(i) Acceleration in generating capacity addition during 11th and 12th Plan.

(ii) Coordinated operation and maintenance of hydro, thermal, nuclear and gas based power stations to optimally utilize the existing generation capacity.

(iii) Renovation, modernization and life extension of old and inefficient generation units.

(iv) Strengthening of inter-state and inter-regional transmission capacity for optimum utilization of available power.

(v) Strengthening of sub-transmission and distribution network as a major step towards loss reduction.

(vi) Thrust to Rural Electrification through Rajiv Gandhi Grameen Vidyutikaran Yojana.

(vii) Promoting energy conservation, energy efficiency and demand side management measures.

(e) Based on the report of Working Group on Power for 12th Plan, the details of projects under construction located in Rajasthan are given below:

Sl.No.	Projects	Type	Sector	1C (MW)
1.	RAPP-U 7 and 8	Nuclear	Central	2x700=1400
2.	KalisindhTPS Unit -1,2	Thermal	State	2x600=1200
3.	Chhabra TPS Extn Unit 3 and 4	Thermal	State	2x250=500
4.	Ramgarh TPS	Thermal	State	160

In addition, Jallipa Lignite Unit 5-8 (4 x 135 MW) which has slipped from llth Plan to 12th Plan will also give benefit to Rajasthan during 12th Plan.

(f) The total cost of the five projects coming up in Rajasthan as mentioned in reply to part (e) above is of the order of Rs. 22,825 Crores.

(g) and (h) As per information available with CEA no proposal has been received from Rajasthan for renovation and modernization of its power plants.

Power situation

4938. DR. GYAN PRAKASH PILANIA: Will the Minister of POWER be pleased to state:

(a) the demand and supply of power at present, State/UT-wise;

(b) the power generation from various sources, source-wise;

(c) the per unit cost, source-wise and its comparison with neighbouring/ advanced countries;

(d) the power projects commissioned during the last five years and the power generated therefrom;

(e) the details of increase in power tariffs during the last five years;

(f) the graph of demand of power continuously increasing during that period, year-wise;

(g) the power generation capacity in consonance with the rise in demand of power during that period, year-wise; and

(h) whether above statistics reveal that we are heading towards a power-crisis?

THE MINISTER OF STATE IN THE MINISTRY OF POWER (SHRI K.C. VENUGOPAL): (a) The State/UT-wise demand and supply of power in terms of energy and peak during the year 2011-12 and for the month of April, 2012 in the country are given at Statement (*See* below).

(b) The gross electricity generation from conventional energy sources during 2011-12 and April, 2012 in the country is given as below:

(Figures in Million Unit)

Source	2011-12	April, 2012
Thermal	708.806	63.675
Nuclear	32.287	2.806
Hydro	130.509	8.041
Bhutan Import	5.284	0.203
TOTAL	876.886	74.725

(c) Cost of generation from power plants depends on type of project such as hydro, thermal, or gas etc., location of the project *(i.e.* remoteness from the raw material for hydro project, distance from the fuel source etc.), type of technology *(i.e.* Super-Critical or Sub-critical), type and quantity of fuel *(i.e.* coal or gas or lignite), works involved (*i.e.* dam, water conductor system, under-ground or surface

power house depending upon the topography and geology of the project for hydro project), construction period of the project and its life, operation and maintenance charges, cost of inventory of fuel and spares, financing cost of the project, etc.

The cost of generation of electricity from various sources is determined by capital cost of the project, cost of capital, operation and maintenance charges, depreciation, fuel cost wherever applicable, cost of working capital, taxes and duties.

The source-wise weighted average rate of sale of power from generating stations to Power Utilities, as per data available in CEA, is given below;

Figures in paise/kwh

Source	2007-08	2008-09	2009-10#
Hydro	201.26	214.70	211.57
Thermal	242.49	252.98	305.41
Nuclear	231.18	223.50	248.78
All India	236.00	239.00	290.87

Latest available

Retail prices of Electricity in some of the countries, as per International Energy Agency-Key World Energy Statistics-2009 are given below:

In US Dollars/kwh

	Electricity for Industry	Electricity for households
Chinese Taipei	0.0672	0.0856
Austria	0.1541	0.2572
Finland	0.0969	0.1724
United Kingdom	0.1459	0.2313
United States*	0.0702*	0.1135*

* Prices excluding tax

(d) The power projects commissioned during the last five years are given at Annexure [*See* Appendix 225 Annexure No. 38] ,and the energy generated therefrom is shown in Annexure [*See* Appendix 225 Annexure No. 38].

(e) As per the Report on Performance of State Power Utilities published by the Power Finance Corporation (PFC) based on the data given in the Annual Accounts of State Electricity Boards/unbundled utilities and Annual Resource Plans submitted to the Planning Commission by State Power Departments, the average cost of supply (ACS) of the utilities selling directly to consumers during the last five years is as under:

Year	Average Cost of Supply (ACS) (Rs./Kwh)
2005-06	2.57
2006-07	2.75
2007-08	2.93
2008-09	3.41
2009-10*	3.54
CAGR#	8.36%

* Latest available data

\# Compound Annual Growth Rate (CAGR) for annual cost of supply in the last five years is 8.36%.

(f) The demand of power is continuously increasing both in terms of peak and energy. The details of percentage growth of demand both in terms of peak and energy requirement for the year 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12 is given below:

Year	Energy Requirement		Peak Demand	
	(MU)	(% growth over previous year)	(MW)	(% growth over previous year)
2007-08	7,39,343	7.1	1,08,866	8.1
2008-09	7,77,039	5.1	1,09,809	0.9
2009-10	8,30,594	6.9	1,19,166	8.5
2010-11	8,61,591	3.7	122287	2.6
2011-12	9,37,199	8.8	1,30,006	6.3

(g) and (h) The details of growth in installed generation capacity and shortages both in terms of peak and energy for the last 5 years are given below:

Year	Installed Capacity		Shortages (%)		Generation	Growth in
	MW	% age Growth over previous year	Peak	Energy	(BU)	Generation (%)
2007-08	1,43,061	8.1	16.6	9.9	704.45	6.3
2008-09	1,47,965	3.4	11.9	11.1	723.79	2.7
2009-10	1,59,398	7.7	12.7	10.1	771.55	6.6
2010-11	1,73,626	8.9	9.8	8.5	811.14	5.6
2011-12	1,99,627	15.0	10.6	8.5	876.43	8.1

From the above, it may be seen that the shortages are showing a declining trend.

Statement

Power supply position for 2011-12 and 2012-13

A. Power Supply Position for 2011-12

State/System/Region	Energy				Peak			
	April, 2011- March, 2012				April, 2011 - March, 2012			
	Requirement	Availability	Surplus /Deficit (-)		Peak Demand	Peak Met	Surplus/Deficit (-)	
	(MU)	(MU)	(MU)	(%)	(MW)	(MW)	(MW)	(%)
1	2	3	4	5	6	7	8	9
Chandigarh	1,568	1,564	-4	0	263	263	0	0
Delhi	26,751	26,674	-77	-0.3	5,031	5,028	-3	-0.1
Haryana	36,874	35,541	-1,333	-3.6	6,533	6,259	-274	-4.2
Himachal Pradesh	8,161	8,107	-54	-0.7	1,397	1,298	-99	-7.1
Jammu and Kashmir	14,250	10,889	-3,361	-23.6	2,385	1,789	-596	-25.0
Punjab	45,191	43,792	-1,399	-3.1	10,471	8,701	-1,770	-16.9
Rajasthan	51,474	49,491	-1,983	-3.9	8,188	7,605	-583	-7.1

Uttar Pradesh	81,339	72,116	-9,223	-11.3	12,038	11,767	-271	-2.3
Uttarakhand	10,513	10,208	-305	-2.9	1,612	1,600	-12	-0.7
Northern Region	**2,76,121**	**2,58,382**	**-17,739**	**-6.4**	**40,248**	**37,117**	**-3,131**	**-7.8**
Chhattisgarh	15,013	14,615	-398	-2.7	3,239	3,093	-146	-4.5
Gujarat	74,696	74,429	-267	-0.4	10,951	10,759	-192	-1.8
Madhya Pradesh	49,785	41,392	-8,393	-16.9	9,151	8,505	-646	-7.1
Maharashtra	1,41,382	1,17,722	-23,660	-16.7	21,069	16,417	-4,652	-22.1
Daman and Diu	2,141	1,915	-226	-10.6	301	276	-25	-8.3
Dadar Nagar Haveli	4,380	4,349	-31	-0.7	615	605	-10	-1.6
Goa	3,024	2,981	-43	-1.4	527	471	-56	-10.6
Western Region	**2,90,421**	**2,57,403**	**-33,018**	**-11.4**	**42,352**	**36,509**	**-5,843**	**-13.8**
Andhra Pradesh	91,730	85,149	-6,581	-7.2	14,054	11,972	-2,082	-14.8
Karnataka	60,830	54,023	-6,807	-11.2	10,545	8,549	-1,996	-18.9
Kerala	19,890	19,467	-423	-2.1	3,516	3,337	-179	-5.1
Tamil Nadu	85,685	76,705	-8,980	-10.5	12,813	10,566	-2,247	-17.5
Pondicherry	2,167	2,136	-31	-1.4	335	320	-15	-4.5

1	2	3	4	5	6	7	8	9
Lakshadweep	37	37	0	0	8	8	0	0
Southern Region	**2,60,302**	**2,37,480**	**-22,822**	**-8.8**	**37,599**	**32,188**	**-5,411**	**-14.4**
Bihar	14,311	11,260	-3,051	-21.3	2,031	1,738	-293	-14.4
DVC	16,648	16,009	-639	-3.8	2,318	2,074	-244	-10.5
Jharkhand	6,280	6,030	-250	-4.0	1,030	868	-162	-15.7
Odisha	23,036	22,693	-343	-1.5	3,589	3,526	-63	-1.8
West Bengal	38,679	38,281	-398	-1.0	6,592	6,532	-60	-0.9
Sikkim	390	384	-6	-1.5	100	95	-5	-5.0
Andaman Nicobar	244	204	-40	-16	48	48	0	0
Eastern Region	**99,344**	**94,657**	**-4,687**	**-4.7**	**14,707**	**13,999**	**-708**	**-4.8**
Arunachal Pradesh	600	553	-47	-7.8	121	118	-3	-2.5
Assam	6,034	5,696	-338	-5.6	1,112	1,053	-59	-5.3
Manipur	544	499	-45	-8.3	116	115	-1	-0.9
Meghalaya	1,927	1,450	-477	-24.8	319	267	-52	-16.3

Mizoram	397	355	-42	-10.6	82	78	-4	-4.9
Nagaland	560	511	-49	-8.8	111	105	-6	-5.4
Tripura	949	900	-49	-5.2	215	214	-1	-0.5
North-Eastern Region	**11,011**	**9,964**	**-1,047**	**-9.5**	**1,920**	**1,782**	**-138**	**-7.2**
ALL INDIA	9,37,199	8,57,886	-79,313	-8.5	1,30,006	1,16,191	-13,815	-10.6

Lakshadweep and Andaman and Nicobar Islands are stand- alone systems, power supply position of these, does not form .part of regional requirement and availability

Note: Both peak met and energy availability represent the net consumption (including the transmission losses) in the various States. Net export has been accounted for in the consumption of importing States.

B. Power Supply Position for 2012-13

State/System/Region	Energy				Peak			
	April, 2012				April, 2012			
	Requirement (MU)	Availability (MU)	Surplus /Deficit (-) (MU)	(%)	Peak Demand (MW)	Peak Met (MW)	Surplus/Deficit (-) (MW)	(%)
1	2	3	4	5	6	7	8	9
Chandigarh	117	117	0	0	220	220	0	0
Delhi	2,086	2,083	-3	-0.1	3,779	3,779	0	0.0
Haryana	2,793	2,651	-142	-5.1	5,289	5,057	-232	-4.4

1	2	3	4	5	6	7	8	9
Himachal Pradesh	739	732	-7	-0.9	1,628	1,413	-215	-13.2
Jammu and Kashmir	1,157	872	-285	-24.6	1,835	1,513	-322	-17.5
Punjab	3,031	2,947	-84	-2.8	6,234	5,089	-1,145	-18.4
Rajasthan	4,026	3,990	-36	-0.9	7,143	7,112	-31	-0.4
Uttar Pradesh	6,618	6,060	-558	-8.4	11,690	11,465	-225	-1.9
Uttarakhand	883	824	-59	-6.7	1,467	1,237	-230	-15.7
Northern Region	**21,450**	**20,276**	**-1,174**	**-5.5**	**36,765**	**34,242**	**-2,523**	**-6.9**
Chhattisgarh	1,502	1,476	-26	-1.7	3,271	3,134	-137	-4.2
Gujarat	6,878	6,876	-2	0.0	10,869	10,845	-24	-0.2
Madhya Pradesh	3,626	3,070	-556	-15.3	8,165	6,704	-1,461	-17.9
Maharashtra	11,172	10,688	-484	-4.3	18,011	16,842	-1,169	-6.5
Daman and Diu	129	129	0	0.0	284	259	-25	-8.8
Dadar and Nagar Haveli	313	313	0	0.0	587	587	0	0.0
Goa	243	242	-1	-0.4	452	450	-2	-0.4

Western Region	**23,863**	**22,794**	**-1,069**	**-4.5**	**38,137**	**36,341**	**-1,796**	**-4.7**
Andhra Pradesh	8,495	7,377	-1,118	-13.2	12,974	11,335	-1,639	-12.6
Karnataka	5,479	4,799	-680	-12.4	9,940	8,264	-1,676	-16.9
Kerala	1,776	1,695	-81	-4.6	3,434	3,058	-376	-10.9
Tamil Nadu	7,518	5,751	-1,767	-23.5	12,116	9,841	-2,275	-18.8
Pondicherry	193	191	-2	-1.0	318	311	-7	-2.2
Lakshadweep	3	3	0	0	8	8	0	0
Southern Region	**23,461**	**19,813**	**-3,648**	**-15.5**	**36,067**	**30,681**	**-5,386**	**-14.9**
Bihar	1,279	977	-302	-23.6	2,208	1,703	-505	-22.9
DVC	1,590	1,535	-55	-3.5	2,240	2,152	-88	-3.9
Jharkhand	568	502	-66	-11.6	1,005	933	-72	-7.2
Odisha	2,217	2,141	-76	-3.4	3,430	3,121	-309	-9.0
West Bengal	3,642	3,623	-19	-0.5	6,692	6,583	-109	-1.6
Sikkim	22	22	0	0.0	90	90	0	0.0
Andaman Nicobar	21	21	0	0	48	48	0	0
Eastern Region	**9,318**	**8,800**	**-518**	**-5.6**	**15,209**	**14,156**	**-1,053**	**-6.9**

1	2	3	4	5	6	7	8	9
Arunachal Pradesh	51	47	-4	-7.8	106	103	-3	-2.8
Assam	484	451	-33	-6.8	1,053	1,019	-34	-3.2
Manipur	33	30	-3	-9.1	105	104	-1	-1.0
Meghalaya	146	105	-41	-28.1	275	269	-6	-2.2
Mizoram	28	26	-2	-7.1	65	60	-5	-7.7
Nagaland	34	31	-3	-8.8	100	98	-2	-2.0
Tripura	79	74	-5	-6.3	180	177	-3	-1.7
North-Eastern Region	**855**	**764**	**-91**	**-10.6**	**1,822**	**1,704**	**-118**	**-6.5**
ALL INDIA	78,947	72,447	-6,500	-8.2	1,28,000	1,17,124	-10,876	-8.5

Lakshadweep and Andaman and Nicobar Islands are stand- alone systems, power supply position of these.does not form part of regional requirement and availability

Note: Both peak met and energy availability represent the net consumption (including the transmission losses) in the various States. Net export has been accounted for in the consumption of importing States.