

GOVERNMENT OF INDIA  
DEPARTMENT OF ATOMIC ENERGY  
**LOK SABHA**  
**UNSTARRED QUESTION NO-2943**  
ANSWERED ON 06/08/2025

**NUCLEAR ENERGY MISSION**

2943. SHRI DARSHAN SINGH CHOUDHARY

Will the PRIME MINISTER be pleased to state:-

- (a) the salient features of Nuclear Energy Mission for developed India and the manner in which it aims to achieve the target of 100 gigawatt capacity by the year 2047 through indigenous technologies and advanced reactor designs;
- (b) the current status of Small Modular Reactor projects to be developed by 2033 and the estimated contribution of these reactors in industrial de-carbonization and clean energy production;
- (c) the details of current installed nuclear energy capacity of the country;
- (d) the current status of Kakrapar unit 3 and 4 and Rajasthan Unit 7;
- (e) the details of schemes for expansion of Nuclear Energy capacity in future;
- (f) the current status of Uranium exploration and domestic fuel supply including exploration at Jaduguda mine area; and
- (g) the details of the safety measures adopted in accordance with international standards?

**ANSWER**

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

- (a) The Government has announced an ambitious Nuclear Energy mission for Viksit Bharat with a target of reaching a nuclear power capacity of 100 GW by 2047 to contribute significantly in achieving the target of Net Zero by 2070. Its main features are to augment power production from nuclear energy with least carbon emission and to cater the base load requirement which is currently supported by fossil fuel base power plants. Nuclear energy mission envisages deployment of large as well as small nuclear power plants in green fields, in brown fields, as captive plants and for off-grid applications in remote locations. This initiative aims for an active partnership with private sector, R&D of Small Modular Reactors (SMRs) and enabling measures for new advanced technologies.

(b) Three types of SMR are being designed and developed indigenously by BARC for demonstration. These reactors are

- 200 MWe Bharat Small Modular Reactor.
- 55 MWe Small Modular Reactor
- 5 MWth High Temperature Gas Cooled Reactor for hydrogen production by coupling with suitable thermochemical process for hydrogen production.

In-principle approval has been obtained for construction of these demonstration reactors. These demonstration reactors are likely to be constructed in 60 to 72 months after receipt of administrative sanction of projects. Lead units of BSMR & SMR are planned to be installed at DAE sites in collaboration with NPCIL.

These plants are designed & developed considering deployment as captive power plant, for repurposing of retiring fossil fuel-based plants and for hydrogen production to support transport sector with prime objective of decarbonization by increasing the penetration of nuclear energy in industrial & transport sector.

(c) Presently, the installed nuclear power capacity in the country comprises of 24 reactors with a total capacity of 8780 MW, excluding RAPS-1 (100 MW) which is under long term shut down.

(d) KAPS-3&4 (2x700 MW) and RAPP-7 (700 MW) are in commercial operation.

(e) Presently, 18 reactors with a total capacity of 13600 MW (including 500 MW PFBR, being implemented by BHAVINI) are at various stages of implementation. On their progressive completion, the installed nuclear power capacity will reach 22380 MW from 8780 MW at present. The target of 100 GW is planned to be achieved by deploying reactors based on existing and new advanced technologies under development.

(f) Department has established 4,33,800t *in-situ* U<sub>3</sub>O<sub>8</sub> resource in 47 uranium deposits located in Andhra Pradesh, Telangana, Jharkhand, Meghalaya, Rajasthan, Karnataka, Chhattisgarh, Uttar Pradesh, Uttarakhand, Himachal Pradesh and Maharashtra. In recent years, Department has established 26,437t *in-situ* U-oxide resource in Jaduguda North - Baglasai-Mechua deposit, East Singhbhum district, Jharkhand; which is the north-western continuity of Jaduguda uranium deposit.

(g) Highest priority is accorded to safety in all aspects of nuclear power viz. siting, design, construction, commissioning and operation. Nuclear power plants are designed based on the paramount safety principles of defense in depth, Redundancy, Diversity and Fail-safe design features; thus, ensuring multiple barriers between the source of radioactivity and the environment. The operations are performed through well laid out procedures by highly qualified, trained and licensed personnel. There is a robust and independent regulatory mechanism in place and safety of nuclear power plants is continuously monitored and reviewed by the Atomic Energy Regulatory Board (AERB).

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