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Save the Week!

**Energy Futures Week 2011: *Energy Efficiency*  
January 10-14**

<http://web.mit.edu/mitei/iap>

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Here is an overview of Energy Futures Week activities coordinated by the MIT Energy Initiative. Scroll down for details about each activity. This information is also available at <http://web.mit.edu/mitei/iap>

**NOTE:** This is the current list. Events may be added!

**MONDAY, January 10<sup>th</sup>**

- 1) **1pm-2pm:** Energy Information: Where to go, what to do
- 2) **2-3pm:** An Efficient Future for Energy Use in the Built Environment (Featured Lecture)
- 3) **3:30-5pm:** Energy Efficiency Research and Education at MIT (Panel Discussion)

**TUESDAY, January 11<sup>th</sup>**

- 4) **11am-12pm:** Efficiency Forward Forum (with President Susan Hockfield)
- 5) **12-1pm:** Energy Information: Maps and data to use with GIS
- 6) **1-2pm:** Energy Information: Industries and Statistics
- 7) **2-3pm:** Energy Education Open House
- 8) **3-4pm:** Access to energy research articles: publisher policies & MIT output

**WEDNESDAY, January 12<sup>th</sup>**

- 9) **10:30-11:30am:** UN Climate Roundtable: What should we expect from the UN climate negotiation process? A Discussion of International Climate Governance
- 10) **12-1:30pm:** Green Ambassadors Workshop
- 11) **1-2pm and 2-3pm:** Tour of Energy Features of Sloan E62
- 12) **5-7pm:** Exploring Careers in Energy

**THURSDAY, January 13<sup>th</sup>**

- 13) **9am-4pm:** "Fuel Your Mind" -- A Primer on Transportation Fuels, Current and Future
- 14) **2:30-4pm:** Strategic Opportunities in Residential Energy Efficiency
- 15) **6:30-8pm:** Residential Energy Savings: Real vs. Modeled

**FRIDAY, January 14<sup>th</sup>**

- 16) **11am-12pm:** Wind Energy 101

**OTHER EVENTS during IAP**

- 17) **1/6, 11am-1pm:** CO2 Emissions Control Options for Coal Based Power Generation
- 18) **1/12, 1/14, & 1/21, 10am-12pm:** Tour of the MIT Research Reactor
- 19) **1/13, 2-5pm:** Climate CoLab Workshop
- 20) **1/19, 12-1:30pm:** IT-Enabled Electricity Services: The Missing Piece of the Environmental Puzzle
- 21) **1/17, 1/18, 1/20, 1/21, 9am-1pm, 1/22, 9am-5pm:** ESD.940: Special Graduate Studies in Engineering Systems Division: Design of Wind Energy Systems

- 22) 1/21, 9am-5pm: Wind Week Technical Workshop on Wind Grid Integration
- 23) 1/24-1/28, 9am-1pm: ESD.941: Special Graduate Studies in Engineering Systems Division: Numerical Modeling Techniques for Decentralized Electricity Markets

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**MONDAY, January 10<sup>th</sup>**  
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**1) Energy Information: Where to go, what to do**

*Angie Locknar, Chris Sherratt*

1-2pm, 14N-132 (DIRC)

Information on energy is everywhere! How do you find the scientific and technical information you need and keep on the cutting edge of what is published? Attend this hands-on session to find out.

**Enrollment limited** to 30 participants: advance sign up required (see contact below)

**Web:** <http://info-libraries.mit.edu/events/energy-information-where-to-go-what-to-do>

**Contact:** Angie Locknar, 14S-134, locknar@mit.edu

**Sponsored by:** MIT Libraries

**2) An Efficient Future for Energy Use in the Built Environment (Featured Lecture)**

*Neal Elliott, Associate Director for Research, ACEEE*

2-3pm, 32-141

Over the past quarter century, building energy efficiency has focused on improvements to components and equipment. While component efficiencies increased dramatically, the size of our homes and the number of energy using stuff has increased even faster. Looking forward, the focus for energy efficiency in buildings will need to shift to systems rather than components. This shift will involve transformations in how we build, and where and how we live. This shift does not mean that we can ignore component efficiency, because energy using appliances are proliferating, but that we need to take a more holistic approach to our communities.

Neal Elliott is the Associate Director for Research of the American Council for an Energy-Efficient Economy (ACEEE), coordinating ACEEE's overall research efforts. Elliott is an internationally recognized expert and author on energy efficiency, energy efficiency programs and policies, electric motor systems, combined heat and power and clean distributed energy, and analysis of energy efficiency and energy markets.

**Contact:** Jennifer DiMase, jdimase@mit.edu

**Sponsored by:** MIT Energy Initiative

**3) Energy Efficiency Research and Education at MIT (Panel Discussion)**

*Robert Armstrong; Leon Glicksman; John Reilly; Sarah Slaughter*

3:30-5pm, 32-141

A panel on energy efficiency research and education at MIT moderated by MITEI Deputy Director Robert Armstrong. Speakers include John Reilly, Co-Director of the Joint Program on the Science and Policy of Global Change, on the expected role of efficiency in meeting future energy needs; Sarah Slaughter, Associate Director for Buildings and Infrastructure for MITEI, on an emerging MIT research program on building and infrastructure systems; and Leon Glicksman, Professor of Building Technology and Mechanical Engineering, on his fall 2010 project-based class, "Fundamentals of Energy in Buildings," which focused on energy efficiency on the MIT campus.

**Contact:** Jennifer DiMase, jdimase@mit.edu

**Sponsored by:** MIT Energy Initiative

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**TUESDAY, January 11<sup>th</sup>**

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**4) Efficiency Forward Forum**

*Susan Hockfield, Tom May*

11am-12pm, E62 Lobby Sloan

Join President Hockfield and NSTAR CEO Tom May along with invited dignitaries as they kick off Efficiency Forward: Partnering for Success - A Forum to Recognize Innovations in Energy Efficiency

**Contact:** Steven Lanou, slanou@mit.edu

**Co-sponsored by:** Campus Energy Task Force, Department of Facilities, EHS Headquarters Office, Sloan School of Management

**5) Energy Information: Maps and data to use with GIS**

*Anne Graham, Lisa Sweeney*

12-1pm, 14N-132 (DIRC)

Where are the power plants and the pipelines? How close are they to population centers? In this session, MIT GIS Services will introduce you to energy maps and spatial data available, and demonstrate GIS in action on the energy front.

**Enrollment limited** to 20. Register at <http://info-libraries.mit.edu/events/>

**Contact:** Anne Graham, 10-500, x3-7744, graham@mit.edu

**Sponsored by:** MIT Libraries

**6) Energy Information: Industries and Statistics**

*Katherine McNeill*

1-2pm, 14N-132

Interested in researching or working in the field of energy? Want to find out how your energy project fits into the landscape of various industries? This session will give you the skills to research the business and statistical information on energy to find industry overviews, market research, news and data.

**Enrollment limited** to 25: sign up by Jan 10<sup>th</sup> required

**Sign up at:** <http://info-libraries.mit.edu/events/>

**Web:** <http://info-libraries.mit.edu/events/>

**Contact:** Katherine McNeill, E53-168c, x3-0787, mcneillh@mit.edu

**Sponsored by:** MIT Libraries

**7) Energy Education Open House**

2-3pm, E19-319

Stop by the Energy Initiative to learn about the Energy Studies Minor, energy classes, student groups, fellowships, and current research projects. Chat with students and faculty involved with energy.

**Contact:** Jennifer DiMase, jdimase@mit.edu

**Sponsored by:** MIT Energy Initiative

**8) Access to energy research articles: publisher policies & MIT output**

*Ellen Duranceau, Chris Sherratt, Mat Willmott*

3-4pm, 56-154

Join Scholarly Publishing and Licensing Librarian Ellen Duranceau as she explores where MITEI faculty are publishing and what the implications of those publishing practices are for worldwide access to

essential energy research. This session will include data on MITEI faculty journal articles and will provide an assessment of the openness, or reach, of the articles based on the publishers' policies. The MIT Faculty Open Access Policy and tools that analyze journal quality will also be discussed.

**Sponsored by:** MIT Libraries

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**WEDNESDAY, January 12<sup>th</sup>**

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**9) UN Climate Roundtable: What should we expect from the UN climate negotiation process? A Discussion of International Climate Governance**

*Rebecca Dell*

10:30-11:30am, 5-231

The international community unanimously resolved to "prevent dangerous anthropogenic interference with the climate system" at Rio Earth Summit in 1992. In the 18 years since then, we have achieved one binding international treaty to reduce greenhouse gas emissions--the Kyoto Protocol--but global emissions now exceed the worst case scenario outlined in the 1990s. Many have found the international process slow, confusing, and uninspiring, but there is no viable alternative framework for addressing a truly international problem like climate change.

Please join us for a round-table discussion on the UN climate negotiations process, where we will try to clarify how the UN is addressing climate change, what some of the key sources of conflict and obstruction are, and where the UN is making progress (because we are making progress in some areas). The discussion will be lead by Rebecca Dell, a PhD student in climate science and the MIT student delegate to the recent meeting of the parties to the UN Framework Convention on Climate Change in Cancun, Mexico.

Light refreshments will be served.

**Contact:** Jennifer DiMase, [jdimase@mit.edu](mailto:jdimase@mit.edu)

**Sponsored by:** MIT Energy Initiative

**10) Green Ambassadors Workshop**

*Come hear from your fellow Green Ambassadors*

12-1:30pm, 46-3189

This workshop will allow all Green Ambassadors - as well as those interested in becoming a Green Ambassador - to meet over lunch and share and discuss strategies for promoting sustainability in their office, lab, or dorm.

**Enrollment limited** to 50. Advance sign up required by January 7th (see contact below)

Web: <http://ehs.mit.edu/site/sustainability>

**Contact:** Steve Lanou, [slanou@MIT.edu](mailto:slanou@MIT.edu)

**Sponsored by:** Global Education and Career Development

**Co-sponsored by:** Campus Energy Task Force, EHS Headquarters Office, MITEI

**11) Tour of Energy Features of Sloan E62**

Peter Cooper, Frank Higson

1-2pm and 2-3pm, E62 Lobby Sloan

Energy efficient features of the new Sloan Building (E62) will be visited and discussed on this tour conducted by Department of Facilities' Engineers. Sloan is the most efficient building of its kind on the MIT campus. Features incorporated to achieve this will be shown, and the integrated design process

that was employed will be described.

For more information about this building visit:

<http://web.mit.edu/facilities/construction/completed/sloan.html>

**Enrollment limited** to 25 per tour: advance sign up required

RSVP to Damaris Colono by 1/10/2011 4:00 pm [damarisc@plant.mit.edu](mailto:damarisc@plant.mit.edu)

**Sponsored by:** Department of Facilities

## 12) Exploring Careers in Energy

*Amanda Peters*

5-7pm, 32-155

Considering a career in the energy sector? Come hear from those who work in the industry about some of the many career options and what it takes to succeed in this growing field. The first hour will feature a panel discussion, while the second will provide the opportunity to talk to the panelists individually.

Panelists:

- Eerik Hantsoo, Engineer, 1366 Technologies, Inc.
- Jennifer Pedro, VP Industrial Processes for Alstom Power, Thermal Services
- Kara Rodgers, Senior Program Manager, Natural Gas Programs, Consortium for Energy Efficiency
- Thomas Jarvi, CTO, Sun Catalytix
- Vivek Mohta, Director, Energy Markets at Massachusetts Department of Energy Resources

**Preregistration requested** on CareerBridge, but not required. Visit CareerBridge:

<https://www.myinterfase.com/mit/student/> and select Workshops, Career Fairs and Events.

**Contact:** Amanda Peters, 12-170, x3-4733, [acpeters@mit.edu](mailto:acpeters@mit.edu)

**Sponsored by:** Global Education and Career Development

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**THURSDAY, January 13<sup>th</sup>**

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## 13) "Fuel Your Mind" -- A Primer on Transportation Fuels, Current and Future

*William H. Green (MIT Dept. of Chem. Eng.), George Huff & Jim Simnick (BP Global Fuels Technology)*

9am-4pm, 56-114

How is crude oil converted into gasoline and other transportation fuels? Is the gasoline available in Boston the same as what is available in Chicago? What are biofuels and what is driving the demand for these fuels of the future? Which fuel properties matter for performance?

Please join us in this short course offered by engineers from BP and Prof. Green to answer these and other questions, and to gain a better understanding of transportation fuels, and fuel processing technology. Topics to be addressed include:

1. Fuel Performance Criteria
2. Refining
3. Gasoline and Diesel
4. Biofuels, Ethanol & E85

**Sponsored by:** Chemical Engineering

**14) Strategic Opportunities in Residential Energy Efficiency**

*Harvey Michaels*

2:30-4pm, 56-154

The year ahead will be an important one for concept of enabling efficiency as an energy resource, very challenging and with high stakes for its long term viability. It's a great time to get engaged! In this session, we will discuss new strategies being developed or tested to more successfully mitigate market barriers to efficiency in homes, including consideration of:

- New models for utility and government-supported incentives, including Green Communities
- Behavior/feedback systems, supported by Internet and "smart" electric/gas meters.
- New business approaches, and policies promotive of innovation.

Please come and share your thoughts on:

- What are the big ideas that change everything?
- How will consumers respond to them?
- How do we align incentives with objectives?
- How can efficiency performance be effectively measured?

Harvey Michaels directs the multidisciplinary MIT Energy Efficiency Strategy Project, which performs case research and analysis of utility, community, and smart grid-enabled efficiency deployment models. As well, Harvey is a Lecturer on energy efficiency with focus on strategy innovation, and serves on the MIT Campus Energy Task Force. From 1997 to 2007, Harvey led Nexus Energy Software (now Aclara Software) which builds utility efficiency and customer service Web sites and Meter Data Management systems. Before founding Nexus, Harvey was president of XENERGY (now part of Kema Consulting and Con Edison Solutions), which specialized in efficiency resource studies and analysis systems. He can be contacted at hgm@mit.edu.

**Contact:** Harvey Michaels, hgm@mit.edu

**Sponsored by:** MIT Energy Initiative

**14=5) Residential Energy Savings: Real vs. Modeled**

*Michael Blasnik, Independent Consultant*

6:30-8pm, 32-141

Michael Blasnik will explain:

- ♣ How to save the most energy in your home
- ♣ Why real world savings don't always equal modeled savings
- ♣ Why the energy efficiency field needs great researchers

Michael Blasnik:

- ♣ Has analyzed the energy use of millions of homes over the last 25 years
- ♣ Heads the energy impact evaluation for the National Weatherization Assistance Program
- ♣ Is feisty, funny, and informative

**Co-sponsored by:** MITEI, Sustainability@MIT, the MIT Energy Club, HEET, Cambridge Energy Alliance and Greenport

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**FRIDAY, January 14<sup>th</sup>**

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**16) Wind Energy 101**

*Katherine Dykes*  
11am-12pm, 3-133

Come join for an overview of wind energy fundamentals from the physical resource, to the technology, to the economics, policy and social impacts. For details on our wind energy activities, please see <http://windenergy.mit.edu>

**Co-sponsored by:** The MIT Wind Energy Sub-Community of the Energy Club

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**OTHER EVENTS during IAP**

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**17) CO2 Emissions Control Options for Coal Based Power Generation**

*Ja'nos M. Bee'r*

Thu Jan 6, 11am-1pm, 66-110

Carbon capture and storage (CCS) is the principle means of long term, significant CO2 emissions control in both new and existing coal based electric power generating plant.

Main technology options for CCS application, in high efficiency energy conversion cycles including

-Pulverized coal combustion in ultra-supercritical steam cycle

-Coal gasification combined gas turbine-steam cycle, and

-Oxygen blown coal combustion cycle are discussed for their RD&D needs, Costs and Timeline of deployment.

**Sponsored by:** Chemical Engineering

**18) Tour of the MIT Research Reactor**

*Edward Lau*

Wed Jan 12, Fri Jan 14, 21, 10am-12pm, NW12 1st floor desk

Learn how the MIT Research Reactor is operated and utilized. A descriptive lecture and a walking tour of the lab will be given with emphasis on interdisciplinary research and applications. Advance sign up and photo ID required. To register, send email including full name (each full name, if signing up more than one person), relation to MIT, and which tour date you prefer. If no date is specified, then one will be assigned.

**Enrollment limited** to 25: advance sign up by 1/18 required (see contact below)

Repeating event. Participants welcome at any session

**Contact:** Edward Lau, NW12-116, x3-4211, [eslau@mit.edu](mailto:eslau@mit.edu)

**Sponsored by:** Nuclear Reactor Lab

**19) Climate CoLab Workshop**

*Robert Laubacher, Professor Thomas W. Malone, Joshua Introne*

Thu Jan 13, 02-05:00pm, NE25-746

The Climate CoLab is a web forum where people for all over the world can work together to create proposals for what we should do about climate change. It is a project of the MIT Center for Collective Intelligence. The system combines web-based climate and economic modeling, structured online conversation, and new kinds of group decision making tools.

In this workshop, we invite students to learn about the Climate CoLab and share their ideas about how the project might evolve in the future. The workshop will start with a presentation on the Climate CoLab by Sloan Professor Thomas W. Malone. We then will invite students to undertake a series of tasks using the system. The final part of the session will be a discussion of possible future directions for the project, where we will welcome student input.

The workshop will be of value to students with an interest in sustainability, climate change, and emerging energy technologies. It will also be useful to students who would like to learn about next generation Web 2.0 technologies.

Attendees should bring a laptop so they can use the Climate CoLab during the session.

**Web:** <http://climatecolab.org>

**Contact:** Robert Laubacher, NE25-753, x3-0526, rjl@mit.edu

**Sponsored by:** Sloan School of Management

## **20) IT-Enabled Electricity Services: The Missing Piece of the Environmental Puzzle**

*Prof. Marija Ilic Visiting Professor, MIT Engineering Systems Division*

Wed Jan 19, 12-01:30pm, E51-145 (Brown bag lunch; refreshments)

In this talk we describe the role electric power grid and its

Information Communications Technologies (ICT) play in enabling

sustainable electricity services. Examples of ICT's role in affordable integration of renewable resources,

as well as the role of T&D management for enabling delivery of cleaner and cheaper power are

discussed. The talk also provides a brief summary of the Spring 2011 Course on Smart Grids.

**Sponsored by:** Technology and Policy Program

## **21) ESD.940: Special Graduate Studies in Engineering Systems Division: Design of Wind Energy Systems**

*Mort Webster, Katherine Dykes*

Mon Jan 17, Tue Jan 18, Thu Jan 20, Fri Jan 21, 9am – 1 pm, Sat Jan 22, 9am-5pm, E51-145

Opportunity for individual or group study of advanced topics in ESD not otherwise included in the curriculum. Offerings are initiated by faculty on an ad-hoc basis subject to ESD approval.

Subject covers fundamentals of wind power, wind resource characterization, modeling the wind, aerodynamics of wind turbine operation, wind turbine blade design, structural dynamics and wind turbine design, electrical systems for wind energy and grid interconnection, wind turbine control systems, offshore wind energy system design, grid integration of large-scale wind energy, economics, environmental and policy issues associated with wind energy. Assignments include exercise on spectral analysis of wind turbulence and design of a wind turbine. Course is geared towards advanced undergraduates and first year graduate students in engineering disciplines.

**Enrollment limited to 35 participants.** Pre-register on WebSIS and attend first class. Listeners allowed, space permitting

**Level:** G 3 units Graded P/D/F Can be repeated for credit

**Sponsored by:** Engineering Systems Division

## **22) Wind Week Technical Workshop on Wind Grid Integration**

*WEPA and the MIT Energy Club Wind Energy Group*

Fri 1/21, 9am-5pm, 26-100

Full day workshop featuring various international experts on topics related to integration of wind energy into the electric grid: from short term fluctuation and control to long-term planning and policy.

See <https://sites.google.com/site/mitwindweek2011/wind-integration-workshop> for details (registration required)

**Sponsored by:** MIT Wind Energy Projects in Action and the MIT Energy Club Wind Energy Group

**23) ESD.941: Special Graduate Studies in Engineering Systems Division: Numerical Modeling Techniques for Decentralized Electricity Markets**

*M. Webster, I. Perez-Arriaga, and additional invited faculty from IIT--Comillas University*

Mon Jan 24 – Fri Jan 28, 9am-1pm, E62-221

Opportunity for individual or group study of advanced topics in Engineering Systems Division not otherwise included in the curriculum at MIT. Offerings are initiated by faculty on an ad-hoc basis subject to ESD approval.

Subject covers methods for numerical simulation of decentralized (market-based) electric power systems. Includes review of traditional power systems modeling approaches for centrally planned systems; fundamentals of economic game theory for strategic interactions; unit commitment models in decentralized market; capacity expansion models for decentralized markets; and advanced topics including modeling for markets for ancillary services. See website on Stellar for course details.

**Enrollment limited to 35 participants.** Pre-register on WebSIS and attend first class. Listeners allowed, space permitting

**Level:** G 3 units Graded P/D/F Can be repeated for credit

**Sponsored by:** Engineering Systems Division

**More details** (including information about each day's session) at:  
<http://stellar.mit.edu/S/course/ESD/ia11/ESD.941/index.html>