GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO. 3043
ANSWERED ON 27/03/2025

NUCLEAR POWER EXPANSION PLANS

3043. DR. LAXMIKANT BAJPAYEE

Will the PRIME MINISTER be pleased to state:-

(a) the way in which Government proposes to achieve its nuclear power expansion plan of adding 22480 MW of installed nuclear power capacity by 2031-32;

(b) the details of plan of Government to set up different types of reactors including small modular reactors in remote areas, project-wise including identified sites, target dates for commissioning them, proposed power generation and total budget expenditure; and

(c) the issues faced by the Government in such expansions and installations?

ANSWER

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

(a)The present installed nuclear power capacity in the country is 8180 MW. Another reactor of 700 MW capacity has been connected to the grid on March 17, 2025, taking the capacity to 8880 MW. In addition, eight reactors with a capacity of 6600 MW (including PFBR by BHAVINI) are at various stages of construction/ commissioning and ten reactors with a capacity of 7000 MW are under pre-project activities. These are expected to be completed progressively by 2031-32, taking the installed nuclear capacity to 22480 MW by then.

(b) It is planned to make prototype demonstration reactors for establishing technology for design, construction and operation of new reactors before commercial deployment. New reactor technologies being pursued are described below:

i. 200 MWe Bharat Small Modular Reactor (BSMR-200), is completely indigenous 200 MWe Pressurised Water Reactor (PWR). It can be deployed as captive plant for energy intensive industry such as aluminium, steel, metal etc.

ii Small Modular Reactor (SMR) 55 MWe is also a Pressurised Water Reactor with highly modular block type design. Exclusion zone for this reactor is not beyond plant boundary.

These reactors are suitable for providing energy for remote as well as off-grid location with objective to decarbonise the energy sector.

iii Conceptual design of Indian Gas Cooled Reactor (IGCR) (5 MWth) is being carried out. The high temperature reactor will be coupled with plant utilising thermo-chemical process for demonstration of hydrogen production for decarbonisation of transport sector & process industries.

Demonstration units of these reactors are planned to be installed at DAE sites. These demonstration reactors are likely to be constructed in 60 to 72 months after receipt of project sanctions.

The Rs. 20,000 Crore allocated in union budget-2025 is for development of five indigenous SMRs by year 2033.

(c) Some of the major issues in such expansion and installation of these reactors are mentioned below:

i. Indigenous development of materials for high temperature applications.

ii. Limited capability of Indian industries with respect to supply of high-quality nuclear grade materials and products like large forgings, plates, pipes welding consumables etc., of steel and other metal alloys.

iii. Limited participation of Indian industries in fabrication of nuclear equipment/ components with stringent quality requirements.

iv. Reluctance of Indian industry anticipating intermittent orders & small quantity.

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