



GRID REPORT

January 2002

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

A. SUMMARY REPORT:

I Important events:

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

400 kV Suratgarh-Ratangarh ckt.-I commissioned On 04.01.2002.(Earlier the line was charged at 220 kV)

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

The average system frequency during the month of January 2002, was 49.65 Hz and frequency remained between 49.0 & 50.5 Hz for 80.87 % of time. The system voltage condition was satisfactory.

During the month a large number of tripping occurred in the system mainly during night hrs and early morning hrs due to thick fog conditions. However no major incident occurred in the system except some loss of generation in limited areas, and on few occasions generation backing down had to done in Uri HEP due to tripping of 400kV Uri-Wagoora D/C .

There was no major grid disturbance in the region during January 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 JANUARY 2002

(All figs. in MU)

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	31.90	31.71	2.75	2.76	3.45	3.41	44.38	44.45	82.48	82.33
2	Delhi	816.77	790.90	25.00	25.00	64.63	13.81	0.00	0.00	906.40	829.71
3	Haryana	416.07	422.63	28.07	28.07	26.51	66.70	161.16	161.89	631.81	679.29
4	H.P.	126.00	128.99	13.00	13.00	13.47	13.23	19.63	19.67	172.10	174.89
5	J & K	236.88	251.86	62.11	62.11	85.48	144.57	0.00	0.00	384.47	458.54
6	Punjab	381.01	357.66	45.00	44.99	32.77	8.57	227.78	228.78	686.56	640.00
7	Rajasthan	629.88	646.27	20.45	20.45	125.33	158.28	160.58	160.92	936.24	985.92
8	U.P.	1518.29	1545.68	42.41	42.42	104.27	47.34	0.00	0.00	1664.97	1635.43
9	MP / N.F.F.	13.75	16.52	0.00	0.00	0.00	0.00	14.88	12.69	28.62	29.21
10	Bihar	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
11	Trans. Losses	117.21	117.21	3.98	3.98	10.78	10.78	29.14	29.14	161.10	161.10
12	Others	48.42	26.50	0.00	0.00	0.00	0.00	0.00	0.00	48.42	26.50
	Total	4336.18	4336.18	242.77	242.77	466.69	466.69	657.53	657.53	5703.17	5703.17

III. INTER REGIONAL EXCHANGES IN MU AND PEAK MW

	Energy (MU)	Peak MW
a. Import over HVDC Back to Back at Vindhyachal	27.59	350
b. M.P. to Rajasthan(Ujjain - Kota)	0.00	0
c. Eastern region to Northern region (Import)	203.37	360
d. Export over HVDC Back to Back at Vindhyachal	5.70	350
e. 220 KV Auraiya -Malanpur	14.91	26
f. Northern region to Bihar (Export)	0.22	10
g. Tanakpur to Mahendranagar(NEPAL) (Export)	4.32	11

IV. FREQUENCY PROFILE

a. Maximum frequency 51.44 Hz at 02:03 hours on 16.01.2002
 Minimum frequency 48.16 Hz at 06:30 hours on 23.01.2002
 Average frequency 49.65 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
%	1.19	12.04	80.87	7.09

c. Frequency Variation Index

 Monthly Average 4.43
 Maximum 8.65
 Minimum 1.95

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	2.66	2.66	0.00	0.00
Delhi	48.52	51.41	2.89	5.62
Haryana	45.20	47.35	2.15	4.54
H.P.	9.49	9.49	0.00	0.00
J & K	18.44	19.92	1.48	7.43
Punjab	63.32	67.01	3.69	5.51
Rajasthan	69.25	71.12	1.87	2.63
U.P.	122.02	135.95	13.93	10.25
N.F.F./Rail	1.26	1.26	0.00	0.00
Total	380.16	406.17	26.01	6.40

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	166	166	0	0	0.00	0.00
Delhi	2616	3118	502	554	16.10	17.77
Haryana	2574	2724	150	150	5.51	5.51
H.P. *	551	551	0	0	0.00	0.00
J & K *	946	1207	261	300	21.62	24.86
Punjab	3679	3758	79	511	2.10	13.60
Rajasthan	3590	3590	0	0	0.00	0.00
U.P.	6210	7295	1085	1184	14.87	16.23
N.F.F./Rail	67	67	0	0	0.00	0.00
Region	19787	21452	1665	1665	7.76	7.76

Diversity Factor = 1.09

* Approximate and Estimated

B. DETAILED REPORT

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

-	STATION	INSTALLED CAPACITY (MW)	EFFECTIVE CAPACITY
1	CENTRAL SECTOR		
A	NTPC		
(a)	Badarpur TPS	3x100+2x210	720.00
(b)	Singrauli STPS	5x200+2x500	2000.00
(c)	Rihand STPS	2x500	1000.00
(d)	Dadri NCTPS	4x210	840.00
(e)	Unchahar TPS	2x210 + 2x210	840.00
(f)	Tanda TPS	4x110	440.00
(g)	Anta GPS	3x88.71+1x153.20	419.33
(h)	Auraiya GPS	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 JANUARY 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 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 27601.63 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 31.01.2002

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	
	January 2002	January 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

State/UT	January 2002			January 2001			Percentage increase over 2000	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqd.	%Shortage	Demand met	Reqd.	%Shortage	Demand met	Reqd.
Chandigarh	2.66	2.66	0.00	2.81	2.81	0.00	-5.34	-5.34
Delhi	48.52	51.41	5.62	44.44	49.28	9.82	9.18	4.32
Haryana	45.20	47.35	4.54	40.12	43.55	7.88	12.66	8.73
HP	9.49	9.49	0.00	8.34	8.86	5.87	13.79	7.11
J&K	18.44	19.92	7.43	14.06	19.06	26.23	31.15	4.51
Punjab	63.32	67.01	5.51	57.63	60.07	4.06	9.87	11.55
Rajasthan	69.25	71.12	2.63	65.52	71.76	8.70	5.69	-0.89
UP	122.02	135.95	10.25	104.14	132.26	21.26	17.17	2.79
NFF/Rail	1.26	1.26	0.00	0.73	0.74	1.35	72.60	70.27
REGION	380.16	406.17	6.40	337.79	388.39	13.03	12.54	4.58
Frequency Regime								
January 2002			January 2001					
Average (Hz)			49.94			49.37		

Above 50.5 Hz (%)	7.09	4.75
Above 50.2 Hz (%)	18.18	10.22
Below 49.5 Hz (%)	33.18	59.87
Below 49.0 Hz (%)	12.04	27.86
Below 48.5 Hz (%)	1.19	7.96

3. Peak Power Supply Position

State/UT	January 2002			January 2001			Percentage increase over 2000	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	166	166	0.00	161	161	0.00	3.11	3.11
Delhi	2616	3118	16.10	2602	3077	15.44	0.54	1.33
Haryana	2574	2724	5.51	2339	2525	7.37	10.05	7.88
HP	551	551	0.00	562	562	0.00	-1.96	-1.96
J&K	946	1207	21.62	835	1128	25.98	13.29	7.00
Punjab	3679	3758	2.10	3465	3635	4.68	6.18	3.38
Rajasthan	3590	3590	0.00	3645	3754	2.90	-1.51	-4.37
UP	6210	7295	14.87	5539	7311	24.24	12.11	-0.22
NFF/Rail	67	67	0.00	41	41	0.00	63.41	63.41
REGION	19787	21452	7.76	17561	20848	15.77	12.68	2.90

III. FREQUENCY PROFILE DURING JANUARY 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	49.44	50.56	1.55	48.20	5.17	0.48	5.47
2	49.56	51.00	18.01	48.16	8.51	0.53	4.76
3	49.54	50.72	3.45	48.20	6.26	0.50	4.61
4	49.16	50.48	7.11	48.16	20.30	0.41	8.65
5	49.30	51.04	7.12	48.28	21.08	0.40	6.48
6	49.58	50.84	18.02	48.56	6.18	0.43	3.65
7	49.58	50.80	2.07	48.24	16.21	0.52	4.53
8	49.70	50.76	12.26	48.24	16.40	0.48	3.18

9	49.59	50.88	2.03	48.20	9.03	0.48	3.93
10	49.52	50.72	2.09	48.16	7.36	0.45	4.39
11	49.36	50.64	10.27	48.16	21.09	0.47	6.33
12	49.27	50.68	17.05	48.20	9.48	0.43	7.15
13	49.70	51.24	17.04	48.24	5.46	0.49	3.26
14	49.82	51.20	23.01	48.48	21.10	0.46	2.39
15	50.24	51.28	17.59	48.60	7.27	0.58	3.97
16	50.25	51.44	2.03	48.48	18.16	0.60	4.24
17	50.03	51.08	0.01	48.20	22.08	0.44	1.95
18	49.89	51.16	2.32	48.20	6.52	0.57	3.43
19	49.63	50.96	0.59	48.24	21.28	0.48	3.74
20	50.10	51.16	14.36	48.92	10.21	0.47	2.30
21	49.84	50.96	1.01	48.32	6.14	0.53	3.03
22	49.46	50.48	17.28	48.24	18.19	0.42	4.61
23	49.36	50.64	1.31	48.16	6.30	0.41	5.86
24	49.45	50.64	17.07	48.24	10.32	0.43	4.88
25	49.34	50.84	18.03	48.24	6.28	0.49	6.67
26	49.87	50.96	23.48	48.32	9.01	0.53	2.92
27	49.87	51.16	2.02	48.44	9.06	0.62	3.98
28	49.62	50.84	17.01	48.24	10.08	0.58	4.75
29	49.67	50.72	4.05	48.24	7.00	0.61	4.76
30	49.77	50.84	13.59	48.24	6.44	0.56	3.63
31	49.76	50.68	6.09	48.20	7.11	0.57	3.87
Monthly	49.65	51.44		48.16		0.57	4.43

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 JANUARY 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	408	382	412	368	420	387	416	393	210	191
2	406	384	410	380	416	387	415	388	210	194
3	404	384	408	380	416	394	419	385	210	195
4	406	380	402	370	416	385	412	384	210	195
5	406	382	406	376	416	387	416	385	210	196
6	404	384	408	380	416	392	418	388	212	196
7	406	382	408	374	414	385	411	382	212	192
8	404	380	404	376	409	387	416	387	210	197
9	400	379	406	376	416	372	415	385	210	196
10	408	380	408	376	416	385	417	382	212	196
11	413	388	414	384	427	394	418	388	212	198
12	411	395	412	388	420	398	416	388	212	198
13	410	388	416	390	425	396	420	390	213	203
14	415	384	420	384	420	396	417	388	215	201
15	417	391	418	386	427	394	415	389	221	196
16	424	393	422	384	427	394	415	384	219	197
17	411	386	416	384	420	392	414	385	214	197
18	411	382	418	376	422	389	416	380	215	196
19	410	382	412	382	418	394	416	385	213	196
20	410	380	414	378	416	389	410	382	214	198
21	410	382	412	376	418	387	413	381	214	195
22	408	384	410	376	420	387	410	380	212	195
23	410	388	412	380	414	389	405	385	213	196
24	408	382	408	380	414	387	408	384	212	196
25	404	382	406	382	414	389	411	385	212	196
26	408	384	412	388	416	392	413	386	214	203
27	410	384	418	384	418	392	412	386	218	200
28	410	382	414	380	414	387	412	382	213	192
29	406	384	410	382	411	387	410	386	212	195
30	406	379	410	379	418	381	420	378	212	189
31	406	382	406	382	414	383	416	381	213	190
Month	424	379	422	368	427	372	420	378	221	189

V. PERFORMANCE OF GENERATING STATIONS DURING JANUARY 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	506.01	461.88	4558.51	4145.96
(b)	Singrauli STPS	2000.00	1470.14	1380.25	12814.47	11965.86
(c)	Rihand STPS	1000.00	730.40	687.02	6318.32	5836.76
(d)	Dadri NCTPS	840.00	603.78	556.94	5619.14	5167.76
(e)	Unchahar-I TPS	420.00	311.04	287.88	2655.64	2418.86
(f)	Unchahar-II TPS	420.00	313.02	289.51	2825.23	2569.81
(g)	Tanda TPS	440.00	193.52	169.34	1696.65	1484.60
(h)	Anta GPS	419.33	208.74	205.05	2584.77	2533.68
(i)	Auraiya GPS	663.36	317.19	310.38	4045.63	3987.49
(j)	Dadri GPS	829.78	403.85	393.85	4896.95	4770.62
(k)	Faridabad GPS	431.57	255.72	249.47	2429.74	2367.91
	Total NTPC	8169.04	5313.40	4991.55	50445.03	47249.32
B	NHPC					
(a)	Bairasiul	180.00	15.67	15.26	506.42	488.71
(b)	Salal	690.00	73.97	73.35	2693.43	2670.06
(c)	Tanakpur HPS	94.20	10.86	10.40	378.09	373.71
(d)	Chamera HPS	540.00	47.03	46.93	1777.69	1771.96
(e)	Uri HPS	480.00	102.48	100.78	1647.00	1626.59
	Total NHPC	1984.20	250.01	246.72	7002.63	6931.03
C	NPC					
(a)	RAPS -A	300.00	134.02	123.33	1208.04	1105.32
(b)	RAPS -B	440.00	0.00	172.92	2215.26	2178.20
(c)	NAPS	440.00	321.55	293.77	2695.88	2429.54
	Total NPC	1180.00	455.57	590.02	6119.18	5713.06

2 JOINTLY OWNED (BBMB)						
(a)	Bhakra Complex	1465.15	436.58	434.24	4634.90	4612.80
(b)	Dehar	990.00	83.64	83.64	2642.69	2636.75
(c)	Pong	366.00	139.66	139.66	1135.16	1131.20
Total BBMB		2821.15	659.88	657.54	8412.75	8380.75
3 DELHI						
(a)	Indra Prastha	247.50	56.05	49.32	705.69	621.01
(b)	Rajghat	149.00	87.87	78.20	534.69	475.87
(c)	Gas Turbines	282.00	98.95	95.98	994.75	964.90
Total DELHI		678.50	242.87	223.51	2235.13	2061.79
4 HARYANA						
(a)	WYC	48.00	12.69	12.56	190.01	188.11
(b)	Faridabad (New)	165.00	81.86	70.81	644.94	557.87
(c)	Panipat	860.00	397.98	350.22	3496.76	3077.15
(d)	Magnum Diesel(IPP)	25.20	12.48	12.36	89.75	88.95
Total Haryana		1098.20	505.01	445.95	4421.45	3912.08
5 HP						
(a)	Giri	60.00	7.82	7.74	167.23	166.45
(b)	Bassi	60.00	7.04	6.98	232.15	231.33
(c)	Binwa	6.00	1.05	1.04	15.76	15.66
(d)	Rongtong (+Nogli+Micro+Thirot+Sal-2)	15.02	1.72	1.69	21.39	21.13
(e)	Andhra	16.95	1.54	1.52	53.30	53.06
(f)	Bhabha (H)	120.00	14.62	14.56	434.45	433.45
(g)	Baner (H)	12.00	0.80	0.79	26.75	26.66
(h)	Gaj (H)	10.50	0.96	0.96	34.75	34.57
(i)	Gumma	3.00	0.32	0.30	7.11	7.04
(j)	Ghanvi	22.50	2.39	2.36	32.84	32.70
(k)	Malana (IPP)	86.00	5.66	5.66	143.98	143.98
Total HP		411.97	43.90	43.60	1169.71	1166.04
6 J & K						
(a)	Lower Jhelum	105.00	19.08	18.89	268.31	265.63

(b)	Upper Sindh	57.60	7.21	7.14	148.11	146.62
(c)	Ganderbal	15.00	1.68	1.66	24.30	24.06
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	2.53	2.50	55.17	54.62
(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	30.50	30.20	495.89	490.93
7	PUNJAB					
(a)	Jogindernagar/ Shanan	110.00	12.17	12.15	425.29	423.72
(b)	UBDC	90.00	12.59	12.45	320.49	318.75
(c)	Mukerian	207.00	133.73	133.41	930.92	927.48
(d)	Anandpur Sahib (APS)	134.00	24.25	24.16	433.47	431.75
(e)	Ranjit Sagar HPS	600.00	58.54	58.37	1301.18	1298.11
(f)	Small Hydel	4.10	0.86	0.85	7.88	7.81
(g)	GNDTPS (Bhatinda)	440.00	220.33	200.12	2283.85	2064.01
(h)	GGSTPS (Ropar)	1260.00	819.77	756.56	7438.35	6831.95
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	305.48	278.15	2725.81	2476.01
	Total Punjab	3275.10	1587.72	1476.23	15867.23	14779.58
8	RAJASTHAN					
(a)	Mahi Bajaj Sagar	140.00	9.11	9.11	60.49	60.49
(b)	Rana Pratap Sagar (RPS)	172.00	55.18	55.13	254.95	254.58
(c)	Jawahar Sagar (JS)	99.00	38.47	38.40	195.20	194.66
(d)	Anoopgarh	9.00	0.00	0.00	2.28	2.28
(e)	Small Hydro	14.32	1.81	1.81	8.01	8.01
(f)	Kota TPS	850.00	539.52	488.56	5274.83	4767.70
(g)	RAMGARH GT	3.00	0.00	0.00		
(h)	RAMGARH GT EXT	35.50	0.00	0.00	119.09	119.09
(i)	Suratgarh TPS	750.00	507.07	460.54	3356.06	3043.43

(j)	Wind Farm	4.00	0.70	0.70	5.26	5.26
	Total Rajasthan	2076.82	1151.85	1054.24	9276.17	8455.50
9	U.P.					
	<u>HYDRO</u>					
(a)	Rihand	300.00	93.77	92.83	883.72	874.88
(b)	Obra	99.00	35.20	34.85	342.19	338.77
(c)	Matatilla	30.00	16.15	15.99	124.40	123.15
(d)	Khatima	41.40	9.38	9.28	157.69	156.11
(e)	Ramganga	198.00	46.67	46.20	223.25	221.02
(f)	Ganga Canal	43.40	12.89	12.76	134.38	133.03
(g)	Yamuna (I & IV)	114.75	15.91	15.75	402.88	398.85
(h)	Chibro	240.00	24.36	24.11	636.93	630.56
(i)	Khodri	120.00	12.48	12.35	305.08	302.02
(j)	Chilla	144.00	26.12	25.85	500.35	495.35
(k)	Maneri Bhali	90.00	24.22	23.98	314.11	310.97
(l)	Khara	72.00	12.84	12.71	287.37	284.50
	Total U.P. (Hydro)	1492.55	329.97	326.67	4312.33	4269.21
	<u>THERMAL</u>					
(m)	Obra	160.00	38.84	33.98	213.96	187.21
(n)	Obra Extn. - I	282.00	67.85	59.37	509.87	446.14
(o)	Obra Extn. - II	1000.00	523.08	457.70	3898.16	3410.89
(p)	Panki	32.00	0.00	0.00		
(q)	Panki Extn.	210.00	37.82	33.10	875.43	766.00
(r)	Harduaganj - A	0.00	0.00	0.00		
(s)	Harduaganj - B	150.00	0.00	0.00		
(t)	Harduaganj - C	225.00	78.63	68.80	519.64	454.69
(u)	Paricha	220.00	111.11	97.22	843.14	737.75
(v)	Anpara - A	630.00	422.90	370.04	3659.21	3201.80

(w)	Anpara - B	1000.00	624.71	546.62	6471.72	5662.76
	Total U.P. (Thermal)	3909.00	1904.95	1666.83	16991.13	14867.24
	Total U.P.	5401.55	2234.92	1993.50	21303.46	19136.44
Total Region		27496.72	12475.63	11753.06	126748.63	118276.52

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 JANUARY 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	1.82	1.82	7.44	7.31	0.00	0.14	0.00
2	Delhi	114.00	114.00	72.72	72.74	461.88	1.81	0.00
3	Haryana	174.32	174.32	64.57	64.58	0.00	1.30	0.00
4	H.P.	21.69	21.69	34.29	34.29	0.00	0.38	0.00
5	J & K	38.17	38.17	65.91	65.92	0.00	1.67	0.00
6	Punjab	133.05	133.05	73.28	73.30	0.00	1.97	0.00
7	Rajasthan	251.90	251.90	89.94	89.96	0.00	1.87	0.00
8	U.P.	589.37	589.37	253.72	253.76	0.00	4.12	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	13.75	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	50.31	50.31	25.15	25.15	0.00	0.52	0.00
	TOTAL	1374.63	1374.63	687.02	687.02	461.88	27.52	0.00

Note :- Singrauli sentout excludes 5.62601805702177 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	1.44	1.36	2.55	2.54
2	Delhi	410.01	395.50	17.10	18.45	35.24	18.67
3	Haryana	4.45	4.41	16.34	15.75	27.32	32.25
4	H.P.	0.00	0.00	6.80	7.09	13.09	14.98
5	J & K	0.00	0.00	12.44	13.68	29.55	39.77
6	Punjab	0.00	0.00	21.78	15.09	35.53	20.30
7	Rajasthan	87.64	87.23	18.20	19.59	38.88	50.33
8	U.P.	54.84	67.18	183.26	186.33	96.77	100.07

9	MP	0.00	2.37	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	0.24	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	10.54	10.54	10.60	10.60
	Total	556.94	556.94	287.90	287.89	289.51	289.51
Sl. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.67	2.67	2.73	2.62	0.64	0.64
2	Delhi	22.62	22.62	35.31	35.98	10.96	10.96
3	Haryana	17.78	17.77	33.47	33.46	5.55	5.55
4	H.P.	10.34	10.34	15.31	15.44	2.74	2.74
5	J & K	19.37	19.37	29.44	30.05	33.69	33.69
6	Punjab	22.17	22.17	34.94	31.09	13.69	13.69
7	Rajasthan	47.36	47.36	40.84	41.52	8.80	8.80
8	U.P.	54.55	54.55	106.46	107.93	23.71	23.71
9	MP	0.00	0.00	0.00	0.40	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	8.20	8.20	11.89	11.89	1.01	1.01
	TOTAL	205.06	205.06	310.39	310.39	100.79	100.79

Sl. No.	State/UT/ System	Dadri GPS		Bairasiul HPS		Salal HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.59	2.72	0.00	0.00	0.19	0.19
2	Delhi	43.31	46.46	1.61	1.61	8.22	8.22
3	Haryana	23.96	26.21	4.47	4.47	10.62	10.62
4	H.P.	13.58	14.25	1.76	1.76	0.70	0.70
5	J & K	29.81	32.71	0.00	0.00	26.18	26.18
6	Punjab	58.29	60.69	6.81	6.81	18.82	18.82
7	Rajasthan	42.73	45.98	0.00	0.00	2.08	2.08

8	U.P.	131.16	138.32	0.00	0.00	5.77	5.77
9	MP	0.00	0.00	0.00	0.00	0.00	0.00
10	Railways	48.42	26.50	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	0.61	0.61	0.73	0.73
	Total	393.85	393.85	15.26	15.26	73.31	73.31

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	0.18	0.18	1.74	1.74	0.00	0.00	0.69	0.00
2	Delhi	0.74	0.74	3.47	3.47	0.00	30.36	3.52	0.00
3	Haryana	0.48	0.48	6.95	6.95	0.00	0.00	22.49	0.00
4	H.P.	0.19	0.19	7.61	7.61	0.00	0.00	1.24	0.00
5	J & K	0.50	0.50	1.74	1.74	0.00	56.25	65.74	0.00
6	Punjab	1.20	1.20	4.48	4.48	0.00	0.00	0.15	0.00
7	Rajasthan	0.67	0.67	8.90	8.90	123.33	86.31	76.62	0.00
8	U.P.	2.30	2.30	10.63	10.63	0.00	0.00	2.45	169.34
9	Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Trans. Losses	0.21	0.21	1.42	1.42	0.00	0.00	0.00	0.00
11	Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	6.47	6.47	46.94	46.94	123.33	172.92	172.92	169.34

Note :- Tanakpur sentout excludes 4.319 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	3.45	2.72	44.38	44.45	0.00	0.00	0.00	10.52
2	Delhi	34.27	10.29	0.00	0.00	0.00	0.00	0.00	64.65
3	Haryana	26.51	44.21	116.07	116.80	22.96	22.13	249.47	52.57
4	H.P.	13.47	11.99	11.07	11.11	8.56	0.00	0.00	10.52
5	J & K	29.23	78.83	0.00	0.00	0.00	0.00	0.00	10.52
6	Punjab	32.77	8.42	160.15	161.15	34.43	33.19	0.00	0.00
7	Rajasthan	39.02	81.65	68.25	68.59	14.35	77.99	0.00	10.52
8	U.P.	104.27	44.88	0.00	0.00	0.00	0.00	0.00	44.05

9	N.F.F.	0.00	0.00	14.88	12.69	0.00	0.00	0.00	0.00
10	Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	10.78	10.78	19.44	19.44	3.34	6.35	0.00	0.00
	Total	293.77	293.77	434.24	434.24	83.64	139.66	249.47	203.36

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

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING JANUARY 2002

	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	1.60	0.00	0.00	0.00	0.00	0.00	1.600
Himachal	0.00	0.00	0.00	0.00	0.00	61.13	0.00	0.00	0.00	0.00	0.00	61.130
J & K	0.00	0.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00	0.00	0.00	83.000
Punjab	0.00	0.00	-1.60	-61.13	-83.00	0.00	-3.70	0.00	0.00	0.00	0.00	-149.430
Rajasthan	0.00	0.00	0.00	0.00	0.00	3.70	0.00	0.00	0.00	0.00	0.00	3.700
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	-1.600	-61.130	-83.000	149.430	-3.700	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 | 15.723MU |
| ii) Himachal's share in Shanan & RSD power station of Punjab | 1.178MU |
| iii) Himachal's share in Yamuna hydro power complex of UP | 15.451MU |
| iv) Maruti to Haryana | 13.712MU |

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 31.01.2002****(ALL FIGS IN MVAR)**

CONSTITUENT	REQUIREMENT AT THE END OF 2001-2002	CAPACITORS AS ON 31.01.2002	CAPACITORS ADDITION DURING		ADDITIONAL REQUIRED DURING 2001-2002
		INSTALLED	2000-2001	April 01 - Jan 02	
Chandigarh	127	96	60	3	31
Delhi	2734	2513	201	277	221
Haryana	3080	2036	368	393	1044
H.P.	335	187	46	51	148
J & K	880	159	0	12	721
Punjab	4950	4587	384	156	363
Rajasthan	3300	2367	176	10	933
U.P.	5654	4351	279	145	1303
BBMB	381	381	0	0	0
TOTAL	21441	16677	1514	1047	4764

SOURCE: Minutes of 325th OCC meeting of NREB held on 11th February, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING JANUARY 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 January 2002 (m) (ft)	478.33 1569.32	403.36 1323.36	262.31 860.60	345.45 1133.35	381.26 1250.84
Level on last day of January 2001 (m) (ft)	476.60 1563.65	399.75 1311.53	260.73 855.40	345.16 1132.40	380.72 1249.09
Live Capacity as on (mhmt) last day of January 2002(maft)	0.26 2.07	0.24 1.96	0.41 3.35	0.04 0.32	0.00 0.00
Live Capacity as on (mhmt) last day of January 2001(maft)	0.23 1.87	0.17 1.36	0.24 1.93	0.03 0.24	0.00 0.00
Energy content as on last day of January 2002 (MU)	880.00	325.00	575.00	60.00	0.00
Energy content as on last day of January 2001 (MU)	810.00	230.00	460.00	53.00	0.00
Maximum level (m)	485.68	407.47	263.77	347.55	382.33

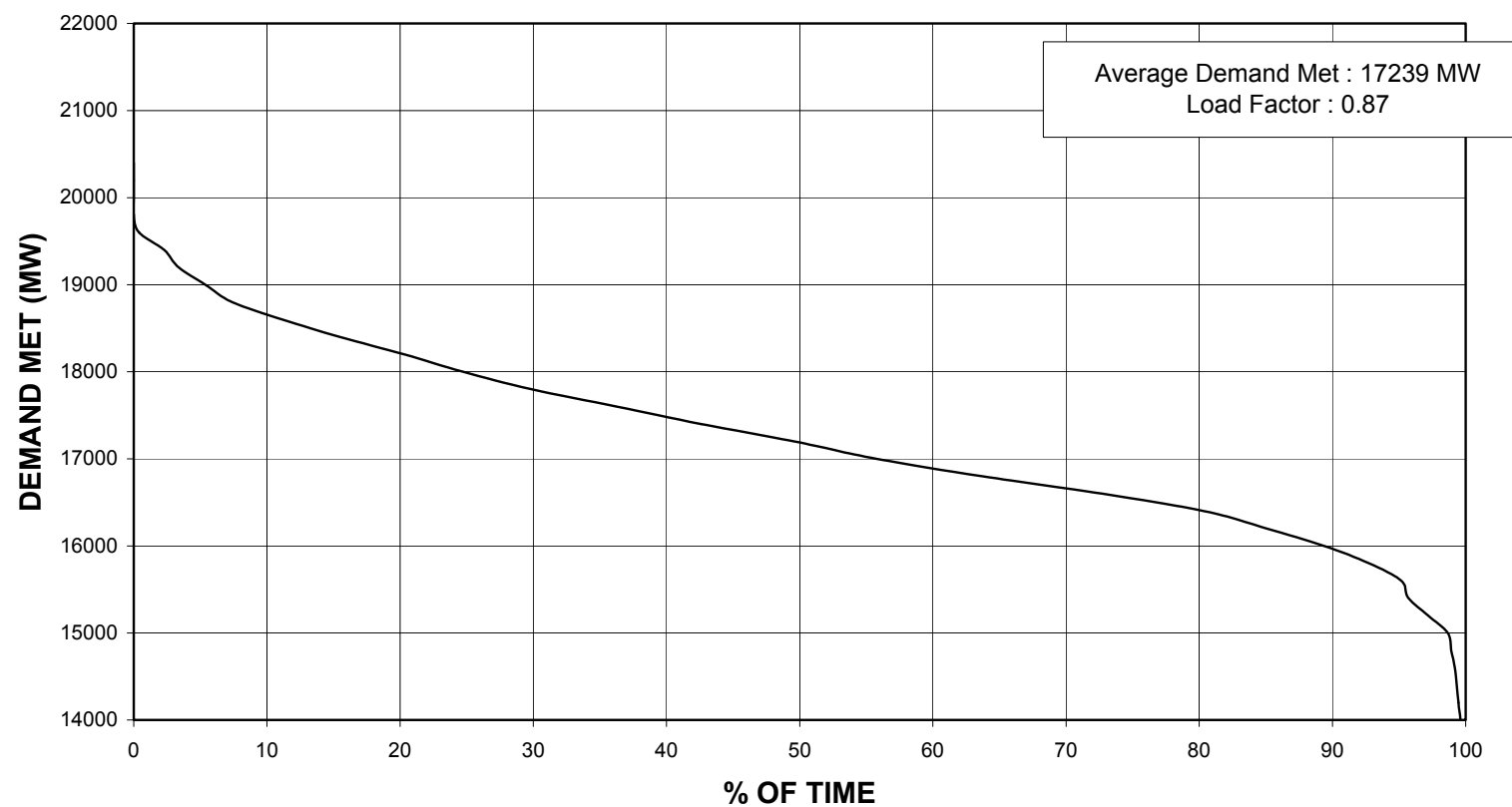
	(ft)	1593.44	1336.83	865.40	1140.26	1254.35
	(date)	01.01.2002	01.01.2002	01.01.2002	01.01.2002	01.01.2002
Minimum level	(m)	478.33	403.36	262.31	345.45	381.26
	(ft)	1569.32	1323.36	860.60	1133.35	1250.84
	(date)	31.01.2002	31.01.2002	31.01.2002	31.01.2002	31.01.2002

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

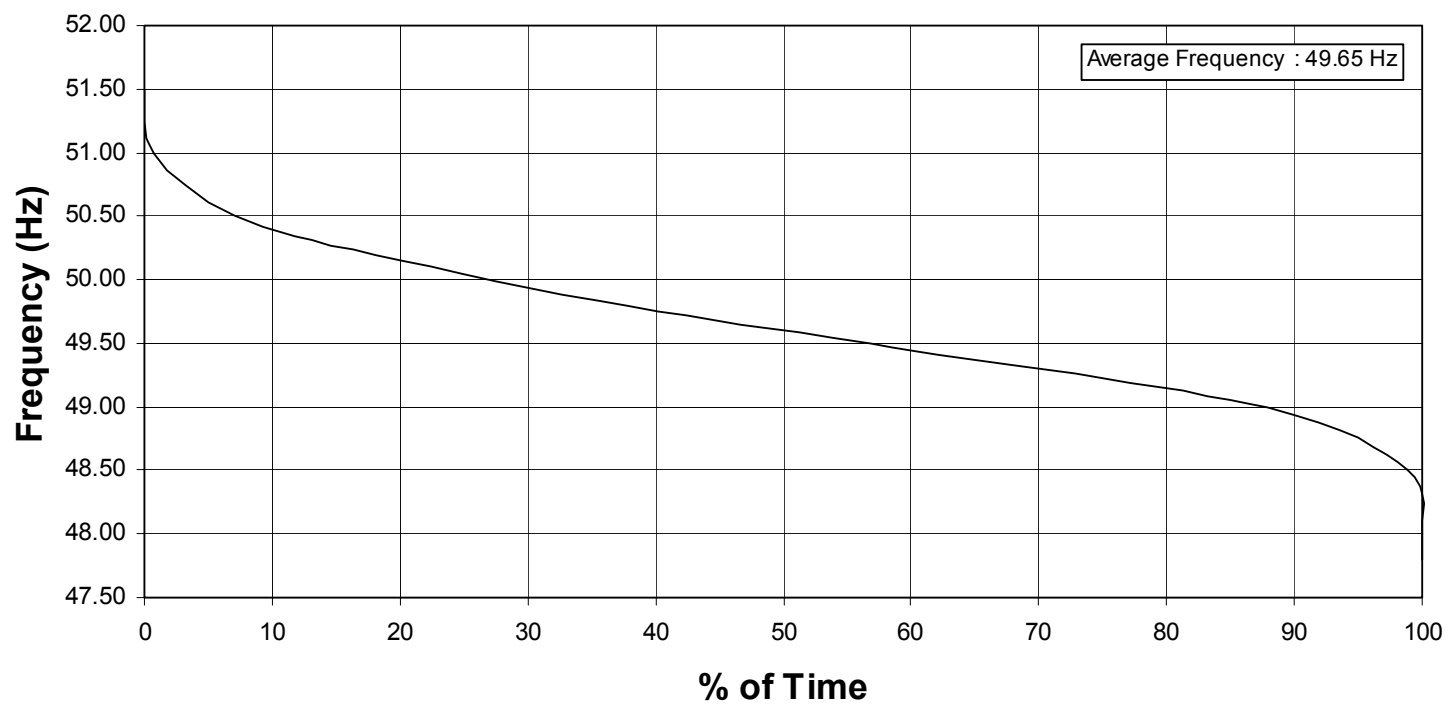
Energy content of Rihand : Total Energy content at Rihand & Obra power stations

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

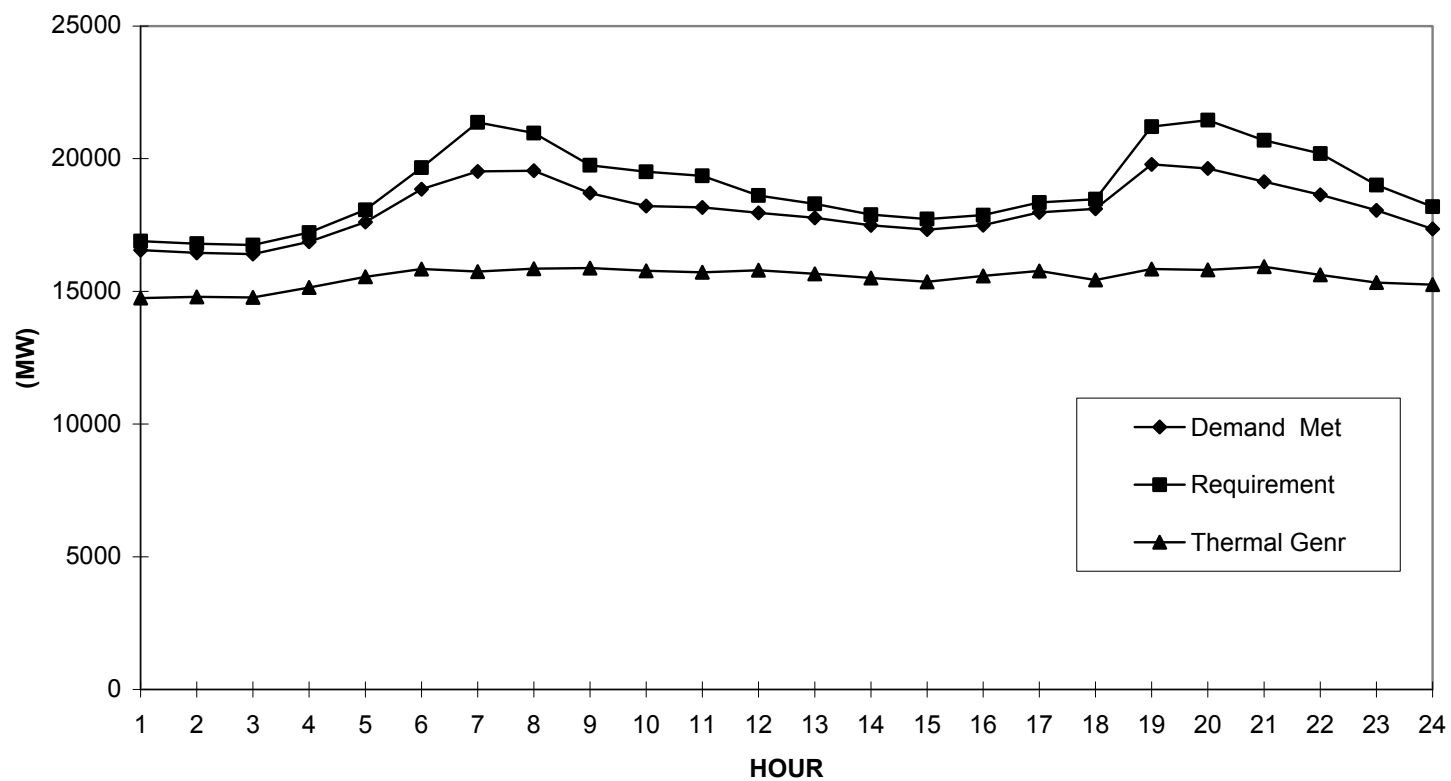
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

LOAD DURATION CURVE OF NORTHERN REGION FOR JANUARY 2002

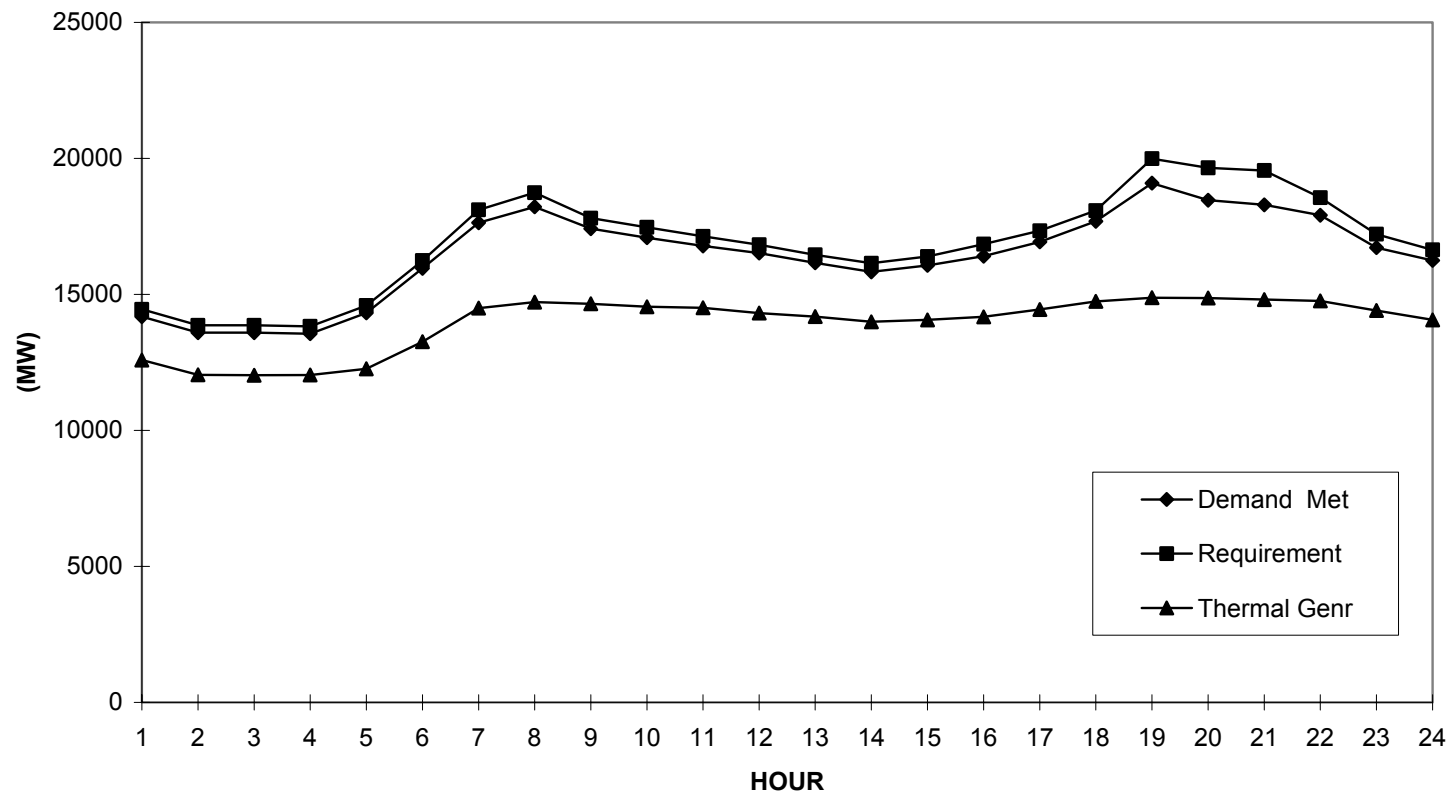
FREQUENCY DURATION CURVE OF NORTHERN REGION FOR JANUARY 2002



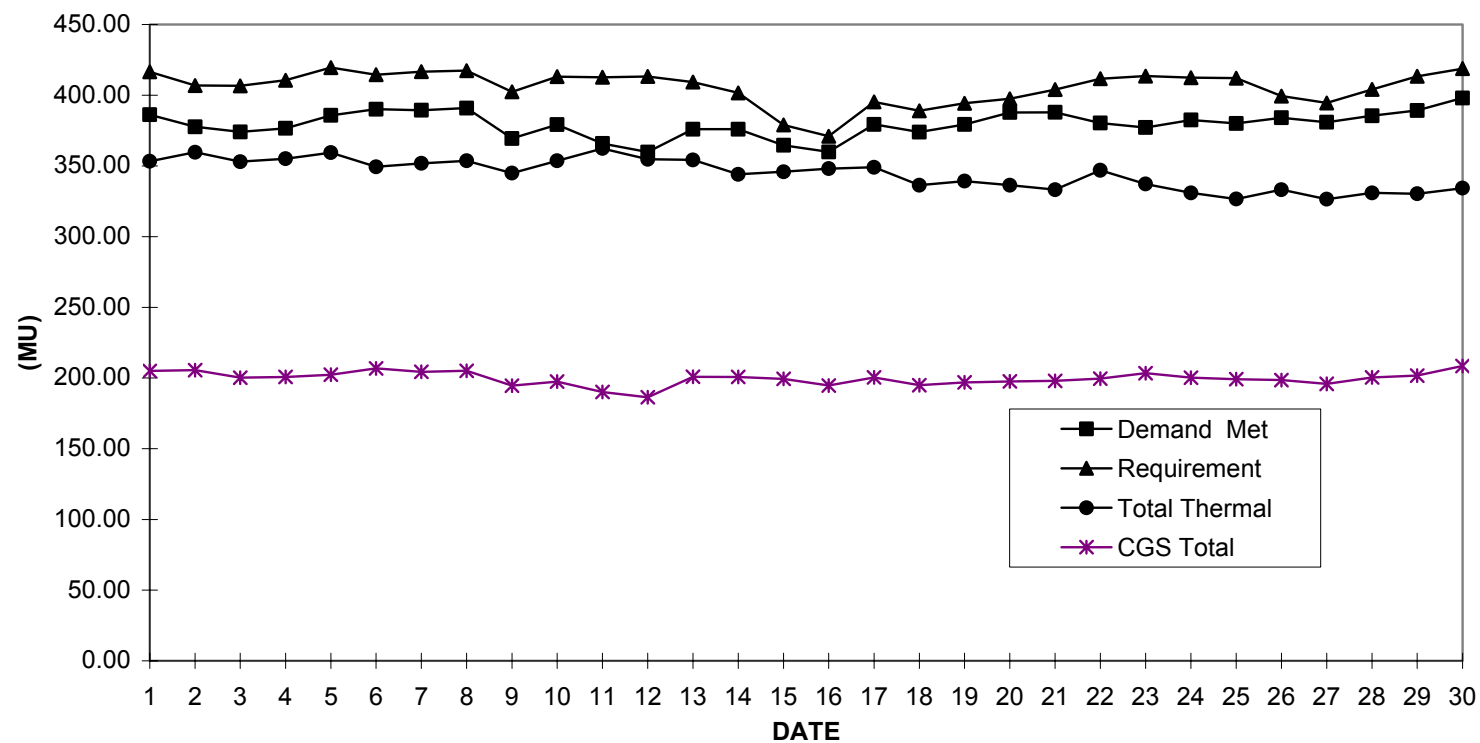
LOAD CURVE OF NORTHERN REGION FOR MAXIMUM DEMAND MET DAY (30.01.2002)



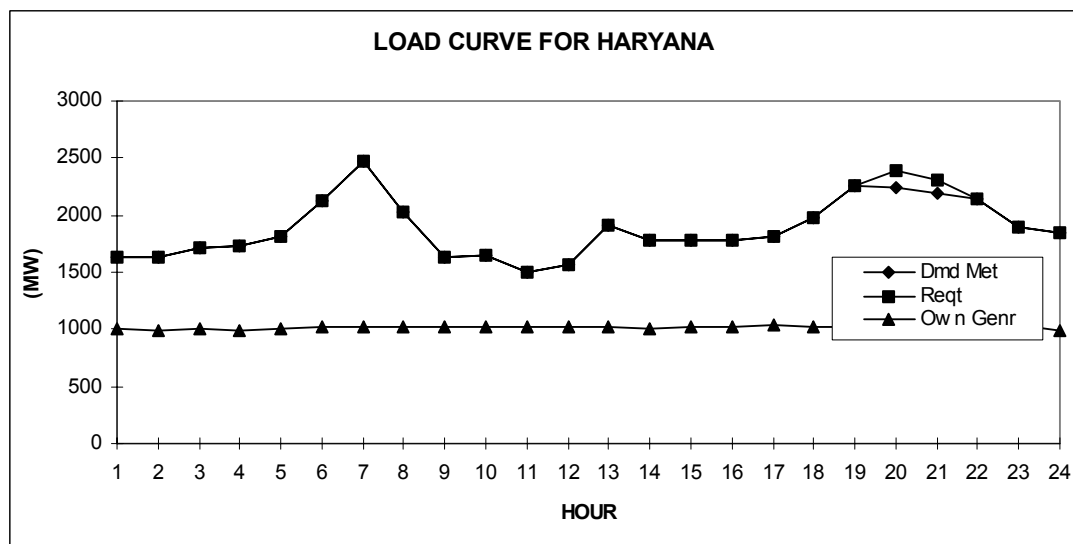
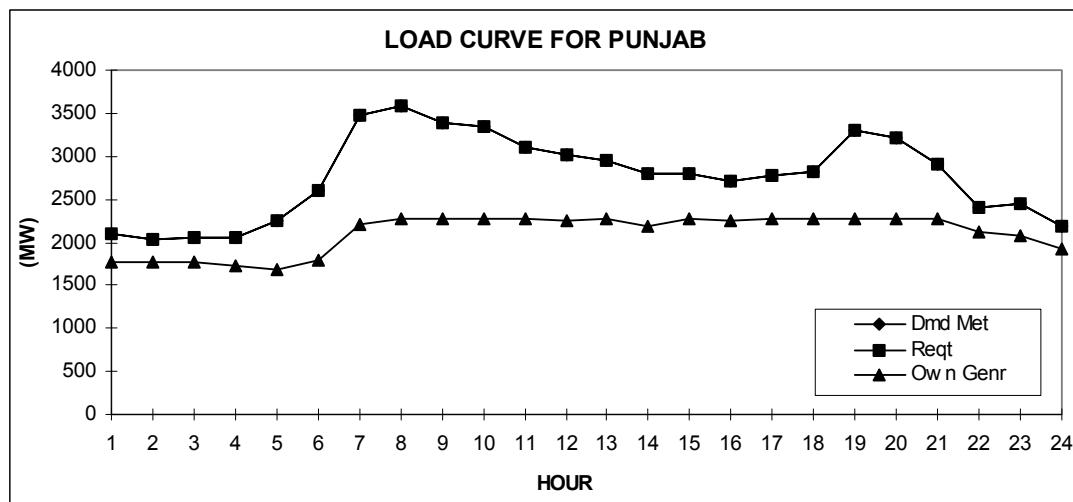
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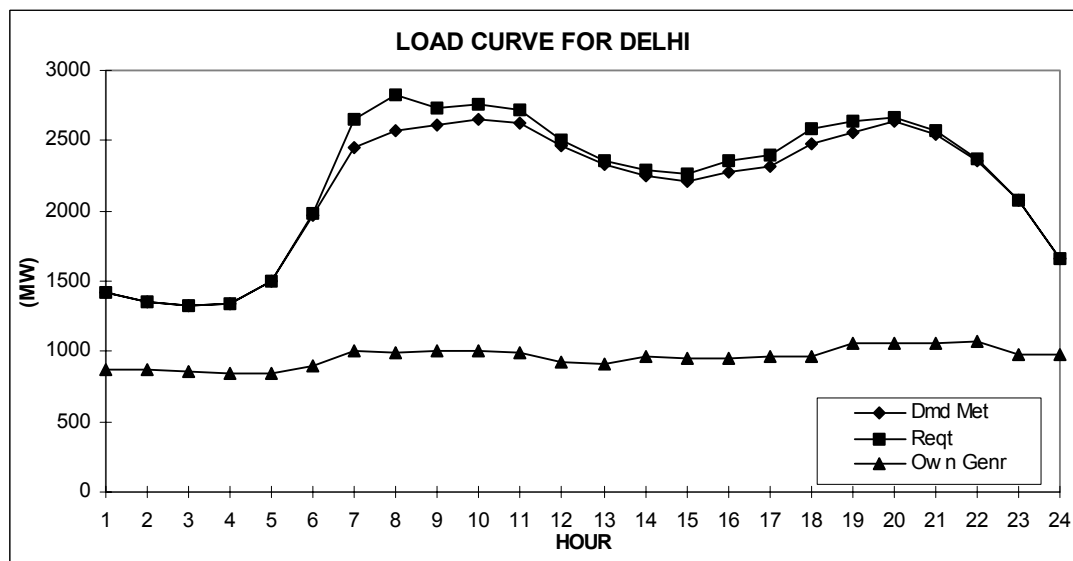
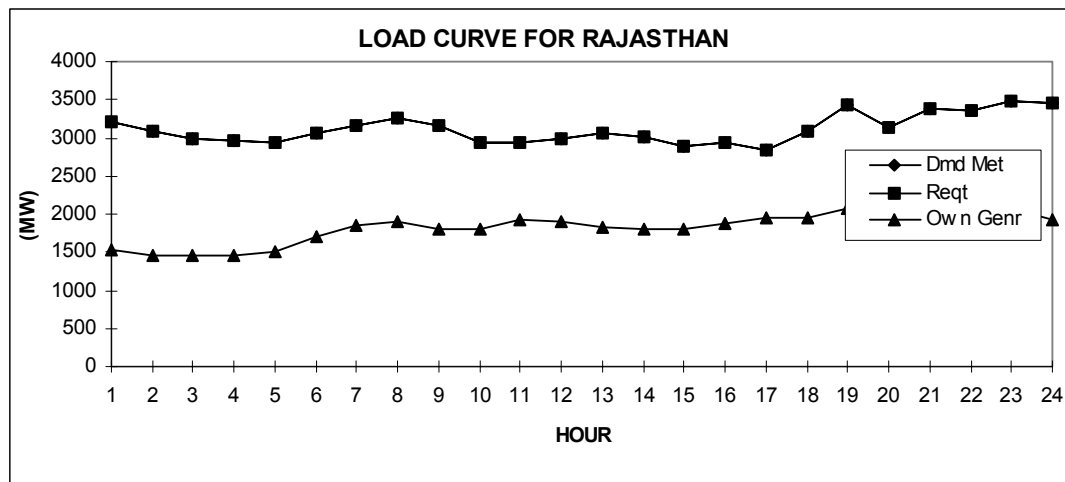


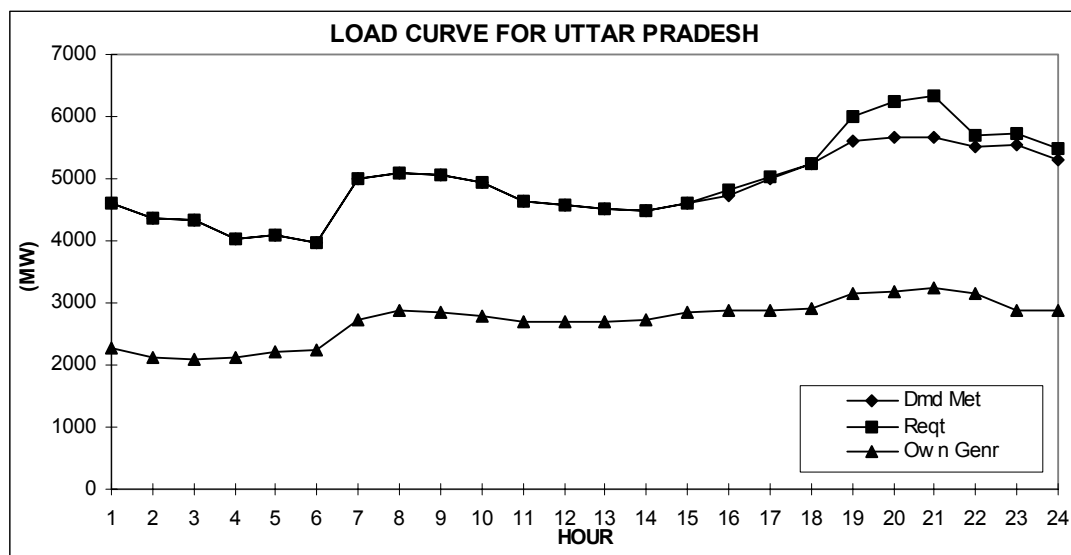
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING JANUARY 2002



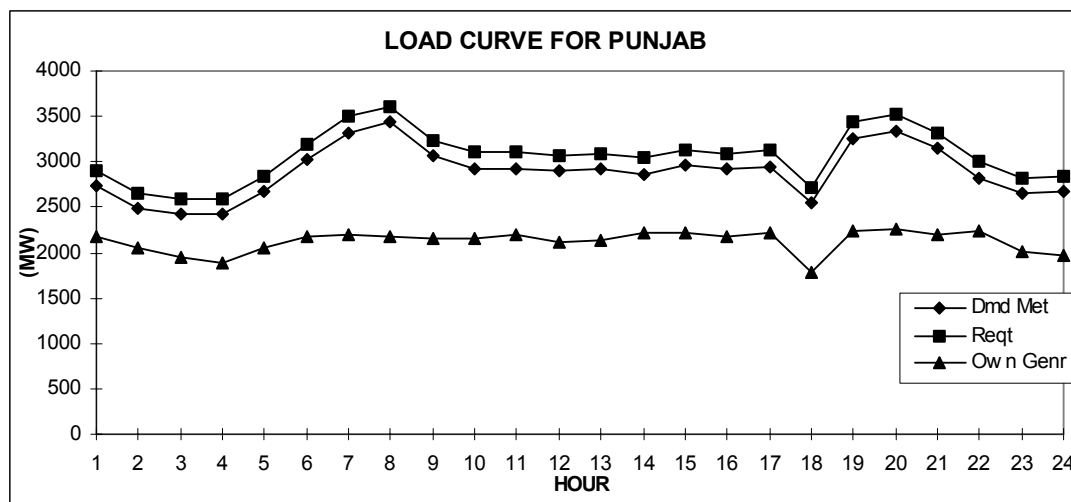
STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(16.01.2002)

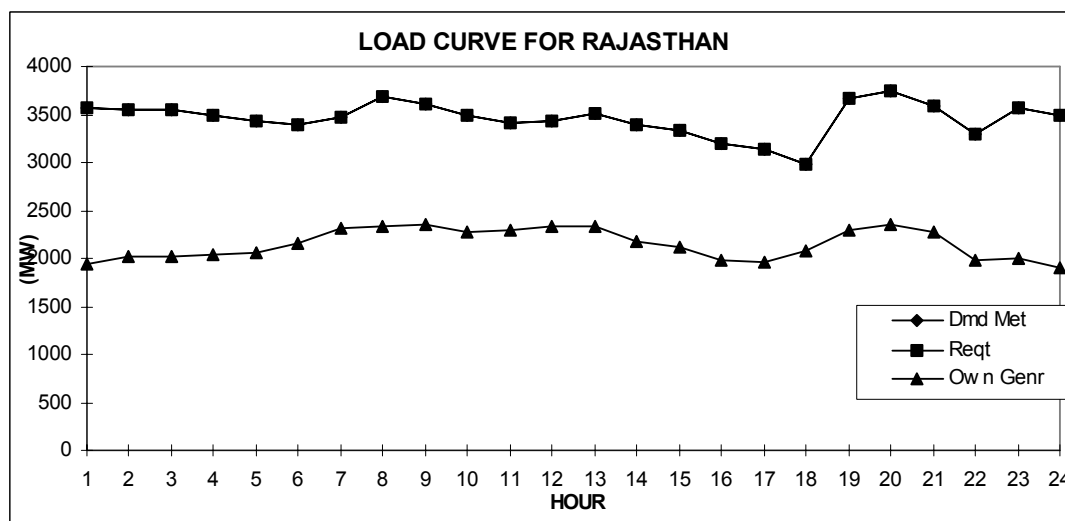
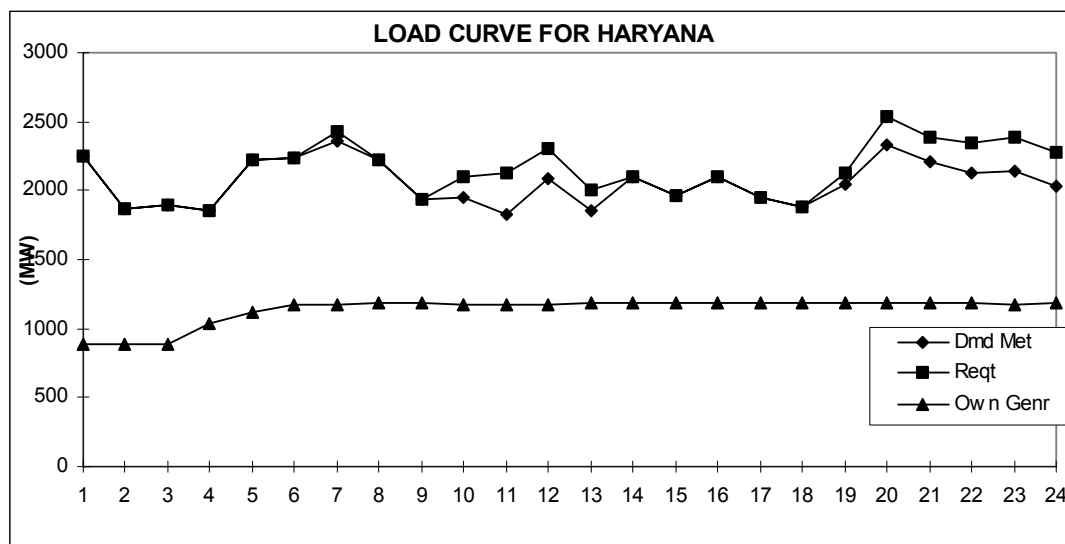


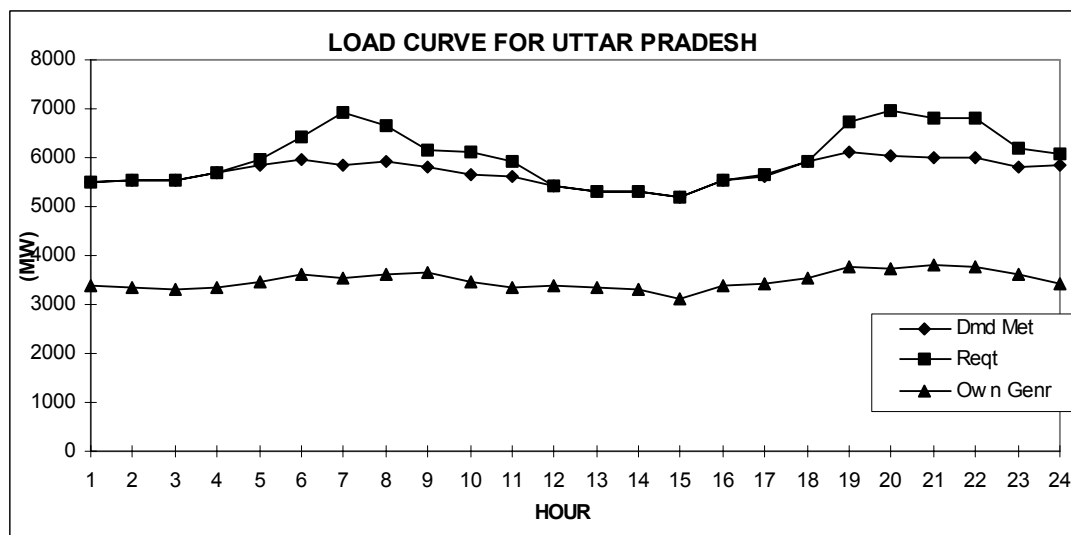
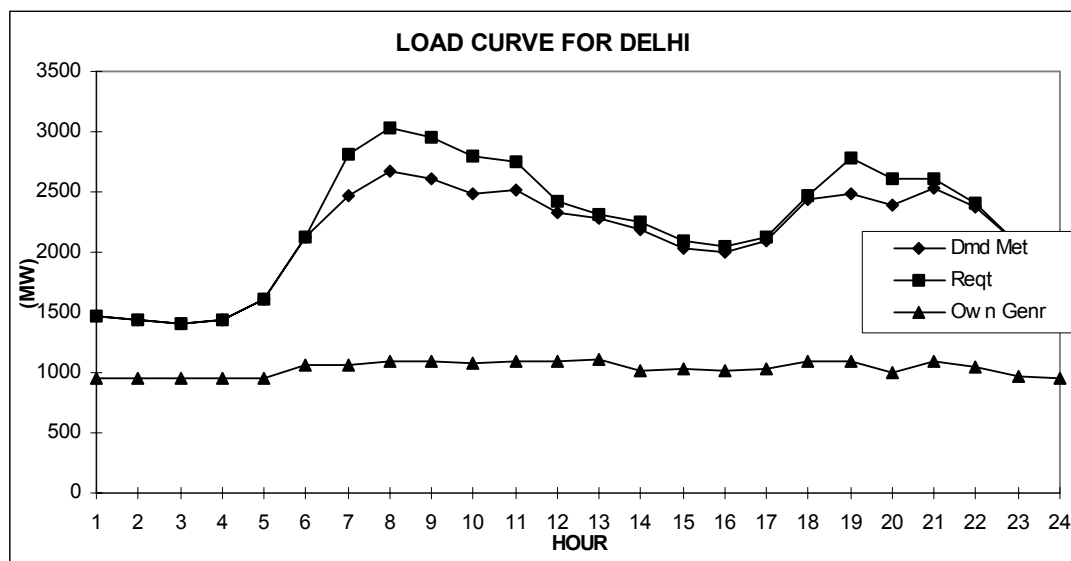




STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(30.01.2002)







MINOR GRID INCIDENTS DURING JANUARY 2002

S No.	DATE	TIME	INCIDENT
1	09.01.2002	01:45	In this disturbance Southern Rajasthan and parts of Western Rajasthan system separated from main Grid and collapsed. All the running units at Kota TPS, Suratgarh TPS, Anta GPS, RAPP-A & RAPP-B were tripped along with the connected transmission network which resulted in total loss of supply. The incident initiated due to automatic closing of circuit breaker of faulty 132 kV Kota(S)-Sangod line at Kota (S) end, because of low air pressure.
2	15.01.2002	00:27	An incident occurred in Delhi/BTPS/BBMB/HVPN system in which units at BTPS (#1,2 & 5) & Delhi GT got separated from rest of the Grid and continued to operate in islanded mode. The Island experienced wild frequency fluctuation due to small size of island (around 300 MW) & absence of free governor action. In this incident all the running units at Faridabad gas, Faridabad(Th) & BTPS (#3 & 4) were also tripped. The Island syn-chronised with main Grid at 01:50 hrs.