GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO-2241
ANSWERED ON 12/03/2026

DEPLOYMENT OF SMRs

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Will the PRIME MINISTER be pleased to state:-

(a) the progress achieved under the Nuclear Energy Mission, including budgetary allocations, institutional mechanisms and roadmap for design, development and deployment of indigenous Small Modular Reactors (SMRs);

(b) the key R&D milestones achieved, collaborations undertaken and private sector partnerships established for manufacturing and supply chains;

(c) whether timelines have been assessed for commissioning the first SMR prototype and for capacity addition towards 100 GW nuclear energy target by 2047; and

(d) if so, the details thereof, including expected timelines, investments, locations and implementation strategy thereof?

ANSWER

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

(a) Under the Nuclear Energy Mission announced in the Union Budget 2025–26, a total budgetary provision of ₹20,000 crore has been made for the research, design, development, and deployment of Small Modular Reactors (SMRs). Department of Atomic Energy (DAE) has undertaken design and development works on indigenous SMRs namely;

(i) 220 MWe Bharat Small Modular Reactor (BSMR-200)
(ii) 55 MWe Small Modular Reactor (SMR-55), and

(iii) Up to 5 MWth High temperature gas cooled reactor meant for hydrogen generation.

The lead units of these SMRs will be established at DAE sites for technology demonstration.

The progress of these SMRs is as follows;

(i) BSMR-200: In-principle approval has been received for the project. Proposal for administrative & financial sanction is cleared by Atomic Energy Commission (AEC) for submission of the proposal to the Cabinet Committee.

(ii) SMR-55: In-principle approval has been received for the project.

(iii) HTGCR: In-principle approval has been received for the project. Detailed Project Report (DPR) has been prepared. Siting consent has been received and Terms of Reference (ToR) for obtaining environmental clearances has been received from Ministry of Environment, Forest and Climate Change (MoEF&CC).

(b) The special material called "Advanced Purified Reactor Vessel Alloy (ApuRVA) and technology for forgings for reactor pressure vessels of BSMR-200 and SMR-55 has been developed indigenously in collaboration with Indian Industries. The control rod drive mechanism has also been developed in-house.

Necessary technology for deployment of these reactors is available in the country. Majority of equipment are within manufacturing capability of Indian Industries with technological handholding by Bhabha Atomic Research Centre (BARC). Therefore, Indian industries will be engaged in manufacturing of equipment.

(c) & (d) Yes, the Government has drawn up a roadmap for reaching the 100 GW nuclear power capacity by 2047 as announced in the nuclear energy mission. As per the road map, the present nuclear power capacity of 8.78 GW [excluding Rajasthan Atomic Power Station-I (RAPS-I)] is expected to reach about 22 GW by 2031-32 on progressive completion of projects, presently at various stages of implementation. Another 32 GW of nuclear power capacity is envisaged to be set up beyond 2032 by NPCIL, comprising of indigenous Pressurised Heavy Water

Reactors (PHWR) and Light Water Reactors (LWR) by 2047 taking the capacity to about 54 GW. As per the roadmap, the balance of 46 GW is expected to set up by other Public Sector Enterprises (Central & State), State Governments, Private sector and Joint Ventures in different business models, comprising of different technologies.

Bharat Small Modular Reactor (BSMR) is being jointly designed and developed by Bhabha Atomic Research Centre (BARC) a constituent unit of DAE and Nuclear Power Corporation of India Limited (NPCIL) a PSU under DAE. Estimated time for construction of BSMR is 60 to 72 months from receipt of administrative & financial approval.

The expected investment allocated by BARC toward setting up indigenous SMRs is mentioned below:

Reactor	Cost Outlay (Rs Cr.)
Development and Construction of BSMR-200	5960
Development and Construction of SMR-55 (2 units)	7000
Design and construction of High Temperature Gas Cooled Reactor (HTGCR)	320
Design, engineering & development works for new reactors	800
Civil and General Infrastructure Development for reactors complex	452

Lead units of BSMR-200 and SMR-55 are proposed to be constructed at Tarapur Atomic Power Station site, Maharashtra whereas high temperature gas cooled reactor (HTGCR) is proposed to be constructed at BARC Vizag, Andhra Pradesh.

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