

ROADMAPS TO NEW NUCLEAR: INTERNATIONAL CONFERENCE ON EXCELLENCE IN NUCLEAR CONSTRUCTION

London, United Kingdom
June 18-19, 2025

DRAFT NOTIONAL AGENDA



Background information

Global momentum for nuclear new build

Meeting the objective to triple installed nuclear energy capacity by 2050 will require the deployment of more than 20 GWe per year of new installed nuclear capacity from 2030 to 2050, a level of expansion that was last seen during the construction of the existing nuclear fleets in the 1970s and 1980s.

Driven by climate change mitigation objectives, energy security concerns and growing electricity demand from industrial end-users, plans for nuclear new builds are trending globally. Countries such as Argentina, Bulgaria, Canada, Czechia, Finland, France, Hungary, Italy, Korea, the Netherlands, Poland, Romania, Slovakia, Slovenia, Sweden, Türkiye, the United Kingdom and the United States are setting ambitious goals for new nuclear energy. In 2024, new large-scale reactors were connected to the grid in France, India, South Korea, the United States, and the United Arab Emirates, further demonstrating the global nature of this expansion.

The challenge of construction risks in nuclear projects

Against this backdrop, recent nuclear construction projects in OECD countries have been, in most cases, plagued with significant delays and costs overruns. Whilst some of those challenges could be partly attributed to the difficulties inherent with the deployment of first-of-a-kind reactor designs, they revealed structural challenges across the OECD nuclear supply chain in terms of project management, contractual practices and overall delivery strategy. This is resulting in nuclear new build being perceived as high-risk construction projects where such delays and costs overruns are the norm, not the exception. These construction risks not only have impacts on project timelines and costs, but also influence key stakeholders' confidence, including investors, utilities, prospective end-users, and society more broadly. Mitigating these construction risks is therefore one of the key challenges that governments and industry in OECD countries have to address in order to deliver on their objectives for nuclear new builds.

Towards a practical understanding of the drivers of nuclear projects outcomes

To address these issues, the Nuclear Energy Agency (NEA) will organize the first International Conference on Excellence in Nuclear Construction in London on 18-19 June 2025. This event will bring together not only leaders from the nuclear industry, but also key stakeholders along the nuclear value chain, with a particular emphasis on engineering, procurement and construction (EPC) companies that play a central role for the delivery of nuclear energy projects. Unlike traditional discussions that focus on financing and market conditions, this conference will take an engineering-first approach, exploring the organizational, contractual, and cultural factors that shape project outcomes.

Discussions will address key challenges such as how leadership and frameworks, as well as national conditions and social contracts, influence outcomes of nuclear construction projects. Sessions will examine workforce and industrial culture, highlighting how contracting structures and incentive systems impact efficiency and project success. The event will examine the promises and risks of modularization and innovation, examining why anticipated benefits often fail to materialize and what barriers must be overcome. For all these themes, the event will not only build on insights from recent and ongoing nuclear projects, but it will also provide insights from other infrastructure "megaprojects". Finally, the conference will consider global trade reorganization and shifting geopolitical landscapes, assessing their implications for supply chains, procurement and construction strategies.

This conference will provide a platform for practical, solutions-driven dialogue on making nuclear construction faster, more predictable, and more cost-effective through engineering and project execution improvements.

Programme – 18 June (Day 1)

Arrival and check-in – 08:00-09:00 a.m.

Opening remarks

9:00
(20 min) **Speaker(s)**

Worksite workforce management and culture

9:20
(60 min) Nuclear construction sites bring together many teams from different organizations, with their own expertise, work methods, and culture. The ability of leaders and managers to blend a multitude of teams together, representing thousands of employees, to create the right work culture onsite directly impacts overall project outcomes. Effective contracts and incentives are part of the solution, but in the end, the success of construction projects is about people management. This session will delve into the people and team management challenges that can impact project outcomes.

Speaker

Panellists

10:20
(30 min) Coffee break

Fireside chat – leadership and the social contract

10:50
(30 min) Public perception of nuclear energy influences every aspect of a project, from workforce availability and supply chain partnerships to financing, policy, and regulation. This fireside chat will explore the role of leadership in reshaping nuclear's reputation and strengthening its relationship with workers, suppliers, and the broader public.

Speakers (x2)

Efficient contracts – incentives and issues management

11:20
(60 min) Contract structures influence project outcomes, but no contractual agreement can account for every challenge faced onsite. Risk allocation, inflexible terms, and competing priorities often lead to delays and higher costs. When unexpected issues arise, managing change effectively is necessary to keep projects moving. This session will examine how to structure contracts to align incentives while enabling parties to adapt and handle unforeseen difficulties without disrupting progress.

Speaker

Panellists

12:30
(90 min) Lunch Break

Keynote remarks: lessons from megaprojects

14:00
(15 min) **Speaker**

Construction project management – procurement strategies and supply chain management

14:15
(60 min) Effective procurement and supply chain coordination are essential for keeping nuclear projects on schedule and within budget. Misalignment between project needs, supplier capabilities, and delivery timelines can lead to costly disruptions. This session will explore strategies for improving procurement planning, managing supplier relationships, and using digital innovation to enhance supply chain visibility, mitigate risks, and ensure the right materials and components arrive when and where they are needed.

Speaker

Panellists

15:15
(35 min) Coffee break

Managing global supply chain and trade risks

15:50
(60 min) Shifts in global trade and geopolitics are reshaping supply chains, material availability, and project costs. This session will explore how these changes affect nuclear construction and the strategies that can mitigate disruptions. A panel will also discuss the balance between standardization, localization, and supply chain resilience.

Speaker

Panellists

Programme – 19 June (Day 2)

Arrival and check-in – 08:00-09:00 a.m.

Keynote remarks

9:30
(20 min) **Speaker**

Digital innovation for managing construction

9:50
(60 min) Advancements in digital tools are transforming how nuclear projects are planned, monitored, and executed. From real-time data tracking to AI-driven decision support, these technologies offer new ways to improve efficiency and reduce delays. This session will examine how digital innovation is being applied in construction and what it takes to integrate these tools effectively on complex projects.

Speaker

Panellists

10:50
(30 min) Coffee break

Fireside chat with nuclear safety regulators

11:20
(30 min) **Speaker (x2)**

12:00
(90 min) Lunch Break

Promising new construction methods

13:30
(60 min) The nuclear industry is exploring innovative construction techniques to address longstanding challenges like cost overruns and schedule delays. New construction methods, such as advanced prefabrication and additive manufacturing, have the potential to streamline processes and improve project outcomes. This session will focus on these emerging approaches, assessing their feasibility, advantages, and challenges in real-world applications.

Speaker

Panellists

14:40
(30 min) Coffee break

The promise and reality of modularization and other innovative construction methods

15:10
(60 min) Modularization and innovative construction methods offer the potential for faster, more efficient nuclear projects, but they also introduce risks. While these approaches may improve cost and schedule performance, their implementation can create unforeseen challenges, including integration issues and quality control concerns. Effective change management can help to mitigate risks and enable the successful integration of those innovation construction methods for nuclear projects. This session will examine both the potential benefits and risks of modularization and innovation, as well as on practical strategies for incorporating new methods into nuclear construction.

Speaker

Panellists

Closing remarks

16:10
(20 min) **Speaker(s)**