World Nuclear Investment Guide

Roadmap to Mainstream Finance: The Path to Scale Nuclear Energy

The pathway from today's largely government-led and bespoke finance to nuclear as a competitive, mainstream infrastructure asset class.

WORLD NUCLEAR ASSOCIATION

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World Nuclear Association is the international organization that represents the global nuclear industry. Its mission is to promote a wider understanding of nuclear energy among key international influencers by producing authoritative information, developing common industry positions, and contributing to the energy debate.

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Definitions and rationale

What is mainstream finance? What role can it play in helping the industry minimize the cost of capital?

For the purposes of this Guide, *mainstream finance* and *commercial finance* are used interchangeably.

Mainstream finance is the global market of commercial investors, financial institutions, and capital allocators that deploy capital based on competitive risk-adjusted returns. It represents the largest pool of capital available to the real economy, informed by extensive market experience and continuous risk assessment. In a well-functioning market, mainstream finance prices and allocates risk in a way that preserves capital and generates expected returns.

Risk is the primary determinant of both the cost and availability of mainstream capital. When risks are poorly understood or lack a track record of successful transactions, investors become more cautious, capital becomes scarcer, financing costs increase, and liquidity declines. At one end of the market, venture capital and non-investment-grade debt are willing to accept higher levels of risk in exchange for higher returns. At the other, large institutional investors favour the stable, long-term cashflows typically associated with infrastructure assets.

Capital-intensive industries that require both innovation and large-scale deployment such as civil aviation, rolling stock and pharmaceuticals, are relevant benchmarks for nuclear industry financiers. They regularly draw on different sources of capital as technologies and business models mature. To achieve its full potential, the global nuclear industry needs to do the same and attract capital at a scale and cost that exceeds historical norms.

Mainstream finance is essential to the industry's growth and scaling imperatives because accessing large pools of commercial capital requires projects, developers and supply chains to reduce, mitigate, allocate and accurately price risk and reward. Commercial finance imposes financial discipline that supports long-term industrial competitiveness and reduces structural dependence on government balance sheets.

Mainstream financiers are distinct from state-backed entities (including public development banks, development finance institutions, multilateral financial institutions, specialized financial institutions, and export credit agencies). These institutions often provide capital on linked, blended, or concessional terms, or deploy guarantees and insurance instruments in pursuit of public policy objectives rather than purely commercial ones. Their role is often catalytic, helping mobilize commercial finance rather than substituting for it.

Mainstream finance is presented here as the target model, but it is not the only viable model; many mature financing frameworks co-exist in support of nuclear technologies, and not all require sustained access to private capital markets. However, the ability to attract commercial finance at scale is a reliable indicator of an industry's progress in reducing risk, improving competitiveness and achieving long-term economic sustainability.

Why a Roadmap for mainstream finance?

Nuclear finance at an inflection point

After decades of uneven progress, nuclear energy is re-emerging as a core component of national energy strategies across a growing number of markets. This shift is being driven by three structural trends: rising demand for clean, reliable power; the imperative of energy security; and the emergence of new sources of electricity demand, including electrification, industrial growth, and data centre expansion.[1] The International Energy Agency (IEA) projects that 2026 to 2030 will see 50% more electricity demand growth per year than the previous decade.[2] Nuclear's unique value proposition has become increasingly well-understood in this context. As a low-carbon source of firm, dispatchable energy, nuclear can contribute to the least-cost pathway to a clean energy system.[3] 31 countries currently operate commercial nuclear reactors, while dozens of others are exploring, planning or advancing programmes to introduce or expand nuclear capacity.[4] Approximately 60 reactors were under construction worldwide as of mid-2026, with over 100 more planned or on order.[5]

The policy environment has also shifted materially. The EU taxonomy for sustainable activities now recognizes nuclear as a transitional activity, contributing to climate change mitigation.[6] For the first time in decades, the World Bank Group will begin to re-enter the nuclear energy space, having formalized a new partnership with the International Atomic Energy Agency (IAEA) in June 2025, signalling renewed multilateral development bank engagement with the sector.[7] Production tax credits in the United States provide durable economic support for both operating and new-build capacity.[8] Finally, the COP28 Declaration to Triple Nuclear Energy Capacity by 2050, sponsored by World Nuclear Association and backed, as of June 2026, by 38 countries representing over 70% of global GDP, demonstrates collective political ambition.[9] Together, these signals are giving supply chains the confidence to invest in new capacity and nuclear developers the visibility to advance through licensing and other precommercial milestones.

Capital markets are beginning to respond. In areas where the nuclear financing ecosystem is still maturing, financiers are beginning to develop the origination capabilities and financial infrastructure needed to support emerging nuclear opportunities.

Changing risk profile

Between 1970-89, nuclear capacity tripled from 100 GWe to 300 GWe, but momentum then stalled. Some countries, including China, Russia, Japan (until 2011) and South Korea, have continued building nuclear power plants, while in Western Europe and North America many projects were abandoned or suffered from delays and cost overruns. They became cautionary tales, reinforcing the perception in those regions that nuclear is too expensive and takes too long to build. This primarily was the result of project delivery failures, loss of industrial capacity and regulatory delays rather than any fundamental flaw in the performance, safety or cost of the technology itself.

Nuclear plant construction in China or South Korea[10] demonstrate that nuclear projects can achieve competitive construction schedules and costs when supported by strong industrial capacity, regulatory certainty, standardized designs and sustained deployment programmes. Their track record is a primary reason that the IAEA[11], IEA[12] and OECD Nuclear Energy Agency (NEA)[13] place nuclear capacity growth prominently in least-cost pathways to clean energy.

A financing gap

While the strategic case for nuclear is strengthening, mobilizing sufficient capital remains one of the central challenges. World Nuclear Association estimates that achieving the existing governments' nuclear ambitions of 1446 GWe by 2050 (more than tripling current capacity)[14] would require around $6 trillion of nuclear investment over the next 25 years,[15] an average of approximately $250 billion per year, roughly three times today's annual investment of $75 billion.[16]

Yet, outside of China and a small number of other domestic markets, capital is not flowing with sufficient scale, predictability or regularity to meet global demand for nuclear energy. Government balance sheets, sovereign wealth funds and other strategic investors remain essential, but they cannot provide capital at this scale alone.[17] In many parts of the world, private capital will be needed to complement public investment and support the scale of nuclear deployment that governments and energy markets increasingly require. A credible path to mainstream finance is a practical necessity to inform and enable financial decision-making consistently with fleet deployments.

For mainstream financiers, the main barrier is not one of capital required or risk appetite, but of market readiness and long-term policy commitment. Financial frameworks, standardized instruments, comparable market data, and track records that allow mainstream investors to assess and price nuclear risk with confidence are still being developed.

Two components of this gap are particularly acute. First, development-stage financing for activities such as licensing, engineering, site preparation and early procurement, typically has no revenue stream to support it and falls outside standard project finance structures, leaving developers reliant on corporate balance sheets, vendor risk-sharing or early-stage catalytic capital. Second, the supply chain requires its own financing. Manufacturers and component suppliers need working capital, tooling investment and capacity expansion funding well ahead of confirmed orders, distinct from the financing of the plant itself. Export credit agencies, trade finance and supplier-focused guarantee instruments are central to closing this gap. Closing both gaps is a precondition for the transition described in this roadmap.

The Roadmap: Three Phases to Mainstream Finance

This Roadmap to Mainstream Finance maps the phased transition from today's strategic capital-dependent model to a liquid, competitively priced global nuclear asset class. The Roadmap helps stakeholder groups identify opportunities, and identifies milestones that will allow faster, more predictable financing decisions across the nuclear project lifecycle.

Experience from capital-intensive industries such as offshore wind[18], telecommunications, and toll roads, suggests a common pattern of financial maturation. As technologies mature and delivery risks become better understood, financing evolves from government support and highly bespoke structures towards standardized instruments, institutional capital, and eventually liquid secondary markets.

Nuclear has operated commercially for more than six decades, but its financing has been shaped by unique regulatory requirements and public policies largely in isolation of market signals. In most markets outside China and a handful of established nuclear programmes, financing has only just begun to evolve. The three phases of the roadmap describe how nuclear financing can be expected to grow and evolve as the industry matures and scales its offering.

The Three-Phase Journey

Roadmap scope and applicability

This Roadmap primarily addresses the financing pathway for new reactor build, long-term operation (LTO), and major uprate transactions. These segments, in particular new reactor build, represent the largest capital requirement and the greatest need for external finance. The nuclear value chain offers multiple additional transaction opportunities (in uranium mining, conversion, enrichment, fuel fabrication, waste management, decommissioning) each with distinct risk and reward profiles, investor entry points, and financing instruments.

This Roadmap is not addressed to a single type of market. It is intended to be relevant to the full spectrum of countries engaged in nuclear deployment, from those operating large established fleets to those expanding existing programmes or planning to introduce capacity for the first time. The Roadmap does not prescribe how a country should finance its nuclear programme, nor does it assume that private or external capital is the appropriate or desired instrument in every context. Many countries will finance their first reactor projects through sovereign lending or intergovernmental agreements. The Roadmap neither endorses nor discourages any particular financing model.

What the Roadmap describes is the broader financial ecosystem that becomes available as the nuclear sector matures its offering, and the conditions under which external or private capital can participate and when a country, developer, or programme chooses to access it. The three-phase framework is a direction of travel towards global scaling, not a requirement for any individual country or project.

For newcomer countries, the Roadmap's value is primarily prospective. Locating the relevant part of the financial ecosystem, and the instruments, structures, and conditions associated with each phase, allows governments and sponsors to design legal, regulatory, and commercial frameworks now that do not foreclose access to private capital later. Decisions made during programme design, including liability convention adherence, revenue support architecture, and project SPV structuring, have long-term consequences for financing options. Building with mainstream finance as a reference point is good programme design, even where that capital is not the immediate objective.

For countries whose nuclear financing models rely primarily on public funding, this Roadmap shows the pathway towards a mature market where risk and reward are clearly understood and accurately priced. In this mature stage, government entities can participate on commercial terms, rather than solely in a sovereign capacity to provide de-risking mechanisms or other government-only functions.

Preconditions for Mainstream Nuclear Finance

Before commercial capital can be mobilized into nuclear at scale, a country, or a project, must first establish a set of foundational conditions. These are legal, institutional and regulatory prerequisites that every infrastructure investor will check before committing capital and are needed to build any financial architecture, regardless of the strength of the project economics. These conditions do not make a project investable on their own, but without them no commercial financing structure can be established.

A financial perspective on the IAEA Milestones Approach

The International Atomic Energy Agency's (IAEA's) Milestones Approach and its 19 infrastructure issues is an established framework for developing a national nuclear programme in a safe, secure and sustainable manner.[19] Although designed as a national readiness framework, these issues are directly relevant to financial due diligence since they define the institutional, legal and regulatory environment in which a project will be financed, built, operated and eventually decommissioned.

The IAEA's 19 infrastructure issues span policy, legal, regulatory, industrial and institutional domains and each carries a direct financial consequence. Collectively, they map onto the risk categories financiers assess at due diligence: political and regulatory risk (national position, nuclear law, licensing); revenue and construction risk (grid connection, supply chain, procurement); and long-tail liability risk (safeguards, radioactive waste management, decommissioning). Several, notably safeguards, safety, environmental protection and radioactive waste management, are not just risk factors, but binding conditions precedent to financing. These represent risk categories relevant to financial due diligence. How and in what order a country addresses them is a matter of national approach, not a fixed prerequisite sequence.

Drawing from the IAEA framework and standard project finance due diligence practice, several legal and institutional preconditions must be in place before any commercial financial architecture can be constructed around a nuclear project.

A liability regime and functional insurance market

What is required

Nuclear liability law must be enacted and in force, establishing:

- The operator's exclusive and strict liability for nuclear damage.
- A defined liability cap that is commercially insurable.
- Access to an insurance market capable of providing cover at the required level.

Adherence to the international nuclear liability conventions (Paris Convention/Vienna Convention and their supplementary compensation protocols) provides an internationally recognized baseline.

Why finance requires it

Without a defined and capped liability regime, investors and lenders cannot quantify or limit their downside exposure. Unlimited or uncertain liability makes insurance difficult to price and allocate risk effectively. Lenders require evidence that third party nuclear liability insurance is in place, or contractually committed, before any construction-phase investment takes place.

A clear and credible public authority approval pathway

What is required

An independent, adequately resourced regulatory body must be established, with defined jurisdiction over nuclear safety, construction permitting, operational licensing, environmental consent, and decommissioning approvals. The approval pathway (from site selection through construction licence, operating licence, periodic safety review, long-term operation authorization, and eventual decommissioning authorization) must be codified in law and publicly documented.

Why finance requires it

Regulatory licensing timeline uncertainty is one of the most significant sources of schedule and cost risk in nuclear project finance. Investors and lenders require confidence that:

- The pathway to each approval milestone is defined.
- The regulator has the capacity and statutory independence to execute reviews to a predictable schedule.
- Local and national consent processes for construction and operation are complete, or have defined completion timelines, before capital is committed.

Construction finance drawdowns are typically structured as milestone-based against regulatory approval events.

A legally sound and financially transparent corporate structure

What is required

The project owner and operator must be constituted as a legally defined entity with clear ownership, governance, accountability and financial reporting obligations. The corporate structure must resolve:

- When and how courts or regulators may hold the project owner liable (for example, in decommissioning, project abandonment, or safety incidents).
- How liability is ring-fenced or allocated across corporate structures (development, holding, project companies).
- What financial obligations, including decommissioning provisions and waste management funds, sit on the project entity's balance sheet, whether held as an externally segregated fund or as an on-balance-sheet provision, both of which are standard industry practice.

Why finance requires it

Security interests (the legal mechanism through which lenders take collateral over a project's assets, revenue streams and contracts) can only be perfected against a well-defined legal entity. Legal uncertainty about ownership, liability or regulatory jurisdiction creates risk that is not insurable and not priceable, and therefore not financeable. Courts must be able to decide on liability in the event of insolvency, accident or programme abandonment.

Establishing these pillars creates the legal and institutional foundation for financial engagement but they do not by themselves create investability. Investor confidence depends on additional factors, including project economics, revenue certainty, delivery capability, risk allocation and market experience, all of which are described throughout this Roadmap.

Phase 1: Strategic Capital

Government closes the financing gap; bespoke structures, no secondary market, long lead times to final investment decisions.

In many parts of the world, nuclear financing is characterized by first-of-a-kind or first-in-a-while projects and untested transaction models. This situation drives up market risk premiums and creates structural reliance on government support to underwrite costs and close funding gaps. The result is a financing environment characterized by elevated risk premiums, limited transaction replicability and dependence on public support.[20]

Category	Deployment considerations	Financing dynamics	Enabling functions
Technology & Programme Maturity	Programmes and projects are first-of-a-kind (FOAK).	Limited market liquidity and pricing benchmarks: high variance in programme/project economic outturns is dissuasive for low-cost capital providers resulting in an absence of standardized financial products and templates. Uneven efforts across markets to minimize design adaptation can lead to higher investment needs during development phase with overall lower returns in competitive markets.	Governments define the role of nuclear energy in the national economy to give market actors clarity on the opportunities and specific frameworks governing nuclear benefits, costs and risks allocation. Governments enable the removal of 'binary' risks for strategic investors and strengthen the investment case by closing gaps across project-level equity, debt, risk, revenue, and low probability-high risk events. During this discovery phase, governments are able to define clear, pre-agreed terms for public financing, ensuring alignment with market requirements.
Delivery & Supply Chain Capability	Unknown or high completion contingencies, costs and schedule risk. Organizational and functional maturity of supply chain partners is limited. Supply chains not fully established; uncertainty around the supply chain's ability to sustain continuous investment in manufacturing tools, recruitment and best practices.	Strategic investors, project developers and owners face material risks across the development, delivery and operating phases. Low quality project data and transaction benchmarks lower non-strategic market support. Long lead time to FID: each deal treated as unique. Long lead times to first revenue.	Reliance on government funding (including back-stop), guarantees and other risk-sharing mechanisms. Clarity from developer/owner on deployment enablers, value estimates, funding/risk gaps. Clarity and plan from vendor and supply chain partners to identify and close information asymmetries and unknowns with the developer/owner and future operator.
Track Record & Data Reliability	Limited operating track record. Unknown reliability of data and reporting for third party purposes.	Liquidity and pricing reflect limited opportunities for early-stage financiers to refinance, exit and/or sell-down with confidence. Limited transaction track record and financial replicability.	Government and/or owners with strong balance sheets can consider buy-out mechanisms for commercial financiers.
Capital Structure & Revenue Mechanisms	Secular investment case largely absent in most markets. Reliance on government funding and de-risking.	Financing gaps; TopCo-led capital raising; limited ProjectCo/HoldCo finance. Significant underwriting requirement from anchor investors. Fragmented rating agency methodologies.	Reliance on government revenue support mechanisms and other risk sharing.

Category	Deployment considerations	Financing dynamics	Enabling functions
Risk Allocation & Pricing	Transactions are first-of-a-kind without significant replicability.	Absence of benchmarked risk premiums; risk cannot be consistently priced. Financiers face bespoke, deal-by-deal risk assessment with limited comparable transaction data to anchor pricing decisions.	Industry improvement of value proposition. Government-backed risk mitigation mechanisms. Stronger engagement from financial industry, including MDBs, to address gaps.
Legal & Regulatory Framework	Legal framework can be incomplete or untested.	Project finance context is jurisdiction-specific, incomplete or untested. Investors rely on government indemnities and bilateral agreements rather than mature domestic legal precedent. Participation in international liability conventions may be limited in newcomer markets. SPV structures exist but decommissioning and waste management liability treatment is sometimes unresolved.	Ratification of, or legislative alignment with, international conventions to give investors an internationally recognized reference point for a newcomer's liability regime, even before domestic case law exists.

Phase 1 summary: financing gap

A defining characteristic of Phase 1 is that each project is treated as a unique transaction. Differences in regulatory frameworks, development approaches, financing structures, liability regimes, and the treatment of decommissioning and waste management obligations limit transaction replicability, even when the underlying reactor technology remains unchanged. The absence of standardized financial products, independent benchmarks, secondary markets, and established credit assessment methodologies increases transaction costs and slows capital deployment. As a result, governments remain the primary providers of risk absorption and financing support.

The lack of standardized approaches to decommissioning liability allocation and limited-recourse confirmation, for example, adds to the uniqueness of each transaction. The challenge extends beyond financial structuring to legal drafting, with bespoke contractual arrangements adding time, complexity and cost to every deal.

Phase 2: Catalytic Capital

Standardization emerges; private capital begins to crowd in

Phase 2 is characterized by the shift from FOAK to early NOAK economics, the emergence of standardized risk-sharing frameworks, and the beginning of private capital entry alongside government support. Government participation remains, but its role transitions from gap-filler to catalyst, with support packages more tightly calibrated and increasingly competed. Multilateral development banks, development financial institutions, export credit agencies and other public financial institutions play an increasingly catalytic role, using guarantees, concessional resources, risk sharing mechanisms and other instruments to help drive down the cost of capital and mobilize private capital alongside public investment.

Category	Deployment considerations	Financing dynamics	Enabling functions
Technology & Programme Maturity	FOAK → NOAK pathway credibly defined with external partners and relevant milestones agreed.	Structured shift in risk allocation towards private sector as cost and performance certainty improve. Debt and equity are both committed at FID as equity investors won't commit before the debt is secured and vice versa.	Government support package more tightly calibrated, pre-conditions for support and removal of support are defined and agreed. Regular, transaction-focused interfacing between government and catalytic capital providers enables finance plan iterations and increases market confidence levels.
Delivery & Supply Chain Capability	Design standardization, series production and greater modularization. Industrial and supply chain capacity consolidates.	Private actors take business risk and financial underwriting benefiting from catalytic capital-led investment. Improved pricing and risk acceptance from the delivery supply chain, leading to greater investability and bankability of the delivery arrangements.	Removal of programme/project binary risks in previous stage allows full force of MDB maturity transformation capacity to take effect. MDBs and other development financial institutions agree on mechanisms to turn policy into market deliverables, concessionary funding to supplement national resources, catalytic capital (commercial early-stage equity, venture debt or risk guarantees) to crowd in market capital.
Track Record & Data Reliability	Experience-based track record emerging and delivery models mature. Project information increasingly predictable.	Tested models and frameworks facilitate emergence of credible pathways to additional sources of capital.	Completed projects generate auditable cost, schedule and performance data; EPC contractors and owners accumulate replicable delivery practices that reduce per-project uncertainty and support lender underwriting.
Capital Structure & Revenue Mechanisms	Revenue mechanisms do not recognize full value. Completion funding is uncertain.	Unclear role and value-add for commercial finance. Multi-sourcing and blended finance only beginning to emerge.	Greater standardization of investment frameworks. Lower barriers to private sector participation by removing bans, including nuclear in green taxonomies, and standardizing financial risk-weighted pricing and market distribution channels.
Legal & Regulatory Framework	National liability frameworks are convention-aligned and include adequate coverage limits.	Standard project documentation includes clear decommissioning liability clauses. Veil-piercing risk is mitigated by well-capitalized SPVs and legally tested structures.	Government legal teams and private nuclear counsel establish precedents to draw on.

Phase 2 summary: transition signal

Phase 2 is reached when private capital begins participating alongside public financial institutions based on standardized structures, clearer risk allocation and performance benchmarks. Public support increasingly serves to mobilize commercial capital.

Catalytic capital requires institutions with a clear mandate to support qualified programmes and projects with financing tools and institutional resources that are deemed additive and credible by project owners, governments and market actors.

Phase 3: Mainstream Finance

Nuclear as a standard infrastructure asset class; standardization, deep markets, competitive cost of capital.

In the final stage, Phase 3, nuclear becomes a mature infrastructure asset class, supported by liquid secondary markets, competitive financing costs, and broad institutional investor participation across the project lifecycle.

Phase 3 does not equate 'mainstream finance' exclusively with Western, market-led economic models. Rather, it signals that a country's financing architecture and nuclear investment framework has matured to the point where mainstream lenders and investors can supply low-cost liquidity through well-developed financial products.

This phase does not require governments to step back as private capital steps in, although this is what may happen in many markets. Instead, it reflects a market where risk and reward are clearly understood and accurately priced. Government-led financing, whether on or off-balance sheets, remains consistent with Phase 3 when government entities participate on commercial terms, as opposed to when they act in a sovereign capacity to provide de-risking mechanisms or other government-only functions.

Category	Deployment considerations	Financing dynamics	Enabling functions
Technology & Programme Maturity	NOAK economics: high predictability and replicability.	Developer/owner competitive tenders for equity and debt.	Government competitive tenders among developers for state support.
Delivery & Supply Chain Capability	Supply chain capacity and organisational maturity are no longer differentiating constraints. Industry performance standards demonstrate lower variance.	Underwriting no longer requires anchor-investor-led de-risking of the supply chain. Standard commercial due diligence frameworks have emerged.	Mature, globally distributed supply chain with established manufacturing capacity and multiple qualified vendors, built up through Phases 1 and 2. Greater competitive tension throughout the supply chain.
Track Record & Data Reliability	Deep base of completed operating projects provides auditable cost, schedule and performance data across multiple vendors and jurisdictions.	Historical performance data supports replicability of investment models, frameworks, and assessment tools; supports standard credit assessment and rating agency methodologies, comparable to other infrastructure asset classes.	Established evaluation and reporting standards and accumulated project data (built up through Phases 1&2) allow investors and lenders to underwrite nuclear risk using conventional infrastructure finance tools.
Capital Structure & Revenue Mechanics	Nuclear is a standard infrastructure asset class.	Government support may be limited to defined public policy functions including catastrophic accidents. New financing models developed, tested and widely replicable.	Finely calibrated, value-for-money government funding. Catalytic capital providers, including multilateral banks, can offer pre-defined generic terms & conditions to market financiers on a non-discriminatory basis.
Risk Allocation & Pricing	Risks and risk-sharing mechanisms fully understood and priced. Uncertainty premium substantially reduced. Policy stability embedded in long-term regulatory frameworks.	Robust secondary market across all financing instruments. Finer spreads, more competitive pricing, broad risk distribution.	International cooperation frameworks reduce cross-border risk. Policy stability and long-term investment frameworks embedded. Catastrophic accident indemnity as only residual government backstop.
Legal & Regulatory Framework	Nuclear legal frameworks are standardized across key markets enabling template documentation.	Legal due diligence is a known and bounded exercise and secondary market transactions are legally routine.	Legal frameworks converge across jurisdictions as more countries adopt accepted industry model provisions and align with international conventions, allowing legal due diligence and template documentation to be reused across markets rather than rebuilt for each transaction.

Phase 3 summary: target conditions

Mainstream finance for nuclear will be achieved when three conditions have been met:

- Financial products are sufficiently standardized to be widely and confidently priced.
- Private actors (developers, financial investors, and commercial lenders) lead underwriting, with government and catalytic capital playing a limited and targeted role.
- A liquid secondary market allows institutional investors to enter and exit positions across the project lifecycle.

The pace and timing at which the sector reaches this stage will depend on the level of industry maturity achieved, underscoring the need for the sector's project and industrial evolution to advance in parallel with the evolution of financial mechanisms and market confidence rather than sequentially.

Different countries, technologies, and industry segments may occupy different phases simultaneously, and strategic, catalytic, and mainstream capital can all coexist within a market. What evolves over time is their importance and role in enabling deployment. Even in a mature market, mainstream capital does not necessarily finance a project from inception or through construction. In such cases, strategic or catalytic capital may continue to carry construction-phase risk. Mainstream capital would enter predominantly through secondary markets, financing operational assets once they are generating stable, de-risked cashflows.

Summary: What nuclear needs to reach mainstream finance

Six conditions must be established for nuclear to transition to mainstream finance. Each is achievable and each has a direct analogue in how offshore wind, LNG, and other capital-intensive infrastructure sectors made the same journey.

Institutional support

Timely decisions, ability to ensure continuity of project flows to support the industry reaching its full speed capacity; regional coordination to ensure stable/harmonized frameworks that support regional supply chains.

Standardization

Replicable reactor designs and delivery model, standardized EPC contracts, convergence of requirements of national regulators, common financial templates, benchmarkable project data. Without standardization, transactions often need to be structured on a case-by-case basis, which can increase costs and complexity. SMR series production and NOAK fleet programmes are the primary vehicles.

Priceable risk and reward relationships

Risks are identified, quantified, allocated to appropriate parties, and supported by operating track records or contractual guarantees. Financial professionals can model, price, and syndicate risk.

Non-completion risk is key. Nuclear scaling and additional experience will help reduce and better understand this risk.

Nuclear liability framework in place so that nuclear liability is clearly bounded by law through international conventions.

Stable revenue frameworks

Revenue support mechanisms such as contracts for difference, regulated asset base returns, tax credits or power purchase agreements that provide long-term cashflow certainty.

Wholesale electricity market design and regulatory pricing frameworks that provide revenue streams reflecting nuclear's full system value whether in liberalized or regulated markets.

Mature supply chains

Industrial capacity that can deliver projects reliably at predictable cost is a precondition for NOAK economics.

Secondary markets

Liquid markets for operational nuclear assets can attract institutional investors (pension funds, infrastructure funds, sovereign wealth funds), while allowing developers to recycle capital. Such markets depend on asset standardization, transparent valuation, and a proven record of predictable cashflows.

Recommendations

The transition to mainstream infrastructure asset status requires coordinated action across the nuclear sector. While the responsibilities of individual stakeholders differ, their actions are interdependent. The recommendations below focus on practical steps for each stakeholder group to take for the development of a mature, investable and liquid nuclear market.

Government and policymakers

- Provide clarity to the market on the role of nuclear energy in the economy.
  - Develop a detailed national position that establishes the governmental strategy and commitment to develop, implement and maintain a nuclear power market that offers long-term visibility, is investable and financially sustainable, and is treated no less favourably than other industries in the face of political change. Establishing a national position is itself a commitment of public funding.
  - Recognize nuclear energy within national energy, industrial, economic development, and investment strategies in a manner consistent with its potential contribution to the economy. Ensure that public planning and analytical tools appropriately capture system-level benefits when evaluating energy investment options, recognizing nuclear's reliability, flexibility, security of supply, and decarbonization value as well as its broader economic impact on investment, job creation and skills development.
- Build a competitive hosting environment for nuclear investment.
  - Level the financial playing field for nuclear technologies ensuring that policies, rules and regulations are technology neutral, including green taxonomies, electricity market rules, government incentives and taxation, as well as infrastructure hosting conditions such as planning, siting, zoning, permitting, and grid access rules.
  - Ensure that nuclear energy is recognized and remunerated in electricity markets for all the services it can provide and its lifecycle value. Market design should consider a broad set of evaluation metrics, including system costs, reliability, flexibility, security of supply, decarbonization, and other policy objectives.
  - Establish a robust nuclear liability framework aligned with international conventions and protocols that includes adequate coverage limits, a clear insurer-of-last-resort mechanism, exclusive operator liability for third party claims, and well-defined responsibilities for decommissioning, waste management, project wind-up, and ownership transfer, including end-of-life liability arrangements.
- Reduce administrative burden and regulatory delays.
  - Establish an independent regulatory authority with a clear enabling mandate and sufficient resources. This regulator should implement streamlined licensing and permitting pathways through parallel track-licensing processes and mutual recognition of safety cases between jurisdictions.
- Provide risk-sharing and risk-reducing support to catalyse private investment.
  - Develop public-private risk sharing, funding, and liquidity mechanisms, such as revenue support mechanisms, loan guarantees, or blended finance, to promote effective project and programme de-risking and fill financing gaps.
  - Enable long-term market signals to encourage private sector participation such as promoting stable supply chains and fleet approaches.

Investors and financial institutions

- Build internal capability to originate, price, and deliver nuclear financing.
  - Strengthen origination, data, risk management, and documentation systems to price and deliver nuclear transactions on a risk-adjusted basis.
  - Develop new financial products that meet the market's growing demand for liquidity and risk-transfer mechanisms.
  - Strengthen relationships with nuclear-specific legal, technical and commercial advisors, and engage regularly with the nuclear industry to better identify and assess investment opportunities.
- Remove barriers and update investment policies.
  - Review and update existing investment internal investment policies, lending mandates, and ESG frameworks to align with evolving policy, taxonomy, and regulatory developments.
  - Remove explicit anti-nuclear provisions as well as those that impede long-term investment in, or lending to, nuclear projects (*e.g.* cost-of-capital penalties for long-maturity infrastructure debt). Where taxonomies, principles and best practicies contain criteria that effectively restrict or penalize nuclear financing, work with relevant stakeholders to seek alignment with nuclear's low-carbon, long-lived infrastructure characteristics.
- Standardize financial products and transaction templates for nuclear investment.
  - Leverage aggregated lessons learned from transactions and due diligence processes to inform the development of common approaches and standardized templates to nuclear project evaluation, financing structures, and market-standard contractual terms.
  - Engage with relevant bodies to develop nuclear-specific underwriting guidance with broad institutional adoption.

Multilateral development banks and development finance institutions

- Serve as ready partners and impartial brokers to help build sector know-how and improve financial decision-making among stakeholders.
  - Act as a policy dialogue partner, provide impartial guidance, and support client states and project developers and owners' financial decision-making.
  - Develop a credible and resourced intervention strategy, standard terms of engagement, and a list of requirements and central documents.
  - Provide guarantees, market and regulatory assistance, and objective, evidence-based assessments of nuclear feasibility and deployment.
- Deploy catalytic finance.
  - Identify and mobilize donor and grant capital available for nuclear feasibility studies, early-stage development support and improved investment decision-making.
  - Deploy balance sheet capital to provide liquidity and maturity transformation to competitive programmes and projects, non-concessional balance sheet lending, guarantees and co-financing alongside commercial lenders in higher income economies with strong sovereign or utility credit, and concessional and blended instruments in markets where risk cannot yet be priced by the private sector alone.
- Coordinate to avoid duplication.
  - Coordinate on general approach, instruments and requirements across the multilateral and international financial system, including through shared secondments, joint due diligence and aligned client guidelines to avoid duplication, maximize market additionality and improve delivery efficiency.

Nuclear OEMs, developers, and owners

- Pursue a fleet approach by adopting replicable project designs and delivery models.
  - Move decisively from one-off project development to fleet programmes and, if appropriate, establish programmatic project development frameworks to enable fleet replication.
  - Work with supply chain partners to develop fleet procurement and contracting models to demonstrate pathways to NOAK economics on subsequent units.
- Promote alignment of regulatory requirements to achieve standardized designs.
  - Work within the nuclear industry to achieve industry-wide alignment on standardized solutions that will shorten project lead times to present to regulators.
- Achieve financial readiness by embedding financing into project design and de-risking early.
  - Share information early and close information asymmetries among stakeholders to define the opportunity, secure buy-in, and accelerate the pathway to FID.
  - Identify financing needs, partners, and data requirements from the outset, developing the financial and technical aspects of the project in parallel and implement the governance, reporting and disclosure practices that investors require.

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