

GOVERNMENT OF INDIA  
DEPARTMENT OF ATOMIC ENERGY  
**LOK SABHA**  
**UNSTARRED QUESTION NO-1453**  
ANSWERED ON 04/12/2024

**BHARAT SMALL REACTORS (BSR)**

1453. SMT. D K ARUNA  
SHRI EATALA RAJENDER  
SHRI SURESH KUMAR SHETKAR

Will the PRIME MINISTER be pleased to state:-

- (a) whether the Government is working out on the expansion of India's nuclear energy sector, partnerships with the private sector for research and developing Bharat Small Reactors (BSR), Bharat Small Modular Reactors (BSMR) as well as newer nuclear energy technologies and if so, the details thereof;
- (b) whether the Government is aiming at India's ambitious pursuit of the decarbonisation of energy generation and achieving 500 Gigawatts of non-fossil fuel-based energy generation in India by 2030, as pledged at the COP26 Summit in Glasgow, in 2021 and if so, the details thereof;
- (c) whether there is renewed interest in revisiting the existing framework governing the Indian nuclear energy sector and not in conflict with the applicable laws partnering with private participants to attract nearly \$26 billion of investments into the sector; and
- (d) if so, the details thereof and the progress made particularly in Maharashtra and Andhra Pradesh, Telangana along with the details of investments made in these projects till now?

**ANSWER**

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

- (a) India is pursuing three stage nuclear power programme to optimally utilise its limited uranium resources and exploit its vast thorium reserves by nearly closed fuel cycle. The first stage involves use of natural uranium in pressurised heavy water reactor (PHWR), the fissile material recovered from spent fuel of first stage is used as fuel in fast breeder reactors (FBRs) in the second stage. The FBRs are also designed for breeding fissile uranium-233 from fertile thorium-232 used as blanket in second stage of nuclear power programme. Thorium utilisation is envisaged using uranium-233 and thorium-232 in the third stage of nuclear power programme for long term energy security in a sustainable manner.

The standard 220 MW Pressurised Heavy Water Reactor (PHWR), which has a proven safety and performance record, is being upgraded to reduce the land requirement and make it deployable close to the industries for use as a captive power plant. These reactors, termed

as Bharat Small Reactors (BSR) are planned to address the decarbonisation needs of industries like steel, aluminium, metals etc. Setting up of 220 MW Bharat Small Reactors (BSRs) is envisaged within the existing legal framework, broadly envisaging provision of land, cooling water and capital by the private entity, with the design, quality assurance and operation & maintenance by Nuclear Power Corporation of India Limited (NPCIL), based on agreed business models.

BARC is developing Small Modular Reactor for repurposing of retiring coal based power plants and catering to power requirements at remote locations in the country.

Apart from the above reactors, DAE has planned to launch new nuclear reactors including high temperature gas cooled reactor for co-generation of hydrogen and molten salt reactor aimed at utilization of the abundantly available thorium in the country.

- (b) “Hon’ble Prime Minister in his statement at COP26 Summit held in Glasgow has stated that India will reach its non-fossil energy capacity to 500 GW by 2030 and India will meet 50 percent of its energy requirements from Renewable Energy by 2030”. With the progressive deployment of clean technologies like nuclear power and renewable it is envisaged to achieve the objective of a net zero carbon economy by 2070.
- (c) & (d) No such investment information is available in Department.

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