

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.226
TO BE ANSWERED ON 02.02.2022

NUCLEAR POWER PLANTS

226. SHRI BRIJBHUSHAN SHARAN SINGH:
SHRI P.P. CHAUDHARY:
SHRI PRATAP CHANDRA SARANGI:
SHRI SANGAM LAL GUPTA:

Will the PRIME MINISTER be pleased to state:

- (a) the details and number of operational nuclear reactors, nuclear reactors under construction, nuclear reactors proposed and the expected timeline for these projects;
- (b) the details of combined energy generation capacity of the operational nuclear power plants and the percentage of their overall energy supply contribution in the country;
- (c) whether the Government is planning to enlarge the usage of Thorium for the development of technologies for the third stage of the nuclear power programme; and
- (d) if so, the details of steps taken in this regard and the expected timeline for the same?

ANSWER

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

- (a) There are presently 22 reactors with a total capacity of 6780 MW in operation and one reactor, KAPP-3 (700 MW) has been connected to the grid on January 10, 2021. There are 10 reactors [including 500 MW Prototype Fast Breeder Reactor(PFBR) being implemented by Bharatiya Nabhikiya Vidyut Nigam Ltd. (BHAVINI) totaling to 8000 MW under construction at various stages and the Government has accorded administrative approval and financial sanction for construction of 10 more reactors totaling to 7000 MW, to be set up in fleet mode. The projects under construction and accorded sanction are expected to be completed

progressively by 2031. More nuclear power plants are also planned in future.

- (b) The present installed nuclear power capacity is 6780 MW and it contributes about 3% of the total electricity generation in the country.
- (c) &(d) Yes, Sir. A three-stage nuclear power programme, based on a closed nuclear fuel cycle has been chalked out to use thorium as a viable and sustainable option at the inception of India's nuclear power programme. The three-stage nuclear power programme aims to multiply the domestically available fissile resource through the use of natural uranium in Pressurised Heavy Water Reactors, followed by use of plutonium obtained from the spent fuel of Pressurised Heavy Water Reactors in Fast Breeder Reactors. The third stage of Indian nuclear power programme which contemplates making use of Uranium-233 to fuel Thorium Uranium-233 based reactors, can provide energy independence to the country for several centuries. All efforts towards technology development and demonstration are being made now, so that a mature technology is available in time.

Indigenous efforts towards development and demonstration of Thorium-based reactor technology are well underway with BARC-designed Advanced Heavy Water Reactor (AHWR, 300 MWe). This 300 MWe reactor using thorium based fuel will serve as a technology demonstrator not only for the thorium fuel cycle technologies, but also for several advanced passive safety features. In order to facilitate an early scrutiny of the innovative features of the design from the safety considerations, a Pre-Licensing Design Safety appraisal of the reactor has been completed by the Atomic Energy Regulatory Board. Construction of this reactor can begin after associated statutory clearances, regulatory clearances and financial sanction for the project are obtained. It is expected that construction time will be in line with the time required for constructing our Pressurised Heavy Water Reactors (PHWRs).
