

GOVERNMENT OF INDIA  
DEPARTMENT OF ATOMIC ENERGY  
**RAJYA SABHA**  
**UNSTARRED QUESTION NO.312**  
TO BE ANSWERED ON 11.11.2010

**TARGET FIXED FOR NUCLEAR POWER**

312. SHRI NARENDRA KUMAR KASHYAP:

Will the PRIME MINISTER be pleased to state:

- (a) the details of targets fixed for generation of nuclear power during the Eleventh Plan, plant-wise;
- (b) the details of targets achieved during the first three years of Eleventh Plan since 2007;
- (c) whether the country is short of nuclear power generation;
- (d) if so, the details thereof, plant-wise; and
- (e) the steps taken by Government to increase nuclear power generation in the country?

**ANSWER**

**THE MINISTER OF STATE FOR PLANNING AND PARLIAMENTARY AFFAIRS  
(SHRI V NARAYANASAMY):**

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- (a)&(b) The details are attached as Annexure-1
- (c) There are nineteen reactors (4560 MW) in operation.
  - Seven reactors (1400 MW) are under International Atomic Energy Agency Safeguards and use imported uranium. These reactors operate at full capacity.
  - Ten reactors (2840 MW) use domestic uranium which is not available in the required quantity. These are operated at reduced power levels.
  - One reactor (RAPS-1) is under long term shutdown.
  - One reactor KAPS-1 (220 MW) after completion of Renovation & Modernisation is awaiting fuel for restart.
- (d) The details are attached as Annexure-2.
- (e) The government is making efforts to augment domestic fuel supplies by opening of new mines and processing facilities. The shortage of domestic uranium is expected to be overcome progressively in about two years. In addition, nuclear power generation is expected to increase with completion of projects presently at an advanced stage of construction.

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**Annexure-1**

<b>Station</b>	<b>XI Plan Target (MU)</b>		<b>Actual Generation in first three years of XI Plan</b>
	<b>Original</b>	<b>MTA</b>	
Tarapur Atomic Power Station	40108	39555	21640
Rajasthan Atomic Power Station	32953	24057	8801
Madras Atomic Power Station	12853	10773	5313
Narora Atomic Power Station	10717	7239	2232
Kakrapar Atomic Power Station	10422	8855	4311
Kaiga Generating Station	24367	18297	8418
Kudankulam Power Station	29784	15832	0
PFBR, Kalpakkam	2190	0	0
<b>TOTAL</b>	<b>163394</b>	<b>124608</b>	<b>50715</b>

**MTA:** Mid Term Appraisal

Table - Reactors in Operation

NO	Unit	Rated Capacity (MW)	Current (Nov 2010) Operating Power Level
Reactors fuelled by Imported Uranium			
1	TAPS-1	160	160
2	TAPS-2	160	160
3	RAPS-2	200	200
4	RAPS-3	220	220
5	RAPS-4	220	220
6	RAPS-5	220	220
7	RAPP-6	220	220
	Total	1400	1400
Reactors fuelled by domestic Uranium – Operated at about 70% of full power			
8	TAPS-3	540	420
9	TAPS-4	540	405
10	MAPS-1	220	145
11	MAPS-2	220	125
12	NAPS-1	220	155
13	NAPS-2	220	155
14	KAPS-2	220	100
15	KAIGA-1	220	150
16	KAIGA-2	220	140
17	KAIGA-3	220	155
	Total	2840	1950
Shut Down for techno economic assessment on continuation of operations			
18	RAPS-1	100	
Reactors awaiting fuel after Renovation & Modernization			
19	KAPS-1	220	
	TOTAL Capacity	4560	3350

The generation in April - October 2010 is 13,305 Million units (MUs). The generation during the same period last year was 10,376 MUs.

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**UNSTARRED QUESTION NO.313**  
TO BE ANSWERED ON 11.11.2010

**DEATH OF SCIENTISTS IN BARC**

313. SHRI RAJEEV CHANDRASEKHAR:

Will the PRIME MINISTER be pleased to state:

- (a) whether the death of scientists of Bhabha Atomic Research Centre (BARC) due to cancer have come to the notice of Government;
- (b) if so, the details thereof; and
- (c) the corrective measures Government has taken or proposes to take in this regard?

**ANSWER**

THE MINISTER OF STATE FOR PLANNING AND PARLIAMENTARY AFFAIRS  
(SHRI V NARAYANASAMY):

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- (a) & (b) Number of cancer deaths amongst BARC scientists does not exceed the national average.

The government has come across newspaper reports on the subject. These are not factually correct. BARC has a strength of more than 16,000 employees including nearly 12,000 scientific and technical personnel. Since January 1995 till end of December 2009, as per records, a total of 69 serving employees of BARC (below 60 years of age) have died due to cancer. All of them are not scientists. The annual rate of death due to cancer for BARC employees will be approximately 30.94 per 1,00,000. The death rate in Mumbai as per the cancer registry is about 36 per 100000. This rate depends on age group, diagnostic and treatment facilities, lifestyle, location etc. Thus the death rate of BARC employees due to cancer is not more than the national average or that for the city of Mumbai. None of these deaths is attributable to their working with or exposure to radiation or radioactivity.

- c) As a welfare policy, DAE provides excellent healthcare to its employees (including those of BARC) and their families through its Contributory Health Services Scheme (CHSS) covering all illnesses. In Mumbai, BARC caters to more than 87,000 beneficiaries of CHSS. This is done through a 330 bed BARC hospital, 12 peripheral dispensaries as well as reputed tertiary care hospitals. As regards radiation exposure of its employees, all the protective measures and exposure control protocols are in place as per international standards. The exposures of the employees are within the limits approved by the International Commission on Radiological Protection (ICRP) and the occupational and research workers are regularly monitored for the same.

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**UNSTARRED QUESTION NO. 314**  
TO BE ANSWERED ON 11.11.2010

**ATOMIC ENERGY POTENTIAL OF THE COUNTRY**

314. SHRI BIRENDRA PRASAD BAISHYA:

Will the PRIME MINISTER be pleased to state:

- (a) the details of atomic energy potential of the country;
- (b) whether the Ministry has explored or plan to explore the North-Eastern Region for nuclear fuel/material; and
- (c) if so, the details thereof?

**ANSWER**

THE MINISTER OF STATE FOR PLANNING AND PARLIAMENTARY AFFAIRS  
(SHRI V NARAYANASAMY):

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- (a) The total Uranium reserves in the country are 1,49,654 tonnes of U3O8 as on 31.10.2010. Based on the indigenous uranium reserves, the country has a nuclear power potential of 10,000 MWe in terms of Pressurised Heavy Water Reactors (PHWR) adopting the strategies of closed fuel cycle and the three stage nuclear program India has the potential for achieving energy security for the future.
- (b) Yes Sir.
- (c) The Department of Atomic Energy has been exploring for uranium resources in various parts of the country including the NE region. Deposits of uranium were discovered in Kylleng – Pyndengsohiong-Mawthavah region (KPM) in West Khasi Hills District of Meghalaya currently pre-project activities for uranium mining there are on. In addition to the above, exploration for uranium are going on in other regions of Meghalaya

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**UNSTARRED QUESTION NO.315**  
TO BE ANSWERED ON 11.11.2010

**NUCLEAR POWER PLANTS**

315. SHRI MOINUL HASSAN:

Will the PRIME MINISTER be pleased to state:

- (a) whether any of the nuclear power plants in the country would be transferred to private ownership;
- (b) if so, the details thereof; and
- (c) if not, the reasons therefor?

**ANSWER**

THE MINISTER OF STATE FOR PLANNING AND PARLIAMENTARY AFFAIRS  
(SHRI V NARAYANASAMY):

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- (a) No Sir.
- (b) Not applicable in view of (a) above.
- (c) The Atomic Energy Act, 1962 gives power to 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 in which not less than 51% of the paid up share capital is held by the Central Government. At present Indian private sector can participate in nuclear power generation projects as a minority partner. For the present participation of Indian private sector in nuclear power generation projects will continue to be as per the existing provisions of Atomic Energy Act, 1962

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**UNSTARRED QUESTION NO.316**  
TO BE ANSWERED ON 11.11.2010

**NUCLEAR DEAL WITH CANADA**

316. DR. T. SUBBARAMI REDDY:

Will the PRIME MINISTER be pleased to state:

- (a) whether India concluded an agreement with Canada on civilian nuclear deal;
- (b) if so, whether Canada is the ninth nation to enter into such an agreement with India;
- (c) if so, to what extent both India and Canada have agreed to work together to have cooperation in civilian nuclear deal; and
- (d) to what extent this is working beneficial for both the countries?

**ANSWER**

THE MINISTER OF STATE FOR PLANNING AND PARLIAMENTARY AFFAIRS  
(SHRI V NARAYANASAMY):

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- (a) Yes, Sir.
- (b) The following agreements on peaceful uses of nuclear energy have been concluded between India and other countries in the recent period:

<b>Sl. No.</b>	<b>Agreement</b>	<b>Country</b>	<b>Date of signing</b>	<b>Remarks</b>
1.	Agreement between the Government of the Republic of India and the Government of the French Republic on the Development of Peaceful Uses of Nuclear Energy	France	30.9.2008	The Agreement entered into force w.e.f. 14.01.2010
2.	An agreement between Govt. of Republic of India and the Government of United States concerning Peaceful Uses of Nuclear Energy	USA	10.10.2008	Entered into force on 06.12.2008

<b>Sl. No.</b>	<b>Agreement</b>	<b>Country</b>	<b>Date of signing</b>	<b>Remarks</b>
3.	Arrangements and Procedures agreed between the Govt. of India and the Govt. of the USA Pursuant to Article 6(iii) of their Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy	USA	30.07.2010	Entered into force on 21.09.2010
4.	An agreement between Govt. of Republic of India and the Government of the Russian Federation on cooperation in the construction of additional nuclear power plant units at Kudankulam site as well as in the construction of Russian designed nuclear power plants at new sites in the Republic of India.	Russia	05.12.2008	Entered into force on 15.05.2009
5.	Agreement between Govt. of the Republic of India and the Govt. of the Republic of Namibia on cooperation in peaceful uses of nuclear energy	Namibia	31.08.2009	
6.	MOU between DAE of the Govt. of the Republic of India and the Nuclear Energy Agency, Regulatory Agency of the Govt. of Mongolia on cooperation in the field of Peaceful Use of Radioactive Minerals and Nuclear Energy	Mongolia	14.09.2009	
7.	Joint Declaration by India and the United Kingdom on Civil Nuclear Cooperation	UK	11.02.2010	
8.	Agreement between the Government of the Republic of India and the Government of the Russian Federation on Cooperation in the Use of Atomic Energy for Peaceful Purposes	Russia	12.03.2010	Entered into force on 20.09.2010
9.	Agreement between the Government of the Republic of India and the Government of Canada for Cooperation in Peaceful Uses of Nuclear Energy	Canada	27.06.2010	
10.	Agreement between the Government of the Republic of India and the Government of the Argentine Republic for Cooperation in the Peaceful Uses of Nuclear Energy	Argentina	23.09.2010	

(c) & (d) The Agreement signed with Canada has not yet entered into force.

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**SETTING UP OF NUCLEAR PLANTS ON COASTLINE**

317. SHRI RANJITSINH VIJAYSINH MOHITE-PATIL:

Will the PRIME MINISTER be pleased to state:

- (a) whether Government is going to open up India's vast coastline to the possibility of setting up of nuclear plant having document issued by the Ministry of Environment to this effect;
- (b) whether the proposed notification speaks of exemption to Department of Atomic Energy projects from regulations, preventing industrial activity in ecology sensitive areas of the coast; and
- (c) whether Government is sure that these installations are not a risk of being attacked and whether they pose grave environment threat?

**ANSWER**

THE MINISTER OF STATE FOR PLANNING AND PARLIAMENTARY AFFAIRS  
(SHRI V NARAYANASAMY):

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- (a) India has a long coastline of about 7500 km. Nuclear Power Plants require a very small stretch. Nuclear power plants at coastal locations are already in operation/under construction in Maharashtra and Tamilnadu. More nuclear power plants are planned at coastal locations in Andhra Pradesh, Gujarat, Maharashtra, Tamilnadu and West Bengal.
- (b) The land area from High Tide Line to 500 metres on the landward side of the sea front is called Coastal Regulation Zone (CRZ). The prevailing CRZ notification allows setting up of nuclear power projects after environmental clearance from Ministry of Environment and Forests (MoEF) is obtained.
- (c) Nuclear power projects do not pose any environmental threat. Adequate design, physical protection and security systems are put in place to ensure that these are not vulnerable to attacks.

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