-zero. In particular, it enables knowledge sharing on successful policies, technological developments, tools for urban systems, and funding approaches and solutions – along with lessons learned that cities have encountered on the path to net zero.

### **The Urban Transitions Mission Brokers Over 25 New Urban Pilot Projects**

UTM cities are leading the way in delivering on urban transitions through pilot projects, in partnership with members of the Global Innovation Alliance, including UTM member countries, and the private sector. In May 2023, [11 pilot activities](#) with the UN Climate Change Global Innovation Hub were launched. The Mission is also planning 15 additional pilot activities with a number of private sector partners.

Through this work, UTM cities have started to test sustainable energy solutions that address core human needs, such as access to energy, mobility, and shelter. UTM cities are also working to facilitate access to data, develop digital models and scenarios to address decarbonization across the most impactful sectors and inform local policy planning. They are identifying potential for regulatory sandboxes, as well as exploring integrated energy solutions, strengthening investment planning, and much more. More information about these pilot actions can be found on the [UTM website](#).

### **The Integrated Biorefineries Mission Announces Plans to Launch Joint Funding Programs**

The Integrated Biorefineries Mission (IBM) will realize joint programs to support the development of new bio-based fuels, chemicals, and materials as well as the development of more efficient biorefinery processes, also through joint programming with industry aiming at public-private funding for projects. The joint programs and funding build on the priorities and actions identified in the

Mission's [Innovation Roadmap and Action Plan](#) released in 2022, as well as the Mission's first [webinar](#) with industry, researchers, and policymakers in June 2023.

One program is a collaboration between India and the European Union. India has decided to co-fund the Horizon Europe call on “the development of smart concepts of integrated energy driven bio-refineries for co-production of advanced biofuels, bio-chemicals, and bio-materials.” The call opens on May 7, 2024, with a deadline of September 5, 2024. The call details can be found on the Horizon Europe [webpage](#).

Other funding calls are expected to open in 2024. More information will be available on the [IBM webpage](#).

### **The Carbon Dioxide Removal Mission Launches the CDR Mapping Initiative**

As articulated in the Carbon Dioxide Removal (CDR) Mission's [Action Plan](#), Mission members committed to addressing data gaps for CDR technologies and enhancing the collective understanding of local and global CDR potential.

To support this objective, Mission members are releasing a beta version of its map on CDR demonstrations and deployments around the world on the [CDR Mission webpage](#). The current beta map visualizes known demonstrations and deployments across the Mission's three technological focus areas: Direct Air Capture (DAC), Biomass with Carbon Removal and Storage (BiCRS), and Enhanced Mineralization, including announced projects through to operational facilities.

The release of this map is a first step in enhancing access to geospatial data for CDR, to help inform future decisions on CDR projects and opportunities for knowledge exchange. The Mission expects to expand its dataset of demonstration and deployment projects as new information becomes available. Mission members also intend to release additional maps and datasets moving forward.

### **The Clean Hydrogen Mission Calls on Countries to Help Meet its Goal of Identifying 100 Hydrogen Valleys by 2023**

In September 2022 at the GCEAF, the Clean Hydrogen Mission (CHM) announced its goal of identifying 100 clean hydrogen valley projects by 2024, that can be implemented by 2030. The demonstration of clean hydrogen production, storage, distribution, and end-use in defined geographic areas (i.e. “hydrogen valleys”) is an important step in facilitating a clean hydrogen economy.

The Mission is on track. In 2022, the CHM identified 37 hydrogen valleys. As of June 2023, CHM members have identified 83 hydrogen valley projects in 33 countries. The CHM calls on governments and stakeholders to identify at least 17 more qualifying projects by the end of this year and to provide additional support and investments to help make identified valleys grow from project plans to operation.

More information on the hydrogen valleys identified to date, as well as related analysis, reference studies, and best practices, can be found on the Mission's [Hydrogen Valley Platform](#).

## Mission Innovation Steps Up Cooperation with the Clean Energy Transition Partnership

Mission Innovation is working with the Clean Energy Transition Partnership (CETPartnership) to support the scale-up and roll-out of clean energy technologies and attract investment. The CETPartnership is an international research, development and innovation funding network. It provides a mechanism for MI's members, Missions and Innovation Communities to implement collaborative funding programmes.

MI Missions are currently exploring the use of the CETPartnership to facilitate joint research, development, and innovation funding, including the Green Powered Future Mission (GPFM) and the Clean Hydrogen Mission (CHM), which are announcing the launch of joint funding calls at the eighth MI Ministerial on 21 July 2023. MI and CETPartnership will also look to extend their cooperation beyond the GPFM and the CHM to other MI Missions and the MI Innovation Communities.

The activity will build upon the work of MI's Joint Funders Dialogue and MI Call Series. Initially, MI and CETPartnership will co-create R&I calls with the MI Missions, including defining common R&D needs. MI members will then be approached to participate in the joint calls.

## Incubators from around the world are invited to join the Gigaton Opportunity

Incubators, accelerators, initiatives and anyone else around the world are invited to join the [Gigaton Opportunity](#), supporting a new generation of sustainable solutions that have the potential to avoid 1 Gt of emissions by 2030. Six initial initiatives that all play important roles in supporting the accelerated uptake of new solutions have accepted the challenge will be announced at MI-8. Mission Innovation calls on incubators and others supporting the accelerated uptake of a new generation of sustainable solutions around the world to take up the challenge.

The initial six initiatives are: The Clean Energy International Incubation Centre, Deep Ecosystems, Global Innovation Initiative Group, Ice bug and the European Outdoor Group, Tatapower with the vision to empower a billion lives through sustainable, affordable and innovative energy solutions and Mirova/Robeco through their work to create a database for avoided emissions.

We are also pleased to announce that UNFCCC will join the launch, and the Gigaton Opportunity is invited to COP28 by the UNFCCC Global Innovation Hub. In addition, Local Governments for Sustainability (ICLEI) has joined as a strategic partner as a part of their work with an expanded climate and innovation agenda.

## Launch of an Innovation Community on Sunlight to X

Sunlight to X is a new MI Innovation Community focused to fully realising the potential of directly converting sunlight to fuels and chemicals using water, carbon dioxide, and other feedstocks either through direct solar-driven processes or by close coupling of solar-driven and chemical production processes.

The Innovation Community will create an international ecosystem to accelerate both scientific advances in solar fuels and the move from science to technology development through international cooperation. The Innovation Community is co-led by the European Commission and China. Members include Australia, Austria, Brazil, France, Germany, Italy, Spain, Sweden, UK, and US.

## Launch of the Mission Innovation Think Tank

Through MI's Innovation Platform, MI is launching the Think Tank to deliver a programme of member-driven workshops and events that will foster knowledge sharing and the exchange of best-practices between members of the MI community and beyond on cross-cutting issues. [A Call for Expression of Interest](#) is being launched – calling on members of the MI Community to help shape the Think Tank's activities in 2023.

## Materials for Energy Innovation Community agrees Memorandum of Understanding

The Materials for Energy Innovation Community<sup>3</sup> (M4E) Member Institutions formalises the intention to collaborate in the field of accelerated materials and device discovery and development through collective efforts supported by Materials Acceleration Platforms (MAPs).

The Memorandum of Understanding establishes a common intention and vision around M4E initiative delivery and provides a formalised basis for tapping into an international network of expertise to reduce duplication of efforts, promote information & knowledge sharing and coordinate assets and highly-qualified personnel.

The M4E community looks forward to leveraging the MoU as a way to develop multi-lateral collaboration between parties and to unlock additional opportunities such as funding and international exchange programs.

## Mission Innovation and KAPSARC exploring strengthened cooperation

Mission Innovation is working with KAPSARC to explore cooperation, in areas where KAPSARC's expertise can provide a valuable addition to ongoing work through MI. KAPSARC is a Saudi advisory think tank within global energy economics and sustainability, producing internationally recognized research, tools and data to impact global and domestic policymaking.

Initial areas for cooperation are to include a KAPSARC contribution to the MI Insights Module, initially through an MI Think Tank event on a topic of cross-cutting interest for MI members. MI and KAPSARC will also work together to explore opportunities for collaboration with Missions and Innovation Communities.

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<sup>3</sup> Signing Institutions: Forschungszentrum Jülich (FZJ), Karlsruhe Institute of Technology (KIT), Indian Department of Science and Technology (DST), Natural Resources Canada (CanmetMATERIALS - CMAT), SINTEF, Ricerca Sul Sistema Energetico (RSE), Bundesanstalt für Materialforschung und -prüfung (BAM),