

Understanding Nuclear Insurance: Risk, Underwriting & Strategic Solutions

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Agenda

1. Nuclear sites around the world
2. Types of risks covered
3. Nuclear Third-Party Liability Law
4. Nuclear insurance – Players
5. Nuclear insurance – Structure
6. Claims handling
7. Conclusion

ENERGY & CONSTRUCTION (RE)INSURANCE CONFERENCE 2025

Evolution of Power and Energy:
Insurance Solutions for a
Changing Landscape

Understanding Nuclear
Insurance: Risks,
Underwriting & Strategic
Solutions



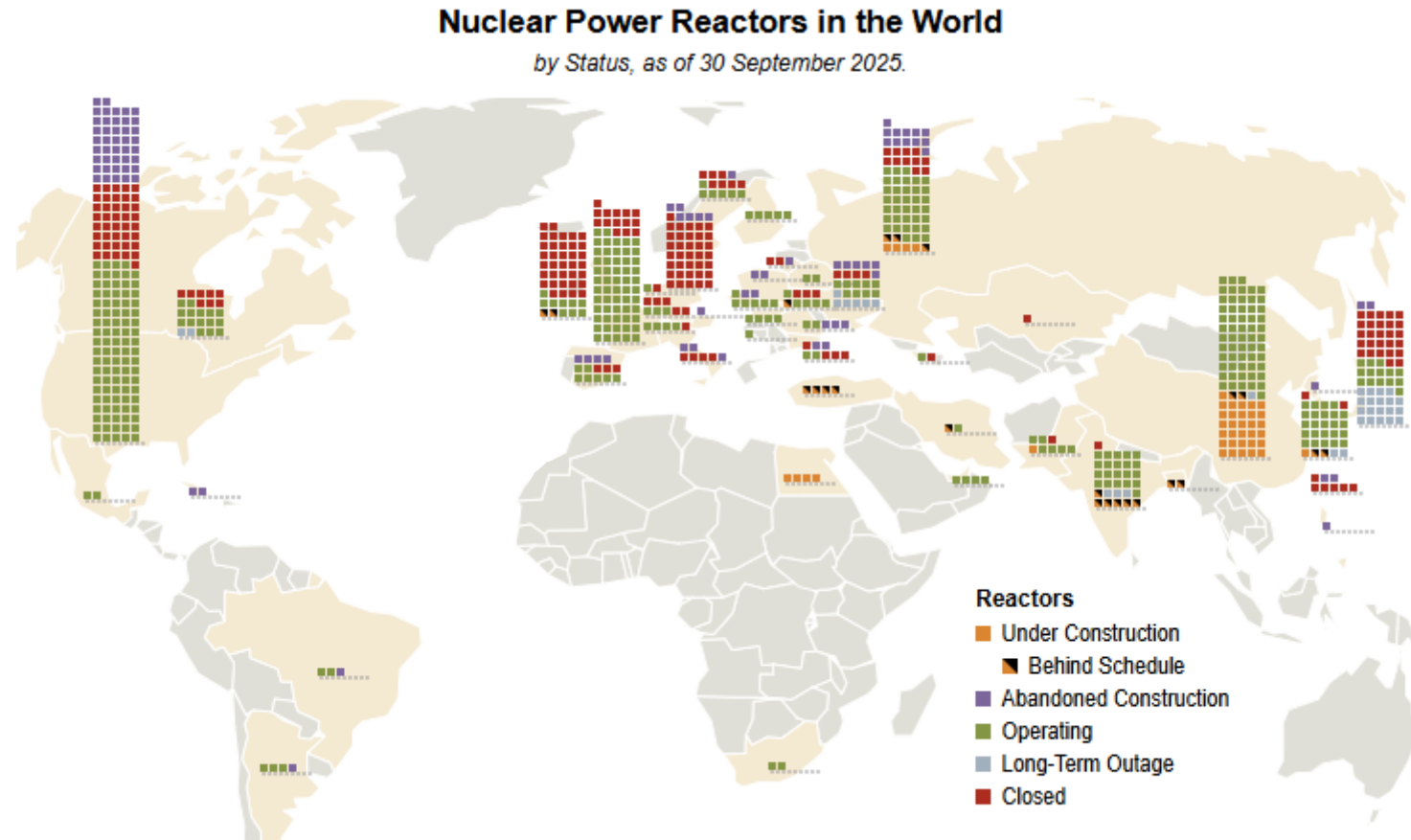
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Nuclear sites around the world

Nuclear Energy & Carbon Zero Targets

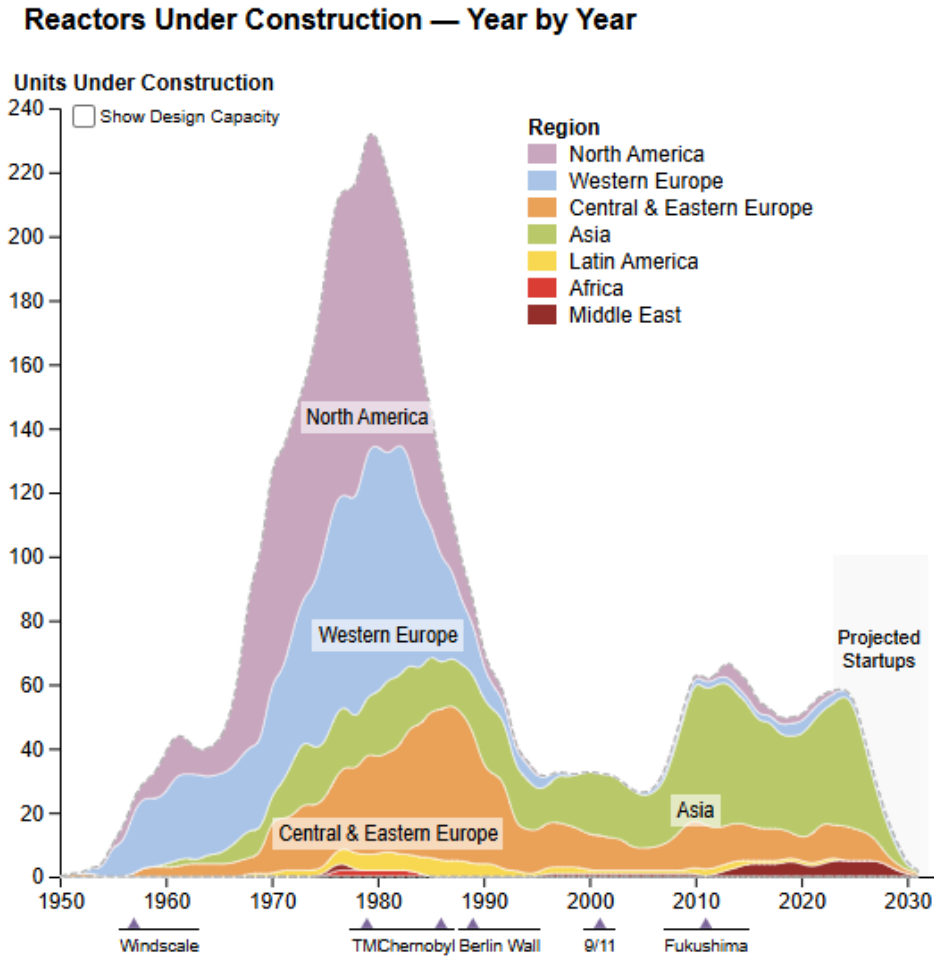
- Nuclear energy is increasingly recognised as a dispatchable, zero-emission baseload power source, essential for stabilising grids and powering high-demand sectors like AI and data centres.
- The International Energy Agency (IEA) and IAEA estimate that nuclear capacity must more than double—or even triple—to meet climate goals, requiring \$100–150 billion annually in investment.
- Energy needs go beyond electricity: location decisions should consider all forms of energy demand.
- SMRs are well-suited for remote or isolated areas, offering lower-cost solutions as the industry shifts from large to smaller installations.
- The right energy mix is crucial: in regions with established nuclear and grid infrastructure, nuclear ensures stability, while renewables can handle peak consumption.

Nuclear sites around the world



Source: World Nuclear Industry Status Report

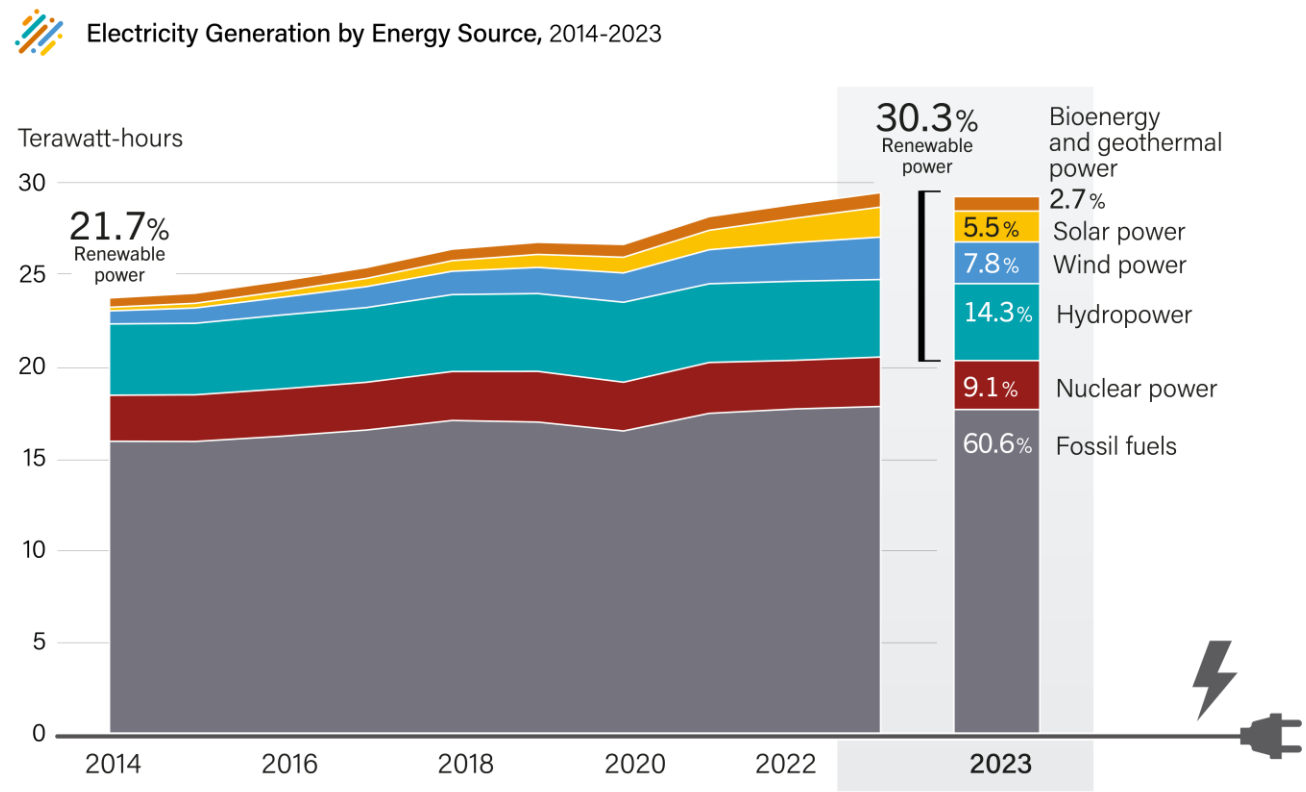
Nuclear sites around the world



Source: World Nuclear Industry Status Report

Nuclear sites around the world

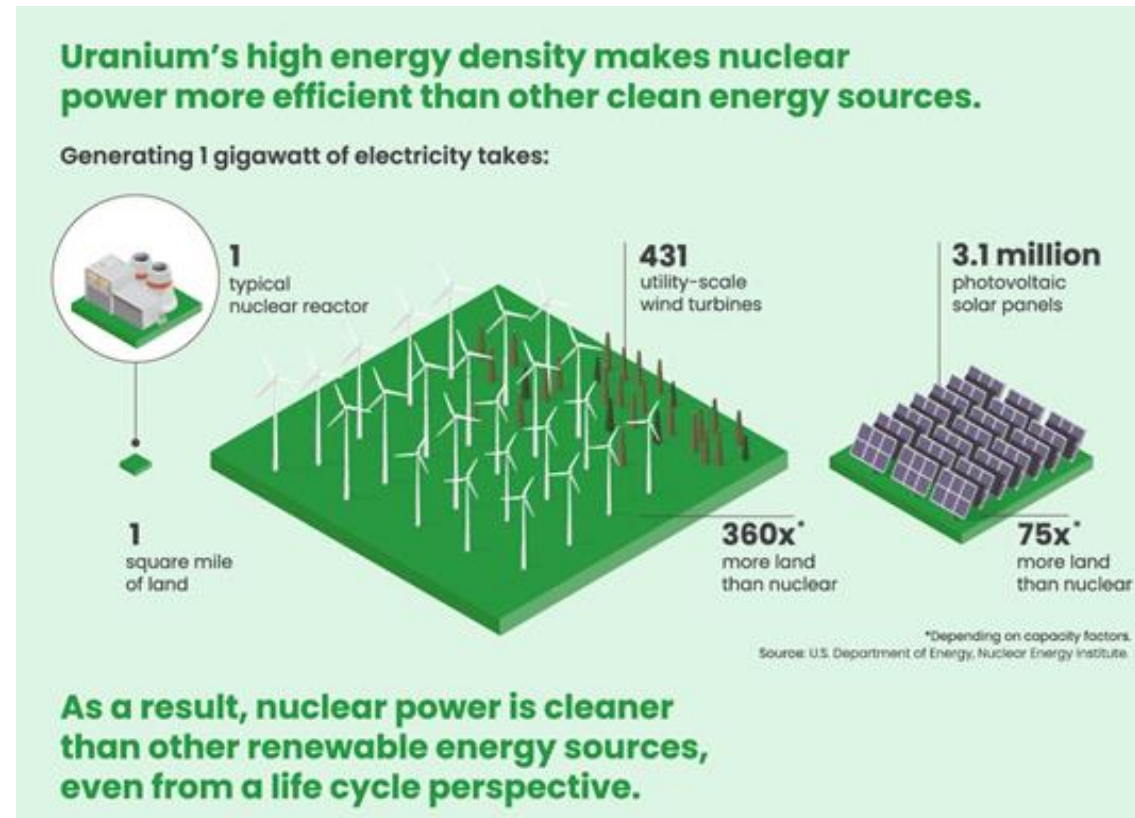
Global Electricity Generation by Energy Source



REN21 RENEWABLES 2024 GLOBAL STATUS REPORT - ENERGY SUPPLY

Nuclear sites around the world

Efficiency and Land Use of Nuclear Power Compared to Other Clean Energy Sources



Types of risks covered

Insurance coverages for the nuclear sector... but not only

- Material Damage
- Business Interruption
- Machinery breakdown
- Construction
 - *before nuclear fuel on site the coverage is conventional; after nuclear insurance applies*
- Third-party and general liability: typical nuclear exclusions in conventional policies
- Nuclear Third-Party Liability

The only coverage which is compulsory by law is the nuclear third-party liability.

→ *The operators must prove to their National Regulator that they are properly covered to face potential damages to victims in case of an incident.*

Nuclear Third-Party Liability Law

NTPL principles are based on International Conventions

- Paris Convention
- Brussels Convention
- Vienna Convention
- Convention on Supplementary Compensation

Depending on the Convention to which a country is a Signatory Party, the nuclear national legislation will be following a certain number of principles.

Countries can decide whether or not they want to be a Signatory Party of a Convention, but a nuclear national legislation will in any case be imposing the principles to be followed by the nuclear operator.

Nuclear Third-Party Liability Law

NTPL principles

- **Strict Liability:** the victim is relieved from proving fault or negligence of the operator
- **Exclusive liability:** in case of an accident, all claims are to be brought against the nuclear operator
- **Mandatory financial coverage:** the operator must provide a financial guarantee covering a minimum amount of protection to victims
- **Exclusive jurisdiction:** only the courts of the country in which the accident occurs have jurisdiction over damage claims

Nuclear Third-Party Liability Law

Overview of coverage

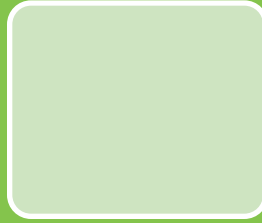
Full R.P.C €700 to €1.200 mio		Amended Conventions				
Material Damage & Bodily Injury	Current limits up to €1.200 mio	BI 30 years	Economic Loss	Reinstatement of impaired environment	Loss of income/impairment environment	Preventive measures
	Bodily Injury 10 years					

Nuclear insurance – Players

Nuclear risks are low-frequency but high-severity, making conventional insurance models inadequate.

- National and international nuclear Pools were created to spread risk and provide sufficient capacity (1958)
→ *Pools are gathering capacities from local insurers*
- To bring competition to the Pools and to provide coverages excluded by the commercial markets, mutuals were created
→ *Mutuals have been created by nuclear operators worldwide*
- An additional player was added in the nuclear insurance market in the form of an MGA (1958)

Nuclear insurance – Players



Nuclear Pools – 1958

- Material Damage – Nuclear liability
- Country by country – reciprocity
- Accumulation



NEIL - 1980

- Mutual Insurance company mainly active in the US – Material Damage
- O'NEIL out of Ireland



Northcourt – 2012

- Underwriting Agency
- Nuclear Coverage

Nuclear insurance – Players



Nuclear insurance – Structure

Pooling, self-insuring & transferring risks

- **Risk pooling** is the essence of insurance
- Risk can also be **self-insured** (through captives or industry captives/mutual)
- Insurance also involves **risk transfer** through reinsurance or alternative risk transfer mechanisms, such as securitization (bonds) and contingent capital structures

Nuclear insurance – Structure

Structure of nuclear insurance

Nuclear risks are usually insured by the mix of:

- **Self-insurance** by nuclear operators for the low-tier risks (captive arrangements)
- **Market insurance** (including pools of insurers and mutual) and reinsurance, under the limited liability of nuclear operators
- **Guarantee by governments** above these limits (NTPL)

Claims handling

Claims management post nuclear accident

- Main goal: victims' indemnification in the most efficient way to **protect** both the **victims** but also the responsible **operator**
- Insurance providers are in this case not competing but **collaborating** to achieve this goal

Claims handling

Key elements

- Activation of crisis management plan 24/7
- Support the operator in providing third party victims the required documents – claims forms
- Multilingual web-based platform for collecting data
- Call centre
- Loss adjusters
- Transboundary assistance – Claims handling
- Reporting tools and procedures
- Claims Management Committee

Conclusion

- Nuclear energy is essential for achieving **global carbon neutrality**, providing reliable, zero-emission baseload power for modern economies.
- Nuclear insurance addresses unique, **high-severity risks** through specialised pools, mutuals, and market solutions, ensuring robust coverage and financial protection for operators and third parties.
- International conventions and national laws establish **strict liability, mandatory coverage, and exclusive jurisdiction**, safeguarding victims and clarifying operator responsibilities.
- Effective **claims handling** relies on collaboration, crisis management, and transparent processes, prioritising swift and fair indemnification.
- **A balanced mix of mutuals, commercial markets, and government** guarantees delivers full cover at a reasonable price, supporting the sustainable growth of nuclear energy in a changing landscape.

Conclusion



Q&A



Thank You

