

OUR VIEW

Danish Shipping maintains a technology-neutral approach to the green transition. This means we support research and regulatory development that can enable the use of new solutions if and when they prove to be viable and commercially relevant.

Nuclear propulsion must be governed by safety standards that ensure a level of operational safety that is not inferior to the standards in place for other marine fuels currently in use.

Nuclear-powered shipping requires global consistency and legal clarity. Only an IMO and IAEA led regulatory framework can ensure uniform standards across jurisdictions, preventing fragmented national approaches.

A modernized version of the 1981 Code of Safety for Nuclear Merchant Ships (Resolution A.491(XII)) should promote global regulation. The update must incorporate goal-based, risk-informed approaches aligned with IAEA standards and modern reactor technologies.

Mandatory nuclear-specific training and certification must be integrated into the STCW Convention to ensure seafarers are fully competent in operating and maintaining nuclear propulsion systems.

Nuclear Power in Shipping – one of Several Emerging Solutions



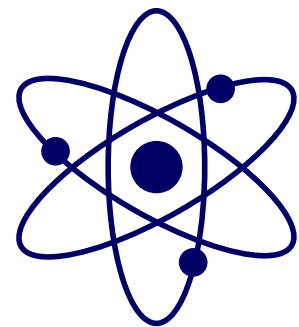
As the maritime industry works to cut greenhouse gas emissions, new energy sources are being explored to replace fossil fuels. One of these is nuclear propulsion technology that could support the decarbonization of long-distance shipping, alongside for example ammonia, methanol, and hydrogen.

Nuclear propulsion uses heat from a nuclear reactor, converted into energy for the ship's propulsion on board. But nuclear power can also be used on a barge in port as power source for PtX fuels or charging ships equipped with battery powertrain. This eliminates the need for fossil fuels and results in no greenhouse gas emissions during operation. Though nuclear power has long been used in naval vessels and icebreakers, its use in commercial shipping remains limited.

Modern Modular Reactors that potentially are relevant for maritime use are considered safer than traditional reactors and are more suitable for civilian use, and they can operate for long periods without refueling.

Nuclear propulsion is not a one-size-fits-all solution, but rather an option among many. Other viable alternatives include methanol, ammonia, hydrogen, and battery-electric systems. Each option has its strengths depending on ship size, route, and operational needs. Nuclear will most likely be relevant for large vessels with long-range, high-power demands such as container ships, bulk carriers, and cruise liners.

If development progresses and international standards are agreed upon, commercial nuclear-powered ships could start to emerge over the next decade. Pilot projects, regulatory discussions, and early-stage designs are currently underway, but significant technical and regulatory hurdles remain.



Success depends, however, on more than technology. Regulations, infrastructure, training, insurance, and public trust must evolve in parallel and commercial use of nuclear power will require robust international safety and security standards while addressing the nuclear proliferation risk. The IMO's 1981 Code of Safety for Nuclear Merchant Ships must be revised to reflect work in progress between IMO and IAEA, such as [MaritimeNEMO](#) and Lloyd's Register [LR-ATLAS Project](#).

FACTS

Modular Reactors generally rely on safety systems that automatically shut down the reactor without human intervention, reducing the risk of accidents caused by human error or equipment failure.

While operational emissions are near-zero, full life cycle analysis of nuclear propulsion must account for emissions from mining, fuel processing, construction, waste handling and decommissioning.