



GRID REPORT

February 2002

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

A. SUMMARY REPORT:

I 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 February 2002, was 49.93 Hz and frequency remained between 49.0 & 50.5 Hz for 76.25 % of time. The system voltage condition was satisfactory.

There was no transmission constraint during the month except on few occasions when generation backing down had to be done in Uri HEP due to outage of 400kV Uri-Wagoora D/C line or 400/220 kV ICTs at Wagoora.

There was no major grid disturbance in the region during February 2002.

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

NIL

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

(All figs. in MU)

Sl. No.	State/UT/ System	NTPC (Excl. BTPS, Tanda & FGPS) Entitlement	Actual	NHPC Entitlement	Actual	NPC (Excl. RAPS-A) Entitlement	Actual	BBMB Entitlement	Actual	TOTALS Entitlement	Actual
1	Chandigarh	29.17	26.65	3.19	3.19	3.19	1.28	40.05	40.11	75.61	71.23
2	Delhi	712.31	707.65	31.81	31.81	63.99	21.88	0.00	0.00	808.10	761.33
3	Haryana	352.81	356.02	32.94	32.94	25.61	62.92	151.44	152.07	562.80	603.94
4	H.P.	113.23	114.84	15.43	15.42	12.84	11.88	17.70	17.74	159.19	159.88
5	J & K	212.71	221.23	78.41	78.41	101.10	116.93	0.00	0.00	392.23	416.57
6	Punjab	339.66	333.31	55.20	55.20	31.18	11.08	214.61	215.46	640.64	615.06
7	Rajasthan	549.87	559.50	25.96	25.96	211.98	194.16	149.89	150.17	937.69	929.80
8	U.P.	1262.52	1266.68	55.66	55.66	98.51	125.77	0.00	0.00	1416.68	1448.11
9	MP / N.F.F.	9.34	13.10	0.00	0.00	0.00	0.00	13.44	11.58	22.78	24.68
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	106.54	106.48	4.93	4.93	10.74	13.24	24.43	24.43	146.64	149.07
12	Others	43.27	25.97	0.00	0.00	0.00	0.00	0.00	0.00	43.27	25.97
	Total	3731.42	3731.42	303.51	303.51	559.14	559.14	611.56	611.56	5205.63	5205.63

III. INTER REGIONAL EXCHANGES IN MU AND PEAK MW

	Energy (MU)	Peak MW
a. Import over HVDC Back to Back at Vindhyachal	16.08	200
b. M.P. to Rajasthan(Ujjain - Kota)	0.00	0
c. Eastern region to Northern region (Import)	175.14	360
d. Export over HVDC Back to Back at Vindhyachal	17.86	450
e. 220 KV Auraiya -Malanpur	11.93	25
f. Northern region to Bihar (Export)	0.00	0
g. Tanakpur to Mahendranagar(NEPAL) (Export)	4.31	11

IV. FREQUENCY PROFILE

a. Maximum frequency 51.44 Hz at 01:12 hours on 11.02.2002
 Minimum frequency 48.16 Hz at 18:39 hours on 25.02.2002
 Average frequency 49.93 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
%	0.54	5.57	76.25	18.18

c. Frequency Variation Index

Monthly Average 3.49
 Maximum 6.23
 Minimum 1.97

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	2.54	2.54	0.00	0.00
Delhi	46.29	48.05	1.76	3.66
Haryana	43.22	44.57	1.35	3.03
H.P.	9.15	9.15	0.00	0.00
J & K	17.83	19.69	1.86	9.45
Punjab	64.00	66.49	2.49	3.74
Rajasthan	71.07	71.72	0.65	0.91
U.P.	118.82	128.45	9.63	7.50
N.F.F./Rail	1.34	1.34	0.00	0.00
Total	374.26	392.00	17.74	4.53

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	155	155	0	0	0.00	0.00
Delhi	2793	2955	162	265	5.48	8.97
Haryana	2556	2660	104	300	3.91	11.28
H.P. *	508	508	0	0	0.00	0.00
J & K *	962	1081	119	250	11.01	23.13
Punjab	3780	3845	65	250	1.69	6.50
Rajasthan	3574	3587	13	60	0.36	1.67
U.P.	6451	7160	709	978	9.90	13.66
N.F.F./Rail	66	66	0	0	0.00	0.00
Region	19714	21390	1676	1676	7.84	7.84

Diversity Factor = 1.11

* Approximate and Estimated

B. DETAILED REPORT

I. 1. INSTALLED / EFFECTIVE CAPACITY AT THE END OF FEBRUARY 2002

A. UNINSTALLED / EFFECTIVE CAPACITY AT THE END OF FEBRUARY 2002					
-	STATION	INSTALLED CAPACITY (MW)		EFFECTIVE CAPACITY	
1 CENTRAL SECTOR					
A	NTPC				
(a)	Badarpur TPS	3x100+2x210	720.00	3x95+2x210	705.00
(b)	Singrauli STPS	5x200+2x500	2000.00	5x200+2x500	2000.00
(c)	Rihand STPS	2x500	1000.00	2x500	1000.00
(d)	Dadri NCTPS	4x210	840.00	4x210	840.00
(e)	Unchahar TPS	2x210 + 2x210	840.00	2x210 + 2x210	840.00
(f)	Tanda TPS	4x110	440.00	4x110	440.00
(g)	Anta GPS	3x88.71+1x153.20	419.33	3x88.71+1x153.20	419.33
(h)	Auraiya GPS	4x111.19+2x109.30	663.36	4x111.19+2x109.30	663.36

(i)	Dadri GPS	4x130.19+2x154.51	829.78	4x130.19+2x154.51	829.78
(j)	Faridabad GPS	2x137.75 +1x156.07	431.57	2x137.75 +1x156.07	431.57
	Sub-Total		8184.04		8169.04
B	NHPC				
(a)	Bairasiul	3x60	180.00	3x60	180.00
(b)	Salal Stage - I	3x115	345.00	3x115	345.00
(c)	Salal Stage - II	3x115	345.00	3x115	345.00
(d)	Tanakpur HPS	3x40	120.00	3x31.4	94.20
(e)	Chamera HPS	3x180	540.00	3x180	540.00
(f)	URI	4x120	480.00	4x120	480.00
	Sub-Total		2010.00		1984.20
C.	NPC				
(a)	RAPS -A	2x220	440.00	1x100+1x200	300.00
(b)	RAPS -B	2x220	440.00	2x220	440.00
(c)	NAPS	2x235	470.00	2x220	440.00
	Sub-Total		1350.00		1180.00
Total Central Sector (A + B + C)			11544.04		11333.24
2	BBMB				
(a)	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

(b)	Dehar	6x165	990.00	6x165	990.00
(c)	Pong	4x60 + 2x66	372.00	4x60 + 2x66	372.00
	Total BBMB		2852.15		2852.15
3 CHANDIGARH					
(a)	Diesel Gen Sets		2.00		1.40
4 DELHI					
	THERMAL				
(a)	Indra Prastha	3x62.5+1x60	247.50	3x62.5+1x60	247.50
(b)	Rajghat	1x15+2x67.5	150.00	1x14+2x67.5	149.00
(c)	Gas Turbines	6x30+3x34	282.00	6x30+3x34	282.00
	Total DELHI		679.50		678.50
5 HARYANA					
	HYDRO				
(a)	Western Yamuna Canal (WYC)	6x8	48.00	6x8	48.00
	Total Hydro		48.00		48.00
	THERMAL				
(b)	Faridabad (New)	3x60	180.00	3x55	165.00
(c)	Panipat	4x110+2x210	860.00	4x110+2x210	860.00
	Total Thermal		1040.00		1025.00
(d)	Magnum Diesel (IPP)	4x6.3	25.20	4x6.3	25.20
	Total Haryana		1113.20		1098.20
6 HIMACHAL PRADESH					
	HYDRO				
(a)	Giri	2x30.00	60.00	2x30.00	60.00
(b)	Bassi	4x15.00	60.00	4x15.00	60.00

(c)	Binwa	2x 3.00	6.00	2x 3.00	6.00
(d)	Rongtong	4x 0.50	2.00	4x 0.50	2.00
(e)	Andhra	3x 5.65	16.95	3x 5.65	16.95
(f)	Micro Hydel+Killar+Thirot		9.22		8.52
(g)	Nogli	2x 0.25+4x0.50	2.50	2x 0.25+4x0.50	2.50
(h)	Bhabha (H)	3x40.00	120.00	3x40.00	120.00
(i)	Baner (H)	3x 4.00	12.00	3x 4.00	12.00
(j)	Gaj (H)	3x 3.50	10.50	3x 3.50	10.50
(k)	Sal -2	1x 2	2.00	1x 2	2.00
(l)	Gumma	.	3.00	3	3.00
(m)	Ghanvi	2x11.25	22.50	2x11.25	22.50
(n)	Diesel Gen. Sets		0.13		0.13
(o)	Malana(IPP)	2x43	86.00	2x43	86.00
	Total HP		412.80		412.10
7 J & K					
	HYDRO				
(a)	Lower Jhelum	3x35.0	105.00	3x35.0	105.00
(b)	Upper Sindh	2x11.30+1x35.0	57.60	2x11.30+1x35.0	57.60
(c)	Ganderbal	2x3+2x4.5	15.00	2x3+2x4.5	15.00
(d)	Mohra	2x4.5	9.00	2x4.5	9.00
(e)	Chenani	5x4.66 +2X1.0	25.30	5x4.66 +2X1.0	25.30
(f)	Stakna	2x2.0 +3x1.25 +2.0	9.75	2x2.0 +3x1.25 +2.0	9.75
(g)	Small Hydel		3.54		3.54
	Total Hydro		225.19		225.19
J & K (Contd.)					
	GAS TURBINES				
(h)	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

(l)	Diesel Gen. Sets		8.94		7.18
	Total J & K		409.13		407.37
8 PUNJAB					
	HYDRO				
(a)	Jogindernagar/ Shanan	4x15+1x50	110.00	4x15+1x50	110.00
(b)	Upper Behari Doab Canal (UBDC)	3x15+3x15	90.00	3x15+3x15	90.00
(c)	Mukerian	6x15+6x19.5	207.00	6x15+6x19.5	207.00
(d)	Anandpur Sahib (APS)	4x33.5	134.00	4x33.5	134.00
(e)	Ranjit Sagar HPS	4x150	600.00	4x150	600.00
(f)	Small Hydel		4.10		4.10
	Total Hydro		1145.10		1145.10
	THERMAL				
(g)	Guru Nanak Dev TPS (Bhatinda)	4x110	440.00	4x110	440.00
(h)	Guru Gobind Singh TPS (Ropar)	6x210	1260.00	6x210	1260.00
(i)	Lehra Mohabbat TPS	2x210	420.00	2x210	420.00
(j)	Jhalkeri Rice Straw Fired	1x10	10.00	1x10	10.00
	Total Thermal		2130.00		2130.00
	Total Punjab		3275.10		3275.10
9 RAJASTHAN					
	HYDRO				
(a)	Mahi Bajaj Sagar	2x25+2x45	140.00	2x25+2x45	140.00
(b)	Rana Pratap Sagar (RPS)	4x43	172.00	4x43	172.00
(c)	Jawahar Sagar (JS)	3x33	99.00	3x33	99.00
(d)	Anoopgarh	6x1.5	9.00	6x1.5	9.00
(e)	Small Hydro		14.32		14.32

	Total Hydro		434.32		434.32
	THERMAL				
(f)	Kota TPS	2x110+3x210	850.00	2x110+3x210	850.00
(g)	Suratgarh TPS	3x250	750.00	3x250	750.00
(g)	Ramgarh GT	1x3	3.00	1x3	3.00
(i)	Ramgarh GT EXT.	1x35.5	35.50	1x35.5	35.50
	Total Thermal		1638.50		1638.50
(J)	Wind farm	2+2	4.00	2+2	4.00
	Total Rajasthan		2076.82		2076.82
10 UP					
	HYDRO				
(a)	Rihand	6x50.0	300.00	6x50.0	300.00
(b)	Obra	3x33.0	99.00	3x33.0	99.00
(c)	Matatilla	3x10.0	30.00	3x10.0	30.00
(d)	Khatima	3x13.8	41.40	3x13.8	41.40
(e)	Ramganga	3x66.0	198.00	3x66.0	198.00
(f)	Ganga Canal				
	Bhola	4x.375+2x.6+		4x.375+2x.6+	
	Salara	2x1.5+		2x1.5+	
	Chitwa	2x1.5+		2x1.5+	
	Nirgazni	2x2.5+		2x2.5+	
	Mohamedpur	3x3.1+		3x3.1+	
	Pathri	3x6.8	43.40	3x6.8	43.40
(g)	Yamuna (I & IV)				
	- Dhalipur	3x17.00+		3x17.00+	
	- Dhakrani	3x11.25+		3x11.25+	
	- Kulhal	3x10.00	114.75	3x10.00	114.75
(h)	Chibro	4x60.0	240.00	4x60.0	240.00
(i)	Khodri	4x30.0	120.00	4x30.0	120.00

(j)	Chilla	4x36.0	144.00	4x36.0	144.00
(k)	Maneri Bhali	3x30.0	90.00	3x30.0	90.00
(l)	Khara	3x24.0	72.00	3x24.0	72.00
(m)	Sobla & small hydro	6 +12.2	18.20	6 +12.2	18.20
	Total Hydro		1510.75		1510.75
	THERMAL				
(m)	Obra	5x50	250.00	4x40	160.00
(n)	Obra Extn. - I	3x100	300.00	3x94	282.00
(o)	Obra Extn. - II	5x200	1000.00	5x200	1000.00
(p)	Panki	1x32	32.00	1x32	32.00
(q)	Panki Extn.	2x110	220.00	2x105	210.00
(r)	Harduaganj - A	3x30	90.00		0.00
(s)	Harduaganj - B	2x50+2x60	220.00	1x40+2x55	150.00
(t)	Harduaganj - C	2x60+1x110	230.00	2x60+1x105	225.00
(u)	Paricha	2x110	220.00	2x110	220.00
(v)	Anpara - A	3x210	630.00	3x210	630.00
(w)	Anpara - B	2x500	1000.00	2x500	1000.00
	Total Thermal		4192.00		3909.00
	Total UP		5702.75		5419.75
Total Region (1 to 9)			28067.49		27554.63

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

Agency / Source	Hydro	Thermal	Gas/Diesel/Wind	Nuclear	Total	% of Total
NTPC	---	5825.00	2344.04	---	8169.04	29.65%
NHPC	1984.20	---	---	---	1984.20	7.20%
NPC	---	---	---	1180.00	1180.00	4.28%
BBMB	2852.15	---	---	---	2852.15	10.35%
CHANDIGARH	---	---	1.40	---	1.40	0.01%
DELHI	---	396.50	282.00	---	678.50	2.46%
HARYANA	48.00	1025.00	25.20	---	1098.20	3.99%
HIMACHAL	411.97	---	0.13	---	412.10	1.50%
J&K	225.19	---	182.18	---	407.37	1.48%
PUNJAB	1145.10	2130.00	---	---	3275.10	11.89%
RAJASTHAN	434.32	1600.00	42.50	---	2076.82	7.54%
UP	1510.75	3909.00	---	---	5419.75	19.67%
Total	8611.68	14885.50	2877.45	1180.00	27554.63	100.00%
% of TOTAL	31.25%	54.02%	10.44%	4.28%	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.	$5 \times 23 = 115$
Rana Pratap Sagar	Rajasthan	$4 \times 43 = 172$
Jawahar Sagar	Rajasthan	$3 \times 33 = \underline{99}$
	Total	386

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

SATPURA

PROJECTS	LOCATED	INSTALLED CAPACITY (MW)
Satpura TPS	M.P.	$5 \times 62.5 + 200.0 + 3 \times 210.0 = 1142.50$

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 27601.63 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 28.02.2002

Agency / Source	Run-of -the -river	Reservoir	Total
NHPC	1444.20	540.00	1984.20
BBMB	1155.15	1697.00	2852.15
DELHI	0.00	0.00	0.00
HARYANA	48.00	0.00	48.00

HP	411.97	0.00	411.97
J&K	225.19	0.00	225.19
PUNJAB	545.10	600.00	1145.10
RAJASTHAN	262.32	172.00	434.32
UP	1012.75	498.00	1510.75
Total	5104.68	3507.00	8611.68

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	
	February 2002	February 2001	MW	%
Chandigarh	1.40	1.40	0.00	0.00
Delhi	678.50	678.50	0.00	0.00
Haryana	1098.20	888.20	210.00	23.64
H.P.	412.10	303.60	108.50	35.74
J & K	407.37	407.37	0.00	0.00
Punjab	3275.10	2975.10	300.00	10.08
Rajasthan	2076.82	1826.82	250.00	13.68
U.P.	5419.75	5419.75	0.00	0.00
NTPC	8169.04	8169.04	0.00	0.00
NHPC	1984.20	1984.20	0.00	0.00
NPC	1180.00	960.00	220.00	22.92
BBMB	2852.15	2821.15	31.00	1.10
Total	27554.63	26435.13	1119.50	4.23

2. Power Supply Position

Power supply position

State/UT	February 2002			February 2001			Percentage increase over 2000	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	2.54	2.54	0.00	2.43	2.43	0.00	4.53	4.53
Delhi	46.29	48.05	3.66	41.95	44.33	5.37	10.35	8.39
Haryana	43.22	44.57	3.03	41.40	45.12	8.24	4.40	-1.22
HP	9.15	9.15	0.00	8.30	9.01	7.88	10.24	1.55
J&K	17.83	19.69	9.45	12.72	18.49	31.21	40.17	6.49
Punjab	64.00	66.49	3.74	62.31	66.34	6.07	2.71	0.23
Rajasthan	71.07	71.72	0.91	68.06	71.98	5.45	4.42	-0.36
UP	118.82	128.45	7.50	110.63	132.90	16.76	7.40	-3.35
NFF/Rail	1.34	1.34	0.00	0.79	0.79	0.00	69.62	69.62
REGION	374.26	392.00	4.53	348.59	391.39	10.94	7.36	0.16
Frequency Regime								
	February 2002			February 2001				
Average (Hz)	49.93			49.54				
Above 50.5 Hz (%)	18.18			6.43				
Above 50.2 Hz (%)	38.58			15.04				
Below 49.5 Hz (%)	22.49			48.97				
Below 49.0 Hz (%)	5.57			17.70				
Below 48.5 Hz (%)	0.64			4.30				

3. Peak Power Supply Position

State/UT	February 2002			February 2001			Percentage increase over 2000	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	155	155	0.00	135	135	0.00	14.81	14.81
Delhi	2793	2955	5.48	2491	2911	14.43	12.12	1.51
Haryana	2556	2660	3.91	2359	2509	5.98	8.35	6.02
HP	508	508	0.00	523	535	2.24	-2.87	-5.05
J&K	962	1081	11.01	723	1112	34.98	33.06	-2.79
Punjab	3780	3845	1.69	3394	3594	5.56	11.37	6.98
Rajasthan	3574	3587	0.36	3663	3663	0.00	-2.43	-2.07

UP	6451	7160	9.90	5697	6967	18.23	13.24	2.77
NFF/Rail	66	66	0.00	42	42	0.00	57.14	57.14
REGION	19714	21390	7.84	17482	20202	13.46	12.77	5.88

III. FREQUENCY PROFILE DURING FEBRUARY 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	49.63	50.84	2.32	48.48	9.53	0.59	4.86
2	49.48	50.48	18.02	48.20	7.19	0.44	6.23
3	49.63	50.76	23.59	48.24	8.33	0.52	4.10
4	49.80	50.96	2.27	48.24	7.13	0.61	4.09
5	49.71	50.84	3.35	48.56	6.09	0.53	3.68
6	49.76	51.16	17.56	48.24	11.22	0.64	4.71
7	49.98	50.96	5.01	48.24	7.07	0.47	2.07
8	49.64	51.16	4.05	48.44	18.27	0.45	3.20
9	49.91	51.06	13.28	48.64	21.27	0.51	2.73
10	50.03	51.16	14.20	48.36	9.10	0.55	3.04
11	50.57	51.44	1.12	48.80	18.52	0.48	5.56
12	50.19	51.44	2.23	48.24	6.41	0.69	5.12
13	50.14	51.16	0.49	48.24	6.52	0.54	3.07
14	50.01	51.08	2.21	48.36	6.48	0.54	2.95
15	49.88	51.24	17.02	48.24	18.49	0.54	3.04
16	49.93	51.00	5.03	48.64	6.13	0.53	2.84
17	50.03	51.20	2.26	48.28	18.41	0.48	2.30
18	50.17	51.24	5.02	48.20	18.37	0.51	2.92
19	49.99	51.16	17.07	48.44	5.58	0.50	2.54
20	49.63	50.80	3.39	48.24	18.51	0.53	4.12
21	49.54	50.84	3.07	48.16	18.38	0.52	4.84
22	49.75	51.20	14.09	48.32	6.13	0.55	3.60
23	50.13	51.20	13.55	48.56	9.24	0.55	3.24

24	50.05	51.24	17.10	48.18	9.13	0.46	2.14
25	50.12	51.32	3.36	48.16	18.39	0.42	3.85
26	50.06	51.28	18.01	48.32	6.19	0.53	2.89
27	50.02	51.12	17.03	48.64	7.30	0.46	2.10
28	50.14	51.16	18.03	49.00	1.19	0.42	1.97
Monthly	49.93	51.44		48.16		0.59	3.49

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 FEBRUARY 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	410	384	412	368	414	387	410	390	213	192
2	412	388	410	376	420	389	415	390	210	196
3	410	384	402	368	418	387	412	390	214	198
4	410	384	404	372	416	387	413	384	215	197
5	408	382	410	378	416	383	414	384	213	201
6	410	380	416	376	416	383	413	384	215	191
7	410	386	412	386	418	387	418	389	214	197
8	410	395	410	386	420	392	410	394	213	194
9	411	389	412	384	414	389	411	386	212	197
10	411	384	410	380	416	387	410	386	214	197
11	420	391	420	384	425	389	415	379	218	194
12	422	382	426	380	427	394	420	381	218	192
13	413	380	420	376	422	383	416	383	216	191
14	411	380	418	376	420	385	418	386	215	192
15	410	382	412	376	414	385	414	381	213	190
16	410	384	416	382	420	387	416	378	214	197
17	415	386	422	386	422	392	418	389	216	200
18	415	389	420	384	422	392	413	383	216	196
19	413	384	418	378	422	387	411	383	214	192
20	411	380	414	374	418	387	413	376	214	195
21	408	386	412	380	416	383	413	380	212	194

22	410	382	412	380	420	387	416	386	212	195
23	411	388	422	380	422	392	423	384	218	196
24	417	391	426	392	429	398	413	390	220	204
25	422	388	432	386	422	396	418	392	219	199
26	410	382	418	386	420	392	412	386	216	197
27	413	386	408	376	422	392	416	384	215	197
28	411	386	406	374	422	389	413	387	216	198
Month	422	380	432	368	429	383	423	376	220	190

V. PERFORMANCE OF GENERATING STATIONS DURING FEBRUARY 2002

S.No.	Power Station	Effective Capacity MW	Energy Generated		Cumulative from 01.04.2001	
			Gross MU	Ex Bus MU	Gross MU	Ex-bus MU
1	CENTRAL SECTOR					
A	NTPC (Thermal)					
(a)	Badarpur TPS	705.00	356.04	328.30	4914.55	4474.25
(b)	Singrauli STPS	2000.00	1299.83	1210.19	14114.30	13176.05
(c)	Rihand STPS	1000.00	642.50	593.70	6960.81	6430.46
(d)	Dadri NCTPS	840.00	513.59	474.09	6132.73	5641.85
(e)	Unchahar-I TPS	420.00	272.09	250.81	2927.73	2669.67
(f)	Unchahar-II TPS	420.00	261.59	241.21	3086.82	2811.02
(g)	Tanda TPS	440.00	157.44	137.80	1854.09	1622.40
(h)	Anta GPS	419.33	203.66	198.91	2788.42	2732.60
(i)	Auraiya GPS	663.36	261.26	256.18	4306.89	4243.68
(j)	Dadri GPS	829.78	342.73	334.58	5239.68	5105.20
(k)	Faridabad GPS	431.57	205.32	200.09	2635.06	2568.00
	Total NTPC	8169.04	4516.03	4225.86	54961.07	51475.18
B	NHPC					
(a)	Bairasiul	180.00	20.78	20.26	527.20	508.97
(b)	Salal	690.00	75.45	74.86	2768.88	2744.92
(c)	Tanakpur HPS	94.20	16.27	16.16	394.36	389.87
(d)	Chamera HPS	540.00	50.79	50.71	1828.47	1822.67

(e)	Uri HPS	480.00	148.55	146.62	1795.55	1773.21
	Total NHPC	1984.20	311.84	308.61	7314.47	7239.64
C	NPC					
(a)	RAPS -A	300.00	203.80	187.87	1411.83	1293.20
(b)	RAPS -B	440.00	308.25	280.43	2714.26	2458.62
(c)	NAPS	440.00	305.20	278.71	3001.08	2708.25
	Total NPC	1180.00	817.25	747.01	7127.17	6460.07
2	JOINTLY OWNED (BBMB)					
(a)	Bhakra Complex	1465.15	390.25	388.24	5025.15	5001.04
(b)	Dehar	990.00	94.80	94.80	2737.49	2731.55
(c)	Pong	366.00	128.52	128.52	1263.68	1259.72
	Total BBMB	2821.15	613.57	611.56	9026.32	8992.31
3	DELHI					
(a)	Indra Prastha	247.50	52.88	46.54	758.58	667.55
(b)	Rajghat	149.00	87.68	78.04	622.37	553.91
(c)	Gas Turbines	282.00	92.27	89.50	1087.02	1054.40
	Total DELHI	678.50	232.83	214.08	2467.96	2275.86
4	HARYANA					
(a)	WYC	48.00	14.83	14.68	204.84	202.79
(b)	Faridabad (New)	165.00	74.89	64.78	719.83	622.65
(c)	Panipat	860.00	344.66	303.30	3841.41	3380.44
(d)	Magnum Diesel(IPP)	25.20	5.36	5.31	95.11	94.26
	Total Haryana	1098.20	439.74	388.07	4861.19	4300.14
5	HP					
(a)	Giri	60.00	11.58	11.46	178.81	177.91
(b)	Bassi	60.00	7.46	7.38	239.61	238.72
(c)	Binwa	6.00	1.38	1.36	17.14	17.03
(d)	Rongtong	15.02	1.48	1.47	22.87	22.60
	(+Nogli+Micro+Thirot+Sal-2)					
(e)	Andhra	16.95	1.59	1.57	54.89	54.63
(f)	Bhabha (H)	120.00	13.37	13.24	447.82	446.69

(g)	Baner (H)	12.00	1.34	1.32	28.09	27.98
(h)	Gaj (H)	10.50	1.28	1.26	36.02	35.83
(i)	Gumma	3.00	0.40	0.40	7.51	7.44
(j)	Ghanvi	22.50	2.47	2.44	35.30	35.14
(k)	Malana (IPP)	86.00	4.86	4.86	148.84	148.84
	Total HP	411.97	47.19	46.77	1216.89	1212.80
6	J & K					
(a)	Lower Jhelum	105.00	21.64	21.43	289.96	287.06
(b)	Upper Sindh	57.60	5.32	5.26	153.42	151.89
(c)	Ganderbal	15.00	2.09	2.07	26.39	26.13
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	3.33	3.30	58.51	57.92
(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	400.19	32.38	32.06	528.27	522.99
7	PUNJAB					
(a)	Jogindernagar/ Shanan	110.00	12.74	12.72	438.03	436.44
(b)	UBDC	90.00	0.00	0.00	320.49	318.75
(c)	Mukerian	207.00	131.52	131.18	1062.44	1058.66
(d)	Anandpur Sahib (APS)	134.00	28.38	28.31	461.84	460.06
(e)	Ranjit Sagar HPS	600.00	30.43	30.29	1331.61	1328.40
(f)	Small Hydel	4.10	0.73	0.73	8.61	8.54
(g)	GNDTPS (Bhatinda)	440.00	238.53	217.62	2522.38	2281.63
(h)	GGSTPS (Ropar)	1260.00	723.78	665.87	8162.13	7497.82
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	193.23	174.59	2919.04	2650.60
	Total Punjab	3275.10	1359.34	1261.31	17226.57	16040.89
8	RAJASTHAN					
(a)	Mahi Bajaj Sagar	140.00	5.34	5.34	65.83	65.83
(b)	Rana Pratap Sagar (RPS)	172.00	4.42	4.39	259.38	258.96

(c)	Jawahar Sagar (JS)	99.00	3.23	3.22	198.43	197.88
(d)	Anoopgarh	9.00	0.57	0.57	2.85	2.85
(e)	Small Hydro	14.32	0.50	0.50	8.50	8.50
(f)	Kota TPS	850.00	501.44	452.77	5776.27	5220.47
(g)	RAMGARH GT	3.00				
(h)	RAMGARH GT EXT	35.50	0.00	0.00	119.09	119.09
(I)	Suratgarh TPS	750.00	464.93	422.11	3820.99	3465.54
(j)	Wind Farm	4.00	1.20	1.20	6.46	6.46
	Total Rajasthan	2076.82	981.62	890.08	10257.79	9345.58
9	U.P.					
	<u>HYDRO</u>					
(a)	Rihand	300.00	64.07	63.43	947.79	938.31
(b)	Obra	99.00	24.81	24.57	367.00	363.33
(c)	Matatilla	30.00	7.48	7.40	131.87	130.56
(d)	Khatima	41.40	8.26	8.18	165.95	164.29
(e)	Ramganga	198.00	14.34	14.19	237.59	235.21
(f)	Ganga Canal	43.40	12.36	12.24	146.74	145.27
(g)	Yamuna (I & IV)	114.75	16.17	16.01	419.04	414.85
(h)	Chibro	240.00	32.49	32.17	669.42	662.72
(i)	Khodri	120.00	16.53	16.36	321.60	318.39
(j)	Chilla	144.00	26.00	25.74	526.35	521.09
(k)	Maneri Bhali	90.00	22.34	22.12	336.45	333.09
(l)	Khara	72.00	11.98	11.86	299.35	296.35
	Total U.P. (Hydro)	1492.55	256.83	254.26	4569.16	4523.46
	<u>THERMAL</u>					
(m)	Obra	160.00	40.25	35.22	254.21	222.43
(n)	Obra Extn. - I	282.00	50.17	43.90	560.04	490.04
(o)	Obra Extn. - II	1000.00	434.38	380.08	4332.54	3790.97
(p)	Panki	32.00				

(q)	Panki Extn.	210.00	19.89	17.40	895.31	783.40
(r)	Harduaganj - A } (s) Harduaganj - B } (t) Harduaganj - C }	0.00	0.00	0.00		
(u)	Paricha	225.00	73.06	63.93	592.70	518.61
(v)	Anpara - A	220.00	86.37	75.58	929.51	813.32
(w)	Anpara - B	630.00	354.05	309.80	4013.26	3511.60
	Total U.P. (Thermal)	1000.00	654.86	573.00	7126.58	6235.76
	Total U.P.	3909.00	1713.03	1498.90	18704.16	16366.14
Total Region		27496.72	11321.64	10478.56	138261.02	128755.08

- 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 FEBRUARY 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	1.87	1.87	6.67	6.68	0.00	0.04	0.00
2	Delhi	98.31	98.31	64.12	64.19	328.30	0.52	0.00
3	Haryana	155.35	155.35	55.51	55.58	0.00	0.48	0.00
4	H.P.	19.01	19.01	30.46	30.48	0.00	0.19	0.00
5	J & K	33.39	33.39	58.58	58.67	0.00	0.66	0.00
6	Punjab	116.75	116.75	65.31	65.41	0.00	0.73	0.00
7	Rajasthan	217.20	217.20	78.77	78.84	0.00	0.58	0.00
8	U.P.	504.21	504.21	211.44	211.00	0.00	1.57	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	9.34	0.00
10	Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	45.83	45.83	22.84	22.84	0.00	0.19	0.00
	TOTAL	1191.92	1191.92	593.70	593.70	328.30	14.30	0.00

Note :- Singrauli sentout excludes 18.28 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	1.41	1.10	2.43	1.25
2	Delhi	357.43	355.78	15.55	16.54	31.42	25.30
3	Haryana	3.07	3.05	10.80	11.71	20.87	21.66
4	H.P.	0.00	0.00	6.34	6.71	11.85	12.00
5	J & K	0.00	0.00	11.66	12.34	26.76	31.36
6	Punjab	0.00	0.00	20.25	21.64	32.70	22.76
7	Rajasthan	77.71	77.33	15.93	17.03	33.45	38.10
8	U.P.	35.88	35.60	159.22	154.10	72.42	79.45
9	MP	0.00	2.34	0.00	0.00	0.00	0.00

10	Unallocated	0.00	0.00	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	9.66	9.66	9.95	9.95
	Total	474.09	474.09	250.82	250.82	241.85	241.85

Sl. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.69	2.65	2.48	1.73	0.95	0.95
2	Delhi	21.49	21.58	31.45	31.18	16.04	16.04
3	Haryana	16.71	16.80	26.04	25.38	7.82	7.82
4	H.P.	10.44	10.48	13.60	13.81	3.89	3.89
5	J & K	19.63	19.74	26.11	26.76	49.10	49.10
6	Punjab	21.22	21.35	30.71	29.55	19.97	19.97
7	Rajasthan	47.25	47.34	34.17	35.82	12.89	12.89
8	U.P.	51.53	51.02	81.46	80.42	33.83	33.83
9	MP	0.00	0.00	0.00	1.43	0.00	0.00
10	Unallocated	0.00	0.00	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	7.96	7.96	10.11	10.06	1.46	1.46
	TOTAL	198.92	198.92	256.13	256.13	145.93	145.93

(All figs. in l

Sl. No.	State/UT/ System	Dadri GPS		Bairasiul HPS		Salal HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.43	2.18	0.00	0.00	0.20	0.20
2	Delhi	36.88	39.10	2.14	2.14	8.40	8.40
3	Haryana	18.91	20.95	5.93	5.93	10.86	10.86
4	H.P.	12.18	13.00	2.34	2.34	0.74	0.74
5	J & K	26.77	29.16	0.00	0.00	26.55	26.55
6	Punjab	51.99	55.12	9.05	9.05	19.23	19.23
7	Rajasthan	35.66	38.12	0.00	0.00	2.13	2.13
8	U.P.	106.48	110.99	0.00	0.00	5.90	5.90

9	MP	0.00	0.00	0.00	0.00	0.00	0.00
10	Railways	43.27	25.97	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	0.81	0.81	0.75	0.75
Total		334.57	334.57	20.27	20.27	74.76	74.76
Sl. No.	State/UT/ System	Tanakpur HPS		Chamera HPS		RAPS -A	RAPS -B
		Entitlement	Actual	Entitlement	Actual	Actual	Entitlement
1	Chandigarh	0.15	0.15	1.89	1.89	0.00	0.00
2	Delhi	1.46	1.46	3.77	3.77	0.00	31.58
3	Haryana	0.73	0.73	7.60	7.60	0.00	0.00
4	H.P.	0.44	0.44	8.02	8.02	0.00	0.00
5	J & K	0.87	0.87	1.89	1.89	0.00	73.49
6	Punjab	2.04	2.04	4.91	4.91	0.00	0.00
7	Rajasthan	1.31	1.31	9.63	9.63	187.87	175.36
8	U.P.	4.39	4.39	11.54	11.54	0.00	0.00
9	Unallocated	0.00	0.00	0.00	0.00	0.00	0.00
10	Trans. Losses	0.46	0.46	1.45	1.45	0.00	0.00
11	Others	0.00	0.00	0.00	0.00	0.00	0.00
Total		11.85	11.85	50.70	50.70	187.87	280.43

Note :- Tanakpur sentout excludes 4.309 MU supplied to Nepal

Sl. No.	State/UT/ System	Narora APS		Bhakra HPS		Dehar HPS	Pong	F'bad GPS
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	Actual
1	Chandigarh	3.19	0.78	40.05	40.11	0.00	0.00	0.00
2	Delhi	32.41	15.34	0.00	0.00	0.00	0.00	0.00
3	Haryana	25.61	26.12	104.42	105.05	26.65	20.37	200.09
4	H.P.	12.84	9.25	9.97	10.01	7.73	0.00	0.00
5	J & K	27.61	44.34	0.00	0.00	0.00	0.00	0.00
6	Punjab	31.18	10.95	144.08	144.93	39.98	30.55	0.00
7	Rajasthan	36.62	54.47	61.46	61.74	16.65	71.78	0.00
8	U.P.	98.51	106.73	0.00	0.00	0.00	0.00	0.00
9	N.F.F.	0.00	0.00	13.44	11.58	0.00	0.00	0.00
10	Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	10.74	10.74	14.82	14.82	3.79	5.82	0.00
Total		278.71	278.71	388.24	388.24	94.80	128.52	200.09

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

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING FEBRUARY 2002**(All figs in MU'S)**

	Chandigarh	Delhi	Haryana	Himachal	J & K	Punjab	Rajasthan	UP	MP	Bihar	Others	Total
Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Haryana	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Himachal	0.00	0.00	0.00	0.00	0.00	34.03	0.00	0.00	0.00	0.00	0.00	34.032
J & K	0.00	0.00	0.00	0.00	0.00	50.55	0.00	0.00	0.00	0.00	0.00	50.550
Punjab	0.00	0.00	0.00	-34.03	-50.55	0.00	0.00	0.00	0.00	0.00	0.00	-84.582
Rajasthan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
UP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
MP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Total	0.000	0.000	0.000	-34.032	-50.550	84.582	0.000	0.000	0.000	0.000	0.000	0.000

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

- | | |
|--|------------------|
| i) Haryana's share in IP station of Delhi | 13.790 MU |
| ii) Himachal's share in Shanan & RSD power station of Punjab | 2.490 MU |
| iii) Himachal's share in Yamuna hydro power complex of UP | 17.140 MU |
| iv) Maruti to Haryana | 7.570 MU |

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 28.02.2002**

(ALL FIGS IN MVAR)

CONSTITUENT	REQUIREMENT AT THE END OF 2001-2002	CAPACITORS AS ON 28.02.2002	CAPACITORS ADDITION DURING		ADDITIONAL REQUIRED DURING 2001-2002
		INSTALLED	2000-2001	April 01 - Feb 02	
Chandigarh	127	96	60	3	31
Delhi	2734	2553	201	317	181
Haryana	3080	2036	368	393	1044
H.P.	335	193	46	57	142
J & K	880	159	0	12	721
Punjab	4950	4598	384	167	352
Rajasthan	3300	2372	176	15	928
U.P.	5654	4401	279	195	1253
BBMB	381	381	0	0	0
TOTAL	21441	16789	1514	1159	4652

SOURCE: Minutes of 326th OCC meeting of NREB held on 16th March, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING FEBRUARY 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 February 2002 (m) (ft)	469.72 1541.09	398.59 1307.70	261.24 857.10	345.47 1133.42	380.63 1248.79
Level on last day of February 2001 (m) (ft)	468.03 1535.53	397.76 1305.00	259.32 850.80	344.92 1131.63	380.65 1248.86
Live Capacity as on (mhmt) last day of February 2002(maft)	0.16 1.32	0.16 1.26	0.28 2.25	0.07 0.60	0.00 0.00
Live Capacity as on (mhmt) last day of February 2001(maft)	0.15 1.22	0.14 1.16	0.19 1.53	0.03 0.21	0.00 0.00
Energy content as on last day of February 2002 (MU)	600.00	210.00	525.00	35.00	0.00
Energy content as on last day of February 2001 (MU)	520.00	190.00	365.00	28.00	0.00
Maximum level (m)	478.06	403.20	262.25	345.47	381.22

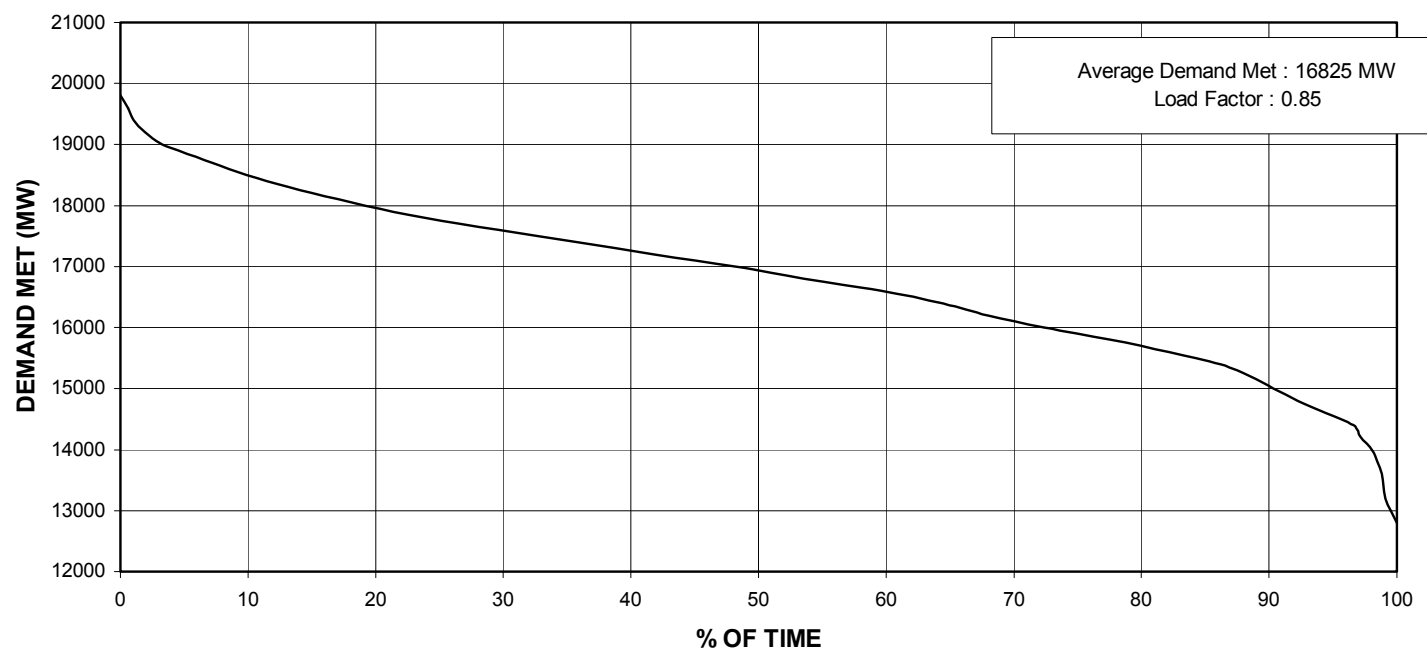
	(ft)	1568.43	1322.83	860.40	1133.44	1250.71
	(date)	01.02.2002	01.02.2002	01.02.2002	27.02.2002	01.02.2002
Minimum level	(m)	469.72	398.59	261.24	345.23	380.63
	(ft)	1541.09	1307.70	857.10	1132.65	1248.79
	(date)	28.02.2002	28.02.2002	28.02.2002	03.02.2002	28.02.2002

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

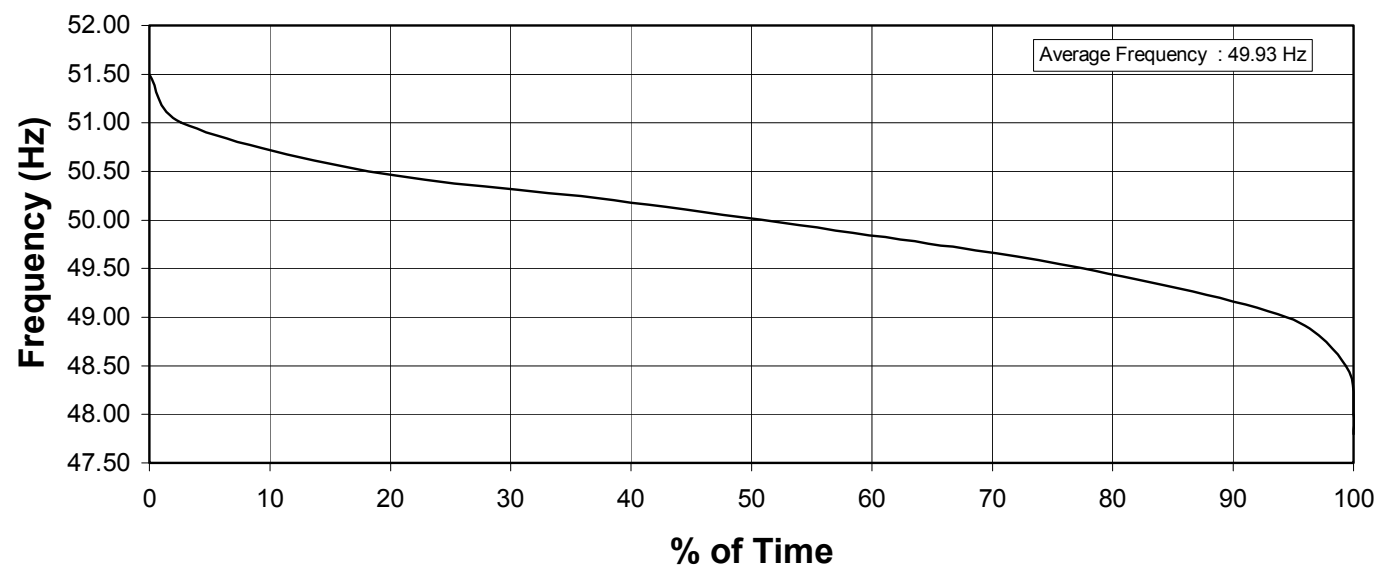
Energy content of Rihand : Total Energy content at Rihand & Obra power stations

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

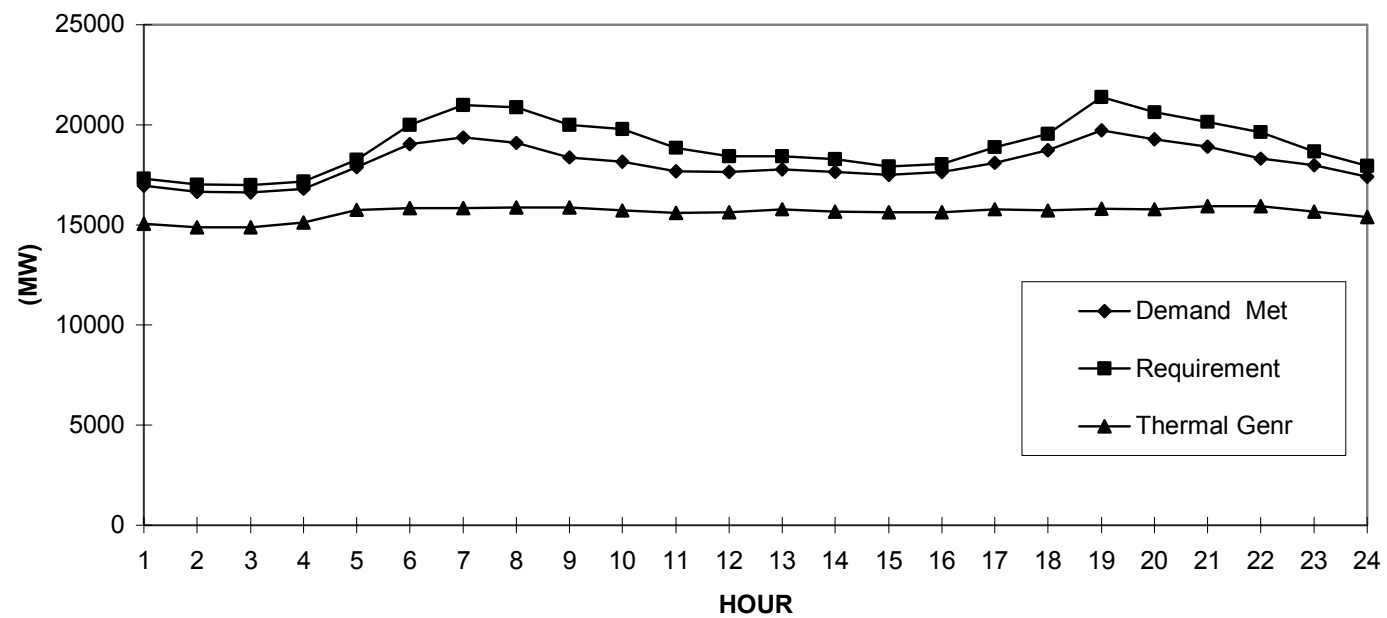
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

LOAD DURATION CURVE OF NORTHERN REGION FOR FEBRUARY 2002

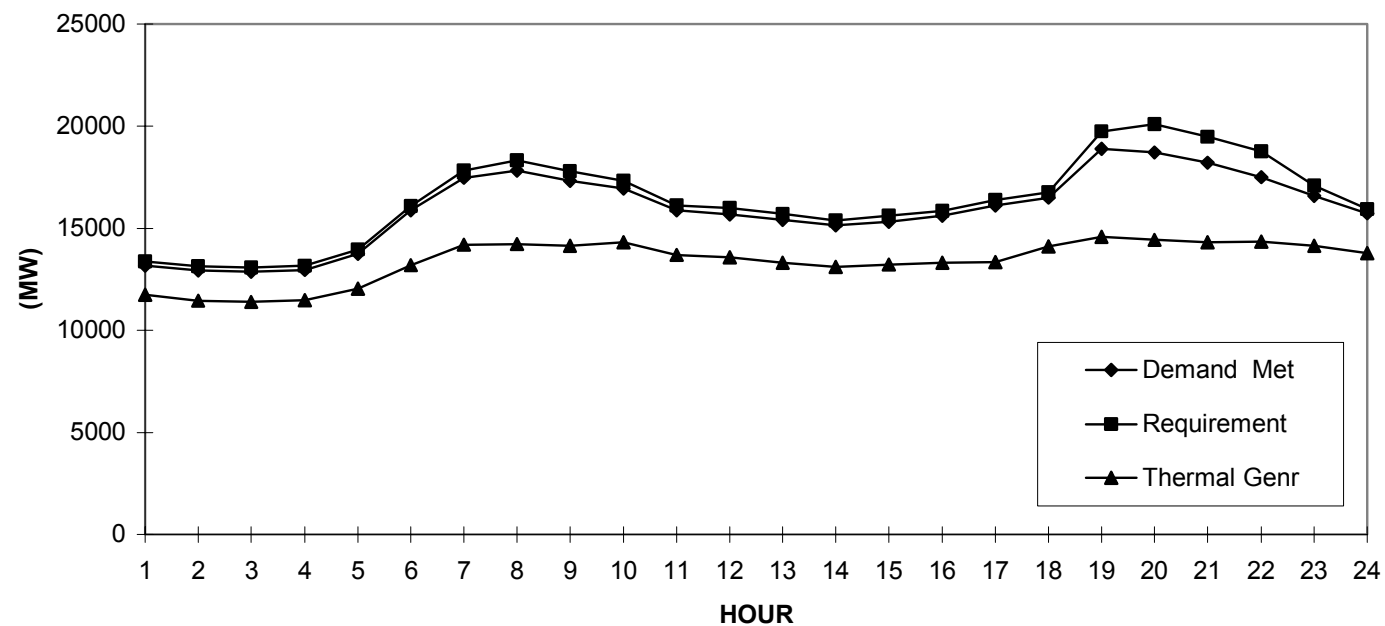
FREQUENCY DURATION CURVE OF NORTHERN REGION FOR FEBRUARY 2002



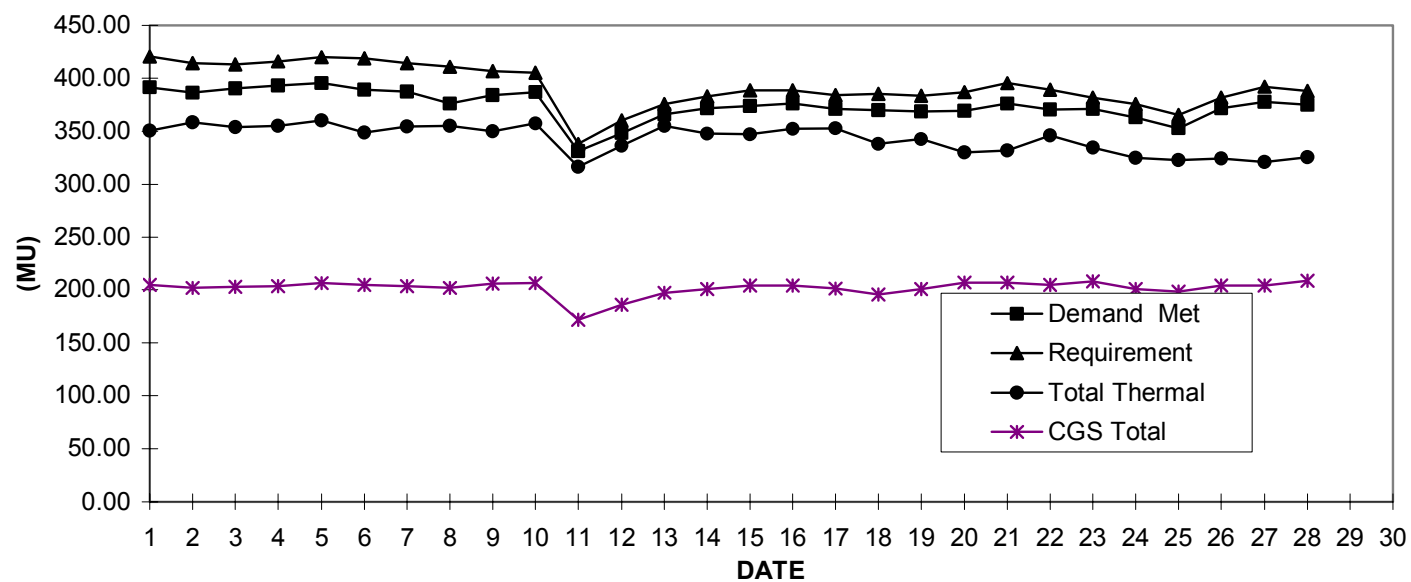
**LOAD CURVE OF NORTHERN REGION FOR MAXIMUM DEMAND
MET DAY (05.02.2002)**



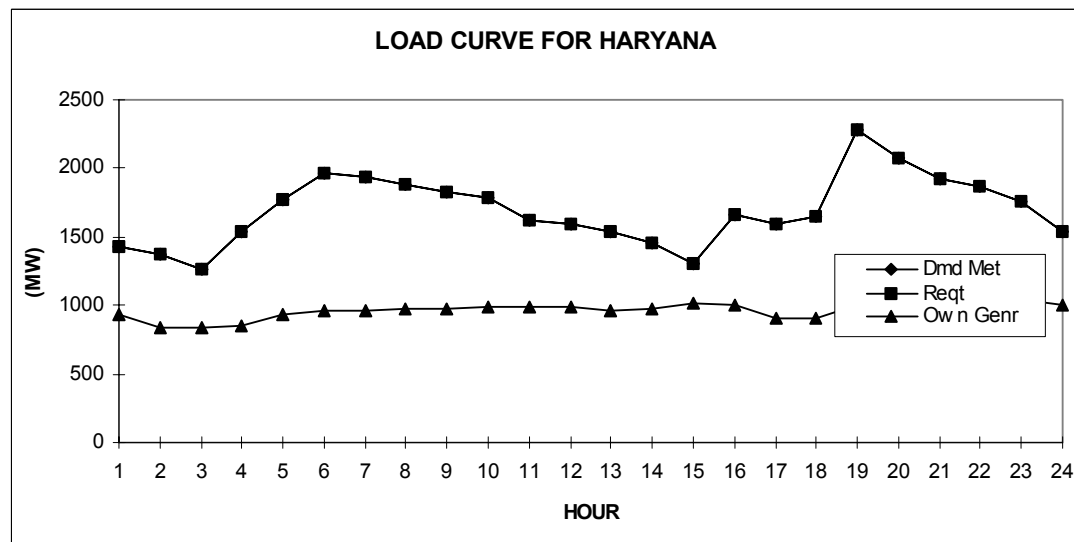
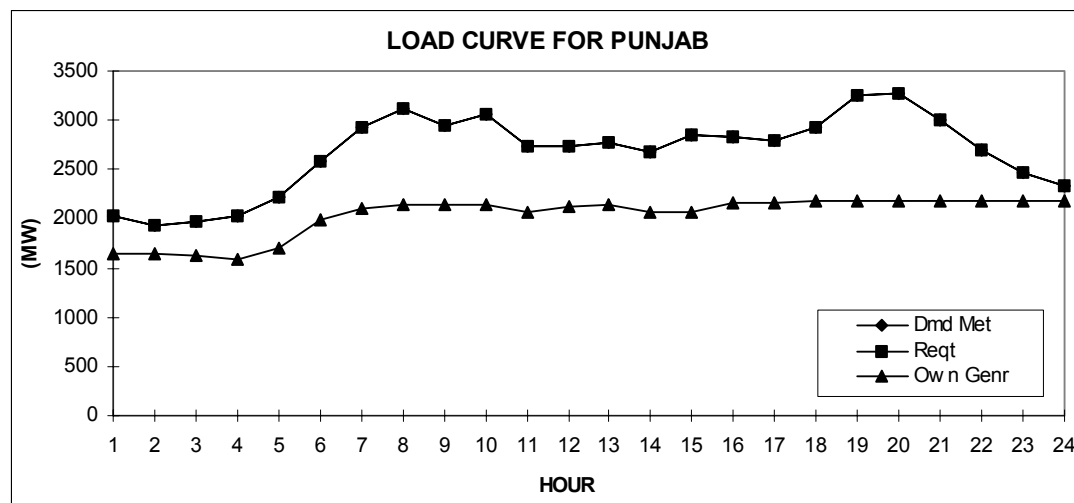
LOAD CURVE OF NORTHERN REGION FOR MINIMUM DEMAND MET DAY (12.02.2002)

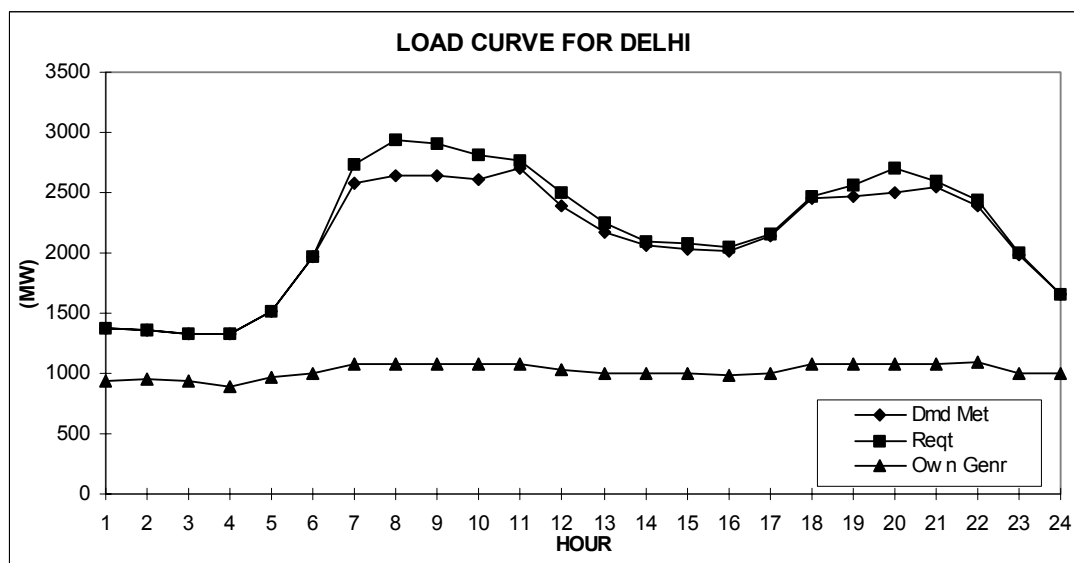
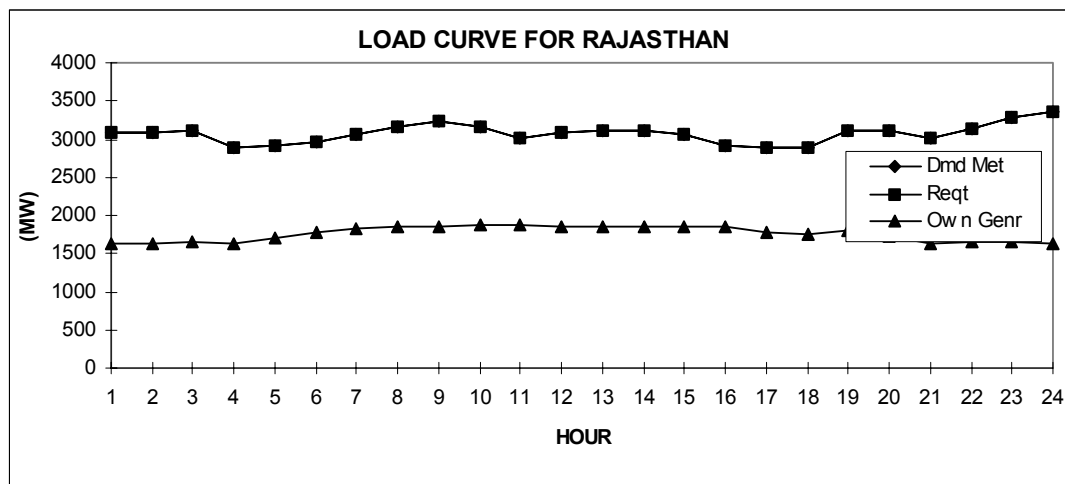


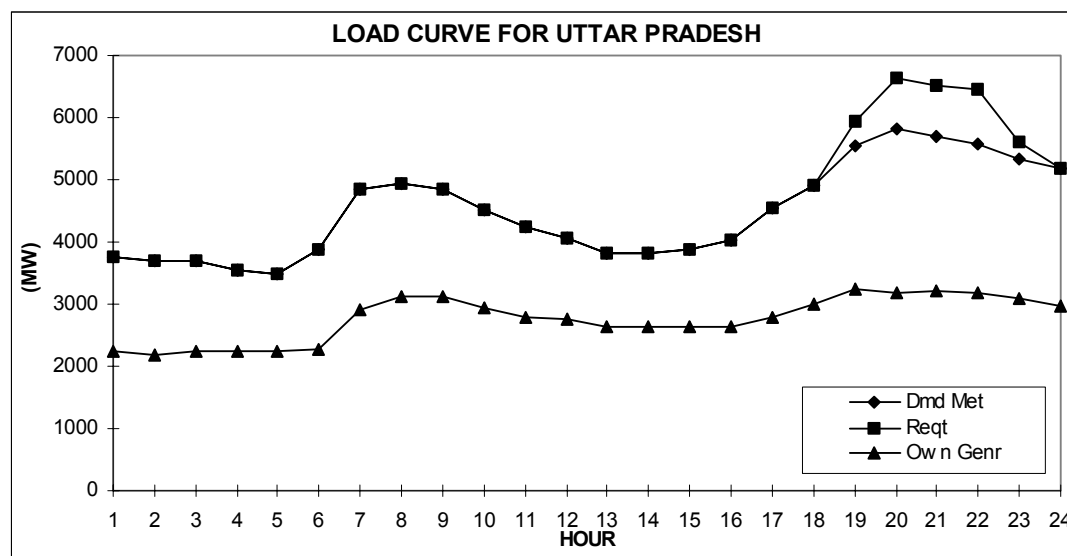
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING FEBRUARY 2002



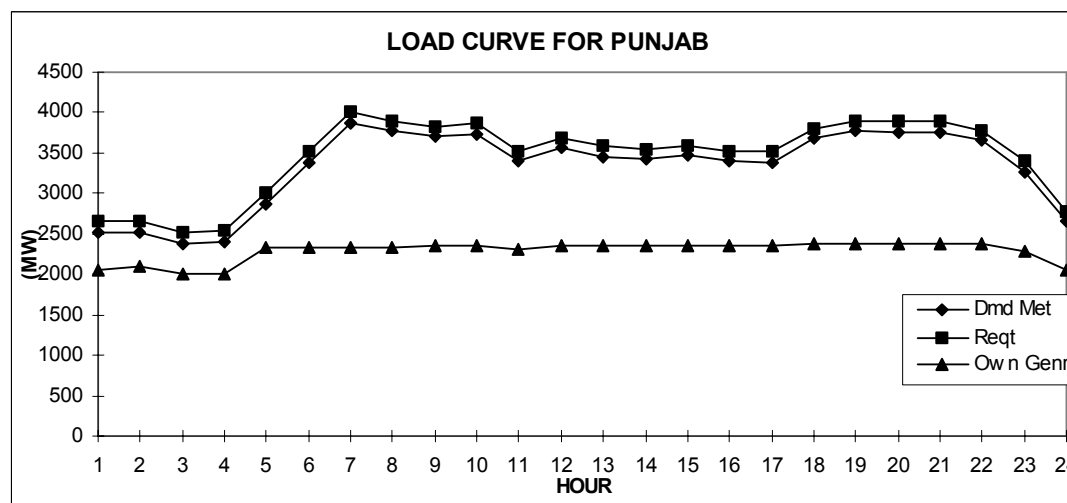
STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(12.02.2002)

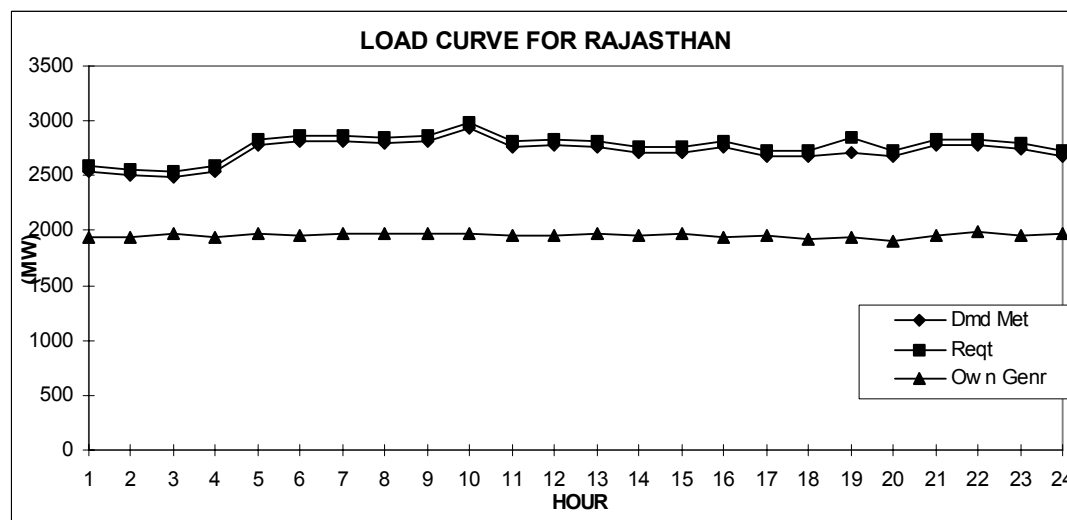
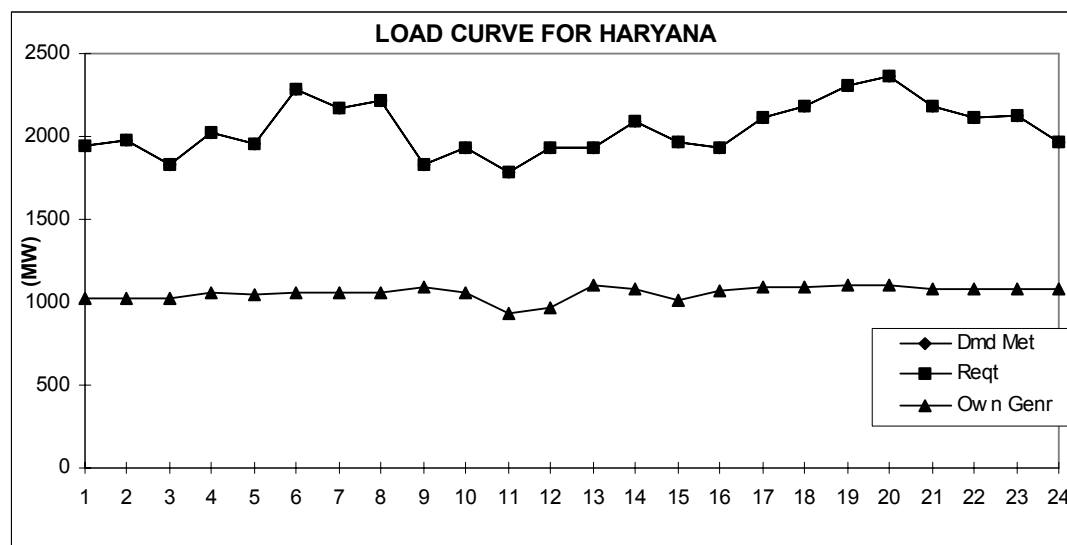


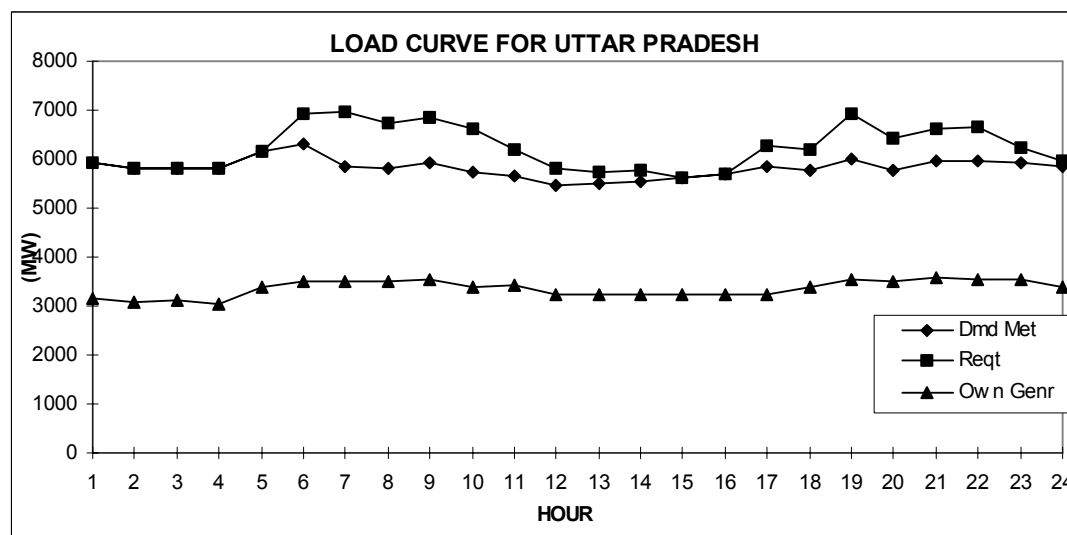
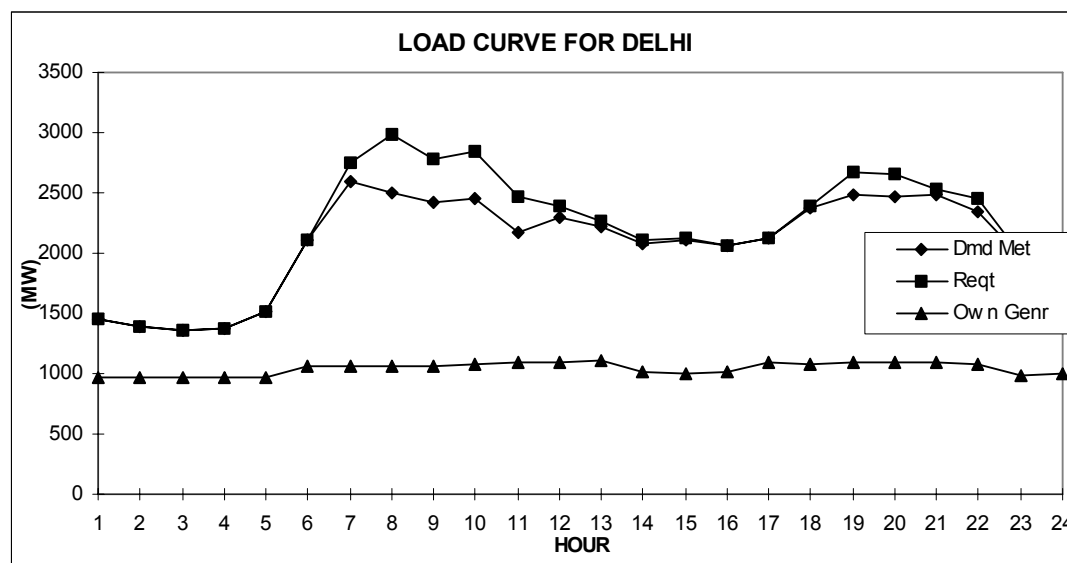




STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(05.02.2002)







MINOR GRID INCIDENTS DURING FEBRUARY 2002

S No.	DATE	TIME	INCIDENT
1	10.02.2002	20:54	In this incident Y-phase bushing of Circuit Breaker of 400 kV Anpara-Unnao line at Unnao end caught fire. All the element connected with 400 kV Unnao Sub-station namely Unnao-Agra, Unnao-Anpara, Unnao-Panki, Unnao-Lucknow, Unnao-Bareilly D/C and 400/220 kV ICTs were hand tripped. However, Grid remained normal and all the system element were put back into service by 01:30 hrs. of 11.02.2002.
2	22.02.2002	19:35	All the running units at Panipat Thermal Power Station of HPGCL (generation loss of the order of 450 MW) tripped because of evacuation problem. All the four 220 kV lines between Panipat and Sewah ; evacuating power from Panipat Thermal Power Station ; reportedly tripped due to earth fault. All the units were brought back on bar by 23:45 hrs.