

CHAPTER – IX

9.1 Power

Power (MPSEB)

State energy department is determined to achieve following objective by the end of 11th Five Year Plan.

- Remove power shortage in the State by setting up new generating power projects to meet the ever increasing power demand.
- Expansion / Strengthening of Transmission System for evacuation of power from Generation Projects of the State, interconnection of State transmission system with National Grid, to overcome low voltage problem and to avoid overloading of EHV system.
- Strengthening and system improvement of Sub-Transmission and Distribution system, Energy Audit, 100% installation of meters for all type of users, separation of rural feeders from agricultural feeders and prevention of theft.
- To bridge the Rural – Urban gap by extending the electricity to all the villages and habitation of the State and provide access to electricity to all rural households under RGGVY scheme.

The installed capacity of MPSEB as on 31.3.2009 is 3575.45 MW comprising of 2,597.5 MW Thermal and 977.95 MW Hydel capacity. Further, State has share of 2097 MW in the Central Sector Projects and additional allocation of 248 MW is available from EREB. Apart from the above, 1000 MW from Indira Sagar HEP and 826.5 MW (57% share) from Inter-state Sardar Sarovar HEP (6*200 + 5*50), 520 MW (8*65) from Omkareshwar HEP and 10 MW from Bargi LBC is also available. Thus a total installed generation capacity of 8276.94 MW is available with the state.

The unrestricted maximum demand during 2008-09 was 7019 MW (including Power House auxiliary of 186 MW) was met on 27.11.2008 with the net over drawal of 688 MW from central sector through additional short term power purchase (over drawal central sector – 618MW, others – 70 MW). The load shed at that time was 200 MW. Thus, there was a net shortage of 888 MW. This accounts for 12.93% of unrestricted maximum demand.

Looking to the future load growth and to over come present shortage efforts are made to add generation capacity from State Sector, Central Sector, other sectors/ IPPs. Year-wise capacity addition programme from various sectors for 2009-10 to 2013-14 is as follow:

Table 9.1.1: Year-wise capacity addition programme for 2009-10 to 2013-14:

Year	MPSEB Project	Narmada Project (NVDA+ NHDC)	Central Sector	Other/ IPPs	Total
2009-10	210	15	119	300	644
2010-11	0	0	189	550	739
2011-12	790	0	213	745	1748
2012-13	790	0	350	1424	2564
2013-14	0	0	67	1563	1630
TOTAL	1790	15	938	4582	7325

Based on the above capacity addition programmes, peak requirement and peak availability from 2009-10 to 2013-14 has been calculated. Year wise shortage/surplus is presented in the table 9.1.2:

Table 9.1.2: Estimated Peak Requirement and Peak Availability and Shortage: 2009-10 to 2013-14:

Year	Peak requirement in MW	Peak availability in MW	Shortage / Surplus	Shortage / Surplus in %
2009-10	7964	7044	(-) 920	(-) 11.55
2010-11	8521	7467	(-) 1054	(-) 12.37
2011-12	9160	7961	(-) 1199	(-) 13.09
2012-13	9847	8791	(-) 1056	(-) 10.72
2013-14	10537	11351	(+) 814	(+) 07.73

For the year 2009-10, peak shortage is around 920 MW (11.55%). Expected peak shortage of 1054 MW (12.37%) in year 2010-11, 1199 MW (13.09 %) in 2011-12 and finally peak shortage will be overcome by 2013-14.

Energy requirement and availability for the period 2009-10 to 2013-14 has also been worked out for the state. It is expected that energy shortage will be overcome by 2012-13. Year wise difference in requirement and availability of energy as estimated is presented in table Table 9.1.3.

Table 9.1.3: Estimated Energy Requirement and Availability: 2009-10 to 2013-14

Year	Requirement in MKwh	Availability in MKwh	Shortage / Surplus (MKwh)	Shortage / Surplus in %
2009-10	45695	40973	(-) 4722	(-) 10.33
2010-11	48520	43495	(-) 5025	(-) 10.36
2011-12	51357	47331	(-) 4026	(-) 07.84
2012-13	54346	62926	(+) 8580	(+) 15.79
2013-14	57227	76668	(+) 19441	(+) 33.97

Performance of Annual Plan 2008-09

An outlay of Rs. 152367.00 lakh was approved for Annual Plan 2008-09 of MPSEB. With the loan assistance of Rs. 246845.00 lakh from various financial institutions, such as, PFC, SBI, REC (JBIC), CANARA BANK, HUDCO, etc, investment of Rs. 399212.00 lakh was envisaged for 2008-09. The revised proposed outlay was Rs. 128188.00 lakh against which Rs. 129985.00 lakh were spent. Though Department had incurred total expenditure of Rs. 241359.00 lakh, the difference of Rs. 111374.00 lakh was met from outside plan funds i.e. raised through loans.

During the year, no additional generation capacity was planned. Commissioning of extension unit of Amarkantak TPS of 210 MW, which could not be commissioned during 2007-08 has been commissioned in June 2008 with oil firing. Commercial operation of this thermal plant has started since September 2009.

During 2008-09, 1296.34 Circuit Kms of EHV lines and 3063 MVA capacity in EHV Sub-station was added against planned target of 1293 Circuit Kms of EHV lines and 2953 MVA of EHV Sub-station capacity respectively.

Detailed physical achievements of 2008-09 are presented in Table 9.1.4.

Table 9.1.4: Physical Targets and Actual Achievements for Annual Plan 2008-09:

S. No.	NAME OF THE SCHEME / PROJECT / PROGRAMME	UNIT	ANNUAL PLAN 2008-09		
			TARGETS		ACHIEVEMENTS
			ORIGINAL	REVISED	
A.	GENERATION				
I	THERMAL PROJECTS				
	Amarkantak T.P.S. Extn. (1x210MW)	MW	0	210	210
II	HYDEL PROJECTS				
	Marhikheda HEP (3x20 MW) Distt. Shivpuri	MW			
	TOTAL INSTALLED CAPACITY		0	210	210
B	TRANSMISSION				
I.	Increase in the length of EHV Transmission lines	Circuit Kms.			
1	400kV LINES		29	29	29
2	220kV LINES		925	874	871
3	132kV LINES		548	390	396
	TOTAL CIRCUIT KMS.		1502	1293	1296
II.	Increase in the capacity of EHV Sub-stations	MVA			
1	400kV SUBSTATIONS		315	0	0
2	220kV SUBSTATIONS		2120	1800	1740
3	132kV SUBSTATIONS		1310	1153	1323
	TOTAL MVA CAPACITY		3745	2953	3063
C	SUB-TRANSMISSION & DISTRIBUTION				
	WEST DISCOM				
1	33 Kv lines	Kms.	809		404
2	11 Kv lines	Kms.	2786		1054
3	Power Transformers	Nos.	112		104
4	Distribution Transformers	Nos.	1168		494
	EAST DISCOM				
1	33 Kv lines	Kms.	618		1082

S. No.	NAME OF THE SCHEME / PROJECT / PROGRAMME	UNIT	ANNUAL PLAN 2008-09		
			TARGETS		ACHIEVEMENTS
			ORIGINAL	REVISED	
2	11 Kv lines	Kms.	5599		1546
3	Power Transformers	Nos.	118		194
4	Distribution Transformers	Nos.	15641		2726
	CENTRAL DISCOM				
1	33 Kv lines	Kms.	595		267
2	11 Kv lines	Kms.	1282		966
3	Power Transformers	Nos.	138		115
4	Distribution Transformers	Nos.	8159		979
F	RAJEEV GANDHI GRAMIN VIDYUTIKARAN YOJNA (RGGVY)				
1	11 Kv lines	Kms.	9525	5421	2079
2	LT lines	Kms.	5330	2273	1483
3	Distribution Transformers	Nos.	9416	6054	2856

2.0 Review of Annual Plan 2009-10

A plan outlay of Rs. 1,29,045.00 lakh has been proposed for annual plan 2009-10 which includes Rs. 12,259.28 lakh under Tribal Sub Plan, Rs. 16,419.07 lakh under Scheduled Caste Sub Plan and Rs. 5566.00 lakh under APDRP (GoI). The total expenditure of Rs. 123152.00 lakh is anticipated during the year. Physical targets and anticipated achievement for 2009-10 is as given in Table 9.1.5.

Table 9.1.5: Physical Targets and Anticipated achievement for 2009-10

S. No.	Name of Scheme/ project/ programme	Unit	2009-10		Commissioning schedule/ remarks
			Target	Anticipated achievements	
I.	GENERATION				
A.	THERMAL	MW			
1	Sanjay Gandhi T.P.S.Extn. II Birsingpur UNIT 5 (1x500MW)		-	-	Comm. June'07. COD Aug'08
2	Amarkantak T.P.S. Extn. Unit (1x210MW)		-	-	Synchronised with Oil in June'08 & with Coal in March'09. COD in Sept'09
3	Shreesingaji (Malwa) T.P.P. (2x600MW) at Purni, Distt. - Khandwa		-	-	UNIT - I : Mar 2012, UNIT - II : Mar 2012
4	Sarni S. T.P.S. Extn. Unit 10 & 11 (2x250MW)		-	-	UNIT - I : Jan 2012, UNIT - II : Mar 2012
B.	HYDEL				
1	Bansagar Tons HEP (PH-IV) (2x10 MW)		-	-	COMM. AUG'06

S. No.	Name of Scheme/ project/ programme	Unit	2009-10		Commissioning schedule/ remarks
			Target	Anticipated achievements	
2	Marhikheda HEP Distt. Shivpuri (3x20 MW)		-	-	I : Comm AUG'06 II : Comm SEPT'06 III : Comm AUG'07
	TOTAL GENERATION (A+B)	MW	0	0	
II. TRANSMISSION					
A.	Transmission Lines	Circuit Kms			
1	400 kv Lines		0.00	0.00	
2	220 kv Lines		537.60	537.60	
3	132 kv Lines		974.40	974.40	
	Total Transmission Lines		1512.00	1512.00	
B.	EHV Sub-stations	MVA			
4	400 kv Sub-stations		315	315	
5	220 kv Sub-stations		1580	1580	
6	132 kv Sub-stations		1069	1069	
	Total EHV Sub-station	MVA	2964	2964.0	
III. SUB-TRANSMISSION & DISTRIBUTION					
1	33 KV Lines	KMS	1418	1773	
2	11 KV Lines	KMS	3340	5567	
3	Power Transformers (New + Addl)	NOS	263	248	
4	Distribution Transformers (New)	NOS	38177	19500	
IV. RURAL ELECTRIFICATION (RGGVY)					
1	11 KV Lines	KMS	5895	6936	
2	LT Lines	KMS	2616	4302	
3	Distribution Transformers (New)	NOS	6980	8200	As on 22.12.2009

3.0 Annual Plan 2010-11

A plan outlay of Rs. 140136.00 lakh has been proposed for annual plan 2010-11 out of which Rs. 10585.77 lakh has been earmarked for tribal sub plan (TSP) and Rs. 16450.00 for schedule caste sub plan (SCSP). The details of annual plan by project/scheme /programme are presented in Table 9.1.6.

Table 9.1.6: Details of Annual Plan 2010-11 by Project/Scheme /Programme:

S. No.	NAME OF THE PROJECT / SCHEME / PROGRAMME	Proposed Plan Outlay (Rs. Lakh)
I.	GENERATION	
A.	THERMAL	
1	Sanjay Gandhi T.P.S.Extn. II Birsingpur UNIT 5 (1x500MW)	0
2	Amarkantak T.P.S. Extn. Unit (1x210MW)	0

3	Shree Singaji (Malwa) T.P.P. (2x600MW)	23804.00
4	Sarni S. T.P.S. Extn. Unit 10 & 11 (2x250MW)	3196.00
B.	HYDEL	
1	Bansagar Tons HEP (PH-IV) (2x10 MW)	0
2	Marhikheda HEP Distt. Shivpuri (3x20 MW)	0
C.	Renovation & Modernization of Thermal Power Stations	940.00
D	Survey & Investigation	160.00
	TOTAL GENERATION (A+B+C+D)	28100.00
II.	TRANSMISSION (TOTAL)	29500.00
III.	SUB-TRANSMISSION & DISTRIBUTION	
1	WEST ZONE DISCOM	30932.00
2	EAST ZONE DISCOM	21311.00
3	CENTRAL ZONE DISCOM	25293.00
	SUB-TOTAL (ST&D)	77536.00
IV	DIFID	2000.00
V	RGVY	
1	WEST ZONE DISCOM	1000.00
2	EAST ZONE DISCOM	1000.00
3	CENTRAL ZONE DISCOM	1000.00
	SUB-TOTAL (RGVY)	3000.00
	TOTAL	140136.00

Power sector has shown progress in creating infrastructure for Generation, Transmission and Distribution Systems. Transmission and Distribution losses are high. The T & D losses were of the order of 43.59% in 2002-03, 43.99% in 2003-04 and 43.48% in 2004-05, 41.35 % in 2005-06 and 40.75 % in 2006-07. It is programmed to further reduce it to 38.5 % in 2007-08 and to 36.50 % in 2008-09. The major bottleneck in reduction of T&D losses is the social evil of theft of power. To reduce the T & D losses, Government of M.P. has constituted 92 special courts all over M.P. vide notification dated 16.06.2004 for speedy trial of offences referred.

Growth Rate Achieved in Power Sector is shown in table 9.1.7:

Table 9.1.7: Growth Rate Achieved in Power Sector during 2006-07 to 2008-09, Anticipated for 2009-10 and Proposed for 2010-11: Madhya Pradesh

S. No	Particulars	Unit	3/2007 Actual	3/2008 Actual	3/2009 Actual	3/2010 Anticipated	3/2011 Proposed
A.	GENERATION						
	Installed Thermal Capacity	MW	2147.50	2647.50	2597.50	2807.50	2807.50
		Annual growth (%)		23.28	-1.89	8.08	0.00
	Installed Hydel Capacity	MW	902.95	922.95	977.95	977.95	977.95
		Annual growth (%)		2.21	5.96	0.00	0.00
	Total Installed Capacity	MW	3050.45	3570.45	3575.45	3785.45	3785.45
		Annual growth (%)		17.05	0.14	5.87	0.00
	PLF of Thermal Power Stations	%	70.54	68.91	67.21	64.50	75.00
		Annual growth (%)		-2.31	-2.47	-4.03	16.28
B.	TRANSMISSION						
	EHV lines constructed	Circuit Kms	20949	21667	22960	24472	26544
		Annual growth (%)		3.43	5.97	6.59	8.47
	EHV Sub-station capacity Added	MVA	24855	26015	29078	32042	34097
		Annual growth (%)		4.67	11.77	10.19	6.41
	Transmission Losses	%	5.00	4.09	4.09		
		Annual growth (%)		-18.20	0.00		
C.	SUB-TRANSMISSION & DISTRIBUTION						
	33KV lines	Kms	32947	33914	35829	36786	38080
		Annual growth (%)		2.94	5.65	2.67	3.52
	11KV lines	Kms	167476	171692	177075	179978	185730
		Annual growth (%)		2.52	3.14	1.64	3.20
	Power Transformers	Nos.	3106	3441	3857	3969	4148
		Annual growth (%)		10.79	12.09	2.90	4.51
	Distribution Transformers	Nos.	189539	200720	214015	213181	24370
		Annual growth (%)		5.90	6.62	-0.39	14.40
	T&D Losses	%	40.75	40.71	39.75	39.21	38.50
		Annual growth (%)		-0.10	-2.36	-1.36	-1.81

4.0 BHARAT NIRMAN YOJNA

4.1 RURAL ELECTRIFICATION (RGGVY):

The Government of India has launched an ambitious scheme of Rural Electrification viz. **Rajiv Gandhi Grameen Vidyutikaran Yojna (RGGVY)**. In this scheme fund shall be provided through REC as 90% grant and 10% loan. Electrification of villages and Household are the main thrust areas. Investment of about **Rs. 240.00 crore** was envisaged under this Scheme during 2008-09 (Rs. 216.00 crore as 90% grant and Rs. 24.00 crore as 10% loan). Based on the information received from DISCOMS, fund requirement under RGGVY for Annual Plan 2009-10 is Rs. 982.63 crore (loan of Rs. 98.26 crore from GoMP + grant of Rs. 884.37 crore from RGGVY). However, the outlay under RGGVY is proposed to be restricted to Rs. 26.00 crore. The total investment under RGGVY during 2009-10 would be Rs. 260.00 crore (loan of Rs. 26.00 crore from GoMP + grant of Rs. 234.00 crore from RGGVY).

4.2 DFID: Outlay for consultancy by DFID during 2009-10 has been proposed as Rs. 2000.00 lakh

9.2 Non-Conventional Sources of Energy (UVN)

M.P. Urja Vikas Nigam was constituted by the Government of Madhya Pradesh in August 1982. The main activities of the Urja Vikas Nigam are

- Establishment of various power projects based on the non-conventional energy sources in private sector.
- Implementation of various non-conventional energy based projects in the State.
- Promotion and popularization of use of non-conventional energy sources.
- Promotion of Research and Development activities in the field of non-conventional energy sources.
- With a view to encourage energy conservation, arranging Energy Audits in selected industrial units and other institutions, offices etc.
- Co-ordination among the Central, State Government and investors for setting up power plants based on non-conventional energy sources.
- Electrification of un-electrified villages through non-conventional energy sources under Integrated Rural Energy Programmes.

2.0 Performance of Annual Plan 2008-09

Against outlay of Rs. 1,454.25 lakh for Annual Plan 2008-09 including the IREP component of Rs. 485.00 lakh and the total expenditure incurred was Rs. 655.19 lakh. As Central Government discontinued IREP, the allocated amount of Rs. 485.00 lakh remained unspent during the year.

During 2008-09, against the target of 3,000 Biogas Plants 1958 plants were installed. 1127 Street Lights, 7413 Home Lights and 89 villages have been electrified through non-conventional source of energy. In addition, a power plant of 25.10 Mw, based on wind energy, was installed during the year. Wind energy monitoring exercise was taken up on five sites.

3.0 Review of Annual Plan 2009-10

An annual outlay of Rs. 1,240.00 lakh was approved for 2009-10. Till October 2009 Rs. 367.63 lakh have been spent and it is anticipated that by the end of financial year department will be able to utilize the allocated plan outlay.

The proposed targets for plan year 2009-10, which include installation of 2,000 Biogas Plants, 5 Wind Monitoring Stations, Solar Wind Hybrid System of 200 KW, 300 Solar Lanterns, 700 Street Lights, 300 Home Lights, 125 solar A.C, 1250 solar water heating system of 100 litre/day capacity and distribution of 3000 Solar cookers are expected to be achieved by March 2010.

4.0 Annual Plan 2010-11

An annual outlay of Rs. 1725.00 lakh has been proposed for 2010-11. The proposed targets for plan year are installation of 2,000 Biogas Plants, 50 MW extension of wind stations, addition of 80 MW capacity from bio-mass, Solar Wind Hybrid System of 560 KW, 325 Solar Lanterns, 2500 Street Lights, 550 Home Lights, solar water heating systems with total capacity of 100000 litre/day and distribution of 1000 Solar cookers.

In addition 201 un-electrified villages are proposed to be electrified through Solar Photovoltaic System under Rajiv Gandhi Grameen Viduytikaran Yojana.

Electricity is an essential input for industry, agriculture, health, services and other social sectors. The adequate supply of electricity may impact the growth of the state in various sectors. Annual Per capita consumption of electricity including utilities and non-utilities (i.e. Gross Electrical Energy Availability divided by Population) during 2005-06 in State was 580.34 kilowatt hour in year against per capita consumption of about 631 kilowatt hour at national level. State is lagging behind in this aspect as compare to other states. To enhance per capita consumption not only availability has to be increased but also industrialization of the state is needed.