Making investment in the nuclear value chain attractive

Identifying needs, addressing risks, unlocking opportunities

November 2025

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Summary

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Foreword

To meet the capital demands of deploying substantial new nuclear capacity, the industry must rebuild investor confidence.

The nuclear sector is slated to double its capacity from approximately 420GWe to approximately 820GWe over the next 25 to 50 years to support the wider energy transition, industrial competitiveness and sovereignty of the growing world economy. The expansion will prioritize the life extension of existing facilities as the most cost-effective option for preserving capacity, complemented by new construction projects involving both large-scale and small modular reactors (SMRs). This growth is expected to be primarily driven by China and other advanced economies.

We estimate that US$3.6 trillion in financing will be required over this period for both generation assets and their supporting front-end and back-end infrastructure. While in recent years, nuclear projects have primarily been financed through utility balance sheets or through government financing, there is now a growing push to involve private investors to leverage their technical and project management expertise and capital, thereby easing the strain of financing capital-intensive projects on debt-laden state budgets.

In deregulated markets, three main challenges currently hinder private investment: political and regulatory risk, construction risk, and revenue uncertainty. Solutions are needed to de-risk investment in nuclear assets by making them predictable and profitable enough to attract private investors. Additionally, private investors typically focus on short investment cycles, which are difficult to reconcile with the long development, construction and operational timelines of nuclear projects. These challenges limit the suitability of traditional metrics, such as the internal rate of return (IRR), to assess whether a project will bring returns commensurate with the risks involved.

Thus, financing schemes and revenue models must cater to both public and private investors, with each playing distinct roles beyond mere financial contributions. **Public support is crucial for long-term technology development and risk mitigation, while private investors can accelerate the takeoff process once risks are lower** by bringing expertise, operational excellence and sufficient capital. Two primary financing models are expected to emerge and evolve over time:

- **Project financing:** Project financing will initially be provided through state funding, including subsidies, equity, debt and guarantees from export agencies, backed by a comprehensive risk-sharing model. This will be followed by an increasing share of private capital as the risks decrease.
- **Supply chain financing:** This will primarily involve private investments to rebuild the industrial capabilities of SMRs and mid-tier companies, which will support the major new developments in the nuclear fuel cycle following decades of limited investment.

Three prerequisites must be met to revitalize the nuclear sector, secure its financing and establish appropriate risk-sharing schemes in accordance with local specifics:

- **Long-term public support:** Support long-term regulatory stability and political sponsorship (e.g., 2025 PINC), a strong financial commitment from the state, broad risk-sharing frameworks, and the inclusion of supportive ESG frameworks (e.g., EU Taxonomy).
- **Operational excellence:** Stabilize construction timelines and costs, increase supply chain readiness and excellence, and deliver on-time and on-budget projects.
- **Revenue security:** Reduce price uncertainty by implementing revenue risk-mitigation mechanisms (e.g., regulated asset-base (RAB), contract for cifference (CfD) and power purchase agreement (PPA) to deliver consistent and predictable returns and shield projects from market volatility.

Introduction

The nuclear value chain: a capital-intensive system requiring end-to-end investment

As the world races toward net-zero emissions and reaffirm the importance of **energy sovereignty**, nuclear power is returning to the forefront of the global energy agenda. Amid mounting pressure to **secure clean**, **reliable**, **dispatchable** and **affordable electricity**, as renewable energy penetration increases, the intermittency of wind and solar power creates a growing need for reliable baseload capacity. In this context, **nuclear stands out as a scalable**, **low-carbon baseload solution**.

Current forecasts indicate substantial growth in electricity demand through 2050. The International Energy Agency estimates that nuclear capacity must double during this period to align with net-zero pathways, while the International Atomic Energy Agency projects **nuclear capacity expansion up to 2 to 2.5 times current levels**. This expansion requirement coincides with technological developments in SMRs, Generation IV systems, fusion and advanced nuclear technologies that promise improved economics and deployment flexibility.[1]

What was once a state-dominated, politically sensitive industry has experienced a **remarkable surge in private investor interest** over the past 18 months. This shift reflects both **policy momentum** and **compelling market fundamentals**. Recent developments suggest an evolving investor sentiment toward nuclear assets. From public institutions to private actors, a **growing range of financial stakeholders is showing renewed appetite for nuclear energy**. In 2024 and 2025, a series of high-profile moves marked a turning point in nuclear investment. Politically, both Germany and the US have signaled a shift toward nuclear revival: In Germany, leading parties reopened the debate on extending or relaunching nuclear power as part of their energy security strategy, while in the US, the administration signed an executive order to boost domestic nuclear reactor projects. The World Bank lifted its decades-long ban on nuclear lending, opening the door to multilateral support. Soon after, Apollo Global Management committed funding of up to £4.5 billion to EDF's nuclear expansion at Hinkley Point C, signaling growing confidence from major private capital. In the UK, a tailored financing model brought in CDPQ, Amber Infrastructure and Centrica as investors in Sizewell C, demonstrating how public-private structures can unlock meaningful private funding. At the European level, the EIB provided a €400 million loan to Orano, supporting additional fuel cycle infrastructure. On the private investment fund side, actors such as Brookfield, Ares and Pelican Energy Partners have expanded into the nuclear supply chain through acquisitions, while venture capital (VC) funds like Breakthrough Energy Ventures, Andreessen Horowitz, DCVC and 92 Capital are backing the next wave of nuclear innovation – SMRs, advanced modular reactors (AMRs) and fusion startups – viewing nuclear as both a climate solution and a frontier technology.

Despite these positive indicators, private capital deployment in nuclear projects faces persistent **structural challenges** that need to be overcome to restore confidence. The nuclear industry must **revitalize** and **modernize a supply chain that has been dormant for thirty years,** requiring **private sector participation** for **technical expertise**, **project discipline**, **capital and a drive for productivity**. Large-scale nuclear projects remain difficult to evaluate financially due to long development, construction and operational cycles, making traditional metrics such as IRR or payback period often misleading. These **obstacles** can be categorized into three primary risk domains: **long-term public support and regulatory uncertainty**, **construction and execution risk**, and **long-term revenue visibility**. To **attract private capital at scale** – beyond restoring operational excellence in construction – these risks must be addressed through **structured financial solutions**, **innovative market models** and **public-private partnerships** that share both **risk** and **reward**.

This white paper examines the **near-term financing needs of the nuclear industry**, analyzes **barriers to private capital participation**, and **evaluates emerging financial structures** and **risk-sharing mechanisms** in order to overcome these challenges and **unlock nuclear energy's potential** at the right scale and speed required for **global decarbonization and sovereignty**.

1. Fusion considered to a minor extent in this paper.

Need for significant capital across the nuclear fuel cycle

The nuclear value chain spans from uranium mining and fuel fabrication to power plant construction, operations, and eventual waste management and decommissioning. Each stage is highly capital-intensive, with significant investment needs not only for new reactor builds but also across the entire nuclear fuel cycle.

Securing financing for upstream activities (such as enrichment), midstream infrastructure (such as reactor deployment) and downstream obligations (including spent fuel handling and decommissioning) is critical to enable long-term sustainability.

As global interest in nuclear energy grows to meet decarbonization goals, restoring investor confidence and deploying innovative financing models will be essential to mobilize the scale of capital required across this complex value chain.

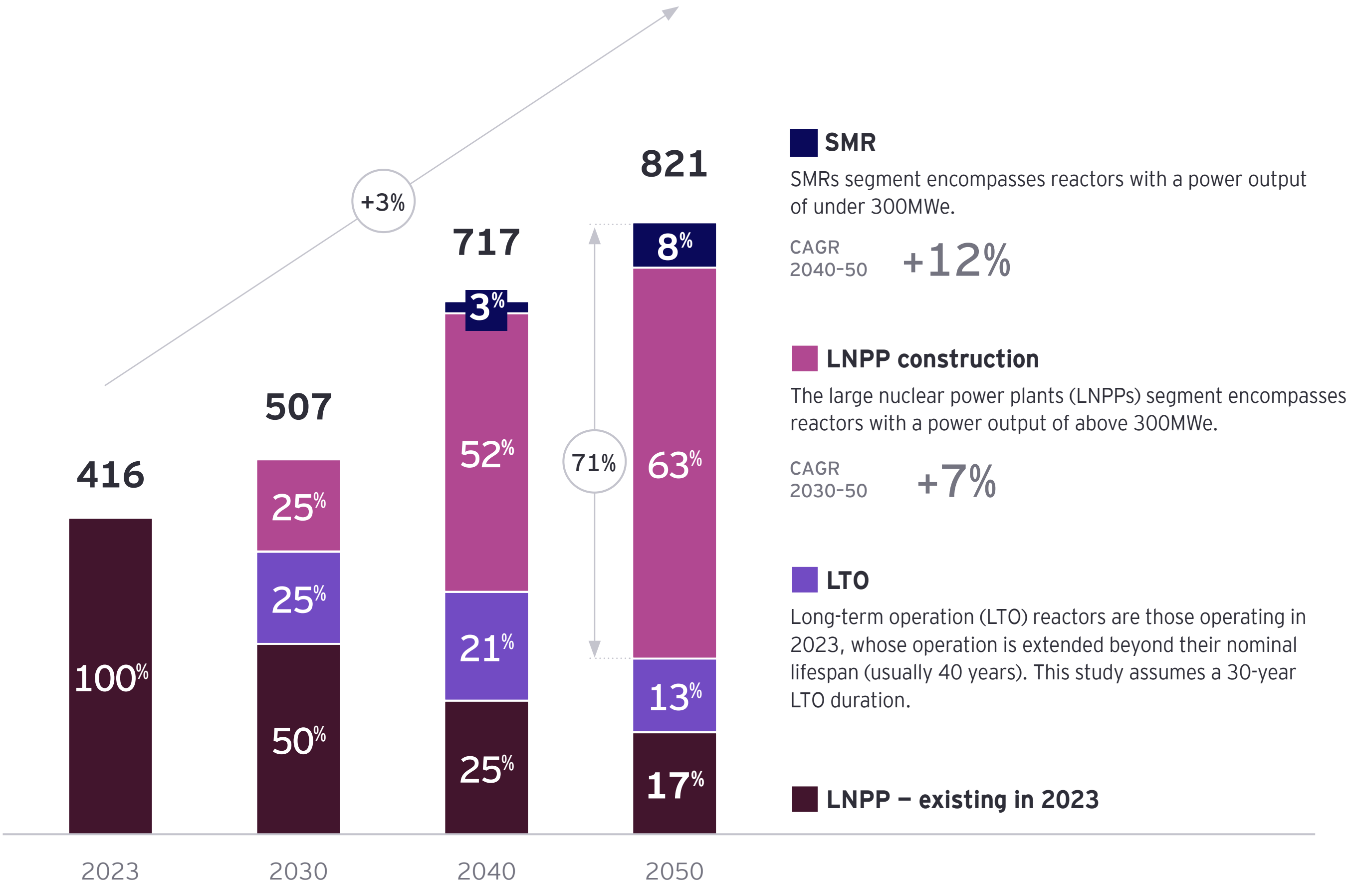
		Advanced economies	China	Rest of the world
Mining	Annual production (2022) 49,490 tU	Orano, Cameco, Energy Fuels, BHP and General Atomics	GCN and CNNC	TVEL Rosatom, Armz Mining Machinery Rosatom, Uranium One, NMMC, Kazatomprom, UCIL and Maaden
Conversion and enrichment	Annual capacity (2022) 61,500 tSWU	Orano, Cameco, Converdy, Centrus and Urenco	CNNC	Kazatomprom x CGN, TVEL Rosatom, Indústrias Nucleares do Brasil, India Department of Atomic Energy and CNEA
Fuel fabrication	Annual LWR fuel production capacity (2021) 15,500 tons	Westinghouse, Framatome, Global Nuclear Fuel and Icepco	CNNC	Kazatomprom, Rosatom, Indústrias Nucleares do Brasil and India Department of Atomic Energy
NPP construction	Electric generation (2023) 2,600 tWh	(Large or SMR) EDF, Candu, Westinghouse, Toshiba, Mitsubishi Heavy Industries, ICHNP, GE Hitachi, Icepco, Roll Royce and Holtec International	GCN and CNNC	BHEL, Rosatom and Indian Department Of Atomic Energy
		(SMR specialists) Newcleo, Nuward, Xenergy, Nuscale, Thorizon, Oklo, Steady Energy, Kairos Power and Terrestrial Energy	Tsinghua University	Kaeri and Invap x CNEA
Spent fuel storage	Near-surface storage often directly on the site of the NPP. France, Japan, Spain, the UK and the US	Orano, Holtec international, Westinghouse, Nac International, GNS and Energy Solutions	CNNC	Rosatom
Reprocessing and disposal	Reprocessing capacity (2022) 3,860 tons Deep geological deposit	SKB, Cigéo Andra Project, Japan Nuclear Fuel Limited, Orano and Posiva	CNNC	Rosatom
Decom-missioning	Number of decommissioned reactors by 2050 150-200	Orano, Holtec International, Energy solutions, Cyclife, Aecom, Westinghouse, NorthStar Group Services Inc., Jacobs, Sogin and Cavendish Nuclear	CNNC	Rosatom, Javys, Necsa and Indian Department of Atomic Energy

1 Scaling nuclear: from ambition to action

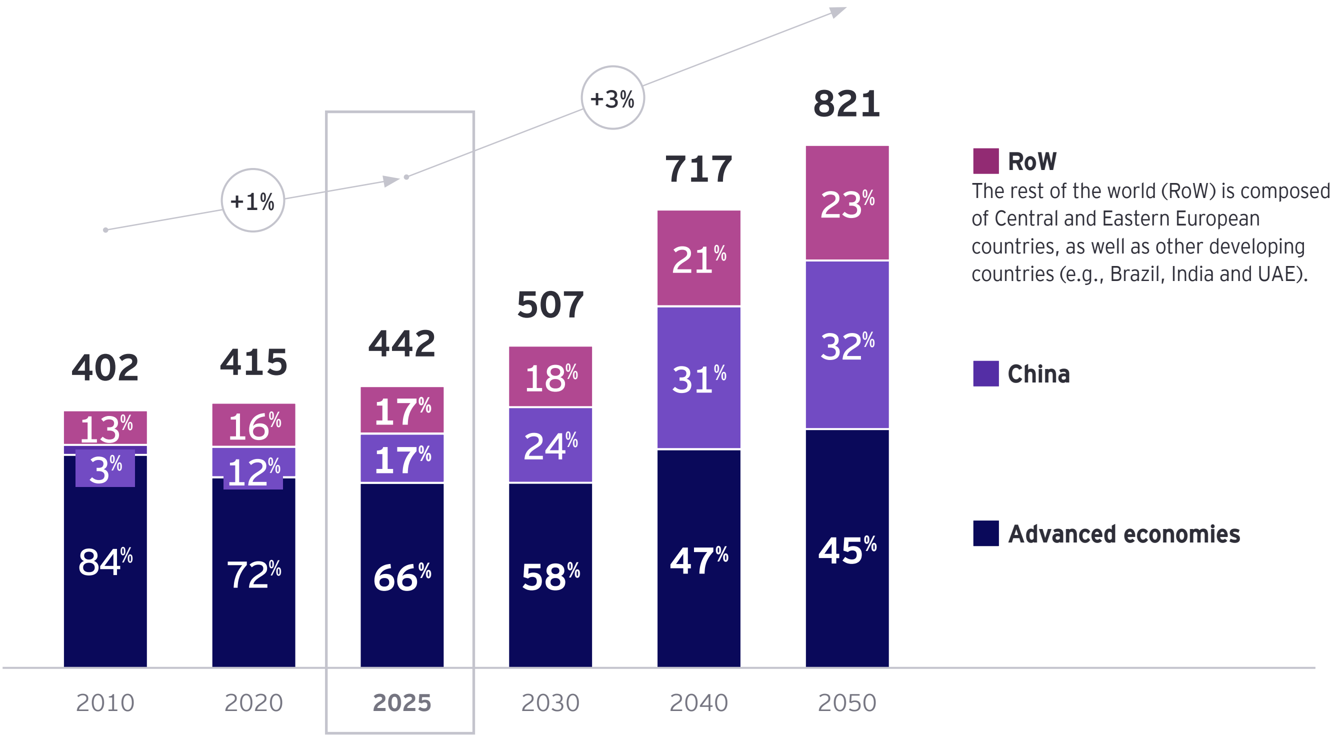
Unlocking market potential as IEA scenarios take shape

Nuclear capacity is expected to reach approximately 821GWe by 2050, of which approximately 71% is yet to be built. In advanced economies, it is expected to grow moderately, while market share for China and the rest of the world is projected to increase from approximately 30% in 2020–25 to approximately 55% in 2050.

Nuclear capacity forecast by type of plant (GWe installed base)



Unlocking market potential as IEA scenarios take shape

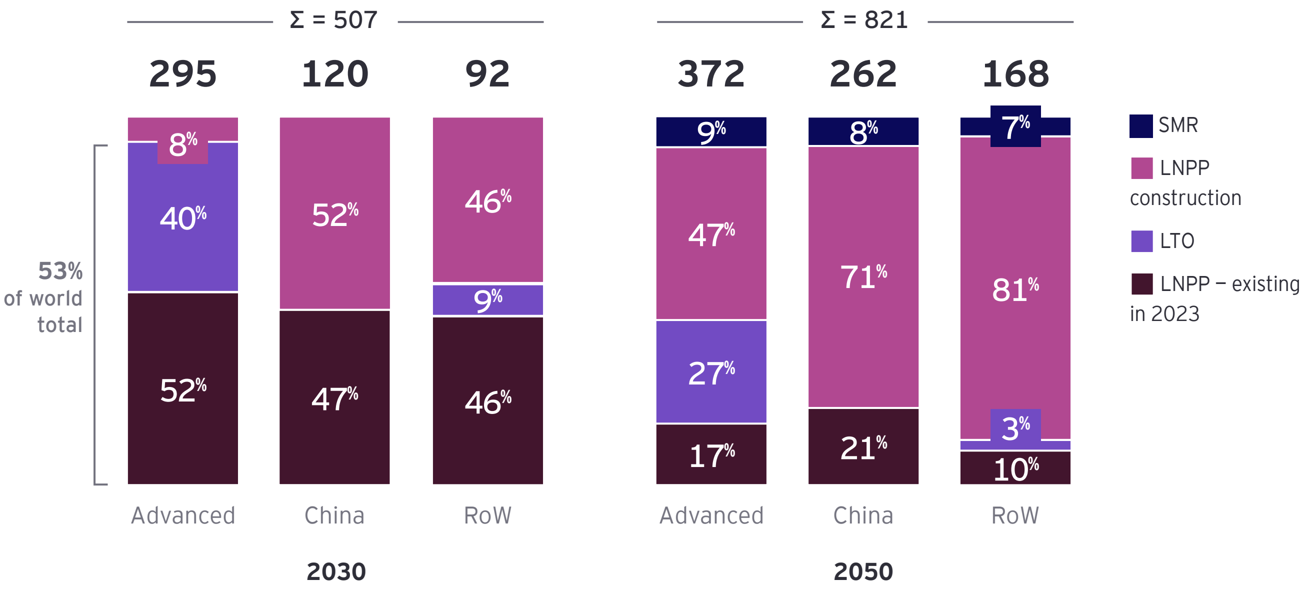


Regional outlook for nuclear growth

- Advanced economies experienced a slowdown in nuclear capacity between 2010 and 2025, largely due to the Fukushima accident in 2011, which led to nuclear phase-outs in countries like Japan and Germany, as well as a general decline in new investments across the OECD.
- A recovery in nuclear capacity is expected in advanced economies between 2025 and 2040, driven by renewed commitments in countries, such as:
  - France, with the EPR2 program aiming to add 10GW to 23GWe
  - The UK, through projects like Hinkley Point C and Sizewell C
  - Poland, Czech Republic and Sweden, which are launching or expanding national nuclear programs
- China will remain the primary engine of global nuclear growth, building on a long-term strategic roadmap initiated with its 10th five-year plan in 2007. The country is targeting 200GWe of nuclear capacity by 2035, according to CGNPG's 2019 projection.

While advanced economies will perform LTO on their existing plants, China will build new large NPPs

Nuclear capacity breakdown by region x type of plant (GWe installed base)



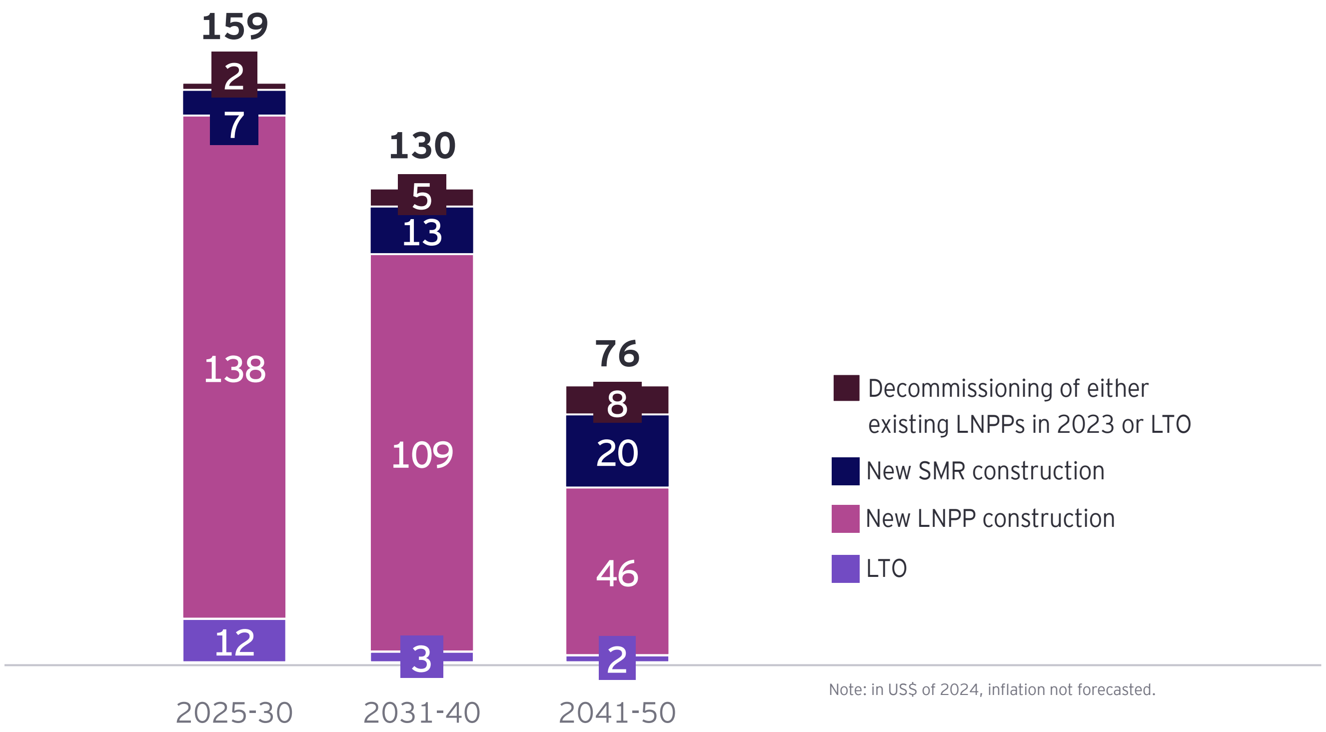
How will global nuclear capacity evolve between now and 2050?

- **SMRs** new builds will contribute **from the next** decade (technological breakthrough) to approximately **+2 to 5 net GWe per year.**
- **New LNPP builds** add, on average, **+14 to 24 net GWe per year** over the whole period.
- **LTO** will play a major **role in power plant status change** from **2024 to 2030**, as most **existing capacities** will go **through retrofitting and be considered LTO**.
- **Decommissioning** will account for -7GWe per year from 2024 to 2030, primarily in RoW and advanced economies. In **2041 to 2050, advanced economies will strongly drive the decommissioning at -9GWe per year.**

2 The economics of nuclear expansion

Estimated **NPP investments** needs will reach their **peak in 2025-30**. Total annual NPP investments are expected to reach approximately US$159 billion by the year 2025-30, driven by LNPP construction. **Most of the required investments need to be deployed rapidly to reignite momentum and revitalize the nuclear industry.**

Yearly nuclear investment need by type (US$ billion per year)

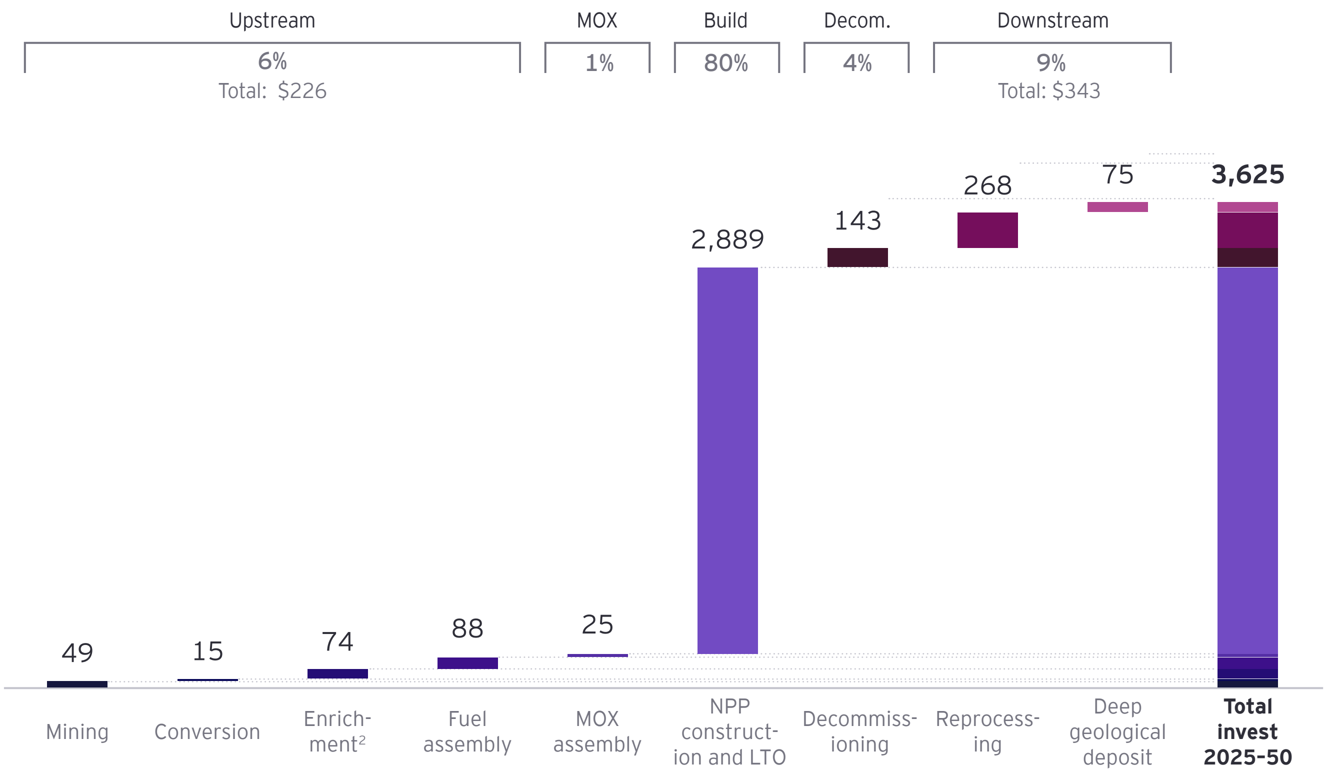


Note: in US$ of 2024, inflation not forecasted.

The nuclear investment need from 2025 to 2050 is approximately US$3,600 billion, with about 90% allocated for NPP construction and LTO.

EY-Parthenon assessed investment needs across the entire nuclear value chain — from upstream activities (mining, conversion and enrichment) to generation, and downstream processes (pool storage, reprocessing and long-term disposal).[1]

Total nuclear investment need for each value chain step (world, cumulative US$ billion 2025–50)



Note: in US$ of 2024, inflation not forecasted.
1. NB: Both upstream and downstream capacities were scaled to match projected generation volumes by 2050, ensuring a balanced and realistic view of system-wide requirements. The sizing is grounded in real-world benchmarks, drawing on data from existing infrastructure and planned industrial projects across each segment.
2. Including Enrichment of RepU into REU2.

Significant investment needs across the nuclear value chain from 2025 to 2050

Worldwide upstream and downstream cost hypotheses (cumulative US$ billion 2025-50)

The **downstream industry** requires the **largest share of investment** in the fuel cycle, driven by the **critical importance of safe, efficient recycling** to improve uranium recovery rates. On the other hand, highly technical phases such as **enrichment and fuel assembly** also demand substantial capital to sustain future reactor builds.

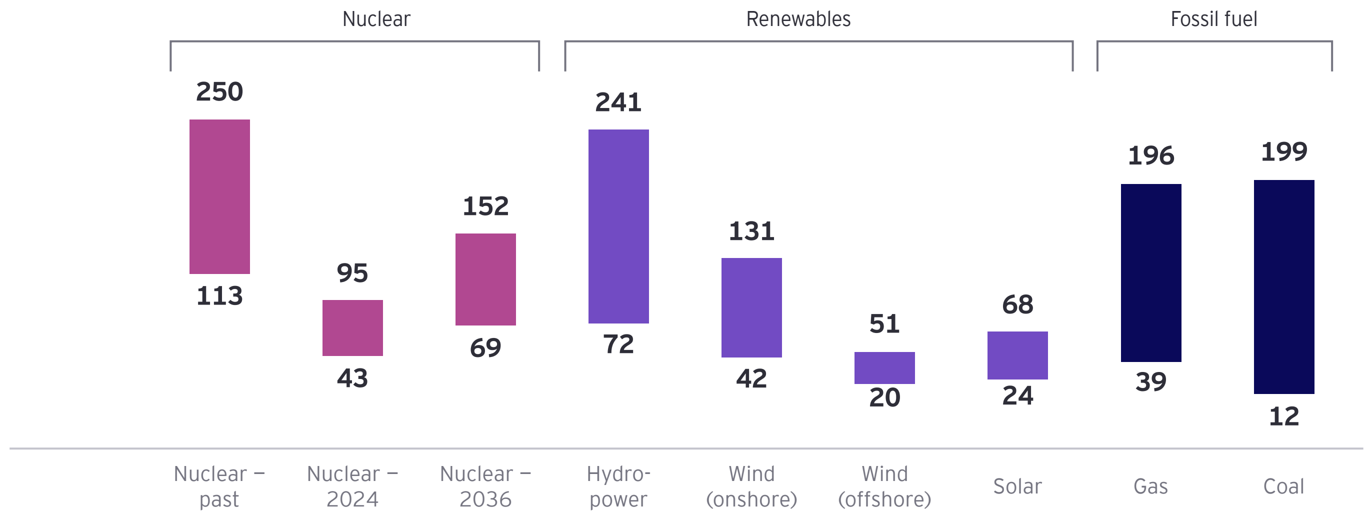
	Upstream				Downstream	
	Mining	Conversion	Enrichment	Fuel assembly	Spent fuel reprocessing and storage	Deep burying
Yearly world capacity (2022)	**49,490** Tons U3O8 per entire work	**62,000** Tons UF6 per year	**61,500** Thousand SWU per year	**20,952** Tons of enrU transformed into assembly per year	**3,860** Tons of spent fuel reprocessing per year	**400** Tons of HAVL per year
Total investment sized (2025-50)	**US$49 billion**	**US$15 billion**	**US$74 billion**	**US$88 billion**	**US$268 billion**	**US$75 billion**
Methodology	Bottom-up approach based on internal case studies					

Note: in US$ of 2024, inflation not forecasted.
Note: MOX addressed separately. New fuels for AMRs were not considered in this study but could require significant investments for new plants.

New nuclear delivers competitive output per dollar invested

Global lifetime electricity generation measured by kWh per US$ invested

This chart compares the **potential kilowatt-hours generated per unit of investment** across energy sources, which is key to **assessing their relative quality, value and economical attractiveness**. Nuclear plants, though capital-intensive, stand out as **long-term assets** with the **highest load factors**, positioning them **alongside other major energy sources** when deciding for future energy investment. Renewables tend to remain more agile and flexible in their deployment yet being less centralized for grid connection.



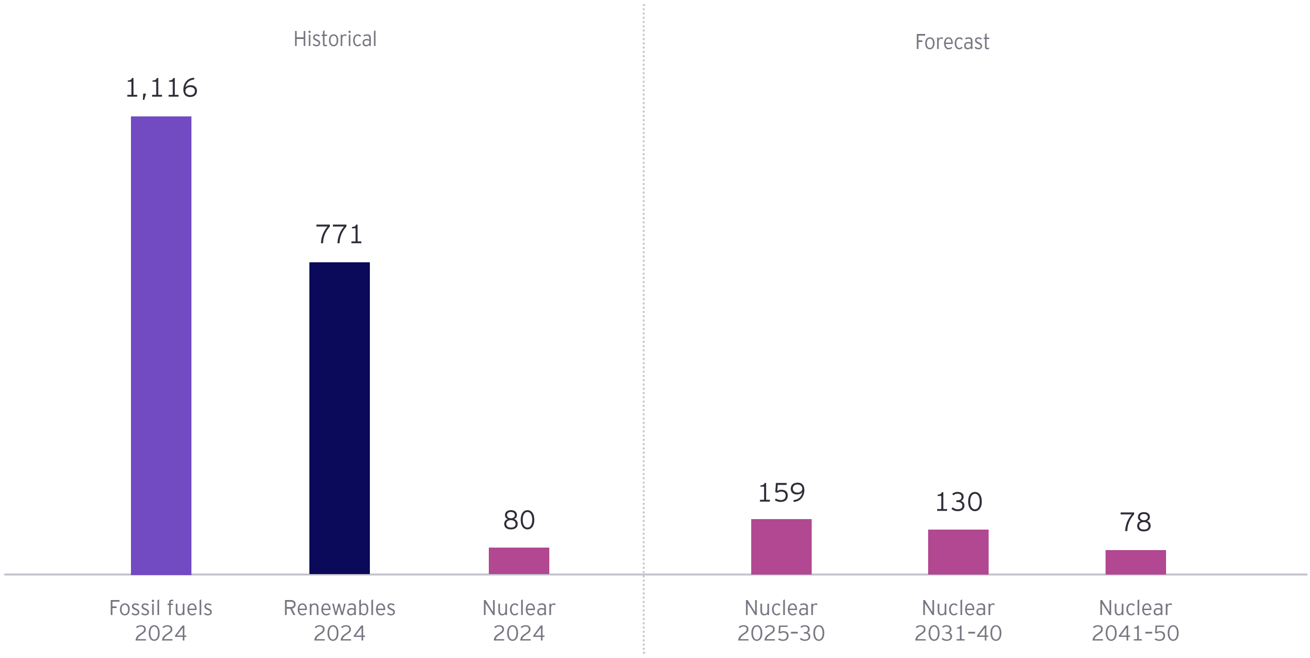
	Nuclear – past	Nuclear – 2024	Nuclear – 2036	Hydro-power	Wind (onshore)	Wind (offshore)	Solar	Gas	Coal
CapEx intensity **(US$ per kW)**	2,369	9,353	5,861	2,267	1,041	2,852	691	1,000	1,000
Load factor[1] **(percentage)**	77% 92%	77% 92%	77% 92%	31% 73%	24% 44%	32% 52 %	12% 23%	15% 60%	4% 61%
Lifespan[2] **(years)**	40	60	60	60	20	20	15	30	35

Note: in US$ 2024, inflation not forecasted, worldwide average. Nuclear - 2024 in China reaches a 115 to 139 range.
The costs of storage and grid reinforcement works for renewables are not taken into account, which could negatively affect their kWh per unit of investment.

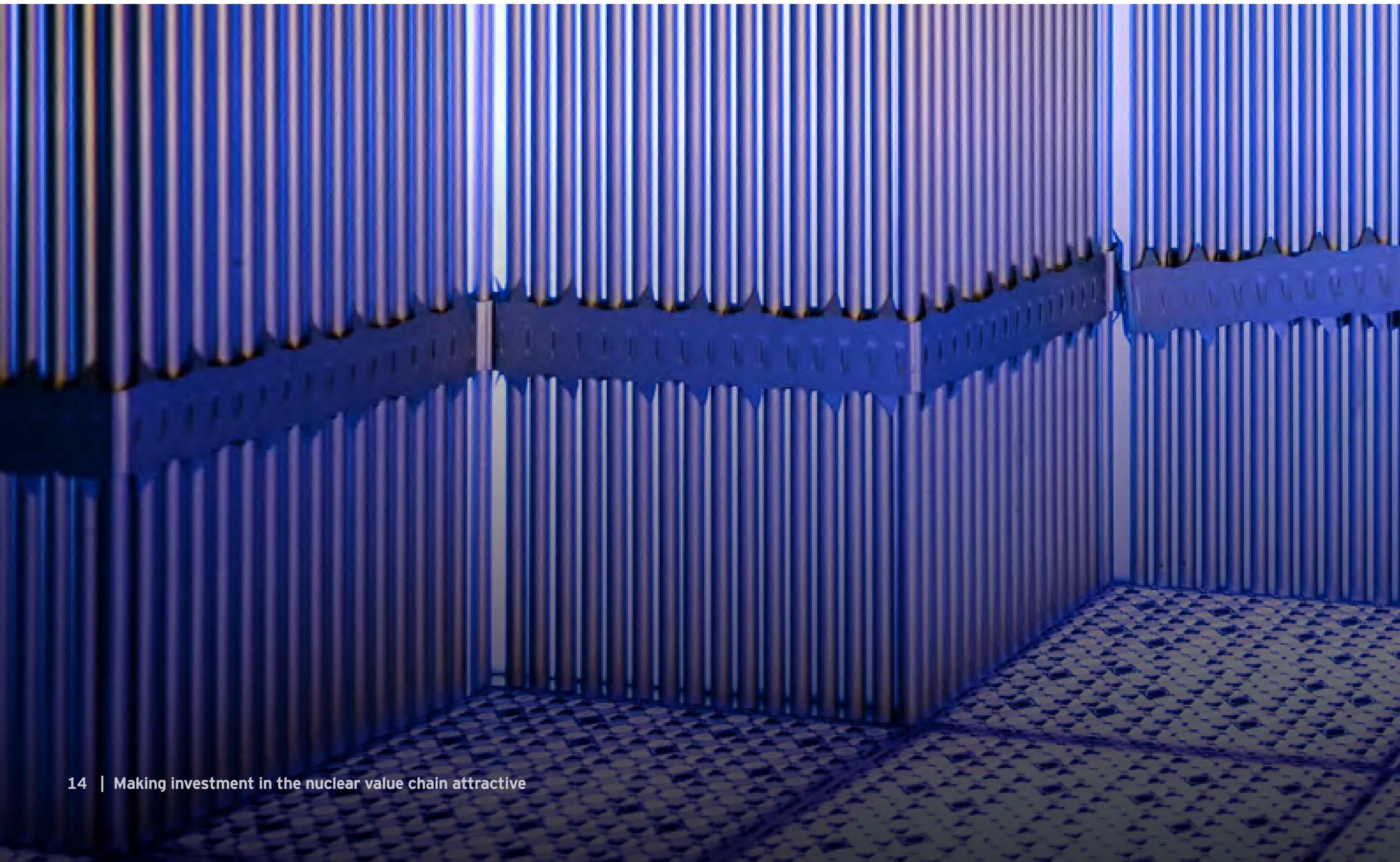
1. Minimum / maximum rate observed in countries, depending on the preferred energy mix (i.e. meteorological for renewables, and political choices for fossil fuels and nuclear energy).
2. Lifespan not taking into account repair work and lifespan extension, requiring additional CapEx.

Annual investment by technology (US$ billion per year)

Despite perceptions of nuclear investments as massive, a **broader view** shows that **renewables** and **fossil fuels** attract **five to 10 times more funding worldwide**.

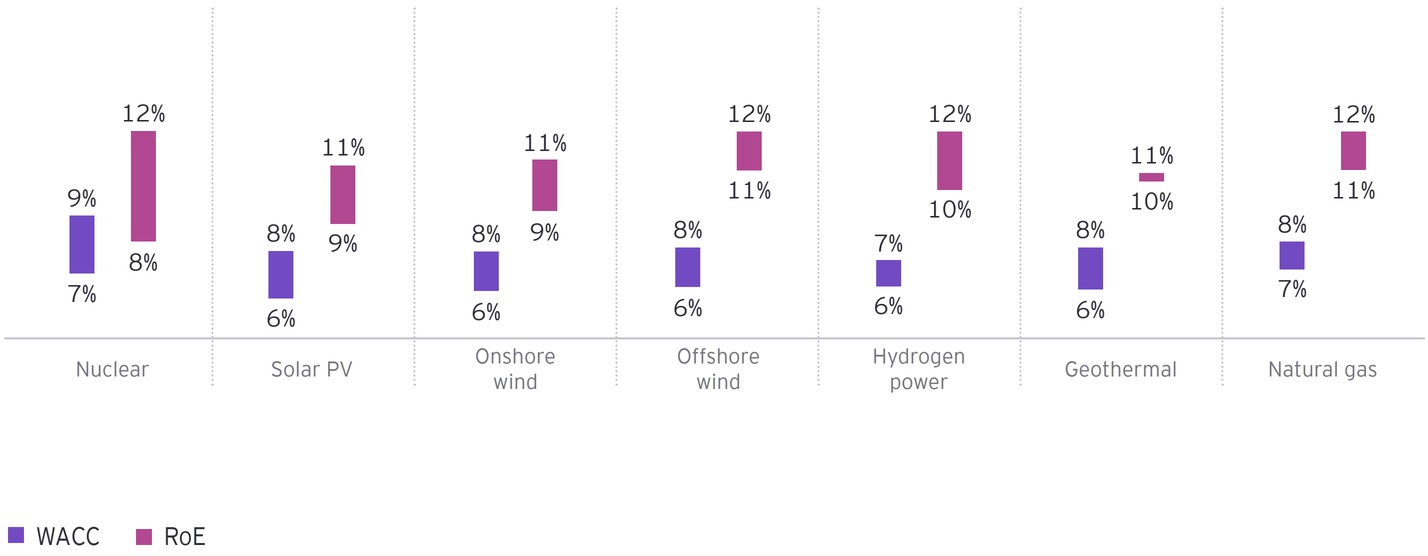


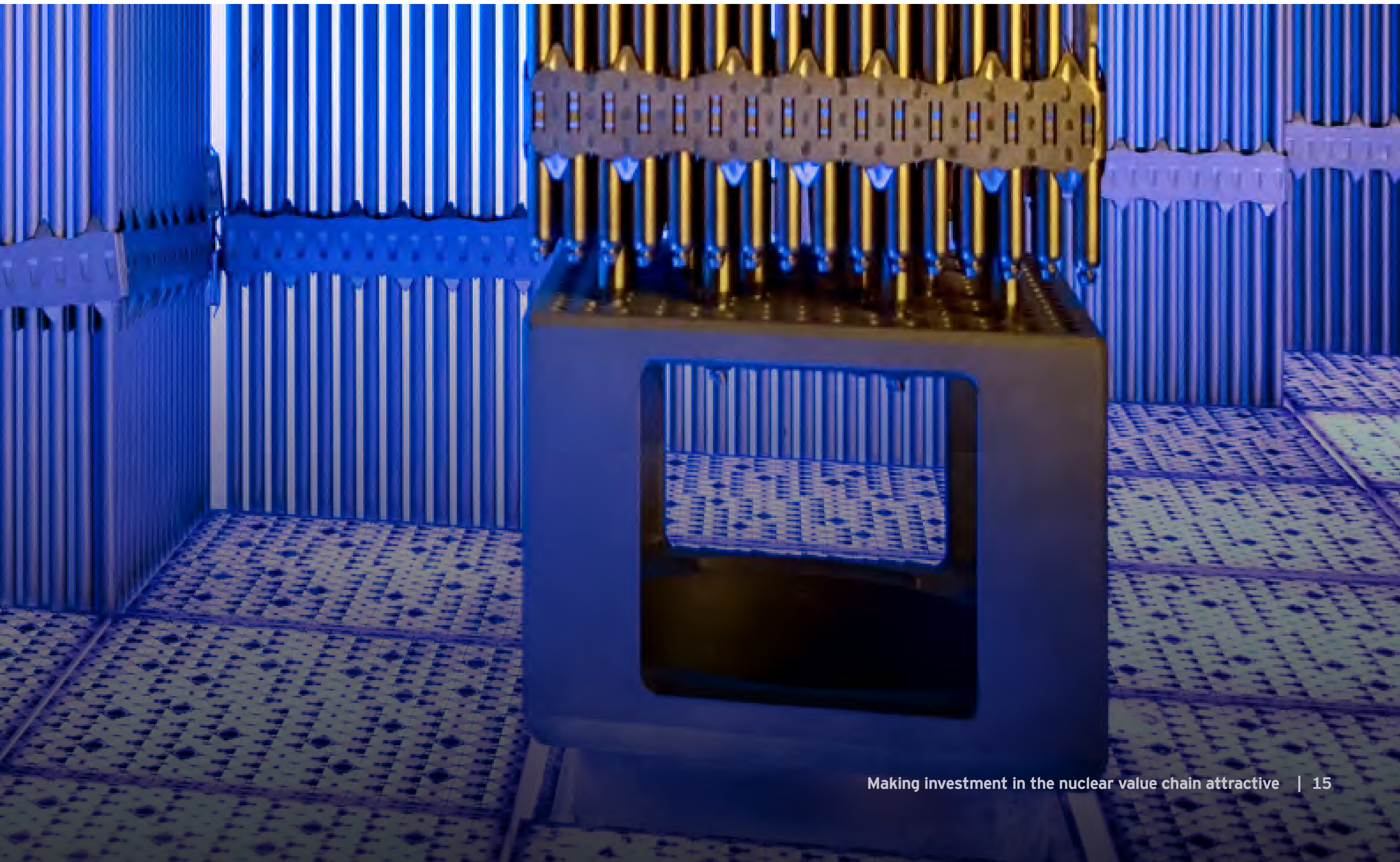
Note: in US$ of 2024, inflation not forecasted.



Comparison of expected weighted average cost of capital (WACC) and return on equity (ROE) by technologies (2020s)

Solar PV, **wind farms** and **geothermal** benefit from **low WACC** because their **risks are well understood** and regulators are familiar with their **technical and economic fundamentals**. For nuclear, the ROE can reach lower levels driven by strong regulatory frameworks and forms of state supports often put in place; but is **still playing in the same league**.





3 Challenges and barriers to financing

Why does private capital remain limited in nuclear build financing, and what are the structural challenges that must be addressed to unlock it?

While **nuclear energy** is **gaining traction in policy** and **investment circles**, its **financing** remains overwhelmingly **dependent on the state**. Today, **governments** are often the **only actors** capable of **managing the scale**, **complexity** and **risk profile** of nuclear projects — either directly through funding or indirectly through guarantees — to build good value-for-money, long-lasting and sovereign assets. Yet achieving the level of deployment required for **climate** and **energy security goals** will demand the mobilization of a much broader range of investors. This remains elusive. Nuclear financing continues to face **three structural barriers** that **prevent projects from being assessed** through **conventional investment metrics,** such as **IRR**, and from **attracting the volume of capital required**.

As a result, private investors remain largely on the sidelines, unlike in sectors such as renewables or oil and gas, unless the **state assumes nearly all the project risks.** To change this dynamic, **tailored risk-sharing mechanisms** must be designed to enable private actors' participation. While **strong public backing remains necessary**, it is no longer sufficient on its own. Unlocking private capital at scale will require **rethinking how risk is allocated**, **mitigated** and ultimately turned into **bankable opportunities**.

Main financing deterrents		Explanation
Political and regulatory uncertainty	**Long-term support and inclusion in energy planning**	**There is no long-term inclusion** of nuclear in the energy mix and a **lack of stable scaling up of competitive programs** instead of one-off projects.
	Licensing, permitting and regulatory uncertainty	**Inconsistent or protracted regulatory** processes undermine investor confidence and financing prior to license delivery for large builds, as well as for SMRs and AMRs.
	Fuel cycle	**Unresolved downstream liabilities**, such as long-term waste storage and decommissioning liabilities, trigger public backlash and political delays.
Construction risk (delays and overruns)	**Delays and overruns**	**Chronic delays** (10-year average construction time) and **cost inflation** (increased by three to four times) erode financial viability and political goodwill.
	Incomplete design	**Partially developed designs** constitute a key first-of-a-kind (FOAK) risk by increasing the likelihood of rework, delays and cost escalation.
	Limited supply chain development	**A weak or underprepared supply chain** constrains delivery schedules and quality assurance.
	Program learning curve	**Steep learning curves** for countries without recent development experience raise execution and coordination risks.
Revenue risk	**Exposure to market price volatility**	**Merchant or volatile electricity prices** mean that nuclear plants, as baseload, high-capacity, high-CapEx assets, are highly vulnerable to unclear signals for long-term power pricing. Furthermore, nuclear has no fuel-price linkage to electricity prices.

> "We hardly see private investors for large builds due to construction risks.
>
> UK investment bank

> "The nuclear industry is exposed to massive cost overruns. It is a risk that we do not want to be exposed to.
>
> Global investment bank

Level of exposure of each stakeholder to key risk factors for new-build nuclear

States	Equity	Debt	Operator and vendor	Consumers and taxpayers	Deep dive
High	Low	Low	Moderate	Low	Deep dive
High	High	Low	High	Low	Deep dive
High – Long-term hazardous waste programs	Low	No exposure	High – Overflowing storage capacity	No exposure	Deep dive
High	High	Moderate	High	Moderate	Deep dive
High	High	No exposure	High	No exposure	
Moderate	Moderate	Low	Moderate	No exposure	
High	Moderate	Low	High	Low	
High – Via state guarantees	High	High – Revenues needed to pay debt interests	High	High – Via taxpaying	Deep dive

High | Moderate | Low | No exposure | Deep dive

The state, and operators with sufficiently large balance sheets, remain the only actors able and willing to finance and underwrite nuclear programs, assuming full exposure to project risks while private players stay on the sidelines.

Deep dive

Political and regulatory uncertainty

Long-term support and inclusion in energy planning

- Long-term support is significantly hindered by nuclear incidents and political decisions (e.g., early shutdowns post-Fukushima, bans in Belgium and Italy, and Germany's phase-out). Although, for nuclear incidents, insurance or other risk-sharing and transferring mechanisms can be a mitigating factor.
- By contrast, China has maintained uninterrupted state planning and investment; while new countries have placed nuclear firmly on their agenda (e.g., Poland, Czech Republic).

Licensing, permitting and regulatory uncertainty

> Licensing and permitting requirements are a significant risk driver for investors. For SMRs, such requirements are still uncertain, as the technology is not mature yet and may be as high as for large nuclear plants. On the contrary, if these requirements are lighter, it could drive more opportunities for private capital investment.

European utility

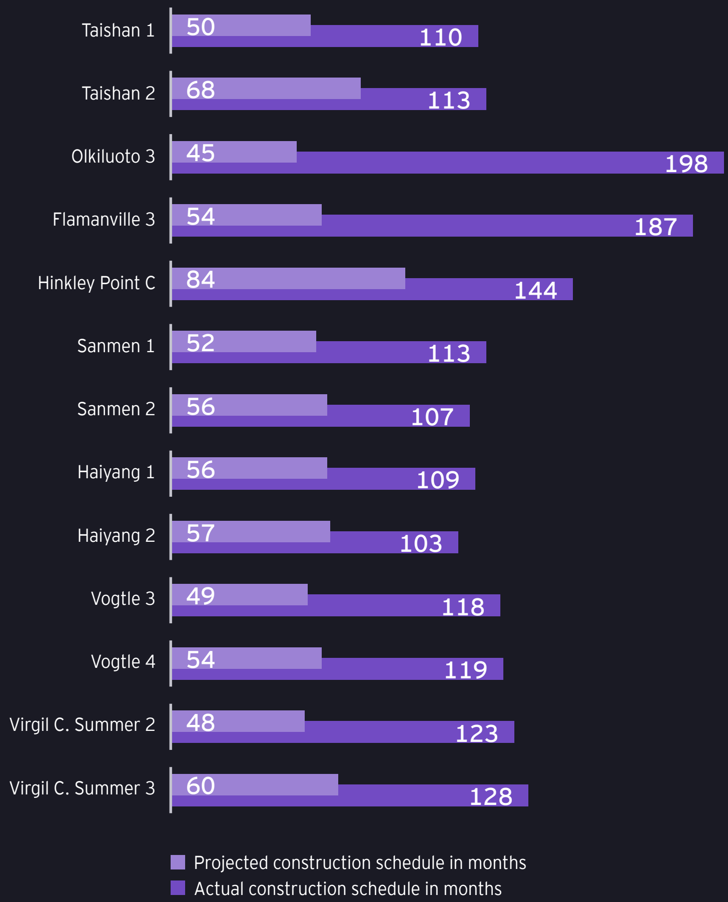
Fuel cycle

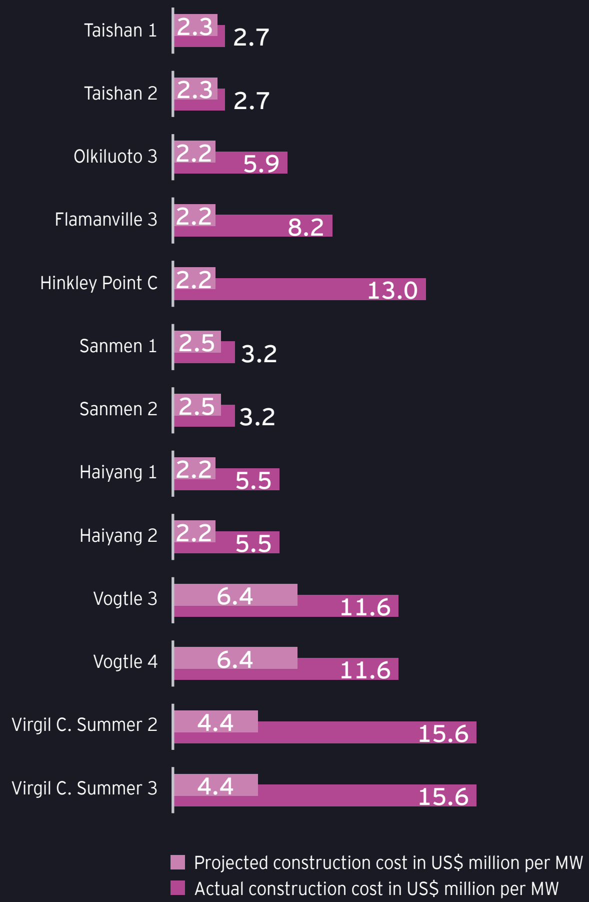
> The fact that nuclear fuel is excluded from the taxonomy is a major obstacle; it deters investors from engaging in a sector already under scrutiny. These projects are long, risky and potentially very costly, making it difficult to raise capital in the markets. For one of the two The Hague plants, full funding came from foreign customer advances and state financing for the first project in the 1980s. With low margins compared with the committed CapEx, strong guarantees are essential on the future revenues.

Up and downstream utility

Deep dive

Construction risk (delays and overruns)





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The fundamental bankability issue for nuclear projects remains the construction risk. There is a high likelihood of funding shortfalls due to delays or cost overruns. Until this risk is properly managed, non-recourse financing of nuclear projects under project finance principles seems unlikely. The EIB is however considering providing venture debt product to support early-stage nuclear developers and supply chain providers or corporate loans to established corporates in the sector.

European investment bank

Nuclear power plant construction costs have surged due to three main factors:

- The tightening of safety standards, reflected in new features in new designs (e.g., core catchers and diesel redundancies).
- The loss of the “series effect” observed in specific designs (AP1000 or EPR program) or in large unit scaling (e.g., Barakah case) could target altogether up to 25% in cost saving.
- The progressive erosion of industry expertise and skilled labor over decades (e.g., NPP design and welding).

Of these factors, tighter safety standards are structural, whereas scale effects and skill capabilities can be regained.

Deep dive

Revenue risk

The electricity market is subject to fluctuations, while nuclear plants require defined thresholds to remain financially viable. Clear breakeven points are therefore essential to secure a revenue safety net and support stability.

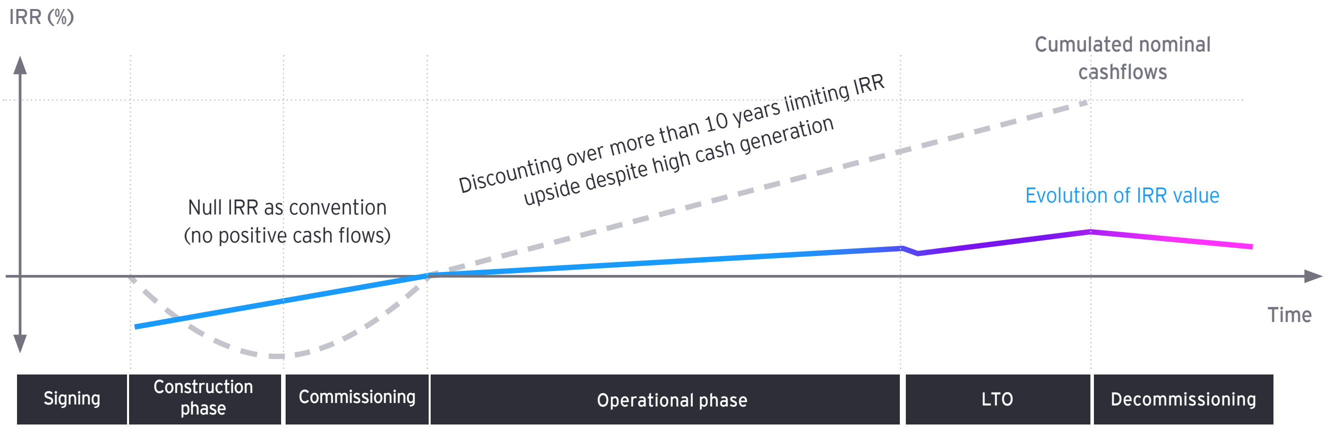
> The second risk after construction, in liberalized markets, is revenue risk. No investor would invest in capital-intensive technologies such as nuclear facilities (or renewables) without some form of price certainty. This becomes particularly challenging in systems with a high penetration of variable renewables, where significant price volatility can occur and is already observed.
>
> IAEA

> A critical issue with nuclear projects is investors' patience regarding the extended timeline for receiving initial dividends. This extended timeline is likely to exclude many investors until Europe, specific countries or specific technologies can demonstrate a reliable track record.
>
> European utility

Against those barriers, traditional metrics like IRR do not suit nuclear projects; alternative KPIs are needed to assess project value

> We ask ourselves: Could the project be phased into distinct stages, each with its own IRR and WACC structure?
>
> Finance manager, European utility

Nuclear IRR versus other KPIs for private investors



Payback ratio

- **Payback** becomes the **threshold** – everything beyond is upside
- Payback **ignores discounted cash flows**, **unlike IRR**
- **Payback is pushed back significantly due to the long construction and development timeline**

IRR generation on fixed margin

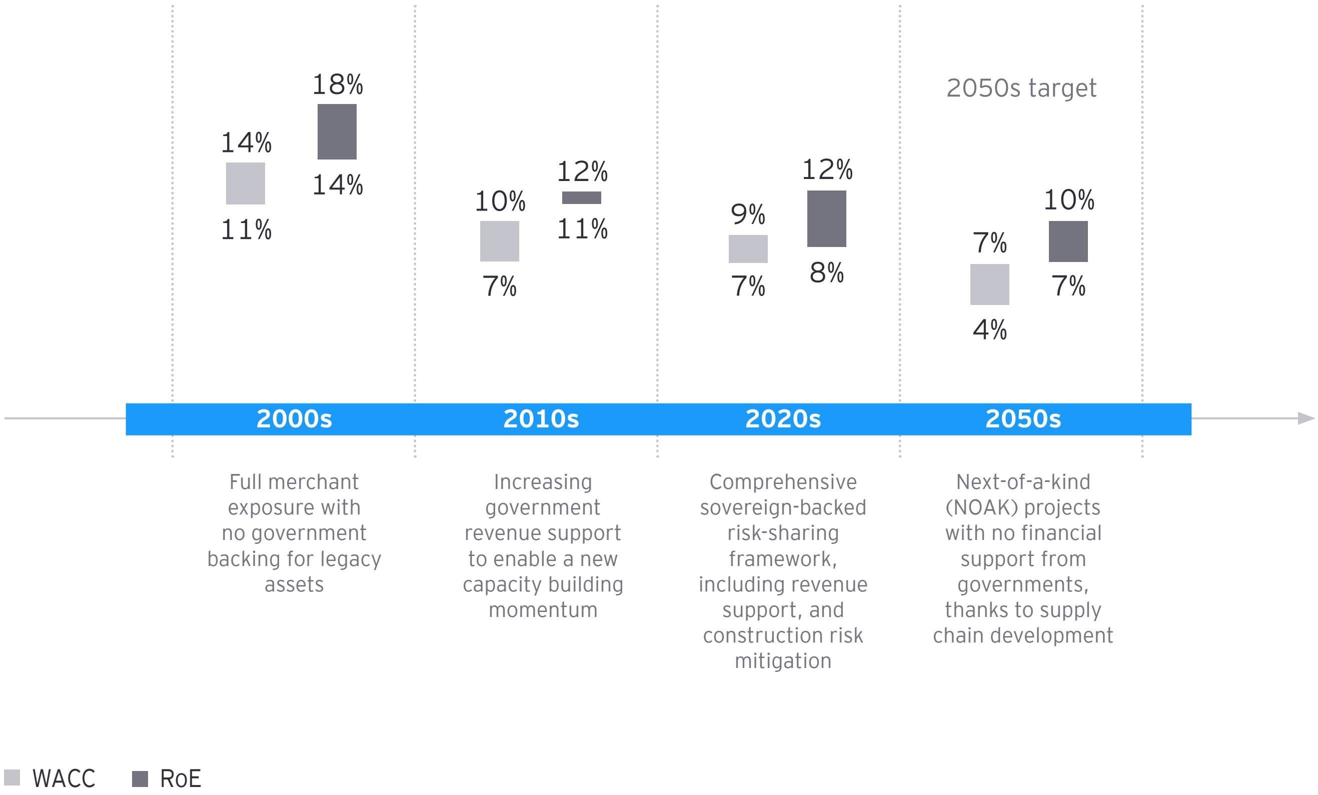
- Utilities typically **operate at EBITDA margins of over 60%, which allows for a very high debt quantum in the financial plan**
- However, due to **heavy discounting** of the cash flows and long payback periods, **IRR generation is significantly reduced**
- **To avoid "rent-seeking"** dynamics, as seen in other public infrastructures (e.g., highway concessions in France), the state is often keen to regulate the potential returns of nuclear assets

Economical, social and environmental impact

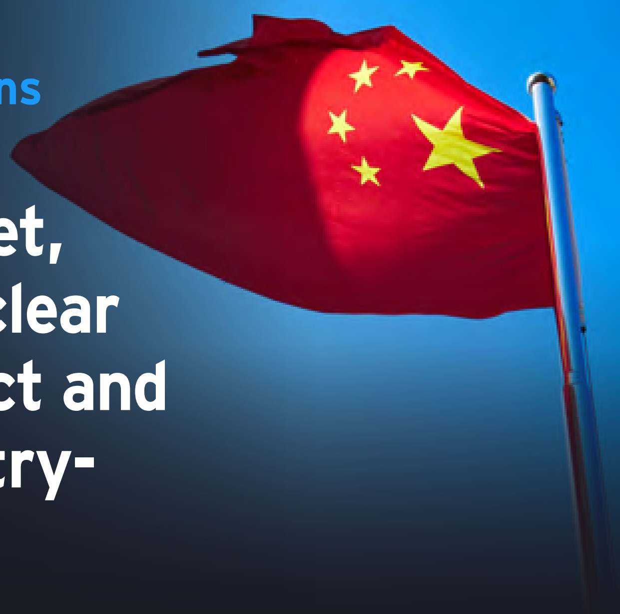
- **x2 to x2.5 economical multiplier** (direct, indirect and induced value)
- **x3 social multiplier** (direct, indirect and induced jobs) for 3,000 to 9,000 construction jobs created (SMR-LNPP)
- **Lowest mortality rate** (90 deaths per PWh compared with over 100 and over 4,000 for renewables and oil and gas)
- **Low direct and indirect CO2 emissions**
- Strong impact on **energy sovereignty**

Declining financing risk in nuclear power with risk mitigation and support

Evolution of WACC and RoE for nuclear power



Digression on Chinese considerations



Unlike in the global market, the considerations to nuclear power in China are distinct and uniquely shaped by country-specific factors

Complex licensing process	**The high volume of Chinese concurrent builds and licensing bottlenecks can increase delays.**
Centralized control	**The state manages all nuclear fuel procurement** and **electricity dispatch**, which limits operators' control over supply chains and market access.
Technological and talent constraints	**There has been substantial investment** in education, training and technology research aimed at building a local supply chain, yet, the country is facing a structural talent shortage and has historically relied on technology imports.
High capital requirements	**Investments amounting to tens of billions of RMB are often locked in for eight to 10 years.**
Public perception risks	Misinformation and **anti-nuclear sentiment** amplified on social media have previously halted projects in Heshan (2013), Fangchenggang (2014) and Lianyungang (2016).
Market concentration	The nuclear sector is dominated by **four state-owned enterprises**: CNNC, CGN Power Corporation (which accounts for approximately 80% of reactors), SPIC and China Huaneng, all of which hold operating licenses.
Cost-effective financing	The financing is supported by **low-cost**, **domestically sourced options** (e.g., CNNC and CGNPC bonds repeatedly issued under 2% to 3%)[1].
Opportunities for private investment	**China has opened its nuclear sector to private investment**, with the 2024 Energy Law promoting participation. **Six projects have included private investment**, with 10 firms contributing combined stakes of about 10%.

4 De-risking nuclear: a path to private investment

Unlocking private capital through policy, market design and innovation

Financing nuclear energy projects at scale requires **significant upfront capital**, **long investment horizons** and **strong risk mitigation mechanisms**. Today, governments remain the **cornerstone of nuclear financing**, often being the only actors capable of bearing FOAK risks.

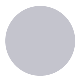
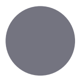
Sovereign financial commitment can also help de-risk projects by reducing perceived political and construction risks, **building confidence** among financiers by providing targeted risk-sharing tools and securing long-term offtake contracts. In the SMR space, it can **hasten the pace of innovation**, notably by co-funding R&D processes and providing a supportive regulatory framework. For instance, in France, the government has supported SMR and AMR startups through dedicated subsidies and financing schemes, as well as by providing access to decades of public research and research institutes.

Some governments have chosen to **leverage sovereign debt and equity injections to lower the cost of capital** and crowd in private investors from the initial phases of construction. However, this strategy is **not universally viable**, with most countries facing constraints due to their limited financial capacity.

Thus, **private capital mobilization will be key to ensuring the success of new build programs**. Given the current environment, attracting private debt at low rates, reducing the cost of financing and ensuring a competitive levelized cost of electricity **often requires early financial involvement from the state — either through equity, debt or guarantees.** With increasing supply chain development and project management experience, traditional barriers to investment should be reduced sufficiently to enable private capital to flow in and support the increasing needs of the industry. As such, transitional transaction frameworks will be needed until an independent power producer (IPP) model can be reached, with decreasing state support.

Finally, the current financial landscape is marked by **unprecedented levels of available capital**, often referred to as "dry powder," in infrastructure and energy funds. This represents a unique opportunity to mobilize these resources toward nuclear, provided the right public-private frameworks are in place. As of Q1 2025, **US$1.6 trillion of capital in private equity and credit remained untapped**. This significant source of liquidity should be better utilized to address the challenges facing the incoming nuclear renaissance.

Financing the nuclear industry concerns many actors with various considerations

	Nuclear funding Current	Nuclear funding Capacity	Comment	Examples
States and public bodies			States and public bodies provide **direct financing** and **guarantees** on loans, covering **nuclear** and **construction risks.**	French State, World Bank Group, Government Offices of Sweden, US DOE, Indian Department of Atomic Energy, Government of Canada, Ministry of Finance of Czech Republic, Republic of Slovenia, European Invesment Bank, Swedish National Debt Office, Finnish Government, Government of India, Republic of Polan, Ministry of Trade Industry and Energy of Korea, Russian Government and UK Department for Energy Security and Net Zero.
Export credit agencies (ECAs)			**ECAs are major financiers of nuclear projects, supporting states by covering 85% of exported contracts.**	Exim, KSure, Sace, Bpi France, Export Development Canada (EDC), Korea Eximbank, UK Export Finance, Exiar, Sfil, Sino Sure, JBIC, The Export-Import Bank of China and Vnesheconombank.
Sovereign funds and state development banks			Sovereign funds and state development banks have historically been involved in the **financing infrastructure projects**, including nuclear power plants.	PIF, Caisse des Dépôts, QIA, ADQ, VTB, China Development Bank, CDPQ, Mubadala, Samruk, Norges Bank and DFC.
Infrastructure funds			Infrastructure funds primarily make debt investments, and more recently equity investments, in **companies** and **new-build projects** as part of their **energy transition portfolios**.	Brookfield, Ares, Apollo, Segra, Global Infrastructure Partners, Amber Infrastructure Group, Adia, BlackRock, ECP and Macquarie.
End users and offtakers (e.g., industrials)			End users and offtakers are increasingly investing in nuclear technology or projects to **secure a clean energy supply**, particularly **technology giants** and **energy-intensive industrials**.	Rio Tinto, ArcelorMittal, Saint-Gobain, Gorgé, Microsoft, Google, OPG, Centrica, Air Liquide, Dow, Doosan, Meta, Arkema, Cirstal Union, Chevron, Westinghouse, Nucor and Amazon.
Commercial banks and investment banks			Commercial banks and investment banks have historically been involved in financing nuclear projects; however, most commercial banks still make **significant loans** to finance these projects alongside **government support**.	Bank of America, Goldman Sachs, BNP Paribas, Citi, ICBC, Morgan Stanley, NIB, J.P.Morgan, Crédit Agricole, Société Générale, Barclays, Bank of China, ADCB, HSBC, Guggenheim and Industrial and Commercial Bank of China.
Pension funds			Pension funds invest in infrastructure assets that provide **inflation-protected returns** and meet their **investment criteria** as part of their **long-term**, **passive strategies**.	PME Pensionenfonds, AustralianSuper, Calstrs, Omers, ABP, PFA pension, USS, Pension danmark, Ontario Teacher's pension fund and CalPERS.
Private equity (PE) funds			PE funds invest in profitable, growing companies within the nuclear industry that have **predictable cash flow** and **diversified activities**.	Ardian, Siparex, Blackstone, Omnes, DSPE, Eren groupe, Soros fund management, KKR, Pelican energy partners, Otium and Carlyle.
VC funds			VC funds focus on **next-generation nuclear startups** and **fast-growing companies**, primarily those in the R&D phase, such as fusion, microreactors and SMRs.	92 Capital, Supernova invest, Climate pledge fund, DCVC, Khosla ventures, Breaktrough energy, Ark invest, Giant, Serena, Andreessen Horowitz, Draper associates, Nucleation Capital, Union Square Ventures and Exergon.
Insurance funds			Insurance funds support nuclear projects as **insurers** (e.g., "Assuratome"), which **enables investments** and could potentially **finance projects more directly**.	Allianz, Swiss Re, Generali investments, Aviva investors, LGIM, Axa, Munich RE, Zurich invest AG, Aegon Asset Management, Groupama Asset Management.

○ Low --- ● High

A four-pillar framework to attract private investors from venture capital into early-stage nuclear startups and investment funds for utility-scale plants

How to enable states to attract private investors?

Policy instruments

- **Long-term revenue mechanisms** such as CfDs, RAB, and capacity remuneration mechanisms to guarantee revenue streams
- **Sovereign debt guarantees** or **direct lending** are provided for reactors facing FOAK risks
- **Protection against policy changes** is enshrined into law

Risk-sharing mechanisms

- **Sovereign-backed construction** and **completion risk-sharing mechanisms**
- **Nuclear liability policies** (in accordance with Paris and Vienna treaties), and **supply-chain resilience bonds**
- **Milestone-based payment** schedules (e.g., French nuclear industry trade association GIFEN's dynamic financing model)

Financing structures

- **Blended finance vehicles** combine concessional capital and commercial tranches to lower hurdle rates
- **Green and transition bonds** involve the definition of nuclear eligibility criteria under emerging taxonomies
- **Project-level securitization** refers to the pooling of revenue-generating assets into tradable instruments, such as SMR fleets and waste management facilities

Project-market linkages

- **Early engagement toolkits** consist of standardized technical and financial due diligence packages designed to accelerate bankability
- **Investor-developer platforms** serve as digital marketplaces that showcase vetted nuclear projects with standardized documents
- **ESG certification frameworks** provide a third-party **audited methodology** to validate environmental and social safeguards, thereby reducing perceived reputational risk

“

Additional comfort comes from political, governmental and state involvement through the regulatory framework, nuclear regulation, damage compensation and treatment protocols.

UK investment bank

“

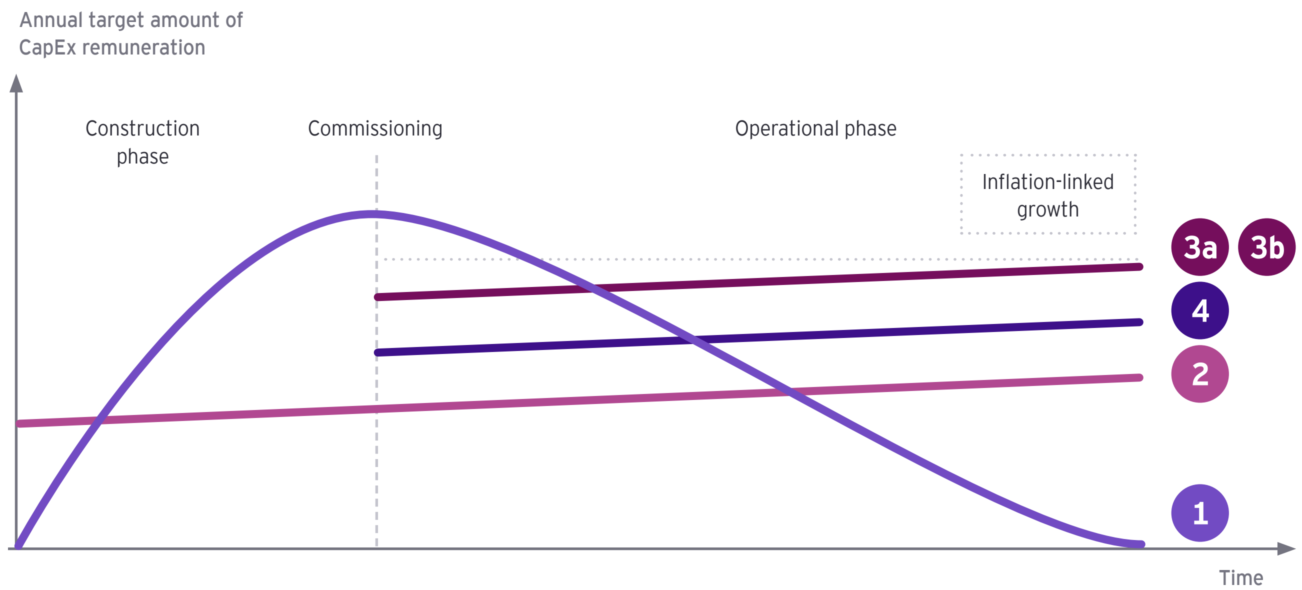
The clarification of the taxonomy has unlocked significant liquidity throughout the financing chain, enabling investors who previously couldn't consider nuclear portfolio investments to participate now.

UK investment bank

Financial levers can help de-risk project costs and revenues

	Model type	Description	Case study
1	RAB	The model compensates the infrastructure operator from the start of construction to the end of the asset's life based on its value, specifically the net book value remunerated at the WACC plus asset depreciation. Remuneration increases as the asset gains value during construction, peaks at commissioning and then gradually declines as the asset depreciates during operation.	Sizewell C
2	CfD with advanced payments	The model provides the infrastructure operator with a fixed annual payment starting **from construction**, aiming to achieve a target IRR over the asset's whole operational lifetime.	
3a	CfD from commissioning - revenues	The model provides the infrastructure operator with a fixed annual payment starting from commissioning, aiming to achieve a target IRR over the asset's lifetime. With risk-sharing between the operator and the state.	Dukovany
3b	CfD from commissioning - price	The model provides the infrastructure operator with a fixed selling price starting from commissioning, with risk carried by the operator.	Hinkley Point C
4	PPA	The model provides the infrastructure operator with a fixed annual payment starting from commissioning, aiming to achieve a target IRR over the asset's lifetime by guaranteeing the offtake of the plant's output through a private law contract, often with an electro-intensive industrial.	Akkuyu

Annual target amount of CapEx remuneration



Impact of each revenue model on stakeholders					
	States	Equity provider	Debt provider	Operators	Consumers and taxpayers
	−	+ +	+ + +	+	− − Taxpayers and consumers
	− −	+ +	+ + +	+	− Consumers
	+ −	+	+ +	+	− Consumers
	+	+	+ +	−	− Consumers
	None	+	+	+ +	+ Consumers

− Unfavorable + Favorable

It is **difficult to determine the competitiveness** of these models because their costs impact state budgets, which is a **macroeconomic issue**, as well as their **political costs**, which affect taxpayers, consumers and the legitimacy of politicians.

What are the financing structures used for NPP construction, and how have risks been mitigated in each project?

Plant name	Status	Financing principle[1]	FOAK	Structure of financing		
				Corporate finance	Project finance	Hybrid model
Lubiatowo-Kopalino	Construction planned	Gov. loan and guarantee	✓		✓	
Paks II	Construction planned	Financing inter governmental agreement	✓	✓		
Dukovany II	Construction planned	CfD, Gov. loan	✓		✓	
Sizewell C	Construction planned	RAB	✗		✓	
Olkiluoto 3	In operation	Mankala principle: electro-intensive equity providers	✓			✓
Flamanville 3	In operation	Internal	✓	✓		
Taishan 1&2	In operation	Private/public JV	✓		✓	
Vogtle 3&4	In operation	CCR, loan guarantee	✓		✓	
VC Summer 2&3	Cancelled during construction	CCR, loan guarantee	✓		✓	
South Texas 3&4	Cancelled before construction	CCR/PPA, loan guarantee	✓		✓	
Hinkley Point C	Under construction	CfD	✓		✓	
Wylfa Newydd	Suspended before construction	CfD	✓		✓	
Akkuyu 1&2	Under construction	PPA, Inter-gov. agreement	✗		✓	
Shin Kori 3&4	In operation	Internal	✓	✓		
Barakah 1-4	In operation	PPA, Inter-gov. agreement	✗		✓	

Evolving the UK's nuclear financing model

As summarized in a Sfen article, the negotiation for financing Hinkley Point C through a CfD has been criticized and will probably not be used again. The constraints and a pragmatic approach have forced all players to look into new nuclear financing models. Notably, the government has shifted to the RAB model for Sizewell C, designed to lower financing costs by sharing risks with consumers during construction and attracting a broader range of investors.

Allocation of market risks			Allocation of construction risks			
Consumers B2C or B2B	Taxpayers	Utility	Consumers	Utility and developer	Vendor	Debt guarantee
	R			O	C	Polish government
	R			O	C	Hungarian government
	R			O	C	Czech government
R			R[2]	O	C	UK NWF French ECA
O Electro-intensive end users				O	C	French ECA
		O		O	C	None
R			R[2]			None
R	R		R		C	US federal guarantee
R	R		R		C	US federal guarantee
C				O	C	None
C				O		UK government
C				O		Japanese ECA
C				C[3]		None
R			R			None
C					C	Korean ECA

1. Financing models: Construction Cost Recovery (CCR),Financial Inter-Governmental Agreement (FIGA).
2. Set after commissioning.
3. Build-own-operate (BOO) model.

C Contract R Regulation O Ownership

Operational levers can represent a significant risk to design and construction phases

High-level review of operational levers

Most quoted

Design

Standardize and freeze effective designs

- Finalize the design before site selection.
- Prevent optimism bias during the design stage.
- Avoid overengineering due to FOAK complexity.

Construction

Pivot to engineering, procurement, and construction (EPC) business models with operational excellence

- Rigorously review constructability to boost efficiency.
- Build realistic, resource-loaded schedule.
- Secure budget with fixed pricing.
- Centralize accountability under one lead.

“We need an EPC model similar to that used in wind energy — to relieve and de-risk players like EDF.

EDF, France

“One of the primary challenges for the new nuclear industry is gaining price certainty from equipment suppliers. The challenge is enormous for projects of this size to have uncertainty around the final cost of these SMR FOAK projects. To the extent an original equipment manufacturer (OEM) can provide certainty on price that will serve to accelerate product delivery.

Guggenheim Partners, US

Commissioning

Least quoted

Train the workforce early to ensure a smooth learning curve

- Budget for intensive programs to upskill non-nuclear workers.
- Standardize nuclear-specific training across functions.
- Offer competitive employment packages locally.

Apply nuclear specialist insurance

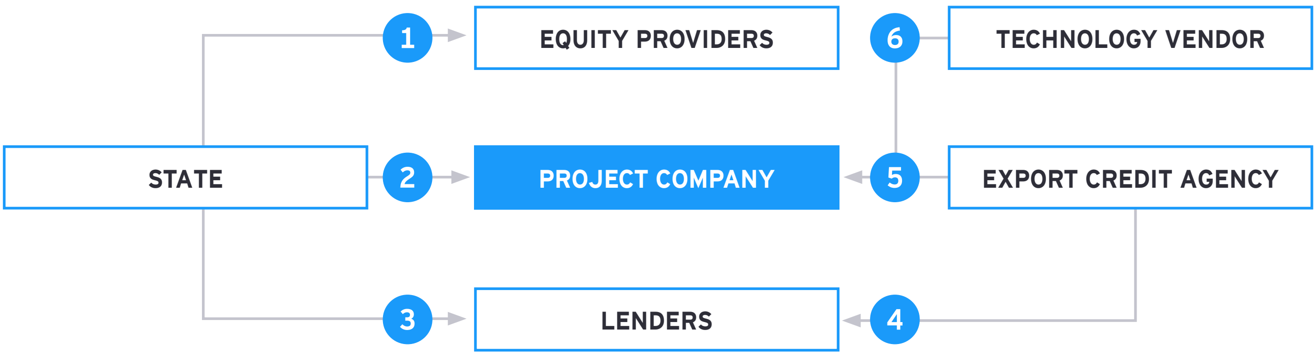
- Insure subcontractors for work hazards that could delay completion.

“The current framework offers poor coverage for the consequences of nuclear operations made by a subcontractor to a third party like a nuclear operator. In the nuclear sector, all insurance contracts apply to new constructions, and the main insurance policies exclude or provide very weak coverage to protect the suppliers once the radiological risk is effective.

Miller Insurance, Europe

Suggested financing scheme for large-scale nuclear

Overview of the proposed transaction structure for FOAK projects



1 Risk-sharing mechanism for overruns and delays

- The model could replicate a tiered gainshare mechanism for overruns and delays, similar to the one seen at Sizewell C, where the state bears the cost of excess spending beyond a threshold and provides incentives in case of CapEx spending is below a baseline case
- This would shield the investors from excess FOAK risk while incentivizing capital providers to invest in infrastructure with regulated returns

2 Regulated returns, long-term price offtake and protection against policy changes

- The state would guarantee a minimum return to the project company through a long-term revenue mechanism, such as a CfD or RAB
- In addition, the state should provide legal protection against policy changes, including early shutdowns and program cancellations
- Finally, the state could grant loans at preferential rates by issuing bonds and using transfer mechanisms for the project company

3 4 Sovereign and ECA guarantees

- The government should provide a direct guarantee to lenders on the quantum of debt raised (including derivatives) without commission, including through ECA coverage (tied and untied instruments), to backstop its financing obligations in case of cost increases

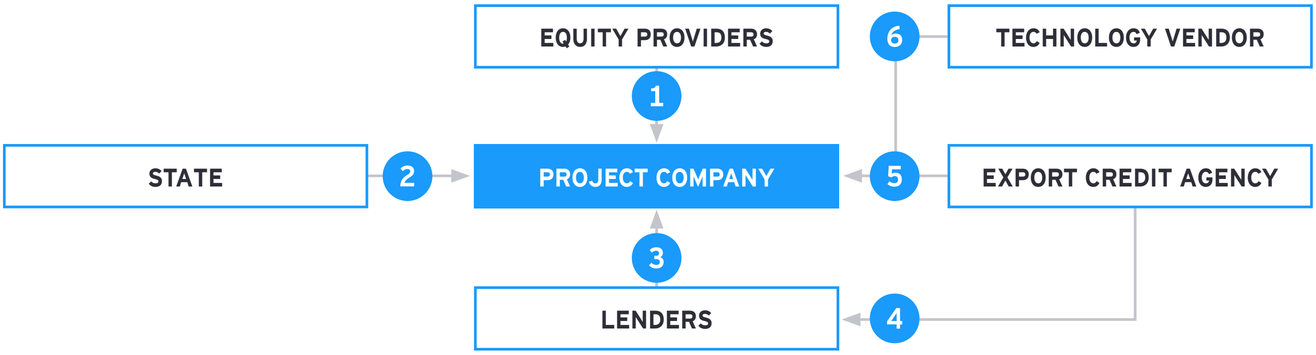
5 ECA direct lending and supply chain support

- Mobilization of ECAs should be encouraged to finance parts of the nuclear energy package in addition to the commercial financing provided by other lenders

6 Vendor support

- Nuclear technology vendors should be incentivized through pain-share agreements
- However, in advanced economies, a full-wrap EPC is highly unlikely to be provided, which means some degree of interface risk will need to be managed by both the government and project company

Overview of the proposed transaction structure for next-of-a-kind projects



1 Equity investment in a regulated asset class

- Long-term infrastructure investors seeking high-yield assets will be incentivized to inject capital into projects alongside nuclear power plants owners and utilities

2 Regulated returns, long-term price offtake and protection against policy changes

- The state would guarantee a minimum return to the project company through a long-term revenue mechanism, such as a CfD or RAB

3 Commercial lending on a project finance or IPP basis

- Commercial lenders will be able to provide structured financing products for nuclear, adapted to the long availability and repayment durations of the industry

4 ECA guarantees

- ECA coverage (tied and untied instruments) will be widely used much as it is today, to cover export contracts within the financial package

5 ECA direct lending and supply chain support

- ECAs will finance parts of the project financial package in complementing commercial financing provided by other lenders

6 Vendor support

- Given the much greater technological and supply chain readiness, vendors will again be able to provide EPC turnkey packages, addressing significant interface and cost and delay risks internally

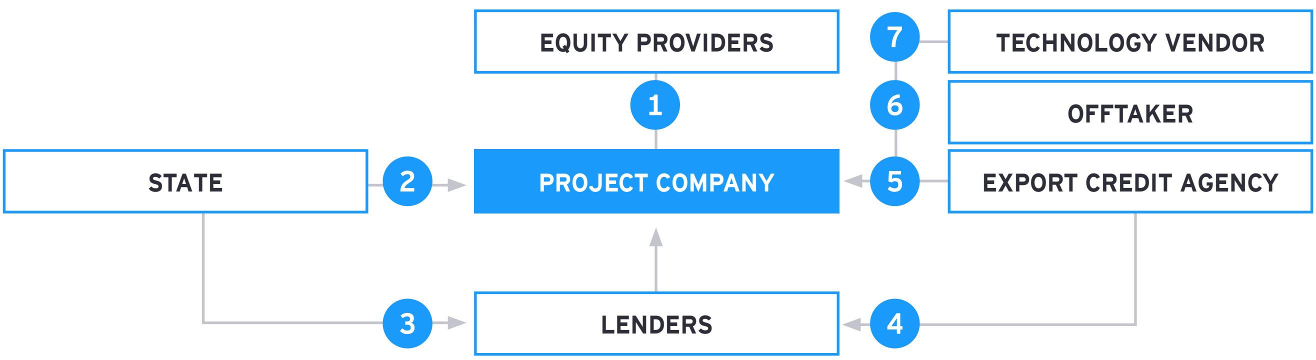
Suggested financing scheme for SMRs

> I was confident when I started Calogena project because I structured this long-term project with the dual perspective of a financial investor and a long-term industrial entrepreneur. Only a family business can bring full commitment and agility to execute a 15-year business plan.
>
> Calogena, France

> Some AMRs, such as HEXANA, can serve co-generation purposes (electricity and heat) with flexible supply, significantly reducing both WACC and heat production costs, thereby enhancing financing attractiveness.
>
> HEXANA, France

Overview of the proposed transaction structure

SMRs are expected to offer a more agile and flexible financing model, as they could be developed through one-to-one agreements with energy-intensive industrials or IT giants – as demonstrated by data center operators' recent appetite for SMRs – requiring smaller CapEx amounts. Yet, the market maturity still needs to be proven.



1 R&D financing (VC) and asset financing (infrastructure funds)

- In the R&D and design phase (especially FOAK), VC-like funds could emerge as equity providers, as SMR and AMR vendors operate like startups at this stage
- Specifically, fusion vendors draw in large VC and growth equity financing due to their wide range of applications beyond energy production (e.g., lasers, medicine and other applications)

2 Regulated returns, long-term price offtake and protection against policy changes

- Same as large scale NOAKs
- Specific offtake mechanisms for heat generation could be instated for longer periods (exceeding 15 to 20 years), to insulate the project from volume and price risk in the long-run

3 4 Sovereign and ECA guarantees

- Same as large scale NOAKs
- The state could provide repayable financial assistance to support the startup phase of the SMR project (plant costs, industrial kick-start of serial production)

5 ECA direct lending and supply chain support

- Same as large scale NOAKs

6 PPAs with energy-intensive actors and ancillary services

- SMRs have been particularly favored by technology companies to sustain their growing computational needs (e.g., AI, VR and blockchain), and multiple companies have signed PPAs to deploy their fleets in coordination with new data centers
- Ancillary services can be provided by SMRs, such as hydrogen production, district heating, and heat for steel and aluminum production

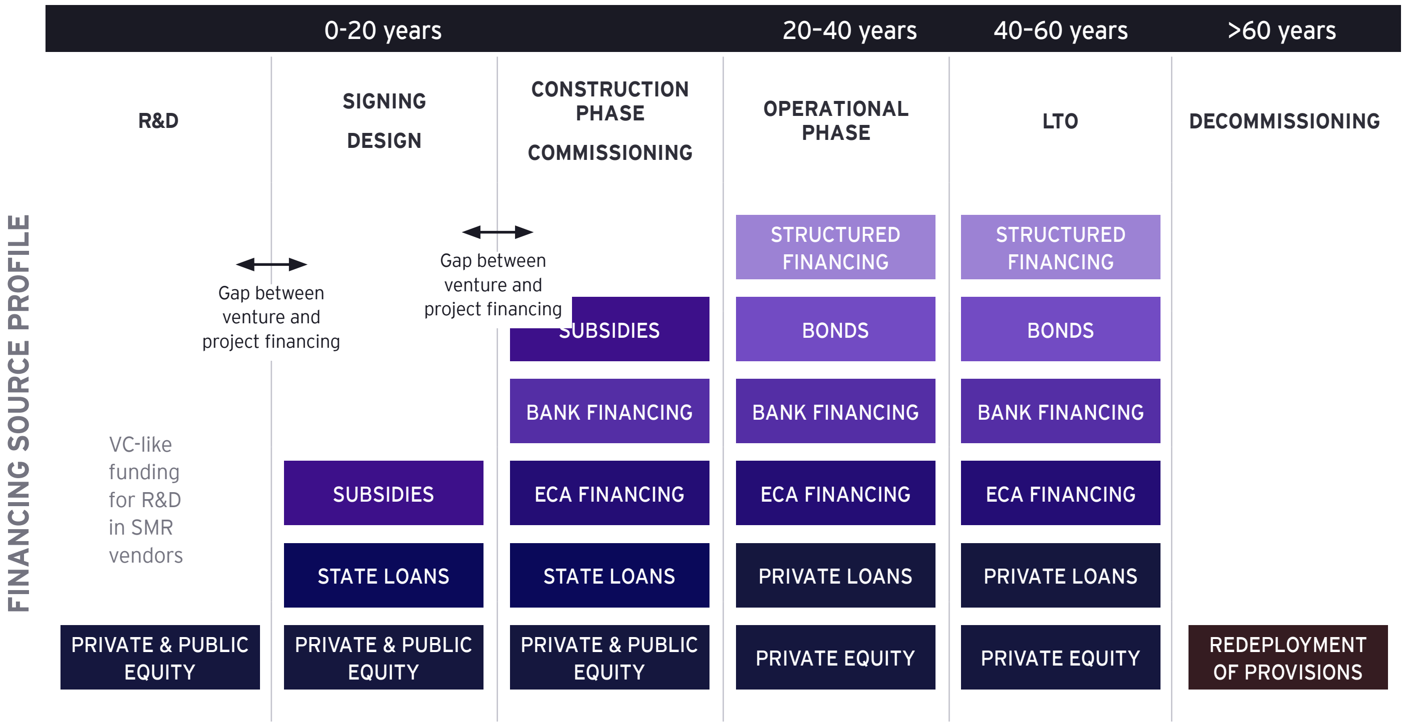
7 Innovative project delivery structure

- SMRs have the potential to be manufactured offsite and assembled locally, significantly reducing project complexity and interface risks

Appropriate financing needs to be mobilized at the right time to leverage all stakeholders' risk/return preferences

> Nuclear projects start becoming eligible for private funding once half to three-quarters of construction is completed.
>
> Global investment bank

Preferred source of capital by project phase



- Risks and returns are considered throughout the entire project, regardless of entry timing; however, we can call for different types of investors at various phases of the plant's lifecycle. It is illustrated by the tranche financing of Canada Growth Fund Inc. and Building Ontario Fund in the Darlington New Nuclear Project: a first tranche for the SMR 1 (FOAK), and additional tranches for the 2,3 and 4 after milestones are completed
- Nuclear financing requires multiple refinancing phases with specific entry KPIs for each phase. Public support (such as subsidies and state zero-rate loans), like in France with the EPR2 program, helps reduce upfront construction costs. Private investors can step in later – e.g., at commissioning – when risks shift from construction to operations, and again at LTO, fixing returns and margins and creating a layered investment approach over time.

> Private capital is essential at two stages of SMRs/AMRs development process: initially by funding technologies, notably via equity investments in startups that allow them to significantly increase their project TRL, then at a second stage, once conditions are met, by supporting demonstration and deployment though schemes based on project financing.
>
> Exergon, Europe

> Mobilizing investors at different stages of a nuclear project can broaden the pool of available capital and enhance the overall financing framework.
>
> Senior Advisor, OECD-NEA

Supply chain considerations

5

> We are targeting companies in the nuclear supply chain or companies that manufacture equipment with end-usage in the nuclear industry. It helps de-risk our portfolio e.g., a pump manufacturer for large reactors and other industries.
>
> 92 Capital, Denmark

The supply chain presents a **compelling and lower-risk entry point for private investors**. Closely tied to the broader nuclear ecosystem yet less exposed to the risks previously mentioned, the supply chain is inherently more **diversified**, offering tangible opportunities to **support industry growth while aligning with investor risk-return expectations**. In this section, we provide an ad-hoc analysis of this critical segment.

Operations and maintenance, as well as **component manufacturing**, offer the highest investment potential, with several **consolidation opportunities among medium-sized** players.

Segments metrics and characteristics | French case

SEGMENT	Number of companies	Turnover (€ billion)	EBITDA (€ billion)	EBITDA (percentage of total)	Dominant ownership structure	Level of nuclear specialization	Key segment challenges
Component manufacturing	160	99.7	13.8	52%	Private Subsidiaries		I C P
Engineering	70	25.4	2.1	8%	Private		I P
Operations and maintenance	50	6.6	0.4	2%	Private		I C P
NPP construction	30	40.5	0.5	2%	Subsidiaries		I P
IT and cybersecurity	20	37.9	6.9	26%	Subsidiaries		I
Testing and certification	20	8.4	1.4	5%	State-owned or association	LARGE GENERALISTS / NUCLEAR SPECIALISTS	P
Decommissioning plus fuel processing	20	19.9	1.3	5%	Private Subsidiaries		P
HR consulting/training	10	2.4	0.1	0%	Private		I P

Low specialization · High specialization

I Internationalization · C Consolidation · P Productivity gains

> Many potential investors express strong interest in the nuclear supply, which considering the long-term revenues, generated by new build program prospects the robust healthy financial status and the expertise in critical environments of the workforce in this supply chain.
>
> GIFEN, France

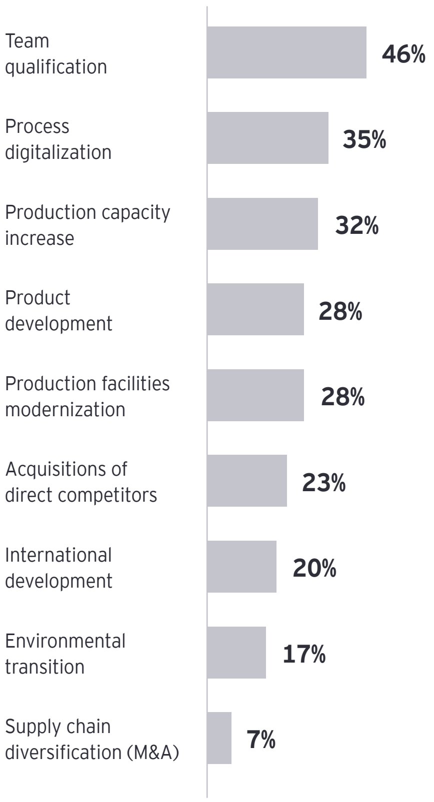
> Paradoxically, fusion startups may seem more attractive to generic private investors than fission startups, since fusion tech needs to develop a wide range of innovative devices with alternative applications in fields like healthcare or defense, which can be patented and generate short-term value.
>
> Bpifrance, France

> Boosting the industrial performance of a supply chain built on hundreds of SMRs is critical to eliminating delays and cost overruns in major nuclear projects. This demands bold investments in people, processes, and modern production assets. Unlocking them requires genuine client-supplier co-industrialization and long-term contracts — grounded in fair risk-sharing, advance payments, and targeted public incentives for productive investments.
>
> Alfeor, France

DEVELOPMENT PRIORITIES (ALL SEGMENTS)

What are the projects of your company that would require financing?

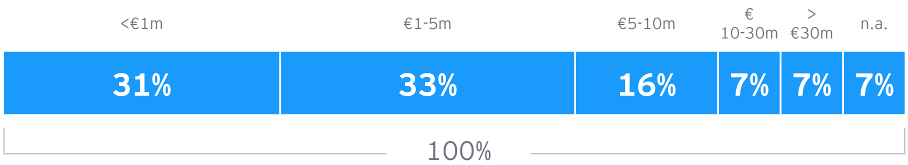
Number of respondents: 213



So, how can private investors actively support and accelerate the growth of these critical segments? Most supply companies need funding of under €10 million, coming from banking loans as a priority, as well as PE funds to finance their development.

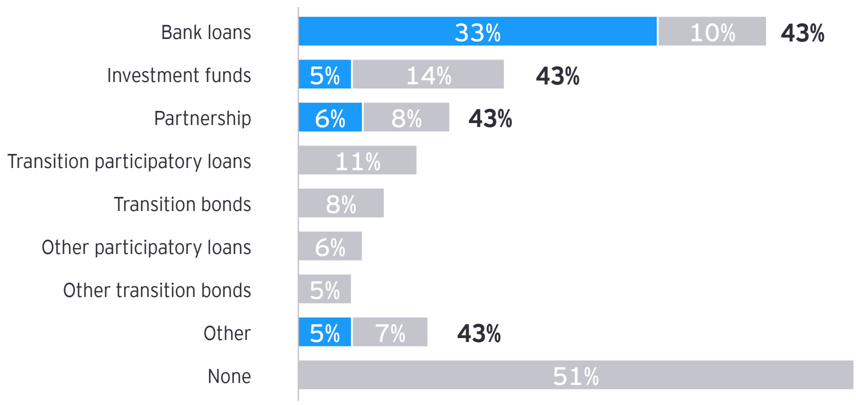
Range of financing amounts needed to fulfill development projects (€; %)

To finance theses projects, what amount would most likely answer the financing needs of your company in the next three to five years? Number of respondents:152.



FINANCING OPTIONS AND ORDER OF PRIORITY (%)

To successfully deliver your projects, could you consider using these financing options? Number of respondents: 213.



Conclusion

At what stage has each player shown the ability and desire to invest in the nuclear value chain?

Matrix of the types of investors and their ability and desire to invest in nuclear

Type of private investor	Development and R&D phase	Construction phase	Operational phase	SMR and AMR (innovation)	Supply chain
States and public bodies	●●●	●●●	●●○	●●●	●●○
ECAs	●●○	●●●	●○○	●●○	●●○
Soverign funds and state development banks	●○○	●●○	●●● Long-term view	●●● Growing	●●● Sovereign funds backing country SMRs
Infrastructure funds	●○○	●●●	●●● Long-term debt	●●○ Growing	●○○
End users and offtakers (e.g., industrials)	●○○ Growing	●●○	●●● Long-term contracts	●●● Value chain integration	●○○
Commercial and investment banks	○○○	●●○ With guarantees	●●○ Long-term debt	●●○ Growing	●●○ Loans to financially robust companies
Pension funds	●○○	●●○ With guarantees	●●● Long-term debt	●●○ Growing	●○○
Private equity funds	●○○	●●○	●●● Equity	●●○ SMRs	●●● Diversified, value creating companies
Venture capital funds	●●○ Fission ●●● Fusion (multi-application)	●○○	●○○ Equity	●●● SMRs	●○○
Insurance funds	●○○	●○○ With guarantees	●●○ Long-term debt	●●○ Growing	●○○

○○○ Low interest to ●●● High interest

+L Very low interest · L Low interest · M Moderate interest · H High interest · +H Very high interest

Investment thesis	Risk acceptance
▪ Energy security ▪ Net-zero goals ▪ Strategic autonomy and grid stability	H
▪ Supporting national exports	H
▪ Long-term clean asset ownership	M
▪ Long-term regulated asset ownership	M H
▪ Value chain integration ▪ Energy independence	M L
▪ Long-term low-risk investment (debt)	L
▪ Long-term clean asset ownership	L
▪ Growth capital (high equity returns)	H
▪ Growth capital (very high equity returns)	+H
▪ Long-term regulated asset ownership	+L

Private investors are typically **deterred from nuclear projects due to regulation**, **construction** and **revenue risks**. However, the **EY organization advocates for a phased investment approach** that aligns each **investor profile** with the **appropriate stage of the project**, keep ensuring **risk-return objectives are met** while **easing the financial burden on states**. A summary table illustrates how various types of private investors can contribute across different phases and asset types – from R&D to supply chain to infrastructure.

Looking ahead, new financing pathways could further transform the nuclear landscape. This could occur through a **European SMR alliance pooling** capital across borders, greater involvement from **technology and electro-intensive offtakers** in bundled infrastructure plays (e.g., SMRs co-located with data centers), **innovative schemes** that evenly share risk among stakeholders, or broader adoption of **RAB** models adapted to **local regulations**.

Unlocking private capital for nuclear is **not just a matter of de-risking**; it is about **reimagining how we build strategic infrastructure in the 21st century**.

By aligning the **right capital with the right phase** and securing **public-private cooperation** around clear long-term goals, nuclear energy can shift from being a **state-financed exception to a scalable**, **investable asset class**.

If stakeholders succeed, the **reward will not only be cleaner baseload energy**, but also a **blueprint for financing the next generation of global infrastructure with confidence**, **accountability** and **shared ambition**.

What the future holds remains to be seen, but the foundations can be laid today.

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