

U.S. DEPARTMENT OF  
**ENERGY**



## Carbon Sequestration Leadership Forum

*Mission Innovation – Carbon Capture  
Challenge Update*

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Stephanie Duran  
Director for International and  
External Partnerships  
Office of Clean Coal and Carbon  
Management  
U.S. Department of Energy

# Mission Innovation

- *Double public clean energy R&D investment over five years, while encouraging greater levels of private sector investment in transformative clean energy technologies*
  - Announced on November 30, 2015
  - 22 countries and the European Commission
  - 1 Ministerial meeting per year



# Mission Innovation Organization



# Mission Innovation Challenge #3 – Carbon Capture

## Co-Leads: United States and Saudi Arabia

- **Objective:** *to enable near-zero CO2 emissions from power plants and carbon intensive industries*
- **Goals:**
  - *Identify and prioritize breakthrough CCUS technologies*
  - *Develop pathways to close RD&D gaps*
  - *Recommend multilateral collaboration mechanisms*
  - *Drive down cost of CCUS through innovation*
- **Implementation:**
  - *CCUS Experts' Workshop and report*
  - *Webinars*

# Mission Innovation Challenge #3 – Carbon Capture

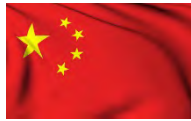
## Leads



## Participating countries



Canada



China



EC



Denmark



Finland



Netherlands



France



UK



Norway



India



Indonesia



Japan



Germany



UAE



Mexico



Korea



Sweden



Italy



# Carbon Capture Innovation Challenge

- **Experts workshop to discuss basic research needs for CCUS**
  - Capture, storage, and utilization panels
  - Publish a report to guide innovation on CCUS
- **Establish strategic partnerships**
  - International Energy Agency (IEAGHG)
  - World Economic Forum (Business Investors)
- **Seek ways to engage the industry**
  - Closer engagement with Business and Investors Engagement Sub-Group

# CCUS Experts' Workshop

- **Experts workshop to discuss basic research needs for CCUS**

- Tentative Dates: September 25 – 29
- Venue: United States
- Attendees by invitation

Monday	Tuesday	Wednesday	Thursday	Friday
CCS Project site visit	Opening Plenary	Capture Storage Utilization	Capture Storage Utilization	Reporting and Technical Committee Meeting
	Capture Storage Utilization			

# Contacts

## • United States:

**Stephanie Duran** Office of Clean Coal and Carbon Management

U.S. Department of Energy (Tel: 001-202-586-2265; Email: [Stephanie.Duran@hq.doe.gov](mailto:Stephanie.Duran@hq.doe.gov))

**Jordan Kislear** Office of Clean Coal and Carbon Management

U.S. Department of Energy (Tel: 001-202-586-3033; Email: [Jordan.Kislear@hq.doe.gov](mailto:Jordan.Kislear@hq.doe.gov))

## • Saudi Arabia:

**Tidjani Niass**, Saudi Aramco (Tel: +966-50-682-6057; Email: [tidjani.niass@aramco.com](mailto:tidjani.niass@aramco.com))

**Hamoud Otaibi**, Saudi Ministry of Energy, Industry, and Mineral Resources (Tel: +966-1-285-8737; Email: [hamoud.otaibi@meim.gov.sa](mailto:hamoud.otaibi@meim.gov.sa))



## Back Up Slides

# Mission Innovation Governance

## Mission Innovation Ministers

- *Comprised of Ministers from 22 countries plus the European Commission*
- *Provide high-level leadership for their countries' involvement in the initiative and serve as priority setters for MI efforts*
- *Work together with private sector leaders and energy investors, underscoring the critical link between government innovation and entrepreneurship to bring affordable clean energy technologies to market*
- *Meet annually*

## Mission Innovation Steering Committee

- *Comprised of MI country representatives serving staggered, two-year, renewable terms*
- *Provides high-level strategic guidance to foster implementation of the Enabling Framework and arrange funding for its implementation, make recommendations through consensus to all members, facilitate implementation of outreach and communication strategies, help achieve progress on projects and events, ensure maximum value to all members, and create Sub-Groups to carry out specific tasks*
- *Countries participating in the Steering Committee are: United States (Chair), Canada, European Union, France, India, Indonesia, Mexico, Saudi Arabia, Sweden, and United Kingdom*

## Mission Innovation Secretariat

- *Carries out core administrative functions to include: providing guidance to countries for information requests, maintaining records, coordinating multilateral activities in support of MI Sub-Groups and areas of emphasis, facilitating active involvement by all MI members, and leading a variety of communications activities—from maintaining the website to publishing press releases*
- *Provides support to the Steering Committee regarding evolving MI needs and opportunities, in coordination with outside experts*

# Mission Innovation Sub-Groups

## Information Sharing

- *Sharing data, priorities, and plans promotes transparency and integrity, facilitates stakeholder engagement, reveals collaboration opportunities, and can inspire and inform private sector investment decisions*
- *Helps each participating country provide easily-accessible information on its respective clean energy R&D efforts and support other elements of Mission Innovation, Including Joint Research and Business Engagement*

## Analysis and Joint Research

- *Leveraging the combined knowledge, capabilities, and resources of members helps accelerate progress and amplify outcomes*
- *Helps member governments foster a common understanding of clean energy innovation needs across MI countries, which can provide insights for countries' national plans and identify potential areas for collaboration*

## Business and Investor Engagement

- *Innovation starts with government support for R&D, but it is businesses, entrepreneurs, and investors that turn innovations into products and companies that change the world*
- *Assists MI countries in identifying opportunities and engaging the private sector by exchanging information to improve understanding of clean energy innovation needs and perspectives, and encouraging investment to expand and enhance the innovation pipeline.*

**Challenge 1:**  
Smart Grids

**Challenge 2:**  
Off-Grid  
Access to  
Electricity

**Challenge 3:**  
Carbon Capture

**Challenge 4:**  
Sustainable Bio-Fuels

**Challenge 5:**  
Converting Sunlight

**Challenge 6:**  
Clean Energy  
Materials

**Challenge 7:**  
Affordable Heating  
and Cooling of  
Buildings

# Carbon Capture Innovation Challenge: Key Activities

## Ongoing

- CCUS Experts' Workshop in Houston, TX (September 25-29, 2017)
  - Convene international CCUS experts to discuss breakthrough opportunities and find international RD&D synergies
- Publication of CCUS Experts' Workshop Report (October/November 2017)
  - To be drafted by the co-chairs and key panelists from the CCUS Experts' workshop

## Future

- Develop and publish an expanded version of the Carbon Capture Innovation Challenge overview document with further details on objectives, gaps and opportunities
- Work with the International Energy Agency (IEA) on planned or potential new reports on CCUS
- Provide regular updates on the group's work and progress being made to Mission Innovation Steering Committee and others
- Utilize a wide range of existing workshops/conferences/events etc. (i.e., CSLF meetings) to promote the Challenge and highlight opportunities and progress
- Seek ways to engage more closely with the private sector to include the Breakthrough Energy Coalition (BEC) and the Business Engagement Subgroup (i.e., host a webinar with industry following the Carbon Capture Innovation Challenge workshop)
- Map existing collaborative initiatives and explore opportunities to strengthen and expand them