MIT Industrial Liaison Program Faculty Knowledgebase Report

2024 MIT Bangkok Symposium

January 18, 2024 8:00 am - 6:00 pm

8:00 AM	Registration and Continental Breakfast
9:00 AM	Welcome from the MIT Industrial Liaison Program Mr. Todd Glickman Senior Director MIT Corporate Relations
9:10 AM	Welcome from True Digital Park Dr. Tarit Nimmanwudipong General Manager True Digital Park
9:20 AM	Welcome from the Government of Thailand Pornphrom N.S. Vikitsreth Adviser to Governor of Bangkok and Chief Sustainability Officer of Bangkok, Bangkok Metropolitan Administration
9:35 AM	Getting to Net Zero: How to Avoid the Worst and Create the Best Planet for All by 2050 Professor John Fernández Director, MIT Environmental Solutions Initiative Professor MIT Department of Architecture There is enormous concern that we are not on a trajectory that will result in a reduction of greenhouse gas emissions to avoid catastrophic global warming. The evidence is even beginning to indicate that we may have entered an era of runaway effects – tipping points - that threaten to create a world of harm for humans and most other species on Earth. And yet, there is also a growing awareness that a new global trajectory is emerging in the rapid expansion of decarbonized energy production capacity and an array of low-carbon technologies in latter-stage development and early-stage deployment. Accompanying a range of promising and accelerating technological breakthroughs are unprecedented climate policy actions taken across governance scales, from the local to the international. So, while the mountain of alarming data on the continued rise of global GHG emissions continues to raise alarms, these positive developments are suggesting that we have reached an inflection point beyond which the race to net zero emissions by 2050 is possible. The talk will outline the ways in which we may achieve the challenging but necessary goal of reducing emissions rapidly and deploying carbon capture globally to reach and maintain net zero greenhouse gas emissions by midcentury.
10:20 AM	Networking Coffee Break

10:40 AM

Options for Decarbonizing Transportation in a Sustainable World

Dr. Sergey Paltsev
Senior Research Scientist, MIT Energy Initiative
Deputy Director
MIT Joint Program on the Science and Policy of Global Change

There is an urgent need to accelerate a transition to low-carbon transportation, where electrification, hydrogen, and biofuels offer a significant potential to reduce carbon emissions if done in a

sustainable way. Light-duty and heavy-duty road transport, shipping, and aviation have their own challenges and opportunities. Technologies and the impacts of their policy support need to be assessed for a better understanding of potential pathways to a net-zero economy, including its competition with alternative decarbonization options (e.g., electrification, biofuels, synthetic fuels, fossil fuels with CCS, demand-side management).

11:25 AM

Startup & VC Lightning Talks

Dr. Ian Seiferling
CEO & Co-Founder
Adaviv

Dr. Ashish Kulkami
CEO
Kebotix

Dr. Ryan Chin
Co-Founder & COO
TRAM.global

Mr. Patrick Teyssonneyre
CEO and Co-Founder
Xinterra

Alina Truhina
Chief Executive Officer
The Radical Fund

11:50 AM

Lunch

1:00 PM

Industry Panel Discussion

Professor John Fernández
Director, Building Technology and Engineering Systems,
Professor
MIT Department of Architecture

Dr. Singh Intrachooto
Chief Advisor
Research and Innovation for Sustainability Center (RISC)

Tim McCaffery MBA ‘06
Global Investment Director, Deep Technology and Life Sciences
Siam Cement Group (SCG)

Dr. John (JJ) Jiang
Chief Technology Officer (CTO)
Global Head of R&D
Charoen Pokphand (C.P.) Group

Dr. Kobsak Pootrakool PhD '97
Director and Senior Executive Vice President
Bangkok Bank PLC.

2:00 PM

A New Era for U.S. Clean Energy Policy: Implications for Technology Development, Deployment and Equity

Dr. Elisabeth B. Reynolds
Former Special Assistant to the President for Manufacturing and Economic Development
Former Executive Director, MIT Task Force on the Work of the Future and IPC
Lecturer
MIT Department of Urban Studies and Planning

A confluence of changes in the global landscape has led to profound changes in U.S. economic policy. Most notably, the U.S. has put in place a new industrial strategy that is deploying significant public capital in service of building private industrial capability across three broad sectors – infrastructure, innovation (with a focus on microelectronics), and clean energy. This agenda directly challenges the neoliberal free market paradigm that shaped U.S. policy for decades in support of an industrial strategy that uses the tools of the federal government to build globally competitive industries, technological capabilities, and greater shared prosperity. The Inflation Reduction Act (IRA) represents the largest investment the U.S. has made to date toward transitioning the economy to clean energy. In the year since its passage, it has already "crowded in" over $200 billion in private-sector investment. This presentation will discuss the mechanics of the IRA, opportunities and challenges with its implementation, and early signs regarding its impact.

2:45 PM

Networking Coffee Break with Startup Exhibit

3:05 PM

Carbon Emissions in the Built Environment: Exploring Pathways to Achieve Carbon-neutral Concrete Construction

Dr. Randolph Kirchain
Principal Research Scientist, Materials Systems Laboratory
MIT Engineering Systems Division
MIT Materials Systems Laboratory

The built environment is responsible for over 1/3 of global greenhouse gas emissions. While electrification and renewable power generation provide a solution to building operational emissions, there is no single solution to address the next key challenge: reducing the emissions of materials production and construction. This presentation will discuss opportunities for decarbonizing materials and construction by exploring the case of the world's most used engineering material – concrete. The production of concrete and the cement from which it is fashioned generate around six percent of global GHGs. Reducing that footprint will require changes from the cement kiln to the architect's design studio to the construction site. This presentation will discuss the role of both emerging and existing technologies as well as the importance of policy solutions to achieve net-zero emissions in the construction sector.

3:50 PM

Industry – Academia – Government Panel Discussion

Dr. Elisabeth B. Reynolds
Former Special Assistant to the President for Manufacturing and Economic Development
Former Executive Director, MIT Task Force on the Work of the Future and IPC
Lecturer
MIT Department of Urban Studies and Planning

Mr. Natwut Amornvivat MBA '98
Director of the Board
True Corporation PLC.

Mr. Chol Bunnag
Assistant Professor at Faculty of Economics, Thammasat University
Director
SDG Move

Dr. Jirawat Panpiemras
Vice President
Bangkok Bank PLC.

4:50 PM	Closing Remarks Professor John Fernández Director, Building Technology and Engineering Systems, Professor MIT Department of Architecture
5:00 PM	Networking Reception