



GRID REPORT

SEPTEMBER 2002

SYSTEM OPERATION REPORT OF NORTHERN REGION FOR THE MONTH OF SEPTEMBER, 2002

SUMMARY REPORT:

Important events:

(a) Commissioning of new units /lines/transformers during the month.

‘ _____ Nil _____’

(b) Major problems / constraints affecting grid operation including major grid disturbances.

The average system frequency during the month of September 2002 was 50.01 Hz and frequency remained between 49.0 & 50.5 Hz for 79.26 % of the time. Although there was appreciable increase in the period when frequency remained in this normal band as prescribed by IEGC (Indian Electricity Grid Code), the large number of fluctuations from low to high & vice versa were a cause of concern. The implementation of free governor operation on all generating units in the region assumes importance.

Overall voltage profile in the grid during the month has been satisfactory on most of the 400 kV Buses..

There was no major grid disturbance in the region during September 2002. The details of minor incidents are given in annexure.

(c) Important decisions taken during the month in various meeting / other forums.

NIL

II. CENTRAL GENERATING STATIONS SHARE vs DRAWAL OF ALL CONSTITUENTS DURING SEPTEMBER 2002

(All figs. in MU)

(All figs. in Rs.)											
Sl. No.	State/UT/ System	NTPC (Excl. BTPS,		NHPC		NPC (Excl. RAPS-A)		BBMB		TOTALS	
		Tanda & FGPS) Entitlement	Actual	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	29.33	20.20	15.28	12.8	5.24	0.24	47.82	47.99	97.67	81.26
2	Delhi	714.94	672.26	102.20	102.87	79.72	12.81	0.00	0.00	896.86	787.94
3	Haryana	422.38	424.58	136.44	136.04	51.46	85.62	294.49	296.32	904.77	942.57
4	H.P.	59.37	55.22	64.85	65.09	8.54	8.33	22.47	22.58	155.24	151.22
5	J & K	172.71	184.60	214.88	215.71	48.75	46.23	0.00	0.00	436.34	446.54
6	Punjab	477.99	464.30	195.53	196.46	77.50	45.57	421.62	424.15	1172.65	1130.48
7	Rajasthan	441.48	453.02	93.36	94.08	183.47	283.44	193.64	194.48	911.95	1025.03
8	U.P.	833.33	876.18	139.18	139.23	82.90	63.64	0.00	0.00	1055.42	1079.05
9	Uttranchal	102.63	97.22	29.11	28.53	9.78	1.47	0.00	0.00	141.53	127.22
9	MP / N.F.F.	5.29	15.41	0.00	0.00	0.00	0.00	14.40	8.92	19.69	24.33
10	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	103.62	103.49	16.64	16.64	11.52	11.52	54.07	54.07	185.85	185.72
12	Others	52.69	49.30	0.00	0.00	0.00	0.00	0.00	0.00	52.69	49.30
	Total	3415.77	3415.77	1007.50	1007.50	558.87	558.87	1048.51	1048.51	6030.65	6030.65

III. INTER REGIONAL EXCHANGES IN MU AND PEAK MW

	Energy (MU)		Peak MW	
a. Import over HVDC Back to Back at Vindhyachal	1.55		500	
b. M.P. to Rajasthan(Ujjain - Kota)	0.00		0	
c. Eastern region to Northern region (Import)	162.34	NET	310	NET
d. Export over HVDC Back to Back at Vindhyachal	99.35		500	
e. 220 KV Auraiya -Malanpur	10.59		24	
f. Northern region to Bihar (Export)	0.00		0	
g. Tanakpur to Mahendranagar(NEPAL) (Export)	6.87		11	

IV. FREQUENCY PROFILE

a. Maximum frequency 51.28 Hz at 23.48 hours on 13.09.2002
 Minimum frequency 48.24 Hz at 19.10 hours on 22.09.2002
 Average frequency 50.01 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
% of time	0.17	2.91	79.26	17.83

c. Frequency Variation Index

 Monthly Average 2.57
 Maximum 4.95
 Minimum 1.06

V. POWER SUPPLY POSITION IN NORTHERN REGION

a. Average Energy/day (Net)

State / U.T.	Availability MU/Day	Requirement MU/Day	Shortage MU/Day	Shortage %
Chandigarh	2.88	2.88	0.00	0.00
Delhi	52.19	52.64	0.45	0.85
Haryana	54.87	55.07	0.20	0.36
H.P.	8.95	8.95	0.00	0.00
J & K	15.73	18.39	2.66	14.46
Punjab	81.77	87.20	5.43	6.23
Rajasthan	70.00	72.34	2.34	3.23
U.P.	92.35	115.56	23.21	20.08
Uttranchal	9.21	9.67	0.47	4.82
N.F.F./Rail	1.61	1.61	0.00	0.00
Total	389.56	424.31	34.76	8.19

b. Peak MW

State / U.T.	MAX. Availability MW	MAX. Requirement MW	Shortage MW		Shortage %	
			ARITH- METICAL	AT MAXM. REQT HR	ARITH- METICAL	AT MAXM. REQT HR
	A	B	C=B-A	D	(C/B)*100	(D/B)*100
Chandigarh	164	164	0	19	0.00	11.59
Delhi	2864	2914	50	153	1.72	5.25
Haryana	3077	3094	17	153	0.55	4.95
H.P. *	516	516	0	10	0.00	1.94
J & K *	926	1114	188	338	16.88	30.34
Punjab	5024	5274	250	663	4.74	12.57
Rajasthan	3625	3625	0	371	0.00	10.23
U.P.	5434	5846	412	541	7.05	9.25
Uttanchal	649	709	60	142	8.46	20.03
N.F.F./Rail	76	76	0	3	0.00	3.95
Region	20545	22755	2210	2210	9.71	9.71

Diversity Factor = 1.09

* Approximate and Estimated

DETAILED REPORT

1. INSTALLED / EFFECTIVE CAPACITY AT THE END OF SEPTEMBER 2002

UNPAID / UN			
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Anta GPS	3x88.71+1x153.20	419.33	3x88.71+1x153.20	419.33
Auraiya GPS	4x111.19+2x109.30	663.36	4x111.19+2x109.30	663.36
Dadri GPS	4x130.19+2x154.51	829.78	4x130.19+2x154.51	829.78
Faridabad GPS	2x137.75 +1x156.07	431.57	2x137.75 +1x156.07	431.57
Sub-Total		8184.04		8169.04
NHPC				
Bairasiul	3x60	180.00	3x60	180.00
Salal Stage - I	3x115	345.00	3x115	345.00
Salal Stage - II	3x115	345.00	3x115	345.00
Tanakpur HPS	3x40	120.00	3x31.4	94.20
Chamera HPS	3x180	540.00	3x180	540.00
URI	4x120	480.00	4x120	480.00
Sub-Total		2010.00		1984.20
NPC				
RAPS -A	2x220	440.00	1x100+1x200	300.00
RAPS -B	2x220	440.00	2x220	440.00
NAPS	2x235	470.00	2x220	440.00
Sub-Total		1350.00		1180.00
Total Central Sector (A + B + C)				
		11544.04		11333.24
BBMB				
Bhakra Complex				
(i) Bhakra (L)	5x108	540.00	5x108	540.00
(ii) Bhakra (R)	5x157	785.00	5x157	785.00
(iii) Ganguwal	1x29.25+1x27.63+1X26.7	83.58	1x29.25+1x27.63+1X26.7	83.58
(iv) Kotla	1x29.25+1x24.2+1x28.12	81.57	1x29.25+1x24.2+1x28.12	81.57

Sub-Total		1490.15		1490.15
Dehar	6x165	990.00	6x165	990.00
Pong	2x60 + 4x66	384.00	2x60 + 4x66	384.00
Total BBMB		2864.15		2864.15
CHANDIGARH				
Diesel Gen Sets		2.00		1.40
DELHI				
THERMAL				
Indra Prastha	3x62.5+1x60	247.50	3x62.5+1x60	247.50
Rajghat	1x15+2x67.5	150.00	1x14+2x67.5	149.00
Gas Turbines	6x30+3x34	282.00	6x30+3x34	282.00
Pragati Gas Turbines	1x108	108.00	1x108	108.00
Total DELHI		787.50		786.50
HARYANA				
HYDRO				
Western Yamuna Canal (WYC)	6x8	48.00	6x8	48.00
Total Hydro		48.00		48.00
THERMAL				
Faridabad (New)	3x60	180.00	3x55	165.00
Panipat	4x110+2x210	860.00	4x110+2x210	860.00
Total Thermal		1040.00		1025.00
Magnum Diesel (IPP)	4x6.3	25.20	4x6.3	25.20
Total Haryana		1113.20		1098.20
HIMACHAL PRADESH				
HYDRO				

Giri	2x30.00	60.00	2x30.00	60.00
Bassi	4x15.00	60.00	4x15.00	60.00
Binwa	2x 3.00	6.00	2x 3.00	6.00
Rongtong	4x 0.50	2.00	4x 0.50	2.00
Andhra	3x 5.65	16.95	3x 5.65	16.95
Micro Hydel+Killar+Thirot		8.75		8.75
Nogli	2x 0.25+4x0.50	2.50	2x 0.25+4x0.50	2.50
Bhabha (H)	3x40.00	120.00	3x40.00	120.00
Baner (H)	3x 4.00	12.00	3x 4.00	12.00
Gaj (H)	3x 3.50	10.50	3x 3.50	10.50
Sal -2	1x 2	2.00	1x 2	2.00
Gumma	.	3.00	3	3.00
Ghanvi	2x11.25	22.50	2x11.25	22.50
Diesel Gen. Sets		0.00		0.00
Malana(IPP)	2x43	86.00	2x43	86.00
Total HP		412.20		412.20
J & K				
HYDRO				
Lower Jhelum	3x35.0	105.00	3x35.0	105.00
Upper Sindh	2x11.30+3x35.0	127.60	2x11.30+3x35.0	127.60
Ganderbal	2x3+2x4.5	15.00	2x3+2x4.5	15.00
Mohra	2x4.5	9.00	2x4.5	9.00
Chenani	5x4.66 +2X1.0 +3x2.5	32.80	5x4.66 +2X1.0+3x2.5	32.80
Stakna	2x2.0 +3x1.25 +2.0	9.75	2x2.0 +3x1.25 +2.0	9.75
Small Hydel		3.54		3.54
Sewa	3x35.0	9.00		9.00
Total Hydro		311.69		311.69
J & K (Contd.)				
GAS TURBINES				
Pampore GT St - I	3x25.0	75.00	3x25.0	75.00
Pampore GT St - II	4x25.0	100.00	4x25.0	100.00

Total Gas		175.00		175.00
Diesel Gen. Sets		8.94		7.18
Total J & K		495.63		493.87
PUNJAB				
HYDRO				
Jogindernagar/ Shanan	4x15+1x50	110.00	4x15+1x50	110.00
Upper Behari Doab Canal (UBDC)	3x15+3x15	90.00	3x15+3x15	90.00
Mukerian	6x15+6x19.5	207.00	6x15+6x19.5	207.00
Anandpur Sahib (APS)	4x33.5	134.00	4x33.5	134.00
Ranjit Sagar HPS	4x150	600.00	4x150	600.00
Small Hydel		4.10		4.10
Total Hydro		1145.10		1145.10
THERMAL				
Guru Nanak Dev TPS (Bhatinda)	4x110	440.00	4x110	440.00
Guru Gobind Singh TPS (Ropar)	6x210	1260.00	6x210	1260.00
Lehra Mohabbat TPS	2x210	420.00	2x210	420.00
Jhalkeri Rice Straw Fired	1x10	10.00	1x10	10.00
Total Thermal		2130.00		2130.00
Total Punjab		3275.10		3275.10
RAJASTHAN				
HYDRO				
Mahi Bajaj Sagar	2x25+2x45	140.00	2x25+2x45	140.00
Rana Pratap Sagar (RPS)	4x43	172.00	4x43	172.00
Jawahar Sagar (JS)	3x33	99.00	3x33	99.00

Anoopgarh	6x1.5	9.00	6x1.5	9.00
Small Hydro		14.85		14.85
Total Hydro		434.85		434.85
THERMAL				
Kota TPS	2x110+3x210	850.00	2x110+3x210	850.00
Suratgarh TPS	4x250	1000.00	4x250	1000.00
Ramgarh GT	1x3	3.00	1x3	3.00
Ramgarh GT EXT.	1x35.5	35.50	1x35.5	35.50
Total Thermal		1888.50		1888.50
Wind farm		14.01		14.01
Total Rajasthan		2337.36		2337.36
UP				
HYDRO				
Rihand	6x50.0	300.00	6x50.0	300.00
Obra	3x33.0	99.00	3x33.0	99.00
Matatilla	3x10.0	30.00	3x10.0	30.00
Ganga Canal				
Bhola	4x.375+2x.6+		4x.375+2x.6+	
Salara	2x1.5+		2x1.5+	
Nirgazni	2x2.5	10.70	2x2.5	10.70
Khara	3x24.0	72.00	3x24.0	72.00
Sobla & small hydro	6 +12.2	18.20	6 +12.2	18.20
Total Hydro		529.90		529.90
THERMAL				
Obra	5x50	250.00	4x40	160.00
Obra Extn. - I	3x100	300.00	3x94	282.00
Obra Extn. - II	5x200	1000.00	5x200	1000.00

Panki	1x32	32.00	1x32	32.00
Panki Extn.	2x110	220.00	2x105	210.00
Harduaganj - A	3x30	90.00	0	0.00
Harduaganj - B	2x50+2x60	220.00	1x40+2x55	150.00
Harduaganj - C	2x60+1x110	230.00	2x60+1x105	225.00
Paricha	2x110	220.00	2x110	220.00
Anpara - A	3x210	630.00	3x210	630.00
Anpara - B	2x500	1000.00	2x500	1000.00
Total Thermal		4192.00		3909.00
Total UP		4721.90		4438.90
UTTRANCHAL				
HYDRO				
Khatima	3x13.8	41.40	3x13.8	41.40
Ramganga	3x66.0	198.00	3x66.0	198.00
Ganga Canal				
Chitwa	2x1.5+		2x1.5+	
Mohamedpur	3x3.1+		3x3.1+	
Pathri	3x6.8	32.70	3x6.8	32.70
Yamuna (I & IV)				
- Dhalipur	3x17.00+		3x17.00+	
- Dhakrani	3x11.25+		3x11.25+	
- Kulhal	3x10.00	114.75	3x10.00	114.75
Chibro	4x60.0	240.00	4x60.0	240.00
Khodri	4x30.0	120.00	4x30.0	120.00
Chilla	4x36.0	144.00	4x36.0	144.00
Maneri Bhali	3x30.0	90.00	3x30.0	90.00
Total Hydro		980.85		980.85
Total Region (1 to 11)		28533.93		28021.77

2. SUMMARY OF THE EFFECTIVE GENERATING CAPACITY(MW) IN THE NORTHERN REGION AT THE END OF SEPTEMBER 2002

Agency / Source	Hydro	Thermal	Gas/Diesel/Wind	Nuclear	Total	% of Total
NTPC	---	5825.00	2344.04	---	8169.04	29.15%
NHPC	1984.20	---	---	---	1984.20	7.08%
NPC	---	---	---	1180.00	1180.00	4.21%
BBMB	2864.15	---	---	---	2864.15	10.22%
CHANDIGARH	---	---	1.40	---	1.40	0.00%
DELHI	---	396.50	390.00	---	786.50	2.81%
HARYANA	48.00	1025.00	25.20	---	1098.20	3.92%
HIMACHAL	412.20	---	0.00	---	412.20	1.47%
J&K	311.69	---	182.18	---	493.87	1.76%
PUNJAB	1145.10	2130.00	---	---	3275.10	11.69%
RAJASTHAN	434.85	1850.00	52.51	---	2337.36	8.34%
UP	529.90	3909.00	---	---	4438.90	15.84%
UTTRANCHAL	980.85	---	---	---	980.85	3.50%
Total	8710.94	15135.50	2995.33	1180.00	28021.77	
% of TOTAL	31.09%	54.01%	10.69%	4.21%	100.00%	

Notes The above table doesn't take into account the shares of a state in power stations located in the neighbouring state. Details of this is as under :

- (i) Haryana has one-third share in unit Nos. 2, 3, 4 at Indraprastha power stations of DVB viz. 62.5 MW.
- (ii) HP has 25 % share in the Dhalipur, Dhakrani, Chibro and Khodri power houses of UPSEB viz. 111.20 MW. It also has a 20 % share in the Kulhal and Khara hydro power houses viz. 20.40 MW. However, these shares are subject to actual physical drawals over designated transmission lines.
- (iii) HP has a fixed energy share every month in the Shanan power house of PSEB.
- (iv) HP has 4.6 % share in Ranjit Sagar Dam project of PSEB viz. 27.60 MW.
- (iv) The shares of Rajasthan in Chambal and Satpura projects are as under :

CHAMBAL

PROJECTS	LOCATED	INSTALLED CAPACITY (MW)
Gandhi Sagar	M.P.	5 x 23 = 115
Rana Pratap Sagar	Rajasthan	4 x 43 = 172
Jawahar Sagar	Rajasthan	3 x 33 = <u>99</u>
	Total	386

Rajasthan has 50 % share in these Chambal projects viz. 193 MW.

SATPURA

PROJECTS	LOCATED	INSTALLED CAPACITY (MW)
Satpura TPS	M.P.	5x62.5+200.0+3x210.0 = 1142.50

Rajasthan has 40 % share viz. 125 MW in the first five units of Satpura TPS.

If the above shares of Rajasthan are included, the regional effective generating capacity would be 28068.77 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 30.09.2002

Agency / Source	Run-of -the -river	Reservoir	Total
NHPC	1444.20	540.00	1984.20
BBMB	1155.15	1709.00	2864.15
DELHI	0.00	0.00	0.00
HARYANA	48.00	0.00	48.00

HP	412.20	0.00	412.20
J&K	311.69	0.00	311.69
PUNJAB	545.10	600.00	1145.10
RAJASTHAN	262.85	172.00	434.85
UP	229.90	300.00	529.90
UTTRANCHAL	782.85	198.00	980.85
Total	5191.94	3519.00	8710.94

4. Generation Addition/ Deletion During The Month

NIL

II. SALIENT FEATURES OF SYSTEM CONDITIONS

1. Effective Generation Capacity at the end of month

Constituent	Effective Capacity		Increase	
	September 2002	September 2001	MW	%
Chandigarh	1.40	1.40	0.00	0.00
Delhi	786.50	678.50	108.00	15.92
Haryana	1098.20	1098.20	0.00	0.00
H.P.	412.20	412.10	0.10	0.02
J & K	493.87	407.37	86.50	21.23
Punjab	3275.10	3275.10	0.00	0.00
Rajasthan	2337.36	1826.82	510.54	27.95
U.P.	4438.90	5419.75	-980.85	-18.10
Uttranchal	980.85	0.00	980.85	----
NTPC	8169.04	8169.04	0.00	0.00
NHPC	1984.20	1984.20	0.00	0.00
NPC	1180.00	1180.00	0.00	0.00
BBMB	2864.15	2852.15	12.00	0.42

Total	28021.77	27304.63	717.14	2.63
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2. Power Supply Position

Power supply position

State/UT	September 2002			September 2001			Percentage increase over 2001	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	2.88	2.88	0.00	3.23	3.23	0.00	-10.84	-10.84
Delhi	52.19	52.64	0.85	56.29	58.19	3.27	-7.28	-9.54
Haryana	54.87	55.07	0.36	55.15	57.40	3.92	-0.51	-4.06
HP	8.95	8.95	0.00	8.69	8.69	0.00	2.99	2.99
J&K	15.73	18.39	14.46	13.84	15.94	13.17	13.66	15.37
Punjab	81.77	87.20	6.23	86.29	91.43	5.62	-5.24	-4.63
Rajasthan	70.00	72.34	3.23	65.96	66.50	0.81	6.12	8.78
UP	92.35	115.56	20.08	124.17	137.77	9.87	-25.63	-16.12
Uttranchal	9.21	9.67	4.82	-----	-----	-----	-----	-----
NFF/Rail	1.61	1.61	0.00	0.95	0.95	0.00	69.47	69.47
REGION	389.56	424.31	8.19	414.57	440.10	5.80	-6.03	-3.59
Frequency Regime								
	September 2002			September 2001				
Average (Hz)	50.01			49.47				
Above 50.5 Hz (%)	17.82			3.05				
Above 50.2 Hz (%)	39.77			13.10				
Below 49.5 Hz (%)	16.50			51.26				
Below 49.0 Hz (%)	2.91			21.33				
Below 48.5 Hz (%)	0.17			3.65				

3. Peak Power Supply Position

State/UT	September 2002			September 2001			Percentage increase over 2001	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	164	164	0.00	169	169	0.00	-2.96	-2.96
Delhi	2864	2914	1.72	2787	2989	6.76	2.76	-2.51
Haryana	3077	3094	0.55	2828	2914	2.95	8.80	6.18
HP	516	516	0.00	472	472	0.00	9.32	9.32
J&K	926	1114	16.88	839	1042	19.48	10.37	6.91

Punjab	5024	5274	4.74	4645	4979	6.71	8.16	5.92
Rajasthan	3625	3625	0.00	3195	3314	3.59	13.46	9.38
UP	5434	5846	7.05	6341	7584	16.39	-14.30	-22.92
Uttanchal	649	709	8.46	-----	-----	-----	-----	-----
NFF/Rail	76	76	0.00	57	57	0.00	33.33	33.33
REGION	20545	22755	9.71	21216	22589	6.08	-3.16	0.73

III. FREQUENCY PROFILE DURING SEPTEMBER 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	50.14	51.12	10.01	49.04	21.16	0.40	1.83
2	50.07	51.04	7.16	48.92	5.48	0.40	1.67
3	50.11	51.16	13.07	48.96	8.27	0.37	1.52
4	50.09	51.04	9.55	48.40	19.21	0.52	2.74
5	50.31	51.00	0.06	48.96	19.10	0.36	2.23
6	50.23	51.12	13.02	48.88	20.05	0.37	1.88
7	50.26	51.24	21.16	49.20	8.12	0.38	2.11
8	50.20	51.08	21.31	48.48	19.10	0.40	1.98
9	50.06	51.08	7.43	48.84	23.05	0.44	2.00
10	50.11	50.88	7.57	48.40	19.31	0.42	1.92
11	50.08	51.16	10.08	48.36	19.04	0.46	2.17
12	50.23	51.00	7.05	49.12	11.10	0.35	1.78
13	50.39	51.28	23.48	48.72	18.55	0.48	3.81
14	50.23	51.24	2.30	48.56	18.26	0.48	2.85
15	50.20	51.08	3.55	48.40	19.15	0.45	2.43
16	50.02	51.12	7.10	48.24	19.03	0.46	2.15
17	50.17	51.20	7.04	48.84	19.22	0.45	2.34
18	50.20	51.00	9.02	48.84	18.47	0.39	1.94
19	50.10	51.16	0.52	48.60	20.32	0.50	2.55
20	49.88	51.04	7.03	49.12	4.57	0.30	1.06

21	49.78	50.96	16.40	48.88	22.14	0.31	1.49
22	49.72	51.12	8.10	48.24	19.10	0.65	4.95
23	49.77	51.08	7.52	48.24	18.36	0.50	3.00
24	49.60	50.88	16.08	48.44	5.35	0.45	3.61
25	49.64	51.04	18.07	48.28	22.07	0.53	4.09
26	49.78	51.08	7.57	48.24	5.40	0.53	3.29
27	49.63	50.96	7.43	48.36	11.07	0.46	3.53
28	49.53	50.92	6.07	48.24	22.06	0.48	4.55
29	49.88	51.28	17.31	48.76	13.54	0.49	2.56
30	49.81	51.00	13.12	48.24	18.42	0.53	3.21
31							
Monthly	50.01	51.28		48.24		0.65	2.57

Note :
$$FVI = \frac{10 \sum (F - 50)^2}{24 \times 60 \times 6}$$
 where F = frequency measured at 10 second interval

IV. VOLTAGE PROFILE DURING SEPTEMBER 2002

Date	Kanpur (400 KV)		Dadri (400 KV)		Jaipur (400 KV)		Moga (400 KV)		B.T.P.S.(220 KV)	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	415	404	412	390	425	398	412	392	215	202
2	413	397	410	386	420	398	412	392	214	196
3	411	397	412	382	422	394	412	392	214	198
4	413	395	414	382	425	392	412	392	216	195
5	411	395	412	380	425	392	412	388	218	196
6	415	404	414	392	422	389	412	391	216	202
7	417	400	418	388	425	400	413	394	216	200
8	420	402	416	388	427	392	415	391	216	202
9	417	399	414	386	422	398	412	391	216	195
10	415	402	414	386	409	400	413	391	214	197
11	415	406	412	388	418	398	413	388	215	196
12	419	408	420	398	422	396	413	391	218	201

13	424	406	428	400	429	396	406	393	221	204
14	420	399	428	392	427	403	405	387	220	196
15	420	397	426	390	429	398	414	385	219	202
16	417	391	424	380	431	400	410	383	219	197
17	415	397	412	386	429	403	413	388	218	196
18	413	395	420	384	427	396	412	389	218	195
19	417	391	420	384	425	396	407	390	219	197
20	415	391	414	374	425	394	409	381	216	201
21	415	393	414	384	425	387	410	388	209	194
22	417	402	418	390	425	394	404	389	216	201
23	415	389	416	384	425	400	408	383	218	195
24	410	391	410	380	418	392	410	387	215	194
25	413	386	412	380	420	389	409	386	215	194
26	415	391	414	384	425	389	406	391	218	198
27	415	388	416	380	425	394	411	387	218	191
28	411	384	414	380	429	387	413	388	218	195
29	411	395	412	388	426	403	418	392	219	201
30	411	388	412	380	425	400	415	386	220	192
31										
Month	424	384	428	374	431	387	418	381	221	191

V. PERFORMANCE OF GENERATING STATIONS DURING SEPTEMBER 2002

S.No.	Power Station	Effective Capacity MW	Energy Generated		Cumulative from 01.04.2002	
			Gross MU	Ex Bus MU	Gross MU	Ex-bus MU
1	CENTRAL SECTOR					
A	NTPC (Thermal)					
(a)	Badarpur TPS	705.00	411.97	374.21	2713.33	2478.46
(b)	Singrauli STPS	2000.00	1328.76	1237.24	7811.75	7256.34
(c)	Rihand STPS	1000.00	398.74	354.19	3822.51	3505.88
(d)	Dadri NCTPS	840.00	453.66	416.49	3096.14	2847.94
(e)	Unchahar-I TPS	420.00	282.26	256.99	1639.66	1496.55
(f)	Unchahar-II TPS	420.00	236.00	215.48	1423.32	1294.20
(g)	Tanda TPS	440.00	195.68	171.25	1172.15	1025.73
(h)	Anta GPS	419.33	210.44	204.24	1277.60	1242.79

(i)	Auraiya GPS	663.36	331.34	325.48	2120.11	2082.40
(j)	Dadri GPS	829.78	334.72	325.19	2241.94	2175.29
(k)	Faridabad GPS	431.57	222.67	218.63	1389.72	1356.68
	Total NTPC	8169.04	4406.22	4099.39	28708.21	26762.27
B	NHPC					
(a)	Bairasiul	180.00	80.86	80.86	457.92	454.93
(b)	Salal	690.00	346.45	345.57	2405.81	2400.66
(c)	Tanakpur HPS	94.20	44.75	44.46	252.71	251.17
(d)	Chamera HPS	540.00	300.10	299.62	1683.57	1682.55
(e)	Uri HPS	480.00	245.84	243.84	1713.58	1698.31
	Total NHPC	1984.20	1017.99	1014.35	6513.59	6487.61
C	NPC					
(a)	RAPS -A	300.00	102.12	92.99	771.55	689.65
(b)	RAPS -B	440.00	313.91	282.34	1566.43	1407.81
(c)	NAPS	440.00	305.78	276.52	1655.22	1487.75
	Total NPC	1180.00	721.81	651.86	3993.21	3585.21
2	JOINTLY OWNED (BBMB)					
(a)	Bhakra Complex	1490.15	602.66	600.75	3610.33	3593.68
(b)	Dehar	990.00	396.96	396.96	2493.73	2493.73
(c)	Pong	384.00	50.79	50.79	379.46	379.46
	Total BBMB	2864.15	1050.41	1048.50	6483.52	6466.87
3	DELHI					
(a)	Indra Prastha	247.50	29.23	25.72	286.96	252.53
(b)	Rajghat	149.00	41.79	37.19	405.96	361.31
(c)	Gas Turbines	282.00	102.70	99.62	617.95	599.41
(d)	Pragati Gas Turbines	108.00	33.34	33.01	206.40	204.34
	Total DELHI	786.50	207.06	195.54	1517.27	1417.58
4	HARYANA					
(a)	WYC	48.00	27.69	27.42	152.27	150.75

(b)	Faridabad (New)	165.00	74.27	64.24	462.69	400.23
(c)	Panipat	860.00	403.72	355.28	2370.04	2085.64
(d)	Magnum Diesel(IPP)	25.20	7.45	7.37	44.69	44.25
	Total Haryana	1098.20	513.13	454.31	3029.70	2680.86
5	HP					
(a)	Giri	60.00	39.98	39.88	100.60	99.56
(b)	Bassi	60.00	37.19	37.14	211.19	210.93
(c)	Binwa	6.00	3.08	3.07	13.88	13.83
(d)	Rongtong	15.25	2.90	2.76	11.97	11.73
	(+Nogli+Micro+Thirot+Sal-2)					
(e)	Andhra	16.95	0.00	0.00	51.87	51.77
(f)	Bhabha (H)	120.00	10.18	10.16	398.77	397.40
(g)	Baner (H)	12.00	69.10	68.74	21.95	21.51
(h)	Gaj (H)	10.50	6.35	6.34	26.32	26.25
(i)	Gumma	3.00	6.77	6.76	9.04	8.98
(j)	Ghanvi	22.50	1.91	1.89	60.51	60.03
(k)	Malana (IPP)	86.00	12.61	12.58	285.17	285.17
	Total HP	412.20	190.06	189.32	1191.27	1187.17
6	J & K					
(a)	Lower Jhelum	105.00	0.00	0.00	3.36	3.33
(b)	Upper Sindh	127.60	45.27	44.82	206.80	204.73
(c)	Ganderbal	15.00	2.23	2.21	13.18	13.05
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	7.21	7.14	43.83	43.39
(f)	Stakna	9.75	0.00	0.00	0.00	0.00
(g)	Small Hydel	3.54	0.00	0.00	0.00	0.00
(h)	Pampore GT St - I	75.00	0.00	0.00	0.00	0.00
	Pampore GT St - II	100.00				
	Total J & K	470.19	54.71	54.16	267.17	264.50
7	PUNJAB					
(a)	Jogindernagar/ Shanan	110.00	66.54	66.51	363.17	365.99
(b)	UBDC	90.00	22.17	22.07	247.83	247.10

(c)	Mukerian	207.00	50.13	49.56	432.00	429.02
(d)	Anandpur Sahib (APS)	134.00	76.92	76.84	467.86	467.33
(e)	Ranjit Sagar HPS	600.00	57.87	57.73	720.63	719.15
(f)	Small Hydel	4.10	0.79	0.78	5.07	5.02
(g)	GNDTPS (Bhatinda)	440.00	162.49	146.58	1305.10	1184.79
(h)	GGSTPS (Ropar)	1260.00	616.18	564.52	4335.78	3976.54
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	255.28	232.36	1243.92	1132.62
	Total Punjab	3275.10	1308.38	1216.95	9121.36	8527.55
8 RAJASTHAN						
(a)	Mahi Bajaj Sagar	140.00	0.00	0.00	1.84	1.84
(b)	Rana Pratap Sagar (RPS)	172.00	0.00	0.00	4.57	4.41
(c)	Jawahar Sagar (JS)	99.00	0.65	0.65	11.56	11.56
(d)	Anoopgarh	9.00	0.62	0.61	2.88	2.85
(e)	Small Hydro	14.32	0.12	0.12	1.43	1.42
(f)	Kota TPS	850.00	378.04	339.35	3004.39	2704.36
(g)	RAMGARH GT	3.00	0.00	0.00		
(h)	RAMGARH GT EXT	35.50	22.70	21.71	92.32	90.74
(i)	Suratgarh TPS	750.00	676.82	614.92	3234.66	2933.68
(j)	Wind Farm	4.00	3.53	3.53	31.23	31.23
	Total Rajasthan	2076.82	1082.48	980.88	6384.87	5782.09
9 U.P.						
	<u>HYDRO</u>					
(a)	Rihand	300.00	29.61	29.32	301.51	298.49
(b)	Obra	99.00	12.16	12.04	129.19	127.90
(c)	Matatilla	30.00	9.16	9.07	30.49	30.18
(d)	Khara	72.00	51.02	50.51	273.02	270.29
	Total U.P. (Hydro)	501.00	101.96	100.94	734.21	726.87
	<u>THERMAL</u>					
(e)	Obra	1442.00	456.18	399.16	3388.14	2964.62

(f)	Panki	242.00	96.59	84.51	398.03	348.27
(g)	Harduaganj	375.00	90.19	78.91	431.02	377.14
(h)	Paricha	220.00	77.92	68.18	471.07	412.19
(i)	Anpara	1630.00	913.91	799.67	5906.82	5168.47
	Total U.P. (Thermal)	3909.00	1634.79	1430.44	10595.09	9270.70
	Total U.P.	4410.00	1736.75	1531.38	11329.29	9997.57
10 UTTRANCHAL						
(a)	Khatima	41.40	18.37	18.19	88.41	87.53
(b)	Ramganga	198.00	0.00	0.00	81.41	80.60
(c)	Ganga Canal	32.70	10.31	10.21	70.31	69.61
(d)	Yamuna (I & IV)	114.75	76.97	76.20	404.88	400.83
(e)	Chibro	240.00	124.30	123.06	625.36	619.10
(f)	Khodri	120.00	55.05	54.50	288.52	285.63
(g)	Chilla	144.00	72.83	72.10	385.32	381.46
(h)	Maneri Bhali	90.00	36.19	35.83	228.80	226.51
	Total Uttranchal	980.85	394.02	390.08	2173.00	2151.27
Total Region		27707.25	12683.02	11826.71	80712.46	75310.56

Notes : 1. The ex-bus generations are either actual values or based on the following assumptions in respect of auxiliary consumption

-----Hydro and diesel/gas power stations in open cycle-----1.0%

Nuclear stations-----12.5%

-----Gas power stations in combined cycle-----3.0%

-----Coal fired power stations

IP ----12% Rajghat----11% Faridabad----13.5% Suratgarh----10.0%

Panipat----12.0% RTP----7.5% GNDTP----10.5% Tanda----12.5%

Lehra Mohabbat----10.5% KTPS----10% UP----12.5%

2. The generation on small hydro& Sobla in U.P. and on small diesel gen. Sets in UT Chandigarh, H.P.and J&K has been neglected.

VI. CENTRAL GENERATING STATIONS SHARE vs DRAWAL OF ALL CONSTITUENTS DURING SEPTEMBER 2002

(All figs. in MU)

Sl. No.	State/UT/ System	Singrauli STPS		Rihand STPS		BTPS	W. Grid	VSTPS
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	(WR) Actual
1	Chandigarh	8.33	8.11	5.98	0.80	0.00	0.04	0.00
2	Delhi	105.10	105.13	42.59	45.42	374.21	0.56	0.00
3	Haryana	161.35	161.37	59.13	58.10	0.00	0.51	0.00
4	H.P.	0.00	0.01	12.82	10.97	0.00	0.21	0.00
5	J & K	21.34	21.37	33.23	36.83	0.00	0.71	0.00
6	Punjab	148.87	148.90	63.09	55.82	0.00	0.78	0.00
7	Rajasthan	201.95	201.98	47.42	50.56	0.00	0.62	0.00
8	U.P.	389.43	389.50	66.40	74.08	0.00	1.51	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	5.29	0.00
10	Uttanchal	50.87	50.88	8.92	7.00	0.00	0.18	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	47.61	47.61	14.62	14.62	0.00	0.21	0.00
	TOTAL	1134.85	1134.85	354.20	354.20	374.21	10.61	0.00

Note :- Singrauli sentout excludes 102.39 MU supplied to Western Grid

Sl. No.	State/UT/ System	Dadri NCTPS		Unchahar-I TPS		Unchahar-II TPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	0.00	0.00	0.82	0.16	0.89	0.08
2	Delhi	366.46	316.08	16.76	17.64	33.54	36.61
3	Haryana	16.29	18.18	24.93	25.30	33.99	36.10
4	H.P.	0.00	0.53	4.20	3.75	6.05	4.34
5	J & K	0.00	2.82	11.05	12.17	27.02	29.88
6	Punjab	16.05	18.56	47.68	45.56	39.17	32.29
7	Rajasthan	0.00	2.99	18.20	19.17	36.09	39.50
8	U.P.	17.69	47.89	107.58	109.97	26.91	26.30

9	MP	0.00	5.75	0.00	0.00	0.00	0.00
10	Uttanchal	0.00	3.69	15.04	12.54	2.80	1.37
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	10.74	10.74	9.01	9.01
Total		416.49	416.49	257.00	257.00	215.48	215.48

Sl. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.14	1.46	2.19	0.81	1.89	1.72
2	Delhi	24.10	24.35	40.54	40.49	26.71	26.73
3	Haryana	20.46	20.13	42.40	41.30	13.21	13.23
4	H.P.	7.14	7.23	10.91	10.23	6.59	6.60
5	J & K	17.82	18.13	28.32	28.59	81.87	81.90
6	Punjab	31.24	31.59	62.40	61.12	32.76	32.79
7	Rajasthan	48.60	48.88	42.56	42.52	21.58	21.60
8	U.P.	37.52	38.20	74.01	74.58	48.39	48.44
9	MP	0.00	0.00	0.00	4.36	0.00	0.00
10	Uttanchal	7.05	6.09	8.79	8.23	8.38	8.39
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	8.17	8.17	13.26	13.14	2.44	2.44
TOTAL		204.24	204.24	325.38	325.38	243.84	243.84

Sl. No.	State/UT/ System	Dadri GPS		Bairasiul HPS		Salal HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	0.49	0.28	0.00	0.00	0.92	0.92
2	Delhi	34.11	34.80	8.53	8.53	39.54	39.54
3	Haryana	21.63	21.89	23.68	23.68	51.12	51.12
4	H.P.	9.59	9.50	9.32	9.32	3.37	3.37
5	J & K	24.77	25.65	0.00	0.00	118.83	118.83
6	Punjab	68.71	69.68	36.09	36.09	90.52	90.52
7	Rajasthan	37.58	38.35	0.00	0.00	10.04	10.04

8	U.P.	76.64	78.50	0.00	0.00	23.66	23.66
9	Uttanchal	8.98	7.25	0.00	0.00	4.12	4.12
10	Railways	52.69	49.30	0.00	0.00	0.00	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	3.24	3.24	3.46	3.46
Total		335.19	335.19	80.86	80.86	345.58	345.58

Sl. No.	State/UT/ System	Tanakpur HPS		Chamera HPS		RAPS -A	RAPS -B		Tanda TPS
		Entitlement	Actual	Entitlement	Actual	Actual	Entitlement	Actual	Actual
1	Chandigarh	0.46	0.46	12.01	9.73	0.00	0.00	0.00	0.00
2	Delhi	4.61	4.61	22.81	23.45	0.00	41.76	0.93	0.00
3	Haryana	2.31	2.31	46.12	45.71	0.00	25.37	40.01	0.00
4	H.P.	1.38	1.38	44.19	44.42	0.00	0.00	1.94	0.00
5	J & K	2.77	2.77	11.41	12.21	0.00	23.94	6.06	0.00
6	Punjab	6.46	6.46	29.70	30.59	0.00	43.19	14.10	0.00
7	Rajasthan	4.15	4.15	57.59	58.29	93.00	148.09	209.40	0.00
8	U.P.	7.68	7.68	59.45	59.45	0.00	0.00	9.73	171.25
9	Uttanchal	6.19	6.19	10.42	9.83	0.00	0.00	0.00	0.00
10	Trans. Losses	1.57	1.57	5.93	5.93	0.00	0.00	0.15	0.00
11	Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		37.58	37.58	299.63	299.63	93.00	282.34	282.34	171.25

Note :- Tanakpur sentout excludes 6.869 MU supplied to Nepal

Sl. No.	State/UT/ System	Narora APS		Bhakra HPS		Dehar HPS	Pong	F'bad GPS	ER import
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	Actual	Actual
1	Chandigarh	5.24	0.24	47.82	47.99	0.00	0.00	0.00	8.46
2	Delhi	37.96	11.88	0.00	0.00	0.00	0.00	0.00	51.18
3	Haryana	26.09	45.61	167.22	169.05	119.30	7.97	218.63	41.69
4	H.P.	8.54	6.38	14.19	14.30	8.28	0.00	0.00	8.46
5	J & K	24.81	40.16	0.00	0.00	0.00	0.00	0.00	8.46
6	Punjab	34.31	31.47	230.72	233.25	178.94	11.96	0.00	0.00
7	Rajasthan	35.38	74.04	91.00	91.84	74.56	28.08	0.00	8.46
8	U.P.	82.90	53.91	0.00	0.00	0.00	0.00	0.00	35.65

9	N.F.F.	0.00	0.00	14.40	8.92	0.00	0.00	0.00	0.00
10	Uttranchal	9.78	1.31	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	11.52	11.52	35.41	35.41	15.88	2.78	0.00	0.00
	Total	276.53	276.53	600.76	600.76	396.96	50.79	218.63	162.34

Note : - The above figures are based on the daily energy accounts prepared by NRLDC.

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING SEPTEMBER 2002

(All figs in MU'S)

	Chandigarh	Delhi	Haryana	Himachal	J & K	Punjab	Rajasthan	UP	Uttranchal	MP	Bihar	Others
Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28
Delhi	0.00	0.00	0.00	142.71	0.00	0.00	0.00	0.00	105.60	0.00	0.00	0.00
Haryana	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Himachal	0.00	-142.71	0.00	0.00	0.00	-10.70	0.00	0.00	0.00	0.00	0.00	0.00
J & K	0.00	0.00	0.00	0.00	0.00	-28.50	0.00	0.00	0.00	0.00	0.00	0.00
Punjab	0.00	0.00	0.00	10.70	28.50	0.00	0.00	0.00	67.79	0.00	0.00	6.66
Rajasthan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00	0.00	0.00
Uttranchal	0.00	-105.60	0.00	0.00	0.00	-67.79	0.00	-2.25	0.00	0.00	0.00	0.00
MP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	-5.28	0.00	0.00	0.00	0.00	-6.66	0.00	0.00	0.00	0.00	0.00	0.00
Total	-5.28	-248.31	0.00	153.41	28.50	-113.65	0.00	-2.25	175.64	0.00	0.00	11.94

The above figures do not indicate the following shares in common projects/ bilateral agreements:

i) Harayana's share in IP station of Delhi	7.324MU
ii) Himachal's share in Shanan & RSD power station of Punjab	8.303MU
iii) Himachal's share in Yamuna hydro power complex of UP & Uttranchal	69.730MU
iv) Maruti to Harayana	0.000MU

Note: The above figures are based on the daily energy accounts prepared by NRLDC.

VIII. PROGRESS OF INSTALLATION OF SHUNT CAPACITORS IN NORTHERN REGION **AS ON 30.09.2002**
(ALL FIGS IN MVAR)

CONSTITUENT	REQUIREMENT AT THE END OF 2002-03	CAPACITORS AS ON 30.09.2002	CAPACITORS ADDITION DURING		ADDITIONAL REQUIRED DURING 2002-03
		INSTALLED	2001-02	April 02 -March 03	
Chandigarh	108	92	7	0	16
Delhi	3042	2663	397	30	379
Haryana	2539	2352	416	0	187
H.P.	352	238	57	33	114
J & K	872	147	12	0	725
Punjab	5067	4673	199	43	394
Rajasthan	3021	2567	59	151	454
U.P.	5390	4881	485	190	509
Uttranchal					
BBMB	366	381	0	0	0
TOTAL	20757	17994	1632	447	2778

SOURCE: Minutes of 333rd OCC meeting of NREB held on 10th October, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING SEPTEMBER 2002

Item	Bhakra	Pong	Rihand	R.P.S.	Gandhi Sagar (M.P.)
Full Reservoir Level (m) (FRL) (ft)	514.50 1688.00	433.12 1421.00	268.22 880.00	352.65 1157.00	402.64 1321.00
Min. Draw Down Level (m) (MDDL) (ft)	445.62 1462.00	384.05 1260.00	252.98 830.00	342.90 1125.00	381.00 1250.00
Level on last day of September 2002 (m) (ft)	505.14 1657.29	408.36 1339.78	263.90 865.80	345.45 1133.37	383.26 1257.43
Level on last day of September 2001 (m) (ft)	501.70 1645.99	416.98 1368.06	266.88 875.60	351.88 1154.45	385.46 1264.63
Live Capacity as on September 2002 (mhmt) (ft)	0.55 4.42	0.44 3.56	0.41 3.30	0.00	0.04 0.33
Live Capacity as on last day of September 2001 (mhmt) (maft)	0.52 4.22	0.50 4.06	0.50 4.05	0.14 1.12	0.08 0.63
Energy content as on last day of September 2002 (MU)	2200.00	440.00	695.00	59.00	110.00
Energy content as on last day of September 2001 (MU)	2050.00	490.00	920.00	167.00	190.00
Maximum level (m)	505.32	408.36	263.80	345.65	383.28

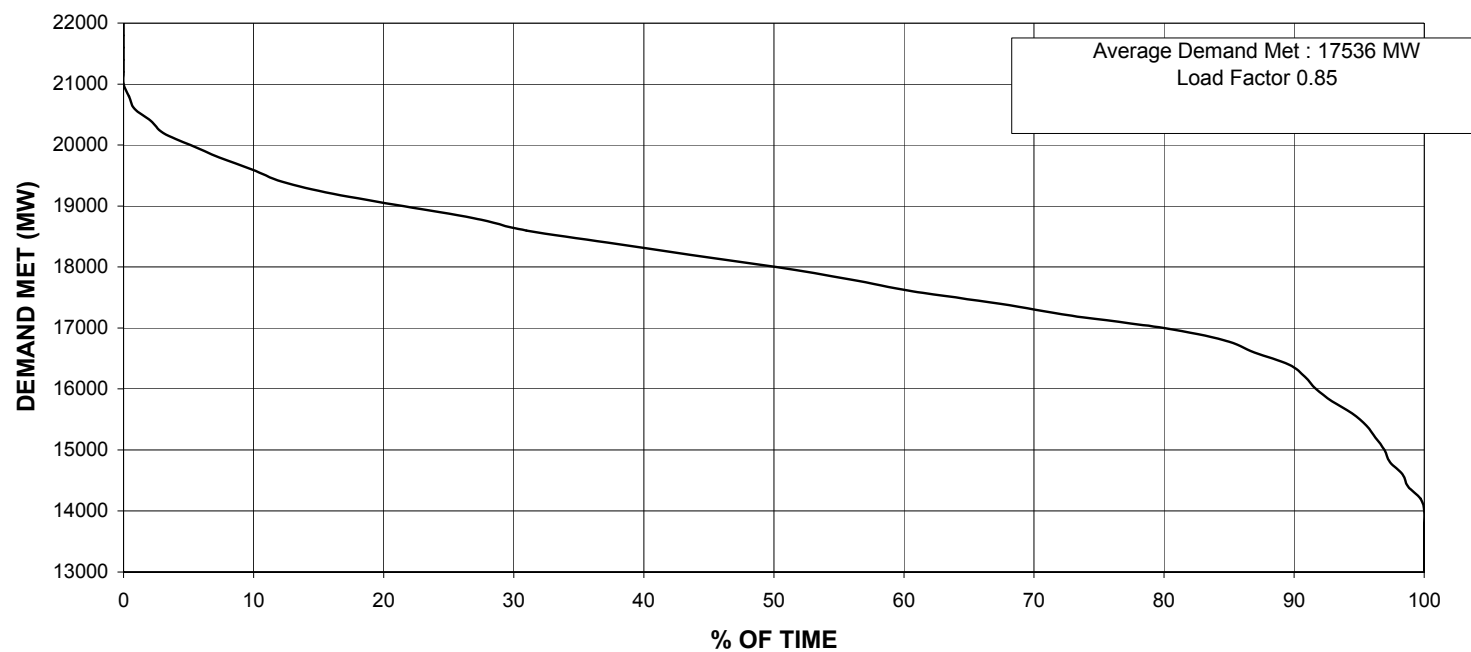
	(ft)	1657.87	1339.78	865.50	1134.02	1257.49
	(date)	23.09.2002	28.09.2002	30.09.2002	05.09.2002	18.09.2002
Minimum level	(m)	500.78	403.78	259.90	345.45	381.34
	(ft)	1642.98	1324.73	852.70	1133.37	1251.10
	(date)	01.09.2002	01.09.2002	01.09.2002	27.09.2002	03.09.2002

Energy content of Bhakra : Total Energy content at Bhakra, Ganguwal and Kotla power stations

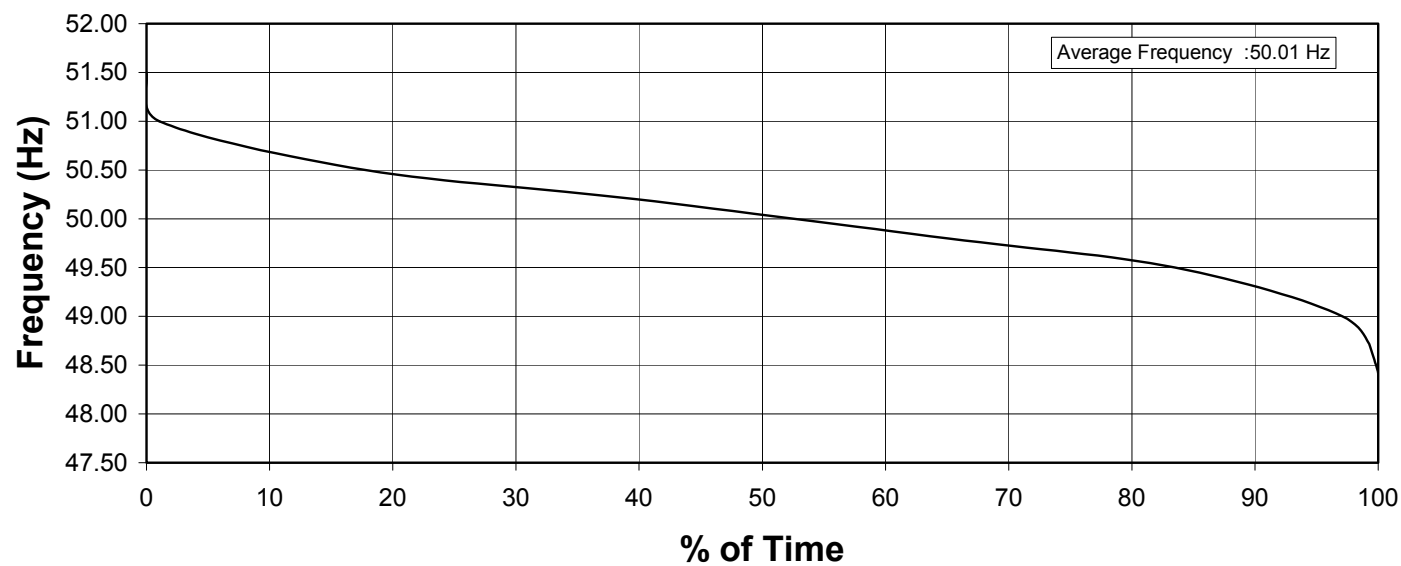
Energy content of Rihand : Total Energy content at Rihand & Obra power stations

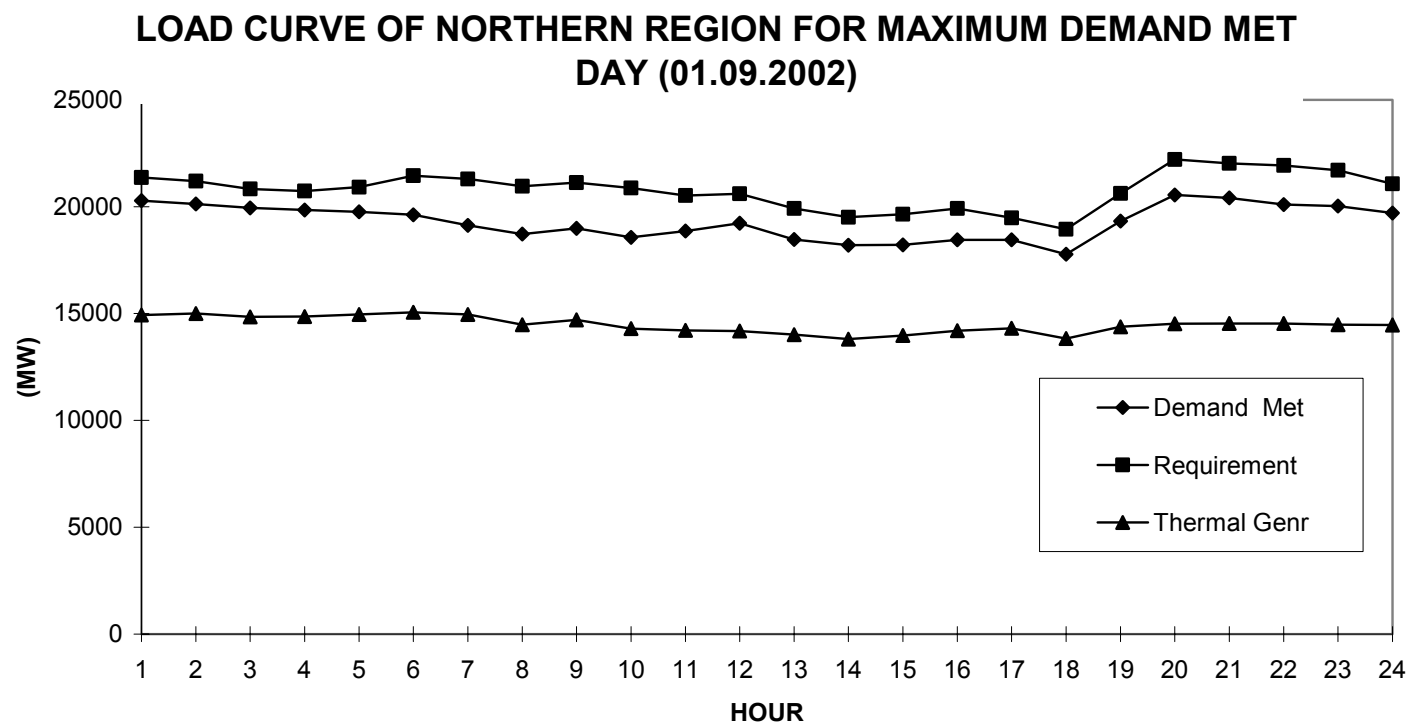
Energy content of RPS : Total Energy content of Rana Pratap Sagar and Jawahar Sagar Power Stations.

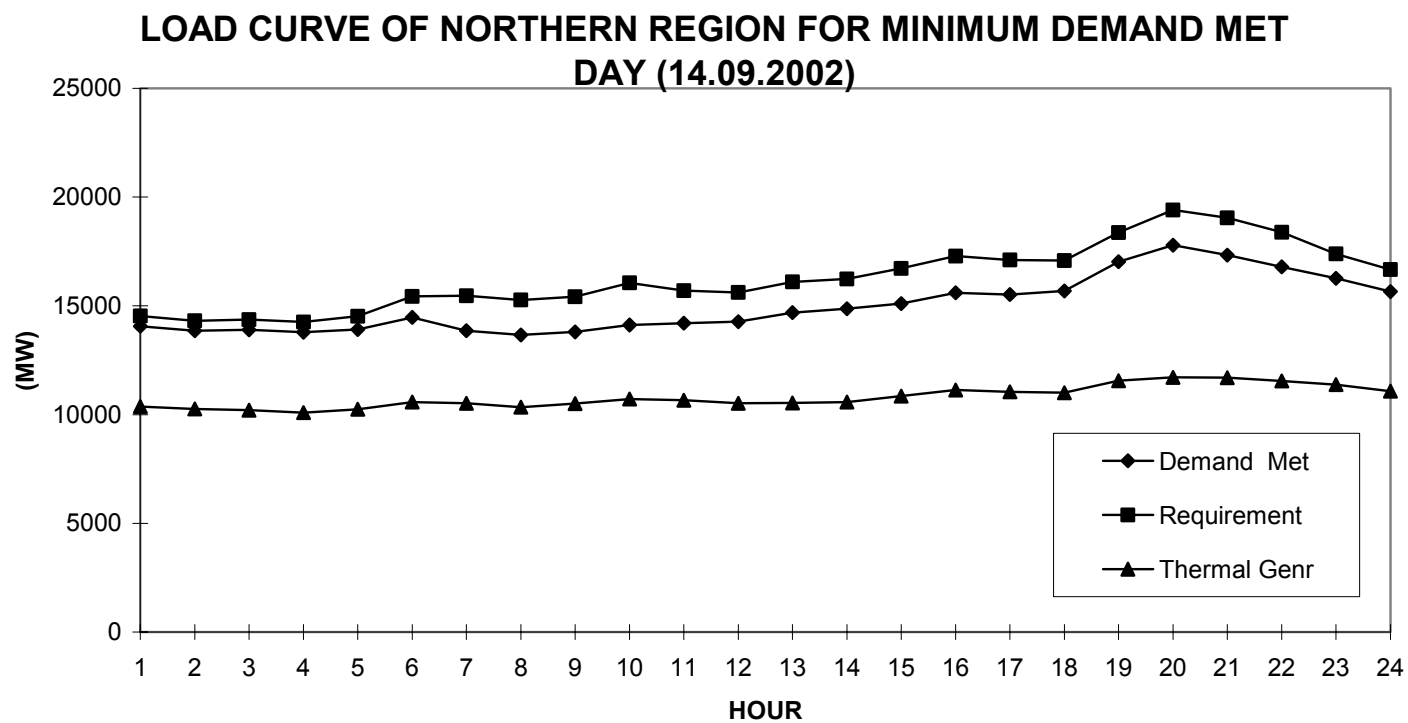
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

LOAD DURATION CURVE OF NORTHERN REGION FOR SEPTEMBER 2002

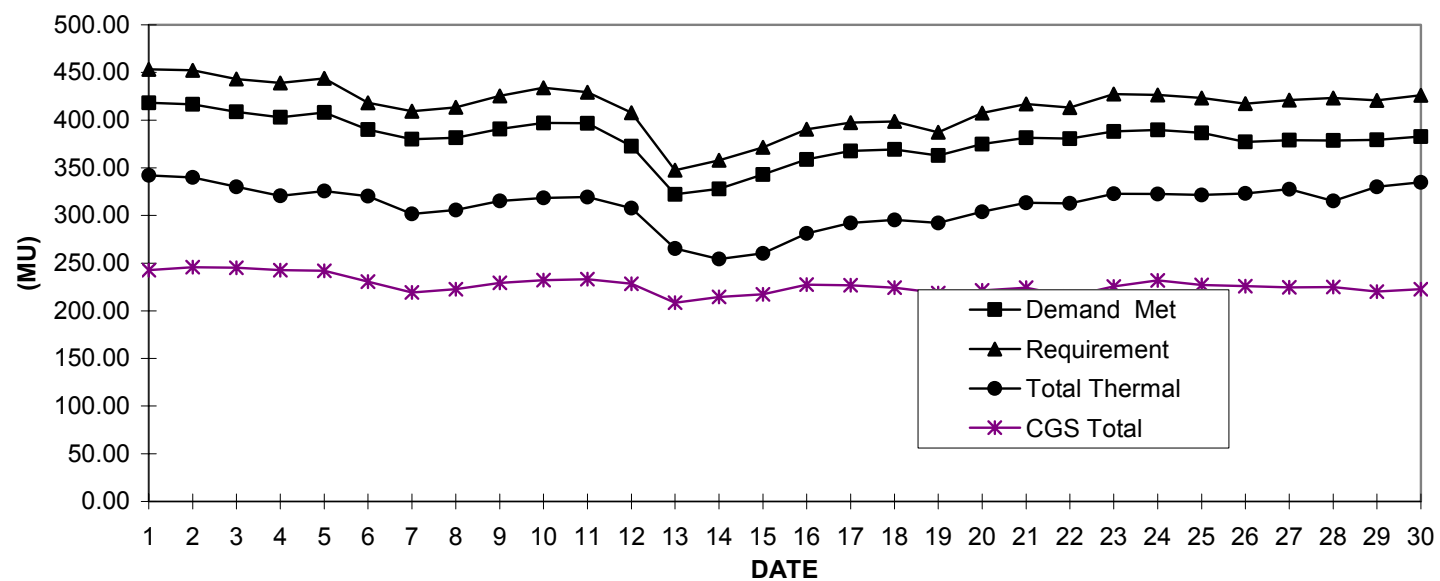
FREQUENCY DURATION CURVE OF NORTHERN REGION FOR SEPTEMBER 2002



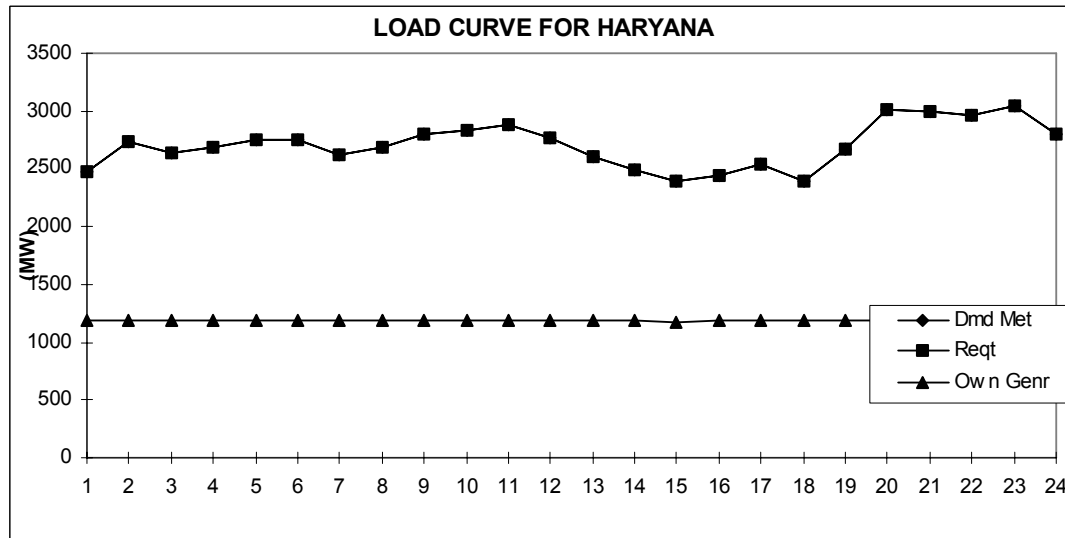
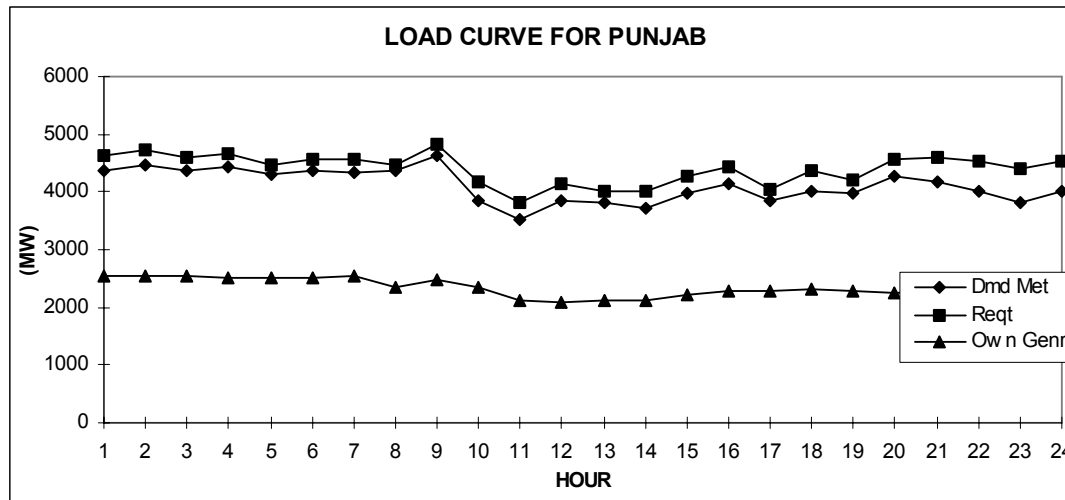


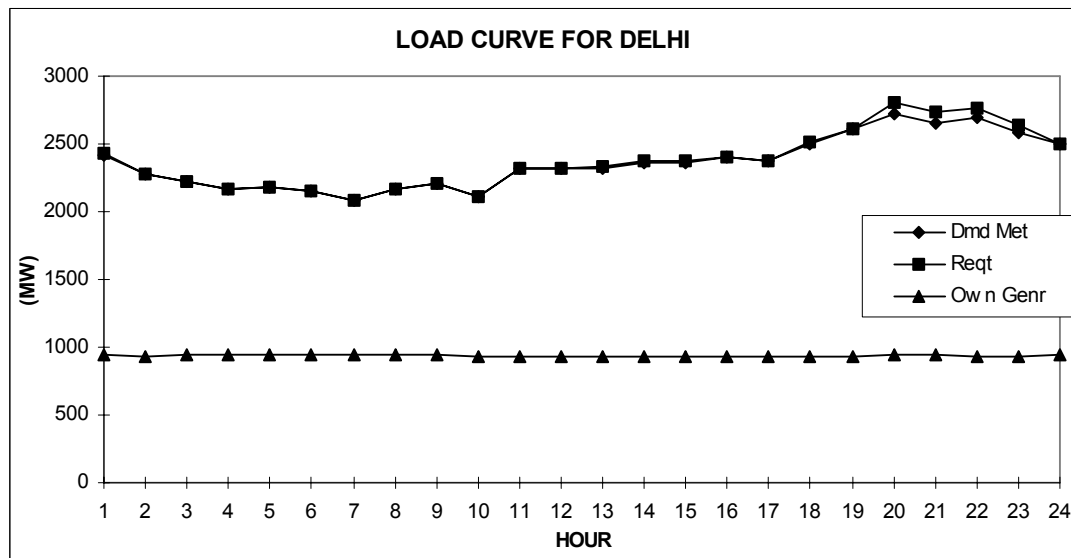
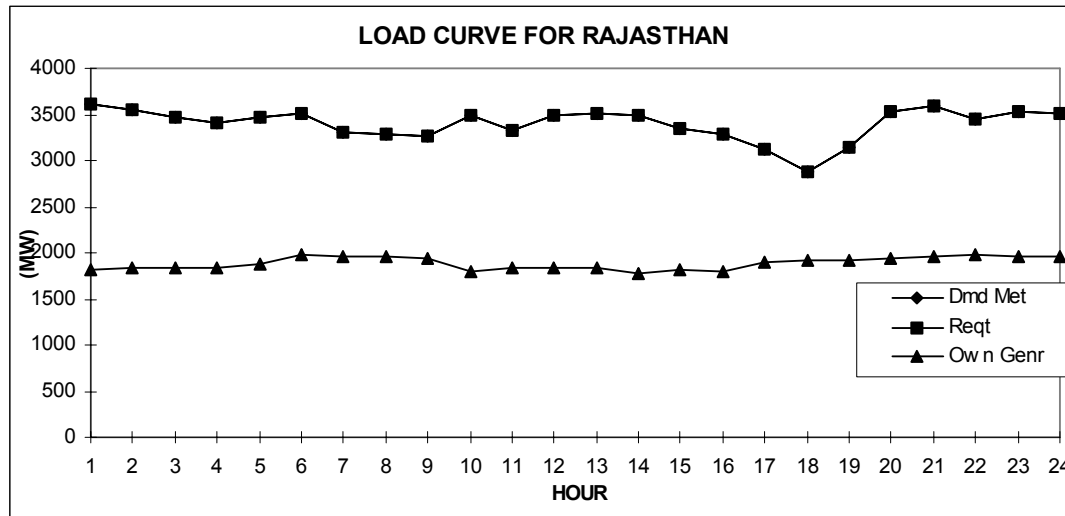


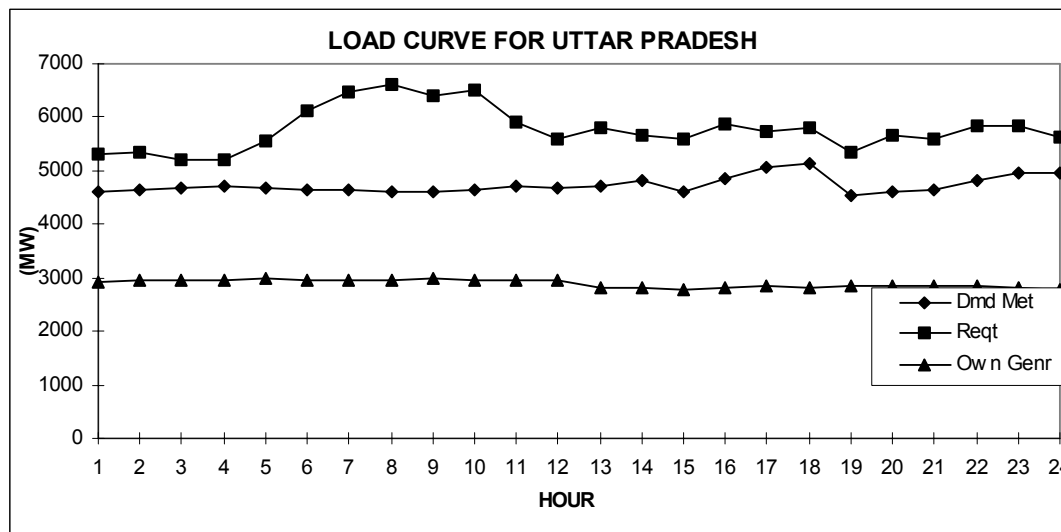
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING SEPTEMBER 2002



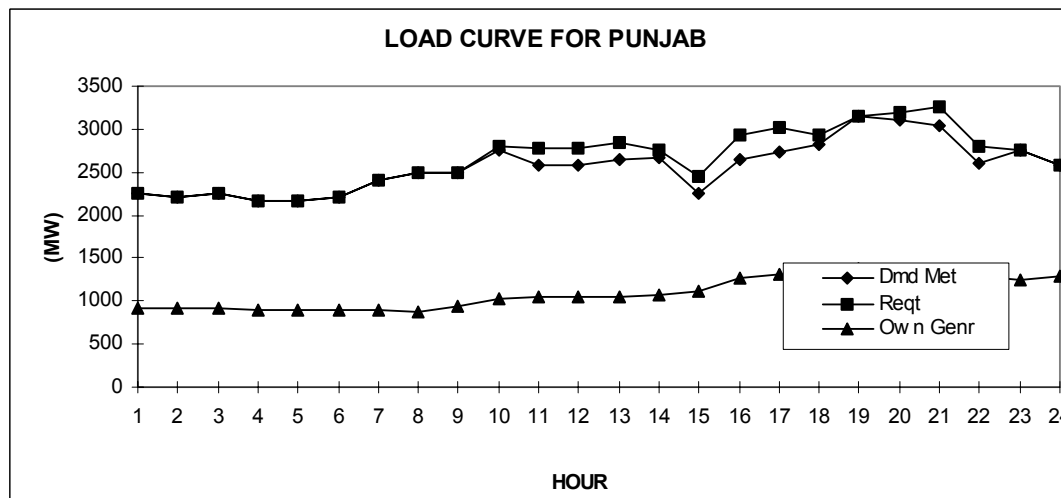
STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(01.09.2002)



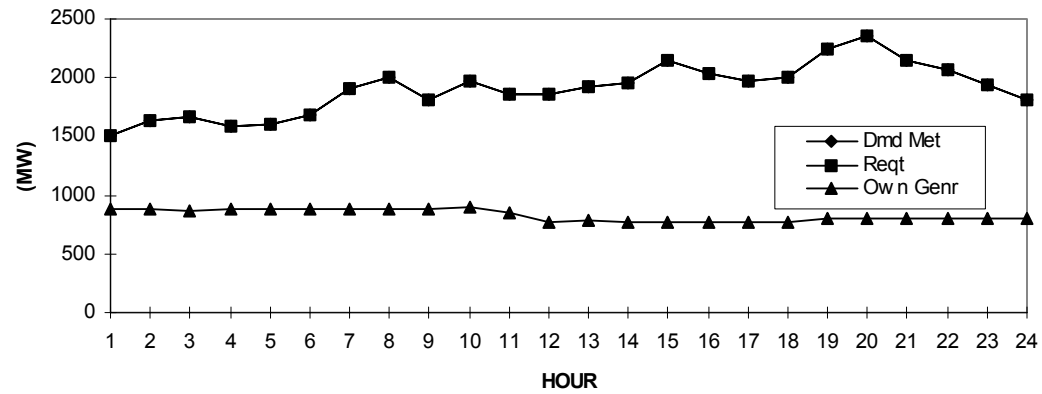




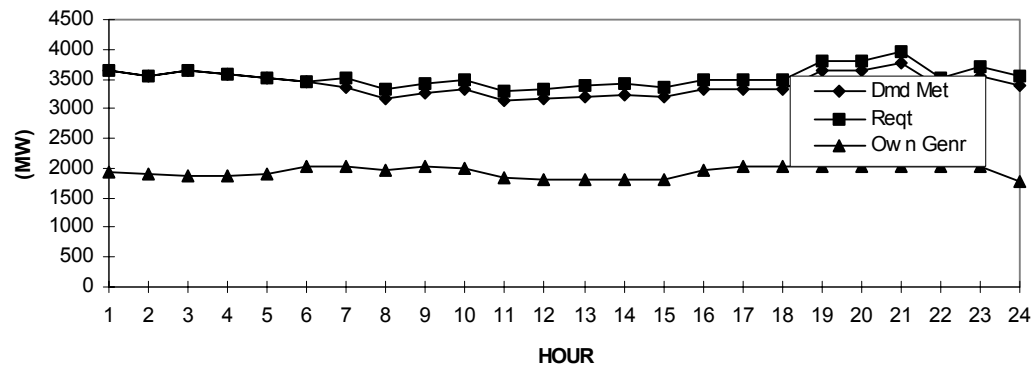
STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(14.09.2002)

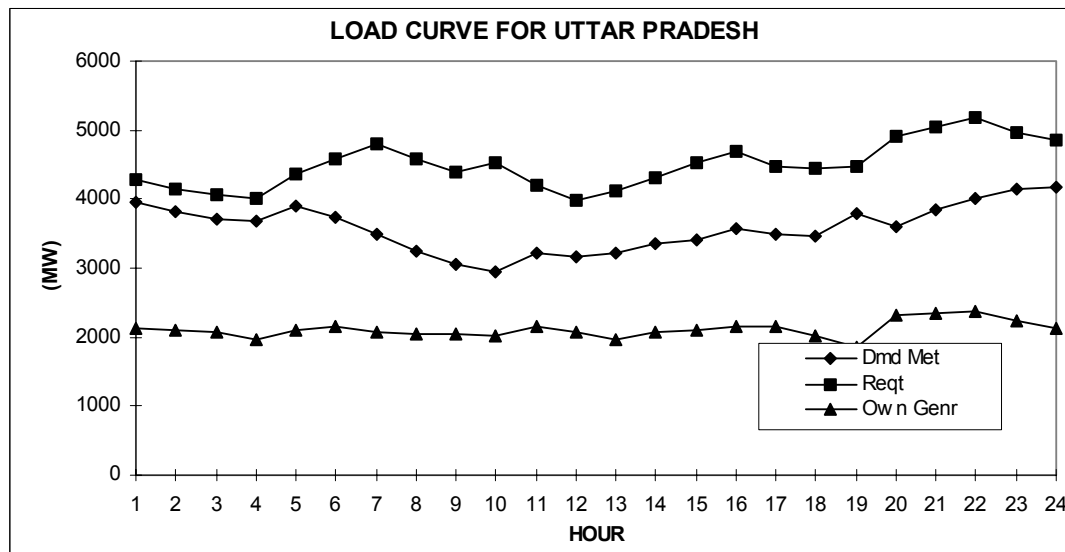
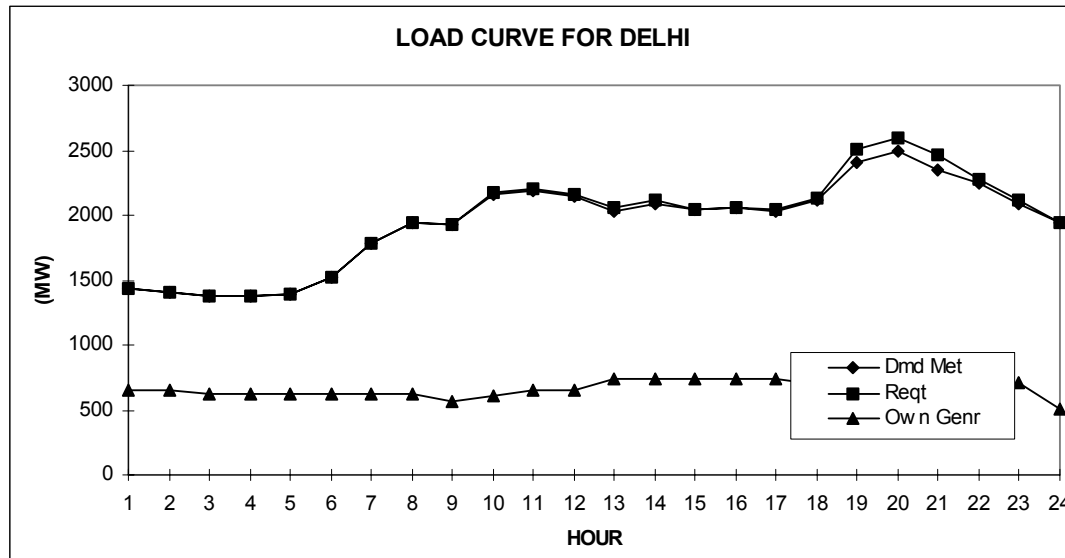


LOAD CURVE FOR HARYANA



LOAD CURVE FOR RAJASTHAN





MINOR GRID INCIDENTS DURING SEPTEMBER 2002

S No.	DATE	TIME	INCIDENT
1	10.09.2002	10.15 hrs	All the running units at Uri HEP tripped due to tripping of 220 kV Kishanpur-Pampore line-II on E/F.220kV Kishanpur-Pampore line-I was under planned shut down. Due to above tripping Valley got isolated and collapsed. Uri generation and valley power supply was normalized by 13.10 hrs.