GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
**RAJYASABHA**
**UNSTARRED QUESTION NO – 3684**
ANSWERED ON 03/04/2025

**PROGRESS OF THE BHARAT SMALL MODULAR REACTOR**

3684. SHRI K R SURESH REDDY

Will the PRIME MINISTER be pleased to state:-

(a) whether the design stage of the Bharat Small Modular Reactor (BSMR) has been completed, and if so, the details thereof;
(b) the timeline for its construction and commissioning, along with the estimated cost;
(c) whether Government is collaborating with private sector entities for its development and deployment and if so, the details thereof; and
(d) the measures being taken to ensure safety, sustainability, and cost-effectiveness for energy-intensive industries and remote areas?

**ANSWER**

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

(a) Presently, concept design of the lead unit of Bharat Small Modular Reactor 200 MWe has been completed, which includes sizing of the nuclear reactor along with the primary heat transport system. Detailed engineering design of nuclear and non-nuclear systems has been taken- up by the Department.
(b) The erection and start-up of the demonstration unit of BSMR 200 is expected to be completed in 6 years' time after financial approval. Plant commissioning followed by regular operation will be feasible at the end of 7th year. Expected cost of the lead unit is ₹5,700 Crores.
(c) BSMR is being developed by BARC and NPCIL as all the required expertise is available in house for deployment of lead unit of BSMR. The Department will avail services of developed indigenous private nuclear vendors, who will deliver various equipment and components of BSMR 200 through competitive bidding. The construction, erection and commissioning works will be entrusted with pre-qualified EPC vendors.

(d) BSMR is based on the globally proven pressurised water reactor technology. It has been provided with passive safety features as well as several engineered safety systems to ensure nuclear safety during off normal conditions. In addition to this Nuclear safety of BSMR-based power plant will be subjected to comprehensive regulatory licensing process in vogue. Design standardisation will be taken-up in the follow-on units to ensure cost-effectiveness and optimisation of project timelines. BSMR will be largely indigenous, facilitating its sustainability and mass deployment. Use of imported uranium (slightly enriched) will be an option to be exercised, if required.

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