

nuclearis

All-in-one Capsule

Integrated Modular Nuclear Reactor

The N1 reactor represents a breakthrough in nuclear reactor design, offering a safer, more efficient, and economically viable solution for nuclear power generation.

The N1 builds upon innovation by enhancing conventional, proven technology with smart engineering, all integrated into one "super safe capsule." The modular design of the N1 reactor will have a production time of under one year, facilitating rapid deployment and scalability. The N1 will generate 20 years of uninterrupted electricity without refueling. After its operational life, the capsule transitions to a vertical dry storage spent fuel silo for more than 100 years.



Our Approach

Experience the next generation of nuclear power with our cutting-edge Small Integrated Modular Nuclear Reactor (SMR).

The N1 reactor represents a significant advancement in nuclear reactor technology, enhancing conventional, proven systems with innovative smart engineering. This technological breakthrough is set to revolutionize the nuclear industry by offering unparalleled efficiency, safety, and sustainability.



The Technology

The N1 reactor represents a breakthrough in nuclear reactor design, offering a safer, more efficient, and economically viable solution for nuclear power generation.

The Nuclearis N1 is the world's most efficient reactor, operating at 30% higher efficiency with a patent-pending reheated dual steam turbine.

The all-in-one integrated design offers sustainable, long-term, maintenance-free storage of spent fuel.

NUCLEAR ENERGY RE-IMAGINED

The N1 is a highly scalable micro SMR built to deliver safe, carbon-free power. It will be fully constructed in a GigaFactory for rapid deployment and transported by road and sea to the customer's location. The rapid manufacturing process makes it easy to scale the number of units to increase output over time.

By integrating all essential components into a single module, the N1 reactor minimizes on-site construction efforts and maximizes factory-based manufacturing efficiencies.

- Reactor Type**
Pressurized water reactor
- Coolant/Moderator**
Light water/light water
- Electrical Capacity**
17 MWe
- Thermal Capacity**
42 MWt



Design Details

Fuel	Standard UO2 pellets at <5% enrichment.
Primary Circulation	Natural convection, no external pumps.
Cooling	Closed cycle air cooling for tertiary loop.
Siting	Flexible siting within 10 km of grid access, small footprint allows for on-site generation.
Design	The fully modular design consists of one primary structure: an all-in-one capsule—a subterranean structure that houses the plant's reactor, balance of plant, and thermal power systems.
Refueling	No refueling during its 20-year operational lifetime, with a 99% capacity factor.
Reheater	The dual steam turbines and reheater operate at 30% higher efficiency.
Fuel Management	After its operational life, the reactor transitions to a vertical underground decay pool and dry storage solution, eliminating the need for separate decay pools or dry storage facilities.