

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO - 2149
ANSWERED ON 06/08/2026

PROMOTION OF INDIGENOUS NUCLEAR TECHNOLOGIES

2149. SMT. JEBI MATHER HISHAM

Will the PRIME MINISTER be pleased to state:-

- (a) whether Government has assessed the cost differential between indigenous and foreign reactor designs, if so, the details thereof;
- (b) whether, despite India's indigenous capability, Government proposes to import foreign reactor designs, if so, the reasons therefor;
- (c) whether a roadmap exists for indigenous Light Water Reactor development to reduce technological dependence, details thereof;
- (d) whether Government proposes to prioritise indigenous technologies in achieving the 100 GW target by 2047, details thereof;
- (e) whether Small Modular Reactors are proposed to meet AI data centre electricity demand; the details thereof; and
- (f) whether mandatory safety benchmarks, including independent audits, are prescribed for new entrants; details thereof?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS
AND PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH)

- (a) Presently, there are no valid Techno-Commercial Offers submitted by any of the foreign nuclear power reactor suppliers. However, in the past it was observed that cost of imported reactors has been higher compared to the indigenous PHWRs.
- (b) India is pursuing an indigenous sequential three-stage nuclear power programme with implementation of reactors based on Pressurised Heavy Water Reactor (PHWR) technology in its first stage, wherein it has achieved self-reliance and commercial maturity. In addition, large capacity nuclear power reactors in cooperation with foreign technology partners are also being set up as additionalities for faster capacity addition.
- (c) The Government envisions development and deployment of indigenously designed Small Modular Reactors (SMRs) under the Nuclear Energy Mission. In this regard, Bhabha Atomic Research Centre (BARC), a constituent unit of Department of Atomic Energy

(DAE) has undertaken the design and development of Light Water Reactor technology based indigenous Small Modular Reactors (SMRs) namely, 220 MWe Bharat Small Modular Reactor (BSMR-200) and the 55 MWe Small Modular Reactor (SMR-55). The lead units of these SMRs will be established at DAE sites for technology demonstration.

- (d) Yes, Government has announced Nuclear Energy Mission (NEM), outlined in the Union Budget 2025–26, with aim to achieve the nuclear power installed capacity of 100 GWe by 2047. A two-pronged strategy is being adopted to accelerate nuclear capacity addition;
- i) Deployment of large reactors such as 700 MWe indigenous Pressurised Heavy Water Reactors (PHWRs) and large capacity imported advanced reactor designs at green field sites for rapid expansion; and
 - ii) Development & deployment of indigenous Small Modular Reactors (SMRs) such as BSMR-200 and SMR-55 in brown field sites for repurposing retiring fossil fuel-based power plants, captive plants for energy intensive industries, and off-grid applications for remote locations.

Additionally, to address decarbonization of hard-to-abate sectors, Nuclear Power Corporation of India Limited (NPCIL), a Public Sector Enterprise under the administrative control of the DAE, is also engaging with interested parties in setting up of Bharat Small Reactors (BSRs) which are based on indigenous technology.

- (e) Deployment of BSMR-200 and SMR-55 can provide reliable power to meet the growing electricity demand of AI data centres.
- (f) For establishing any nuclear power plant in the country, the utility is required to obtain Regulatory Consent from Atomic Energy Regulatory Board (AERB) based on rigorous safety assessment demonstrating compliance to the specified safety requirements.

AERB has established safety and regulatory requirements for nuclear power plants. These requirements take account of the current international benchmarks including the safety standards of International Atomic Energy Agency (IAEA).

The Parliament has recently passed the SHANTI Act, 2025 which envisages participation of private entities in the nuclear sector. The development of Regulations envisaged under the Act is in progress. In addition, towards facilitating participation of the private sector in safe generation of nuclear energy, as a proactive measure, AERB has started engaging with the prospective new entrants in this area from the private industry and research institutions, to sensitize them about the nuclear safety aspects and requirements, with a view to enable them to better address the safety requirements of the nuclear industry.