



GRID REPORT

JUNE 2002

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

SUMMARY REPORT:

- **Important events:**

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

400/220 kV, 315 MVA, ICT-IV at Ballabgarh has been commissioned on 30.06.2002 at 22:23 hrs.

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

The average system frequency during the month of June 2002 was 49.92 Hz and frequency remained between 49.0 & 50.5 Hz for 68.77 % of the time. Although there was appreciable increase in the period when frequency remained in this normal band as prescribed by IEGC (Indian Electricity Grid Code), the large number of fluctuations from low to high & vice versa were a cause of concern. The implementation of free governor operation on all generating units in the region assumes importance.

Overall voltage profile in the grid during the month has been satisfactory on most of the 400 kV Buses and were generally within limits prescribed by IEGC.

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

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

NIL

II. CENTRAL GENERATING STATIONS SHARE vs DRAWAL OF ALL CONSTITUENTS DURING JUNE 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	35.90	32.40	15.43	15.5	5.26	3.79	50.51	50.57	107.10	102.23
2	Delhi	865.40	857.99	122.15	122.58	59.21	29.09	0.00	0.00	1046.75	1009.66
3	Haryana	415.46	419.02	150.38	150.78	37.78	65.89	347.63	348.37	951.25	984.05
4	H.P.	73.32	75.64	65.68	65.85	7.96	16.46	24.39	24.43	171.34	182.38
5	J & K	160.99	167.01	281.93	282.46	20.28	42.35	0.00	0.00	463.20	491.83
6	Punjab	504.07	501.17	226.50	227.10	52.33	40.18	497.68	498.71	1280.57	1267.16
7	Rajasthan	453.87	459.32	104.73	105.20	239.55	205.42	243.67	244.01	1041.81	1013.94
8	U.P.	997.52	1008.70	164.30	164.78	79.66	105.88	0.00	0.00	1241.48	1279.36
9	Uttranchal	87.29	76.60	34.03	30.90	9.31	2.27	0.00	0.00	130.63	109.77
9	MP / N.F.F.	7.04	12.04	0.00	0.00	0.00	0.00	14.40	12.19	21.44	24.23
10	Bihar	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
11	Trans. Losses	109.76	109.71	22.03	22.02	10.35	10.35	64.10	64.10	206.24	206.18
12	Others	41.03	31.22	0.00	0.00	0.00	0.00	0.00	0.00	41.03	31.22
	Total	3751.65	3751.65	1187.14	1187.14	521.68	521.68	1242.37	1242.37	6702.85	6702.85

III. INTER REGIONAL EXCHANGES IN MU AND PEAK MW

Energy (MU)

Peak MW

a.	Import over HVDC Back to Back at Vindhyachal	1.55	500
b.	M.P. to Rajasthan(Ujjain - Kota)	0.00	0
c.	Eastern region to Northern region (Import)	119.54	260
d.	Export over HVDC Back to Back at Vindhyachal	30.91	450
e.	220 KV Auraiya -Malanpur	10.59	19
f.	Northern region to Bihar (Export)	0.00	0
g.	Tanakpur to Mahendranagar(NEPAL) (Export)	6.38	10

IV. FREQUENCY PROFILE

a. Maximum frequency 51.48 Hz at 08:04 hours on
 Minimum frequency 48.20 Hz at 22:08 hours on
 Average frequency 49.92 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
% of time	0.83	9.33	68.77	21.90

c. Frequency Variation Index

Monthly Average 4.28
 Maximum 10.19
 Minimum 2.27

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	3.59	3.59	0.00	0.00
Delhi	60.92	62.58	1.66	2.65
Haryana	55.26	55.96	0.70	1.25
H.P.	9.23	9.23	0.00	0.00
J & K	15.91	18.41	2.50	13.58
Punjab	99.83	104.65	4.82	4.61
Rajasthan	65.59	65.59	0.00	0.00
U.P.	97.84	123.79	25.95	20.96
Uttanchal	9.34	9.67	0.34	3.48
N.F.F./Rail	1.45	1.45	0.00	0.00
Total	418.96	454.92	35.97	7.91

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	185	185	0	0	0.00	0.00
Delhi	3037	3265	228	321	6.98	9.83
Haryana	3070	3070	0	0	0.00	0.00
H.P. *	549	549	0	0	0.00	0.00
J & K *	917	1150	233	258	20.26	22.43
Punjab	5387	5741	354	701	6.17	12.21
Rajasthan	3383	3383	0	0	0.00	0.00
U.P.	5566	6240	674	1215	10.80	19.47
Uttanchal	581	641	60	60	9.36	9.36
N.F.F./Rail	68	68	0	0	0.00	0.00
Region	20773	22384	1611	2092	7.20	9.35

Diversity Factor = 1.09

* Approximate and Estimated

B. DETAILED REPORT

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

II. UNINSTALLED / EFFECTIVE CAPACITY AT THE END OF JUNE 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
(d)	Pragati Gas Turbines	1x108	108.00	1x108	108.00
	Total DELHI		787.50		786.50
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 Hydrel+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 Hydrel		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	4x250	1000.00	4x250	1000.00
(g)	Ramgarh GT	1x3	3.00	1x3	3.00
(i)	Ramgarh GT EXT.	1x35.5	35.50	1x35.5	35.50
	Total Thermal		1888.50		1888.50
(J)	Wind farm	2+2	4.00	2+2	4.00
	Total Rajasthan		2326.82		2326.82
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)	Ganga Canal				
	Bhola	4x.375+2x.6+		4x.375+2x.6+	
	Salara	2x1.5+		2x1.5+	
	Nirgazni	2x2.5	10.70	2x2.5	10.70
(e)	Khara	3x24.0	72.00	3x24.0	72.00
(f)	Sobla & small hydro	6 +12.2	18.20	6 +12.2	18.20
	Total Hydro		529.90		529.90
	THERMAL				
(g)	Obra	5x50	250.00	4x40	160.00
(h)	Obra Extn. - I	3x100	300.00	3x94	282.00
(i)	Obra Extn. - II	5x200	1000.00	5x200	1000.00

(j)	Panki	1x32	32.00	1x32	32.00
(k)	Panki Extn.	2x110	220.00	2x105	210.00
(l)	Harduaganj - A	3x30	90.00		0.00
(m)	Harduaganj - B	2x50+2x60	220.00	1x40+2x55	150.00
(n)	Harduaganj - C	2x60+1x110	230.00	2x60+1x105	225.00
(o)	Paricha	2x110	220.00	2x110	220.00
(p)	Anpara - A	3x210	630.00	3x210	630.00
(q)	Anpara - B	2x500	1000.00	2x500	1000.00
	Total Thermal		4192.00		3909.00
	Total UP		4721.90		4438.90
11 UTTRANCHAL					
	HYDRO				
(a)	Khatima	3x13.8	41.40	3x13.8	41.40
(b)	Ranganga	3x66.0	198.00	3x66.0	198.00
(c)	Ganga Canal				
	Chitwa	2x1.5+		2x1.5+	
	Mohamedpur	3x3.1+		3x3.1+	
	Pathri	3x6.8	32.70	3x6.8	32.70
(d)	Yamuna (I & IV)				
	- Dhalipur	3x17.00+		3x17.00+	
	- Dhakrani	3x11.25+		3x11.25+	
	- Kulhal	3x10.00	114.75	3x10.00	114.75
(e)	Chibro	4x60.0	240.00	4x60.0	240.00
(f)	Khodri	4x30.0	120.00	4x30.0	120.00
(g)	Chilla	4x36.0	144.00	4x36.0	144.00
(h)	Maneri Bhali	3x30.0	90.00	3x30.0	90.00
	Total Hydro		980.85		980.85
	Total Region (1 to 11)		28425.49		27912.63

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

Agency / Source	Hydro	Thermal	Gas/Diesel/Wind	Nuclear	Total	% of Total
NTPC	---	5825.00	2344.04	---	8169.04	29.27%
NHPC	1984.20	---	---	---	1984.20	7.11%
NPC	---	---	---	1180.00	1180.00	4.23%
BBMB	2852.15	---	---	---	2852.15	10.22%
CHANDIGARH	---	---	1.40	---	1.40	0.01%
DELHI	---	396.50	390.00	---	786.50	2.82%
HARYANA	48.00	1025.00	25.20	---	1098.20	3.93%
HIMACHAL	411.97	---	0.13	---	412.10	1.48%
J&K	225.19	---	182.18	---	407.37	1.46%
PUNJAB	1145.10	2130.00	---	---	3275.10	11.73%
RAJASTHAN	434.32	1850.00	42.50	---	2326.82	8.34%
UP	529.90	3909.00	---	---	4438.90	15.90%
UTTRANCHAL	980.85	---	---	---	980.85	3.51%
Total	8611.68	15135.50	2985.45	1180.00	27912.63	100.00%
% of TOTAL	30.85%	54.22%	10.70%	4.23%	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 27959.63 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 30.06.2002

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	229.90	300.00	529.90
UTTRANCHAL	782.85	198.00	980.85
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	
	June 2002	June 2001	MW	%
Chandigarh	1.40	1.40	0.00	0.00
Delhi	786.50	678.50	108.00	15.92
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	2326.82	1826.82	500.00	27.37
U.P.	4438.90	5419.75	-980.85	-18.10
Uttanchal	980.85	0.00	980.85	----
NTPC	8169.04	8169.04	0.00	0.00
NHPC	1984.20	1984.20	0.00	0.00
NPC	1180.00	960.00	220.00	22.92
BBMB	2852.15	2821.15	31.00	1.10
Total	27912.63	26435.13	1477.50	5.59

2. Power Supply Position

2. Power Supply Position

State/UT	June 2002			June 2001			Percentage increase over 2001	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqd.	%Shortage	Demand met	Reqd.	%Shortage	Demand met	Reqd.
Chandigarh	3.59	3.59	0.00	3.34	3.34	0.00	7.49	7.49
Delhi	60.92	62.58	2.65	56.41	57.39	1.71	8.00	9.04
Haryana	55.26	55.96	1.25	48.67	48.74	0.14	13.54	14.81
HP	9.23	9.23	0.00	8.95	8.96	0.11	3.13	3.01
J&K	15.91	18.41	13.58	14.40	16.03	10.17	10.49	14.85
Punjab	99.83	104.65	4.61	87.73	93.33	6.00	13.79	12.13
Rajasthan	65.59	65.59	0.00	61.23	61.37	0.23	7.12	6.88
UP	97.84	123.79	20.96	114.84	125.06	8.17	-14.80	-1.02
Uttranchal	9.34	9.67	3.48	-----	-----	-----	-----	-----
NFF/Rail	1.45	1.45	0.00	0.99	0.99	0.00	46.46	46.46
REGION	418.96	454.92	7.91	396.56	415.21	4.49	5.65	9.56

Frequency Regime	June 2002	June 2001
Average (Hz)	49.92	50.06
Above 50.5 Hz (%)	21.90	24.97
Above 50.2 Hz (%)	39.57	46.34
Below 49.5 Hz (%)	28.35	17.01
Below 49.0 Hz (%)	9.33	3.19
Below 48.5 Hz (%)	0.83	0.64

3. Peak Power Supply Position

5. Peak Power Supply Position

State/UT	June 2002			June 2001			Percentage increase over 2001	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	185	185	0.00	180	180	0.00	2.78	2.78
Delhi	3037	3265	6.98	2779	3021	8.01	9.28	8.08
Haryana	3070	3070	0.00	2805	2805	0.00	9.45	9.45
HP	549	549	0.00	496	496	0.00	10.69	10.69
J&K	917	1150	20.26	941	1039	9.43	-2.55	10.68
Punjab	5387	5741	6.17	4656	4989	6.67	15.70	15.07
Rajasthan	3383	3383	0.00	3130	3130	0.00	8.08	8.08
UP	5566	6240	10.80	6149	7039	12.64	-9.48	-11.35
Uttranchal	581	641	9.36	-----	-----	-----	-----	-----
NFF/Rail	68	68	0.00	50	50	0.00	36.00	36.00
REGION	20773	22384	7.20	20122	21873	8.01	3.24	2.34

III. FREQUENCY PROFILE DURING JUNE 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	50.50	51.32	12.20	49.32	0.12	0.37	3.89
2	50.37	51.48	8.04	48.24	19.38	0.53	4.19
3	50.04	51.20	18.04	48.24	21.02	0.58	3.42
4	49.91	51.24	18.10	48.24	21.05	0.49	2.52

5	50.19	51.36	8.04	48.32	14.45	0.59	3.85
6	50.00	51.36	1.36	48.68	13.36	0.64	4.09
7	50.04	51.48	18.03	48.92	0.24	0.52	2.72
8	49.59	51.00	8.06	48.20	22.08	0.56	4.80
9	49.70	51.24	18.02	48.28	3.48	0.74	6.42
10	49.63	51.24	18.06	48.20	22.07	0.71	6.39
11	49.75	51.32	21.54	48.40	2.29	0.78	6.67
12	49.54	51.08	4.08	48.28	15.16	0.68	6.69
13	49.22	50.76	7.10	48.20	20.38	0.48	8.38
14	49.61	51.16	18.05	48.56	2.02	0.61	5.26
15	50.10	51.12	22.58	48.60	14.39	0.58	3.44
16	50.39	51.36	18.27	49.40	19.29	0.38	3.00
17	50.32	51.20	5.55	49.16	11.16	0.36	2.30
18	50.08	51.28	7.04	48.92	23.23	0.47	2.27
19	50.08	51.20	7.11	48.72	0.49	0.51	2.64
20	49.90	51.20	5.57	48.60	14.51	0.54	2.99
21	49.56	51.08	8.05	48.88	13.00	0.54	4.81
22	49.50	51.20	8.03	48.20	23.05	0.45	4.51
23	49.17	51.12	18.29	48.20	12.17	0.58	10.19
24	49.95	51.12	13.59	48.44	0.07	0.66	4.32
25	49.89	51.20	19.02	48.52	13.10	0.54	3.01
26	50.22	51.24	18.02	48.92	1.01	0.56	3.58
27	50.26	51.16	8.07	48.88	20.23	0.44	2.63
28	50.24	51.20	8.05	48.24	21.07	0.46	2.68
29	49.76	51.12	18.29	48.24	11.01	0.56	3.70
30	50.15	51.16	7.21	48.56	0.25	0.54	3.11
Monthly	49.92	51.48		48.20		0.65	4.28

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 JUNE 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	413	393	412	384	431	400	410	390	210	201
2	417	393	414	382	433	392	409	388	216	201
3	419	386	414	376	433	387	409	394	216	189
4	419	380	410	370	425	383	410	389	213	188
5	417	386	412	374	425	368	407	388	214	184
6	413	382	414	360	425	381	407	380	210	176
7	413	386	408	366	427	385	407	379	207	180
8	415	384	404	368	420	385	403	376	206	179
9	420	386	410	370	416	387	404	376	208	189
10	411	382	398	358	418	381	401	370	203	177
11	413	384	404	348	414	374	404	365	200	170
12	415	389	412	368	420	387	408	373	206	174
13	411	388	394	356	414	381	400	364	201	172
14	419	397	406	366	418	389	403	369	204	180
15	413	389	402	364	418	378	395	388	204	182
16	413	395	404	378	429	389	402	384	209	196
17	415	397	406	374	427	383	406	376	212	188
18	417	382	406	366	425	383	408	382	209	183
19	415	382	406	368	422	385	403	379	206	186
20	419	388	408	372	425	387	407	380	208	182
21	411	382	398	354	420	376	402	373	203	176
22	417	384	402	358	418	376	406	374	202	176
23	417	389	408	370	425	383	405	377	206	188
24	417	388	404	370	418	385	404	376	202	188
25	415	384	400	358	411	372	404	372	203	176
26	415	384	398	354	418	372	403	370	200	178
27	415	384	400	356	418	385	404	374	204	172
28	417	388	410	358	425	372	406	368	204	173
29	413	380	402	350	418	374	402	365	204	174
30	419	395	406	368	425	392	402	375	206	190
Month	420	380	414	348	433	368	410	364	216	170

V. PERFORMANCE OF GENERATING STATIONS DURING JUNE 2002

S.No.	Power Station	Effective Capacity MW	Energy Generated		Cumulative from 01.04.2002	
			Gross MU	Ex Bus MU	Gross MU	Ex-bus MU
1	CENTRAL SECTOR					
A	NTPC (Thermal)					
(a)	Badarpur TPS	705.00	424.41	385.41	1341.90	1221.99
(b)	Singrauli STPS	2000.00	1307.93	1213.19	3632.14	3367.07
(c)	Rihand STPS	1000.00	645.42	588.70	1948.88	1795.70
(d)	Dadri NCTPS	840.00	523.28	482.17	1421.92	1304.02
(e)	Unchahar-I TPS	420.00	248.51	227.13	749.42	684.02
(f)	Unchahar-II TPS	420.00	249.59	228.03	721.41	658.42
(g)	Tanda TPS	440.00	170.11	148.86	560.08	489.99
(h)	Anta GPS	419.33	216.50	210.30	590.61	573.01
(i)	Auraiya GPS	663.36	358.87	352.64	926.59	907.91
(j)	Dadri GPS	829.78	342.47	327.86	1083.63	1049.86
(k)	Faridabad GPS	431.57	236.49	229.98	607.77	590.02
	Total NTPC	8169.04	4723.56	4394.27	13584.35	12642.01
B	NHPC					
(a)	Bairasiul	180.00	59.49	59.49	246.73	243.75
(b)	Salal	690.00	450.44	449.16	1129.11	1126.09
(c)	Tanakpur HPS	94.20	45.10	44.81	115.23	114.57
(d)	Chamera HPS	540.00	300.07	301.37	835.01	835.44
(e)	Uri HPS	480.00	341.55	338.67	1044.47	1035.30
	Total NHPC	1984.20	1196.64	1193.50	3370.55	3355.15
C	NPC					
(a)	RAPS -A	300.00	98.18	89.14	470.63	425.45
(b)	RAPS -B	440.00	286.62	256.78	652.48	585.64
(c)	NAPS	440.00	294.31	264.90	851.57	764.92
	Total NPC	1180.00	679.11	610.83	1974.68	1776.01

2 JOINTLY OWNED (BBMB)						
(a)	Bhakra Complex	1465.15	699.96	697.57	1553.79	1544.46
(b)	Dehar	990.00	446.41	446.41	1181.53	1181.53
(c)	Pong	366.00	98.39	98.39	176.84	176.84
Total BBMB		2821.15	1244.75	1242.37	2912.16	2902.82
3 DELHI						
(a)	Indra Prastha	247.50	40.54	35.68	162.18	142.72
(b)	Rajghat	149.00	63.75	56.74	222.35	197.89
(c)	Gas Turbines	282.00	88.14	85.50	301.02	291.99
(d)	Pragati Gas Turbines	108.00	42.26	41.83	45.08	44.63
Total DELHI		786.50	234.69	219.74	730.63	677.23
4 HARYANA						
(a)	WYC	48.00	24.29	24.05	72.96	72.23
(b)	Faridabad (New)	165.00	83.47	72.20	217.64	188.25
(c)	Panipat	860.00	377.71	332.39	1070.07	941.66
(d)	Magnum Diesel(IPP)	25.20	7.45	7.37	22.35	22.12
Total Haryana		1098.20	492.92	436.01	1383.01	1224.26
5 HP						
(a)	Giri	60.00	8.61	8.54	27.31	27.11
(b)	Bassi	60.00	38.17	38.12	111.78	111.67
(c)	Binwa	6.00	2.01	2.00	7.02	7.00
(d)	Rongtong	15.02	1.53	1.51	5.18	5.12
	(+Nogli+Micro+Thirot+Sal-2)		0.00			
(e)	Andhra	16.95	8.32	8.30	28.72	28.66
(f)	Bhabha (H)	120.00	73.14	73.05	159.20	158.93
(g)	Baner (H)	12.00	2.61	2.46	8.71	8.29
(h)	Gaj (H)	10.50	3.06	3.05	8.51	8.48
(i)	Gumma	3.00	1.78	1.77	5.31	5.28
(j)	Ghanvi	22.50	8.53	8.35	26.04	25.63
(k)	Malana (IPP)	86.00	50.05	50.05	119.28	119.28
Total HP		411.97	197.80	197.20	507.05	505.45

6 J & K						
(a)	Lower Jhelum	105.00	0.00	0.00	3.36	3.33
(b)	Upper Sindh	57.60	37.33	36.96	81.37	80.56
(c)	Ganderbal	15.00	1.91	1.89	6.88	6.82
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	7.81	7.73	25.43	25.17
(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	47.05	46.58	117.05	115.88
7 PUNJAB						
(a)	Jogindernagar/ Shanan	110.00	62.25	65.23	187.68	190.59
(b)	UBDC	90.00	55.88	55.75	132.61	132.25
(c)	Mukerian	207.00	116.56	115.98	200.11	198.94
(d)	Anandpur Sahib (APS)	134.00	91.25	91.15	212.39	212.14
(e)	Ranjit Sagar HPS	600.00	162.49	162.14	417.79	416.99
(f)	Small Hydel	4.10	0.85	0.84	2.32	2.30
(g)	GNDTPS (Bhatinda)	440.00	207.75	188.79	640.34	581.72
(h)	GGSTPS (Ropar)	1260.00	755.60	693.07	2032.66	1860.87
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	260.59	237.33	675.68	614.22
	Total Punjab	3275.10	1713.22	1610.27	4501.58	4210.01
8 RAJASTHAN						
(a)	Mahi Bajaj Sagar	140.00	0.00	0.00	1.82	1.82
(b)	Rana Pratap Sagar (RPS)	172.00	0.40	0.34	3.78	3.67
(c)	Jawahar Sagar (JS)	99.00	1.66	1.65	4.70	4.70
(d)	Anoopgarh	9.00	0.57	0.57	1.61	1.61
(e)	Small Hydro	14.32	0.23	0.23	0.75	0.75
(f)	Kota TPS	850.00	458.39	410.72	1644.86	1480.21
(g)	RAMGARH GT	3.00	0.00	0.00		

(h)	RAMGARH GT EXT	35.50	14.85	14.85	26.30	26.30
(i)	Suratgarh TPS	750.00	478.08	431.50	1419.98	1286.14
(j)	Wind Farm	4.00	5.91	5.91	14.25	14.25
	Total Rajasthan	2076.82	960.09	865.78	3118.05	2819.46
9 U.P.						
	<u>HYDRO</u>					
(a)	Rihand	300.00	63.95	63.31	229.08	226.79
(b)	Obra	99.00	27.72	27.44	94.70	93.75
(c)	Matatilla	30.00	6.04	5.97	19.21	19.01
(d)	Khara	72.00	40.02	39.62	128.03	126.75
	Total U.P. (Hydro)	501.00	137.73	136.35	471.01	466.30
	<u>THERMAL</u>					
(e)	Obra	1442.00	563.60	493.15	1804.05	1578.54
(f)	Panki	242.00	40.95	35.83	135.76	118.79
(g)	Harduaganj	375.00	52.77	46.18	203.42	177.99
(h)	Paricha	220.00	40.67	35.59	213.08	186.45
(i)	Anpara	1630.00	872.20	763.18	2834.16	2479.89
	Total U.P. (Thermal)	3909.00	1570.20	1373.92	5190.47	4541.66
	Total U.P.	4410.00	1707.92	1510.27	5661.48	5007.97
10 UTTRANCHAL						
(a)	Khatima	41.40	16.22	16.05	38.47	38.08
(b)	Ramganga	198.00	25.11	24.86	81.41	80.60
(c)	Ganga Canal	32.70	11.74	11.62	33.53	33.19
(d)	Yamuna (I & IV)	114.75	59.29	58.69	183.99	182.15
(e)	Chibro	240.00	92.57	91.64	286.48	283.61
(f)	Khodri	120.00	43.58	43.15	134.01	132.67
(g)	Chilla	144.00	55.90	55.34	157.67	156.09
(h)	Maneri Bhali	90.00	61.47	60.85	186.54	184.67

	Total Uttranchal	980.85	365.87	362.21	1102.08	1091.06
	Total Region	27594.02	13563.61	12689.02	38962.66	36327.30

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 JUNE 2002

(All figs. in MU)

Sl. No.	State/UT/ System	Singrauli STPS	Actual	Rihand STPS	Actual	BTPS	W. Grid	VSTPS
		Entitlement		Entitlement		Actual		(WR) Actual
1	Chandigarh	10.53	10.54	9.05	8.00	0.00	0.22	0.00
2	Delhi	131.95	132.07	88.10	88.50	385.41	3.08	0.00
3	Haryana	165.12	165.23	70.45	70.81	0.00	2.82	0.00
4	H.P.	0.00	0.04	21.16	21.31	0.00	1.15	0.00
5	J & K	5.30	5.45	44.79	45.29	0.00	3.91	0.00
6	Punjab	145.53	145.69	88.20	88.75	0.00	4.33	0.00
7	Rajasthan	218.07	218.20	79.45	79.89	0.00	3.41	0.00
8	U.P.	407.08	407.40	150.17	151.24	0.00	8.35	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	7.04	0.00
10	Uttranchal	49.43	48.37	14.39	11.95	0.00	1.00	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00

12	Trans. Losses	45.91	45.91	22.95	22.95	0.00	1.10	0.00
	TOTAL	1178.92	1178.91	588.71	588.71	385.41	36.42	0.00

Note :- Singrauli sentout excludes 34.2950845410629 MU supplied to Western Grid

SI. No.	State/UT/	Dadri NCTPS		Unchahar-I TPS		Unchahar-II TPS	
	System	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	0.00	0.00	0.87	0.41	0.81	0.38
2	Delhi	448.14	441.32	19.85	21.09	22.53	18.45
3	Haryana	3.16	3.12	25.88	26.57	38.98	40.70
4	H.P.	0.00	0.00	4.48	4.94	7.97	8.95
5	J & K	0.00	0.00	10.53	11.69	21.83	24.10
6	Punjab	5.59	5.55	40.49	36.64	48.62	48.82
7	Rajasthan	0.00	0.00	9.44	10.44	20.96	22.77
8	U.P.	25.27	28.58	101.91	105.26	56.66	54.74
9	MP	0.00	2.78	0.00	0.00	0.00	0.00
10	Uttanchal	0.00	0.24	4.88	1.29	0.84	0.27
11	Bihar	0.00	0.57	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	8.80	8.80	8.85	8.85
	Total	482.16	482.16	227.13	227.13	228.03	228.03
SI. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	3.60	3.56	2.73	1.52	2.10	2.11
2	Delhi	30.42	30.48	47.97	47.93	36.73	36.90
3	Haryana	21.60	21.65	36.57	36.11	18.36	18.52
4	H.P.	7.71	7.73	13.00	13.02	9.17	9.23
5	J & K	15.50	15.57	27.93	28.14	113.69	113.91
6	Punjab	31.32	31.40	69.73	69.66	45.92	46.17
7	Rajasthan	47.80	47.86	38.43	38.54	30.30	30.50
8	U.P.	38.25	38.40	95.88	96.12	67.05	67.54
9	MP	0.00	0.00	0.00	2.22	0.00	0.00

10	Uttanchal	5.70	5.22	6.60	5.39	11.97	10.40
11	Bihar	0.00	0.00	0.00	0.26	0.00	0.00
12	Trans. Losses	8.41	8.41	13.74	13.68	3.39	3.39
	TOTAL	210.31	210.31	352.58	352.58	338.67	338.67

Sl. No.	State/UT/ System	Dadri GPS		Bairasiul HPS		Salal HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	0.80	0.47	0.00	0.00	1.20	1.20
2	Delhi	42.03	43.74	6.28	6.28	51.46	51.46
3	Haryana	22.61	23.72	17.42	17.42	66.52	66.52
4	H.P.	10.56	11.20	6.85	6.85	4.38	4.38
5	J & K	23.90	25.56	0.00	0.00	154.11	154.11
6	Punjab	70.26	70.33	26.56	26.56	117.80	117.80
7	Rajasthan	29.01	30.90	0.00	0.00	13.07	13.07
8	U.P.	83.20	87.85	0.00	0.00	30.78	30.78
9	Uttanchal	4.45	2.87	0.00	0.00	5.36	5.36
10	Railways	41.03	31.22	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	2.38	2.38	4.49	4.49
	Total	327.85	327.85	59.49	59.49	449.17	449.17

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	0.47	0.47	11.66	11.68	0.00	0.00	1.52	0.00
2	Delhi	4.73	4.73	22.95	23.20	0.00	22.58	8.74	0.00
3	Haryana	2.36	2.36	45.72	45.95	0.00	11.90	36.30	0.00
4	H.P.	1.42	1.42	43.86	43.96	0.00	0.00	6.09	0.00
5	J & K	2.84	2.84	11.29	11.60	0.00	0.00	15.02	0.00
6	Punjab	6.62	6.62	29.60	29.95	0.00	17.77	10.02	0.00
7	Rajasthan	4.26	4.26	57.10	57.37	89.14	204.54	149.58	0.00
8	U.P.	7.88	7.88	58.59	58.59	0.00	0.00	29.44	148.86
9	Uttanchal	6.35	6.35	10.34	8.80	0.00	0.00	0.00	0.00
10	Trans. Losses	1.50	1.50	10.27	10.27	0.00	0.00	0.07	0.00

11	Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	38.43	38.43	301.38	301.38	89.14	256.78	256.78	148.86

Note :- Tanakpur sentout excludes 6.375 MU supplied to Nepal

SI. No.	State/UT/ System	Narora APS		Bhakra HPS		Dehar HPS	Pong	F'bad GPS	ER import
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	Actual	Actual
1	Chandigarh	5.26	2.27	50.51	50.57	0.00	0.00	0.00	7.29
2	Delhi	36.63	20.35	0.00	0.00	0.00	0.00	0.00	31.33
3	Haryana	25.88	29.59	197.59	198.32	134.49	15.56	229.98	28.27
4	H.P.	7.96	10.37	16.11	16.15	8.28	0.00	0.00	7.29
5	J & K	20.28	27.33	0.00	0.00	0.00	0.00	0.00	7.29
6	Punjab	34.56	30.15	272.61	273.64	201.73	23.33	0.00	0.00
7	Rajasthan	35.01	55.84	104.80	105.14	84.05	54.81	0.00	7.29
8	U.P.	79.66	76.44	0.00	0.00	0.00	0.00	0.00	30.75
9	N.F.F.	0.00	0.00	14.40	12.19	0.00	0.00	0.00	0.00
10	Uttanchal	9.31	2.20	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	10.35	10.35	41.56	41.56	17.86	4.69	0.00	0.00
	Total	264.90	264.90	697.58	697.58	446.41	98.39	229.98	119.54

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

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

	Chandigarh	Delhi	Haryana	Himachal	J & K	Punjab	Rajasthan	UP	Uttranchal	MP	Bihar	Others
Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
Delhi	0.00	0.00	0.00	116.80	0.00	0.00	0.00	0.00	108.00	0.00	0.00	0.00
Haryana	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Himachal	0.00	-116.80	0.00	0.00	0.00	-21.94	0.00	0.00	0.00	0.00	0.00	0.00
J & K	0.00	0.00	0.00	0.00	0.00	-61.16	0.00	0.00	0.00	0.00	0.00	0.00
Punjab	0.00	0.00	0.00	21.94	61.16	0.00	0.00	0.00	40.62	0.00	0.00	7.25
Rajasthan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	0.00
Uttranchal	0.00	-108.00	0.00	0.00	0.00	-40.62	0.00	-1.21	0.00	0.00	0.00	0.00
MP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	-5.80	0.00	0.00	0.00	0.00	-7.25	0.00	0.00	0.00	0.00	0.00	0.00
Total	-5.80	-224.80	0.00	138.74	61.16	-130.97	0.00	-1.21	149.83	0.00	0.00	13.05

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

i) Haryana's share in IP station of Delhi	11.081MU
ii) Himachal's share in Shanan & RSD power station of Punjab	13.115MU
iii) Himachal's share in Yamuna hydro power complex of UP & Uttranchal	55.536MU
iv) Maruti to Haryana	0.000MU

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

VIII. PROGRESS OF INSTALLATION OF SHUNT CAPACITORS IN NORTHERN REGION
AS ON 30.06.2002

(ALL FIGS IN MVAR)

CONSTITUENT	REQUIREMENT AT THE END OF 2002-03	CAPACITORS AS ON 30.06.2002	CAPACITORS ADDITION DURING		ADDITIONAL REQUIRED DURING 2002-03
		INSTALLED	2001-02	April 02 -March 03	
Chandigarh	108	92	7	0	16
Delhi	3042	2638	397	5	404
Haryana	2539	2547	416	0	0
H.P.	352	228	57	23	124
J & K	872	147	12	0	725
Punjab	5067	4667	199	37	400
Rajasthan	3021	2475	59	59	546
U.P.	5390	4811	485	120	579
Uttanchal					
BBMB	366	381	0	0	0
TOTAL	20757	17986	1632	244	2794

SOURCE: Minutes of 330th OCC meeting of NREB held on 12th July, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING JUNE 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 June 2002 (m) (ft)	479.46 1573.04	390.14 1279.99	254.66 835.50	344.76 1131.11	379.66 1245.60
Level on last day of June 2001 (m) (ft)	464.75 1524.78	393.14 1289.82	257.19 843.80	345.59 1133.84	380.57 1248.58
Live Capacity as on last day of June 2002 (mhmt) (maft)	0.26 2.07	0.05 0.38	0.04 0.30	0.03 0.22	0.00 0.00
Live Capacity as on last day of June 2001 (mhmt) (maft)	0.12 0.98	0.09 0.74	0.12 1.00	0.03 0.27	0.00 0.00
Energy content as on last day of June 2002 (MU)	900.00	60.00	25.00	40.00	0.00
Energy content as on last day of June 2001 (MU)	410.00	100.00	200.00	60.00	0.00
Maximum level (m)	479.46	394.05	255.54	344.76	379.97

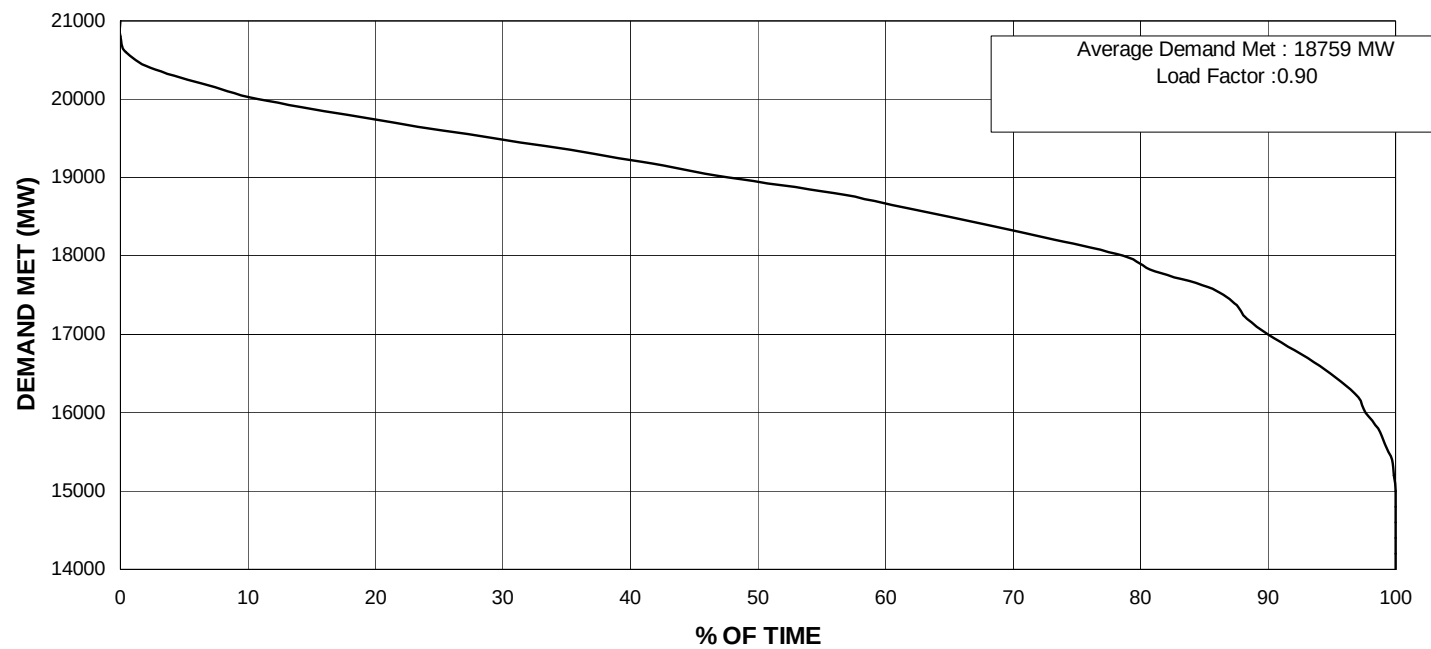
	(ft)	1573.04	1292.81	838.40	1131.11	1246.62
	(date)	30.06.2002	30.06.2002	01.06.2002	30.06.2002	01.06.2002
Minimum level	(m)	468.54	390.08	254.23	344.58	379.66
	(ft)	1537.20	1279.78	834.10	1130.50	1245.60
	(date)	01.06.2002	24.06.2002	21.06.2002	14.06.2002	30.06.2002

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

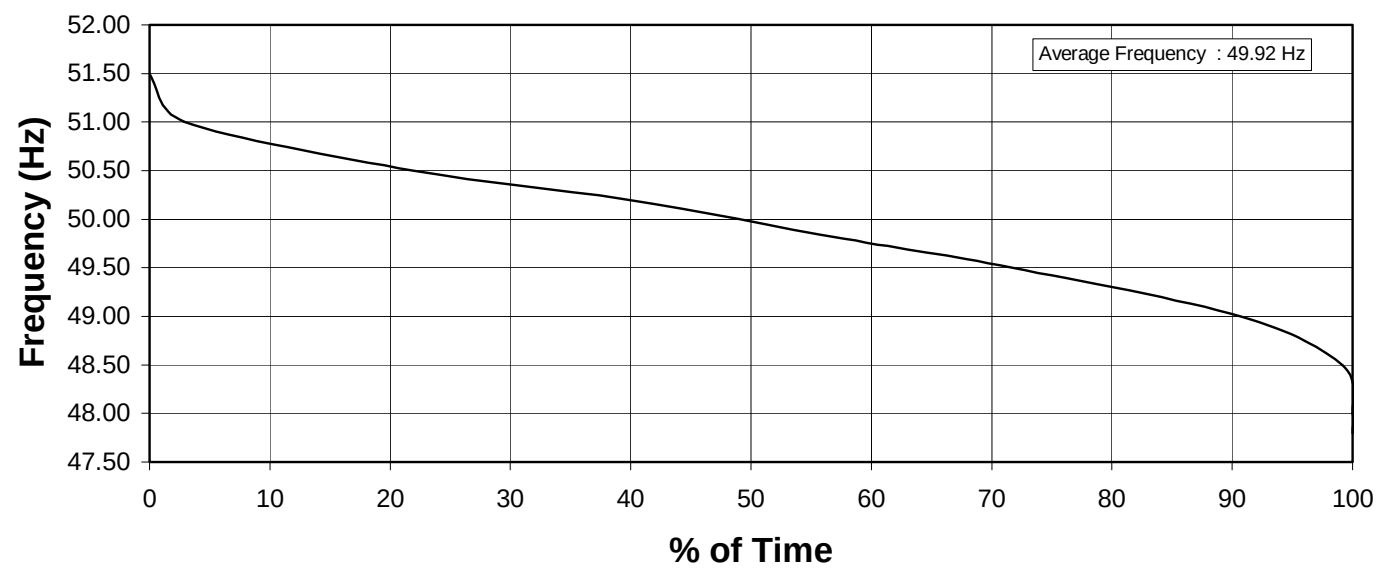
Energy content of Rihand : Total Energy content at Rihand & Obra power stations

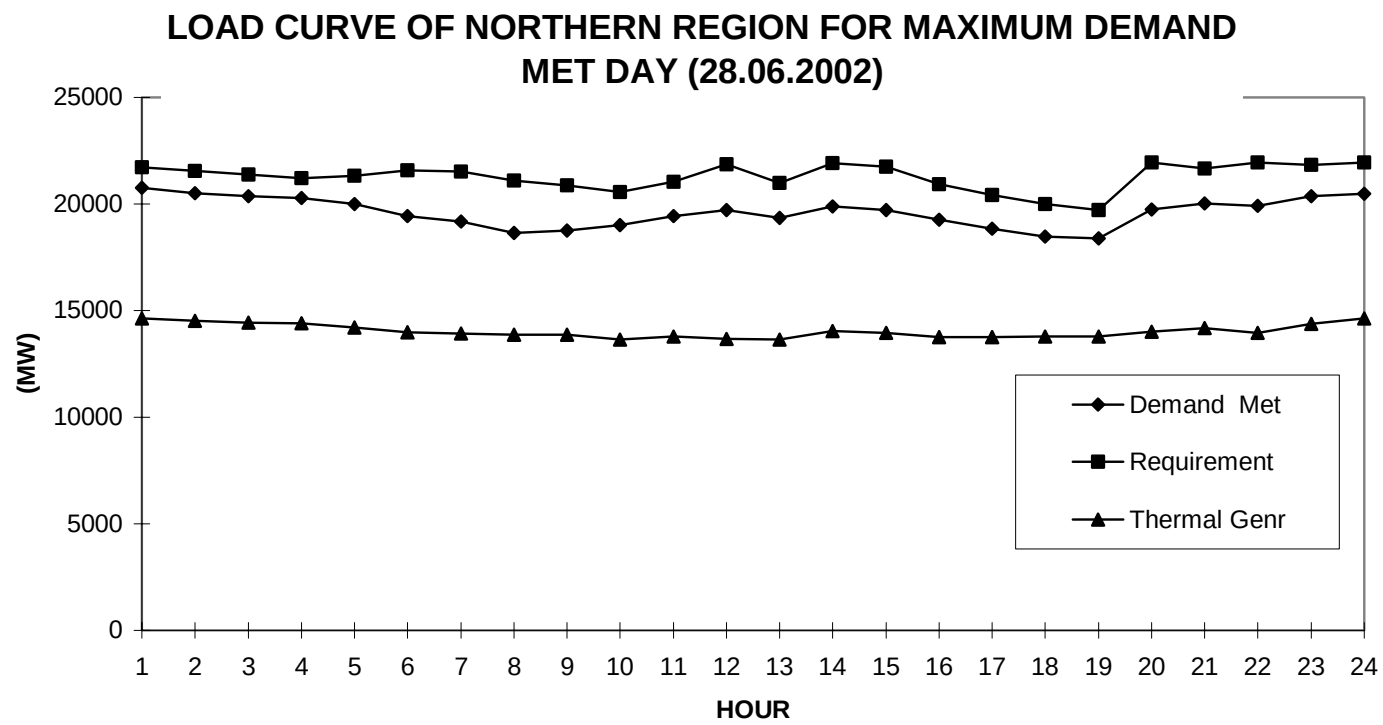
Energy content of RPS : Total Energy content of Rana Pratap Sagar and Jawahar Sagar Power Stations.

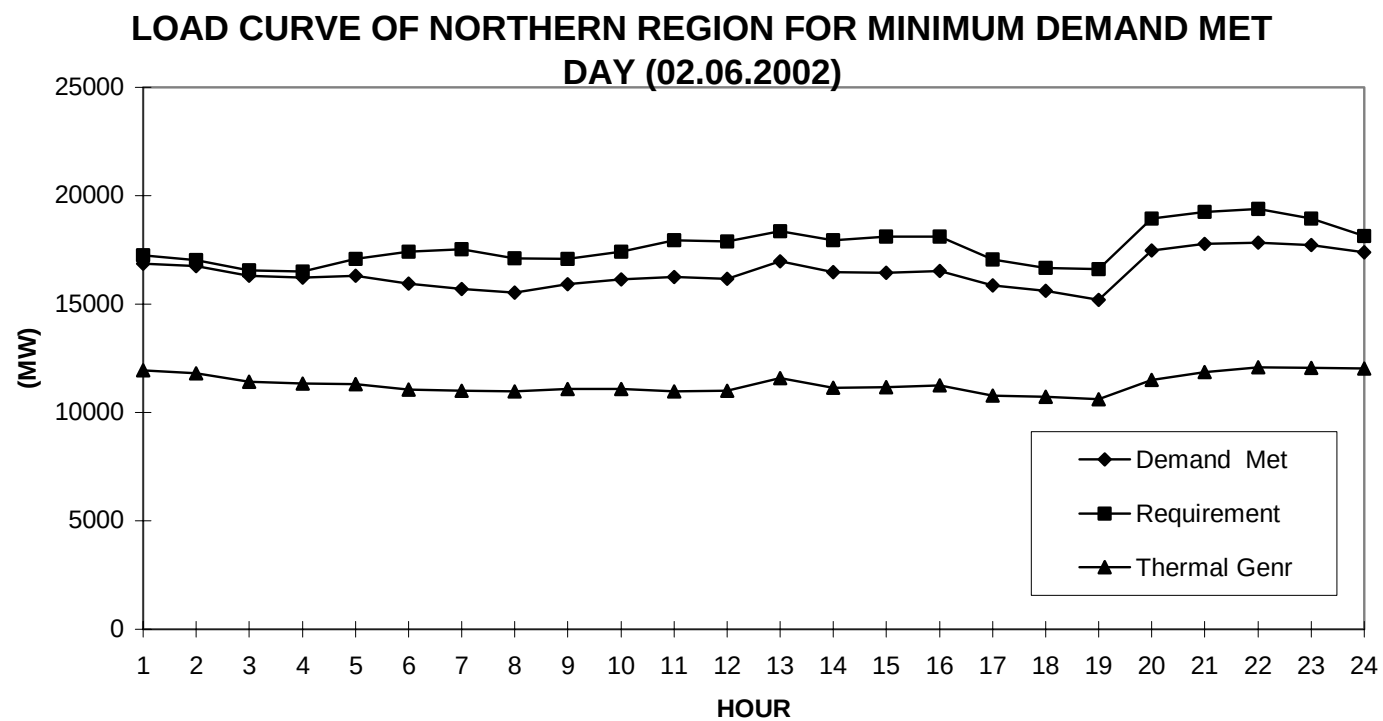
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

LOAD DURATION CURVE OF NORTHERN REGION FOR JUNE 2002

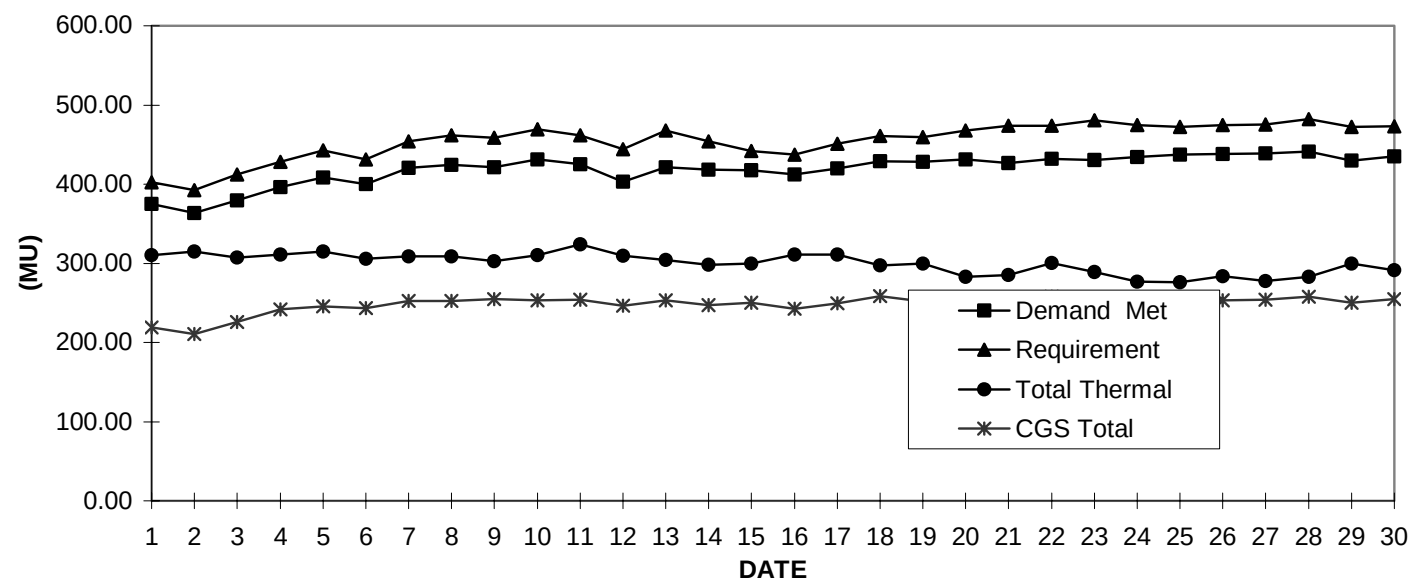
FREQUENCY DURATION CURVE OF NORTHERN REGION FOR JUNE 2002



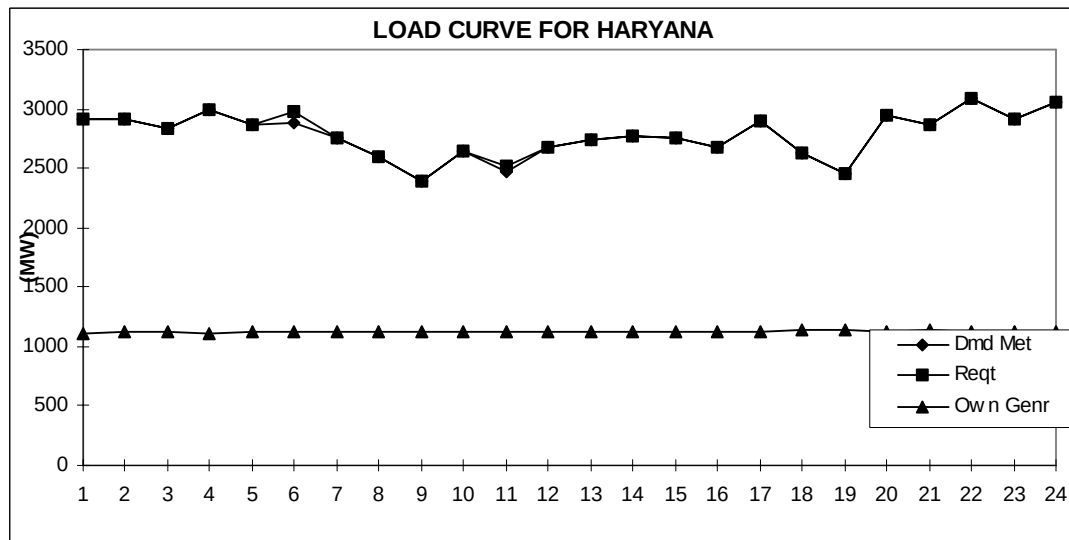
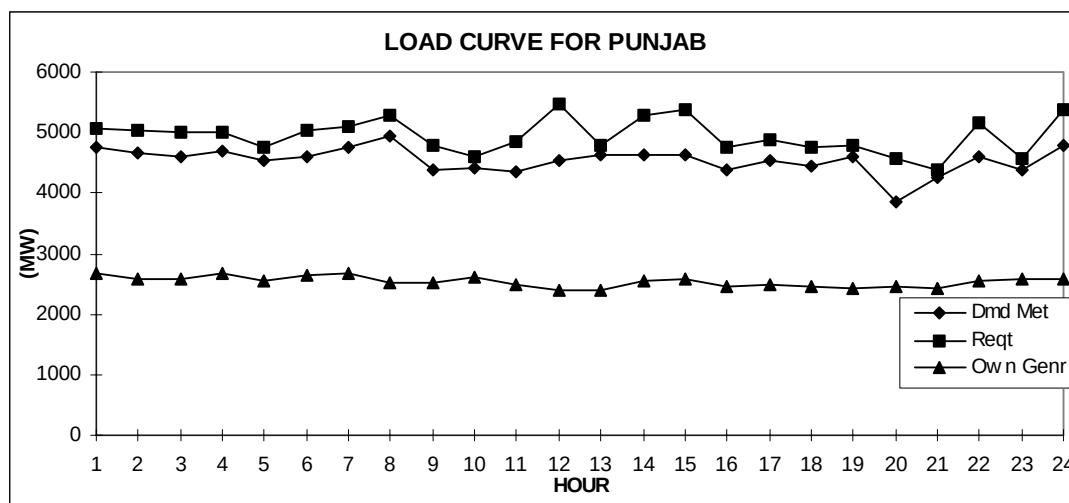


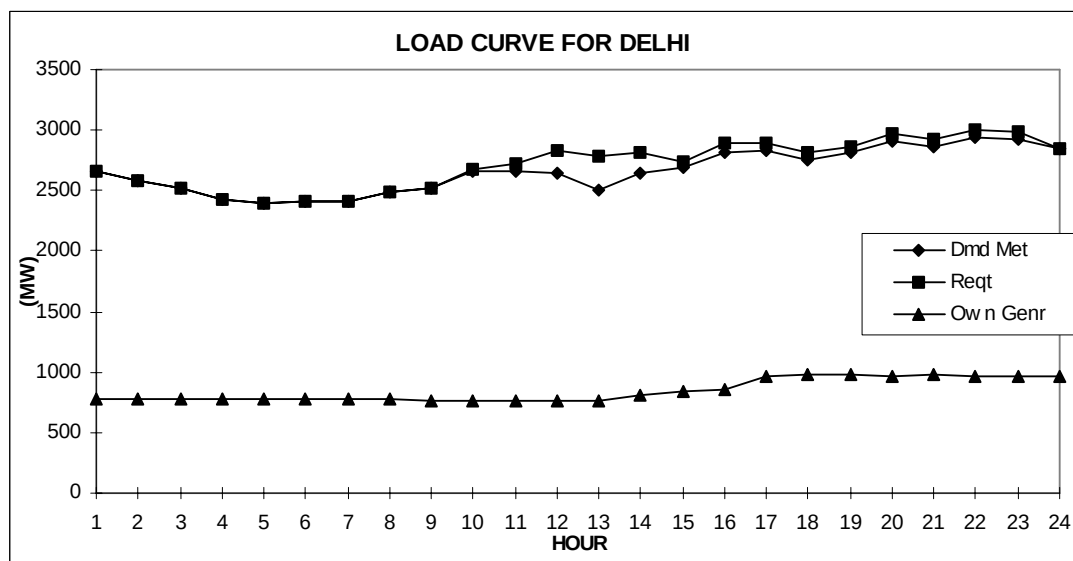
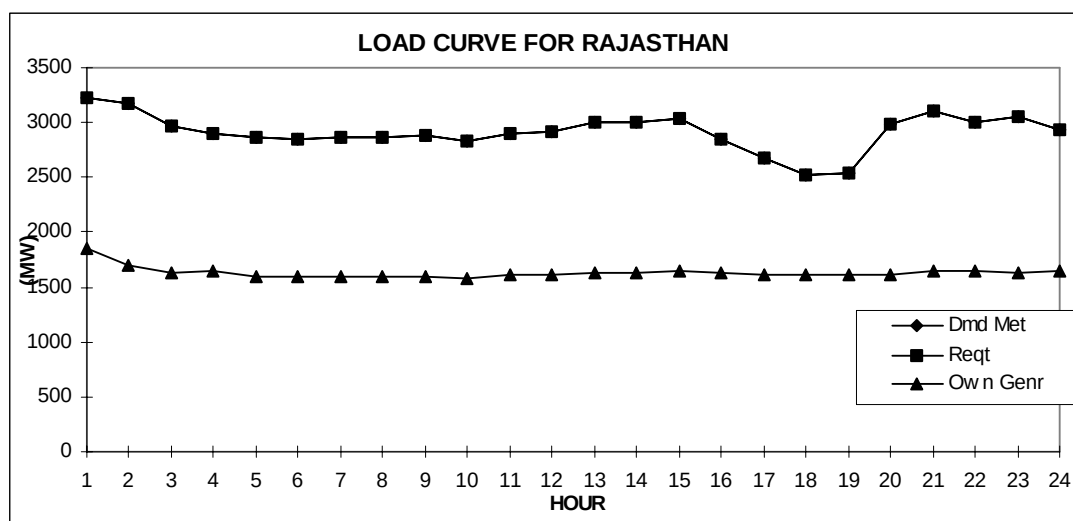


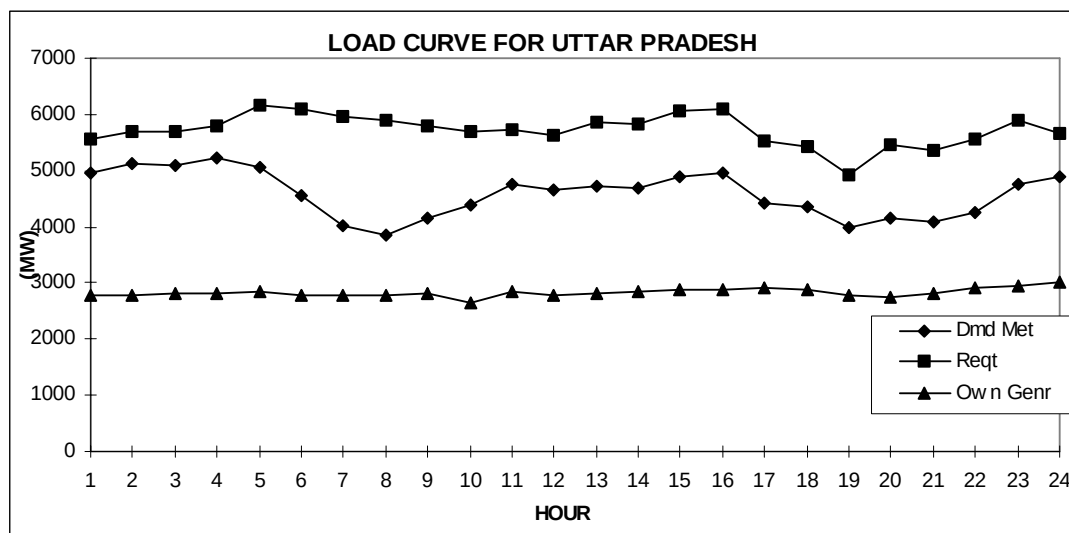
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING JUNE 2002



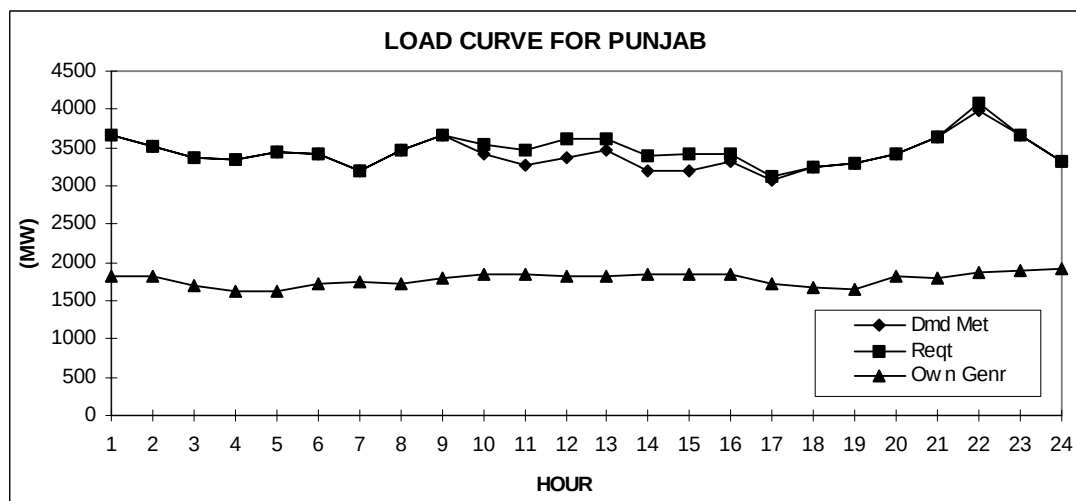
STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(28.06.2002)

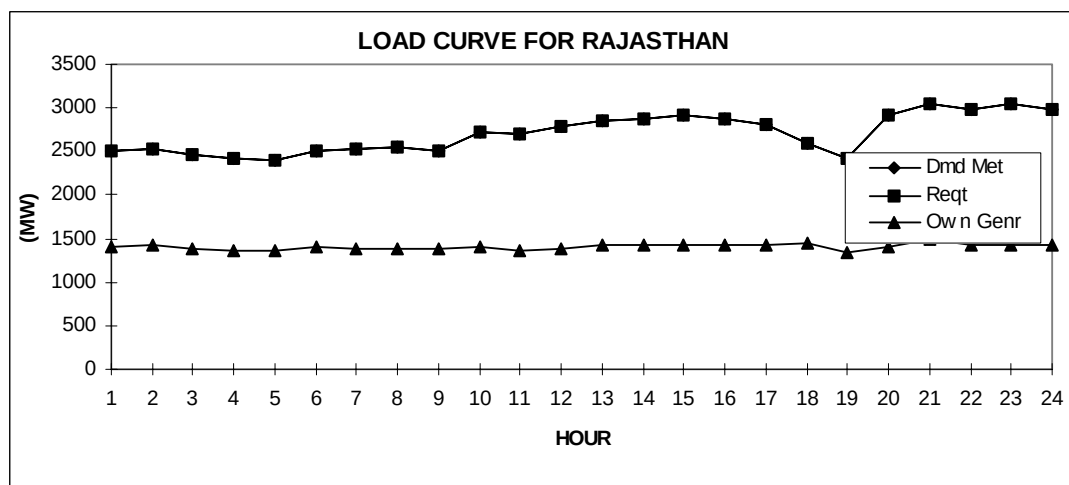
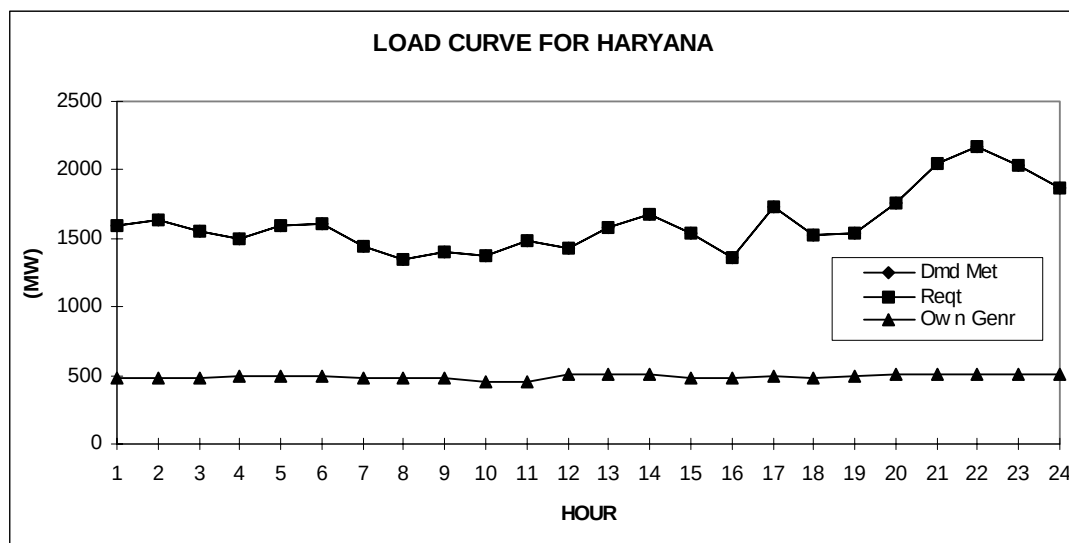


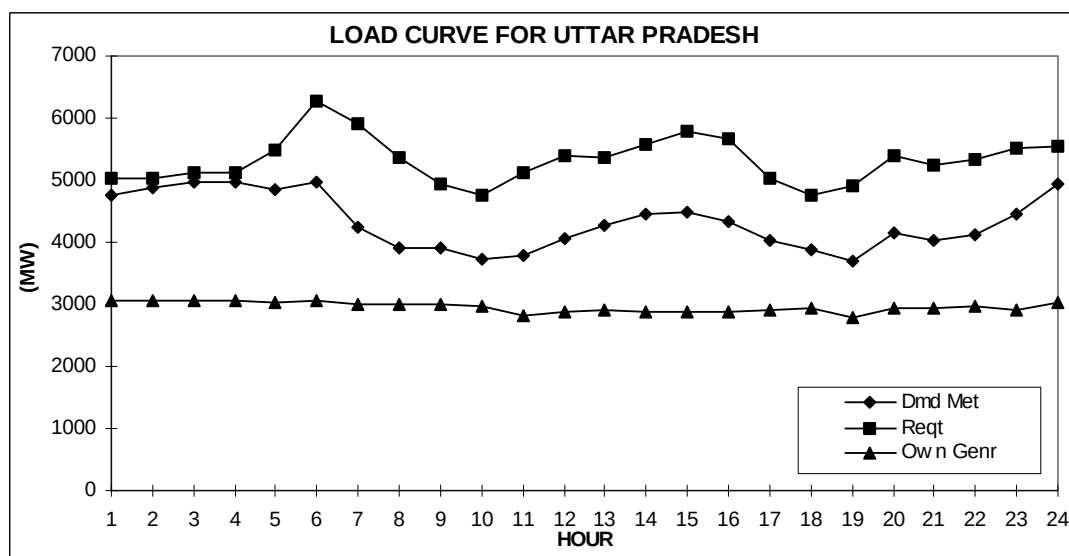
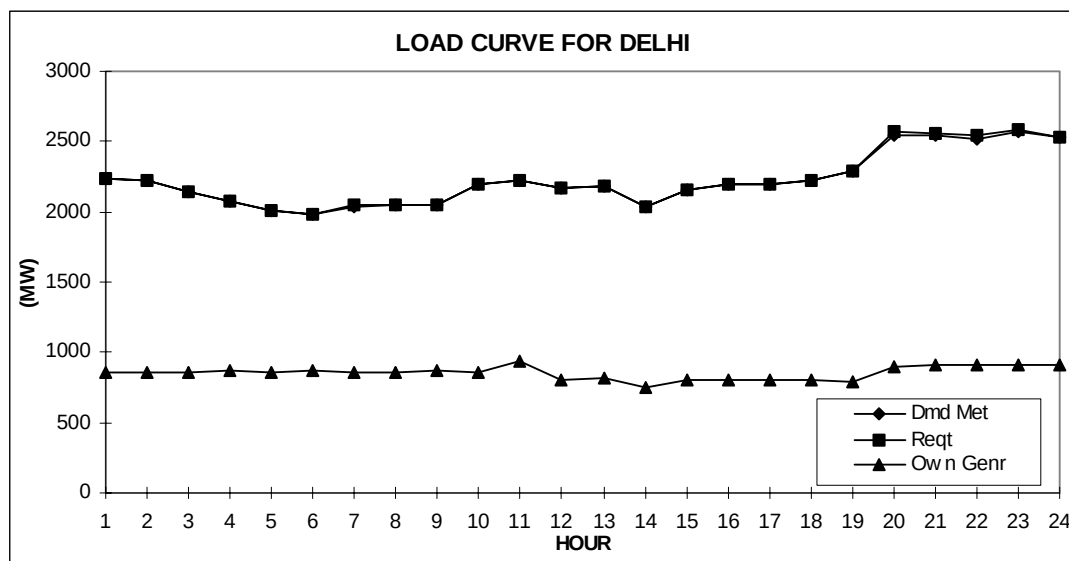




STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(02.06.2002)







MINOR GRID INCIDENTS DURING JUNE 2002

S No.	DATE	TIME	INCIDENT
1	07.06.2002	17:03	An incident occurred in Delhi/HVPN/BBMB system; which caused load-shedding of around 800 MW in Delhi area .The incident initiated with fault at bus-section 2A of 220 kV Samaypur S/Stn. resulted in tripping of Ballabhgarh I & II, FGPP-II and Dadri ckt. at samaypur end. 220 kV Samaypur-Ballabhgarh ckt.-III tripped on overload. At Badarpur, all the running units and lines tripped reportedly due to heavy voltage jerk. The generation loss occurred at Badarpur (685 MW), IP (84 MW), Rajghat (96 MW) and Faridabad Th. (135 MW). The system was normalized by 1800 hrs. And most of the units were synchronized by 1900 hrs.
2	21.06.2002	10:08	An incident occurred in Delhi system; resulting in complete outage of BTPS (697 MW), IP (37 MW), GT (128 MW), Pragati (104 MW) & Rajghat (97 MW) and disruption in power supply to south and central Delhi area. The Delhi network was restored by 1100 hrs. And power supply normalized progressively with the synchronization of units at BTPS.
3	25.06.2002	21:15	At 400 kV Lucknow S/Stn, bus bar protection operated owing to problem in 'B' phase CT of Singrauli line. This resulted in tripping of all the circuits emanating from Lucknow S/Stn. However grid remained normal and all the tripped circuits were revived subsequently.