

GOVERNMENT OF INDIA  
DEPARTMENT OF ATOMIC ENERGY  
**LOK SABHA**  
**UNSTARRED QUESTION NO.367**  
TO BE ANSWERED ON 03.02.2021

**NUCLEAR POWER PLANTS**

367. SHRIMATI SUNITA DUGGAL:

Will the PRIME MINISTER be pleased to state:

- (a) the total number of Nuclear Power Plants working in India along with the capacity of generation, utilisation and production cost per unit of each of the nuclear power plants, Nuclear plant-wise;
- (b) whether the Government plans to establish new nuclear power plant in the country;
- (c) if so, the details thereof along with the date of commencement, details of funds and atomic fuel required for each of the nuclear power plant;
- (d) whether the Government has planned to set up a nuclear based power plant in Gorakhpur, Fatehabad in Haryana State;
- (e) if so, the details thereof including cost of construction, land acquired, generation capacity and date of commencement of the power plant;
- (f) the total number of jobs created during and after the commencement of Nuclear Power Plant in Gorakhpur, Fatehabad; and
- (g) the process adopted for the disposal of waste that is generated?

**ANSWER**

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

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- (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. The nuclear plant wise detail is given in Annexure.
- (b) Yes, Sir.

- (c) The Government has accorded administrative approval and financial sanction for construction of 12 nuclear power reactors - 10 indigenous 700 MW Pressurized Heavy Water Reactors (PHWRs) to be set up in fleet mode & 2 units of Light Water Reactors (LWRs) to be set up in cooperation with Russian Federation. The details of new nuclear power projects is given below:

Project	Location & State	Capacity (MW)	Sanctioned Cost (Rs Crore)	Expected Commencement of Operation	Annual Fuel Requirement Per Reactor (tons UO <sub>2</sub> )
KKNPP- 5&6	Kudankulam Tamil Nadu	2 X 1000	49621	2026 / 2027	25 (LEU)*
Chutka-1&2	Chutka, Madhya Pradesh	2 X 700	105000	Progressive completion by 2031	125 (NU)#
Kaiga-5&6	Kaiga, Karnataka	2 X 700			
Mahi Banswara- 1&2	Mahi Banswara, Rajasthan	2 X 700			
GHAVP– 3&4	Gorakhpur, Haryana	2 X 700			
Mahi Banswara- 3&4	Mahi Banswara, Rajasthan	2 X 700			

*Annual requirement at 90% Capacity Factor of Low Enriched Uranium (LEU)*

*#Annual requirement at 85% Capacity Factor of Natural Uranium (NU)*

- (d) Yes, Sir.
- (e) Four units of indigenous 700 MW Pressurised Heavy Water Reactors (PHWRs) are planned to be set up at Gorakhpur in Haryana in two phases – GHAVP 1&2 (2 X 700 MW) and GHAVP 3&4 (2 X 700 MW). The total land for locating the four units of about 534 Hectares has been acquired. The approved completion cost of GHAVP 1&2 is Rs. 20594 crore. The GHAVP 3&4 project has been accorded sanction as a part of the 10 indigenous 700 MW PHWRs, to be set up in fleet mode at a cost of Rs. 105000 crore. GHAVP 1&2 is expected to commence operation in 2026 / 2027 and GHAVP 3&4 in 2027 / 2028.

- (f) During construction, large numbers of contractor manpower are employed. In each of the twin unit projects, GHAVP 1&2 and GHAVP 3&4, the employment potential during construction will follow a bell curve with about 8000 persons at the peak. On becoming operational, each of the twin unit station is expected to generate employment (direct and indirect) for about 2000 persons. In addition, large employment potential is generated with the contractors/ vendors and from business opportunities that emerge consequent to the increase in economic activity at the site.
- (g) The wastes generated in solid, liquid and gaseous forms during the operation of GHAVP 1 to 4, like other operating nuclear power plants will be of low & intermediate radioactivity level, which will be managed at the site in the dedicated waste management facilities. The wastes will be appropriately treated, concentrated and subject to volume reduction. The concentrates will be immobilized in inert materials like cement, bitumen, polymers etc. and stored in specially constructed structures located at the site under monitoring. The radioactivity level of the stored wastes reduces with time and by the end of the plant life, falls to a very low level. The treated liquids and gases will be diluted and discharged under monitoring, ensuring that the discharges are well within the limits set by Atomic Energy Regulatory Board (AERB).

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## Annexure

Unit	State	Location	Type of Reactor	Capacity (MW)	Plant Load Factor (PLF), 2019-20	Electricity Tariff (Rs./ kWh) December 2020	
TAPS-1	Maharashtra	Tarapur	LWR (BWR)	160	67.84	2.41	
TAPS-2				160	87.80		
TAPS-3			PHWR	540	80.68	3.39	
TAPS-4				540	95.33		
RAPS-1*	Rajasthan	Rawatbhata	PHWR	100	*	--	
RAPS-2				200	80.23	3.28	
RAPS-3				220	88.20		
RAPS-4				220	87.37		
RAPS-5				220	100.72	3.85	
RAPS-6				220	88.12		
NAPS-1	Uttar Pradesh	Narora	PHWR	220	98.34	3.01	
NAPS-2				220	97.84		
KAPS-1	Gujarat	Kakrapar	PHWR	220	88.84	2.29 <sup>#</sup>	
KAPS-2				220	101.51		
KGS-1	Karnataka	Kaiga	PHWR	220	95.25	3.42	
KGS-2				220	91.76		
KGS-3				220	95.10		
KGS-4				220	94.52		
MAPS-1	Tamil Nadu	Kalpakkam	PHWR	220	\$	2.60	
MAPS-2				220	95.36		
KKNPP-1		Kudankulam		LWR (VVER)	1000	81.00	4.09
KKNPP-2					1000	45.86	

\* RAPS-1 is under extended shutdown for techno-economic assessment for continued operation.

<sup>#</sup> Tariff pending revision

<sup>\$</sup> MAPS-1 under project mode for End shield related works