MIT ENERGY INITIATIVE

The MIT Energy Initiative (MITEI) (http://energy.mit.edu) is MIT’s hub for energy research, education, and outreach. Founded in 2006, MITEI helps develop technologies and solutions to deliver clean, affordable, and plentiful sources of energy to efficiently meet global energy needs while minimizing environmental impacts, dramatically reducing greenhouse gas emissions, and mitigating climate change.

Research

MITEI pairs world-class research teams from across the Institute with its industry and government members to respond to specific energy challenges. Through MITEI’s Low-Carbon Energy Centers (http://energy.mit.edu/lcec), currently under development, companies and government entities work together to advance MIT student and faculty research focused on particular technology areas: solar energy; energy storage; advanced nuclear energy systems; materials for energy and extreme environments; mobility systems; carbon capture, utilization, and storage; energy bioscience; and electric power systems. MITEI’s Low-Carbon Energy Centers are a key element of MIT’s Plan for Action on Climate Change (http://climateaction.mit.edu).

The MITEI Seed Fund Program (http://energy.mit.edu/funding) supports innovative, early-stage research across the energy spectrum—from gas monetization to advanced materials to big data to related environmental areas. The program seeks to encourage researchers from across MIT to collaborate in exploring new energy-related ideas and opening up new avenues for research. Each year, the program attracts well-established energy experts as well as new faculty who need start-up support and others who are applying their expertise in different fields to energy for the first time. Funding is provided by MITEI’s Founding and Sustaining Members and by philanthropic contributors. To date, the program has provided approximately $22.75 million for 170 early-stage research projects.

Education

MITEI’s Education Program (http://energy.mit.edu/landing-page/education) develops cross-disciplinary learning opportunities for undergraduate and graduate students, supporting students through a variety of programs—inside and outside the classroom:

• A popular Institute-wide undergraduate Minor in Energy Studies (http://catalog.mit.edu/interdisciplinary/undergraduate-programs/minors/energy-studies) complements the deep expertise obtained in a student’s major with a broad understanding of the interlinked realms of science, technology, and social sciences as they relate to energy and associated environmental challenges.
• Named MIT Energy Fellowships
• MITEI Undergraduate Research Opportunities Program (UROP) (http://energy.mit.edu/urop) placements and support
• Web database with information on energy classes in departments across all five schools
• Support for student groups focusing on energy and related environmental topics
• An Undergraduate Energy Commons under the dome in Building 10 that provides undergraduate students studying energy with a place to gather, form teams, and discuss projects
• Graduate-level massive open online courses (MOOCs), currently under development, for MITx (https://www.edx.org/school/mitx), based on residential MIT energy classes. In addition, through collaboration with the Office of Digital Learning, MITEI has produced a number of energy resources available to the public on OpenCourseWare (https://ocw.mit.edu/courses/energy-courses).

The education program supports the Energy Education Task Force with developing the energy curriculum and establishing and communicating a model for interdisciplinary energy education at the Institute.

Outreach

MITEI provides in-depth, high-quality analysis about current energy topics for policymakers, industry leaders, and the public. MITEI has produced eight major “Future of...” (http://energy.mit.edu/research-type/future-of) reports, which stem from multiyear, multidisciplinary studies, and are designed to provide policy makers, researchers, environmentalists, and industry with technically grounded analyses to inform options for a clean energy future. These studies have focused on the future of solar energy, the future of the electric grid, and the future of natural gas, to name a few.

Another recent multidisciplinary research report, “Utility of the Future (http://energy.mit.edu/research/utility-future-study),” was released in December 2016 to provide guidance to regulators, policymakers, and industry leaders to enable an efficient evolution of the electric power sector. A new study, “Mobility of the Future (https://energy.mit.edu/research/mobility-future-study),” is currently underway, and examines how developments in technology, fuel, infrastructure, policy, and consumer preference will drive changes in future transportation.

MITEI sponsors numerous colloquia and seminars each year. Seminars are designed to share current research from MIT and elsewhere, and are attended by students, faculty, and staff involved in energy research as well as by the local community. Colloquia bring together much larger and diverse MIT constituencies, and feature talks by prominent policymakers followed by more general-interest energy discussions.

MITEI also publishes Energy Futures, a semiannual magazine of energy research, education, and innovation.

Within MIT, MITEI fosters a sense of community among those interested in energy and provides opportunities, including funding opportunities for faculty and students, supporting student-led
energy groups, and hosting events with thought leaders across the energy spectrum.