

**GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO : 413
TO BE ANSWERED ON 24/02/2010**

PRIVATE SECTOR PARTICIPATION IN NUCLEAR POWER SECTOR

413 SHRI PRADEEP MAJHI:

WILL THE PRIME MINISTER BE PLEASED TO STATE:

- (a) whether the Government has received any fresh requests from the private sector companies to permit them to participate in nuclear power sector;
- (b) if so, the details thereof;
- (c) whether the Government has also received any request to modify the Atomic Energy Act, 1962;
- (d) if so, the details thereof and the action taken by the Government thereon; and
- (e) the details of the private sector which have been given permission by the Government for their participation in nuclear power sector in the country?

ANSWER

**THE MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES (INDEPENDENT CHARGE), PMO, PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND PARLIAMENTARY AFFAIRS.
(SHRI PRITHVIRAJ CHAVAN):**

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(a) to (e) The Atomic Energy Act, 1962 allows the Central Government to produce, develop, use and dispose of atomic energy either by itself or through any authority or corporation established by it or a Government Company. As of today Nuclear Power Corporation of India Limited (NPCIL) & Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) are two Public Sector Undertakings authorized for this purpose. Private Sector can participate in setting up of nuclear power plants as a junior equity partner.

Some private sector companies and industry organizations have, at various forums, requested amendment of the Act to allow private sector participation in nuclear power generation.

Private sector in India is in a position to participate in setting up nuclear power plants through supply of components, equipment and works contracts.

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UNSTARRED QUESTION NO : 407
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NUCLEAR POWER PLANTS

**407 SHRI ASHOK KUMAR RAWAT:
SHRI BRIJBHUSHAN SHARAN SINGH:
SHRI P.T.THOMAS:
SHRI S.SEMMALAI:**

WILL THE PRIME MINISTER BE PLEASED TO STATE:

- (a) the details of the nuclear power plants presently functioning in the country alongwith their actual capacity and the quantity of power generated by these plants;
- (b) the details of the capacity utilization of the atomic power plants under operation, plant/unit-wise;
- (c) whether the Government has undertaken any Renovation and Modernisation (R&M) exercise to improve the capacity utilization;
- (d) if so, the details thereof; and
- (e) the plan drawn to increase power generation in this regard?

ANSWER

**THE MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES (INDEPENDENT CHARGE), PMO, PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND PARLIAMENTARY AFFAIRS.
(SHRI PRITHVIRAJ CHAVAN):**

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- (a) Presently there are 18 nuclear power reactors in operation with an installed capacity of 4340 MWe. The generation has been 15110 Million Units upto Jan 2010 in the current financial year.
 - (b) The details are attached as Annuxure
 - (c) Renovation and Modernisation (R&M) of nuclear power reactors have been carried out at all plants, as needed. The low capacity utilization is due to non availability of fuel in the required quantity and not due to R&M needs.
 - (d) & (e) Series of efforts on augmentation of domestic Uranium and import of Uranium will improve power generation. In addition the nuclear power capacity is also planned to be increased by completion of projects and new reactors.

Annexure

Details of the capacity utilization of atomic power plants in operation

Unit	Present Capacity (MWe)	Capacity Factor (%) (Apr 2009– Jan 2010)
TAPS-1	160	83
TAPS-2	160	87
TAPS-3	540	59
TAPS-4	540	56
RAPS-1	100	0 ¹
RAPS-2	200	89²
RAPS-3	220	65
RAPS-4	220	57
RAPS-5	220	0 ⁵
MAPS-1	220	47
MAPS-2	220	58
NAPS-1	220	39
NAPS-2	220	0 ³
KAPS-1	220	0 ⁴
KAPS-2	220	55
KAIGA-1	220	52
KAIGA-2	220	58
KAIGA -3	220	58

Notes

1. RAPS-1 shutdown for techno-economic Assessment from 09.10. 2004
2. RAPS-2 restarted operations from 01.09.2009 after completion of Enmasse Feeder Replacement (EMFR)
3. NAPS-2 shutdown for Enmasse Coolant Channel Replacement (EMCCR) from 18.12.2007
4. KAPS-1 shutdown for EMCCR from 01.07.2008
5. RAPS-5 started commercial operations on 04.02.2010.
6. TAPS 1&2, RAPS-5 and RAPS-2 are fuelled by imported fuel. The other reactors are fuelled by indigenous fuel, of which there is a demand supply mismatch resulting in lower level power operation.

**GOVERNMENT OF INDIA
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LOK SABHA
UNSTARRED QUESTION NO : 316
TO BE ANSWERED ON 24/02/2010**

NUCLEAR POWER

316 SHRI M.I.SHANAVAS:

WILL THE PRIME MINISTER BE PLEASED TO STATE:

- (a) whether the Government has drawn up an action plan to generate 40,000 MW of atomic energy by 2020;
- (b) if so, the details thereof;
- (c) the estimated investment required for this purpose alongwith the source from where the funds are propose to be raised;
- (d) whether the Government proposes to seek international cooperation to achieve this target; and
- (e) if so, the details thereof?

ANSWER

**THE MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES (INDEPENDENT CHARGE), PMO, PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND PARLIAMENTARY AFFAIRS.
(SHRI PRITHVIRAJ CHAVAN):**

- (a) to (e) The current nuclear power capacity of 4340 MWe can be increased to about 15,000 MWe by the year 2020 by completion of ongoing projects and indigenous efforts. Another 10,000 MWe can be added by the year 2020 through international cooperation with France, Russian Federation and the USA.

Setting up of a total of 40,000 MW capacity through international co-operation in nuclear power is possible but in a longer time frame beyond 2020. The project details have not been finalized. The investment is expected through a combination of equity, domestic & foreign borrowings and intergovernmental credit.

**GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO : 375
TO BE ANSWERED ON 24/02/2010**

POLICY FOR INTERNATIONAL CIVIL NUCLEAR COMMERCE

375 SHRI M.I.SHANAVAS:

WILL THE PRIME MINISTER BE PLEASED TO STATE:

- (a) whether the Government is considering to frame a policy for undertaking international civil nuclear commerce that will also have specific provisions for conducting trade with countries where it has not signed a bilateral agreement on the peaceful use of atomic energy;
- (b) if so, the details thereof including the salient features of the policy;
- (c) whether such a decision would have any effect on the existing agreement on civil nuclear cooperation agreements with other nations;
- (d) if so, whether such an agreements would be in conformity with the international Atomic Energy Agency(IAEA) safeguard; and
- (e) if so the details thereof?

ANSWER

THE MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES (INDEPENDENT CHARGE), PMO, PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND PARLIAMENTARY AFFAIRS.

(SHRI PRITHVIRAJ CHAVAN):

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- (a) to (e) A decision on framing a policy for undertaking international civil nuclear commerce has not been taken.

**GOVERNMENT OF INDIA
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UNSTARRED QUESTION NO : 379
TO BE ANSWERED ON 24/02/2010**

NEUTRINO OBSERVATORY

379 SHRI RAMESH RATHOD:

WILL THE PRIME MINISTER BE PLEASED TO STATE:

- (a) whether the Government proposes to set up a Neutrino Observatory in the country;
- (b) if so, the details thereof;
- (c) the likely benefits to the country after establishment of this observatory; and
- (d) the funds earmarked and allocated for this project?

ANSWER

**THE MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES (INDEPENDENT CHARGE), PMO, PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND PARLIAMENTARY AFFAIRS.
(SHRI PRITHVIRAJ CHAVAN):**

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- (a) Yes, Sir.
- (b) The India based Neutrino Observatory (INO) is proposed to be set up through the Department of Atomic Energy and Department of Science & Technology. The project includes construction of a world class underground laboratory under a rock cover of at least 1200 m from all directions. This underground laboratory will be accessed by 7.5 meter wide tunnel of approximately 2 km in length. The primary goal of INO is to study neutrino properties. Determination of neutrino properties is one of the most significant open problems in Physics today. Such studies will help in understanding the interactions among

sub-atomic particles at very small length scale. In this underground laboratory a massive 50 kton particle detector will be installed to study the cosmic ray produced neutrinos.

- (c) The project will put India back on the world-map of underground science, a position that was held by India a few decades earlier. It is to be noted that the first ever detection of neutrino produced by cosmic rays took place in an underground laboratory at Kolar Gold Fields, South India. Apart from doing front ranking work in the field of neutrino physics, this project will help in (i) development of human resources in basic science research. (ii) contributing to the creation of highly skilled scientists for particle physics and nuclear physics, (iii) using the particle detectors to be developed for this project for other applications in areas like medical imaging.
- (d) The estimated cost of the project is Rs.918 crore. The project is currently awaiting the forest clearance from the State Government of Tamilnadu. After receiving all the clearances, cabinet approval will be obtained to start the construction work.
