

# *The Advantages of International Collaboration in Scientific Research, MIT's Experience*

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**ATOMEXPO 2012**

**International Forum: Nuclear Power Industry Worldwide One Year after Fukushima**

**Moscow, Russia**

**June 4-6, 2012**



**Massachusetts  
Institute of  
Technology**

## General Observations

- ❑ MIT's student body, undergraduate and graduate, has a distinctly international flavor. They are SMART and MOTIVATED (*They would learn in spite of us!*)
- ❑ MIT's faculty has a distinctly international flavor
  - Nuclear Science & Engineering: three Italian, two Chinese, two Canadian, One Australian, one Palastinian, one Turkish
  - MIT NSE Graduates have served or are serving as the foundation for nuclear engineering in several countries (Korea, Japan, Tiawan, Argentina, Peru, UAE, Brazil)
- ❑ MIT's core teaching and research activities benefit from sustained engagement in the international arena.
- ❑ MIT students need to be well prepared to live and work in an internationally connected world.
- ❑ MIT has, in the past, been reactive instead of proactive in its international engagements. ***This is changing!***

## MIT Impact

- ❑ Currently over 800 companies are working with faculty and students on projects of mutual interest. Among these corporate sponsors are such global leaders as BAE, BP, Du Pont, Electricité de France, Eni, Ford Motor, Merck, Nokia, Novartis, Quanta Computer, Robert Bosch, Shell, TOTAL, etc.
- ❑ 632 patents filed in FY11, along with 113 licenses granted.
- ❑ 25,000+ companies have been founded by MIT alums creating 3.3+ million jobs and \$2 trillion in annual world sales.

# Mission, Values and Aspirations

- ❑ Mission: To advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21<sup>st</sup> century.
- ❑ International focus consistent with core values and aspirations:
  - A commitment to meritocracy-excellence prevails
  - High Quality (not doing everything but doing everything we do with quality) education and research
  - *Mens at Manus* (Mind and Hands) Use your mind but **ALSO get your hands dirty!**
  - Service to mankind

## Outcomes/Requirements for International Engagements

- ❑ Education: Provide MIT students and faculty with high quality opportunities to learn about and engage with the world.
  - Goal is to have every undergraduate have an international experience during their 4 years at MIT
- ❑ Research: Provide MIT students and faculty with unique, enhanced research opportunities.
- ❑ Service: Undertake international service activities that build on MIT's strengths while also providing new research and educational opportunities.
  - Hands in action for the world, Learn from the world.
- ❑ Campus Community
  - Maximize quality by attracting the best students and faculty from around the world

# Guidelines for MIT's International Strategies

- ❑ Develop targeted, long-term engagements in multiple regions of the world based on fit with core values and capacity for sustained success and frontiers of innovation.
- ❑ Leverage achievements in scientific achievement in developing international engagements that serve the nation and the world.
- ❑ Stress engagements that integrate education, research and service.
- ❑ Collaborate across interdisciplinary boundaries creatively applying knowledge to practice.
- ❑ Expand the number of opportunities for MIT students to gain high quality international experiences *without academic or financial obstacles.*
- ❑ Based on strong faculty participation and leadership.

## Principles for International Engagement

- ❑ Effort must be “mission centric” to MIT’s focus on education and research-it should not be a service.
- ❑ MIT “name” must be protected.
- ❑ Political and social sensitivities must be addressed.
- ❑ A policy of open access-faculty & students must be able to publish results.
- ❑ MIT faculty must be behind the effort in significant numbers for major projects.
- ❑ Each major effort must have an MIT officer/dean behind it- assures performance.
- ❑ Must be sustainable economically and intellectually.
- ❑ Must not detract from ability to serve our students at MIT

## We Want Our Students To

- ❑ Return better than if they had stayed at MIT with new skills learned from their global experience.
- ❑ Be stretched outside of their comfort zones and gain self confidence and leadership skills.
- ❑ Develop an international network of links that will serve them in their careers for years to come.
- ❑ Not suffer any academic or financial penalty.



## Examples of what MIT is Actually Doing

- ❑ Engaging in a small number of research and capacity building efforts around the world (MIT Portugal, Masdar, SUTD, *Skolkovo*)
- ❑ Engaging in worldwide research engagements (J-PAL, MITEI, SMART, KFUPM)
- ❑ Engaging in an ecosystem of educational arrangements for our students, particularly undergraduate students.

## Research and Capacity Building Efforts

- ❑ MIT-Portugal: MIT is working with five Portuguese universities to create PhD and SM programs focused on Bio, Engineering Design, Manufacturing, Transportation and Sustainable Energy.
- ❑ Masdar: Masdar Institute of Science and Technology. World's first graduate research institute dedicated to alternative energy, environmental technologies and sustainability.
- ❑ STUD-Singapore University of Technology and Design. Anchored in Singapore and Asia, MIT faculty direct participation, curricular materials, teaching.

❑ ***Skolkovo***

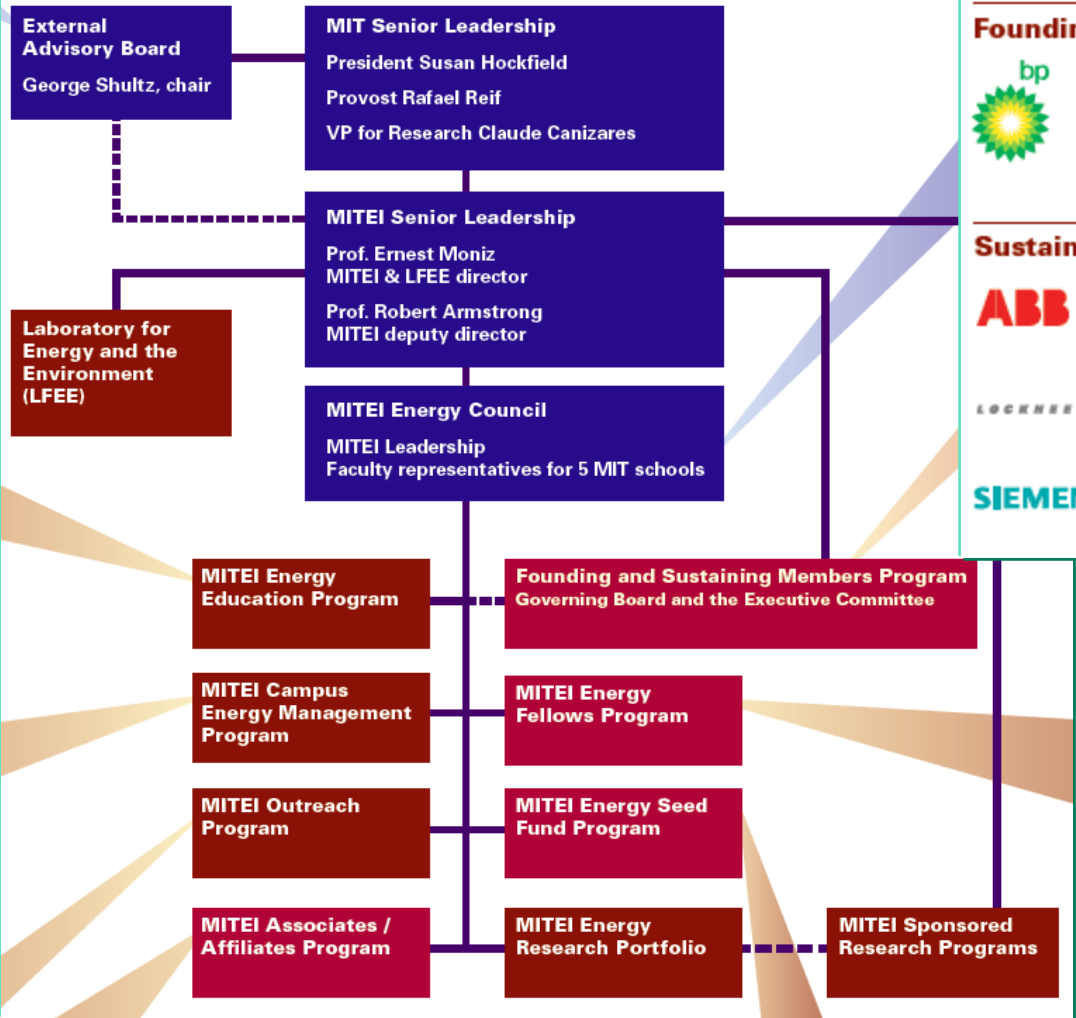
## Skolkovo

- Skolkovo Institute of Science and Technology: *SkTech aims to advance education, scholarship and economic development in the Russian Federation and beyond by educating leading graduate students and conducting research programs that address key challenges in science, technology and innovation. Areas of research are Information Science and Technology, Biomedical Science and Technology, Energy Science and Technology, Space Science and Technology, and Nuclear Science and Technology.*

## Large Scale World Wide Research Engagements

- ❑ Jameel Poverty Action Laboratory: Addressing global poverty issues in several countries.
- ❑ **MIT Energy Initiative: Addressing the energy problem globally.**
- ❑ SMART: Singapore MIT Alliance for Research and technology-looking at five research areas including infectious diseases, sustainable cities.
- ❑ KFUPM: King Faisal University of Petroleum and Mines for Clean Water and Clean Energy (both at MIT and Saudi Arabia)

## MITEI links science, innovation, and policy to transform the world's energy systems



<b>Founding members</b>		<b>Founding Public member</b>	
<b>Sustaining members</b>			

## MIT Energy Club

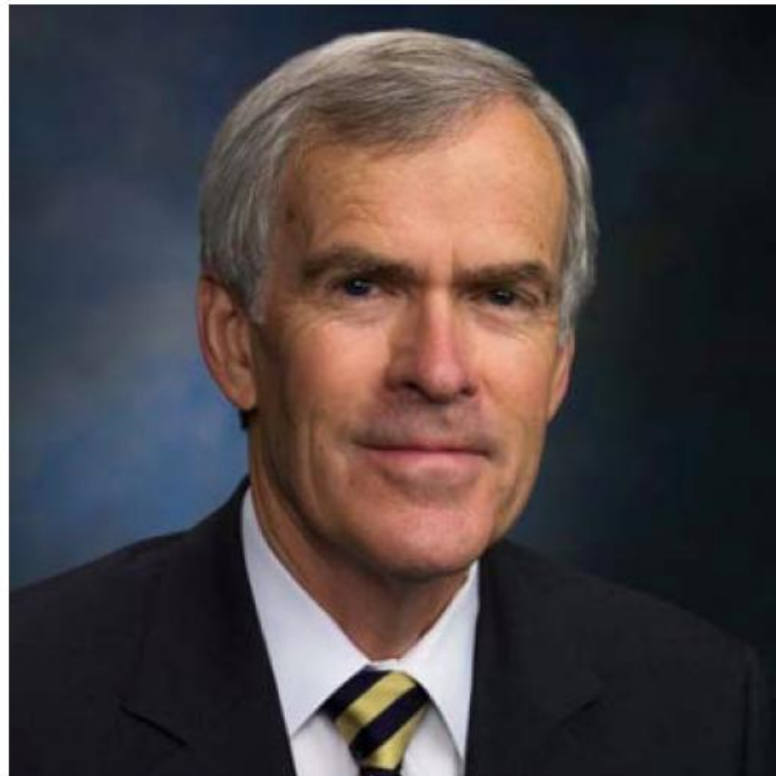
### **Student-run MIT Energy Conference influences national legislation**

**Bingaman cites annual event as he introduces bill in U.S. Senate**

May 26, 2010

Information presented in March at the annual student-run MIT Energy Conference played a significant part in influencing energy legislation that was just introduced in the U.S. Senate.

On May 24, U.S. Sen. Jeff Bingaman — who was one of the keynote speakers at the conference, and also attended several of its panel-discussion sessions — introduced the Supply Star Act of 2010, a bill designed to bring about energy-efficiency improvements in supply chains. Sens. Scott Brown, Blanche Lincoln and Mark Pryor are co-sponsors of the bill. Bingaman indicated that the idea for the bill came from this year's MIT Energy Conference, where he and his staff were particularly influenced by a panel discussion titled, "Supply Chain Energy Use: Exposing Opportunities for Innovation in a Global Economy."



U.S. Sen. Jeff Bingaman

## Conclusions

- ❑ MIT has crafted an international strategy. It is based around a limited number of high value engagements in research, capacity building behind the scenes and a rich ecosystem of educational opportunities for MIT undergraduates.
- ❑ We cannot say that there is a universal best strategy but what is clear is that the impact of global problems and global talent mobility means that any university that wants to be of the first rank needs a global strategy.
- ❑ MIT, by the very nature of its student body and staff, is well prepared and anxious to engage in the world-and IS engaging in the world

**Thank You!**