

INDIAN POWER SECTOR AND CONTRIBUTION OF MAHARASHTRA

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ABSTRACT

Power Sector in India has grown significantly from independence both in the installed electricity generating capacity and transmission & distribution (T&D) system. The total power generating capacity of (utilities & non utilities) has increased from meager 1362 MW in 1947 to 267 GW at the end of March, 2015. The per capita electricity consumption which was mere 16.3 kWh in 1947 has increased to 1010 KW h in 2014-15. With a production of 1,031 TWh, India is the third largest producer and fourth largest consumer of electricity in the world. It has fifth largest installed capacity in the world.

Maharashtra plays very vital role in the evolution of the Indian power sector. As of 2012, Maharashtra was the largest power generating state in India, with installed electricity generation capacity with 26,838 MW. The state forms a major constituent of the western grid of India, which now comes under the North, East, West and North Eastern (NEWNE) grids of India. Maharashtra Power Generation Company controls and runs thermal power plants. In addition to the state government-owned power generation plants, there are privately owned power generation plants that supply power through the Maharashtra State Electricity Transmission Company, which is responsible for transmission of electricity in the state.

Keyword: - *Power sector in India, MAHAGENCO and Electricity transmission in Maharashtra.*

1. INTRODUCTION

With a production of 1,031 TWh, India is the third largest producer and fourth largest consumer of electricity in the world. It has 5th largest installed capacity in the world. Government initiated so much expansion plans. The government targets capacity addition of 88.5 GW under the 12th Five-Year Plan and around 100 GW under the 13th Five-Year Plan (2017–22). Investments of around USD250 billion are planned for the power sector during the 12th Five-Year Plan. The installed capacity reached 36.5 GW as on October 2015. Wind energy is estimated to contribute 60 GW, followed by solar power at 100 GW by 2022. The target for renewable energy has been increased to 175 GW by 2022. 100 per cent FDI is allowed under the automatic route in the power segment and renewable energy. Maharashtra state contributes around 13.91% in this journey of evolution of power sector in India.

2. EVOLUTION OF THE INDIAN POWER SECTOR

PLAN-WISE GROWTH OF ELECTRICITY SECTOR IN INDIA UTILITIES

Sl. No.	As on / during financial year ending with	Installed Capacity (MW)	No. of villages electrified	Length of T & D Lines (Ckt. kms.)(#)	Per Capita Consumption (kWh)(\$)
1	31.12.1947	1362	N.A.	23238	16.3
2	31.12.1950	1713	3061	29271	18.2
3	31.03.1956(End of the 1st Plan)	2886	7294	85427	30.9
4	31.03.1961(End of the 2nd Plan)	4653	21754	157887	45.9
5	31.03.1966 (End of the 3rd Plan)	9027	45148	541704	73.9
6	31.03.1969(End of the 3 Annual Plans)	12957	73739	886301	97.9
7	31.03.1974(End of the 4th Plan)	16664	156729	1546097	126.2
8	31.03.1979(End of the 5th Plan)	26680	232770	2145919	171.6
9	31.03.1980(End of the 2 Annual Plans)	28448	249799	2351609	172.4
10	31.03.1985(End of the 6th Plan)	42585	370332	3211956	228.7
11	31.03.1990(End of the 7th Plan)	63636	470838	4407501	329.2
12	31.03.1992(End of the 2 Annual Plans)	69065	487170	4574200	347.5
13	31.03.1997(End of the 8th Plan)	85795	498836	5141413	464.6
14	31.03.2002(End of the 9th Plan)	105046	512153	6030148	559.2
15	31.03.2007 (End of 10th Plan)	132329	482864	6939894	671.9
16	31.03.2012 (End of 11th Plan)	199877	556633	8726092	883.6
17	31.03.2013(End of 1st year of 12th Plan)	223343	560552	9080556	914.4
18	31.03.2014(End of IIrd year of 12th Plan)	245259	572414	9534584*	957.0
19	31.03.2015(End of IIIrd year of 12th Plan)	271722	577629*^	10558177@	1010

N.A. Not Available. (*) Provisional. (*) As per revised definition of village electrification and 2001 Census.
 (#) Includes 440 Volts Distribution Lines. @ Estimated
 \$ Per Capita Consumption=Gross Electrical Energy availability/Mid year Population

PLANWISE GROWTH OF GROSS ELECTRICITY GENERATION IN INDIA - MODE-WISE UTILITIES

SL.No	During financial year ending with	Hydro	Thermal			Total	Nuclear	RES	Total
			Coal \$	Gas	Diesel				
1	1947	2195	1733	0	144	1877	0	0	4073
2	1950	2519	2587	0	200	2787	0	0	5106
3	1955-56 (End of the 1st Plan)	4295	5367	0	233	5600	0	0	9662
4	1960-61 (End of the 2nd Plan)	7837	9100	0	368	9468	0	0	16937
5	1965-66(End of the 3rd Plan)	15225	17765	69	324	18158	0	0	32990
6	1968-69(End of the 3 Annual Plans)	20723	26711	124	194	27029	0	0	47434
7	1973-74(End of the 4th Plan)	28972	34853	343	125	35321	2396	0	66689
8	1978-79(End of the 5th Plan)	47159	52024	515	55	52594	2770	0	102523
9	1979-80(End of the Annual Plan)	45478	55720	500	53	56273	2876	0	104627
10	1984-85 (End of the 6th Plan)	53948	96957	1834	45	98836	4075	0	156859
11	1989-90 (End of the 7th Plan)	62116	172643	5962	85	178690	4625	6	245438
12	1991-92(End of the 2 Annual Plans)	72757	197163	11450	95	208708	5525	38	287029
13	1996-97(End of the 8th Plan)	68901	289378	26985	679	317042	9071	876	395889
14	2001-02(End of the 9th Plan)	73579	370884	47099	4317	422300	19475	2085	517439
15	2006-07(End of the 10th Plan)	113502	461794	64157	2539	528490	18802	9860	670654
16	2011-12(End of the 11th Plan)	130511	612497	93281	2649	708427	32286.56	51226	922451
17	2012-13(End of 1st year of 12th Plan)	113720	691341	66664	2449	760454	32866	57449	964489
18	2013-14(End of IIrd year of 12th Plan)	134847	746087	44522	1868	792477	34228	59615	1021167
19	2014-15(End of IIIrd year of 12th Plan)	129244	835838	41075	1407	878320	36102	61780	1105446

\$ Includes Lignite
 RES : Renewable Energy Sources.

3. GROWTH DRIVERS

3.1 POLICY SUPPORT AIDING GROWTH IN THE SECTOR

Electricity Act, 2003: Elimination of licensing for electricity generation projects, Increased competition through international competitive bidding.

National Tariff Policy, 2006: Adequate return on investment to companies engaged in power generation, transmission and distribution, clear guidelines to SERCs for fixing tariffs, Supply of electricity to consumers at reasonable and competitive rates.

Ultra Mega Power Projects (UMPPs): Launch of the UMPP scheme through tariff-based competitive bidding, Easy availability of land possession, provision of fuel, water and necessary clearances for enhancing investor confidence, According to Union Budget 2015 to 2016, five new UMPPs, each of 4000MW, have been proposed to setup in the plug & play mode

R-APDRP: R-APDRP was launched by Ministry of Power with the purpose of reducing AT&T losses up to 15% by up gradation of transmission and distribution network, Joining disbursement of central government funds (to states), with actual reduction in transmission and distribution losses. Sanctioned projects of more than 5.8 US billion Dollar.

Fuel Supply Agreement: Fuel supply agreement with Coal India Ltd will ensure the availability of coal for power companies over the long term

National Electricity Policy: Supply electricity to all areas, Prepared in consultation with state governments, CEA, and other stakeholders, Supply of reliable and quality power in an efficient manner and reasonable rates

Feed in Tariff: This policy used for promoting generation of electricity from renewable energy sources, Allows Power Producers to sell renewable energy generated electricity to an off – taker at a pre-determined tariff for a given period of time

3.2 STRONG DEMAND AND POLICY SUPPORT DRIVING INVESTMENTS

Multiple drivers are leading to growth in power demand; this is set to continue in the future. During FY10 to FY 15, GDP growth is likely to average 8.0–8.5 percent. India is set to become a global manufacturing hub with investments through the value chain India's power demand is expected to rise up to 1,905 TWh by FY22

3.3 POLICIES ADOPTED DURING BUDGET FY15 & FY16

Generation-based incentives: Government to reintroduce 'generation-based incentives' for wind power projects to increase capacity addition in the sector; Cutting of excise duties by 2 % on capital goods import. USD147.3 million would be allocated to the Ministry of New and Renewable Energy.

Public Private Partnership: To reduce dependency on imported coal, a Public Private Partnership (PPP) policy framework

FDI policy: 100 % FDI is allowed under automatic route for power sector except atomic energy. During FY13, the Government adopted FDI policy for Power Trading Exchanges. Foreign Investment in power exchanges registered under the CERC Regulations, 2010, allowed up to 49 per cent (FDI-26 % and FII-23%)

Low-interest funds: Low-interest-bearing funds to be provided from National Clean Energy Fund (NCEF) to Indian Renewable Energy Development Agency Ltd (IREDA) for on-lending to various renewable energy projects

Growing investments: The total plan outlay for the power sector for FY16 is estimated at US Dollar 10.05 billion. While the proportion of plan expenditure in the total outlay was 59% in FY13 and for FY14 is a whopping 96 %.

Tax benefits: Benefit under section 35 (2AA) of the Income Tax Act to industry or private sponsored research programmers. Write – off can be availed for expenditure to be made on R&D to in-house R&D centres. Further incentives are available for setting up of projects in notified areas

3.4 POLICIES ADOPTED DURING BUDGET FY15 & FY16

Power is one of the key sectors attracting FDI inflows into India. FDI inflows into the sector increased from USD4627 million in FY07 to USD9967 million in FY16 during September'15. Power accounted for 4 per cent of

total inflows till September 2015. Cumulative FDI inflows into the sector in April'00– September'15 were USD9.9 billion. 100 per cent FDI allowed in the power sector has boosted FDI inflows in this sector. Private equity investments in the sector have surged since 2010. Asian Development Bank, Goldman Sachs and Global Environmental Fund have together invested USD140 million in ReNew Wind Power Pvt Ltd on July 03, 2014. EIG Global Energy Partners made an investment of 125 million US Dollar in Greenko Group, which is planning to develop its wind farms and hydropower assets in India by means of Greenfield projects and acquisitions. GE Energy Financial Services plans to invest US Dollar 24 million in a solar power project by Welspun Renewables Energy Pvt. Ltd.

4. MAJOR PLAYERS IN THE POWER SECTOR FOR INDIA

4.1 NTPC

NTPC is India's largest power producer and the sixth-largest thermal power producer in the world, with installed capacity of 45.05 GW (including JVs). By 2032, National Thermal Power Corporation plans to reach 128,000 MW of power capacity. Coal-based power accounts for more than 84.7 per cent of the total capacity. It has also distributed into hydro power, coal mining, power equipment manufacturing, oil and gas exploration, power trading and distribution.

4.2 Tata Power

Tata Power is India's largest integrated power company, with significant presence in solar, hydraulic, wind and geothermal energy space. The company accounts for 52% of total generation capacity in the private sector, with an installed capacity of 8.7 Giga Watt. By 2022, the company plans to increase the generating capacity to 18 GigaWatt, distribution networks by 4 Giga Watt and energy resources by 25 million tons per annum.

4.3 Reliance Power

NTPC is India's largest power producer and the 6th largest thermal power producer in the world, with installed capacity of 45.05 GW (including JVs). By 2032, NTPC plans to reach 128,000 Mega Watt of power capacity. Coal-based power accounts for more than 84.7% of the total capacity. It has also diversified into hydro power, coal mining, power equipment manufacturing, oil and gas exploration, power trading and distribution.

4.4 CESC Ltd.

CESC Limited is a vertically integrated player engaged in coal mining, and generation and distribution of power. It owns and operates three thermal power plants producing 1225 Mega Watt of power. These are Budge Generating Station (750 MW), Southern Generating Station (135 MW), and Titagarh Generating Station (240 MW)

4.5 NHPC

NHPC is the largest hydro power utility in India, with an installed capacity of 6.5 Giga Watt; it has drawn up a massive capacity expansion plan of adding 6.7 Giga Watt by 2017. NHPC is constructing nine projects, aggregating an installed capacity of 4.2 Giga Watt. NHPC added 1.9 Giga Watt and 1.1 Giga Watt during the 10th and 11th Plan periods, respectively

4.6 PFC

Power Finance Corporation Limited (PFC) is an NBFC engaged in financing and development activities in Indian power sector. Major products and services include project term loans, financing for lease, direct discounting of bills, short-term loans and consultancy services

4.7 Adani Power

Adani Power is one of India's largest private thermal power producers, with total capacity set to reach 10.4 Giga Watt; the company aims to generate 20 GW of power upto 2020. The company is one of the world's largest single location thermal power plants in Mundra, Gujarat

4.8 PGCIL

Power Grid Corporation of India Limited (PGCIL) is the single largest transmission utility in India; it is responsible for planning, co-ordination, supervision and control over between state to state transmission systems. Target to increase inter regional capacity to about 72.25 Giga Watt at the end of XII Plan. In 2014, inter-regional capacity is 37.95 Giga Watt.

4.9 DVC

Damodar Valley Corporation is engaged in power generation, distribution and transmission of electric power, irrigation and flood control.

4.5 SJVN Ltd.

SJVN Limited is the 2nd largest hydro power company in India. The company plans to diversify into wind power projects soon

5. STATES OF INDIA BY INSTALLED POWER CAPACITY AND CONTRIBUTION OF MAHARASHTRA

This is a list of states and territories of India by allocated power generation capacity from power generation utilities. When a power station has entered in the power purchase agreement to supply electricity to greater than one state, the total power station capacity is divided among the beneficiary states.

State/Union Territory	Thermal (in MW)				Nuclear (in MW)	Renewable (in MW)			Total (in MW)	% of Total
	Coal	Gas	Diesel	Sub-Total Thermal		Hydel	Other Renewabl e	Sub-Total Renewabl e		
Maharashtra	24,669.27	3,475.93	-	28,145.20	690.14	3,331.84	6,205.65	9,537.49	38,372.83	13.91%
Gujarat	16,353.72	6,806.09	-	23,159.81	559.32	772	4,940.00	6,271.32	29,431.13	10.66%
Madhya Pradesh	11,126.39	257.18	-	11,383.57	273.24	3,223.66	1,670.34	4,894.00	16,550.81	6.00%
Chhattisgarh	13,193.49	-	-	13,193.49	47.52	120	327.18	447.18	13,688.19	4.96%
Goa	326.17	48	-	374.17	25.8	-	0.05	0.05	400.02	0.14%
Dadra & Nagar Haveli	44.37	27.1	-	71.47	8.46	-	-	-	79.93	0.03%
Daman & Diu	36.71	4.2	-	40.91	7.38	-	-	-	48.29	0.02%
Central - Unallocated	1,622.35	196.91	-	1,819.26	228.14	-	-	-	2,047.40	0.74%
Western Region	67,029.01	10,815.41	-	77,844.42	1,840.00	7,447.50	13,005.62	20,453.12	100,137.54	36.29%
Rajasthan	9,400.72	825.03	-	10,225.75	573	1,719.30	4,710.50	6,429.80	17,228.55	6.24%
Uttar Pradesh	11,677.95	549.97	-	12,227.92	335.72	2,168.30	989.86	3,158.16	15,721.80	5.70%
Punjab	6,444.88	288.92	-	6,733.80	208.04	3,145.13	503.42	3,648.55	10,590.38	3.84%
Haryana	6,527.53	560.29	-	7,087.82	109.16	1,456.83	138.6	1,595.43	8,792.41	3.19%
Delhi	5,001.87	2,366.01	-	7,367.88	122.08	822.05	34.71	856.76	8,346.72	3.03%
Himachal Pradesh	152.02	61.88	-	213.9	34.08	3,421.51	728.91	4,150.42	4,398.40	1.59%
Uttarakhand	399.5	69.35	-	468.85	22.28	2,441.82	244.32	2,686.14	3,177.27	1.15%
Jammu & Kashmir	329.32	304.14	-	633.46	77	1,805.21	156.53	1,961.74	2,672.20	0.97%
Chandigarh	32.54	15.32	-	47.86	8.84	62.32	5.04	67.36	124.06	0.04%
Central - Unallocated	977.19	290.35	-	1,267.54	129.8	754.3	-	754.3	2,151.64	0.78%
Northern Region	40,943.50	5,331.26	12.99	46,274.76	1,620.00	17,796.77	7,511.89	25,308.66	73,203.42	26.53%
Tamil Nadu	10,075.10	1026.3	411.66	11,513.06	986.5	2,182.20	8,423.15	10,605.35	23,104.91	8.37%
Karnataka	6,408.46	-	234.42	6,642.88	475.86	3,599.80	4552.48	8,152.28	15,271.02	5.53%
Andhra Pradesh	6,509.21	3,182.65	16.97	9,708.83	127.16	1,758.87	2,093.93	3,852.80	13,688.80	4.13%
Telangana	5,598.47	1,697.75	19.83	7,316.05	148.62	2012.54	62.75	2,075.29	9,539.96	3.46%
Kerala	1,038.69	533.58	234.6	1,806.87	228.6	1881.5	204.05	2,085.55	4,121.02	1.49%
Puducherry	249.32	32.5	-	281.82	52.78	-	0.03	0.03	334.63	0.12%
Central - NLC	100.17	-	-	100.17	-	-	-	-	100.17	0.04%
Central - Unallocated	1,523.08	-	-	1,523.08	300.48	-	-	-	1,823.56	0.66%
Southern Region	30,842.50	4,962.78	917.48	36,722.76	2,320.00	11,398.03	15,245.11	26,643.14	65,685.90	23.81%

State/Union Territory	Thermal (in MW)				Nuclear (in MW)	Renewable (in MW)			Total (in MW)	% of Total
	Coal	Gas	Diesel	Sub-Total		Hydel	Other	Sub-Total		
				Thermal	Renewable		Renewable			
West Bengal	8,083.83	100	-	8,183.83	-	1,248.30	131.45	1,379.75	9,563.84	3.47%
Odisha	6,753.04	-	-	6,753.04	-	2,166.93	116.55	2,283.48	9,036.52	3.28%
DVC	7,160.66	90	-	7,250.66	-	193.26	-	193.26	7,443.92	2.70%
Bihar	2,516.24	-	-	2,516.24	-	129.43	114.12	243.55	2,759.79	1.00%
Jharkhand	2,404.93	-	-	2,404.93	-	200.93	20.05	220.98	2,625.91	0.95%
Sikkim	92.1	-	-	92.1	-	174.27	52.11	226.38	318.48	0.12%
Central - Unallocated	1,572.07	-	-	1,572.07	-	-	-	-	1,572.07	0.57%
Eastern Region	28,582.87	190	-	28,772.87	-	4,113.12	434.54	4,547.66	33,320.53	12.08%
Assam	187	718.62	-	905.62	-	429.72	34.11	463.83	1,369.45	0.50%
Tripura	18.7	538.82	-	557.52	-	62.37	21.01	83.38	640.9	0.23%
Meghalaya	17.7	105.14	-	122.84	-	356.58	31.03	387.61	510.45	0.19%
Arunachal Pradesh	12.35	43.06	-	55.41	-	97.57	104.64	202.21	257.62	0.09%
Manipur	15.7	67.98	36	119.68	-	80.98	5.45	86.43	206.11	0.07%
Nagaland	10.7	46.35	-	57.05	-	53.32	29.67	82.99	140.04	0.05%
Mizoram	10.35	38.29	-	48.64	-	34.31	36.47	70.78	119.42	0.04%
Central - Unallocated	37.5	104.44	-	141.94	-	127.15	-	127.15	269.09	0.10%
North-Eastern Region	310	1,662.70	36	2,008.70	-	1,242.00	262.38	1,504.38	3,513.08	1.27%
Andaman & Nicobar	-	-	40.05	40.05	-	-	10.35	10.35	50.4	0.02%
Lakshadweep	-	-	-	-	-	-	0.75	0.75	0.75	0.00%
Islands	-	-	40.05	40.05	-	-	11.1	11.1	51.15	0.02%
Total	170,737.88	24,473.03	993.53	196,204.44	5,780	42,623.42	37,415.53	80,038.95	282,023.39	100.00%

From table it is clear that Maharashtra state has the highest contribution in installed capacity of power generation in India.

6. MAJOR PLAYERS WHO MAKES MAHARSHTRA TOP CONTRIBUTOR

6.1 Maharashtra State Power Generation Company (MAHAGENCO)

The Mahanirmithi (□□□□□□□□□□) or Mahagenco formerly known as MSEB is the major power generating company in the state of Maharashtra, Western India. With a total generation of 10,737 MW, it is the 2nd largest power producing company in India. The power generated by Mahagenco is supplied to the State of Maharashtra. It was a part of Maharashtra State Electricity Board until 06th June 2005. Maharashtra State Power Generation Company has the highest overall generation capacity and the highest thermal installed capacity amongst all the state power generation utilities in India. In terms of installed capacity, it is the 2nd highest generation company after National Thermal Power Corporation Limited. Mahagenco is the only State Utility having a very well balanced generation involving thermal, hydel & gas stations along with solar power plant. The first 500 Mega Watt plant to be installed in any State Utility belongs to Maharashtra.

Mahagenco has an installed capacity of 11657 MW. This comprises of Thermal (appx. 70%, i.e. 8220 MW) and a gas based generating station at Uran, having an installed capacity of 672 MW. The Hydraulic Electricity Projects in the State of Maharashtra were designed, erected and commissioned through the Water Resource Department of GoM. After commissioning, the hydraulic projects were handed over on long term lease to Mahagenco for Operation & Maintenance. Presently there are 27 hydel projects, having capacity of 2585 MW.

Mahagenco is simultaneously implementing capacity additions plans of about 9320 MW. Project execution works of 3230 Mega Watt are in full swing and 6090 Mega Watt projects are in advanced stage of planning.

INSTALLED CAPACITY OF MAHAGENCO:

SR. NO.	POWER STATION	UNITS & SIZE(MW)	INSTALLED CAP.(MW)
A	THERMAL POWER STATIONS		
1	KORADI 5 TO 8	1x200 + 2x210 + 1x660	1280
2	NASIK 3 TO 5	3x210	630
3	BHUSAWAL 2 TO 5	2x210 + 2x500	1420
4	PARAS 3 & 4	2x250	500
5	PARLI 3 TO 7	3x210+ 2x250	1130
6	K'KHEDA 1 to 5	4x210 + 1x500 MW	1340
7	CHANDRAPUR 3 TO 7	2x210 + 3x500	1920
	MAHAGENCO THERMAL		8220
B	GAS TURBINE POWER STATION		
1	URAN G.T.	4x108	432
2	W.H.R. 1&2	2x120	240
	MAHAGENCO GAS		672
C	HYDRO POWER STATIONS		
1	KOYNA HYDRO	St I&II- 4x70 + 4x80, St III- 4x80, St. IV- 4x250 & Koyna Dam foot- 2x18	1956
2	SMALL HYDRO		379
3	GHATGHAR PUMP STORAGE	2x125	250
	MAHAGENCO HYDRO		2585
D	SOLAR		180
	MAHAGENCO TOTAL (A+B+C+D)		11657

6.2 Tiroda Thermal Power Station (Adani Power)

Tiroda Thermal Power Station is a coal-based thermal power plant located at Tirora in Gondia district, Maharashtra. The power plant is operated by the Adani Power.

Capacity: It has a planned capacity of 3300 Mega Watt (5x660 Mega Watt).

Stage	Unit Number	Installed Capacity (MW)	Date of Commissioning	Status
1	1	660	2012 September	Running
1	2	660	2013 March	Running
1	3	660	2013 June	Running
1	4	660	2014 April	Running
1	5	660	2014 October	Running

6.3 Wardha Warora Power Plant (KSK Energy Ventures)

Sai Wardha Power Plant is a coal-based thermal power plant located at Warora city in Chandrapur district in the Indian state of Maharashtra. The power plant is operated by the KSK Energy Ventures.

The coal for the plant is sourced from Western Coalfields Limited. The Engineering, procurement and construction contract is given to Sichuan Electric Design Company of People's Republic of China.

Capacity: It is a 540 Mega Watt (4×135 Mega Watt) project.

Unit No.	Generating Capacity	Commissioned on	Status
1	135 MW	2010 June	Running
2	135 MW	2010 October	Running
3	135 MW	2011 January	Running
4	135 MW	2011 April	Running

6.4 Trombay Thermal Power Station (Tata Power)

Trombay Thermal Power Station is a coal-based thermal power plant located at Trombay near Mumbai in the Maharashtra, India. The power plant is owned by Tata Power.

Capacity: It has an installed capacity of 1580 Mega Watt. It has following generating units:

- 150 Mega Watt Oil (unit 1 to unit 4).
- 500 Mega Watt Coal (unit 5).
- 500 Mega Watt running on oil (unit 6, this is being converted to run on coal).
- 180 Mega Watt Gas based (unit 7)
- 250 Mega Watt Coal (unit 8).

The first 4 units have been decommissioned and are no more functional.

6.5 RattanIndia Amravati Thermal Power Project

RattanIndia Amravati Thermal Power Project is a coal-based thermal power plant located in Nandgaon peth village in Dist. Amravati, Maharashtra. The power plant is operated by the RattanIndia Power Limited (formerly Indiabulls Power Ltd(IPL)).

Coal for the plant is sourced from South Eastern Coalfields Limited, Western Coalfields Limited (WCL) and Mahanadi Coalfields Limited (MCL). Water is sourced from Vidharbha Irrigation Development Corporation (VIDC).

Capacity:

Stage	Unit Number	Installed Capacity (MW)	Date of Commissioning
1st	1	270	2013 June
1st	2	270	Commissioned
1st	3	270	2015 Jan
1st	4	270	2015 March
1st	5	270	2015 March
2nd	6	270	Under development
2nd	7	270	Under development
2nd	8	270	Under development
2nd	9	270	Under development
2nd	10	270	Under development

6.6 Reliance Power

Dahanu Thermal Power Station: Dahanu Thermal Power Station or Reliance Dahanu Thermal Power Station is a coal based thermal power plant located at coastal Dahanu village in Palghar district in the Maharashtra, India. The power plant is operated by Reliance Infrastructure. The plant is located on Mumbai-Ahmedabad rail line and is 120 km away from Mumbai and 20 kilometer away from Mumbai-Ahmedabad-Delhi National Highway 8 (India)

Capacity: It has an installed capacity of 500 Mega Watt (2x250 Mega Watt). The power plant was commissioned in 1995 and is commercially producing power since 1996.

Unit No.	Capacity	Commissioned on	Status
1	250 MW	1995 January	Running
2	250 MW	1995 March	Running

Butibori Power Project: Butibori Power Project is a coal-based thermal power plant located at Butiborinear Nagpur in the Maharashtra, India. The power plant is operated by the Reliance Power.

The Engineering, procurement and construction contract is given to Reliance Infrastructure & Shanghai Electric Corporation of People's Republic of China is supplying the boiler, turbine and generator for the power plant.

It has an installed capacity of 600 Mega Watt.

Unit No.	Generating Capacity	Commissioned on	Status
1	300 MW	2012 August	Running

6.6 Dhariwal Power Station (CESC Ltd.)

Dhariwal Power Station or CESC Chandrapur Thermal Power Station is a coal-based thermal power plant located at near Tadali town in Chandrapur district in the Maharashtra, India. The power plant is operated by Dhariwal Infrastructure Limited a subsidiary of CESC Limited.

Capacity: It has an installed capacity of 600 Mega Watt (2x300 Mega Watt).

Unit No.	Capacity	Commissioned on	Status
1	300 MW	2014 February	Running ^[2]
2	300 MW	2014 August	Running

4. CONCLUSIONS

In India the growth of electricity demand has surpassed the power supply and our country has been facing power shortages during peak electricity demand in spite of the manifold growth over the years. Power consumption is estimated to increase from 1174.07 TWh in 2015 to 1,894.7 TWh in 2022. Government of India lays special emphasis on reduction of T and D losses and demand side management to maximum utilize the limited resources. Too much efforts are going on to bridge the gap of demand and supply by policy initiatives, such as Development of Power Projects on Tariff based bidding, New Hydraulic Policy, Pvt. Sector Participation in Transmission sector, National Mission on Enhanced Energy Efficiency, Focus on development of Renewable Energy Sources and development of the Ultra Mega Power Projects (UMPP).

Though population of Maharashtra makes it one of the country's largest energy users, the state is playing its role very well in this journey of power growth by contributing around 14% of power generation.

6. REFERENCES

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