

MIT-SNRSI Nuclear Energy Seminar: Key Facts and Issues

11-14 August 2026

Singapore Nuclear Research and Safety Institute (SNRSI), Singapore

Day 1 – Tuesday 11 August – Introductions, Systems, Status, and Public Opinion

8:30	Introductions		
9:00	Welcome		
9:15	Nuclear and climate change (1.25 hours)	Systems analysis of clean energy sources, including nuclear and renewables; consideration of land use, energy density, and siting challenges	Malwina Qvist (CATF), Xin Wei Low (SNRSI)
10:30	BREAK		
11:00	A Behavioural Approach to Public Acceptance: Nuclear Narratives in Singapore (1 hour)	Understanding public views on nuclear energy technology; factors in support/opposition; risk perceptions; community-led decision making	Leong Ching (NUS)
12:00	Before Lunch Q&A Session (30 minutes)		
12:30	LUNCH (catered group lunch on campus)		
1:30	After Lunch Q&A Session (30 minutes)		
2:00	Current global state of nuclear energy (1 hour)	Current state of the global debate and evolving policies in U.S., EU, Middle East, Asia	Alvin Chew (NTU)
3:00	BREAK		
3:30	Nuclear power plant basics (1.5 hours)	Basic principles; current technologies: PWRs and BWRs; fast vs thermal reactors; power cycles, overview of SMRs and microreactors	Chung Keng Yeow (SNRSI)
5:00	Q&A Session (30 minutes)		
5:30	ADJOURN		

Day 2 – Wednesday 12 August – Radiation, Safety, Accidents, and Financing

9:00	Radiation health science (1.25 hours)	Radiation fundamentals, sources, health effects, detection, and occupational dose regulations	Michael Short (MIT)
10:15	Group Photo in the classroom		
10:30	BREAK		
11:00	Nuclear safety (1 hour)	Nuclear safety basics; understanding events at Three Mile Island / Chernobyl / Fukushima	Jacopo Buongiorno (MIT)
12:00	Nuclear non-proliferation and IAEA safeguards (1 hour)	Nonproliferation; history of weapons; Non-Proliferation Treaty; current vision; IAEA's role; ongoing challenges	Jai Asundi (Center for Study of Science, Technology and Policy), Amb. Laura Holgate (Former U.S. Ambassador to the IAEA)
1:00	LUNCH (catered group lunch on campus)		
2:00	Q&A on Safety and Accidents (30 minutes)		
2:30	The cost challenge (1 hour)	The cost challenges of nuclear energy, examining recent cost trends, the factors contributing to high costs, and strategies for cost reduction	Jacopo Buongiorno (MIT)
3:30	BREAK		
4:00	Financing strategies for nuclear projects (1.5 hours)	Financial frameworks and development models of new nuclear deployment; how key stakeholders—governments, investors, and utilities—navigate risk, capital allocation, and policy incentives; differences between US/Europe and China	Steve Comello (Nuclear Scaling Initiative), Shangwei Liu (NUS)
5:30	Q&A on cost and financing of nuclear projects (30 minutes)		
6:00	ADJOURN	Networking dinner	

Day 3 – Thursday 13 August – Nuclear Power in Southeast Asia

9:00	Nuclear policy in Southeast Asia (1 hour)	Overview of policies on nuclear energy in the region	Alvin Chew (NTU)
10:00	BREAK		
10:30	Nuclear regulations (1 hour)	How nuclear plants are licensed and regulated in the US; roles of the IAEA and national regulatory bodies, including the U.S. Nuclear Regulatory Commission (NRC)	Helen Cook (GNE Advisory)
11:30	Nuclear regulations in Malaysia and the Philippines (30 minutes)	Key aspects of the upcoming nuclear regulatory standards in Southeast Asia countries who are early adopters of nuclear power	Representatives TBC
12:00	Q&A on Policy and Regulation (30 minutes)		
12:30	LUNCH (catered group lunch on campus)		
1:30	Nuclear fuel cycle (1.5 hours)	Mining, conversion, enrichment, fuel fabrication, reprocessing, recycling and waste management	Michael Short (MIT)
3:00	BREAK		
3:30	Nuclear waste and repositories (1 hour)	Composition of nuclear waste, radioactivity and risk vs. time, classification and regulation of types of radioactive waste, methods of temporary and permanent radioactive waste disposal	Michael Short (MIT), with contributions from Haruko Wainwright (MIT)
4:30	Singapore's IAEA INIR process (30 minutes)	Explanation of the recent kick-off of Singapore's Phase I process to consider the usage of domestic nuclear power; what it means and what it doesn't mean	Darryl Chan (NEA), Chia Meng Hwee (EMA)
5:00	Q&A on nuclear fuel, from cradle to grave (30 minutes)		
5:30	ADJOURN		

Day 4 – Friday 14 August – Advanced Nuclear Power and Nuclear Beyond Electricity

9:00	Advanced fission reactors (1 hour)	What are advanced reactors; how do they differ; why does that matter, and how do they open new markets such as hydrogen production?	Staffan Qvist (Quantified Carbon)
10:00	BREAK		
10:30	Small modular reactors (SMRs) and microreactors (30 minutes)	What makes an SMR what it is; which unique markets they open up; how could they be easier/cheaper to build; how do emergency planning zones (EPZ) shrink	Michael Short (MIT)
11:00	Fusion energy (1 hour)	What is fusion energy; what are its advantages; creating a model for commercialization	Michael Short (MIT)
12:00	Q&A on advanced nuclear (30 minutes)		
12:30	LUNCH (catered group lunch on campus)		
1:30	Applications of nuclear energy beyond electricity (1 hour)	Value of nuclear energy in decarbonizing hard-to-abate sectors beyond electricity generation, examples from desalination to refineries	Malwina Qvist (CATF) and Staffan Qvist (Quantified Carbon)
2:30	Nuclear power for data centers (30 minutes)	The unique pairing of nuclear reactors with data centers and cargo ships as bespoke customers, design challenges and opportunities, economic considerations	Jacopo Buongiorno (MIT)
3:00	BREAK		
3:30	Group discussion (1.5 hours)		
5:00	ADJOURN		