



2024 MIT Energy Initiative Annual Research Conference
September 25-26, 2024
Marriott Boston Cambridge | 50 Broadway, Cambridge, MA 02142

**A durable energy transition:
How to stay on track in the face of increasing demand and unpredictable obstacles**

Wednesday, September 25

All times are listed in Eastern Time.

7:30-8:30 am **Breakfast and registration**

8:30-8:40 am **Opening remarks**
Sally Kornbluth, President, Massachusetts Institute of Technology

8:40-9:00 am **Remarks**
William H. Green, Director, MIT Energy Initiative; Hoyt C. Hottel Professor,
MIT Department of Chemical Engineering

9:00-10:15 am **Energy storage and grid expansion**

Moderator: **John Parsons**, Deputy Director for Research, MIT Center for Energy and Environmental Policy Research

Speakers:

- **Anuradha Annaswamy**, Senior Research Scientist and Founder and Director, Active-Adaptive Control Laboratory, MIT Department of Mechanical Engineering
- **Scott Burger**, Director, Business Development and Analytics, Form Energy
- **Agustín Delgado Martín**, Chief Innovation and Sustainability Officer, Iberdrola
- **Elizabeth Ender**, Chief Scientist for Energy Storage and Integration, Shell

10:15-10:45 am **Break**

10:45 am-12:00 pm **Social barriers to decarbonization**

Moderator: **Janelle Knox-Hayes**, Professor of Economic Geography and Planning, MIT Department of Urban Studies and Planning

Speakers:

- **Stephen Ansolabehere**, Frank G. Thompson Professor of Government, Harvard University
- **Nora DeDontney**, Director of Development, Vineyard Offshore

Social barriers to decarbonization speaker continued

- **Elsa A. Olivetti**, Jerry McAfee (1940) Professor in Engineering, MIT Department of Materials Science and Engineering
- **Larry Suskind**, Ford Professor of Urban and Environmental Planning, MIT Department of Urban Studies and Planning; Co-founder and Vice-Chair, Program on Negotiation, Harvard Law School

12:00-1:30 pm **Lunch and student poster viewing**

1:30-2:45 pm **MITEI General Seed Fund Project annual check-up**

Moderator: **Martha Broad**, Executive Director, MIT Energy Initiative

Speakers:

- **Sili Deng**, Associate Professor, MIT Department of Mechanical Engineering presenting on **Scalable fabrication of oxide-based all-solid-state batteries using flame-assisted spray pyrolysis**
- **Ruaridh Macdonald**, Research Scientist, MIT Energy Initiative presenting on **Realistic, scalable, and security-constrained capacity planning for reliable low-carbon power systems**
- **Afreen Siddiqi**, Research Scientist, MIT Department of Aeronautics and Astronautics presenting on **Energy and multi-sector project portfolios optimization for investment decisions**
- **Kyung-Shik Kim**, Postdoctoral Associate, MIT Department of Materials Science and Engineering presenting on **Electrochemically-stimulated desorption: a scalable and flexible solution for hydrogen energy industry**

2:45-3:15 pm **Break**

3:15-4:30 pm **The extreme challenge of powering data centers in a decarbonized way**

Moderator: **Randall Field**, Director of Research, MIT Energy Initiative

Speakers:

- **Pedro Gómez**, Strategy and Business Development Director, Ferrovial Digital Infrastructure
- **Sean James**, Senior Director of Datacenter Research, Microsoft
- **Bill Lowry**, Vice President, Innovation and Strategic Development, Exelon
- **Devon Swezey**, Senior Manager, Global Energy and Climate, Google

4:30-5:30 pm

Startup showcase

Introduction by: **J.J. Laukaitis**, Director of Member Services, MIT Energy Initiative

Moderator: **Catarina Madeira**, Director, Startup Exchange, MIT Corporate Relations

Speakers:

- **Daniel Cavero**, Co-founder and Head of Advanced Technology, Noya
- **Mukesh Chatter**, CEO, Alsym Energy
- **Emre Gençer**, Co-founder and CEO, Sesame Sustainability
- **Roman Madaus**, Business Development Lead, Osmoses
- **Aruna Ramkrishnan**, Co-founder and CTO, Copernic Catalysts
- **Jinyoung Seo**, Co-founder and CTO, Pascal
- **Richard Swartwout**, Co-founder and CTO, Active Surfaces

5:30-7:00 pm

Reception with startup companies



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7:30-8:15 am **Breakfast and registration**

8:15-9:45 am **Enabling the hydrogen ecosystem**

Moderator: **William H. Green**, Director, MIT Energy Initiative; Hoyt C. Hottel Professor, MIT Department of Chemical Engineering

Fireside chat speakers:

- **Prasanna V. Joshi**, Vice President of Low Carbon Solutions Technology, ExxonMobil
- **Ernest J. Moniz**, Professor of Physics & Special Advisor to the President, MIT

Panel presentation speakers:

- **Sayandeep Biswas**, PhD Candidate, Green Research Group, MIT Department of Chemical Engineering
- **Jennie Eastcott**, MEA Core Team Leader, Accelera by Cummins
- **Ruaridh Macdonald**, Research Scientist, MIT Energy Initiative

Moderator: **Yogesh Surendranath**, Donner Professor of Science, MIT Departments of Chemistry and Chemical Engineering

9:45-10:00 am **Break**

10:00-11:15 am **Getting to work: Building the talent pipeline to support energy transition success**

Moderator: **Elisabeth B. Reynolds**, Professor of the Practice, MIT Department of Urban Studies and Planning

Speakers:

- **Jennifer Applebaum**, Managing Director of Workforce Development, Massachusetts Clean Energy Center
- **Zoe Lipman**, Lead, Good Jobs & Labor Standards, Office of Energy Jobs, U.S. Department of Energy

Getting to work: Building the talent pipeline to support energy transition success speakers continued

- [David S. Miller](#), Managing Partner, Clean Energy Ventures
- [Elizabeth Thom](#), PhD Candidate, Harvard University

11:15 am-12:00 pm Student slam competition

Moderator: [Aisling O'Grady](#), Education Program Administrator, MIT Energy Initiative

UROP presenters:

- [Andrew Acevedo '27](#), Chemical Engineering presenting on **Multiscale control of copper nanoparticle DNA conjugates for improved electrochemical CO2 reduction**
- [Riddhi Bhagwat '27](#), Computer Science and Engineering presenting on **Enhancing subsurface fluid flow and solute transport modeling through machine learning: A study of fractured rocks using FracNet**
- [Joshika Chakverty '25](#), Chemical Engineering presenting on **Examining nanoconfined fluid phase transitions within single digit nanopores**
- [Tyler Ea '25](#), Mechanical Engineering presenting on **Mechanical design of 3D printed stainless steel plates for stellarator coils**
- [Javier Gil '26](#), Chemical-Biological Engineering presenting on **Biocatalytic enhancement of CO2 capture using recombinant carbonic anhydrase**
- [Vivian Guo '27](#), Chemical Engineering presenting on **Enhancement of CO2 capture using carbonic anhydrase**
- [Rachel Jiang '27](#), Electrical Engineering and Computer Science presenting on **Characterization of GaN devices for high-temperature applications**
- [Sonia Seliger '26](#), Economics and Finance presenting on **Electricity market design for incentivizing investments in battery storage**
- [Katherine Zhou '27](#), Undecided presenting on **The place of provincial and international trade in electricity to maximize the value of Quebec's hydro resources**
- [Aaron Zhu '24](#), Business Analytics, Electrical Engineering and Computer Science presenting on **Hardware and sensor design/optimization for an autonomous solar cell fabrication lab**

12:00-1:15 pm Lunch and student poster viewing

1:15-2:30 pm

Energy transition in different regions

Moderator: **Namrata Kala**, Associate Professor, Applied Economics, MIT Sloan School of Management

Speakers:

- **Andrés González García**, Co-CEO, Waya Energy; Affiliate Researcher, MIT Energy Initiative
- **Cindy Jia**, Head of Sustainable Finance, Americas, ING
- **Nicholas Ryan**, Associate Professor of Economics, Yale University

2:30-3:00 pm

Keynote address

Balancing growth: India's energy transition amid rising demand

Moderator: **William H. Green**, Director, MIT Energy Initiative; Hoyt C. Hottel Professor, MIT Department of Chemical Engineering

Speaker:

- **Praveer Sinha**, CEO and Managing Director, The Tata Power Company Limited

3:00-3:30 pm

Break

3:30-4:45 pm

Young voices: How can energy companies attract tomorrow's energy leaders

Moderator: **Antje Danielson**, Director of Education, MIT Energy Initiative

Speakers:

- **Liam Fenlon**, Commercial Associate, Eku Energy
- **Jocelyn Foulke**, Director of Product and Business Development, Found Energy
- **Khyati Garg**, Graduate Research Assistant, MIT Center for Energy and Environmental Policy Research; Master's Student, MIT Technology and Policy Program
- **Trent Lee**, Undergraduate Researcher, Deng Energy and Nanotechnology Group, Lienhard Research Group; Undergraduate Student, MIT Department of Mechanical Engineering

4:45 pm

Closing Remarks

William H. Green, Director, MIT Energy Initiative; Hoyt C. Hottel Professor, MIT Department of Chemical Engineering

5:00 pm

Light reception