HIGHLIGHTS

2. Installed Capacity and Capacity Utilization

Indicators of installed capacity and capacity utilization throw light on the state of preparedness of the country for generation of the energy it requires and the quality or efficiency of the technology used in the generation, respectively. The dynamics of these indicators prompts the planners and policy makers to take appropriate steps for improvement.

2.1 Coal washeries

Coal washing is an integral part of a coal production. Raw coal coming from mines is washed to remove the ash contents to make them fit for feeding into boilers, particularly those of steel plants. Barring a few instances, a coal washery does not form part of a coal mine in India. Total installed capacity of washeries in the country decreased from 131.9 Million tonne per year (MTY) during 2008-09 to 126 MTY during 2009-10(Table 2.1). As on 31.03.10, a total of 52 washeries, both PSUs and Private, were operating in the country. The total installed washing capacity was 126 million tonnes (MT) per annum, for both Coking (29.69 MTY) and Non-Coking Coal (96.32 MTY). Dipak, Aryan Coal Beneficiation Pvt Ltd, Chattisgarh, Piparwar, CIL, Jharkhand and Tamnar, Jindal Steel & Power limited Chattisgarh accounted for 19.4% of the total installed capacity of all the Coal washeries in India.

2.2 Refineries of crude oil

As on 31.03.2010 there were a total of 20 refineries in the country(Table 2.2), 17 in the Public Sector and 3 in the private sector. Public sector refineries are located at Guwahati, Barauni, Koyali, Haldia, Mathura, Digboi, Panipat, Vishakapatnam, Chennai, Nagapatinam, Kochi, Bongaigaon, Numaligarh, Mangalore, Tatipaka, and two refineries in Mumbai. The private sector refineries built by Reliance Petroleum Ltd and Essar Oil are in Jamnagar and Vadinar respectively.

Total installed crude oil refining capacity in the country at the end of March 2010 was 178 million tonnes per annum. There was an addition of 29 million tonnes per annum to the installed refining capacity due to RPL(SEZ), Jamnagar, Gujarat refinery.

Total processing of crude oil in the country decreased from 1,60,772 thousand metric tonnes (TMT) during 2008-09 to 1,60,003 TMT during 2009-10 registering a decline of -0.5 %. Capacity utilization of the refineries was 90.34% during 2008-09 and 89.92 % during 2009-10. The maximum increase (12.3%) was at NRL refinery at

Numalgarh and the highest decrease (-37.2 %) in capacity utilization was at ONGC refinery at Tatipaka. Except RPL(SEZ), Jamnagar, Gujarat (for which production figures are not available), out of 19 remaining refineries there was a decrease in the capacity utilization at 9 refineries.

Indian oil corporation, the state owned corporation had highest refining capacity of 49,700 TMTY. All units of IOC processed 50,696 TMT during 2009-10 as compared to 51,367 TMT during 2008-09. The capacity utilization of these refineries was 103.4% during 2008-09 and 102% during 2009-10. All the private refineries taken together processed 48,549 TMT during 2008-09 as compared to 47,916 TMT during 2009-10. The capacity utilization of these refineries during 2008-09 and 2009-10 stood at 67% and 66% respectively.

2.3 Installed generating capacity of electricity

The total installed capacity for electricity generation in the country has increased from 16,271 MW as on 31.03.1971 to 1,87,872 MW as on 31.03.2010, registering a compound annual growth rate (CAGR) of 6.1% (Table 2.3). There has been an increase in generating capacity of 12,926 MW over the last one year, which is 7.4% more than the capacity of last year. The highest rate of annual growth (10.7%) from 2008-09 to 2009-10 in installed capacity was for nuclear power followed by thermal power(10.3%).

The total Installed capacity of power utilities in the country increased from 14,709 MW in 1970-71 to 1,59,398 MW as on 31.3.2010, with a CAGR of 5.9 % over the period. The highest CAGR (6.7%) was in case of thermal utilities followed by nuclear (5.87%) and hydro (4.48%).

At the end of March 2010, thermal power plants accounted for an overwhelming 63% of the total installed capacity in the country, with an installed capacity of 117.9 thousand MW. Hydro power plants come next with an installed capacity of 36.9 thousand MW, accounting for 19.6% of the total installed Capacity. Besides, non-utilities accounted for 15.2% (28.5 Thousand MW) of the total installed generation capacity. The share of Nuclear energy was only 2.43% (4.56 MW).

The geographical distribution of Installed generating capacity of electricity as on 31.03.2010(Table 2.4) indicates that Western Region (both central and state sector) accounted for the highest share (30.81%) followed by Southern Region (26.57%), Northern Region (25.88%), Eastern Region (15.35%) and North Eastern Region (1.4%). Region wise growth in the installed capacity during 2009-10 reveals that Southern Region registered the highest growth of about 11%, followed by Western Region(8 %) and Eastern region (6.5%). Among the States in the Southern Region that accounted for the highest growth of 11%, Andhra Pradesh registered the highest(17.3%) closely followed by Karnataka (12.8%). Among all the states

Arunachal Pradesh registered highest growth (36%) in the installed capacity followed by Rajasthan and Chhattisgarh (about 24% each).

2.4 Grid Interactive Renewable Power

The total installed capacity of grid interactive renewable power, which was 14,486 MW as on 31.03.2009 had gone up to 16,817 MW as on 31.03.2010 indicating growth of 16.1% during the period (Table 2.5). Out of the total installed generation capacity of renewable power as on 31-03-2010, wind power accounted for about 70%, followed by small hydro power(16.3%) and Biomass power (13%). Tamil Nadu had the highest installed capacity of grid connected renewable power (5398 MW) followed by Maharashtra (2547 MW) and Karnataka (2456 MW), mainly on account of wind power.

During 2009-10 out of total Biogas plants installed (42.5 lakh) (Table 2.6), maximum number of plants were installed in Maharashtra (7.8 lakh) followed by Andhra Pradesh, Uttar Pradesh, Karnataka and Gujarat each with about 4 lakh biogas plants. Out of about 6.6 lakh Solar Cookers installed in 2009-10, 1.7 lakh were installed in Gujarat and 1.4 lakh were installed in Madhya Pradesh. Further, during 2009-10, 1352 water pumping systems were installed and 5348 remote village and 1408 hamlets were electrified.

Table 2.1: Installed Capacity of Coal Washeries in India as on 31.3.09 and 31.03.10

Sl. No.	Washery & Operator	State of Location	Capacity (MTY)	
			31.03.2009	31.03.2010
	COKING COAL :			
1	Dudga-II, CIL	Jharkhand	2.00	2.00
2	Bhojudih, CIL	West Bengal	1.70	1.70
3	Patherdih, CIL	Jharkhand	1.60	1.60
4	Moonidih, CIL	Jharkhand	1.60	1.60
5	Sudamdih, CIL	Jharkhand	1.60	1.60
6	Mahuda, CIL	Jharkhand	0.63	0.63
7	Kathara, CIL	Jharkhand	3.00	3.00
8	Swang, CIL	Jharkhand	0.75	0.75
9	Rajrappa, CIL	Jharkhand	3.00	3.00
10	Kedla, CIL	Jharkhand	2.60	2.60
11	Nandan, CIL	Madhya Pradesh	1.20	1.20
	(A) CIL		**19.68**	**19.68**
12	Durgapur, SAIL	West Bengal	1.50	1.50
13	DCOP, DPL	West Bengal	1.35	1.35
14	Chasnala, IISCO	Jharkhand	2.04	1.50
15	Jamadoba, TISCO	Jharkhand	0.90	0.90
16	West Bokaro-II, TISCO	Jharkhand	1.80	1.80
17	West Boakaro-III,TISCO	Jharkhand	2.10	2.10
18	Bhelatand	Jharkhand	0.86	0.86
	(B) PSU & Private		**10.55**	**10.01**
	TOTAL (A + B)		**30.23**	**29.69**
	NON-COKING COAL			
1	Dugda-I,CIL	Jharkhand	2.50	2.50
2	Madhuban,CIL	Jharkhand	2.50	2.50
3	Gidi,CIL	Jharkhand	2.50	2.50
4	Piparwar,CIL	Jharkhand	6.50	6.50
5	Kargali,CIL	Jharkhand	2.72	2.72
6	Bina,CIL	Uttar Pradesh	4.50	4.50
	(A) CIL		**21.22**	**21.22**
7	Dipka, Aryan coal beneficiation pvt.	Chattisgarh	12.00	12.00
8	Gevra, -do-	Chattisgarh	5.00	5.00
9	Panderpauni, -do-	Maharashtra	3.00	3.00
10	Chakabuwa, Aryan Energy private ltd.	Chattisgarh	6.00	4.00
11	Indaram, Aryan Coal Benefication Pvt.Ltd.	Andhra Pradesh	0.60	0.60
12	Talcher, Aryan Energy Pvt. Ltd.	Orissa	2.00	2.00

Table 2.1(Contd.): Installed Capacity of Coal Washeries in India as on 31.3.09 and 31.03.10

Sl. No.	Washery & Operator	State of Location	Capacity (MTY)	
			31.03.2009	31.03.2010
13	Wani, Kartikay Coal washeries pvt. ltd.(Aryan)	Maharashtra	2.50	2.50
14	Korba, ST-CLI Coal washeries ltd.	Chattisgarh	5.20	1.10
15	Ramagundam, Gupta coalfield & washeries ltd.	Andhra Pradesh	2.40	2.40
16	Sasti, Gupta coalfield & washeries ltd.	Maharashtra	2.40	2.40
17	Wani, Gupta coalfield & washeries ltd.	Maharashtra	1.92	1.92
18	Umrer, Gupta coalfield & washeries ltd.	Maharashtra	0.75	0.75
19	Bhandara, Gupta coalfield & washeries ltd.	Maharashtra	0.75	0.75
20	Gondegaon, Gupta coalfield & washeries ltd.	Maharashtra	2.40	2.40
21	Majri, Gupta coalfield & washeries ltd.	Maharashtra	2.40	2.40
22	Bilaspur, Gupta coalfield & washeries ltd.	Chattisgarh	3.50	3.50
23	Ghugus, Gupta coalfield & washeries ltd.	Maharashtra	2.40	2.40
24	Talcher, Global coal Mining (P) Ltd.	Orissa	2.50	2.50
25	Ib Valley, Global coal Mining (P) Ltd.	Orissa	1.50	3.25
26	Ramagundam, Global coal Mining (P) Ltd.	Andhra Pradesh	1.00	1.00
27	Wani, Bhatia International Ltd.	Maharashtra	3.00	2.00
28	Ghugus, Bhatia International Ltd.	Maharashtra	4.00	4.00
29	Jharsuguda, Bhatia International Ltd.	Orissa	1.50	1.50
30	Tamnar, Jindal Steel & Power Ltd.	Chattisgarh	6.00	6.00
31	Wani, Indo Unique Flame Ltd.	Maharashtra	2.40	2.40
32	Nagpur, Indo Unique Flame Ltd.	Maharashtra	0.60	0.60
33	Punwat, Indo Unique Flame Ltd.	Maharashtra	2.40	2.40
34	Dharamsthal, BLA Industries	Madhya Pradesh	0.33	0.33
	(B) Private		**80.45**	**75.10**
	TOTAL (A+B)		**101.67**	**96.32**
	Gross Total (Coking+Non-Coking)		**131.90**	**126.01**

Source:Office of Coal Controller, Ministry of Coal

Table 2.2: Installed Capacity and Capacity Utilization of Refineries of Crude Oil during 2008-09 and 2009-10

Sl. No	Refinery	Installed Capacity as on 31.03.2010 (TMTPA)	Refinery Crude Throughput (TMT)		Capacity Utilisation (%)		
			2008-09	2009-10	2008-09	2009-10	Change in utilisation
A	**Public Sector Refineries**	**105468**	**112223**	**112117**	**106.4**	**106.3**	**-0.1**
I	**IOC REFINERIES**	**49700**	**51367**	**50696**	**103.4**	**102.0**	**-1.4**
	IOC, Digboi	650	623	600	95.8	92.3	-3.5
	IOC, Guwahati	1000	1076	1078	107.6	107.8	0.2
	IOC, Barauni	6000	5940	6184	99.0	103.1	4.1
	IOC, Koyali	13700	13852	13206	101.1	96.4	-4.7
	IOC, Haldia	6000	6042	5686	100.7	94.8	-5.9
	IOC, Mathura	8000	8601	8107	107.5	101.3	-6.2
	IOC, Panipat	12000	13070	13615	108.9	113.5	4.5
	IOC, Bongaigaon	2350	2163	2220	92.0	94.5	2.4
II	**BPCL REFINERIES**	**19500**	**20001**	**20391**	**102.6**	**104.6**	**2.0**
	BPCL, Mumbai	12000	12262	12516	102.2	104.3	2.1
	BPCL, Kochi	7500	7739	7875	103.2	105.0	1.8
III	**HPCL REFINERIES**	**13000**	**15807**	**15761**	**121.6**	**121.2**	**-0.4**
	HPCL, Mumbai	5500	6652	6965	120.9	126.6	5.7
	HPCL, Visakh	7500	9155	8796	122.1	117.3	-4.8
IV	**CPCL REFINERIES**	**10500**	**10136**	**10097**	**96.5**	**96.2**	**-0.4**
	CPCL, Manali	9500	9718	9580	102.3	100.8	-1.5
	CPCL, Narimanam	1000	418	517	41.8	51.7	9.9
V	NRL, Numaligarh	3000	2251	2619	75.0	87.3	12.3
VI	ONGC, Tatipaka	78	84	55	107.7	70.5	-37.2
VII	MRPL, Mangalore	9690	12577	12498	129.8	129.0	-0.8
B	**PRIVATE REFINERIES**	**72500**	**48549**	**47916**	**67.0**	**66.1**	**-0.9**
I	RPL, Jamnagar	33000	35636	34415	108.0	104.3	-3.7
II	RPL(SEZ), Jamnagar, Gujarat$	29000	-	-	-	-	-
III	Essar Oil Ltd., Vadinar	10500	12913	13501	123.0	128.6	5.6
	Total (A+B)	**177968**	**160772**	**160033**	**90.34**	**89.92**	**-0.97**

TMTPA Thousand Metric Tonnes Per Annum
TMT Thousand Metric Tonnes
$ RPL(SEZ), Jamnagar, Gujarat Commissioned on 25.12.2008 and started production from January, 2009 but not reported
Source: Ministry of Petroleum and Natural Gas

Table 2.3 : Trends in Installed Generating Capacity of Electricity Non-utilities in India from 1970-71 to 2009-10

(Mega Watt) = (10^3 x Kilo Watt)

As on	Utilities				Non-utilities			Grand Total
	Thermal *	Hydro	Nuclear	Total	Railways	Self- ** Generating Industries	Total	
1	2	3	4	5	6	7	8	9
31.03.1971	7,906	6,383	420	14,709	45	1,517	1,562	16,271
31.03.1976	11,013	8,464	640	20,117	61	2,071	2,132	22,249
31.03.1981	17,563	11,791	860	30,214	60	3,041	3,101	33,315
31.03.1986	29,967	15,472	1,330	46,769	85	5,419	5,504	52,273
31.03.1991	45,768	18,753	1,565	66,086	111	8,502	8,613	74,699
31.03.1996	60,083	20,986	2,225	83,294	158	11,629	11,787	95,081
31.03.2001	73,613	25,153	2,860	1,01,626	0	16,157	16,157	1,17,783
31.03.2006	88,601	32,326	3,360	1,24,287	0	21,468	21,468	1,45,755
31.03.2007	93,775	34,654	3,900	1,32,329	-	22,335	22,335	1,54,664
31.03.2008	1,03,032	35,909	4,120	1,43,061	-	24,986	24,986	1,68,047
31.03.2009	1,06,968	36,878	4,120	1,47,966	-	26,980	26,980	1,74,946
31.03.2010(P)	1,17,975	36,863	4,560	1,59,398	-	28,474	28,474	1,87,872
Growth rate of 2009-10 over 2008-09(%)	**10.29**	**-0.04**	**10.68**	**7.73**	-	**5.54**	**5.54**	**7.39**
CAGR 1970-71 to 2009-10(%)	**6.73**	**4.48**	**5.87**	**5.94**	-	**7.46**	**7.38**	**6.12**

* From 1995-96 onwards, Thermal includes Renewable Energy Resources.

** Capacity in respect of Self Generating Industries includes units of capacity 1 MW and above.

CAGR: Compound Annual Growth Rate =((Current Value/Base Value)^(1/nos. of years)-1)*100

Source : Central Electricity Authority.

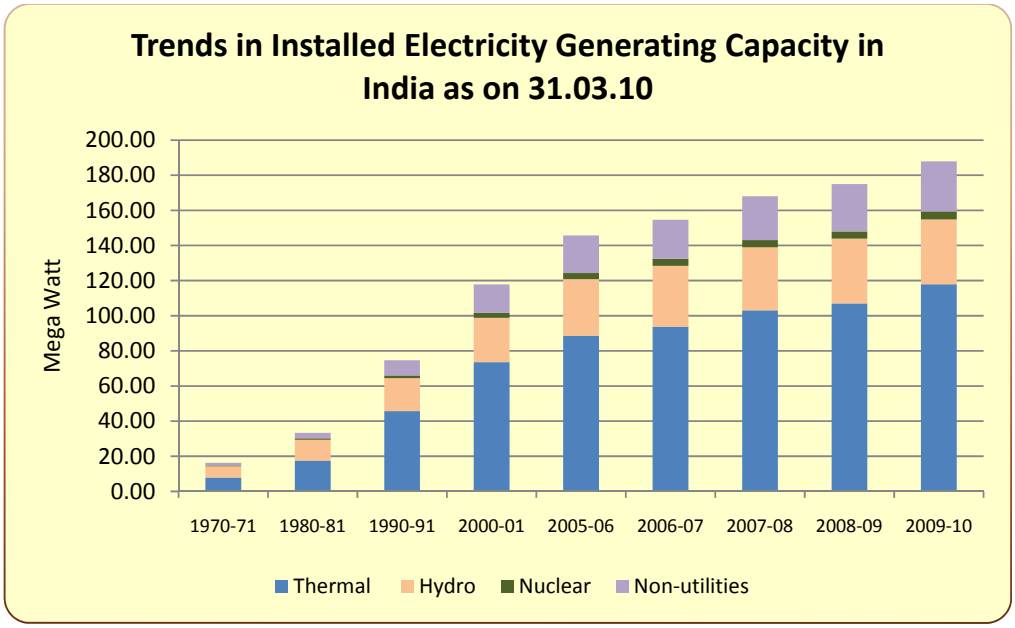

Figure 2.3

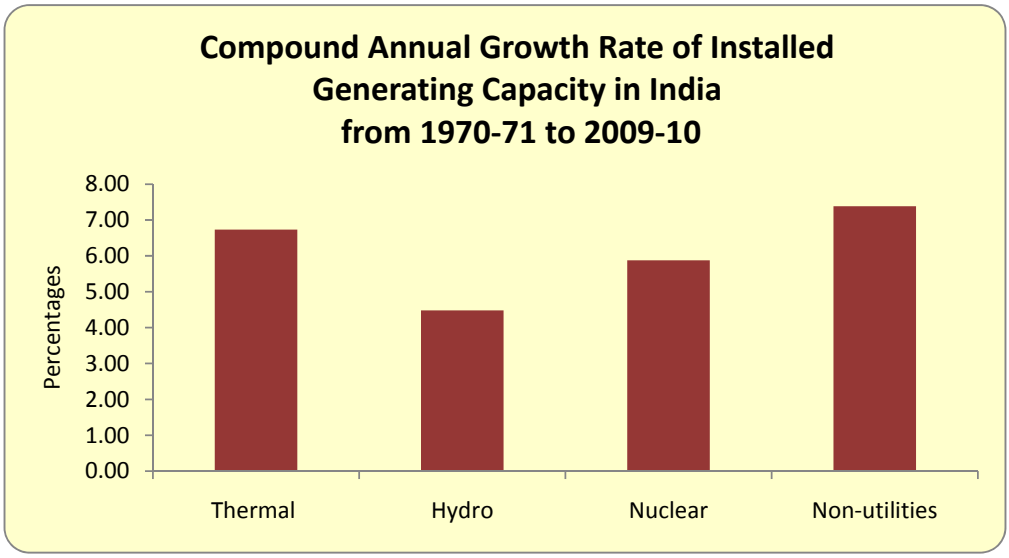

Figure 2.3(A)

Table 2.4 : Regionwise and Statewise Installed Generating Capacity of Electricity (Utilities) in India as on 31.03.2009 and 31.03.2010

(In GW)

States/UTs	Hydro		Thermal		Nuclear		New & Renewable		Total		Growth* Rate(2008-09 to 2009-10)
	31.03.09	31.03.10	31.03.09	31.03.10	31.03.09	31.03.10	31.03.09	31.03.10	31.03.09	31.03.10	
Delhi	0.00	0.00	0.92	0.74	0.00	0.00	0.00	0.00	0.92	0.74	-20.10
Haryana	0.88	0.88	2.15	2.62	0.00	0.00	0.07	0.08	3.10	3.58	15.51
Himachal Prd.	0.78	0.78	0.00	0.00	0.00	0.00	0.19	0.28	0.96	1.06	9.40
Jammu & Kashmir	0.78	0.78	0.18	0.18	0.00	0.00	0.11	0.13	1.08	1.09	1.63
Punjab	2.32	2.23	2.63	2.63	0.00	0.00	0.16	0.28	5.11	5.14	0.54
Rajasthan	0.99	0.99	2.99	3.94	0.00	0.00	0.73	0.93	4.70	5.86	24.56
Uttar Pradesh	0.53	0.52	4.12	4.37	0.00	0.00	0.40	0.59	5.05	5.48	8.58
Uttrakhand	1.65	1.65	0.00	0.00	0.00	0.00	0.11	0.13	1.76	1.79	1.53
Central Sector NR	5.59	5.47	10.46	10.37	1.18	1.62	0.00	0.00	17.23	17.46	1.34
Sub-Total (NR)	13.52	13.31	23.45	24.85	1.18	1.62	1.77	2.41	39.91	42.19	5.71
Chhatisgarh	0.12	0.12	2.92	3.66	0.00	0.00	0.17	0.22	3.21	4.00	24.42
D & N Haveli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daman & Diu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goa	0.00	0.00	0.05	0.05	0.00	0.00	0.03	0.03	0.08	0.08	0.00
Gujarat	0.77	0.77	7.36	8.99	0.00	0.00	1.40	1.66	9.53	11.42	19.82
Madhya Pradesh	1.70	1.70	2.81	2.81	0.00	0.00	0.26	0.29	4.77	4.80	0.53
Maharashtra	3.33	3.33	9.54	10.29	0.00	0.00	2.16	2.44	15.03	16.06	6.86
Central Sector WR	1.55	1.52	10.47	10.51	1.84	1.84	0.00	0.00	13.86	13.87	0.11
Sub-Total (WR)	7.47	7.45	33.14	36.31	1.84	1.84	4.02	4.63	46.48	50.22	8.06
Andhra Pradesh	3.57	3.62	4.98	6.50	0.00	0.00	0.67	0.70	9.22	10.82	17.27
Karnataka	3.52	3.60	2.68	3.28	0.00	0.00	1.88	2.23	8.08	9.12	12.81
Kerala	1.77	1.78	0.43	0.43	0.00	0.00	0.12	0.14	2.32	2.35	1.39
Lakshadweep	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	-7.08
Puducherry	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.03	0.03	-0.06
Tamil Nadu	2.09	2.11	4.66	4.66	0.00	0.00	4.38	4.87	11.13	11.63	4.49
Central Sector SR	0.00	0.00	7.19	8.25	1.10	1.10	0.00	0.00	8.29	9.35	12.73
Sub-Total (SR)	10.95	11.11	19.99	23.16	1.10	1.10	7.05	7.94	39.09	43.31	10.78
A & N Island	0.00	0.00	0.06	0.06	0.00	0.00	0.01	0.01	0.07	0.07	-0.15
Bihar	0.00	0.00	0.54	0.53	0.00	0.00	0.05	0.05	0.59	0.58	-0.98
Jharkhand	0.13	0.13	1.62	1.19	0.00	0.00	0.00	0.00	1.75	1.32	-24.51
Orissa	2.07	2.06	0.42	0.42	0.00	0.00	0.03	0.06	2.52	2.55	1.03
Sikkim	0.00	0.00	0.01	0.01	0.00	0.00	0.04	0.05	0.05	0.05	13.01
West Bengal	1.02	0.98	5.77	4.89	0.00	0.00	0.10	0.16	6.89	6.03	-12.43
Central Sector ER	0.58	0.71	7.72	8.36	0.00	0.00	0.00	0.00	8.30	9.07	9.29
Sub-Total (ER)	3.80	3.88	16.13	15.46	0.00	0.00	0.23	0.34	20.16	19.68	-2.43
Arunachal Prd.	0.00	0.00	0.02	0.02	0.00	0.00	0.05	0.07	0.06	0.08	36.24
Assam	0.10	0.10	0.34	0.32	0.00	0.00	0.03	0.03	0.47	0.45	-5.20
Manipur	0.00	0.00	0.05	0.05	0.00	0.00	0.01	0.01	0.05	0.05	0.00
Meghalaya	0.16	0.16	0.00	0.00	0.00	0.00	0.03	0.03	0.19	0.19	0.00
Mizoram	0.00	0.00	0.05	0.05	0.00	0.00	0.02	0.03	0.07	0.08	15.87
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.00
Tripura	0.00	0.00	0.13	0.13	0.00	0.00	0.02	0.02	0.15	0.15	0.00
Central Sector NER	0.87	0.86	0.42	0.45	0.00	0.00	0.00	0.00	1.29	1.31	1.65
Sub-Total (NER)	1.13	1.12	1.01	1.02	0.00	0.00	0.17	0.20	2.31	2.34	1.30
Total States	**28.29**	**28.30**	**57.47**	**62.86**	**0.00**	**0.00**	**13.24**	**15.52**	**98.99**	**108.33**	**9.43**
Total Central	**8.59**	**8.56**	**36.26**	**37.94**	**4.12**	**4.56**	**0.00**	**0.00**	**48.97**	**51.06**	**4.28**
Total All India	**36.88**	**36.86**	**93.73**	**100.81**	**4.12**	**4.56**	**13.24**	**15.52**	**147.97**	**159.39**	**7.72**

* Growth rate of total installed electricity generating capacity of India

Sub-totals/Totals may not tally due to conversion to Gw and rounding off.

Source : Central Electricity Authority.

Table 2.5:Statewise and Sourcewise Installed Capacity of Grid Interactive Renewable Power as on 31.03.2009 and 30.03.2010

(In MW)

States/ Uts	Biomass Power		Waste to Energy		Wind Power	
	31.03.2009	31.03.2010	31.03.2009	31.03.2010	31.03.2009	31.03.2010
Andhra Pradesh	343.55	363.25	35.25	35.66	122.50	136.10
Arunachal Pradesh	-	-	-	-	-	-
Assam	-	-	-	-	-	-
Bihar	-	-	-	-	-	-
Chhattisgarh	156.10	199.90	-	-	-	-
Goa	-	-	-	-	-	-
Gujarat	0.50	0.50	0.50	-	1566.50	1863.63
Haryana	6.00	7.80	-	-	-	-
Himachal Pradesh	-	-	-	-	-	-
Jammu & Kashmir	-	-	-	-	-	-
Jharkhand	-	-	-	-	-	-
Karnataka	294.18	336.18	1.00	1	1327.40	1472.80
Kerala	-	-	-	-	27.00	27.75
Madhya Pradesh	1.00	1.00	2.75	2.7	212.80	229.40
Maharashtra	185.50	218.50	1.00	5.7	1938.90	2077.75
Manipur	-	-	-	-	-	-
Meghalaya	-	-	-	-	-	-
Mizoram	-	-	-	-	-	-
Nagaland	-	-	-	-	-	-
Orissa	-	-	-	-	3.20	-
Punjab	28.00	62.50	9.25	9.25	-	-
Rajasthan	31.30	31.30	-	-	738.40	1088.30
Sikkim	-	-	-	-	-	-
Tamil Nadu	333.70	395.70	4.25	5.65	4304.50	4906.72
Tripura	-	-	-	-	-	-
Uttar Pradesh	372.50	567.00	5.00	5	-	-
Uttaranchal	-	-	-	-	-	-
West Bengal	-	16.00	-	-	-	4.30
Andaman & Nicobar	-	-	-	-	1.10	-
Chandigarh	-	-	-	-	-	-
Dadar & Nagar Haveli	-	-	-	-	-	-
Daman & Diu	-	-	-	-	-	-
Delhi	-	-	-	-	-	-
Lakshadweep	-	-	-	-	-	-
Pondicherry	-	-	-	-	-	-
All India Total	**1752.33**	**2199.63**	**59.00**	**64.96**	**10242.30**	**11806.75**
Distribution (%)	**10.42**	**13.08**	**0.35**	**0.39**	**60.90**	**70.21**

Source: Ministry of New and Renewable Energy

Table 2.5 (contd):Statewise and Sourcewise Installed Capacity of Grid Interactive Renewable Power as on 31.03.2009 and 30.03.2010

(In MW)

States/ Uts	Small Hydro Power		Solar Power		Total		Growth* Rate (2008-09 to 2009-10)
	31.03.2009	31.03.2010	31.03.2009	31.03.2010	31.03.2009	31.03.2010	
Andhra Pradesh	180.83	186.83	0.10	0.10	682.23	721.94	5.82
Arunachal Pradesh	45.24	73.42	0.02	0.03	61.34	73.45	19.73
Assam	27.11	27.11	-	-	27.11	27.11	0.00
Bihar	50.40	54.60	-	-	54.60	54.60	0.00
Chhattisgarh	18.05	19.05	-	-	174.15	218.95	25.72
Goa	0.05	0.05	-	-	0.05	0.05	0.00
Gujarat	7.00	12.60	-	-	1574.50	1876.73	19.20
Haryana	62.70	70.10	-	-	68.70	77.90	13.39
Himachal Pradesh	162.62	330.32	-	-	230.92	330.32	43.04
Jammu & Kashmir	111.83	129.33	-	-	111.83	129.33	15.65
Jharkhand	4.05	4.05	-	-	4.05	4.05	0.00
Karnataka	464.00	640.45	-	6.00	2186.03	2456.43	12.37
Kerala	123.12	133.87	0.02	0.03	160.89	161.65	0.47
Madhya Pradesh	71.16	71.16	0.10	0.10	287.81	304.36	5.75
Maharashtra	211.33	245.33	-	-	2336.73	2547.28	9.01
Manipur	5.45	5.45	-	-	5.45	5.45	0.00
Meghalaya	31.03	31.03	-	-	31.03	31.03	0.00
Mizoram	17.47	36.47	-	-	24.47	36.47	49.04
Nagaland	28.67	28.67	-	-	28.67	28.67	0.00
Orissa	32.30	64.30	-	-	47.50	64.30	35.37
Punjab	123.90	132.55	0.32	1.33	161.74	205.63	27.13
Rajasthan	23.85	23.85	0.15	0.15	793.70	1143.60	44.08
Sikkim	39.11	47.11			47.11	47.11	0.00
Tamil Nadu	89.70	90.05	0.05	0.05	4732.55	5398.17	14.06
Tripura	16.01	16.01	-		16.01	16.01	0.00
Uttar Pradesh	25.10	25.10	0.38	0.38	402.98	597.48	48.26
Uttaranchal	105.12	132.92	0.05	0.05	127.97	132.97	3.91
West Bengal	98.40	98.40	0.05	1.15	98.45	119.85	21.74
Andaman & Nicobar	5.25	5.25	0.10	0.10	6.45	5.35	-17.05
Chandigarh	-	-	-	-	0.76	-	-
Dadar & Nagar Haveli	-	-	-	-	0.02	-	-
Daman & Diu	-	-	-	-	-	-	-
Delhi	-	-	-	0.05	-	0.05	-
Lakshadweep	-	-	0.76	0.75	0.76	0.75	-1.32
Pondicherry	-	-	0.02	0.03	0.02	0.03	25.00
All India Total	**2180.85**	**2735.42**	**2.12**	**10.28**	**14486.58**	**16817.04**	**16.09**
Distribution (%)	**12.97**	**16.27**	**0.01**	**0.06**	**100.00**	**100.00**	

Source: Ministry of New and Renewable Energy

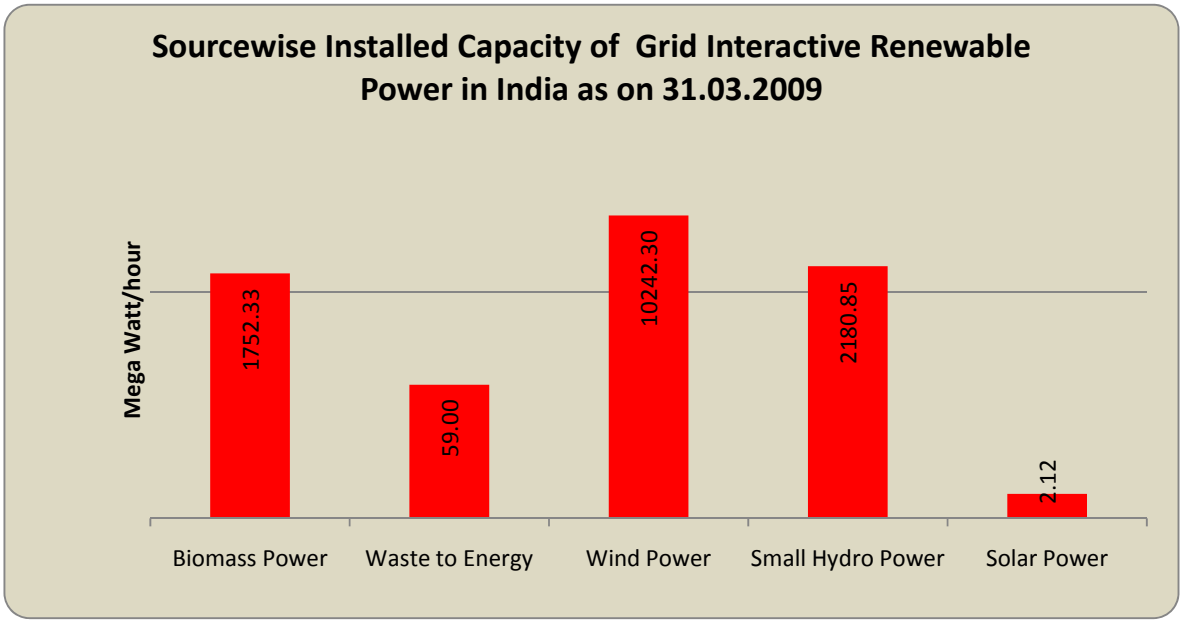

Figure 2.5

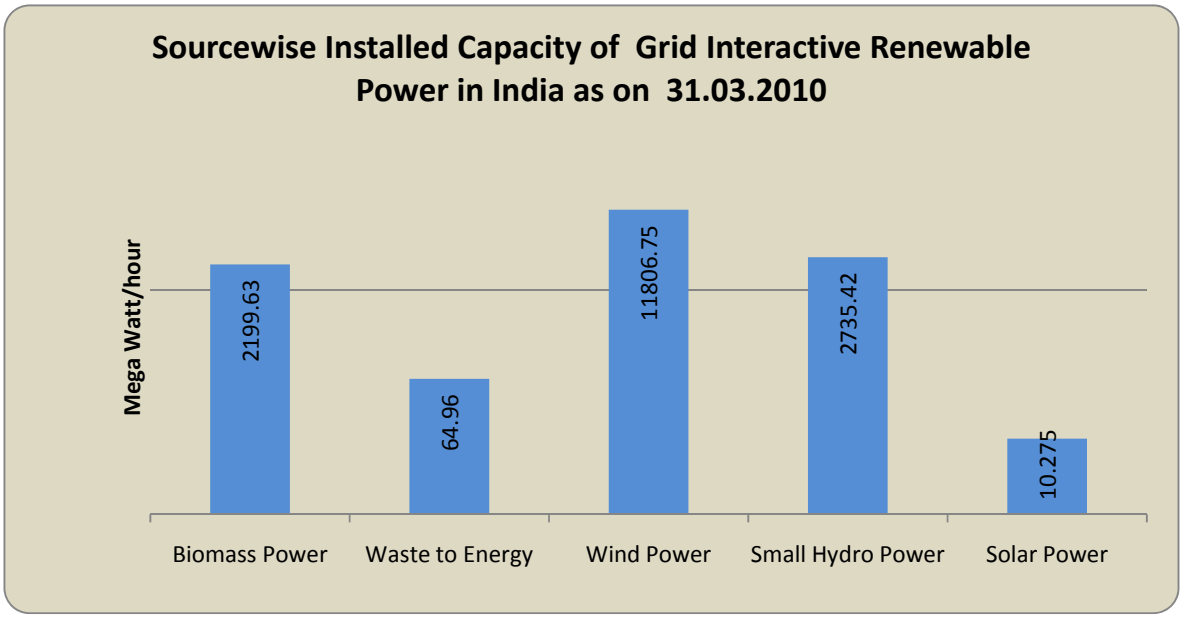

Figure 2.5(A)

Table 2.6 : Installation of Off-grid / Decentralised Renewable Energy Systems/ Devices during 2009-10

Sl. No.	State/UT	Biogas Plants (Nos.)	Water Pumping (Nos.)	SPV Pumps (Nos.)	Solar Photovoltaic			
					SLS (Nos.)	HLS (Nos.)	SL (Nos.)	PP (KWP)
1	2	3	4	5	6	7	8	9
1	Andhra Pradesh	4,57,938	6	613	35,799	1,957	3,914	213.30
2	Arunachal Pradesh	2,957	-	15	13,937	7,120	1,071	17.10
3	Assam	81,592	3	45	1,211	5,870	98	7.50
4	Bihar	1,25,888	46	139	50,117	3,170	690	-
5	Chhattisgarh	32,050	1	166	3,192	7,211	1,889	100
6	Goa	3,893	-	15	1,027	362	463	1.72
7	Gujarat	4,11,950	879	85	31,603	9,231	2,004	100.50
8	Haryana	54,083	-	469	71,646	28,213	9,878	434.40
9	Himachal Pradesh	45,716	-	6	22,970	16,840	2,994	1.50
10	Jammu & Kashmir	2,489	-	39	28,672	23,083	5,596	175.60
11	Jharkhand	4,933	-	-	16,374	4,314	620	-
12	Karnataka	4,18,759	28	551	7,334	28,128	2,271	29.41
13	Kerala	1,26,463	79	810	41,181	32,326	1,090	44.70
14	Madhya Pradesh	2,95,580	-	87	9,444	2,651	6,054	22.40
15	Maharashtra	7,80,527	26	228	68,683	1,972	5,471	6.44
16	Manipur	2,128	-	12	3,883	2,850	370	28.00
17	Meghalaya	6,661	-	19	24,875	7,840	1,273	50.50
18	Mizoram	3,820	-	37	5,812	3,045	431	109.00
19	Nagaland	4,153	-	3	6,317	720	271	6.00
20	Orissa	2,39,818	-	56	9,882	5,156	5,819	74.52
21	Punjab	1,05,289	-	1,850	17,495	8,620	4,337	121.00
22	Rajasthan	67,348	222	283	4,716	67,305	6,632	25.80
23	Sikkim	7,333	-	-	2,470	3,890	212	14.70
24	Tamil Nadu	2,16,516	60	829	16,818	1,557	5,885	39.50
25	Tripura	2,793	-	25	42,360	26,066	773	24.57
26	Uttar Pradesh	4,22,269	-	751	51,683	92,124	4,117	129.20
27	Uttaranchal	10,508	-	26	64,023	91,307	7,673	80.03
28	West Bengal	3,18,510	-	48	3,662	1,11,090	27,512	675.00
29	Andaman & Nicobar	137	2	5	6,296	405	358	167.00
30	Chandigarh	97	-	12	1,675	275	-	-
31	Dadar & Nagar Haveli	169	-	-	-	-	-	-
32	Daman & Diu	-	-	-	-	-	-	-
33	Delhi	679	-	89	4,753	-	301	80.00
34	Lakshadweep	-	-	-	-	-	-	85.00
35	Pondicherry	578	-	21	1,637	25	417	-
36	Others*	-	-	-	1,25,797	8,584	9,150	58.00
	Total	**42,53,624**	**1,352**	**7,334**	**7,97,344**	**6,03,307**	**1,19,634**	**2,922**

Source : Ministry of New and Renewable Energy

* Others includes installations through NGOs/IREDA in different states

SLS = Street Lighting System; HLS = Home Lighting System; SL = Solar Lantern; PP = Power Plants; SPV = Solar Photovoltaic; SHP = Small Hydro Power; MW = Mega Watt; KWP = Kilowatt peak; BOV = Battery Operated Vehicles

Table 2.6(contd..) : Installation of Off-grid / Decentralised Renewable Energy Systems/ Devices during 2009-10

Sl. No.	State/UT	Aerogen. Hybrid System	Solar Cooker	Biomass Gasifiers (Rural+ Industrial)	Waste to Energy	Remote Village Electrification Villages	
						Villages	Hamlets
		(KW)	(Nos.)	(Nos.)	(MW)	(Nos.)	(Nos.)
1	2	3	4	5	6	7	8
1	Andhra Pradesh	16.00	13395	16681	4.95	-	-
2	Arunachal Pradesh	7	530	1800	-	246	-
3	Assam	6.00	80	-	-	866	-
4	Bihar	-	475	5090	-	-	-
5	Chhattisgarh	-	37464	1710	-	399	-
6	Goa	164.00	1500	-	-	-	-
7	Gujarat	10.00	170675	20230	8.40	38	-
8	Haryana	10	27115	2263	-	-	286
9	Himachal Pradesh	-	28837	-	-	1	-
10	Jammu & Kashmir	-	868	-	-	167	-
11	Jharkhand	-	280	430	-	449	-
12	Karnataka	39.15	253	7454	3	16	14
13	Kerala	8.00	236	-	-	-	558
14	Madhya Pradesh	-	141618	7748	-	188	-
15	Maharashtra	607.70	58044	6,950	5	347	-
16	Manipur	70	365	-	-	191	-
17	Meghalaya	5	1165	250	-	97	-
18	Mizoram	-	110	200	-	20	-
19	Nagaland	-	-	1,480	-	3	-
20	Orissa	-	3437	270	-	223	-
21	Punjab	30	22050	-	2	-	-
22	Rajasthan	14.00	36682	2104	-	315	-
23	Sikkim	16.00	20	-	-	-	13
24	Tamil Nadu	25.00	1536	8766	4.73	-	101
25	Tripura	2	80	1000		60	400
26	Uttar Pradesh	-	50494	18810	17.31	79	-
27	Uttaranchal	-	10534	250	2	472	34
28	West Bengal	38.00	7959	17150	-	1,171	2
29	Andaman & Nicobar	-	60	-	-	-	-
30	Chandigarh	-	1529	-	-	-	-
31	Dadar & Nagar Haveli	-	80	-	-	-	-
32	Daman & Diu	-	-	-	-	-	-
33	Delhi	-	27990	-	-	-	-
34	Lakshaadweep	-	-	-	-	-	-
35	Pondicherry	5.00	90	600	-	-	-
36	Others*	-	17950	-	-	-	-
	Total	**1072.65**	**663501**	**121236**	**46.60**	**5348**	**1408**

* Others includes installations through NGOs/IREDA in different states

SLS = Street Lighting System; HLS = Home Lighting System; SL = Solar Lantern; PP = Power Plants; SPV = Solar Photovoltaic; MW = Mega Watt; KWP = Kilowatt peak; MWe=Mega Watt electric

Source : Ministry of New and Renewable Energy