Reuters Events

SMALL MODULAR REACTORS AND ADVANCED REACTORS: ASSESSING COMMERCIAL DEPLOYMENT READINESS AND INDUSTRY CHALLENGES

CONTENTS

FOREWORD

Driven by sustainability imperatives, surging electricity demand from data centers and AI, and technological advances in Small Modular Reactors (SMR) and Advanced Reactors (AR), nuclear power is experiencing a resurgence as a reliable, carbon-free energy source. This shift is evident in rising investments, particularly from Big Tech companies seeking greener baseload power.

To understand industry sentiment at this critical juncture, we surveyed 197 SMR/AR professionals to capture industry perspectives on SMR/AR commercial deployment prospects, key drivers and barriers.

Respondents are split on SMR/AR deployment leadership: 37% expect the US & Canada to lead, while another 37% expect China to dominate by 2035. Corporate demand from Big Tech and data centers (63%) and a successful demonstration of the first commercial project (53%) emerges as the top deployment drivers.

However, regulatory approval processes (49%) and first-of-a-kind (FOAK) project risks (45%) remain significant barriers. Aligning with these barriers, our respondents flagged the top two factors to help their organizations advance on their objectives to be government policy support and incentives (57%) and regulatory clarity with streamlined approvals (50%).

The nuclear power generation industry stands at an inflection point. Big Tech's entry, government support, and technological advances create unprecedented opportunities. Whether the industry achieves commercial-scale deployment by 2035 depends on the industry's ability to navigate the challenges and deliver projects on time and in budget.

Continue to read on to see the rest of the findings, we hope the findings from this report will provide valuable information and can help you make informed decisions within your own organization.

ACTIONABLE INSIGHTS

Our respondents are cautiously optimistic; more than half assess that there is a 60% or higher chance that the SMR industry would be able to achieve commercial deployment at scale (>5 GW globally) by 2035.

Light water reactors emerge as the top technological approach that would provide the best prospects for widespread commercial deployment.

The US & Canada and China are leading the charge for global deployment.

Demand from Big Tech and data centers and a successful first commercial project are the top drivers for deployment.

The three primary barriers limiting greater SMR/AR deployment are regulatory approval processes, FOAK risk and lack of precedent, and access to capital.

Supply chain dependencies and geopolitical risks are a moderate-high concern for respondents.

Government support and incentives and regulatory clarity were the top two factors that will help organizations advance on their objectives.

ACHIEVING DEPLOYMENT AT SCALE BY 2035

Nuclear power is gaining renewed momentum, driven by rising electricity demand from data centers, decarbonization goals, and advances in SMR/AR technologies. Achieving commercial deployment by 2035 is critical to meet net-zero targets, avoiding long-term reliance on fossil fuels. Timely rollout will attract more investment and position nuclear energy as a key pillar for clean energy moving forward.

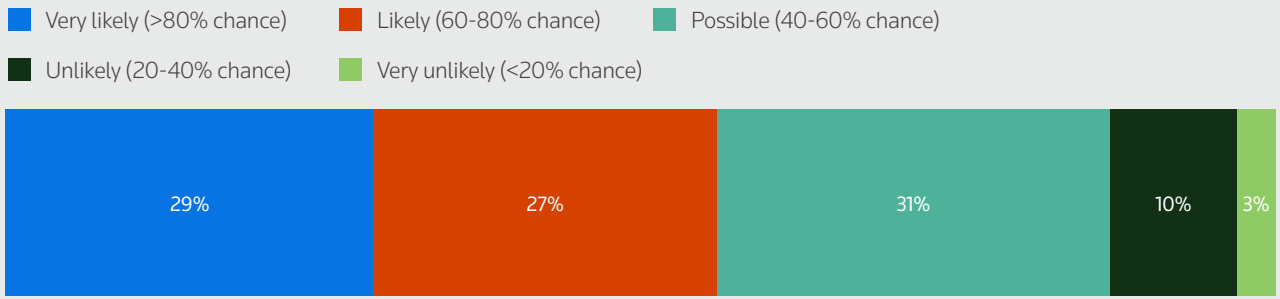
Respondents are cautiously optimistic about achieving commercial-scale deployment (>5 GW globally) by 2035, with 56% assessing the likelihood at 60% or higher. However, 31% view this outcome as merely possible (40-60% chance), while 13% consider it unlikely (<40% chance).

Technology diversity presents both opportunities and challenges. Multiple competing designs, with their own advantages and trade-offs, may fragment resources and slow standardization.

FIGURE 1

More than half of respondents consider it likely or very likely the SMR/AR industry will achieve commercial deployment at scale over the next decade.

What is your assessment of the SMR industry's likelihood of achieving commercial deployment at scale (>5 GW globally) by 2035?



Total sample - n=183

Reuters Events' SMR and Advanced Reactor 2026 survey

When asked which technology approaches have the best commercial prospects, light water reactors dominate at 58%, followed by molten salt reactors (36%) and microreactors (34%).

This dominance of light water reactors may reflect the industry's comfort with designs that are simpler, cost-effective and already established. Nevertheless, 26% state they are "technology agnostic" about design approaches for widespread commercial deployment, indicating recognition that different applications may favor different

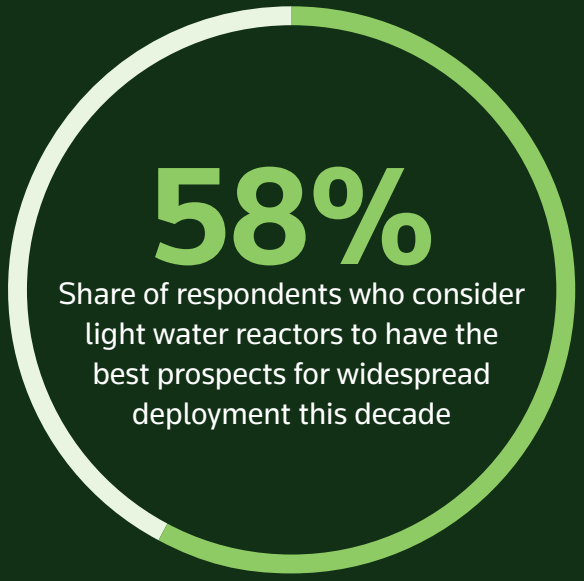
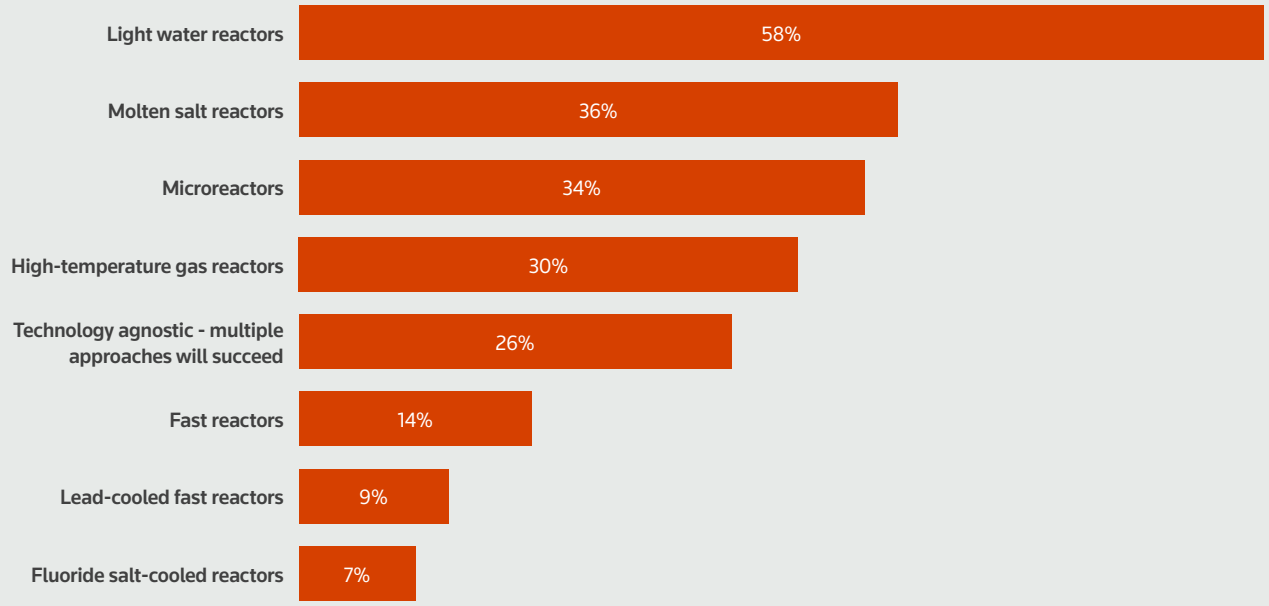


FIGURE 2

Over half of professionals (58%) selected light water reactors as the best SMR/AR approach.

Which three SMR / advanced reactor technology approaches do you believe has the best prospects for widespread commercial deployment by 2035?



Total sample - n=176

Reuters Events' SMR and Advanced Reactor 2026 survey

REGIONAL DEPLOYMENT OF SMR/AR BY 2035

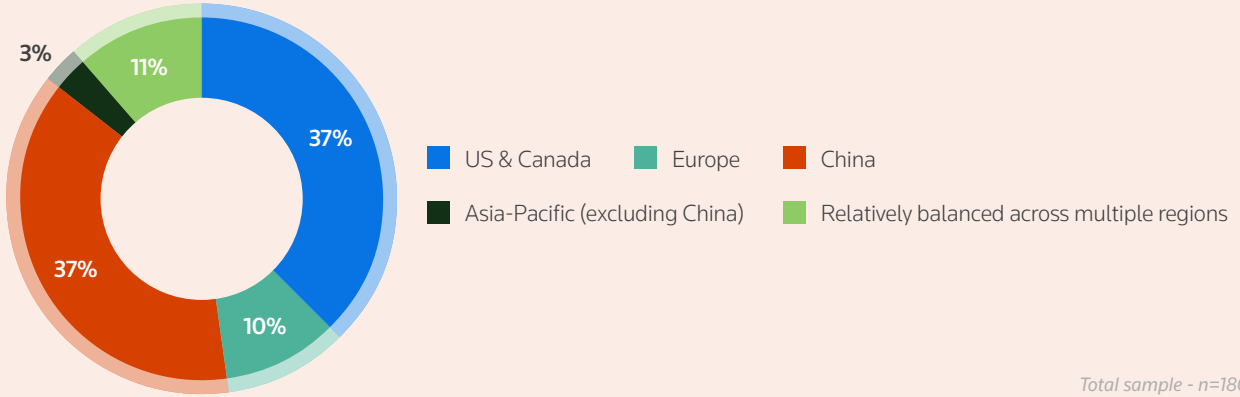
For commercial deployment, there is clearly a two-horse race with the US & Canada and China tied at 37% each as expected deployment leaders, while Europe and Asia-Pacific (excluding China) fall short at 10% and 3% respectively. Only 11% expect relatively balanced deployment across regions.

China's HTR-PM achieving commercial operation generated mixed reactions: 27% view it as positive validation of SMR commercial viability. However, 26% see it as validating technology while creating competitive pressure and 17% find the development concerning as it is evidence of China's technological leadership of the industry.

FIGURE 3

The SMR/AR industry is split over who will lead the race for SMR/AR capacity by 2035.

Which region do you expect will deploy the most SMR/advanced reactor capacity globally by 2035?



Total sample - n=180

Reuters Events' SMR and Advanced Reactor 2026 survey

FIGURE 4

The nuclear industry has offered a mixed reaction to China's HTR-PM achieving commercial viability.

How do you view China's HTR-PM achieving commercial operation as the world's first land-based commercial SMR?

Total sample - n=172

Reuters Events' SMR and Advanced Reactor 2026 survey

DRIVING FACTORS FOR DEPLOYMENT

Surging electricity demand from AI and cloud computing has driven Big Tech companies to invest billions in nuclear energy. Sixty-nine percent of respondents rate Big Tech's entry as "game-changing" or "very significant," fundamentally altering the industry's trajectory.

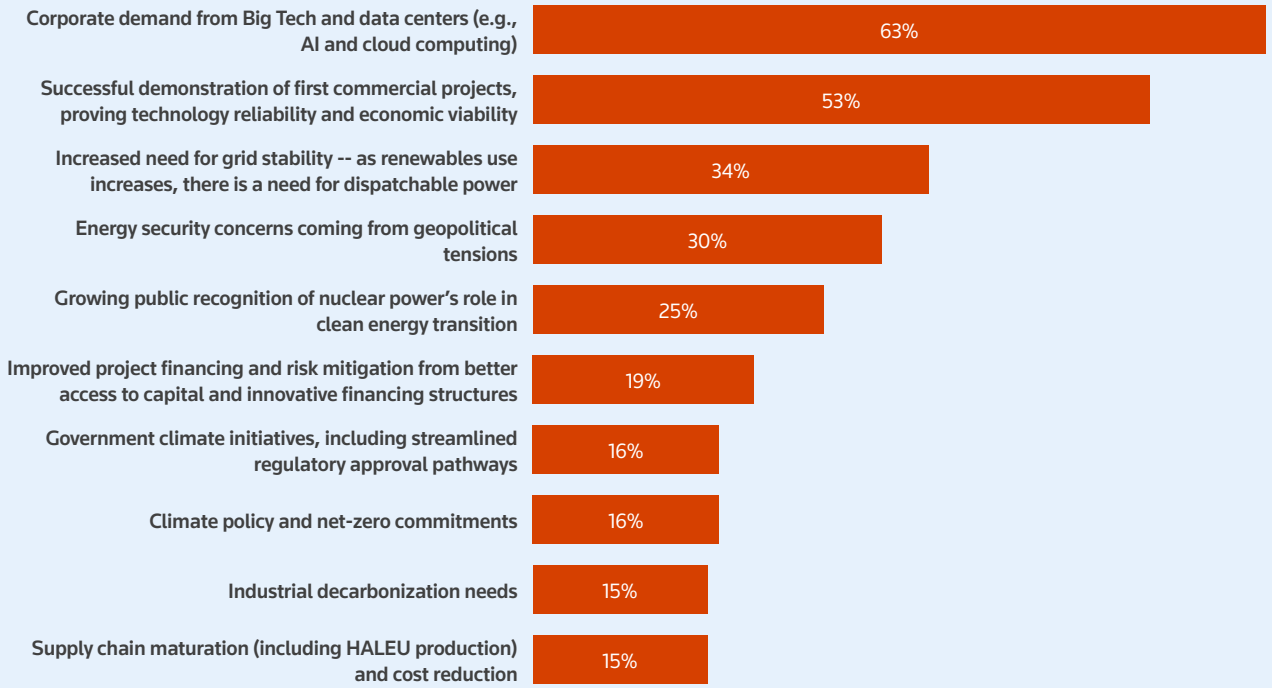
Nearly two-thirds (58%) of respondents expect that, by 2035, data centers and high-tech facilities will be the nuclear power application that drives the largest SMR/AR market segment. Big Tech brings creditworthy offtakers willing to sign long-term power purchase agreements, patient capital that can absorb FOAK risk, and sustainability commitments that justify premium pricing for carbon-free electricity.

This is all consistent with our findings from Figure 5 which explore the main drivers for SMR/AR deployment growth in the next five years. Corporate demand from Big Tech and data centers tops the list at 63%, followed by a successful demonstration of the first commercial project (53%), which highlights the importance for success of projects like TerraPower's Natrium, X-energy's Xe-100, and Kairos Power's Hermes to secure follow-on investment.

FIGURE 5

Future SMR/AR deployment will largely be driven by surging energy demand from Big Tech.

What do you see as the three biggest drivers for SMR/advanced reactor deployment growth in the next five years?



Total sample - n=178

Reuters Events' SMR and Advanced Reactor 2026 survey

LIMITING FACTORS FOR DEPLOYMENT

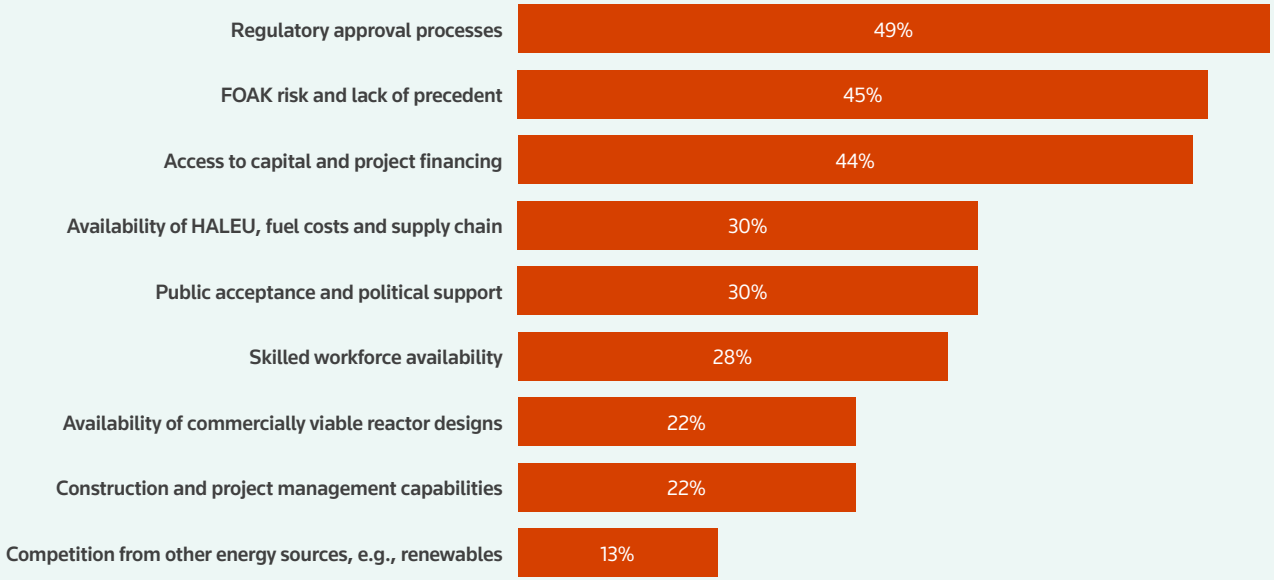
Despite factors driving deployment, there are also challenges. The biggest factors limiting greater SMR/AR deployment are: regulatory approval processes (49%), FOAK risk and the lack of precedent (45%), and access to capital and project financing (44%). These three factors may be interlinked for lenders. They will charge more due to FOAK risks or be reluctant to fund altogether, which will impact financing. In addition, unclear or slow regulatory approvals means there could be project delays, which may also add to costs.

Despite ranking as the top barrier, 50% of respondents rate the regulatory environment of their primary market as supportive, though 31% characterize it as challenging. Although under half of our respondents (45%) said FOAK risks were the second highest factor for limiting deployment, FOAK risks and learning curve costs were thought to be the most significant financial risk for SMR/ARs (73%).

FIGURE 6

Regulatory approval, FOAK risk and access to capital are prohibiting greater SMR/AR deployment.

What do you think are the three biggest factors limiting greater SMR/advanced reactor deployment in nuclear power generation?



Total sample - n=179

Reuters Events' SMR and Advanced Reactor 2026 survey

FACTORS WHICH WILL HELP ORGANIZATIONS ADVANCE ON OBJECTIVES

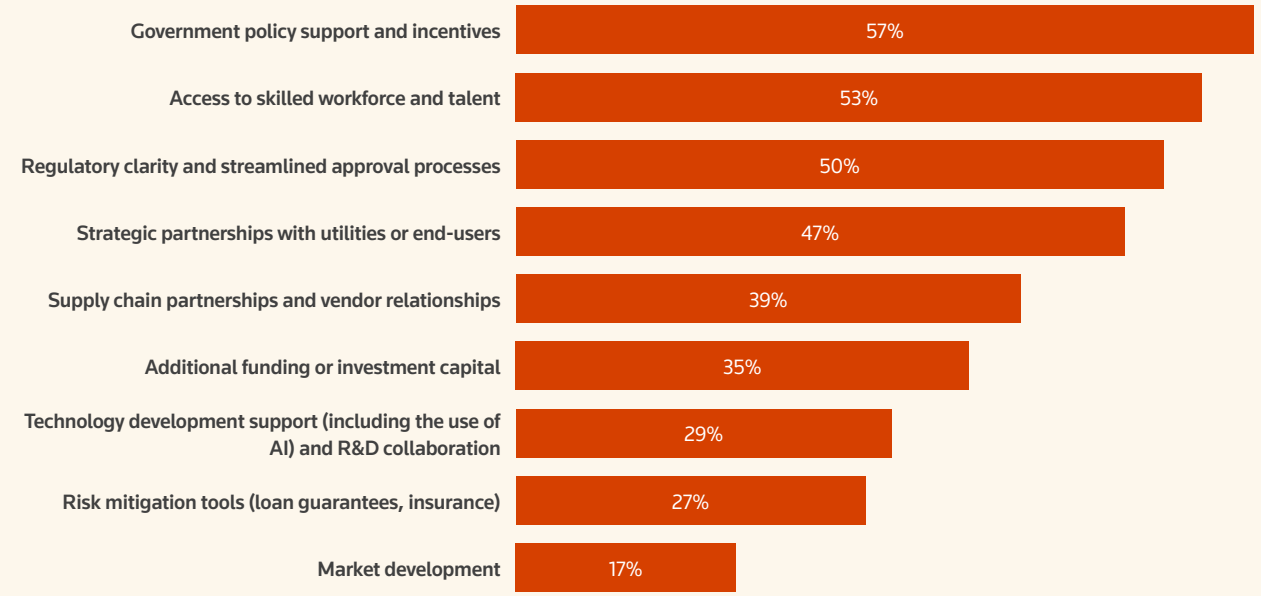
Considering the challenges mentioned, we asked our respondents what would best advance organizational objectives over the next three years. Respondents prioritized government policy support and incentives (57%) and regulatory clarity with streamlined approval processes (50%), making it clear that regulatory reform remains the our respondents' top priority.

Strategic partnerships with utilities or end users (47%) as well as supply chain partnerships and vendor relationships (39%) also rank highly, reflecting recognition that deployment requires value chain alignment.

FIGURE 7

SMR/AR developers expect government policy, regulatory clarity and more skilled labor to help the sector grow in the short term.

Thinking about your organization specifically, which of the following would best help advance its objectives in the next three years?



Total sample - n=171

Reuters Events' SMR and Advanced Reactor 2026 survey

METHODOLOGY

The *Reuters Events' SMR and Advanced Reactor 2026 survey* was conducted in Q3 2025. The survey engages with professionals from a range of organizations including reactor developers, utility, engineering/construction, government/regulatory, financial/investment, technology providers, data centers or research/academics.

A total of 197 respondents participated in the survey. Over half (52%) of respondents were based in US & Canada, 33% in Europe, 6% in Central & South America, 4% in Asia, 3% in Africa, 2% in the Middle East and 1% in Australasia.

The data was gathered through web surveys which were designed and implemented following strict market research guidelines and principles. For data analysis, significance testing at 95% confidence intervals was conducted. However, there might be limitations where the survey cannot represent an overview of the views of the whole SMR/AR industry; the representativeness might be limited for certain regions.