Reuters Events

Post-Event Report

MODULAR REACTOR LEADERS PLOT ROUTE TO MARKET AT **SMR & ADVANCED REACTOR 2026**

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Contents

Prospect of nuclear renaissance grows as plans for small modular reactors mature 3

SMR developers chase new sources of finance while government seeks wider risk allocation 5

A new generation of nuclear plants sparks debate on future reactor ownership models 7

US nuclear developers look to standardize designs and wrest fuel control from Russia 9

Regulators go from blockers to enablers in global bid to scale up new nuclear capacity 11

SMR innovation could spell growth, but is the workforce and supply chain prepared for it? 13

Fundamental challenges remain unsolved as SMR makers move towards project execution 15

References 16

INTRODUCTION

Prospect of nuclear renaissance grows as plans for small modular reactors mature

Hopes for a nuclear power renaissance drew closer to reality as industry leaders discussed project implementations at Reuters Events' SMR & Advanced Reactor 2026 conference.

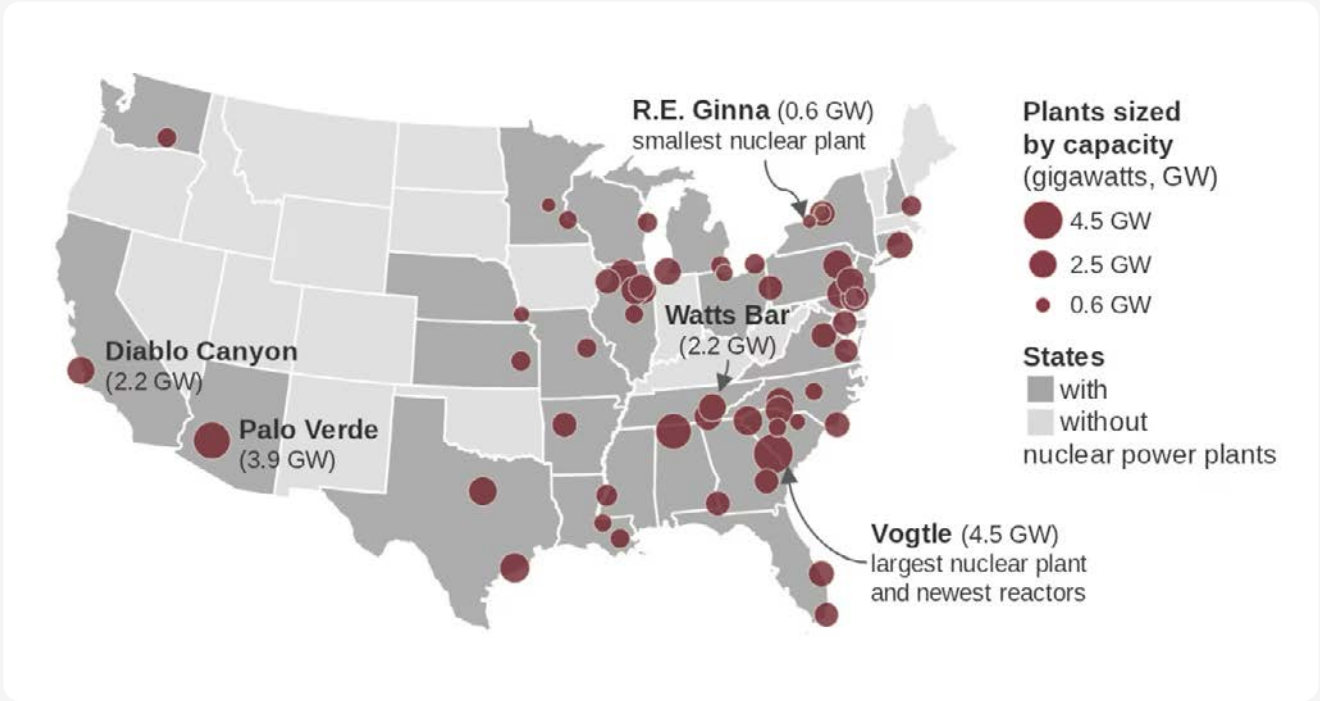
Buoyed by the launch of two new units at the Vogtle plant in eastern Georgia and plans to restart old plants including Palisades in Michigan, experts at the event in Austin, Texas, were keen to highlight near-term deployment plans after three decades of industry stasis in the United States.

"There are actually six active combined operating licenses in the U.S. where you could theoretically start construction today," said an industry source at the conference, speaking under Chatham House Rule.

Four of these are for Westinghouse Electric Company's AP1000 reactors and two are for Economic Simplified Boiling Water Reactors designed by GE Vernova Hitachi Nuclear Energy, they said.

And the U.S. Nuclear Regulatory Commission (NRC) "released a paper a few weeks ago where they said if you want to swap in another technology, they will reduce their review timeline down to as far as 12 months," they added.

US nuclear power plants



Source: U.S. Energy Information Administration.[1]

The industry is particularly keen to push ahead with the development of small modular reactors (SMRs), which are expected to bring down nuclear plant costs and deployment times but have yet to be built outside China and Russia.

Growing momentum behind U.S. SMR commercialization was exemplified by Terra Innovatum, a relative newcomer to the industry that is already planning to build 400 of its SOLO micro-modular reactors between 2028 and 2030.

The company is banking on regulatory advances such as Part 53, a new licensing pathway for SMRs that came into effect on April 29, to smooth the path to market for its reactors, which produce 5 megawatts of thermal and 1 megawatt of electric power apiece.

Each reactor should cost $17.5 million to build and will require three $6 million core swaps throughout its 45-year operating life, yielding a final energy cost of seven cents per kilowatt-hour, company executives said.

Terra Innovatum already has 200 orders for data centers and industrial facilities, they said, with partnerships in place with Ameresco, Nvidia, Vertiv and Unity and funding raised through a special purpose acquisition company.

Prospects for a nuclear revival were further strengthened by the news that the U.S. Department of Energy had selected LIS Technologies to supply enriched reactor fuel over the next decade, using a technique called Future Uranium Enrichment with Lasers first tested at Oak Ridge, Tennessee.

The technique is touted as having lower costs than traditional ways of producing Low Enriched Uranium (LEU) and High-Assay Low-Enriched Uranium. "It was demonstrated in the 1980s and 90s," said Christo Liebenberg, LIS Technologies president, co-founder and chief technical advisor.

"It can do LEU in a single stage, from natural to almost 5% in one step. We're bringing this old technology back to life through a phased approach."



FINANCING AND RISK ALLOCATION

SMR developers chase new sources of finance while government seeks wider risk allocation

The nuclear industry is exploring novel funding models to avoid cost overruns as the U.S. aims to install 400 gigawatts of new capacity by 2050. Speakers at SMR & Advanced Reactor 2026 mentioned the first units of a new generation of SMRs will be "expensive and hard" to build.

And the U.S. government is keen to avoid a repeat of what happened with the country's two most recent nuclear projects, Vogtle 3 and 4, which came online after years of delays and went billions of dollars over budget.[2]

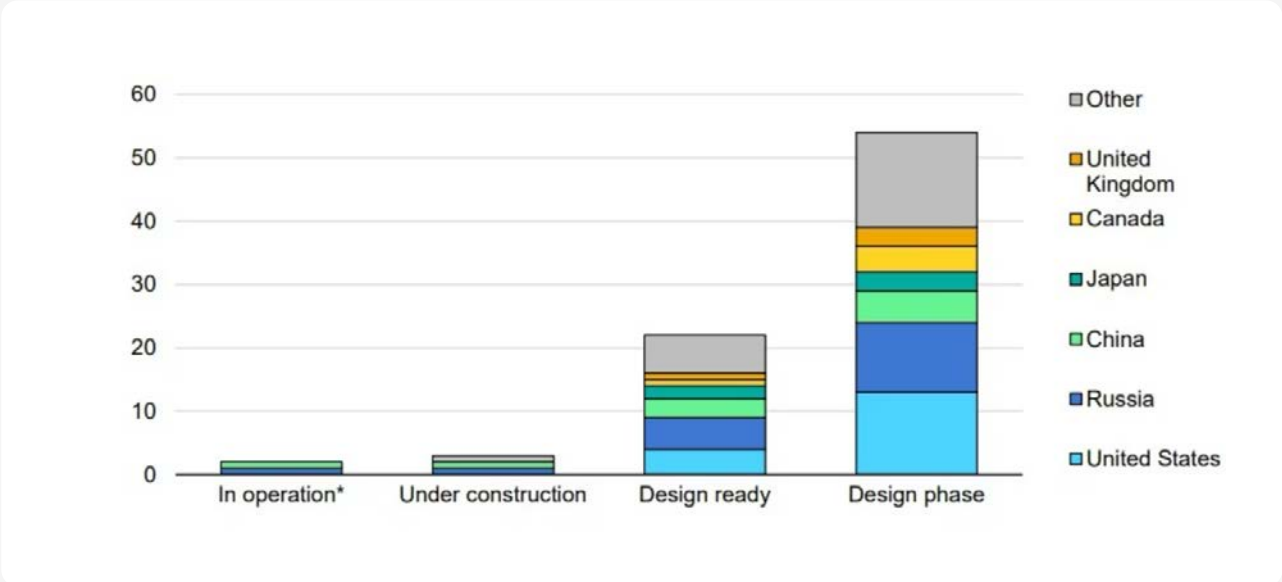
"That started out in 2011-12 as a $2 billion loan and became a $16 billion or $17 billion loan over six years or more," said Julien Tizorin, managing director and head of power and new energy at Credit Agricole CIB. "The backstop for that deal were the ratepayers of Georgia, literally."

The Vogtle experience could lead administrations to shy away from rate-based financing models and instead spread risk across developers, utilities and financial institutions.

Traditional regulated utility financing is also seen as being too time-consuming for U.S. nuclear goals, with public utility commission decision making typically taking three to five years on top of the 10 to 15 years required for construction permits from the NRC.

Because of this, the first U.S. SMRs could end up being supported through mechanisms such as power-purchase agreement extensions and offtaker backstops, with financing packages aligned to the interests of sustainability-focused funds and infrastructure investors.

Small modular reactors by country



Source: International Energy Agency (IEA).[3]

Nevertheless, speakers at SMR & Advanced Reactor 2026 recognized the need for public finance instruments such loan guarantees in de-risking first-of-a-kind projects, particularly for modular reactors where there is still no supply chain to speak of.

The U.S. Department of Energy's Office of Energy Dominance Financing, previously known as the Loan Programs Office, helped fund the Vogtle plants and is understood to be considering billions of dollars in finance for nuclear plant parts.[2]

Meanwhile, state administrations are also making money available for nuclear development. Texas, for example, created an Advanced Nuclear Energy Office in 2024 with $350 million in grants.

"Part of our legislation included what's called the completion bonus grant program," said Elisa Gleeson, the office's deputy director. "What that will do is give a dollar amount per megawatt basis for generation capacity of an advanced nuclear reactor."



PARTNERSHIPS, OWNERSHIP MODELS AND PROJECT DELIVERY

A new generation of nuclear plants sparks debate on future reactor ownership models

The traditional utility-based model of nuclear plant ownership is under review as developers rush to build a new generation of reactors.

Spooked by the cost overruns and delays seen at recent nuclear projects such as the two latest reactor builds at Vogtle, Georgia, electric utilities are pushing to spread risks associated with upcoming SMR construction through joint ownership and integrated project delivery (IPD) models.

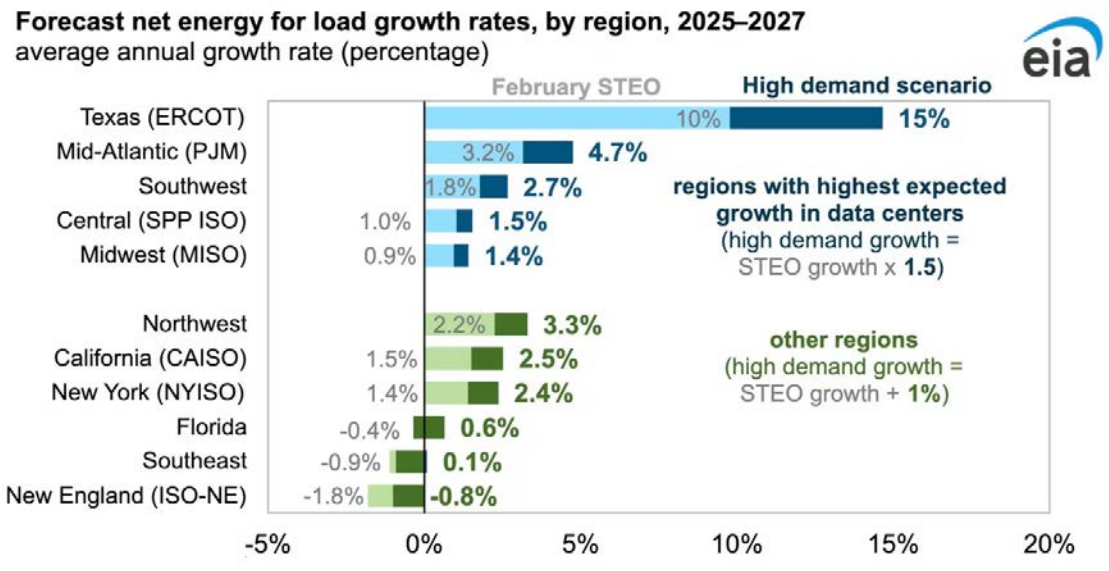
The trend could see SMRs being majority-owned by developers, investors and/or offtakers such as hyperscale data center operators, with utilities acting as partners that can provide operating expertise.

Hyperscalers are particularly keen to fund nuclear construction because of growing energy demands linked to AI.

"I think that you could see cases where you get some investors that decide they're going to go build a nuclear plant," said Glenn Davis, senior energy advisor at the West Virginia Office of Energy, during SMR and Advanced Reactor 2026.

"Maybe you're willing to take a 10% or 20% stake in a plant that you're not operating. You bring in somebody that is that expert operator, that operates large fleet of nuclear plants, and then the numbers work."

Forecast power demand growth by US region



STEO = EIA's Short-Term Energy Outlook. Source: U.S. Energy Information Administration (EIA), February 2026.[3]

Regardless of ownership, SMRs will require a high level of stakeholder coordination and alignment because of the risks involved. Hence the focus on IPD, which is "not simply about collaboration," according to Davis. "It's about aligning incentives and responsibilities up front."

Developers such as Blykalla of Sweden are negotiating with multiple stakeholders across the value chain to shorten deployment times amid heightened power demand and U.S. federal interest in building new plants.

"A project isn't only a developer and a design," said Emily Bolon, Blykalla's chief operating officer. "It's a chain of dependencies among customers, capital, suppliers, builders, regulators, communities and sites. And if one of these links stays weak, the whole project can just remain a slide deck, basically."

As well as lining up stakeholders for first-of-a-kind projects, the SMR community is aiming to ensure multiple units can be delivered in short order.

Without repeat projects, SMRs are unlikely to achieve the cost reductions required for the technology to be competitive with other sources of low-carbon generation.

This point has already become apparent in refurbishment projects for existing plants, according to Aaron Johnson, senior vice president of nuclear at the Canadian construction and infrastructure development company Aecon.

"In six of the 14 reactor rebuilds we're doing in Canada right now, we've gotten better unit over unit just because we've just had repetitions," he said. "We've been better, faster, cheaper, with higher quality and better safety, every single unit. And that's what we need to get to for new build as well."



SUPPLY CHAIN, FUEL CYCLE AND STANDARDIZATION

US nuclear developers look to standardize designs and wrest fuel control from Russia

The U.S. is looking to more than quadruple its installed nuclear power capacity by 2050—but the plan faces a couple of important challenges. One is that most of the new capacity will come from mass-produced SMRs that have still not even been built as single units.

And the other is that the fuel for these reactors will mostly be in the form of High-Assay Low-Enriched Uranium (HALEU), which at present is almost exclusively produced in Russia—a less-than-ideal trading partner since the start of hostilities in Ukraine.

To address the first issue, the nuclear industry is aiming to standardize component manufacturing so SMRs can be built in a cookie-cutter fashion, avoiding the one-of-a-kind issues that have led to massive budget and schedule overruns on recent large-scale reactor projects such as Vogtle.

Developer Nano Nuclear Energy hopes to build 100 of its Kronos microreactors per year after the planned commercial deployment of a first unit at the University of Illinois in 2030.

"Getting that one out there might be important, but obviously getting many out there is really going to be the crucial component of whether the industry succeeds as a whole," said CEO James Walker at SMR & Advanced Reactor 2026.

"The standardization and modularization of the reactor systems is ultimately a big part of that."

Completing a demonstration unit will mean "a lot of the teething issues of the reactor system have already been examined and the construction or assembly process has been more streamlined and de-risked," he said.

Uranium concentrate production in the United States



** In million pounds of Triuranium Octoxide. Source: U.S. Energy Information Administration.[4]*

But even if reactor production can be scaled up as intended, there is still the problem of where to find fuel.

In the 1990s, the U.S. Megatons to Megawatts Program encouraged Russia to convert excess weapons-grade uranium into LEU and HALEU, flooding the market and stifling refining investment elsewhere.

Russia is now the world's only commercial HALEU producer but will be banned from exporting the fuel to the U.S. from 2028, with strict annual limits already in place. With most SMRs designs relying on HALEU, the race is on to create U.S.-based enrichment facilities.

To this end, in February 2026 the federal government handed out $900 million apiece to General Matter and Centrus Energy subsidiary American Centrifuge Operating, for HALEU production facilities in Kentucky and Piketon, Ohio, respectively.[5]

"Late last year we announced that centrifuge manufacturing has begun," said Michael Dubreuil, managing partner at project management services provider PTAG, which is involved in the Centrus deal.

"We're looking forward to the first centrifuges coming out of Oak Ridge later this year, to be shipped to Piketon to commence with uranium enrichment operations in 2029."



REGULATION, LICENSING AND POLICY

Regulators go from blockers to enablers in global bid to scale up new nuclear capacity

Nuclear regulators are throwing off decades of rule tightening as nations strive to meet growing demands for electricity to power AI data centers.

In the U.S., where only three reactors have come online since the start of the millennium, three major regulations are being fast tracked to comply with a May 2025 executive order in which President Trump mandated the NRC to approve new reactor designs within 18 months.

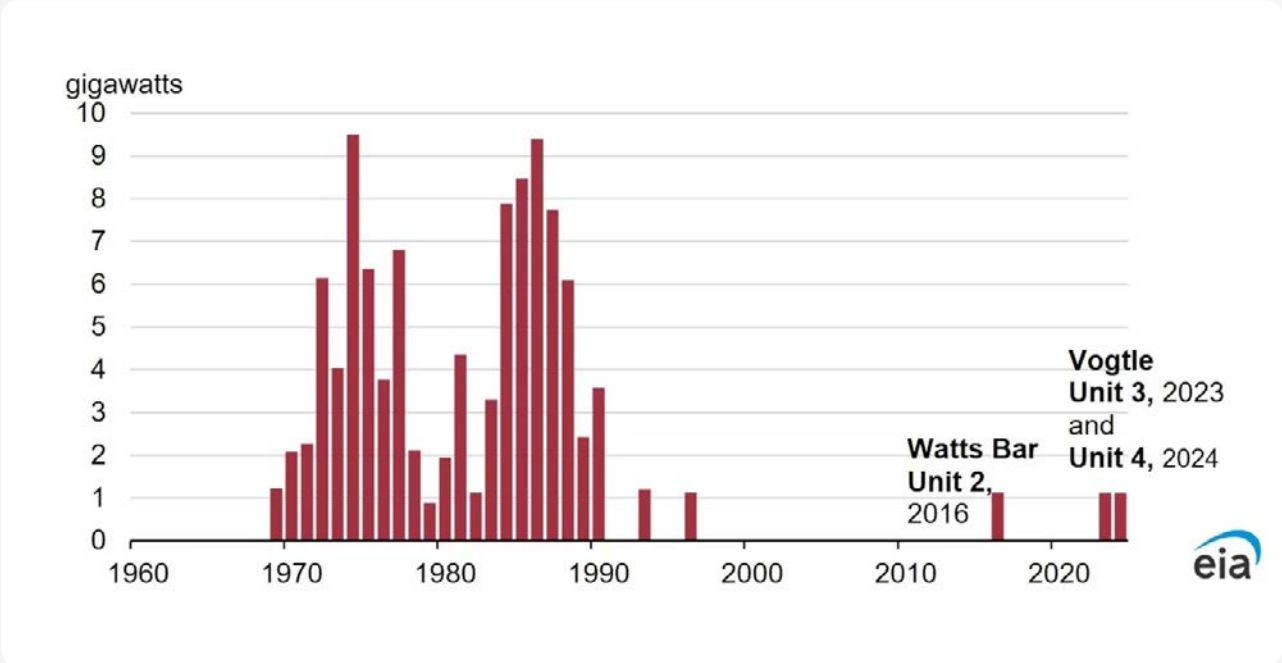
They include a rule to expedite designs already tested by the Department of Energy and Department of Defense, a new licensing pathway for SMRs, called Part 53, and a regulatory framework to approve microreactor licenses within 12 months, called Part 57.

"There is a theoretical pathway to getting in the door and getting your operating license within six months," said Mike King, the NRC's executive director for operations, at SMR & Advanced Reactor 2026.

"You'd have to have all your supply chain lined up, the designs nailed down, the site selection and all that in place. But that's a game changer compared to where we were just three or four years ago."

In the UK, meanwhile, Great British Energy-Nuclear, a government-owned organization focused on coordinating and advancing the nuclear energy sector, is working with the Office for Nuclear Regulation to smooth the path for new reactor construction.

Annual US nuclear power installations



Source: U.S. Energy Information Administration (EIA).[6]

The collaboration includes seconding staff from the ONR and the UK Environment Agency into Great British Energy-Nuclear.

"The ones that were in the organization have now gone back to the regulator with a better understanding of what we're trying to do and why it's important," said Brian Robinson, Great British Energy-Nuclear's chief technology officer.

UK authorities are exploring opportunities for sharing manufacturing, fuel and expertise across the defense and civil nuclear industries, he said. And Great British Energy-Nuclear is playing an active role in the development of SMRs.

"We've taken the position that we don't think new nuclear will be attractive in the UK [to] private finance until the risk profile is much more reasonable than what it is now," Robinson said.

"So for our first SMR project we're building three units and we've bought a site, we've run a technology selection to pick a technology that we believe can credibly be delivered."

Back in the U.S., some developers are going even further to minimize regulatory risk. Blue Energy and First American Nuclear, for instance, are building plants with conventional turbine systems to use gas generation as a bridge to profits before moving on to nuclear.

And Geenex is using a technology-agnostic approach to site selection on the PJM Interconnection grid, with the intention of installing anything from AP1000s to as-yet-untested fusion reactors.

The company used to develop photovoltaic plants but pivoted to nuclear two years ago as solar power's growing dominance on the PJM network caused the technology's effective load carrying capability to decline.

"Solar has a low ELCC rating and it was moving downward, yet it was what was in the bulk of the queue," said Geenex CEO Emily Williams. "You'll see there's every type of generation resource except for nuclear, and we saw that was a big miss."



WORKFORCE, TECHNOLOGY INNOVATION AND DEPLOYMENT READINESS

SMR innovation could spell growth, but is the workforce and supply chain prepared for it?

The nuclear industry is set to become a hotbed of innovation as a new generation of small modular reactors comes to market. But there are questions over workforce and supply chain readiness as the industry prepares for a massive scale up in capacity.

SMR developers hope to capture an important slice of global power markets through novel reactor designs that simplify deployment and help cut costs, allowing new nuclear plants to compete with traditional generation technologies.

UK-based Rolls-Royce SMR, for example, is hoping to overcome site-specific seismicity issues with an aseismic bearing system that can be tuned to site conditions and will act as a standard platform for reactor modules.

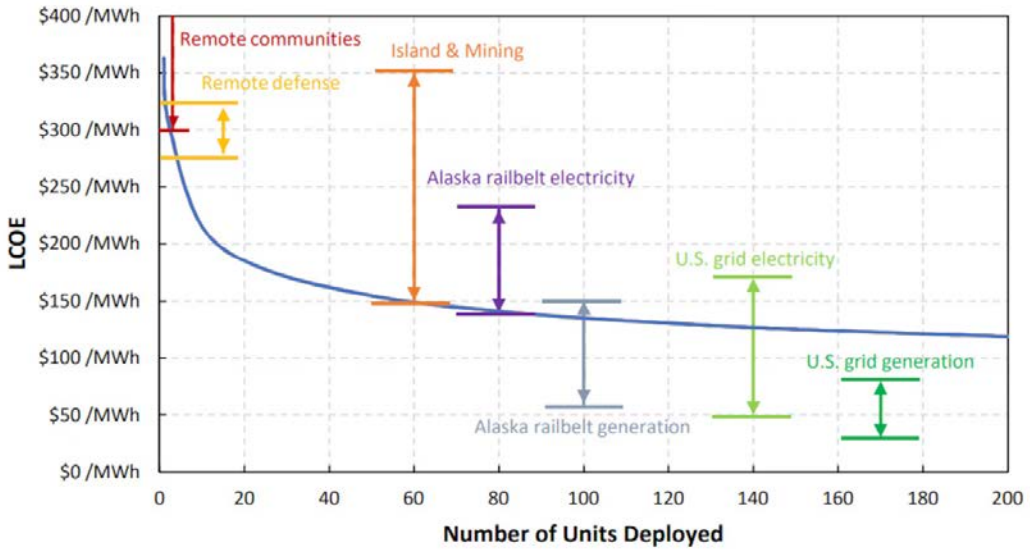
"It enables those modules to be the same for every single power plant," said Harry Keeling, the company's head of business development.

Another Rolls-Royce SMR innovation is a reusable factory structure that can be used to mitigate the impact of adverse weather on site. "Even in the UK we can lose 20% of an annual program due to wind preventing crane lifts," said Keeling.

"For any kind of infrastructure project there's a lot of crane lifts, so that gives us hugely more confidence around the schedule of our program."

Elsewhere, speakers at SMR & Advanced Reactor 2026 indicated that up to 90% of nuclear plant components could

Break-even point to be competitive across different markets



Note: For a heat-pipe microreactor concept. LCOE = levelized cost of energy. Source: Idaho National Laboratory, 2021.[7]

§be standardized across leading technology developers such as NuScale and X-Energy.

This standardization is needed to prompt investment in a supply chain that is currently insufficient to support planned nuclear buildouts. In the U.S., Duke Energy is looking to add 11 gigawatts of generation in the Carolinas alone.

This equates to 143 NuScale Power Modules or 138 X-Energy Xe-100 reactors. While Duke Energy has not selected a reactor vendor yet, it is planning to standardize on a design. "We're thinking fleet now from the very beginning," said Angela Buckhart, new nuclear engineering director.

Further scale could result from regulatory alignment across markets.

"One of the things we're looking to do to help with the deployment of projects is simplifying our regulatory picture and bringing greater alignment between the UK and in the US by the end of 2027," said Andrew Cooke, deputy director of the UK Department for Energy Security and Net Zero.

As well as scaling up supply chains, SMR developers will need to attract new talent, experts said. This will not only mean recruiting school leavers and graduates but also bringing in 30-to-40-year-old workers from other industries.

Yet until SMR projects are developed and funded, with clear demand signals, the risk of workforce and supply chain bottlenecks will persist.



CONCLUSION

Fundamental challenges remain unsolved as SMR makers move towards project execution

Speakers at SMR & Advanced Reactor 2026 agreed that conditions for the industry are now about as good as they can get. "We're having three massive stars aligning for nuclear, which hasn't been the case in the past," said Assil Halimi, CEO of reactor developer Apollo Atomics.

"The price of electricity in the past five years has escalated by 5% per year, which is double the rate of inflation. We have examples where nuclear has been a solution to decarbonize grids. And for the first time, there are countries outside of the United States building and designing the technology."

Despite this, the fundamental promise of SMR technology—that modular design can yield economies of scale and bring down costs—remains untested.

And this question is unlikely to be answered even when the earliest SMRs are commissioned, given the significant expense required to bring a first-of-a-kind reactor to market.

The Canadian state of Saskatchewan, for instance, expects to pay up to around C$7 billion for an SMR project using GE Vernova's 300-megawatt BWRX-300 reactor, with a final investment decision likely between 2029 and 2030.

"There's a lot of enthusiasm around what might happen and what people are committed to having, but nuclear is a significant investment for a state," said David Brock, vice president of nuclear development at the Saskatchewan utility SaskPower.

"Attracting investors to put money in when they're looking for a guaranteed rate of return on something the size of nuclear requires some consideration by the government as to whether they're going to keep that same system for setting rates, at least as it relates to nuclear power," he added.

"I can tell you that talking about taking power away from a government is a challenging conversation to have."

While there is some evidence to support the SMR cost-reduction thesis, with budget requirements at the Vogtle plant dropping by up to 30% between units 3 and 4, "Historical data shows that even with standardized reactor designs, nuclear construction costs continued to escalate," Halimi said.

"You need not only to have the same design—you also need to have an identical site, the same regulatory process, the same management, identical and competitive supply chain. And when you meet this, typically you see cost reductions."

Complicating matters further, according to Brock, is the fact that developers seem less keen to share experiences as concern over intellectual property grows.

This at least is one area that the industry can address in 2027, when Reuters Events will be bringing experts together for another leading conference.

SMR & Advanced Reactor 2027 will take place in Austin, Texas, on May 1vand 12. See events.reutersevents.com/nuclear/smr-usa for details.

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