Mission Innovation: Accelerating the Clean Energy Revolution

"To accelerate the pace of clean energy innovation to achieve performance breakthroughs and cost reductions to provide widely affordable and reliable clean energy solutions that will revolutionize energy systems throughout the world over the next two decades and beyond"
Goals of Mission Innovation

By the end of 2020, MI will have helped deliver:

1. Doubling public sector investments in clean energy RD&D;
2. Increasing private sector engagement and investment;
3. Facilitating new and strengthened partnerships and collaboration; and
4. Engaging and informing MI members and the wider clean energy innovation community.
## The Innovation Challenges

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>Austria</th>
<th>Brazil</th>
<th>Canada</th>
<th>Chile</th>
<th>China</th>
<th>Denmark</th>
<th>EC</th>
<th>Finland</th>
<th>France</th>
<th>Germany</th>
<th>India</th>
<th>Indonesia</th>
<th>Italy</th>
<th>Japan</th>
<th>Mexico</th>
<th>Norway</th>
<th>Republic of Korea</th>
<th>Saudi Arabia</th>
<th>Sweden</th>
<th>The Netherlands</th>
<th>UAE</th>
<th>UK</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smart Grids Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Off Grid Access to Electricity Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Carbon Capture Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sustainable Biofuels Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Converting Sunlight Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Clean Energy Materials Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Affordable Heating and Cooling of Buildings Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Hydrogen Innovation Challenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Lead* | *Participant*
**MI Tracking progress workstream**

- **Objective:** To Track the Progress and Impact of Mission Innovation against its Action Plan

- **Four work strands being implemented:**
  1. Tracking the impact of MI
  2. Enhancing existing data collection on government spending for energy RD&D
  3. Tracking private-sector investments
  4. Tracking overall progress to accelerate clean-energy innovation

- **Deliverables:** Policy briefs to MI Ministers, improved datasets, new tools, etc.
(1) Tracking the Impact of MI

- Focus on progress towards doubling and level of new international RD&D collaborations among members
- “MI Country Survey” circulated to MI members each year with data/information on:
  - New domestic clean-energy RD&D programmes (Flagship initiatives), strategies/plans
  - Funding increases vs. baseline
  - New international RD&D collaboration activities
- This information is then compiled into a publication: Country Highlights 2018
Action Plan Goal: Boost in public sector spending

First year $1.1bn
Second year $3.1bn

Increase in public sector investment (%)
(of members with data returns)

Baseline  First year  Second year  Third year  Fourth year  Fifth year

12.7%  38.3%
Action Plan Goal: Facilitating New and Strengthened Partnerships and Collaborations

15 MI member countries involved in 15 collaborations
(2) Enhancing data collection on government spend for clean energy RD&D

• Lead: IEA
• Objective: support the efforts of MI governments to collect better data on public spending for energy RD&D
• Example: sectoral break-down of public RD&D only from non-IEA members that joined MI only available for China
• Support data collection in Brazil, China, India, Indonesia, Saudi Arabia, UAE
(3) Tracking Private Sector Investments

- Lead: EC’s Joint Research Centre
- Rationale: Support Engagement of Private Sector, e.g., by exchanging information to improve understanding of clean energy innovation needs
- A few MI members collecting data on corporate RD&D investments in clean-energy sector through surveys
- EC’s JRC developed methodology based on patents
- Potential to gauge leverage of public spend on private investments
(3) Tracking Overall Progress to Accelerate Clean Energy Innovation

- Lead: MI Secretariat
- Aim to support the creation of a framework of indicators to regularly assess clean energy innovation progress at "system level", e.g., looking at cost reductions, technical improvements, scientific productivity to complement other approaches focused on deployment levels
- Workshop to be organised in 2019
- Holy Grail: relationship between inputs (investments) and outputs (cost reductions)
How to find out more

• More information is available from the MI website
• Follow us on Twitter @MICleanEnergyRD
• Sign up to our newsletter
• Contact the MI Secretariat by email
Goal 2: private sector engagement

• Five partnerships between MI members and BEC announced at the One Planet Summit
• Six “bold ideas” to accelerate clean-energy innovation developed together with WEF
• Initiatives of MI members
  • Sweden: an innovative public-private procurement tool
  • EC: a pilot instrument for public-private RD&D co-investment
  • India: an international incubator to scale their solutions abroad
Goal 3: International Networks and partnerships

- Calls for Proposals from India and France on Off Grid Access to Electricity (IC2) were announced at MI-3
- Launch of the Fuel from the Sun: Artificial Photosynthesis prize by the European Commission (IC5)
- RD&D programmes on clean energy materials in Canada and Mexico (IC6)
Goal 4: Greater awareness of the transformational potential of energy innovation

- Mobilised over 3000 technical experts and innovators to identify the most critical clean energy innovation priorities
- Launch of MI Champions programme
- Launch of Solutions booklet highlighting solutions emerging from members investments (include a couple of case studies)
Milestones since launch

- **June 2016, San Francisco**
  MI Inaugural Ministerial Meeting

- **December 2016**
  Breakthrough Energy Coalition announces a $1 billion fund

- **November 2016, Marrakech**
  Innovation Challenges launched

- **December 2017, Paris**
  One Planet Summit: MI in the Spotlight

- **November 2017, Bonn**
  COP23: MI in the Spotlight

- **January 2018, Davos**
  MI: Shaping the Future and Accelerating Innovation

- **May 2018, Malmö**
  Third MI Ministerial Meeting (MI-3)

- **June 2017, Beijing**
  Second MI Ministerial Meeting (MI-2)**
Snapshot of MI Achievements to date

- **Identified investment opportunities in clean energy innovation**
  - Private Sector Engagement

- **Launched bold ideas to accelerate Clean Energy Innovation with WEF**
  - Partnerships

- **Demonstrated progress across the 7 MI Innovation Challenges**
  - Innovation Challenges

- **Launched an Innovation Challenge on Hydrogen**
  - Innovation Challenges

- **Welcomed Austria as a member**
  - Membership

- **Celebrating Clean Energy Ideas and Innovators through MI Champions and Solutions**
  - Raising awareness

- **Collaborations formalised with IRENA AND IEA**
  - New Partnerships

- **Delivering the MI Action Plan priorities agreed at MI-3**
  - Action Plan
Next steps

• The Delivering the Action Plan document, published at MI-3, sets out a number of key ongoing and proposed activities that will benefit from international collaboration to deliver the MI Action Plan over the next few year.

• Strengthening Mission Innovation as a platform for catalysing new RD&D activities, building on international synergies
The road to Vancouver (4th Ministerial)

*Build on momentum from MI-3 and create a dynamic, interactive forum for future success.*

- Ensure broad and inclusive participation
- Promote technology solutions to facilitate a global energy transition strategy
- Strengthen private sector and B2B partnerships

*4th MI Ministerial: May 26th – 29th, 2019*