

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO-564
ANSWERED ON 03/12/2025

CONSTRUCTION OF SMALL MODULAR ATOMIC REACTORS

564. SHRI CHAVAN RAVINDRA VASANTRAO
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SHRI SUDHEER GUPTA

Will the PRIME MINISTER be pleased to state:-

- (a) whether the Government has initiated/proposes to construct small modular atomic reactors (SMRs) with capacity of 200 megawatt in the country;
- (b) if so, the details thereof along with the salient features of these small atomic reactors;
- (c) whether the locations for setting up of these atomic reactors have been identified and if so, the details thereof, State/UT-wise;
- (d) the objectives behind promoting small atomic reactors and the manner in which they differ from conventional nuclear power plants;
- (e) whether the Government proposes to include private sector in the operation of these atomic reactors in the initial phase and if so, the details thereof;
- (f) whether the Government has set any target regarding increase in capacity of nuclear energy by 2047 and if so, the details thereof; and
- (g) the measures taken/being taken by the Government to ensure environmental safety, waste management and public awareness regarding these projects?

ANSWER

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

- (a) & (b) Yes, in Union Budget 2025-26, the Government has allocated ₹20,000 crore for the design, development, and deployment of Small Modular Reactors (SMRs), aiming to operationalise indigenously developed SMRs by 2033.

Under Nuclear Energy Mission funds, have been allocated for R&D of 200 MWe Bharat Small Modular Reactor (BSMR-200) which is in advanced stage of obtaining administrative and financial sanction.

BSMR is based on the proven pressurized water reactor technology. It will use Slightly Enriched Uranium (SEU) as a fuel. It has been provided with passive safety features as well as several engineered safety systems to ensure nuclear safety during off normal conditions.

(c) Under the Nuclear Energy Mission, BARC has initiated design and development works on SMRs namely;

1. 200 MWe Bharat Small Modular Reactor (BSMR-200). Lead unit proposed at Tarapur Atomic Power station site, Maharashtra.
2. 55 MWe Small Modular Reactor (SMR-55). Lead unit proposed to be constructed at Tarapur.
3. Up to 5 MWth high temperature gas cooled reactor meant for hydrogen generation. This reactor is proposed to be constructed at BARC Vizag, Andhra Pradesh.

(d) SMR is a promising technology in industrial decarbonization especially where there is a requirement of reliable and continuous supply of power. Small modular reactors are being developed with specific objectives of;

1. Repurposing of retiring fossil fuel-based power plants,
2. Captive plants for energy intensive industries and
3. Off-grid applications for remote locations.

Small Modular Reactors can be located in brown field sites for repurposing of retiring fossil fuel base plants in off grid areas and as captive power plants in energy intensive industries where large plants cannot be located. They also enable reduce the construction time due to modular construction.

- (e) Government has announced to partner with private players for deployment of 220 MW Bharat Small Reactors (BSR). Accordingly, Nuclear Power Corporation of India Limited (NPCIL) has issued a Request for Proposal (RFP) within the existing legal framework, inviting Indian industries to participate in setting up of BSR for captive power generation, to provide a sustainable, low-carbon energy solution for industries, enabling them to decarbonize their operations.
- (f) Government of India has set the target of achieving 100 GWe installed nuclear energy capacity by 2047 to contribute significantly in achieving the target of Net Zero by 2070.
- (g) Safety including environmental safety is accorded highest priority in setting up of nuclear power projects. The construction of nuclear power plants is commenced only after obtaining environmental clearance from Ministry of Environment, Forest and Climate Change (MoEF&CC) following the due process.

Waste management facilities are an integral part of the design and established along with the plants at the site.

Public awareness activities based on a multipronged approach to spread awareness about nuclear power projects and address any apprehensions in a credible manner are ongoing. DAE regularly organise public awareness programme for educational institutions and villages around the plant sites to spread awareness about nuclear energy and to eradicate myths.
