



GRID REPORT

July 2001

SYSTEM OPERATION REPORT OF NORTHERN REGION FOR THE MONTH OF JULY, 2001

A. SUMMARY REPORT:

I Important events:

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

- (i) Panipat # 6 (210MW) synchronized at 04:13 hrs of 05.07.2001.
- (ii) Two units of 43 MW each were commissioned on 04.07.2001 & 08.07.2001 in Himachal Pradesh by Malana Power Company(IPP).
- (iii) LILO of Singrauli-Allahabad-Kanpur-II was completed at 15:20hrs of 08.07.2001.
- (iv) Commissioning of 220 kV Samaypur-Palla D/C was completed with charging of circuit-II at 16:28 hrs of 24.07.2001.

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

The average system frequency during the month of July 2001, was 49.77 Hz and frequency remained between 49.0 & 50.5 Hz for 83.10 % of time. The system voltage condition was satisfactory during the month and was well within the prescribed limits.

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 tripping of 400kV Uri-Wagoora lines and in TanakpurHEP due to tripping of 220 kV Tanakpur-Bareilly D/C.

Backing down was carried out in Singrauli /Rihand/ Anpara on 02.07.2001 & 21.07.2001 due to tripping of $\pm$ 500 kV Rihand-Dadri HVDC bipole.

There was no major grid disturbance in the region during July 2001.

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

NIL

II. CENTRAL GENERATING STATIONS SHARE vs DRAWAL OF ALL CONSTITUENTS DURING JULY 2001

Sl. No.	State/UT/ System	NTPC (Excl. BTPS, Tanda & FGPS)		NHPC		NPC (Excl. RAPS-A)		BBMB		TOTALS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	44.96	38.46	21.06	21.07	4.38	1.73	46.43	46.58	116.83	107.85
2	Delhi	865.27	855.90	128.11	128.11	45.13	41.36	0.00	0.00	1038.50	1025.37
3	Haryana	402.09	483.25	188.18	188.19	34.44	125.02	284.86	286.49	909.57	1082.95
4	H.P.	68.34	67.21	73.08	73.07	8.39	8.74	21.09	21.18	170.89	170.21
5	J & K	158.41	147.75	242.87	242.87	21.01	16.81	0.00	0.00	422.29	407.43
6	Punjab	435.81	408.20	245.76	245.76	59.00	29.01	410.56	412.82	1151.13	1095.79
7	Rajasthan	468.72	482.04	128.04	128.03	169.93	76.27	204.13	204.87	970.82	891.21
8	U.P.	1442.55	1426.07	126.53	126.52	98.42	141.74	0.00	0.00	1667.50	1694.32
9	MP / N.F.F.	6.72	13.68	0.00	0.00	0.00	0.00	14.88	10.01	21.60	23.69
10	Bihar	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96
11	Trans. Losses	100.31	100.31	23.48	23.48	9.12	9.12	49.50	49.50	182.41	182.41
12	Others	52.19	21.53	0.00	0.00	0.00	0.00	0.00	0.00	52.19	21.53
	Total	4045.37	4045.37	1177.10	1177.10	449.81	449.81	1031.45	1031.45	6703.73	6703.73

(All figs. in MU)

III. INTER REGIONAL EXCHANGES IN MU AND PEAK MW

	Energy (MU)	Peak MW
a. Import over HVDC Back to Back at Vindhyachal	32.66	500
b. M.P. to Rajasthan(Ujjain - Kota)	0.00	0
c. Eastern region to Northern region (Import)	156.79	340
d. Export over HVDC Back to Back at Vindhyachal	46.09	500
e. 220 KV Auraiya -Malanpur	12.49	25
f. Northern region to Bihar (Export)	0.87	30
g. Tanakpur to Mahendranagar(NEPAL) (Export)	1.10	11

IV. FREQUENCY PROFILE

a. Maximum frequency	51.32	Hz	at	14:05 hours on	05.07.2001
Minimum frequency	48.20	Hz	at	19:05 hours on	23.07.2001
Average frequency	49.77	Hz			

b. Frequency distribution in %

Hz	< 48.0	48.0-49.0	49.0-49.5	49.5-50.5	50.5-51.0	> 51.0
%	0.00	7.65	25.02	58.08	8.38	0.87

c. Frequency Variation Index

Monthly Average	3.42
Maximum	7.53
Minimum	1.34

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	3.48	3.48	0.00	0.00
Delhi	58.53	60.07	1.54	2.56
Haryana	53.43	54.26	0.83	1.53
H.P.	8.76	8.77	0.01	0.11
J & K	13.94	15.28	1.34	8.77
Punjab	93.29	98.89	5.60	5.66
Rajasthan	53.68	53.73	0.05	0.09
U.P.	115.33	131.87	16.54	12.54
N.F.F./Rail	1.02	1.02	0.00	0.00
Total	401.46	427.37	25.91	6.06

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	176	176	0	0	0.00	0.00
Delhi	2829	3011	182	240	6.04	7.97
Haryana	2773	2798	25	194	0.89	6.93
H.P. *	500	500	0	0	0.00	0.00
J & K *	991	1071	80	230	7.47	21.48
Punjab	4665	5167	502	550	9.72	10.64
Rajasthan	2959	2959	0	0	0.00	0.00
U.P.	6046	6983	937	1455	13.42	20.84
N.F.F./Rail	54	54	0	0	0.00	0.00
Region	20216	21559	1343	2247	6.23	10.42

Diversity Factor = 1.04

* Approximate and Estimated

B. DETAILED REPORT

I. 1. INSTALLED / EFFECTIVE CAPACITY AT THE END OF JULY 2001

-	<u>STATION</u>	<u>INSTALLED CAPACITY</u>	<u>EFFECTIVE CAPACITY</u>
-	-	<u>(MW)</u>	-
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	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	2x250	500.00	2x250	500.00
(g)	Ramgarh GT	1x3	3.00	1x3	3.00
(i)	Ramgarh GT EXT.	1x35.5	35.50	1x35.5	35.50
	Total Thermal		1388.50		1388.50
(J)	Wind farm	2+2	4.00	2+2	4.00
	Total Rajasthan		1826.82		1826.82
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

GRID REPORT JULY 2001

(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)			27817.49		27304.63

2. SUMMARY OF THE EFFECTIVE GENERATING CAPACITY(MW) IN THE NORTHERN REGION AT THE END OF JULY 2001

Agency / Source	Hydro	Thermal	Gas/Diesel/Wind	Nuclear	Total	% of Total
NTPC	---	5825.00	2344.04	---	8169.04	29.92%
NHPC	1984.20	---	---	---	1984.20	7.27%
NPC	---	---	---	1180.00	1180.00	4.32%
BBMB	2852.15	---	---	---	2852.15	10.45%
CHANDIGARH	---	---	1.40	---	1.40	0.01%
DELHI	---	396.50	282.00	---	678.50	2.48%
HARYANA	48.00	1025.00	25.20	---	1098.20	4.02%
HIMACHAL	411.97	---	0.13	---	412.10	1.51%
J&K	225.19	---	182.18	---	407.37	1.49%
PUNJAB	1145.10	2130.00	---	---	3275.10	11.99%
RAJASTHAN	434.32	1350.00	42.50	---	1826.82	6.69%
UP	1510.75	3909.00	---	---	5419.75	19.85%
Total	8611.68	14635.50	2877.45	1180.00	27304.63	100.00%
% of TOTAL	31.54%	53.60%	10.54%	4.32%	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 27304.63 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 31.07.2001

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

1.MALANA (IPP) 2x43 =86 MW

2.PANIPAT (Th) unit# 6 210 MW

II. SALIENT FEATURES OF SYSTEM CONDITIONS

1. Effective Generation Capacity at the end of month

Constituent	Effective Capacity		Increase	
	July 2001	July 2000	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	300.60	111.50	37.09
J & K	407.37	407.37	0.00	0.00
Punjab	3275.10	2675.10	600.00	22.43
Rajasthan	1826.82	1826.82	0.00	0.00
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	2818.65	33.50	1.19
Total	27304.63	26129.63	1175.00	4.50

2. Power Supply Position

State/UT	July 2001			July 2000			Percentage increase over 2000	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	3.48	3.48	0.00	3.08	3.08	0.00	12.99	12.99
Delhi	58.53	60.07	2.56	53.23	54.69	2.67	9.96	9.84
Haryana	53.43	54.26	1.53	47.91	48.68	1.58	11.52	11.46
HP	8.76	8.77	0.11	8.35	8.35	0.00	4.91	5.03
J&K	13.94	15.28	8.77	13.56	15.05	9.90	2.80	1.53
Punjab	93.29	98.89	5.66	92.23	93.29	1.14	1.15	6.00
Rajasthan	53.68	53.73	0.09	55.74	56.18	0.78	-3.70	-4.36
UP	115.33	131.87	12.54	105.96	123.33	14.08	8.84	6.92
NFF/Rail	1.02	1.02	0.00	0.14	0.14	0.00	628.57	628.57
REGION	401.46	427.37	6.06	380.20	402.79	5.61	5.59	6.10
Frequency Regime								
July 2001			July 2000					
Average (Hz)		49.77		49.54				

Above 50.5 Hz (%)	9.25	18.26
Above 50.2 Hz (%)	22.84	29.75
Below 49.5 Hz (%)	32.67	45.90
Below 49.0 Hz (%)	7.65	31.71
Below 48.5 Hz (%)	0.48	18.86

3. Peak Power Supply Position

State/UT	July 2001			July 2000			Percentage increase over 2000	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	176	176	0.00	164	164	0.00	7.32	7.32
Delhi	2829	3011	6.04	2621	2941	10.88	7.94	2.38
Haryana	2773	2798	0.89	2497	2549	2.04	11.05	9.77
HP	500	500	0.00	579	579	0.00	-13.64	-13.64
J&K	991	1071	7.47	972	1082	10.17	1.95	-1.02
Punjab	4665	5167	9.72	4897	4997	2.00	-4.74	3.40
Rajasthan	2959	2959	0.00	3260	3328	2.04	-9.23	-11.09
UP	6046	6983	13.42	5679	6611	14.10	6.46	5.63
NFF/Rail	54	54	0.00	7	7	0.00	671.43	671.43
REGION	20216	21559	6.23	19366	21409	9.54	4.39	0.70

III. FREQUENCY PROFILE DURING JULY 2001

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	49.99	51.24	8.13	48.60	20.19	0.44	1.94
2	49.96	50.96	3.15	48.84	21.14	0.42	1.74
3	49.97	51.24	8.18	48.68	23.36	0.50	2.49
4	49.83	51.08	8.09	48.72	19.40	0.43	2.12
5	49.71	51.32	14.05	48.64	12.14	0.51	3.44
6	49.38	51.08	8.10	48.48	19.45	0.47	6.12
7	49.71	51.20	20.00	48.60	0.23	0.57	4.08
8	50.10	51.12	18.31	48.60	20.22	0.44	2.01

9	49.83	50.84	10.30	48.52	19.54	0.43	2.12
10	49.63	50.80	8.08	48.64	6.14	0.45	3.36
11	49.75	51.20	7.58	48.44	0.15	0.58	3.96
12	49.77	51.28	7.54	48.72	5.25	0.57	3.75
13	49.91	51.24	8.39	48.72	0.06	0.48	2.35
14	49.84	51.04	8.46	48.84	14.01	0.33	1.34
15	50.04	51.12	8.17	48.60	20.35	0.54	2.92
16	50.35	51.20	17.59	49.12	21.35	0.42	3.00
17	50.13	51.12	2.19	48.28	19.38	0.57	3.45
18	49.82	51.12	18.28	48.60	23.20	0.41	2.05
19	49.54	50.84	20.09	48.68	19.10	0.40	3.70
20	49.76	51.12	8.06	48.60	19.49	0.54	3.47
21	49.94	51.00	3.42	48.52	23.11	0.49	2.48
22	49.86	51.24	18.03	48.36	19.52	0.49	2.64
23	49.45	51.12	8.08	48.20	19.05	0.49	5.43
24	49.26	51.24	8.05	48.20	6.13	0.45	7.53
25	49.46	50.64	8.06	48.20	19.05	0.45	4.99
26	49.72	51.20	8.04	48.28	19.48	0.55	3.86
27	49.32	50.72	6.01	48.36	6.40	0.51	7.25
28	49.71	51.12	14.06	48.64	5.20	0.50	3.36
29	49.79	50.72	10.20	48.52	19.49	0.38	1.89
30	49.70	51.08	18.04	48.60	19.44	0.48	3.21
31	49.58	50.88	10.10	48.40	19.22	0.47	3.97
Monthly	49.77	51.32		48.20		0.54	3.42

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 JULY 2001

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	417	384	412	368	420	383	410	385	210	179
2	415	389	410	382	429	403	409	390	210	191
3	415	391	410	378	429	394	411	388	210	185
4	417	391	414	384	427	400	410	389	210	189
5	415	388	414	370	425	389	409	386	210	179
6	413	386	410	370	422	385	408	384	206	179
7	415	397	410	386	422	398	408	390	204	189
8	417	394	414	384	431	398	412	394	212	196
9	419	388	412	364	422	387	409	382	210	182
10	413	386	404	362	420	383	404	376	208	178
11	415	388	412	374	418	389	418	387	218	203
12	415	386	408	372	420	387	412	385	215	202
13	415	388	414	382	422	389	412	390	218	205
14	417	395	412	388	427	396	414	391	217	206
15	419	393	414	380	431	391	412	390	215	192
16	416	408	416	382	431	394	424	410	214	196
17	414	404	416	379	429	389	414	393	218	209
18	406	389	412	382	422	396	412	394	218	209
19	404	388	408	376	418	389	409	393	216	207
20	408	382	410	372	420	387	408	381	217	204
21	408	377	412	374	425	392	408	382	216	204
22	415	397	416	388	425	398	411	392	217	208
23	415	393	412	380	425	396	412	393	216	208
24	410	389	412	378	425	394	410	392	216	205
25	413	388	414	382	427	396	410	392	217	207
26	413	393	414	382	427	392	410	390	217	207
27	417	399	416	386	427	398	410	390	215	206
28	417	399	414	388	425	403	410	385	216	206
29	415	402	414	390	420	400	410	392	215	208
30	419	397	414	384	425	394	412	390	218	209
31	413	397	410	384	420	396	404	386	215	206
Month	419	377	416	362	431	383	424	376	218	178

V. PERFORMANCE OF GENERATING STATIONS DURING JULY 2001

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	473.58	429.28	1757.41	1588.96
(b)	Singrauli STPS	2000.00	1226.62	1145.62	4750.61	4417.22
(c)	Rihand STPS	1000.00	689.02	630.56	2706.64	2482.77
(d)	Dadri NCTPS	840.00	525.31	481.73	2135.11	1956.42
(e)	Unchahar-I TPS	420.00	247.76	224.38	1098.19	994.55
(f)	Unchahar-II TPS	420.00	296.63	268.23	1056.48	950.86
(g)	Tanda TPS	440.00	107.06	93.50	475.59	416.16
(h)	Anta GPS	419.33	261.26	257.75	1046.09	1024.47
(i)	Auraiya GPS	663.36	451.42	443.97	1715.34	1688.74
(j)	Dadri GPS	829.78	444.09	433.10	1949.40	1899.93
(k)	Faridabad GPS	431.57	176.40	170.29	942.85	917.10
	Total NTPC	8169.04	4899.14	4578.40	19633.71	18337.18
B	NHPC					
(a)	Bairasiul	180.00	99.36	94.02	293.46	285.14
(b)	Salal	690.00	469.59	465.01	1464.84	1450.18
(c)	Tanakpur HPS	94.20	61.77	61.40	163.66	161.25
(d)	Chamera HPS	540.00	378.01	376.90	1040.73	1039.23
(e)	Uri HPS	480.00	182.89	180.84	961.19	951.57
	Total NHPC	1984.20	1191.61	1178.17	3923.88	3887.37
C	NPC					
(a)	RAPS -A	300.00	148.34	135.78	507.01	465.36
(b)	RAPS -B	440.00	193.50	174.71	836.93	755.92
(c)	NAPS	440.00	304.62	275.10	911.62	816.15
	Total NPC	1180.00	646.45	585.59	2255.56	2037.43
2	JOINTLY OWNED (BBMB)					

(a)	Bhakra Complex	1465.15	514.40	511.69	1606.86	1598.19
(b)	Dehar	990.00	444.72	444.72	1374.15	1368.21
(c)	Pong	366.00	75.05	75.05	214.98	211.02
	Total BBMB	2821.15	1034.17	1031.46	3195.99	3177.42
3	DELHI					
(a)	Indra Prastha	247.50	59.86	52.68	287.99	253.43
(b)	Rajghat	149.00	48.92	43.54	153.26	136.40
(c)	Gas Turbines	282.00	123.53	119.83	429.93	417.03
	Total DELHI	678.50	232.31	216.04	871.18	806.86
4	HARYANA					
(a)	WYC	48.00	22.01	21.79	76.05	75.29
(b)	Faridabad (New)	165.00	74.52	64.46	226.79	196.17
(c)	Panipat	860.00	322.75	284.02	1124.26	989.35
(d)	Magnum Diesel(IPP)	25.20	9.69	9.69	25.54	25.39
	Total Haryana	1098.20	428.97	379.96	1452.64	1286.20
5	HP					
(a)	Giri	60.00	37.76	37.67	79.34	78.97
(b)	Bassi	60.00	40.92	40.87	133.83	133.31
(c)	Binwa	6.00	3.04	3.03	9.78	9.73
(d)	Rongtong (+Nogli+Micro+Thirot+Sal-2)	15.02	2.60	2.57	8.86	8.75
(e)	Andhra	16.95	9.74	9.72	26.69	26.56
(f)	Bhabha (H)	120.00	80.76	80.67	205.10	204.57
(g)	Baner (H)	12.00	5.77	5.76	15.62	15.57
(h)	Gaj (H)	10.50	6.73	6.71	18.23	18.11
(i)	Gumma	3.00	1.73	1.72	3.92	3.89
(j)	Ghanvi	22.50	5.33	5.31	14.78	14.72
(k)	Malana (IPP)	86.00	41.71	41.71	41.71	41.71
	Total HP	411.97	236.07	235.73	557.86	555.88
6	J & K					
(a)	Lower Jhelum	105.00	35.53	35.18	146.94	145.47
(b)	Upper Sindh	57.60	19.16	18.96	89.68	88.79

GRID REPORT JULY 2001

(c)	Ganderbal	15.00	3.33	3.29	10.08	9.98
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	7.47	7.40	31.69	31.37
(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	65.49	64.83	278.40	275.61
7	PUNJAB					
(a)	Jogindernagar/ Shanan	110.00	76.02	75.98	253.70	252.22
(b)	UBDC	90.00	37.83	37.72	129.35	128.30
(c)	Mukerian	207.00	83.22	82.91	252.70	250.84
(d)	Anandpur Sahib (APS)	134.00	65.82	65.69	176.75	175.50
(e)	Ranjit Sagar HPS	600.00	129.27	129.03	604.35	602.59
(f)	Small Hydel	4.10	0.93	0.93	2.82	2.79
(g)	GNDTPS (Bhatinda)	440.00	268.79	242.54	954.76	863.46
(h)	GGSTPS (Ropar)	1260.00	872.70	803.93	2858.02	2611.90
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	309.58	282.54	998.39	903.61
	Total Punjab	3275.10	1844.16	1721.26	6230.84	5791.21
8	RAJASTHAN					
(a)	Mahi Bajaj Sagar	140.00	0.00	0.00	0.01	0.01
(b)	Rana Pratap Sagar (RPS)	172.00	0.09	0.09	9.13	9.03
(c)	Jawahar Sagar (JS)	99.00	13.00	12.94	23.92	23.85
(d)	Anoopgarh	9.00	0.00	0.00	0.10	0.10
(e)	Small Hydro	14.32	0.00	0.00	1.63	1.63
(f)	Kota TPS	850.00	428.79	385.03	1927.73	1739.08
(g)	RAMGARH GT	3.00				
(h)	RAMGARH GT EXT	35.50	17.88	17.88	61.03	61.03
(I)	Suratgarh TPS	500.00	242.32	217.86	1163.08	1054.96
(j)	Wind Farm	4.00	0.00	0.00	0.67	0.67

	Total Rajasthan	1826.82	702.08	633.79	3187.30	2890.34
9 U.P.						
	<u>HYDRO</u>					
(a)	Rihand	300.00	110.63	109.52	223.68	221.44
(b)	Obra	99.00	49.06	48.57	94.54	93.60
(c)	Matatilla	30.00	14.30	14.15	17.11	16.94
(d)	Khatima	41.40	18.70	18.51	30.85	30.55
(e)	Ramganga	198.00	0.00	0.00	103.24	102.21
(f)	Ganga Canal	43.40	14.10	13.96	57.44	56.87
(g)	Yamuna (I & IV)	114.75	66.62	65.96	183.75	181.91
(h)	Chibro	240.00	123.44	122.20	315.33	312.18
(i)	Khodri	120.00	57.17	56.59	151.03	149.52
(j)	Chilla	144.00	70.22	69.52	207.43	205.35
(k)	Maneri Bhali	90.00	1.92	1.90	135.64	134.29
(l)	Khara	72.00	44.83	44.38	130.62	129.31
	Total U.P. (Hydro)	1492.55	570.98	565.27	1650.67	1634.16
	<u>THERMAL</u>					
(m)	Obra	160.00	12.35	10.80	59.49	52.05
(n)	Obra Extn. - I	282.00	33.61	29.41	156.67	137.09
(o)	Obra Extn. - II	1000.00	273.10	238.96	1419.63	1242.18
(p)	Panki	32.00	0.00	0.00		
(q)	Panki Extn.	210.00	92.40	80.85	372.35	325.81
(r)	Harduaganj - A	0.00	0.00	0.00		
(s)	Harduaganj - B	150.00	0.00	0.00		
(t)	Harduaganj - C	225.00	28.02	24.51	187.08	163.69
(u)	Paricha	220.00	73.36	64.19	255.60	223.65
(v)	Anpara - A	630.00	335.69	293.73	1402.38	1227.09
(w)	Anpara - B	1000.00	622.49	544.68	2732.05	2390.55

	Total U.P. (Thermal)	3909.00	1786.98	1563.61	6585.26	5762.10
	Total U.P.	5401.55	2357.96	2128.88	8235.93	7396.26
	Total Region	27246.72	13638.39	12754.12	49823.27	46441.76

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 JULY 2001

[illegible]

GRID REPORT JULY 2001

11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	36.90	36.90	20.95	20.95	0.00	1.09	0.00
	TOTAL	1109.78	1109.78	630.57	630.57	429.28	39.06	0.00

Note :- Singrauli sentout excludes 35.84 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	0.94	0.58	3.85	0.82
2	Delhi	415.13	397.74	10.89	12.54	23.96	22.48
3	Haryana	17.63	17.59	6.86	8.04	28.30	102.67
4	H.P.	0.00	0.04	2.47	2.27	8.67	6.85
5	J & K	0.00	0.18	5.35	5.45	22.90	7.81
6	Punjab	0.00	0.21	14.50	10.39	48.62	22.11
7	Rajasthan	0.00	0.20	6.43	4.43	13.36	33.53
8	U.P.	48.97	59.83	169.48	173.22	109.68	63.06
9	MP	0.00	5.14	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	0.79	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	7.46	7.46	8.90	8.90
	Total	481.73	481.73	224.38	224.38	268.23	268.23

Sl. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	4.33	4.33	5.59	4.33	0.89	0.89
2	Delhi	35.69	35.69	63.26	63.44	19.68	19.68
3	Haryana	21.78	21.78	38.44	38.59	9.74	9.74
4	H.P.	8.84	8.84	14.26	14.30	4.78	4.78
5	J & K	18.14	18.14	30.28	30.57	61.07	61.07
6	Punjab	33.43	33.43	61.40	61.62	24.62	24.62
7	Rajasthan	57.07	57.07	53.38	51.45	16.04	16.04

GRID REPORT JULY 2001

8	U.P.	68.16	68.16	162.67	162.99	42.22	42.22
9	MP	0.00	0.00	0.00	1.82	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	0.17	0.00	0.00
12	Trans. Losses	10.31	10.31	14.70	14.70	1.81	1.81
	TOTAL	257.75	257.75	443.98	443.98	180.84	180.84

Sl. No.	State/UT/ System	Dadri GPS		Bairasiul HPS		Salal HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	4.72	3.29	0.00	0.00	1.24	1.24
2	Delhi	58.73	66.35	9.93	9.93	53.28	53.28
3	Haryana	42.48	47.94	27.53	27.53	68.86	68.86
4	H.P.	11.87	12.67	10.83	10.83	4.54	4.54
5	J & K	28.23	32.04	0.00	0.00	159.54	159.54
6	Punjab	68.51	71.01	41.97	41.97	121.96	121.96
7	Rajasthan	60.68	57.50	0.00	0.00	13.53	13.53
8	U.P.	105.69	120.78	0.00	0.00	37.42	37.42
9	MP	0.00	0.00	0.00	0.00	0.00	0.00
10	Railways	52.19	21.53	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	3.76	3.76	4.65	4.65
	Total	433.10	433.10	94.02	94.02	465.02	465.02

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	0.68	0.68	18.25	18.25	0.00	0.00	0.00	0.00
2	Delhi	8.72	8.72	36.50	36.50	0.00	6.68	9.47	0.00
3	Haryana	4.63	4.63	77.42	77.42	0.00	9.59	86.51	0.00
4	H.P.	1.97	1.97	50.96	50.96	0.00	0.00	1.11	0.00
5	J & K	4.01	4.01	18.25	18.25	0.00	0.00	0.90	0.00
6	Punjab	9.93	9.93	47.28	47.28	0.00	23.50	2.17	0.00

GRID REPORT JULY 2001

7	Rajasthan	7.23	7.23	91.24	91.24	135.78	134.95	47.16	0.00
8	U.P.	21.37	21.37	25.52	25.52	0.00	0.00	27.39	93.50
9	Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Trans. Losses	1.76	1.76	11.50	11.50	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	60.30	60.30	376.92	376.92	135.78	174.71	174.71	93.50

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	4.38	1.73	46.43	46.58	0.00	0.00	0.00	9.67
2	Delhi	38.45	31.89	0.00	0.00	0.00	0.00	0.00	46.19
3	Haryana	24.85	38.50	139.15	140.78	133.88	11.83	170.29	44.69
4	H.P.	8.39	7.64	12.53	12.63	8.56	0.00	0.00	0.00
5	J & K	21.01	15.92	0.00	0.00	0.00	0.00	0.00	0.00
6	Punjab	35.50	26.84	191.99	194.25	200.82	17.75	0.00	0.00
7	Rajasthan	34.98	29.11	78.75	79.49	83.67	41.71	0.00	0.00
8	U.P.	98.42	114.35	0.00	0.00	0.00	0.00	0.00	56.25
9	N.F.F.	0.00	0.00	14.88	10.01	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	9.12	9.12	27.96	27.96	17.79	3.75	0.00	0.00
	Total	275.10	275.10	511.69	511.69	444.72	75.05	170.29	156.79

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

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING JULY 2001

	Chandigarh	Delhi	Haryana	Himachal	J & K	Punjab	Rajasthan	UP	MP	Bihar	Others
Chandigarh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Delhi	0.000	0.000	0.000	123.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Haryana	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Himachal	0.000	-123.700	0.000	0.000	0.000	-49.200	0.000	0.000	0.000	0.000	0.000
J & K	0.000	0.000	0.000	0.000	0.000	-43.400	0.000	0.000	0.000	0.000	0.000
Punjab	0.000	0.000	0.000	49.200	43.400	0.000	0.000	0.000	0.000	0.000	0.000
Rajasthan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bihar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Others	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	-123.700	0.000	172.900	43.400	-92.600	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 | 14.249MU |
| ii) Himachal's share in Shanan power station of Punjab | 5.828MU |
| iii) Himachal's share in Yamuna hydro power complex of UP | 64.677MU |
| iv) Maruti to Haryana | 13.134MU |

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 31.07.2001**

CONSTITUENT	REQUIREMENT AT THE END OF 2001-2002	CAPACITORS AS ON 31.07.2001	CAPACITORS ADDITION DURING		ADDITIONAL REQUIRED DURING 2001-2002
		INSTALLED	2000-2001	April 01 - July 01	
Chandigarh	127	96	60	3	31
Delhi	2734	2377	201	141	357
Haryana	3080	1967	368	324	1113
H.P.	335	165	46	29	170
J & K	880	147	0	0	733
Punjab	4950	4474	384	43	476
Rajasthan	3300	2362	176	5	938
U.P.	5654	4238	279	32	1416
BBMB	381	381	0	0	0
TOTAL	21441	16207	1514	577	5234

SOURCE: Minutes of 319th OCC meeting of NREB held on 10th August, 2001.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING JULY 2001

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 July 2001 (m) (ft)	485.46 1592.71	408.27 1339.46	267.25 876.80	350.29 1149.23	385.80 1265.74
Level on last day of July 2000 (m) (ft)	486.88 1597.38	405.62 1330.77	258.62 848.50	349.22 1145.75	384.94 1262.93
Live Capacity as on last day of July 2001 (mhmt) (maft)	0.32 2.57	0.34 2.74	0.50 4.05	0.11 0.87	0.08 0.63
Live Capacity as on last day of July 2000 (mhmt) (maft)	0.34 2.72	0.27 2.18	0.17 1.35	0.09 0.74	0.07 0.58
Energy content as on last day of July 2001 (MU)	1150.00	440.00	1450.00	205.00	250.00
Energy content as on last day of July 2000 (MU)	1220.00	375.00	315.00	167.00	200.00
Maximum level (m)	485.46	408.27	268.01	350.29	386.07

	(ft)	1592.71	1339.46	879.30	1149.23	1266.63
	(date)	31.07.2001	31.07.2001	25.07.2001	31.07.2001	17.07.2001
Minimum level	(m)	465.33	393.30	257.77	345.63	380.57
	(ft)	1526.68	1290.35	845.70	1133.96	1248.58
	(date)	01.07.2001	03.07.2001	01.07.2001	01.07.2001	01.07.2001

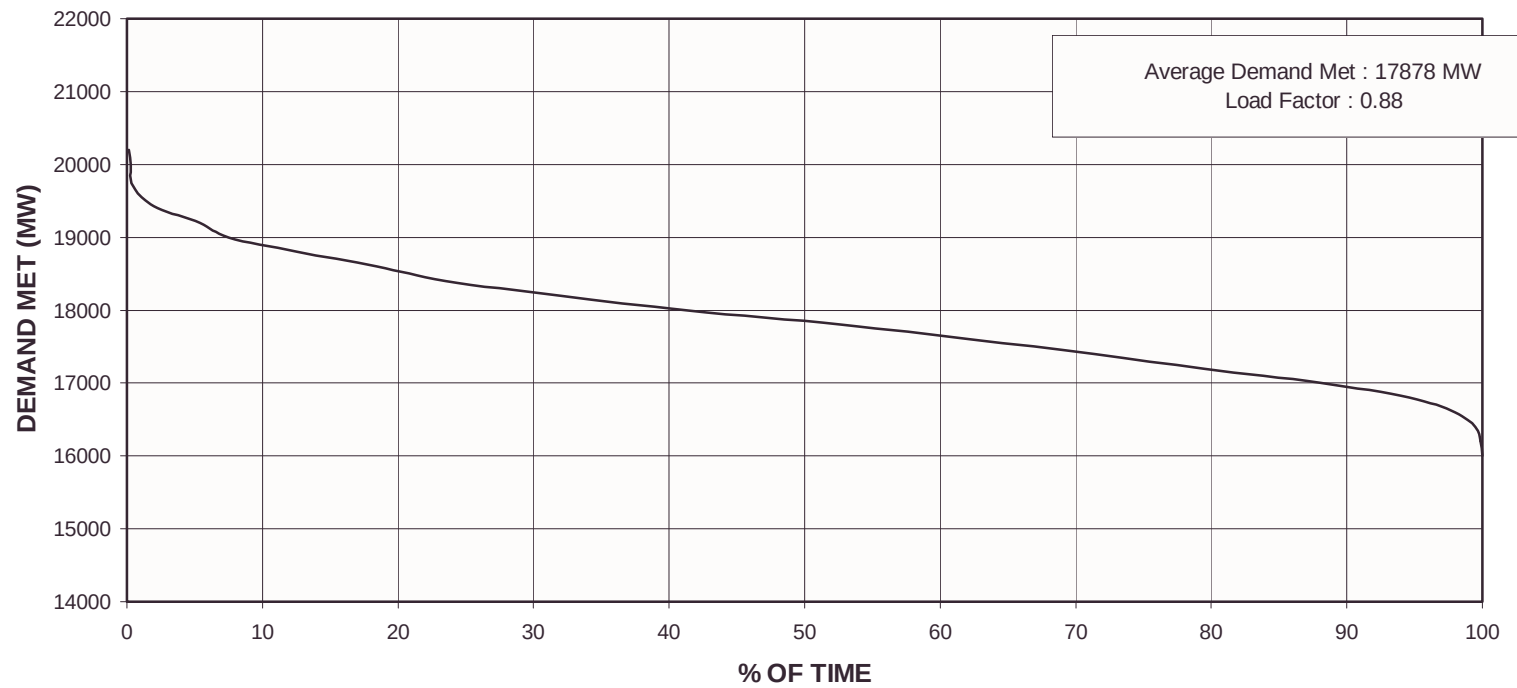
Energy content of Bhakra : Total Energy content at Bhakra, Ganguwal and Kotla power stations

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

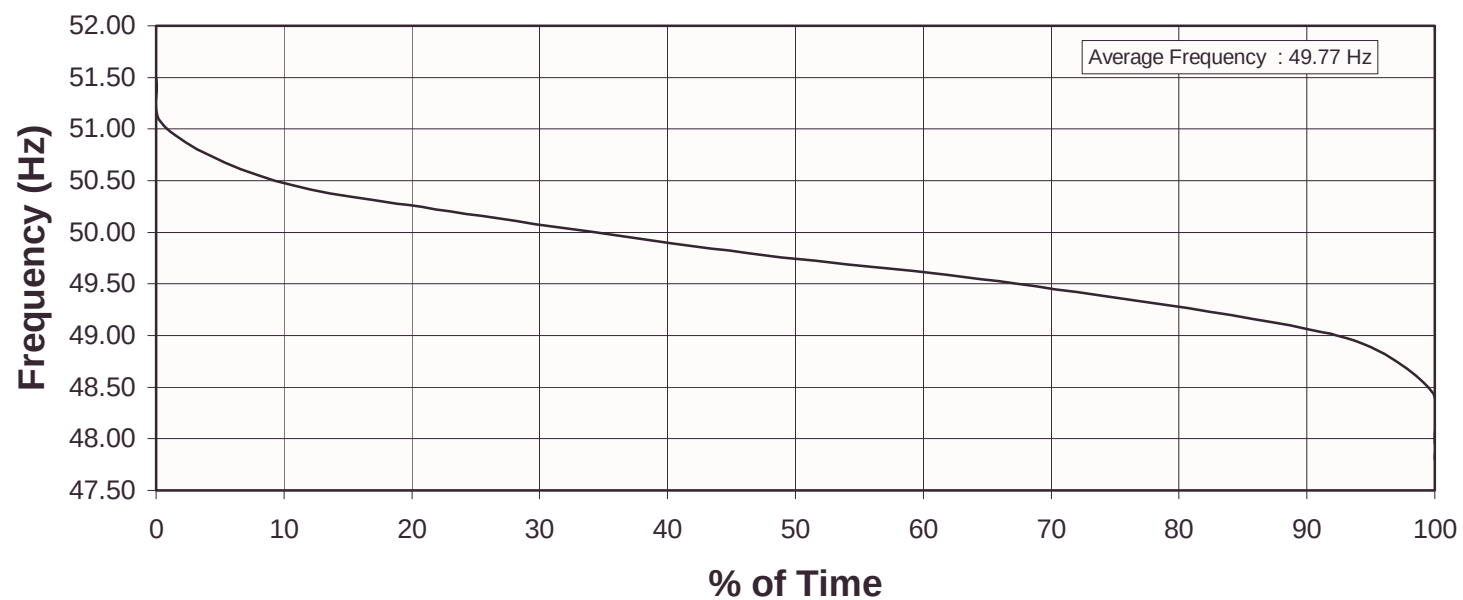
Energy content of RPS : Total Energy content of Rana Pratap Sagar and Jawahar Sagar Power Stations.

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

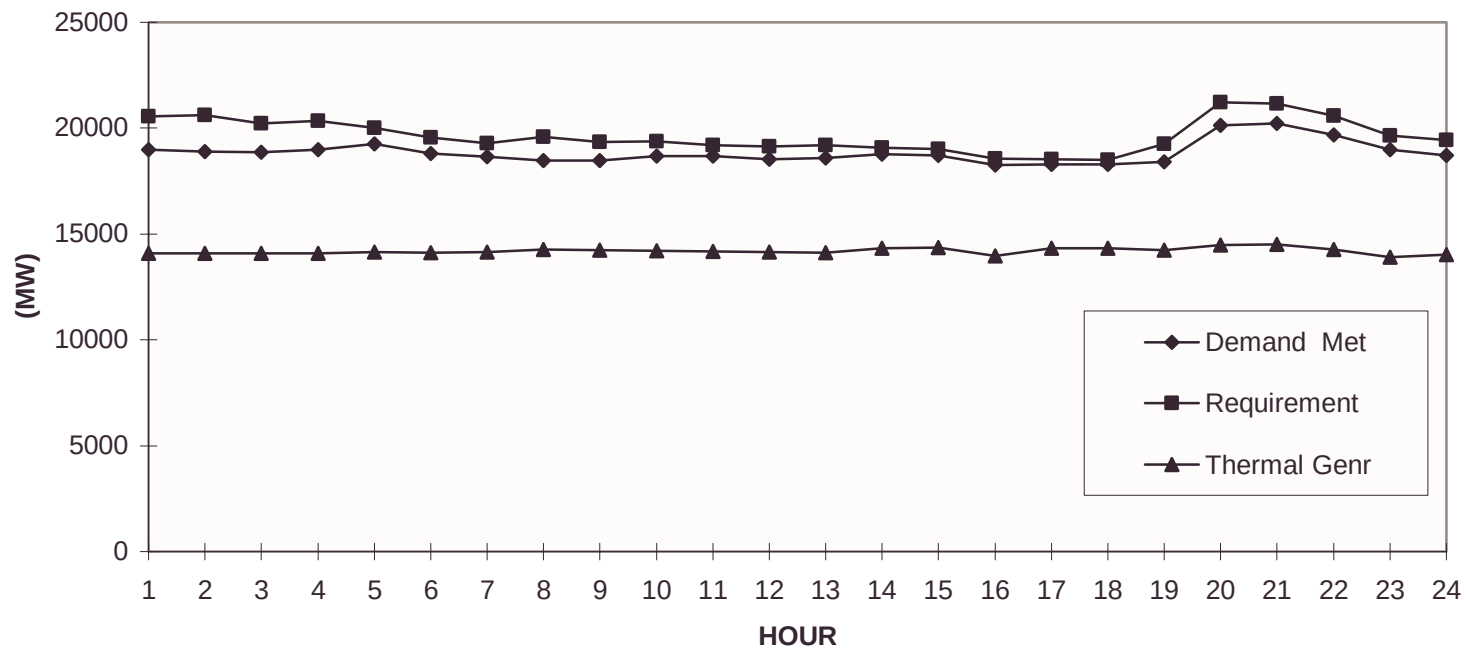
LOAD DURATION CURVE OF NORTHERN REGION FOR JULY 2001



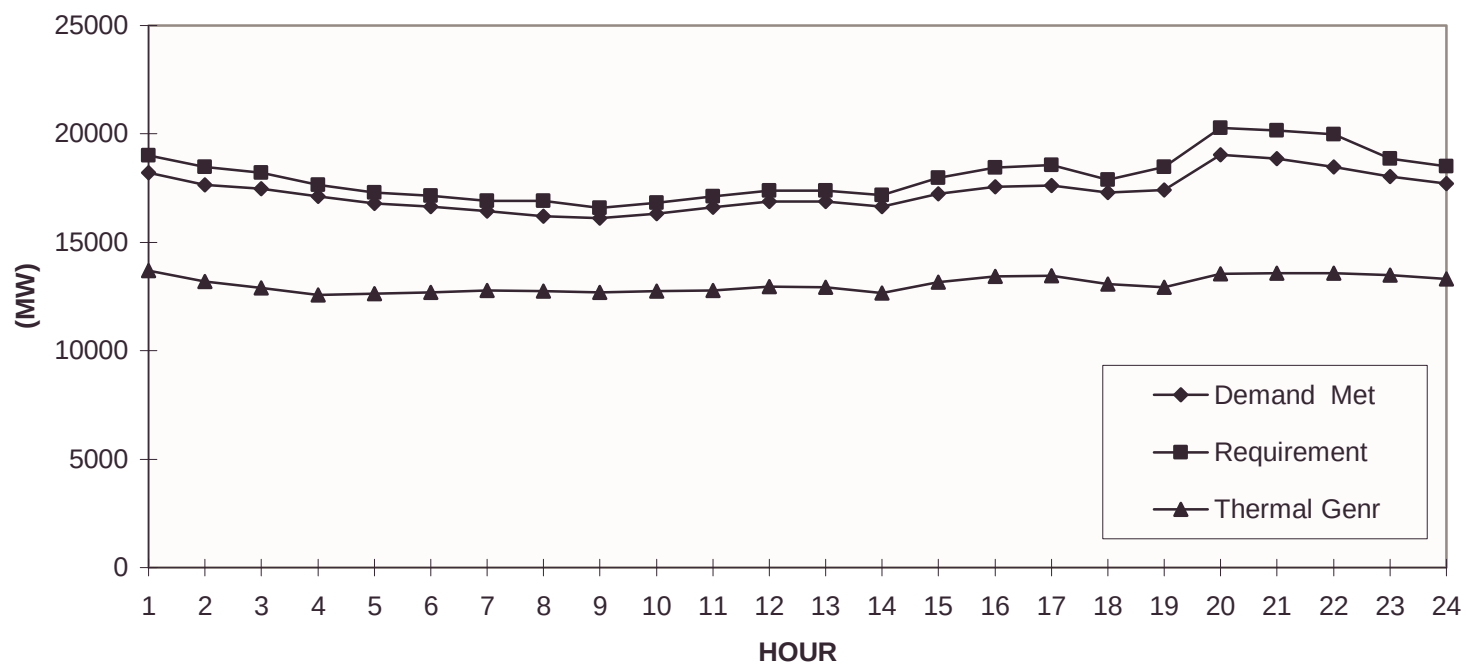
FREQUENCY DURATION CURVE OF NORTHERN REGION FOR JULY 2001



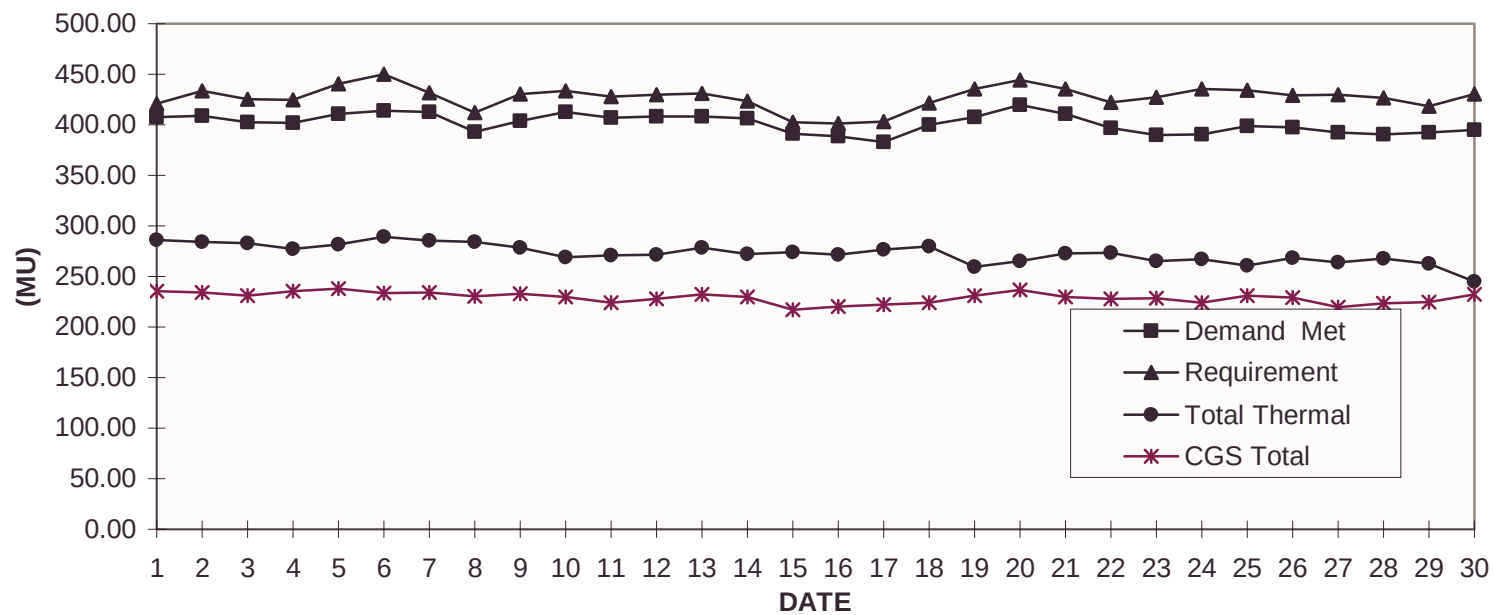
LOAD CURVE OF NORTHERN REGION FOR MAXIMUM DEMAND MET DAY (07.07.2001)



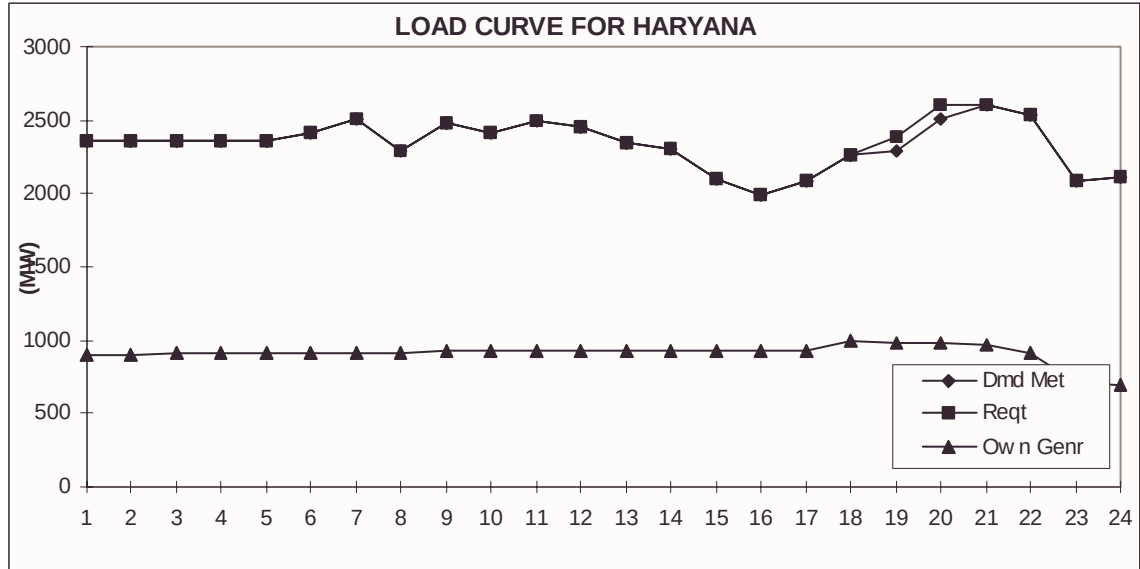
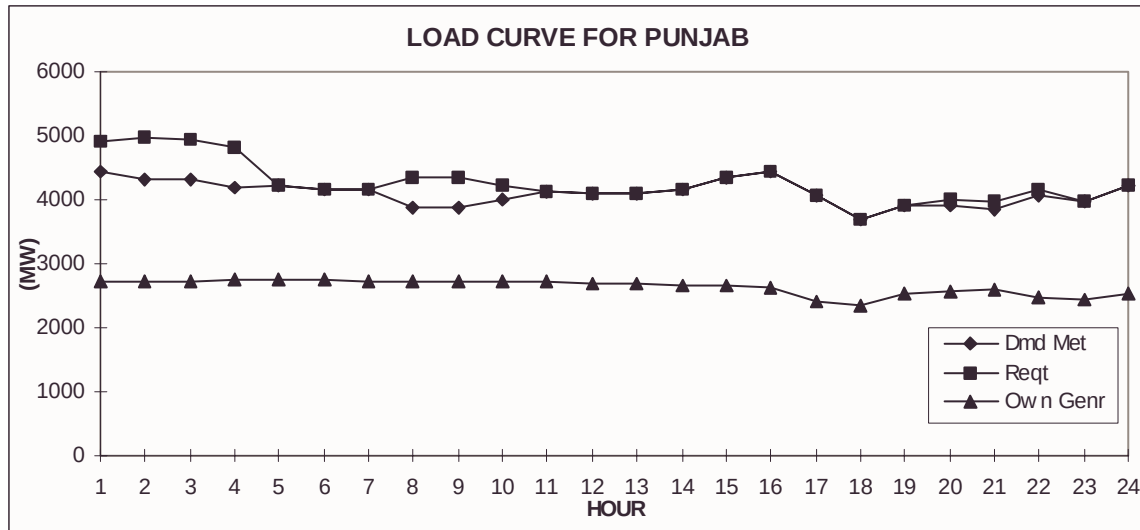
LOAD CURVE OF NORTHERN REGION FOR MINIMUM DEMAND MET DAY (16.07.2001)

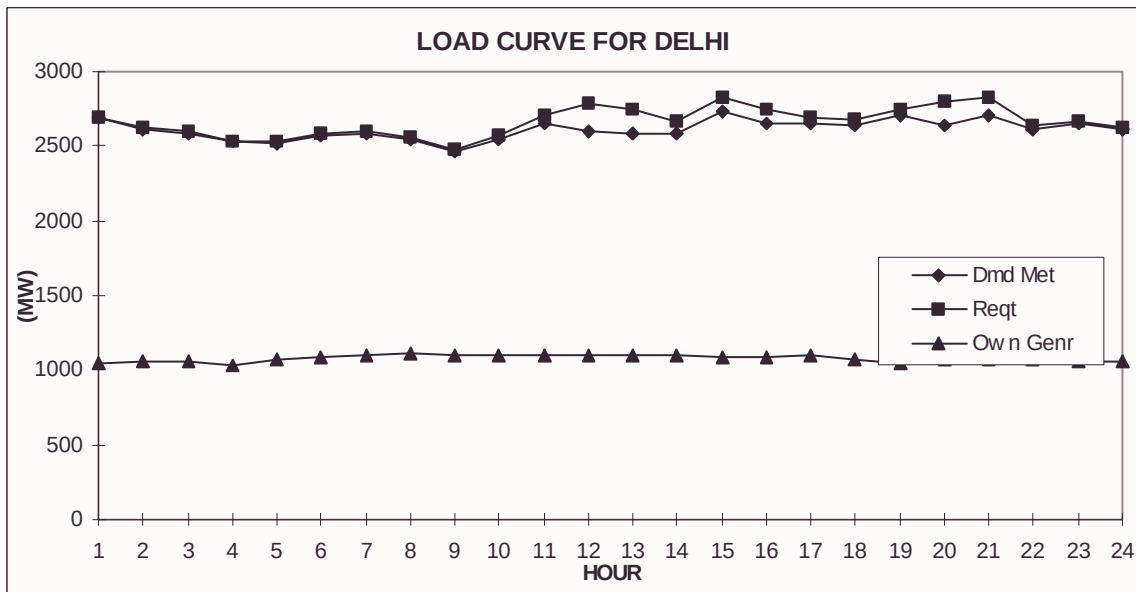
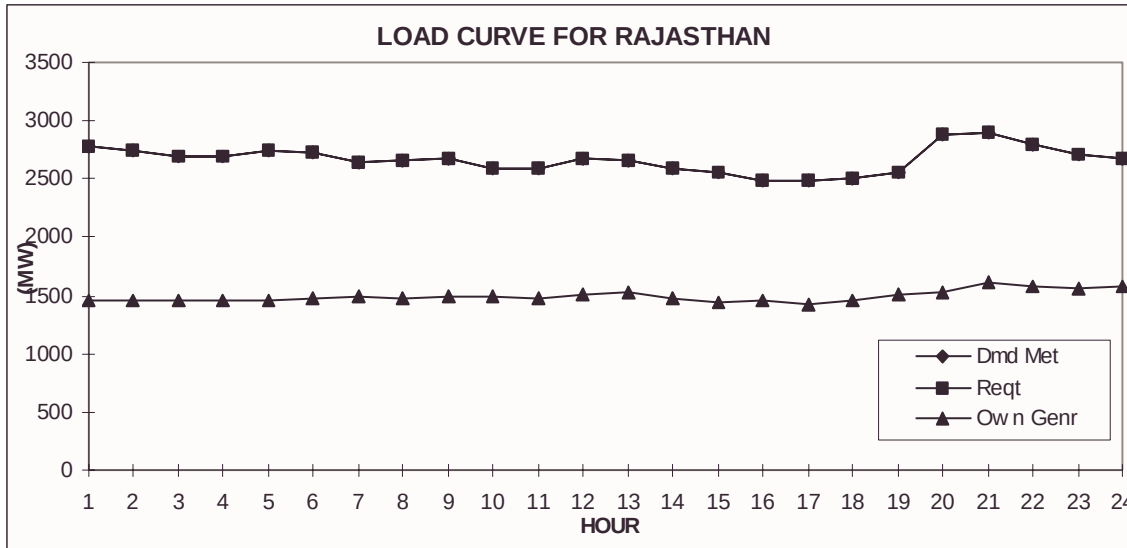


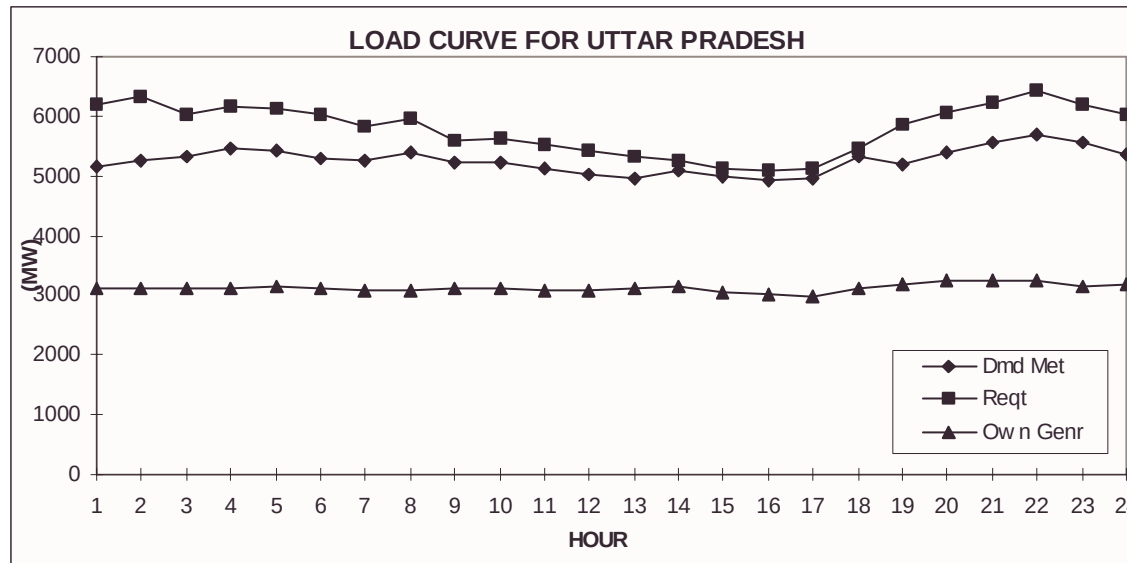
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING JULY 2001



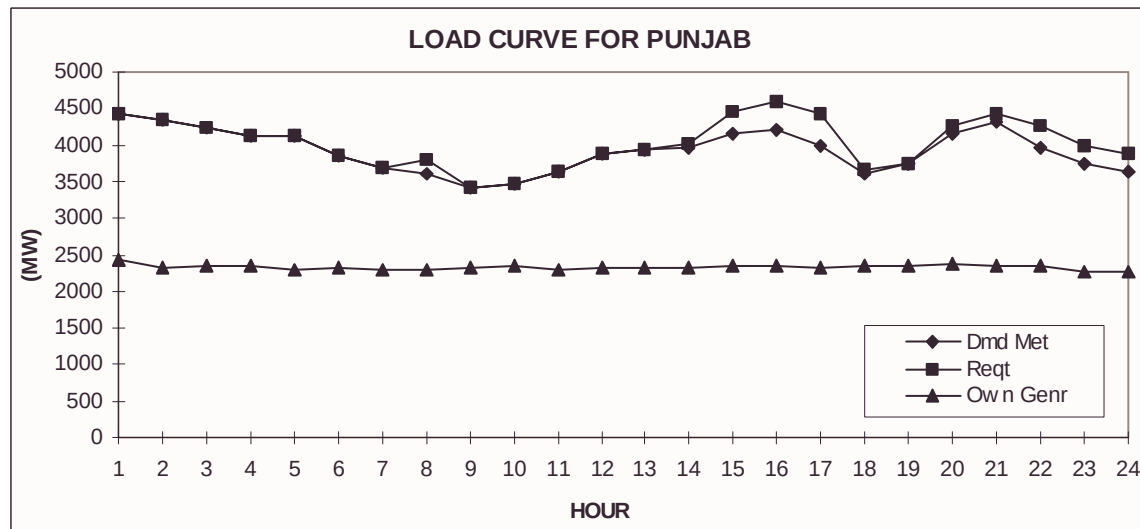
STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(07.07.2001)

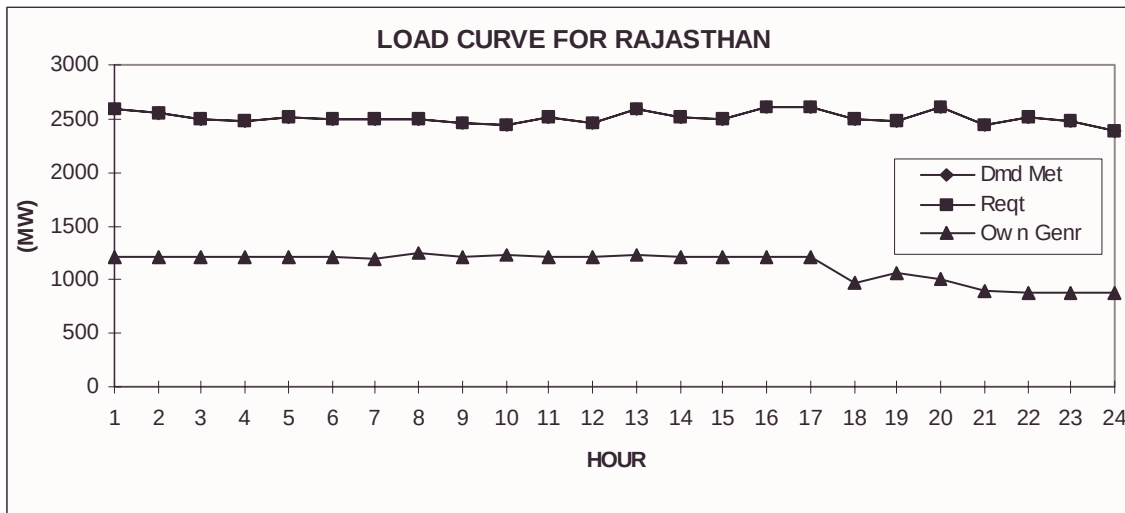
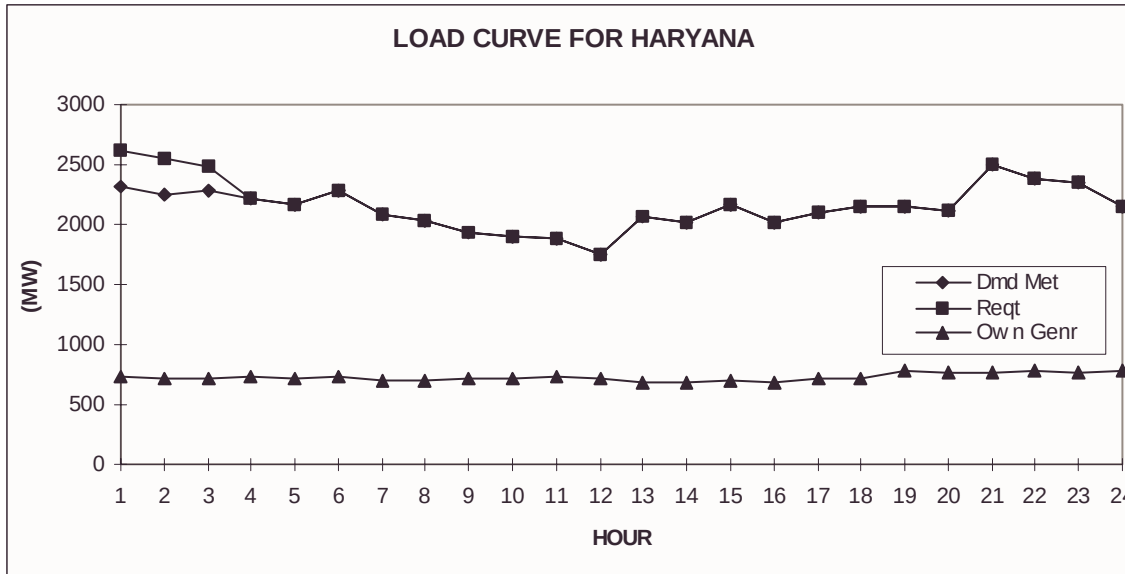


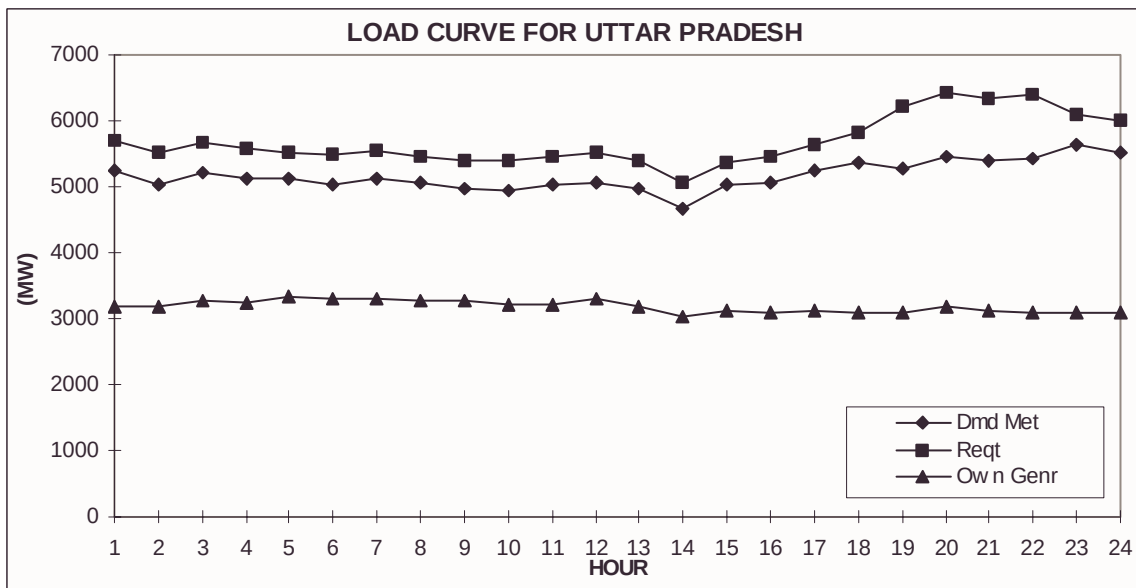
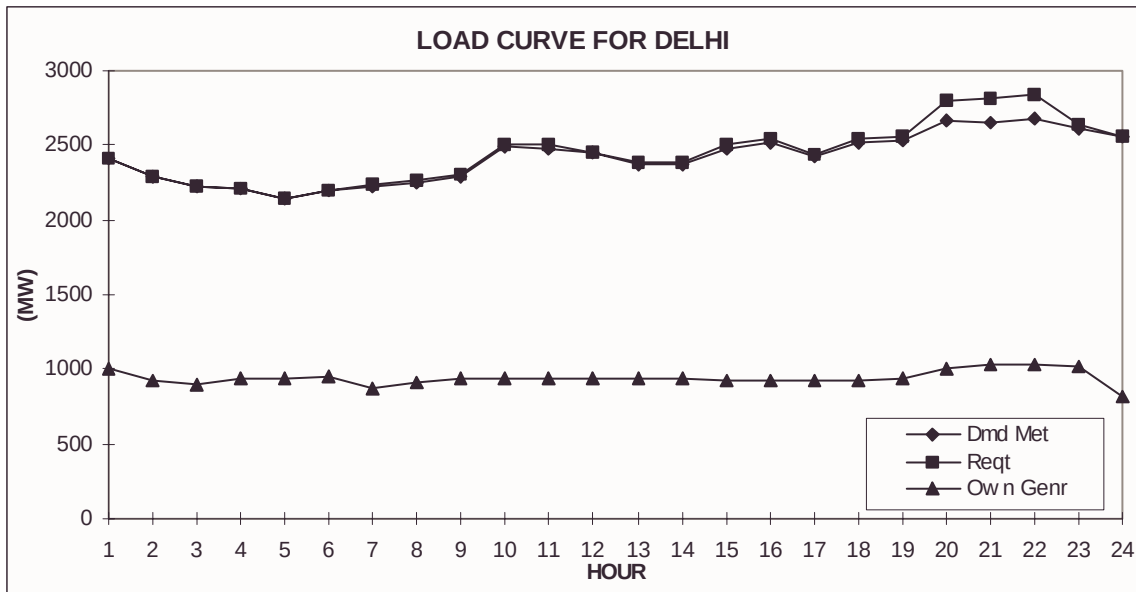




STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(16.07.2001)







MINOR GRID INCIDENTS DURING JULY 2001

S No.	DATE	TIME	INCIDENT
1	02.07.2001	00:10	$\pm$ 500 kV Rihand-Dadri HVDC pole-I tripped due to B ph converter transformer problem at Rihand end. This resulted in outage of both poles since pole-II was already out since 26.06.2001 due to Y ph converter transformer problem. HVDC pole-I was brought back into service at 01:28 hrs of 02.07.2001. During the above period loading of AC trunk lines were controlled by backing down of generation at Singrauli/Rihand/Anpara complex.
2	21.07.2001	12:51	$\pm$ 500 kV Rihand-Dadri HVDC bipole tripped due to lightning stroke and spurious signal at Rihand end. Pole-I & II were normalized at 13:22hrs and 14:24hrs of 21.07.2001 respectively.
3	21.07.2001	21:53	$\pm$ 500 kV Rihand-Dadri HVDC bipole tripped due to lightning stroke and spurious signal at Rihand end. Pole-I & II were normalized at 23:11hrs and 23:15hrs of 21.07.2001 respectively.
4	27.07.2001	21:31	All the 220 kV circuits emanating from Agra (UPPCL) tripped due to bursting of lightning arrestor of 220 kV Agra-Gokul line at Gokul end causing total interruption of power at Agra. The system was normalized at 23:11hrs.