

Lo Ch'ing 罗青
Chinese Painter 中国画家



Massachusetts
Institute of
Technology

MIT Forum on the Future of Energy in China



Welcome 欢迎致词

Peggy Liu –
Forum Chairperson;
COO, Mustang Ventures

刘佩琪 –
论坛主席; Mustang Ventures
首席运营官

Prof. Robert Armstrong –
Associate Director, MIT Energy Initiative

MIT能源研究所副主席

Zhou Qingzu –
Executive Vice Chairman, Energy
Development and Research Center,
Investment Association of China

周庆祖 –
中国投资协会能源发展研究
中心常务副理事长

Welcome from Chairperson

The effort to clean the world's environment cannot happen with a small group alone. Money, lots of it, needs to be invested in smart people and smart technologies. Governments need to play an active role and allow this money to be used in the most efficient manner and placed in areas of most need.

The MIT Forum on the Future of Energy in China is designed to create productive dialogue between all these parties. Through select gatherings and a virtual communication platform on the Internet, we hope to energize the energy industry. We aim to catalyze real brainstorming, real deals and real progress. The MIT Forum on the Future of Energy in China is a meeting of great minds and of great purpose.

This inaugural event came to be through a convergence of several events.

The first: a visit to Shanghai from Susan Hockfeld, our new President of MIT, outlined MIT's newly defined purpose in the world- to contribute clean energy technologies and breakthroughs in life sciences. As an alum of MIT, I felt called to action by her words.

The second: a more mature market of China's energy entrepreneurs and the growing interest of investors from around the world to invest in them. As a venture capitalist at Mustang Ventures in Shanghai, I recognized the need to create a world-class investor's forum for the China energy industry.

The third: As a parent of two young children, I am sick and tired of seeing our children breathe polluted air and not knowing the simple pleasures of a blue sky. Rather than sitting back helplessly, I choose to believe that individuals, when inspired, can help save the world. Moving mountains and, more accurately, clearing clouds requires a collection of many inspired individuals working together in partnership. Today begins the first humble event in a series of annual events which we aim to grow and focus over time. Each year will become better with your help.

- Peggy Liu

论坛主席欢迎

保护世界环境，是一项宏伟和艰巨的事业，不是一两个人的努力就能做到的。这需要大量的资金，专业的人才，和创新的技术。同时，也需要各国政府合理地把这些资金被用到最需要的领域。

麻省理工学院中国能源未来论坛，正是致力于推动各方进行建设性的对话。论坛通过举办国际会议，和建设网上的通讯平台，希望能为能源工业注入新的活力，创造交流机会。我们希望能集思广益，促成真正的投资，并取得实质性的进展。麻省理工学院中国能源未来论坛，将成为一个有着伟大目标的精英的盛会。

下面的几件事情促成了本次的盛会。

首先，去年，麻省理工学院的新任校长 **Susan Hockfeld** 女士访问了上海。她明确指出，麻省理工学院最新的目标将是在清洁能源技术和生命科学领域的取得新的突破。作为一个麻省理工学院的毕业生，我被她的话所感召并决定付诸行动。

第二，这是日趋成熟的中国能源工业的创业者和全球范围内渴望投资中国的投资者的要求。作为一个愈奇风险投资的投资人，我深深的认识到为中国能源界创造一个世界级的投资者论坛的重要性。

第三，作为一个两个孩子的母亲，我不希望我们的孩子不知道蓝天是什么样子，成天呼吸着被污染的空气。与其坐在那里束手无策，不如振奋起来，投身到拯救这个世界的活动中去。

保护环境，让我们拥有一片蓝天，需要我们每个人行动起来，发挥愚公移山的精神，共同致力于这项伟大的事业。今年是第一次我们举行这个一年一度的能源论坛。今后我们将专注中国能源产业内的创业和投资的相关问题，有了您的参与和支持，我们的会议将越办越好。

- 刘佩琪主席



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The Energy Challenge and the MIT Energy Initiative

Robert C. Armstrong
Associate Director, MIT Energy Initiative
Chevron Professor, Chemical Engineering
Massachusetts Institute of Technology



Framing the MIT Energy Initiative

MIT President Susan Hockfield, in her May 2005 inaugural address, called for a renewed Institute commitment to energy-related research and education:

“[A] great opportunity, and a great obligation, is our institutional responsibility to address the challenges of energy and the environment. Over the last thirty years, these two words – energy and the environment – have gotten a little tired, tired not from overuse but from lack of progress. I believe that the time for that progress is now. I believe that the country and the world may finally be ready to focus on these matters seriously. And again, it is our responsibility to lead in this mission.

Perfect Storm of Energy Challenges

- Energy supply and demand
e.g. projected doubling of energy use and tripling of electricity use by 2050 in business as usual
- Energy and security
e.g. geological and geopolitical realities of oil supply
- Energy and environment
e.g. greenhouse gas emissions and climate change



Uncertainty on a 50-year time scale

- Future scenarios highly uncertain on mid-century time scale
 - 50-year time scale characteristic of significant change in energy infrastructure, of greenhouse gas concentrations approaching twice pre-industrial,...
- Multiple uncertainties
 - Resource availability?
 - fossil fuels, land for renewables, effects of renewables at scale...
 - Science and technology advances?
 - technology breakthroughs, climate change impacts
 - Geopolitical considerations?
 - Middle East, climate protocol participation,...
- MITEI consensus on broad initiative pursuing multiple technology and policy options

Major Themes of MITEI

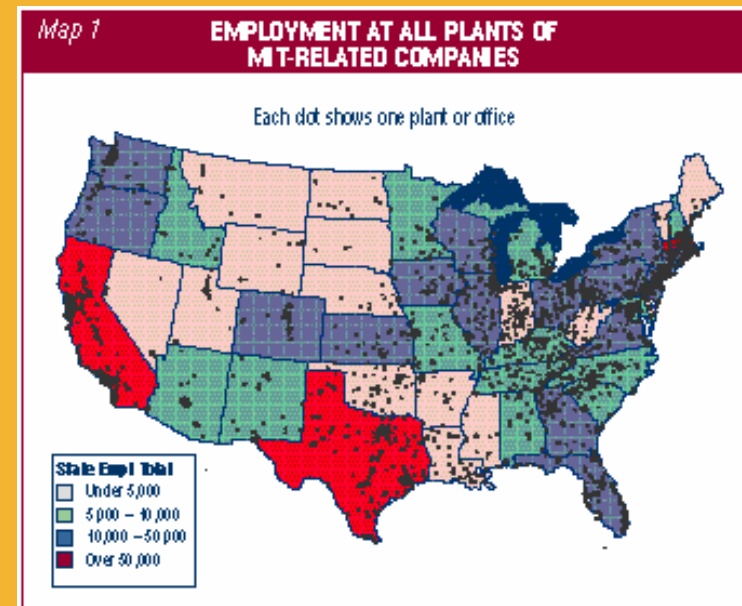
- Improving today's energy systems
 - evolve today's energy systems to higher efficiency, lower cost, less environmental impact,...
 - closer to marketplace implies strong industry collaboration
- Science and technology for a clean energy future
 - Enabling research to underpin critical breakthroughs
 - basic research in university environment
- Energy systems for a rapidly developing world
 - advanced developing countries drive many of the leading energy/environmental challenges
 - less advanced developing economies offer opportunities for new energy development technologies/models

MIT Business – the Impact

MIT: The Impact of Innovation

*A Special Report of the BankBoston
Economics Department*

- MIT Graduates Have Started 4,000 Companies
- With 1.1 Million Jobs and \$232 Billion in Sales in 1994
- Office of Corporate Relations and Industrial Liaison Program
- The Industrial Performance Center
- Leaders for Manufacturing Program
- Management of Technology Program



Milken Report 2006

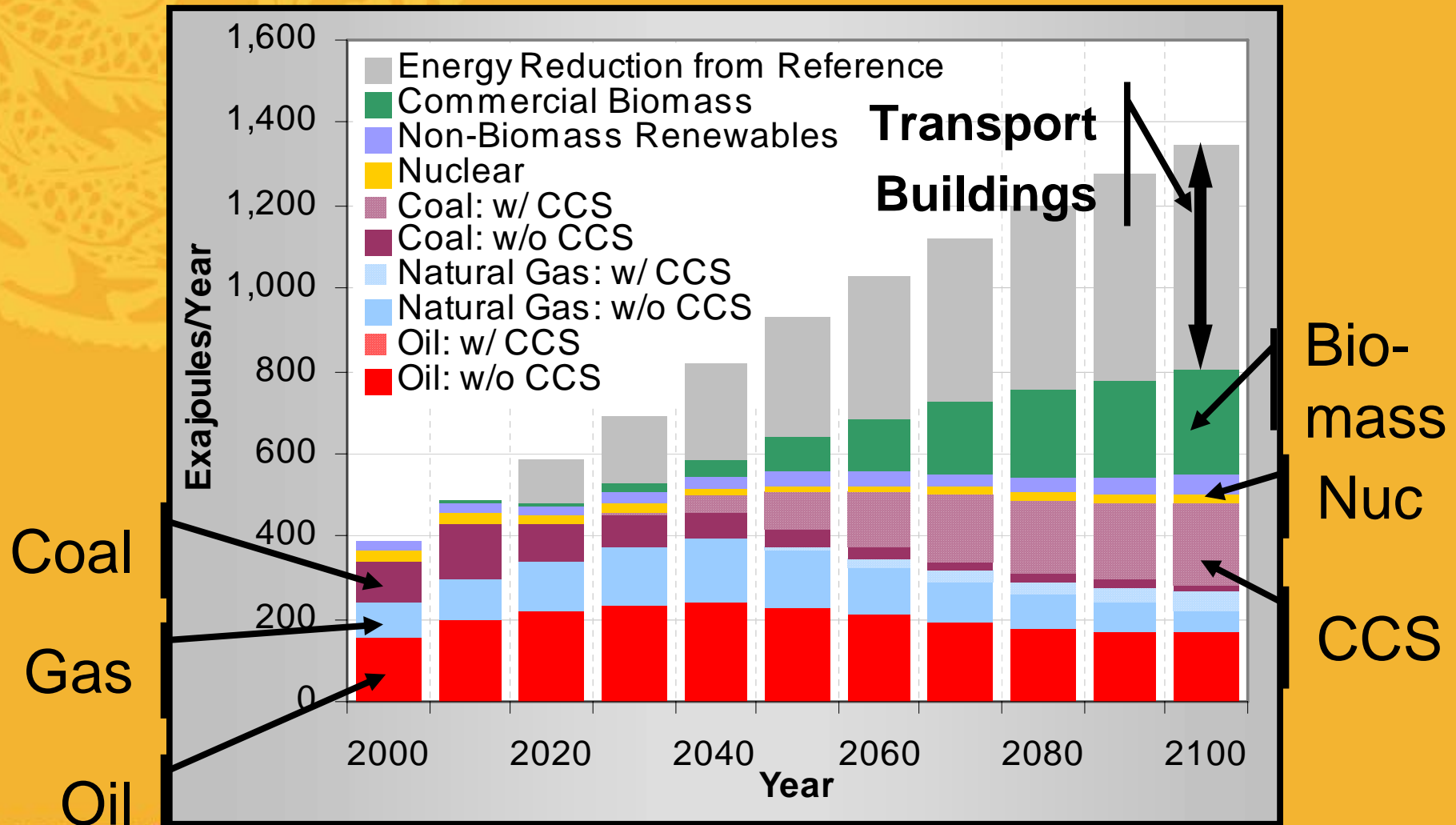
Mind to Market: A Global Analysis of University Technology Transfer and Commercialization

- MIT is No. 1 in Technology Transfer and Commercialization Index
- MIT has been spinning out new firms for > 50 years
- Academic entrepreneurship is a critical part of the culture
- The TLO was formed in late 1980's
- MIT scored 92.5 in patents issued, and 90.6 in licensing income
- Strength comes from physical sciences and engineering as well as biological sciences

MIT Technology Transfer

- MIT's FY 2006 IP & Transfer Statistics:
 - Granted over 1000 licenses over the past decade.
 - Over 600 active licenses
 - 523 new technology disclosures FY 2006
 - 121 license agreements executed FY 2006
 - Plus end-user software agreements
 - 23 start-ups in FY 2006
 - Highly trained licensing staff

Global Primary Energy: 550 ppmv





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