



GRID REPORT

AUGUST 2002

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

SUMMARY REPORT:

Important events:

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

Nil

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

The average system frequency during the month of August 2002 was 49.76 Hz and frequency remained between 49.0 & 50.5 Hz for 78.61 % of the time. Although there was appreciable increase in the period when frequency remained in this normal band as prescribed by IEGC (Indian Electricity Grid Code), the large number of fluctuations from low to high & vice versa were a cause of concern. The implementation of free governor operation on all generating units in the region assumes importance.

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

There was no major grid disturbance in the region during August 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 AUGUST 2002

(All figs. in MU)

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	42.45	37.34	14.46	13.9	5.29	2.64	49.16	49.29	111.36	103.19
2	Delhi	938.07	884.02	107.77	107.86	88.44	14.80	0.00	0.00	1134.28	1006.68
3	Haryana	471.94	480.26	146.63	146.71	48.22	130.63	317.20	318.68	983.98	1076.28
4	H.P.	70.86	70.01	63.93	63.96	8.61	6.63	23.04	23.13	166.44	163.74
5	J & K	152.38	164.76	231.29	231.41	21.91	45.07	0.00	0.00	405.58	441.24
6	Punjab	559.84	574.55	212.80	212.93	63.95	79.03	455.35	457.40	1291.94	1323.90
7	Rajasthan	489.36	504.63	91.82	91.92	190.24	209.31	219.29	219.96	990.71	1025.82
8	U.P.	1046.71	1051.91	135.51	135.51	86.49	32.48	0.00	0.00	1268.71	1219.90
9	Uttanchal	149.35	150.99	28.72	28.72	10.17	2.72	0.00	0.00	188.23	182.43
9	MP / N.F.F.	11.33	14.66	0.00	0.00	0.00	0.00	14.88	10.46	26.21	25.12
10	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	128.06	127.99	17.63	17.63	12.24	12.24	59.15	59.15	217.08	217.01
12	Others	43.61	42.82	0.00	0.00	0.00	0.00	0.00	0.00	43.61	42.82
	Total	4103.95	4103.95	1050.57	1050.57	535.55	535.55	1138.06	1138.06	6828.13	6828.13

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)	154.32	300
d. Export over HVDC Back to Back at Vindhyachal	27.88	450
e. 220 KV Auraiya -Malanpur	10.59	23
f. Northern region to Bihar (Export)	0.00	0
g. Tanakpur to Mahendranagar(NEPAL) (Export)	7.21	11

IV. FREQUENCY PROFILE

a. Maximum frequency 51.32 Hz at 04.02 hours on 13.08.2002
 Minimum frequency 48.20 Hz at 23.11 hours on 01.08.2002
 Average frequency 49.76 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
% of time	1.86	12.28	78.61	9.11

c. Frequency Variation Index

 Monthly Average 3.83
 Maximum 13.86
 Minimum 1.32

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	3.46	3.46	0.00	0.00
Delhi	58.81	59.89	1.08	1.80
Haryana	62.83	64.81	1.98	3.06
H.P.	9.39	9.39	0.00	0.00
J & K	15.12	18.45	3.33	18.05
Punjab	99.78	111.29	11.51	10.34
Rajasthan	68.22	68.90	0.68	0.99
U.P.	99.79	124.42	24.63	19.80
Uttaranchal	9.96	10.36	0.40	3.82
N.F.F./Rail	1.72	1.72	0.00	0.00
Total	429.08	472.69	43.61	9.23

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	194	194	0	34	0.00	17.53
Delhi	3090	3231	141	560	4.36	17.33
Haryana	3250	3358	108	384	3.22	11.44
H.P. *	511	511	0	0	0.00	0.00
J & K *	907	1141	234	280	20.51	24.54
Punjab	5184	5771	587	778	10.17	13.48
Rajasthan	3580	3580	0	266	0.00	7.43
U.P.	5513	6311	798	783	12.64	12.41
Uttaranchal	672	732	60	0	8.20	0.00
N.F.F./Rail	78	78	0	3	0.00	3.85
Region	21708	24005	2297	2238	9.57	9.32

Diversity Factor = 1.06

* Approximate and Estimated

DETAILED REPORT

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

UNINSTALLED / EFFECTIVE CAPACITY AT THE END OF ACCOUNT YEAR				
<u>STATION</u>	<u>INSTALLED CAPACITY</u> <u>(MW)</u>		<u>EFFECTIVE CAPACITY</u>	
CENTRAL SECTOR				
NTPC				
Badarpur TPS	3x100+2x210	720.00	3x95+2x210	705.00
Singrauli STPS	5x200+2x500	2000.00	5x200+2x500	2000.00
Rihand STPS	2x500	1000.00	2x500	1000.00
Dadri NCTPS	4x210	840.00	4x210	840.00
Unchahar TPS	2x210 + 2x210	840.00	2x210 + 2x210	840.00
Tanda TPS	4x110	440.00	4x110	440.00

Anta GPS	3x88.71+1x153.20	419.33	3x88.71+1x153.20	419.33
Auraiya GPS	4x111.19+2x109.30	663.36	4x111.19+2x109.30	663.36
Dadri GPS	4x130.19+2x154.51	829.78	4x130.19+2x154.51	829.78
Faridabad GPS	2x137.75 +1x156.07	431.57	2x137.75 +1x156.07	431.57
Sub-Total		8184.04		8169.04
NHPC				
Bairasiul	3x60	180.00	3x60	180.00
Salal Stage - I	3x115	345.00	3x115	345.00
Salal Stage - II	3x115	345.00	3x115	345.00
Tanakpur HPS	3x40	120.00	3x31.4	94.20
Chamera HPS	3x180	540.00	3x180	540.00
URI	4x120	480.00	4x120	480.00
Sub-Total		2010.00		1984.20
NPC				
RAPS -A	2x220	440.00	1x100+1x200	300.00
RAPS -B	2x220	440.00	2x220	440.00
NAPS	2x235	470.00	2x220	440.00
Sub-Total		1350.00		1180.00
Total Central Sector				
(A + B + C)		11544.04		11333.24
BBMB				
Bhakra Complex				
(i) Bhakra (L)	5x108	540.00	5x108	540.00
(ii) Bhakra (R)	5x157	785.00	5x157	785.00
(iii) Ganguwal	1x29.25+1x27.63+1x26.7	83.58	1x29.25+1x27.63+1x26.7	83.58
(iv) Kotla	1x29.25+1x24.2+1x28.12	81.57	1x29.25+1x24.2+1x28.12	81.57
Sub-Total		1490.15		1490.15

Dehar	6x165	990.00	6x165	990.00
Pong	2x60 + 4x66	384.00	2x60 + 4x66	384.00
Total BBMB		2864.15		2864.15
CHANDIGARH				
Diesel Gen Sets		2.00		1.40
DELHI				
THERMAL				
Indra Prastha	3x62.5+1x60	247.50	3x62.5+1x60	247.50
Rajghat	1x15+2x67.5	150.00	1x14+2x67.5	149.00
Gas Turbines	6x30+3x34	282.00	6x30+3x34	282.00
Pragati Gas Turbines	1x108	108.00	1x108	108.00
Total DELHI		787.50		786.50
HARYANA				
HYDRO				
Western Yamuna Canal (WYC)	6x8	48.00	6x8	48.00
Total Hydro		48.00		48.00
THERMAL				
Faridabad (New)	3x60	180.00	3x55	165.00
Panipat	4x110+2x210	860.00	4x110+2x210	860.00
Total Thermal		1040.00		1025.00
Magnum Diesel (IPP)	4x6.3	25.20	4x6.3	25.20
Total Haryana		1113.20		1098.20
HIMACHAL PRADESH				
HYDRO				
Giri	2x30.00	60.00	2x30.00	60.00

Bassi	4x15.00	60.00	4x15.00	60.00
Binwa	2x 3.00	6.00	2x 3.00	6.00
Rongtong	4x 0.50	2.00	4x 0.50	2.00
Andhra	3x 5.65	16.95	3x 5.65	16.95
Micro Hydrel+Killar+Thirot		8.75		8.75
Nogli	2x 0.25+4x0.50	2.50	2x 0.25+4x0.50	2.50
Bhabha (H)	3x40.00	120.00	3x40.00	120.00
Baner (H)	3x 4.00	12.00	3x 4.00	12.00
Gaj (H)	3x 3.50	10.50	3x 3.50	10.50
Sal -2	1x 2	2.00	1x 2	2.00
Gumma	.	3.00	3	3.00
Ghanvi	2x11.25	22.50	2x11.25	22.50
Diesel Gen. Sets		0.00		0.00
Malana(IPP)	2x43	86.00	2x43	86.00
Total HP		412.20		412.20
J & K				
HYDRO				
Lower Jhelum	3x35.0	105.00	3x35.0	105.00
Upper Sindh	2x11.30+3x35.0	127.60	2x11.30+3x35.0	127.60
Ganderbal	2x3+2x4.5	15.00	2x3+2x4.5	15.00
Mohra	2x4.5	9.00	2x4.5	9.00
Chenani	5x4.66 +2X1.0 +3x2.5	32.80	5x4.66 +2X1.0+3x2.5	32.80
Stakna	2x2.0 +3x1.25 +2.0	9.75	2x2.0 +3x1.25 +2.0	9.75
Small Hydrel		3.54		3.54
Sewa	3x35.0	9.00		9.00
Total Hydro		311.69		311.69
GAS TURBINES				
Pampore GT St - I	3x25.0	75.00	3x25.0	75.00
Pampore GT St - II	4x25.0	100.00	4x25.0	100.00
Total Gas		175.00		175.00

Diesel Gen. Sets		8.94		7.18
Total J & K		495.63		493.87
PUNJAB				
HYDRO				
Jogindernagar/ Shanan	4x15+1x50	110.00	4x15+1x50	110.00
Upper Behari Doab Canal (UBDC)	3x15+3x15	90.00	3x15+3x15	90.00
Mukerian	6x15+6x19.5	207.00	6x15+6x19.5	207.00
Anandpur Sahib (APS)	4x33.5	134.00	4x33.5	134.00
Ranjit Sagar HPS	4x150	600.00	4x150	600.00
Small Hydel		4.10		4.10
Total Hydro		1145.10		1145.10
THERMAL				
Guru Nanak Dev TPS (Bhatinda)	4x110	440.00	4x110	440.00
Guru Gobind Singh TPS (Ropar)	6x210	1260.00	6x210	1260.00
Lehra Mohabbat TPS	2x210	420.00	2x210	420.00
Jhalkeri Rice Straw Fired	1x10	10.00	1x10	10.00
Total Thermal		2130.00		2130.00
Total Punjab		3275.10		3275.10
RAJASTHAN				
HYDRO				
Mahi Bajaj Sagar	2x25+2x45	140.00	2x25+2x45	140.00
Rana Pratap Sagar (RPS)	4x43	172.00	4x43	172.00
Jawahar Sagar (JS)	3x33	99.00	3x33	99.00
Anoopgarh	6x1.5	9.00	6x1.5	9.00
Small Hydro		14.85		14.85

Total Hydro		434.85		434.85
THERMAL				
Kota TPS	2x110+3x210	850.00	2x110+3x210	850.00
Suratgarh TPS	4x250	1000.00	4x250	1000.00
Ramgarh GT	1x3	3.00	1x3	3.00
Ramgarh GT EXT.	1x35.5	35.50	1x35.5	35.50
Total Thermal		1888.50		1888.50
Wind farm		14.01		14.01
Total Rajasthan		2337.36		2337.36
UP				
HYDRO				
Rihand	6x50.0	300.00	6x50.0	300.00
Obra	3x33.0	99.00	3x33.0	99.00
Matatilla	3x10.0	30.00	3x10.0	30.00
Ganga Canal				
Bhola	4x.375+2x.6+		4x.375+2x.6+	
Salara	2x1.5+		2x1.5+	
Nirgazni	2x2.5	10.70	2x2.5	10.70
Khara	3x24.0	72.00	3x24.0	72.00
Sobla & small hydro	6 +12.2	18.20	6 +12.2	18.20
Total Hydro		529.90		529.90
THERMAL				
Obra	5x50	250.00	4x40	160.00
Obra Extn. - I	3x100	300.00	3x94	282.00
Obra Extn. - II	5x200	1000.00	5x200	1000.00
Panki	1x32	32.00	1x32	32.00
Panki Extn.	2x110	220.00	2x105	210.00

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

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

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

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

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

<u>CHAMBAL</u> 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 = 99
Total		386

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

<u>SATPURA</u> 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 28068.77 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 31.08.2002

Agency / Source	Run-of -the -river	Reservoir	Total
NHPC	1444.20	540.00	1984.20
BBMB	1155.15	1709.00	2864.15
DELHI	0.00	0.00	0.00
HARYANA	48.00	0.00	48.00
HP	412.20	0.00	412.20
J&K	311.69	0.00	311.69
PUNJAB	545.10	600.00	1145.10
RAJASTHAN	262.85	172.00	434.85
UP	229.90	300.00	529.90
UTTRANCHAL	782.85	198.00	980.85
Total	5191.94	3519.00	8710.94

4. Generation Addition/ Deletion During The Month

NIL

II. SALIENT FEATURES OF SYSTEM CONDITIONS

1. Effective Generation Capacity at the end of month

Constituent	Effective Capacity		Increase	
	August 2002	August 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.	412.20	303.60	108.60	35.77
J & K	493.87	407.37	86.50	21.23
Punjab	3275.10	2975.10	300.00	10.08
Rajasthan	2337.36	1826.82	510.54	27.95
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	2864.15	2821.15	43.00	1.52
Total	28021.77	26435.13	1586.64	6.00

2. Power Supply Position

State/UT	August 2002			August 2001			Percentage increase over 2001	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqd.	%Shortage	Demand met	Reqd.	%Shortage	Demand met	Reqd.
Chandigarh	3.46	3.46	0.00	3.54	3.54	0.00	-2.26	-2.26
Delhi	58.81	59.89	1.80	57.80	59.14	2.27	1.75	1.27
Haryana	62.83	64.81	3.06	56.18	57.22	1.82	11.84	13.26
HP	9.39	9.39	0.00	8.46	8.46	0.00	10.99	10.99
J&K	15.12	18.45	18.05	14.23	15.78	9.82	6.25	16.92
Punjab	99.78	111.29	10.34	98.44	103.81	5.17	1.36	7.21
Rajasthan	68.22	68.90	0.99	57.13	58.08	1.64	19.41	18.63
UP	99.79	124.42	19.80	115.56	133.90	13.70	-13.65	-7.08
Uttranchal	9.96	10.36	3.82	-----	-----	-----	-----	-----
NFF/Rail	1.72	1.72	0.00	1.10	1.10	0.00	56.36	56.36
REGION	429.08	472.69	9.23	412.44	441.03	6.48	4.04	7.18

Frequency Regime	August 2002	August 2001
Average (Hz)	49.76	49.80
Above 50.5 Hz (%)	9.11	10.39
Above 50.2 Hz (%)	25.62	26.88
Below 49.5 Hz (%)	35.32	32.33
Below 49.0 Hz (%)	12.28	9.30
Below 48.5 Hz (%)	1.86	1.16

3. Peak Power Supply Position

State/UT	August 2002			August 2001			Percentage increase over 2001	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	194	194	0.00	178	178	0.00	8.99	8.99
Delhi	3090	3231	4.36	2879	3040	5.30	7.33	6.28
Haryana	3250	3358	3.22	2900	2966	2.23	12.07	13.22
HP	511	511	0.00	502	502	0.00	1.79	1.79
J&K	907	1141	20.51	825	1025	19.51	9.94	11.32
Punjab	5184	5771	10.17	4936	5357	7.86	5.02	7.73
Rajasthan	3580	3580	0.00	3139	3139	0.00	14.05	14.05
UP	5513	6311	12.64	5922	6910	14.30	-6.91	-8.67
Uttranchal	672	732	8.20	-----	-----	-----	-----	-----
NFF/Rail	78	78	0.00	60	60	0.00	30.00	30.00
REGION	21708	24005	9.57	20533	22442	8.51	5.72	6.96

III. FREQUENCY PROFILE DURING AUGUST 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	48.96	50.36	8.07	48.20	23.11	0.38	12.19
2	48.89	50.08	8.06	48.20	7.08	0.40	13.86
3	49.14	50.32	19.00	48.24	14.58	0.40	8.97
4	49.83	51.28	18.05	48.84	11.54	0.48	2.55
5	49.67	51.20	18.30	48.32	22.01	0.61	4.87

6	49.47	50.96	18.30	48.28	6.15	0.47	5.02
7	49.47	50.96	18.07	48.24	23.18	0.47	5.01
8	49.61	51.24	18.10	48.28	11.09	0.50	4.04
9	49.96	51.00	6.26	48.72	19.22	0.42	1.80
10	49.64	50.92	6.12	48.28	15.06	0.46	3.43
11	50.15	51.16	6.06	48.68	2.15	0.40	1.86
12	50.24	51.12	23.47	49.28	19.37	0.29	1.41
13	50.08	51.32	4.02	48.56	20.10	0.63	4.01
14	49.85	51.08	13.08	48.28	21.05	0.57	3.41
15	49.84	51.20	6.04	48.60	4.50	0.51	2.84
16	49.95	51.16	6.04	48.72	21.04	0.50	2.48
17	49.92	50.88	6.11	48.96	23.12	0.38	1.53
18	50.09	51.04	6.08	49.20	12.31	0.38	1.55
19	50.02	51.04	18.06	48.24	19.20	0.47	2.18
20	50.04	51.00	18.13	49.00	9.06	0.43	1.85
21	49.87	51.04	6.03	48.24	15.01	0.53	2.97
22	50.25	51.12	4.07	49.24	21.20	0.34	1.78
23	49.80	51.20	6.05	48.44	19.18	0.54	3.31
24	49.73	51.08	7.46	48.32	19.14	0.48	2.97
25	50.07	50.88	14.42	49.04	21.04	0.36	1.32
26	49.79	50.96	10.05	48.24	19.16	0.53	3.22
27	49.48	50.84	19.34	48.28	19.14	0.44	4.64
28	49.57	50.60	18.08	48.24	19.10	0.42	3.65
29	49.75	51.28	12.05	48.40	2.12	0.58	3.98
30	49.77	50.84	0.21	48.24	17.07	0.47	2.73
31	49.74	51.04	14.04	48.44	2.10	0.52	3.35
Monthly	49.76	51.32		48.20		0.65	3.83

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 AUGUST 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	402	389	412	368	409	383	405	387	208	186
2	406	393	398	366	409	385	406	387	206	183
3	404	386	398	370	411	385	406	386	208	190
4	410	395	406	380	422	394	411	385	210	198
5	404	384	400	366	418	383	410	384	210	184
6	406	389	406	378	418	385	409	382	206	189
7	406	377	402	366	418	383	406	385	208	180
8	410	377	406	356	420	385	407	382	203	183
9	408	382	400	366	416	385	406	374	208	185
10	408	379	402	368	418	385	407	388	207	189
11	410	382	402	374	414	392	408	375	209	200
12	410	388	406	372	418	385	408	377	210	196
13	420	393	420	382	429	396	411	384	219	198
14	413	395	414	388	414	392	404	382	214	196
15	419	400	416	392	427	396	409	378	215	204
16	417	389	412	384	425	387	403	384	214	195
17	413	389	410	384	420	387	397	377	212	196
18	411	391	410	388	420	394	403	385	214	202
19	410	389	410	378	420	385	403	383	215	195
20	410	395	400	382	414	378	396	372	209	186
21	410	388	404	368	416	383	400	369	210	191
22	410	393	408	386	420	394	404	387	214	203
23	410	386	410	376	425	392	405	372	216	195
24	408	384	404	376	420	385	400	375	212	195
25	410	388	404	384	418	392	404	383	214	201
26	410	382	404	376	422	392	405	386	214	194
27	410	384	404	376	416	387	401	387	210	190
28	411	389	404	378	414	389	402	383	210	192
29	411	389	404	380	414	392	402	385	210	195
30	411	393	408	376	418	389	408	380	215	198
31	410	402	404	388	422	398	411	393	213	202
Month	420	377	420	356	429	378	411	369	219	180

V. PERFORMANCE OF GENERATING STATIONS DURING AUGUST 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	471.06	427.12	2301.36	2104.25
(b)	Singrauli STPS	2000.00	1408.43	1310.24	6482.99	6019.10
(c)	Rihand STPS	1000.00	728.17	667.94	3423.78	3151.69
(d)	Dadri NCTPS	840.00	600.46	554.92	2642.48	2431.45
(e)	Unchahar-I TPS	420.00	313.28	285.45	1357.40	1239.56
(f)	Unchahar-II TPS	420.00	161.27	146.97	1187.32	1078.73
(g)	Tanda TPS	440.00	219.07	191.85	976.46	854.49
(h)	Anta GPS	419.33	213.79	208.60	1067.16	1038.55
(i)	Auraiya GPS	663.36	429.86	423.41	1788.77	1756.92
(j)	Dadri GPS	829.78	363.45	352.13	1907.22	1850.10
(k)	Faridabad GPS	431.57	292.84	287.25	1167.05	1138.05
	Total NTPC	8169.04	5201.68	4855.86	24301.99	22662.88
B	NHPC					
(a)	Bairasiul	180.00	76.43	76.43	377.06	374.08
(b)	Salal	690.00	443.17	442.21	2059.37	2055.09
(c)	Tanakpur HPS	94.20	45.90	45.59	207.96	206.71
(d)	Chamera HPS	540.00	300.00	299.42	1383.47	1382.92
(e)	Uri HPS	480.00	196.06	194.09	1467.75	1454.47
	Total NHPC	1984.20	1061.56	1057.75	5495.60	5473.27
C	NPC					
(a)	RAPS -A	300.00	56.74	51.92	669.44	596.66
(b)	RAPS -B	440.00	275.50	247.08	1252.52	1125.47
(c)	NAPS	440.00	319.32	288.58	1349.44	1211.23
	Total NPC	1180.00	651.55	587.58	3271.40	2933.36

2 JOINTLY OWNED (BBMB)						
(a)	Bhakra Complex	1490.15	615.70	613.13	3007.67	2992.94
(b)	Dehar	990.00	449.41	449.41	2096.77	2096.77
(c)	Pong	384.00	75.52	75.52	328.67	328.67
	Total BBMB	2864.15	1140.63	1138.06	5433.11	5418.38
3 DELHI						
(a)	Indra Prastha	247.50	52.54	46.24	257.73	226.80
(b)	Rajghat	149.00	69.31	61.69	364.17	324.11
(c)	Gas Turbines	282.00	107.64	104.41	515.25	499.79
(d)	Pragati Gas Turbines	108.00	65.23	64.57	173.06	171.33
	Total DELHI	786.50	294.71	276.90	1310.21	1222.04
4 HARYANA						
(a)	WYC	48.00	25.43	25.18	124.58	123.33
(b)	Faridabad (New)	165.00	86.43	74.76	388.43	335.99
(c)	Panipat	860.00	469.21	412.91	1966.32	1730.36
(d)	Magnum Diesel(IPP)	25.20	7.45	7.37	37.25	36.87
	Total Haryana	1098.20	588.53	520.22	2516.57	2226.56
5 HP						
(a)	Giri	60.00	24.91	24.81	60.61	59.69
(b)	Bassi	60.00	33.16	33.11	174.00	173.80
(c)	Binwa	6.00	1.97	1.96	10.80	10.76
(d)	Rongtong	15.25	2.03	2.00	9.07	8.96
	(+Nogli+Micro+Thirot+Sal-2)					
(e)	Andhra	16.95	7.67	7.66	41.69	41.61
(f)	Bhabha (H)	120.00	87.18	86.79	329.67	328.66
(g)	Baner (H)	12.00	4.04	4.04	15.60	15.17
(h)	Gaj (H)	10.50	6.66	6.65	19.55	19.49
(i)	Gumma	3.00	1.45	1.44	7.14	7.09
(j)	Ghanvi	22.50	10.75	10.73	47.90	47.45
(k)	Malana (IPP)	86.00	64.72	64.72	248.11	248.11
	Total HP	412.20	244.55	243.90	964.15	960.80

6	J & K					
(a)	Lower Jhelum	105.00	0.00	0.00	3.36	3.33
(b)	Upper Sindh	127.60	34.62	34.27	161.53	159.91
(c)	Ganderbal	15.00	1.71	1.69	10.95	10.84
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	5.80	5.74	36.62	36.25
(f)	Stakna	9.75	0.00	0.00	0.00	0.00
(g)	Small Hydel	3.54	0.00	0.00	0.00	0.00
(h)	Pampore GT St - I	75.00	0.00	0.00	0.00	0.00
	Pampore GT St - II	100.00				
	Total J & K	470.19	42.13	41.70	212.46	210.33
7	PUNJAB					
(a)	Jogindernagar/ Shanan	110.00	58.33	58.30	296.63	299.48
(b)	UBDC	90.00	47.81	47.67	225.66	225.03
(c)	Mukerian	207.00	87.26	86.63	381.87	379.46
(d)	Anandpur Sahib (APS)	134.00	83.94	83.85	390.94	390.50
(e)	Ranjit Sagar HPS	600.00	120.71	120.46	662.75	661.42
(f)	Small Hydel	4.10	1.04	1.02	4.28	4.24
(g)	GNDTPS (Bhatinda)	440.00	245.10	222.28	1142.61	1038.21
(h)	GGSTPS (Ropar)	1260.00	807.59	741.60	3719.60	3412.02
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	312.96	286.04	988.64	900.26
	Total Punjab	3275.10	1764.73	1647.84	7812.98	7310.61
8	RAJASTHAN					
(a)	Mahi Bajaj Sagar	140.00	0.00	0.00	1.84	1.84
(b)	Rana Pratap Sagar (RPS)	172.00	0.00	0.00	4.57	4.41
(c)	Jawahar Sagar (JS)	99.00	5.39	5.38	10.91	10.91
(d)	Anoopgarh	9.00	0.26	0.25	2.26	2.24
(e)	Small Hydro	14.32	0.21	0.20	1.31	1.30
(f)	Kota TPS	850.00	499.13	450.26	2626.35	2365.01
(g)	RAMGARH GT	3.00	0.00	0.00		

(h)	RAMGARH GT EXT	35.50	22.00	21.41	69.62	69.03
(l)	Suratgarh TPS	750.00	614.79	560.06	2557.84	2318.77
(j)	Wind Farm	4.00	5.26	5.26	27.70	27.70
	Total Rajasthan	2076.82	1147.02	1042.82	5302.39	4801.21
9	U.P.					
	<u>HYDRO</u>					
(a)	Rihand	300.00	2.83	2.80	271.90	269.18
(b)	Obra	99.00	4.61	4.56	117.03	115.86
(c)	Matatilla	30.00	0.58	0.57	21.33	21.11
(d)	Khara	72.00	49.17	48.67	222.00	219.78
	Total U.P. (Hydro)	501.00	57.18	56.61	632.25	625.93
	<u>THERMAL</u>					
(e)	Obra	1442.00	525.28	459.62	2931.96	2565.46
(f)	Panki	242.00	109.26	95.60	301.44	263.76
(g)	Harduaganj	375.00	67.58	59.13	340.83	298.23
(h)	Paricha	220.00	89.36	78.19	393.15	344.01
(i)	Anpara	1630.00	1077.33	942.66	4992.91	4368.80
	Total U.P. (Thermal)	3909.00	1868.80	1635.20	8960.30	7840.26
	Total U.P.	4410.00	1925.98	1691.81	9592.55	8466.19
10	UTTRANCHAL					
(a)	Khatima	41.40	17.00	16.83	70.05	69.34
(b)	Ramganga	198.00	0.00	0.00	81.41	80.60
(c)	Ganga Canal	32.70	13.35	13.21	60.00	59.40
(d)	Yamuna (I & IV)	114.75	75.38	74.63	327.91	324.63
(e)	Chibro	240.00	118.95	117.76	501.05	496.04
(f)	Khodri	120.00	53.64	53.11	233.47	231.13
(g)	Chilla	144.00	76.94	76.17	312.48	309.36
(h)	Maneri Bhali	90.00	0.00	0.00	192.61	190.69

	Total Uttranchal	980.85	355.26	351.71	1778.98	1761.19
	Total Region	27707.25	14418.33	13456.16	67992.38	63446.79

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 AUGUST 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	9.21	9.21	10.59	9.84	0.00	0.14	0.00
2	Delhi	149.43	149.43	92.99	93.08	427.12	1.83	0.00
3	Haryana	170.97	170.97	71.07	71.15	0.00	1.69	0.00
4	H.P.	0.00	0.00	22.49	22.52	0.00	0.68	0.00
5	J & K	5.34	5.34	47.82	47.93	0.00	2.33	0.00
6	Punjab	144.94	144.94	90.97	91.08	0.00	2.58	0.00
7	Rajasthan	226.57	226.57	82.99	83.08	0.00	2.03	0.00
8	U.P.	461.44	461.44	195.43	195.65	0.00	4.98	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	11.33	0.00
10	Uttranchal	59.06	59.06	25.30	25.33	0.00	0.60	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00

12	Trans. Losses	54.16	54.16	28.29	28.29	0.00	0.73	0.00
	TOTAL	1281.12	1281.12	667.94	667.94	427.12	28.92	0.00

Note :- Singrauli sentout excludes 29.13 MU supplied to Western Grid

(All figs. in MU)

Sl. No.	State/UT/ System	Dadri NCTPS Entitlement	Actual	Unchahar-I TPS Entitlement	Actual	Unchahar-II TPS Entitlement	Actual
1	Chandigarh	0.00	0.00	1.24	0.80	1.47	0.95
2	Delhi	476.96	452.12	19.09	19.31	21.61	9.77
3	Haryana	23.68	23.72	40.23	40.45	25.43	27.88
4	H.P.	0.00	0.06	4.30	4.08	3.88	3.09
5	J & K	0.00	0.19	9.92	10.22	11.19	15.03
6	Punjab	31.08	31.17	67.41	67.74	34.23	39.28
7	Rajasthan	0.00	0.16	17.05	17.31	18.81	24.82
8	U.P.	23.19	41.16	90.46	90.13	18.93	16.45
9	MP	0.00	2.01	0.00	0.00	0.00	0.00
10	Uttranchal	0.00	4.33	23.84	23.51	5.21	3.49
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	12.10	12.10	6.21	6.21
	Total	554.91	554.91	285.64	285.64	146.97	146.97
Sl. No.	State/UT/ System	Anta GPS Entitlement	Actual	Auraiya GPS Entitlement	Actual	Uri HPS Entitlement	Actual
1	Chandigarh	3.71	3.13	5.77	3.91	1.05	1.05
2	Delhi	30.17	30.34	56.29	56.96	21.21	21.21
3	Haryana	20.22	20.39	48.90	49.28	10.48	10.48
4	H.P.	7.22	7.28	13.50	13.39	5.20	5.20
5	J & K	14.86	15.09	28.70	29.39	65.33	65.33
6	Punjab	29.17	29.42	85.93	86.41	26.40	26.40
7	Rajasthan	46.77	46.97	51.24	51.72	17.27	17.27
8	U.P.	40.51	39.96	98.65	96.46	38.49	38.49
9	MP	0.00	0.00	0.00	1.32	0.00	0.00

10	Uttranchal	7.62	7.68	15.55	15.77	6.71	6.71			
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00			
12	Trans. Losses	8.34	8.34	18.23	18.16	1.94	1.94			
	TOTAL	208.59	208.59	422.76	422.76	194.09	194.09			
Sl. No.	State/UT/	Dadri GPS		Bairasiul HPS		Salal HPS				
	System	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual			
1	Chandigarh	2.31	1.36	0.00	0.00	1.18	1.18			
2	Delhi	40.88	22.37	8.07	8.07	50.66	50.66			
3	Haryana	30.06	35.06	22.38	22.38	65.48	65.48			
4	H.P.	10.78	10.89	8.81	8.81	4.32	4.32			
5	J & K	24.20	31.24	0.00	0.00	151.78	151.78			
6	Punjab	73.53	81.93	34.12	34.12	115.96	115.96			
7	Rajasthan	35.89	43.96	0.00	0.00	12.86	12.86			
8	U.P.	79.35	71.91	0.00	0.00	30.30	30.30			
9	Uttranchal	12.16	11.23	0.00	0.00	5.27	5.27			
10	Railways	43.61	42.82	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	3.06	3.06	4.42	4.42			
	Total	352.77	352.77	76.44	76.44	442.23	442.23			
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	11.76	11.22	0.00	0.00	0.67	0.00	
2	Delhi	4.71	4.71	23.12	23.21	0.00	44.85	1.70	0.00	
3	Haryana	2.35	2.35	45.94	46.03	0.00	21.05	76.81	0.00	
4	H.P.	1.41	1.41	44.19	44.22	0.00	0.00	0.06	0.00	
5	J & K	2.82	2.82	11.36	11.48	0.00	0.00	14.29	0.00	
6	Punjab	6.59	6.59	29.73	29.86	0.00	27.84	26.58	0.00	
7	Rajasthan	4.24	4.24	57.45	57.55	51.92	153.34	125.39	0.00	
8	U.P.	7.84	7.84	58.88	58.88	0.00	0.00	1.16	191.85	
9	Uttranchal	6.32	6.32	10.42	10.42	0.00	0.00	0.00	0.00	
10	Trans. Losses	1.63	1.63	6.58	6.57	0.00	0.00	0.40	0.00	
11	Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

	Total	38.38	38.38	299.43	299.43	51.92	247.08	247.08	191.85
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Note :- Tanakpur sentout excludes 7.207 MU supplied to Nepal

Sl. No.	State/UT/	Narora APS		Bhakra HPS		Dehar HPS	Pong	F'bad GPS	ER import
	System	Entitlement	Actual	Entitlement	Actual	Actual	Actual	Actual	Actual
1	Chandigarh	5.29	1.97	49.16	49.29	0.00	0.00	0.00	8.01
2	Delhi	43.59	13.10	0.00	0.00	0.00	0.00	0.00	48.81
3	Haryana	27.17	53.82	169.97	171.45	135.32	11.91	287.25	39.69
4	H.P.	8.61	6.57	14.48	14.57	8.56	0.00	0.00	8.01
5	J & K	21.91	30.78	0.00	0.00	0.00	0.00	0.00	8.01
6	Punjab	36.11	52.44	234.51	236.56	202.98	17.86	0.00	0.00
7	Rajasthan	36.90	83.92	92.75	93.43	84.58	41.96	0.00	8.01
8	U.P.	86.49	31.32	0.00	0.00	0.00	0.00	0.00	33.78
9	N.F.F.	0.00	0.00	14.88	10.46	0.00	0.00	0.00	0.00
10	Uttranchal	10.17	2.32	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	12.24	12.24	37.38	37.38	17.98	3.80	0.00	0.00
	Total	288.48	288.48	613.13	613.13	449.41	75.52	287.25	154.32

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

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING AUGUST 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	4.34
Delhi	0.00	0.00	0.00	78.40	0.00	0.00	0.00	0.00	111.30	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	-78.40	0.00	0.00	0.00	-63.43	0.00	0.00	0.00	0.00	0.00	0.00
J & K	0.00	0.00	0.00	0.00	0.00	-14.00	0.00	0.00	0.00	0.00	0.00	0.00
Punjab	0.00	0.00	0.00	63.43	14.00	0.00	0.00	0.00	55.60	0.00	0.00	5.17
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	0.00	0.00	0.00	0.00
Uttranchal	0.00	-111.30	0.00	0.00	0.00	-55.60	0.00	0.00	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	-4.34	0.00	0.00	0.00	0.00	-5.17	0.00	0.00	0.00	0.00	0.00	0.00
Total	-4.34	-189.70	0.00	141.83	14.00	-138.20	0.00	0.00	166.90	0.00	0.00	9.51

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

i) Haryana's share in IP station of Delhi	12.819MU
ii) Himachal's share in Shanan & RSD power station of Punjab	12.218MU
iii) Himachal's share in Yamuna hydro power complex of UP & Uttranchal	69.768MU
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 31.08.2002**

(ALL FIGS IN MVAR)

CONSTITUENT	REQUIREMENT AT THE END OF 2002-03	CAPACITORS AS ON 31.08.2002	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	2352	416	0	187
H.P.	352	236	57	31	116
J & K	872	147	12	0	725
Punjab	5067	4668	199	38	399
Rajasthan	3021	2562	59	146	459
U.P.	5390	4811	485	120	579
Uttranchal					
BBMB	366	381	0	0	0
TOTAL	20757	17887	1632	340	2885

SOURCE: Minutes of 332nd OCC meeting of NREB held on 23rd September, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING AUGUST 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 August 2002 (m) (ft)	500.37 1641.65	403.52 1323.87	259.75 852.20	345.59 1133.82	380.87 1249.58
Level on last day of August 2001 (m) (ft)	501.09 1643.98	419.28 1375.59	266.76 875.20	352.38 1156.10	386.29 1267.36
Live Capacity as on August 2002 (mhmt) (ft)	0.50 4.02	0.23 1.86	0.24 1.92	0.00	0.00 0.00
Live Capacity as on last day of August 2001 (mhmt) (maft)	0.50 4.07	0.55 4.46	0.50 4.05	0.28 2.27	0.11 0.88
Energy content as on last day of August 2002 (MU)	1950.00	310	375.00	60.00	0.00
Energy content as on last day of August 2001 (MU)	2000.00	820.00	825.00	300.00	250.00
Maximum level (m)	500.37	403.52	259.75	345.61	380.87

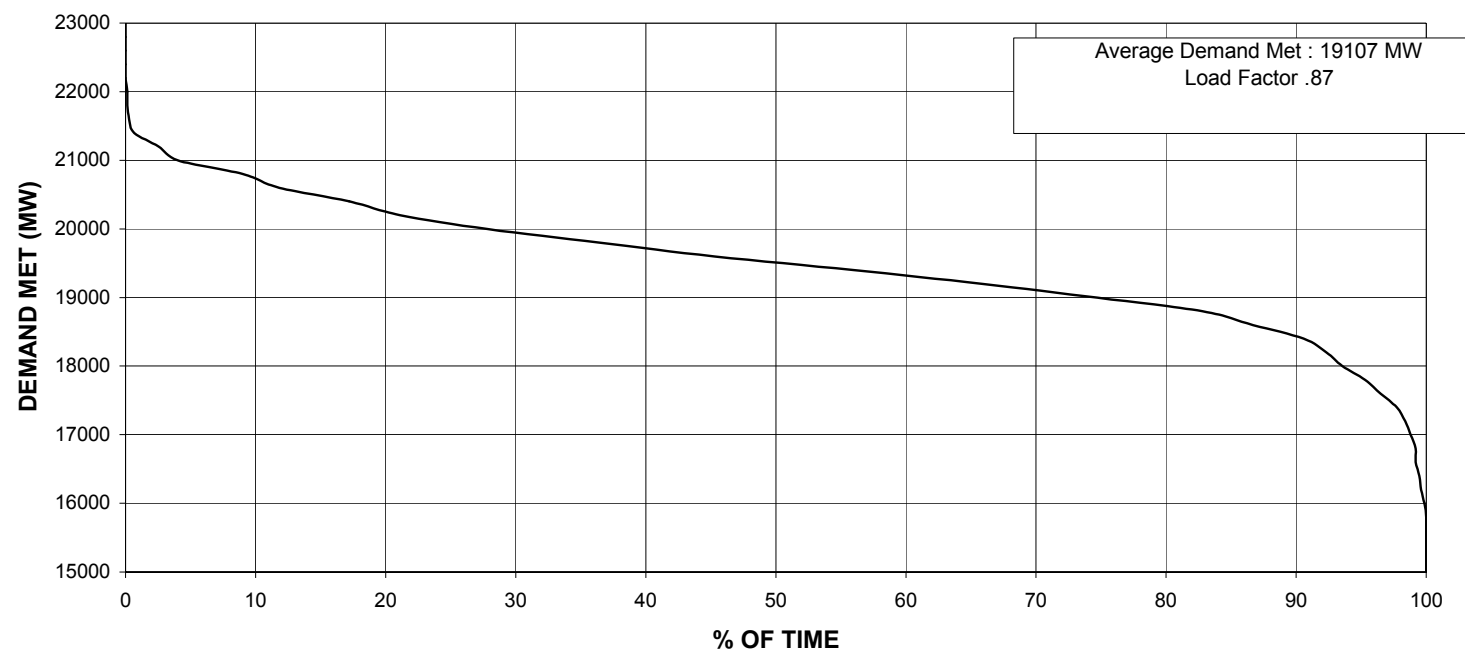
	(ft)	1641.65	1323.87	852.20	1133.90	1249.58
	(date)	31.08.2002	31.08.2002	31.08.2002	27.08.2002	30.08.2002
Minimum level	(m)	486.85	393.13	254.36	344.45	379.56
	(ft)	1597.29	1289.80	834.50	1130.10	1245.27
	(date)	01.08.2002	03.08.2002	01.08.2002	05.08.2002	03.08.2002

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

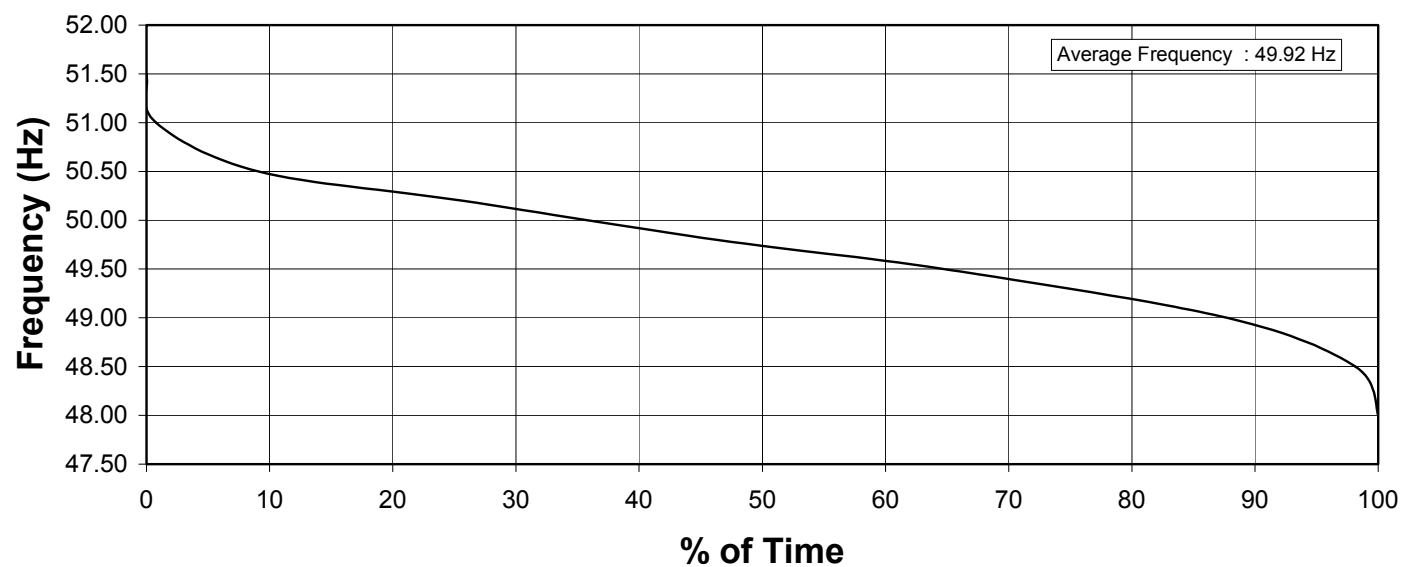
Energy content of Rihand : Total Energy content at Rihand & Obra power stations

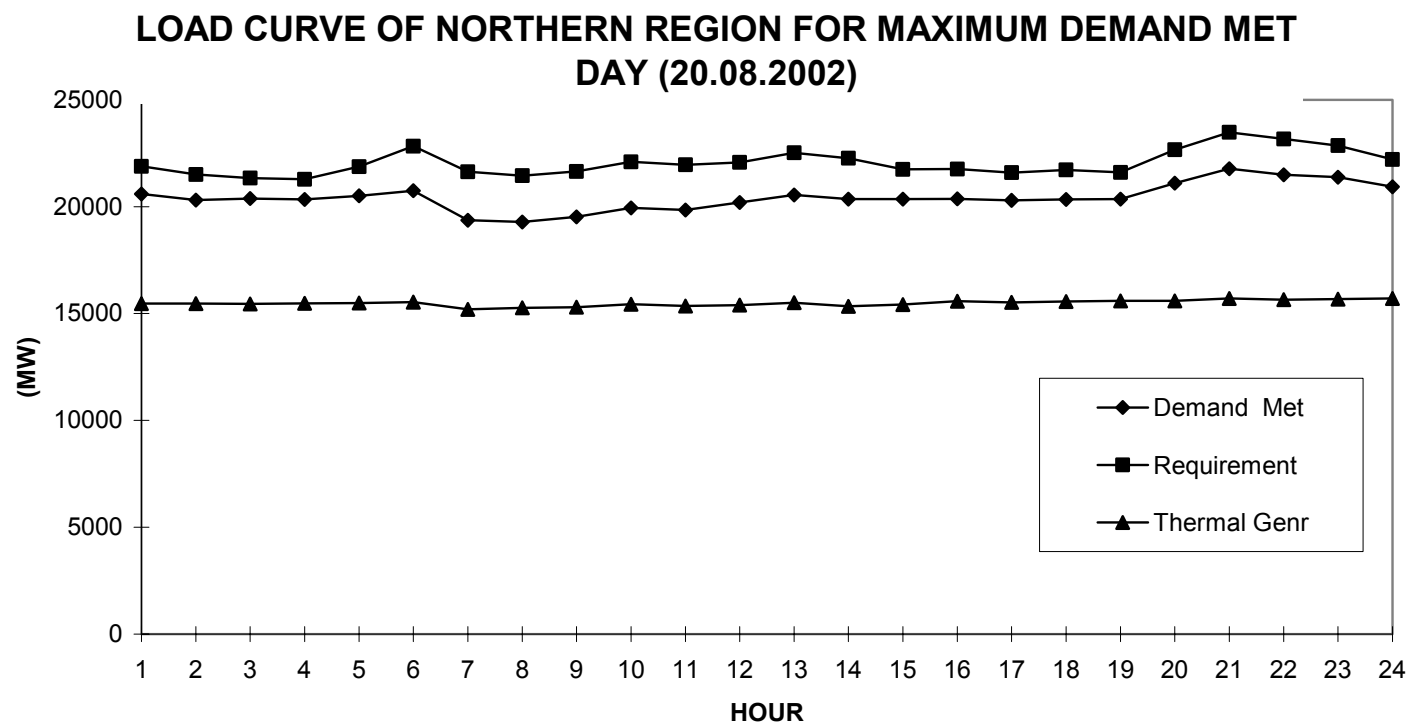
Energy content of RPS : Total Energy content of Rana Pratap Sagar and Jawahar Sagar Power Stations.

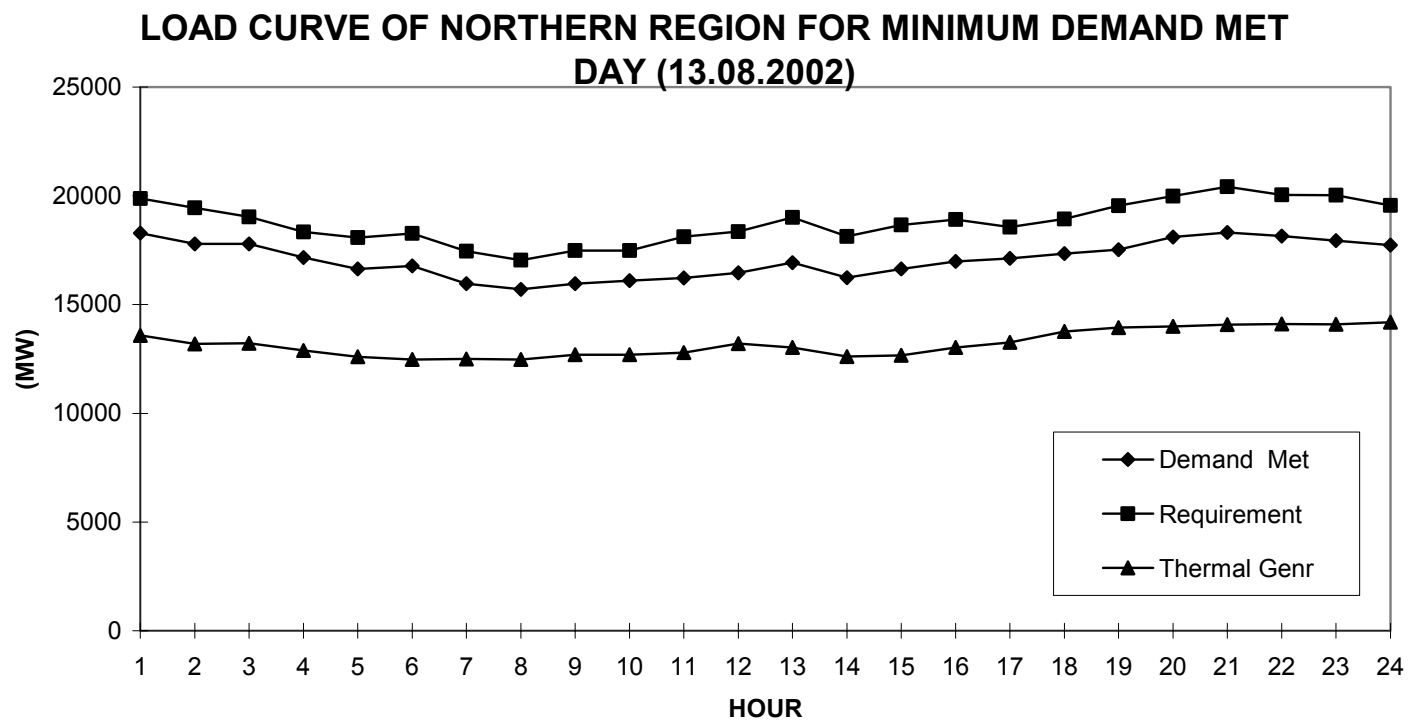
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

LOAD DURATION CURVE OF NORTHERN REGION FOR AUGUST 2002

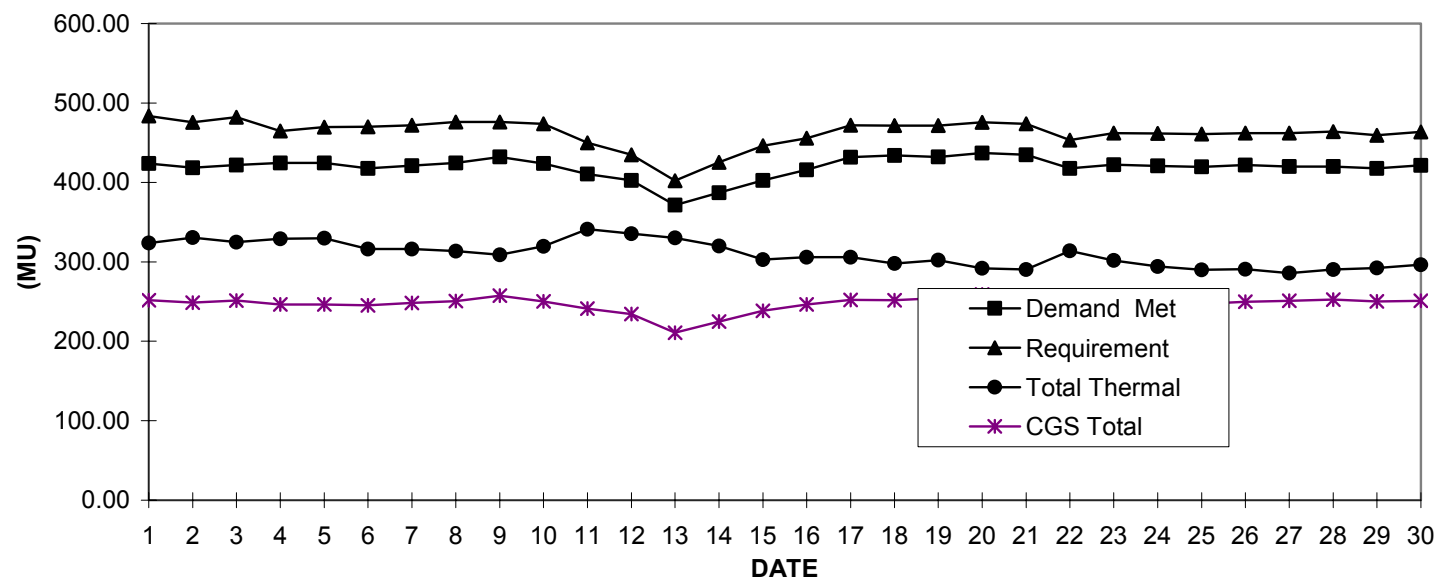
FREQUENCY DURATION CURVE OF NORTHERN REGION FOR AUGUST 2002



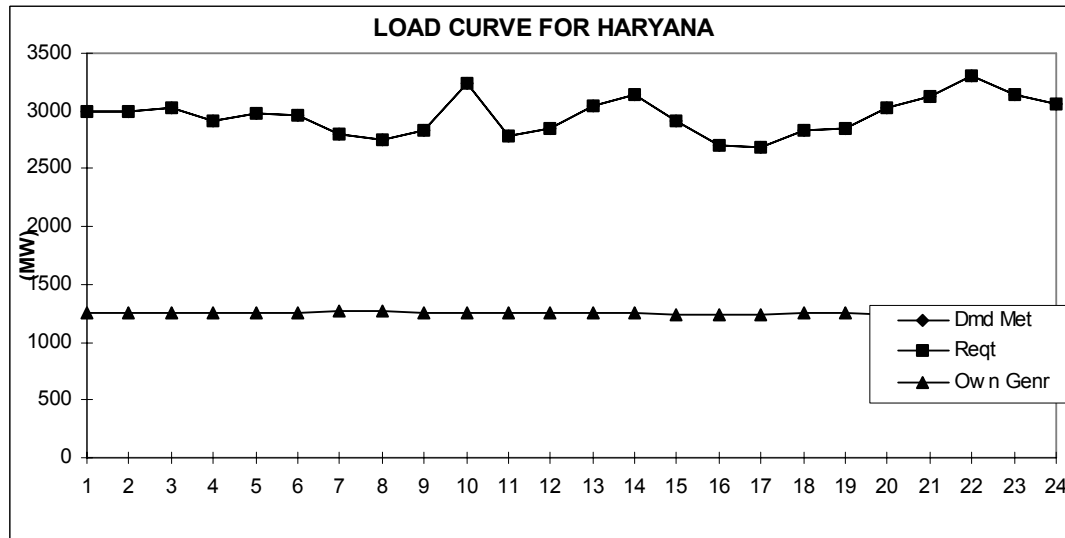
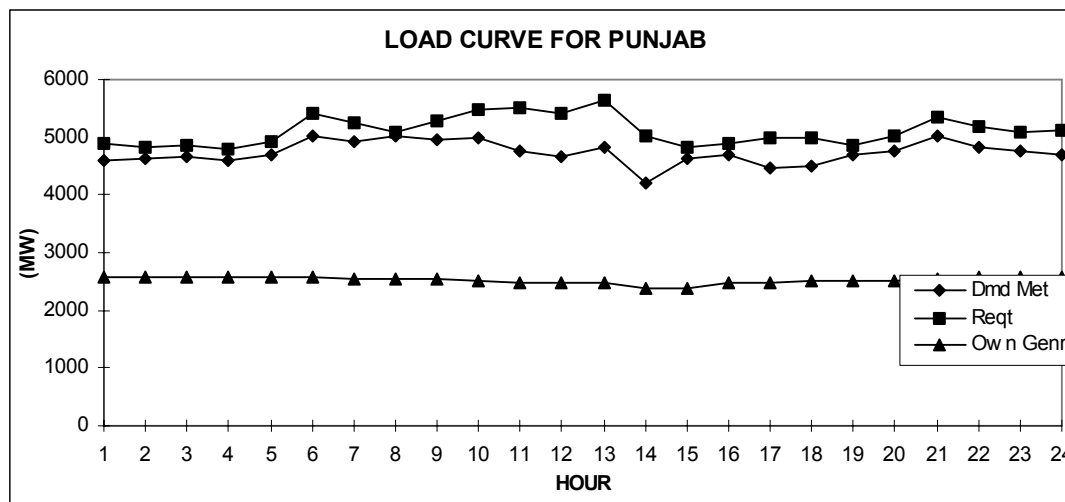


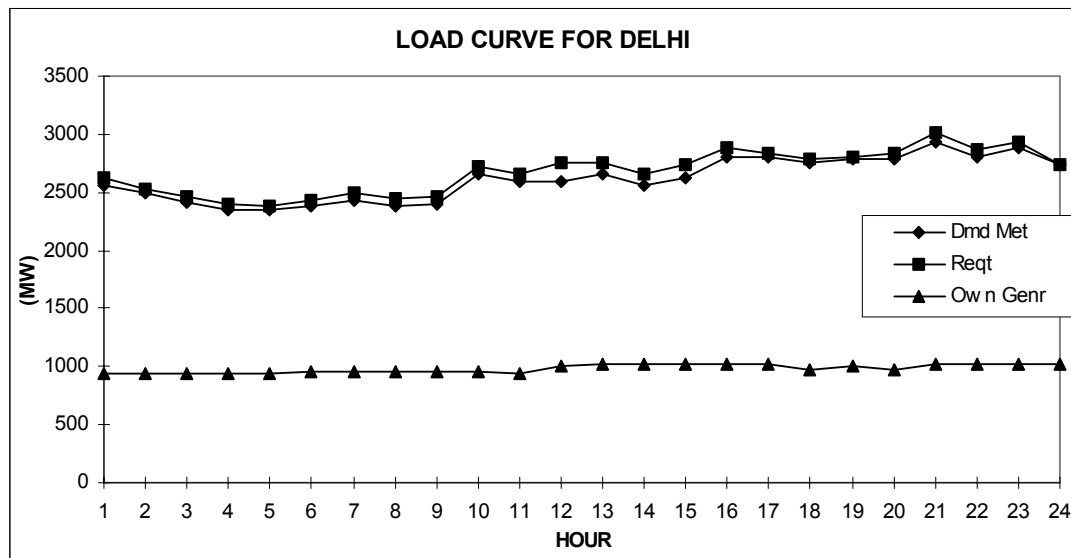
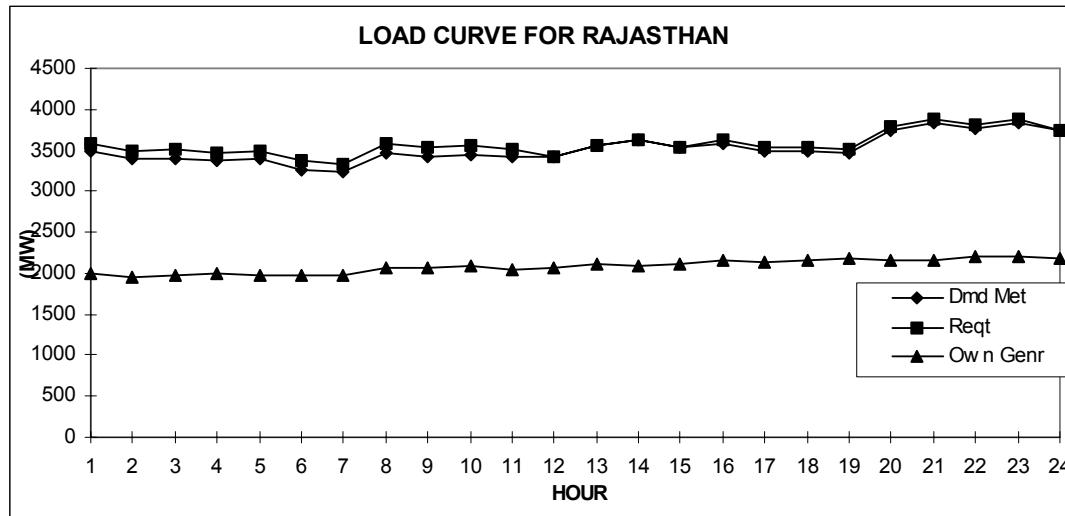


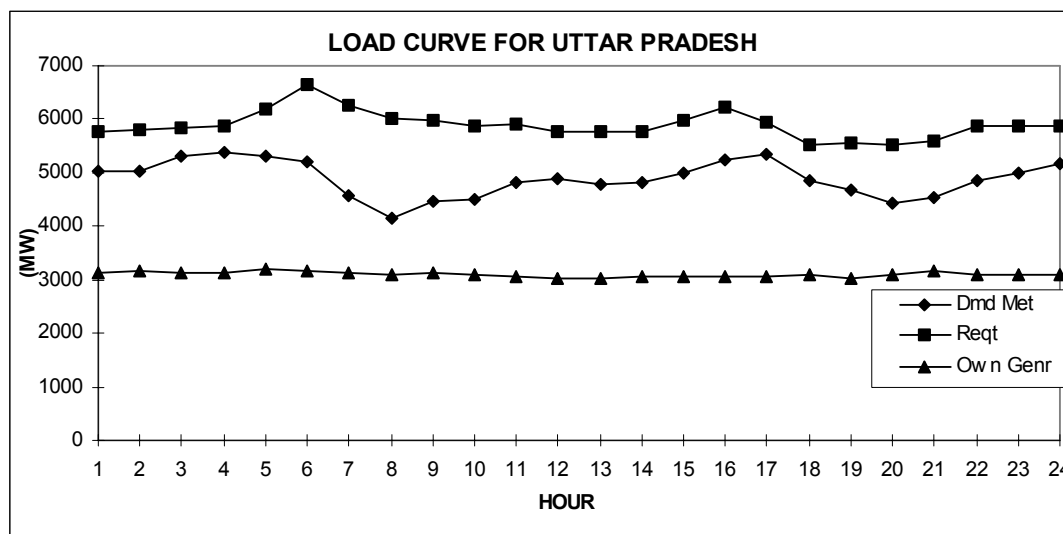
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING AUGUST 2002



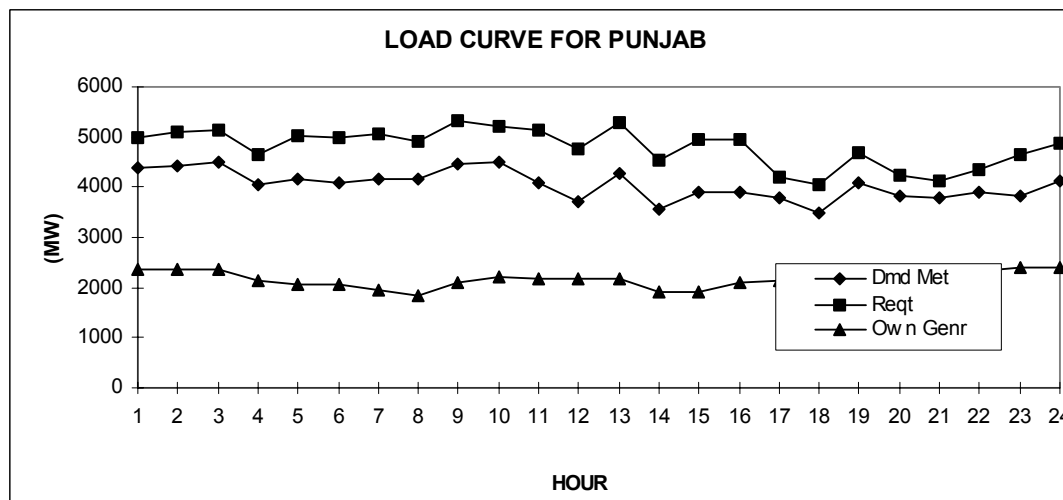
STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(20.08.2002)



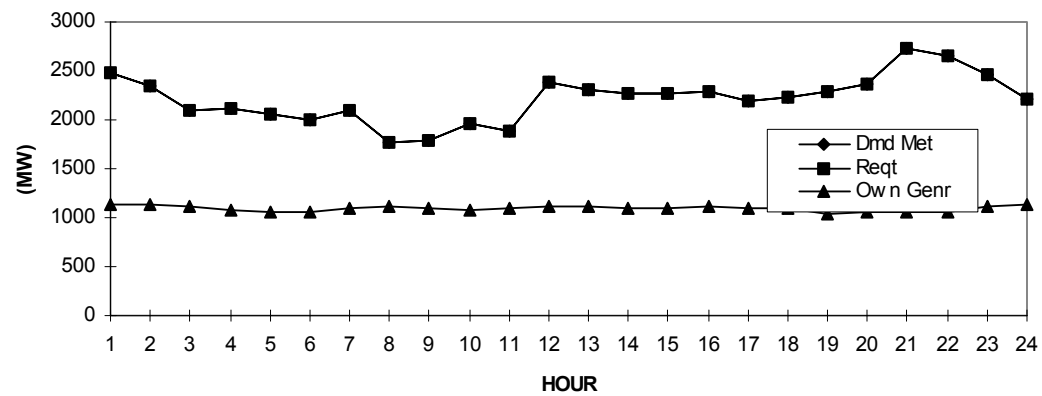




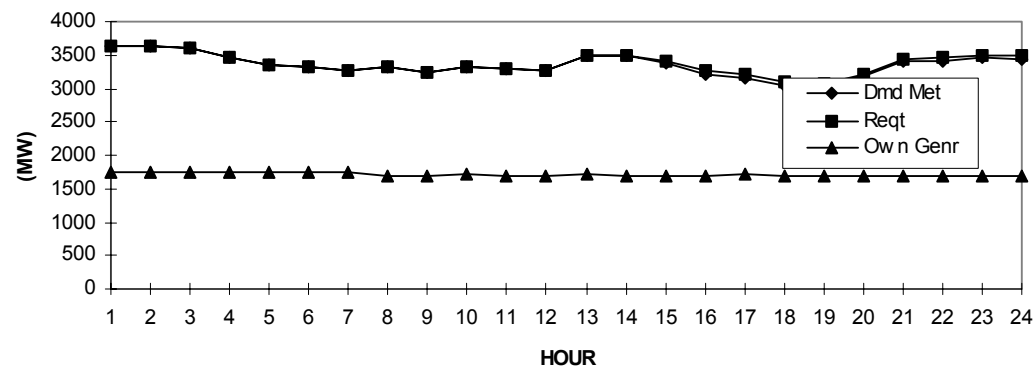
STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(13.08.2002)

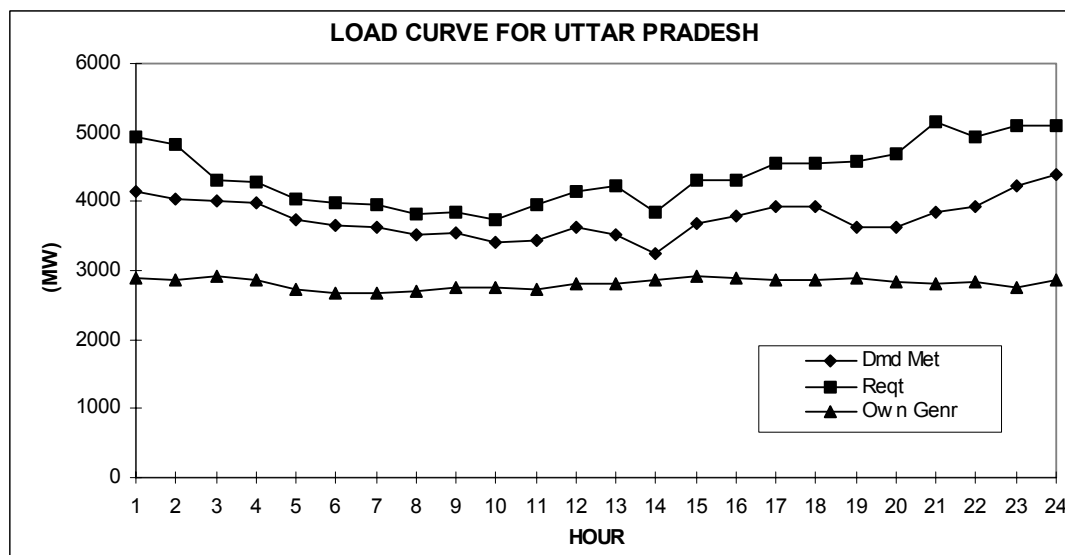
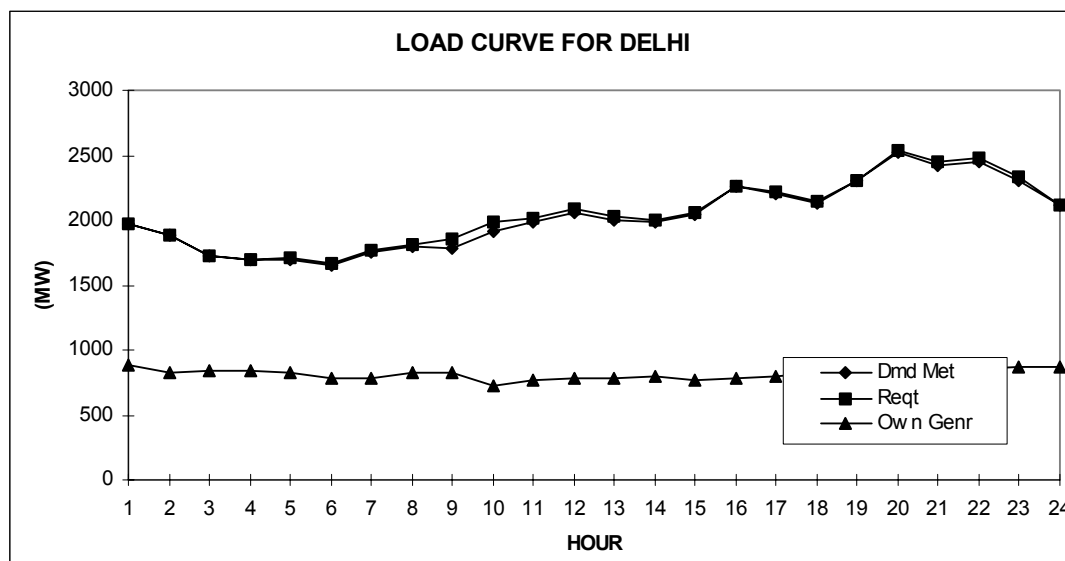


LOAD CURVE FOR HARYANA



LOAD CURVE FOR RAJASTHAN





MINOR GRID INCIDENTS DURING AUGUST 2002

S No.	DATE	TIME	INCIDENT
1	05.08.2002	23.28	At 23.28 hrs., due to bus fault at Obra-A, all the running units viz . unit nos 3,4,6,7 & 100 MVA ICT-I&II at Obra-A and unit nos 12,13 & 240 MVA ICT-II at Obra-B tripped. The system was normalized by 00.57 hrs. of 06.08.2002. Most of the units were taken on bar by 04.25 hrs..
2	07.08.2002	16.48	An incident occurred in Delhi system; due to tripping of 220 kV BTPS-I.P.Extn.-II resulted in tripping all the running units at IP, Rajghat, IP GT and Pragati GT. Loss of generation of was around 430 MW. Delhi supply was made normal within 20 minutes and units were brought back on bar by 21.00 hrs.
3	13.08.2002	21:10	An incident occurred at Salal due to operation of LBB of unit-4 which resulted in tripping of Salal-Jammu-II, Salal-Kishanpur-III & IV and running units-IV & V after silt flushing operation at Salal.