GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO–5984
ANSWERED ON 01/04/2026

DEVELOPMENT IN NUCLEAR ENERGY

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Will the PRIME MINISTER be pleased to state:-

(a) the manner in which the Government ensuring that nuclear energy contributes significantly to country's clean energy goals;
(b) the details of the initiatives put in place to promote research and development in nuclear energy and related technologies;
(c) the details of the programmes exist to train skilled manpower for nuclear energy plants and research centers; and
(d) the quantum of country's electricity currently comes from nuclear energy along with the target set for the next decade?

ANSWER

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

(a) Government has announced Nuclear Energy Mission (NEM), outlined in the Union Budget 2025-26, with aim to achieve the nuclear power generation capacity of 100 GWe by 2047 to increase the share of nuclear energy as reliable base load energy in India's energy mix and achieve goal of net carbon emission by 2070. To enable a wider participation of both public and private sectors in this effort, the Government has enacted the SHANTI Act.

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 and deployment of Small Modular Reactors (SMRs) such as 220 MWe Bharat Small Modular Reactor (BSMR-200), and 55 MWe Small Modular Reactor (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, up to 5 MWth High Temperature Gas Cooled Reactor (HTGCR) is also being designed and developed. The reactor heat can be utilized for hydrogen generation by coupling with suitable thermos-chemical processes for utilizing for process industry and in transport industries. This can help in decarbonization of process and transport sector.

Further, India is pursuing the Three Stage Nuclear Power Programme with the aim of utilizing its vast thorium reserves for long term nuclear energy generation in a sustainable manner.

These nuclear energy programmes can gradually reduce India's dependency on fossil fuel and contributes to clean energy goals.

(b) Under the Nuclear Energy Mission announced in the Union Budget 2025-26, a total budgetary provision of Rs.20,000 Crores have been made for the research and development, and deployment of Small Modular Reactors (SMRs). This allocation is aimed at supporting India's objective of developing and operationalizing at least five indigenously designed SMRs by year 2033. Department of Atomic Energy (DAE) has undertaken design and development works on SMRs namely 220 MWe Bharat Small Modular Reactor (BSMR-200), 55 MWe Small Modular Reactor (SMR-55), and up to 5 MWth High Temperature Gas Cooled Reactor (HTGCR) meant for hydrogen production.

DAE is planning to engages Indian industries through knowledge sharing and handholding for new technology developments for these SMRs, thus developing nuclear vendors for self-reliance in the field of nuclear technology encouraging R&D ecosystem in private sector. The SHANTI Act, 2025 envisages participation of public and private entities in the filed of nuclear energy including R&D in the field of nuclear energy and related technologies.

DAE has also established four Atal Incubation Centres which focuses on technology development through collaboration with start-ups and Micro, Small and Medium Enterprises (MSMEs). These centres support both DAE developed technologies and the co-development and enhancement of innovative ideas originating from industry and start-ups to foster the R&D ecosystem for indigenous technology development and innovation for a self-reliant India.

Additionally, The Board of Research in Nuclear Sciences (BRNS) is an advisory body and an extramural funding agency of the DAE which provides funds to researcher's academic institutes / universities to carry out research in line with mandate of the DAE.

(c) Human resource development forms a cornerstone of strategy for indigenous technological development and innovation. DAE has established robust programme to create a highly skilled workforce for nuclear science, technology, and radiation safety. The Orientation Course for Engineering Graduates and Science Postgraduates (OCES), conducted annually through the Bhabha Atomic Energy Research Centre (BARC) Training School, a Constituent Unit of DAE, provides one year of intensive training to young engineers and science postgraduates, who are subsequently absorbed into various units of DAE. Specialized training initiatives such as the Radiological Safety and Environmental Science (RSES) programme address the national need for technocrats and scientists in radiological protection and environmental safety. DAE Graduate Fellowship Scheme (DGFS) enables selected candidates to pursue M.Tech programmes at premier academic institutions, followed by structured training in nuclear science and technology, thereby strengthening the human resources. Youths having bachelor degree in science / diploma in engineering and trade certificates in ITIs are recruited as trainees and imparted two-year training in the field of nuclear science and technology. Subsequently on successful completion of training, these youths are absorbed in the DAE.

(d) In 2024-25, nuclear power plants generated 56,681 Million Units of electricity. The present nuclear power capacity of 8780 MW (excluding RAPS-1) is expected to increase to 22,380 MW by 2031-32 on progressive completion of projects under implementation. Thus over the next decade nuclear power generation is expected to increase three-fold.

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