



GRID REPORT

OCTOBER 2002

SYSTEM OPERATION REPORT OF NORTHERN REGION FOR THE MONTH OF OCTOBER, 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 October 2002 was 49.82 Hz and frequency remained between 49.0 & 50.5 Hz for 83.10% 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 grid disturbance in the region during October 2002.

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

NIL

II. CENTRAL GENERATING STATIONS SHARE vs DRAWAL OF ALL CONSTITUENTS DURING OCTOBER 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	31.99	26.13	5.53	5.4	5.72	0.64	48.41	47.33	91.66	79.49
2	Delhi	716.35	690.10	47.31	47.51	73.88	22.44	0.00	0.00	837.53	760.05
3	Haryana	420.38	442.70	57.07	57.25	55.79	128.55	231.04	233.83	764.28	862.32
4	H.P.	51.15	55.52	24.10	22.82	9.25	14.25	22.50	20.61	107.00	113.20
5	J & K	235.52	257.93	105.13	105.39	56.28	86.49	0.00	0.00	396.92	449.80
6	Punjab	406.99	404.46	90.42	90.70	74.80	28.52	327.14	331.07	899.36	854.75
7	Rajasthan	539.50	559.12	37.13	37.36	183.00	188.85	165.18	166.88	924.81	952.20
8	U.P.	1130.80	1109.94	60.95	61.20	90.60	85.43	0.00	0.00	1282.35	1256.57
9	Uttanchal	136.54	129.95	15.73	15.76	10.62	4.78	0.00	0.00	162.88	150.49
9	MP / N.F.F.	2.73	21.52	0.00	0.00	0.00	0.00	14.88	9.44	17.61	30.96
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	109.08	108.89	8.36	8.36	12.17	12.17	41.18	41.18	170.79	170.61
12	Others	67.56	42.32	0.00	0.00	0.00	0.00	0.00	0.00	67.56	42.32
	Total	3848.59	3848.59	451.74	451.74	572.10	572.10	850.33	850.33	5722.76	5722.76

III. INTER REGIONAL EXCHANGES IN MU AND PEAK MW

	Energy (MU)	Peak MW
a. Import over HVDC Back to Back at Vindhyachal	0.44	50
b. M.P. to Rajasthan(Ujjain - Kota)	0.00	0
c. Eastern region to Northern region (Import)	146.50	360
d. Export over HVDC Back to Back at Vindhyachal	93.60	500
e. 220 KV Auraiya -Malanpur	29.25	64
f. Northern region to Bihar (Export)	0.00	0
g. Tanakpur to Mahendranagar(NEPAL) (Export)	7.02	12

IV. FREQUENCY PROFILE

a. Maximum frequency 51.40 Hz at 15.05 hours on 02.10.2002
 Minimum frequency 48.16 Hz at 22.13 hours on 29.10.2002
 Average frequency 49.82 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
% of time	0.37	5.64	83.10	11.26

c. Frequency Variation Index

 Monthly Average 3.15
 Maximum 6.33
 Minimum 1.61

V. POWER SUPPLY POSITION IN NORTHERN REGION

a. Average Energy/day (Net)

State / U.T.	Availability MU/Day	Requirement MU/Day	Shortage MU/Day	Shortage %
Chandigarh	2.56	2.56	0.00	0.00
Delhi	48.26	49.27	1.01	2.05
Haryana	52.10	54.18	2.08	3.84
H.P.	8.86	8.86	0.00	0.00
J & K	15.71	18.58	2.87	15.45
Punjab	69.37	75.84	6.47	8.53
Rajasthan	70.69	71.27	0.58	0.81
U.P.	100.40	125.28	24.88	19.86
Uttanchal	9.45	9.75	0.30	3.06
N.F.F./Rail	1.67	1.67	0.00	0.00
Total	379.07	417.26	38.19	9.15

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	160	160	0	5	0.00	3.13
Delhi	2812	2853	41	301	1.44	10.55
Haryana	3013	3043	30	30	0.99	0.99
H.P. *	551	551	0	100	0.00	18.15
J & K *	891	1158	267	362	23.06	31.26
Punjab	3841	4281	440	704	10.28	16.44
Rajasthan	3716	3716	0	459	0.00	12.35
U.P.	5577	6665	1088	1330	16.32	19.95
Uttaranchal	640	700	60	60	8.57	8.57
N.F.F./Rail	83	83	0	19	0.00	22.89
Region	19471	22186	2715	2715	12.24	12.24

Diversity Factor = 1.09

* Approximate and Estimated

DETAILED REPORT

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

UNAVAILABLE / EFFECTIVE CAPACITY AT THE END OF OCTOBER 2002

<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 Hydel+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 Hydel		3.54		3.54
Sewa	3x3.0	9.00	3x3.0	9.00
Total Hydro		311.69		311.69
J & K (Contd.)				
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 OCTOBER 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	100.00%
% 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 :

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 28068.77 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 31.10.2002

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	
	October 2002	October 2001	MW	%
Chandigarh	1.40	1.40	0.00	0.00
Delhi	786.50	678.50	108.00	15.92
Haryana	1098.20	1098.20	0.00	0.00
H.P.	412.20	412.10	0.10	0.02
J & K	493.87	407.37	86.50	21.23
Punjab	3275.10	3275.10	0.00	0.00
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	1180.00	0.00	0.00

BBMB	2864.15	2852.15	12.00	0.42
Total	28021.77	27304.63	717.14	2.63

2. Power Supply Position

Power supply position

State/UT	October 2002			October 2001			Percentage increase over 2001	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	2.56	2.56	0.00	2.65	2.68	1.12	-3.40	-4.48
Delhi	48.26	49.27	2.05	48.21	49.54	2.68	0.10	-0.55
Haryana	52.10	54.18	3.84	48.16	49.89	3.47	8.18	8.60
HP	8.86	8.86	0.00	8.46	8.46	0.00	4.73	4.73
J&K	15.71	18.58	15.45	14.38	16.18	11.12	9.25	14.83
Punjab	69.37	75.84	8.53	71.26	75.76	5.94	-2.65	0.11
Rajasthan	70.69	71.27	0.81	66.82	66.90	0.12	5.79	6.53
UP	100.40	125.28	19.86	122.15	132.27	7.65	-17.81	-5.28
Uttranchal	9.45	9.75	3.06	-----	-----	-----	-----	-----
NFF/Rail	1.67	1.67	0.00	1.25	1.25	0.00	33.60	33.60
REGION	379.07	417.26	9.15	383.34	402.93	4.86	-1.11	3.56
Frequency Regime								
	October 2002			October 2001				
Average (Hz)	49.82			49.62				
Above 50.5 Hz (%)	11.26			5.22				
Above 50.2 Hz (%)	27.84			19.32				
Below 49.5 Hz (%)	29.45			35.00				
Below 49.0 Hz (%)	5.64			14.87				
Below 48.5 Hz (%)	0.37			2.84				

3. Peak Power Supply Position

on Peak Power Supply Position

State/UT	October 2002			October 2001			Percentage increase over 2001	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	160	160	0.00	145	147	1.36	10.34	8.84
Delhi	2812	2853	1.44	2509	2814	10.84	12.08	1.39
Haryana	3013	3043	0.99	2762	2762	0.00	9.09	10.17
HP	551	551	0.00	504	504	0.00	9.33	9.33

J&K	891	1158	23.06	791	1066	25.80	12.64	8.63
Punjab	3841	4281	10.28	3927	4084	3.84	-2.19	4.82
Rajasthan	3716	3716	0.00	3524	3524	0.00	5.45	5.45
UP	5577	6665	16.32	6420	7200	10.83	-13.13	-7.43
Uttanchal	640	700	8.57	----	----	-----	-----	-----
NFF/Rail	83	83	0.00	62	62	0.00	33.87	33.87
REGION	19471	22186	12.24	20346	21545	5.57	-4.30	2.98

III. FREQUENCY PROFILE DURING OCTOBER 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	49.62	50.92	7.37	48.36	10.09	0.53	4.29
2	50.02	51.40	15.05	48.72	19.11	0.46	2.17
3	49.60	50.04	10.08	49.16	0.06	0.20	2.00
4	49.37	50.40	16.08	48.16	11.36	0.40	5.56
5	49.49	51.16	8.03	48.20	11.06	0.52	5.34
6	49.98	51.20	17.04	48.28	19.09	0.50	2.49
7	49.58	50.84	18.36	48.24	14.50	0.55	4.73
8	49.33	50.92	8.02	48.28	5.26	0.43	6.33
9	49.77	51.04	8.01	48.56	23.08	0.50	2.96
10	49.69	51.08	8.07	48.56	18.12	0.48	3.25
11	49.51	51.12	8.10	48.36	5.55	0.51	4.93
12	49.94	51.24	19.44	48.68	5.50	0.56	3.23
13	50.28	51.04	4.00	49.24	23.08	0.37	2.14
14	50.18	51.08	13.23	48.48	18.30	0.41	2.02
15	50.30	51.16	15.07	49.28	23.14	0.35	2.14
16	49.79	50.88	12.12	48.28	18.17	0.57	3.66
17	49.59	50.88	17.05	48.28	18.21	0.42	3.42
18	49.59	50.88	4.02	48.44	18.20	0.52	4.39
19	49.61	51.04	12.45	48.36	18.06	0.44	3.41

20	49.86	51.08	17.03	48.28	18.19	0.51	2.78
21	49.97	50.80	9.09	48.24	18.19	0.40	1.61
22	49.84	50.92	9.32	48.32	18.27	0.49	2.70
23	49.95	51.00	8.07	48.28	18.17	0.48	2.32
24	50.04	51.04	3.04	48.64	6.46	0.44	1.91
25	49.78	51.20	15.07	48.56	21.04	0.47	2.67
26	50.25	51.24	21.56	49.12	6.56	0.44	2.53
27	50.05	51.16	15.11	48.52	8.32	0.46	2.12
28	50.04	51.20	12.58	48.44	18.45	0.52	2.69
29	49.70	50.76	17.41	48.16	22.13	0.47	3.08
30	49.71	51.08	7.59	48.28	18.49	0.47	3.07
31	49.99	51.04	15.11	48.28	18.12	0.41	1.66
Monthly	49.82	51.40		48.16		0.50	3.15

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 OCTOBER 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	395	412	386	431	396	416	388	219	196
2	413	393	416	386	427	392	414	386	219	200
3	406	399	408	386	416	394	415	389	214	198
4	410	386	408	378	422	389	417	381	216	190
5	413	395	412	380	422	392	416	379	216	196
6	417	397	412	386	427	398	418	390	216	202
7	413	399	416	386	427	398	421	390	219	196
8	417	395	410	384	420	394	416	389	215	195
9	411	391	410	386	422	394	414	389	218	198
10	408	393	410	380	422	389	413	387	218	196
11	406	393	412	382	422	394	417	386	214	194

12	411	395	420	384	431	394	414	388	218	201
13	415	395	422	384	431	396	418	387	219	201
14	410	397	416	382	429	396	418	386	219	196
15	410	400	414	394	425	403	412	386	218	207
16	413	395	416	390	429	400	414	382	219	198
17	411	395	414	386	425	396	414	385	218	197
18	410	395	414	384	427	398	419	381	216	198
19	411	395	414	392	427	400	415	388	215	203
20	411	397	418	392	425	400	414	390	218	204
21	411	393	418	384	427	400	411	376	218	200
22	410	393	416	382	416	405	410	378	216	197
23	411	384	418	382	422	389	414	380	220	196
24	410	388	416	384	427	394	416	384	219	200
25	408	384	414	382	422	394	412	382	218	200
26	410	388	412	386	427	394	406	383	216	203
27	411	395	412	388	425	400	411	386	218	206
28	408	379	414	384	427	392	411	383	216	198
29	406	382	410	378	418	389	411	380	216	198
30	406	380	408	380	420	389	407	380	215	197
31	411	395	414	384	422	396	407	386	218	197
Month	417	379	422	378	431	389	421	376	220	190

V. PERFORMANCE OF GENERATING STATIONS DURING OCTOBER 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	472.80	428.40	3186.13	2906.86
(b)	Singrauli STPS	2000.00	1408.21	1316.23	9219.96	8572.57
(c)	Rihand STPS	1000.00	441.13	402.42	4263.64	3908.31
(d)	Dadri NCTPS	840.00	478.54	440.61	3574.67	3288.55
(e)	Unchahar-I TPS	420.00	105.01	95.92	1744.67	1592.47
(f)	Unchahar-II TPS	420.00	313.82	285.66	1737.13	1579.86
(g)	Tanda TPS	440.00	215.57	188.62	1387.72	1214.36

(h)	Anta GPS	419.33	262.36	256.06	1539.96	1498.85
(i)	Auraiya GPS	663.36	436.82	428.27	2556.93	2510.67
(j)	Dadri GPS	829.78	570.00	554.31	2811.94	2729.60
(k)	Faridabad GPS	431.57	233.65	229.10	1623.37	1585.78
	Total NTPC	8169.04	4937.90	4625.60	33646.12	31387.87
B	NHPC					
(a)	Bairasiul	180.00	36.24	36.24	494.16	491.18
(b)	Salal	690.00	163.44	162.79	2569.26	2563.45
(c)	Tanakpur HPS	94.20	45.18	44.89	297.89	296.06
(d)	Chamera HPS	540.00	89.93	89.60	1773.50	1772.15
(e)	Uri HPS	480.00	126.41	125.19	1839.99	1823.49
	Total NHPC	1984.20	461.21	458.71	6974.80	6946.32
C	NPC					
(a)	RAPS -A	300.00	115.88	106.20	887.43	795.85
(b)	RAPS -B	440.00	299.81	270.36	1866.24	1678.17
(c)	NAPS	440.00	332.39	301.76	1987.61	1789.51
	Total NPC	1180.00	748.08	678.31	4741.28	4263.52
2	JOINTLY OWNED (BBMB)					
(a)	Bhakra Complex	1465.15	582.06	579.92	4192.40	4173.61
(b)	Dehar	990.00	198.57	198.57	2692.29	2692.29
(c)	Pong	366.00	71.84	71.84	451.30	451.30
	Total BBMB	2821.15	852.47	850.33	7335.99	7317.21
3	DELHI					
(a)	Indra Prastha	247.50	47.43	41.74	334.39	294.27
(b)	Rajghat	149.00	80.65	71.78	486.61	433.08
(c)	Gas Turbines	282.00	103.01	99.92	720.96	699.33
(d)	Pragati Gas Turbines	108.00	74.43	73.68	280.83	278.02
	Total DELHI	786.50	305.52	287.12	1822.79	1704.70
4	HARYANA					

(a)	WYC	48.00	27.18	26.91	179.46	177.66
(b)	Faridabad (New)	165.00	86.37	74.71	549.07	474.94
(c)	Panipat	860.00	426.28	375.12	2796.32	2460.76
(d)	Magnum Diesel(IPP)	25.20	7.45	7.37	52.14	51.62
	Total Haryana	1098.20	547.28	484.12	3576.98	3164.98
5	HP					
(a)	Giri	60.00	20.12	20.04	120.72	119.61
(b)	Bassi	60.00	19.42	19.38	230.61	230.31
(c)	Binwa	6.00	2.32	2.31	16.20	16.14
(d)	Rongtong	15.02	2.32	2.29	14.29	14.02
	(+Nogli+Micro+Thirot+Sal-2)		0.00	0.00		
(e)	Andhra	16.95	6.13	6.11	58.00	57.88
(f)	Bhabha (H)	120.00	44.50	44.05	443.27	441.46
(g)	Baner (H)	12.00	2.56	2.55	24.51	24.06
(h)	Gaj (H)	10.50	2.94	2.94	29.27	29.19
(i)	Gumma	3.00	1.06	1.05	10.10	10.03
(j)	Ghanvi	22.50	6.59	6.56	67.09	66.59
(k)	Malana (IPP)	86.00	16.03	16.03	301.20	301.20
	Total HP	411.97	123.98	123.31	1315.25	1310.48
6	J & K					
(a)	Lower Jhelum	105.00	0.00	0.00	3.36	3.33
(b)	Upper Sindh	127.60	29.27	28.98	236.07	233.70
(c)	Ganderbal	15.00	2.47	2.45	15.65	15.50
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	5.83	5.77	49.66	49.16
(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	37.57	37.19	304.74	301.69
7	PUNJAB					
(a)	Jogindernagar/ Shanan	110.00	32.92	32.90	396.09	398.89

(b)	UBDC	90.00	25.23	25.14	273.06	272.23
(c)	Mukerian	207.00	67.84	67.28	499.84	496.30
(d)	Anandpur Sahib (APS)	134.00	64.43	64.34	532.29	531.68
(e)	Ranjit Sagar HPS	600.00	70.88	70.73	791.50	789.87
(f)	Small Hydel	4.10	0.54	0.53	5.61	5.55
(g)	GNDTPS (Bhatinda)	440.00	194.02	175.76	1499.12	1360.55
(h)	GGSTPS (Ropar)	1260.00	706.23	649.67	5042.01	4626.21
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	299.27	273.28	1853.34	1689.35
	Total Punjab	3275.10	1461.36	1359.62	10892.87	10170.63
8	RAJASTHAN					
(a)	Mahi Bajaj Sagar	140.00	0.00	0.00	1.84	1.84
(b)	Rana Pratap Sagar (RPS)	172.00	0.62	0.58	5.19	4.99
(c)	Jawahar Sagar (JS)	99.00	1.18	1.18	12.74	12.73
(d)	Anoopgarh	9.00	0.39	0.38	3.26	3.22
(e)	Small Hydro	14.32	0.27	0.27	1.70	1.68
(f)	Kota TPS	850.00	566.19	512.55	3570.58	3216.91
(g)	RAMGARH GT	3.00	0.00	0.00		
(h)	RAMGARH GT EXT	35.50	22.68	22.68	114.42	113.42
(i)	Suratgarh TPS	750.00	599.40	544.42	3834.06	3478.10
(j)	Wind Farm	4.00	1.19	1.19	32.42	32.42
	Total Rajasthan	2076.82	1191.90	1083.23	7576.19	6865.31
9	U.P.					
	<u>HYDRO</u>					
(a)	Rihand	300.00	55.97	55.41	357.48	353.90
(b)	Obra	99.00	21.47	21.26	150.67	149.16
(c)	Matatilla	30.00	19.79	19.59	50.27	49.77
(d)	Khara	72.00	41.12	40.71	314.14	311.00
	Total U.P. (Hydro)	501.00	138.35	136.97	872.56	863.83
	<u>THERMAL</u>					
(e)		1442.00	430.00	376.25	3818.14	3340.87

	Obra					
(f)	Panki	242.00	88.67	77.59	486.70	425.86
(g)	Harduaganj	375.00	60.74	53.15	491.76	430.29
(h)	Paricha	220.00	87.12	76.23	558.20	488.42
(i)	Anpara	1630.00	1093.12	956.48	6999.94	6124.95
	Total U.P. (Thermal)	3909.00	1759.66	1539.70	12354.74	10810.40
	Total U.P.	4410.00	1898.00	1676.66	13227.30	11674.23
10 UTTRANCHAL						
(a)	Khatima	41.40	19.22	19.03	107.64	106.56
(b)	Ramganga	198.00	0.01	0.01	81.42	80.61
(c)	Ganga Canal	32.70	13.08	12.95	83.39	82.56
(d)	Yamuna (I & IV)	114.75	56.71	56.14	461.58	456.97
(e)	Chibro	240.00	69.58	68.89	694.94	687.99
(f)	Khodri	120.00	32.67	32.34	321.18	317.97
(g)	Chilla	144.00	74.00	73.26	459.32	454.73
(h)	Maneri Bhali	90.00	65.17	64.52	293.97	291.03
	Total Uttranchal	980.85	330.44	327.14	2503.44	2478.41
Total Region		27664.02	12895.71	11991.34	93917.75	87585.35

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 OCTOBER 2002 (All Figs in Mus)

Sl. No.	State/UT/ System	Singrauli STPS		Rihand STPS		BTPS	W. Grid	VSTPS
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	(WR) Actual
1	Chandigarh	8.92	8.92	6.08	2.59	0.00	0.01	0.00
2	Delhi	95.89	95.89	40.33	41.11	428.40	0.16	0.00
3	Haryana	170.32	170.32	45.32	46.03	0.00	0.15	0.00
4	H.P.	0.00	0.00	11.68	11.75	0.00	0.03	0.00
5	J & K	44.91	44.91	41.67	42.66	0.00	0.21	0.00
6	Punjab	119.68	119.68	46.30	44.38	0.00	0.23	0.00
7	Rajasthan	248.00	248.00	59.26	60.12	0.00	0.18	0.00
8	U.P.	450.13	450.13	120.46	122.56	0.00	0.44	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	2.73	0.00
10	Uttanchal	57.59	57.59	15.10	15.00	0.00	0.05	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	50.16	50.16	16.23	16.23	0.00	0.06	0.00
	TOTAL	1245.60	1245.60	402.43	402.43	428.40	4.26	0.00

Note :- Singrauli sentout excludes 70.622 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	0.00	0.03	1.76	0.02
2	Delhi	376.47	344.09	0.01	1.32	30.34	31.72
3	Haryana	21.66	22.11	4.98	22.45	34.68	35.95
4	H.P.	0.00	0.54	0.00	2.74	5.47	5.74
5	J & K	0.00	1.86	0.00	14.26	30.15	31.92
6	Punjab	1.27	3.31	0.13	2.66	42.62	36.45
7	Rajasthan	0.00	1.62	0.01	12.81	41.17	42.71
8	U.P.	41.20	51.53	76.87	33.33	77.89	81.03

9	MP	0.00	14.00	0.00	0.00	0.00	0.00
10	Uttanchal	0.00	1.54	10.10	2.50	10.07	8.60
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	3.83	3.83	11.51	11.51
Total		440.60	440.60	95.93	95.93	285.66	285.66

Sl. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.95	2.92	3.11	2.82	0.97	0.96
2	Delhi	25.18	25.18	44.07	43.59	13.60	13.69
3	Haryana	26.46	26.46	46.34	45.86	6.64	6.73
4	H.P.	6.58	6.58	8.89	8.76	3.39	2.58
5	J & K	26.35	26.36	42.86	42.40	42.34	42.46
6	Punjab	32.57	32.57	63.27	62.62	16.69	16.83
7	Rajasthan	63.16	63.17	61.46	60.77	11.17	11.28
8	U.P.	53.18	53.19	125.37	123.95	24.75	25.01
9	MP	0.00	0.00	0.00	4.79	0.00	0.00
10	Uttanchal	9.39	9.39	15.66	15.66	4.37	4.40
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	10.24	10.24	17.05	16.87	1.25	1.25
TOTAL		256.06	256.06	428.08	428.08	125.19	125.19

Sl. No.	State/UT/ System	Dadri GPS		Bairasiul HPS		Salal HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	1.99	1.65	0.00	0.00	0.43	0.43
2	Delhi	54.96	58.10	3.83	3.83	18.51	18.51
3	Haryana	37.34	40.23	10.62	10.62	23.93	23.93
4	H.P.	11.34	12.22	4.18	4.18	1.58	1.58
5	J & K	42.20	46.19	0.00	0.00	56.64	56.64
6	Punjab	100.92	102.55	16.18	16.18	42.38	42.38
7	Rajasthan	59.09	62.58	0.00	0.00	4.70	4.70

8	U.P.	160.32	168.85	0.00	0.00	11.07	11.07
9	Uttranchal	18.58	19.61	0.00	0.00	1.93	1.93
10	Railways	67.56	42.32	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	1.45	1.45	1.63	1.63
	Total	554.30	554.30	36.26	36.26	162.80	162.80

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	3.66	3.53	0.00	0.00	0.00	0.00
2	Delhi	4.66	4.66	6.71	6.81	0.00	41.48	7.51	0.00
3	Haryana	2.33	2.33	13.55	13.64	0.00	25.38	83.93	0.00
4	H.P.	1.40	1.40	13.55	13.08	0.00	0.00	7.05	0.00
5	J & K	2.79	2.79	3.36	3.49	0.00	23.95	35.45	0.00
6	Punjab	6.52	6.52	8.65	8.80	0.00	41.69	3.13	0.00
7	Rajasthan	4.19	4.19	17.07	17.19	106.20	137.86	126.64	0.00
8	U.P.	7.75	7.75	17.38	17.38	0.00	0.00	6.32	188.62
9	Uttranchal	6.25	6.25	3.18	3.18	0.00	0.00	0.00	0.00
10	Trans. Losses	1.53	1.53	2.50	2.50	0.00	0.00	0.31	0.00
11	Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	37.89	37.89	89.61	89.61	106.20	270.36	270.36	188.62

Note :- Tanakpur sentout excludes 7.018 MU supplied to Nepal

Sl. No.	State/UT/ System	Narora APS		Bhakra HPS		Dehar HPS	Pong	F'bad GPS	ER import
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	Actual	Actual
1	Chandigarh	5.72	0.64	48.41	47.33	0.00	0.00	0.00	7.17
2	Delhi	32.40	14.94	0.00	0.00	0.00	0.00	0.00	48.93
3	Haryana	30.41	44.61	161.46	164.25	58.26	11.32	229.10	33.13
4	H.P.	9.25	7.20	13.94	12.05	8.56	0.00	0.00	7.17
5	J & K	32.33	51.04	0.00	0.00	0.00	0.00	0.00	7.17
6	Punjab	33.11	25.39	222.77	226.70	87.39	16.98	0.00	0.00
7	Rajasthan	45.14	62.21	88.88	90.58	36.41	39.89	0.00	7.17
8	U.P.	90.60	79.11	0.00	0.00	0.00	0.00	0.00	24.93

9	N.F.F.	0.00	0.00	14.88	9.44	0.00	0.00	0.00	0.00
10	Uttranchal	10.62	4.47	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	12.17	12.17	29.58	29.58	7.95	3.65	0.00	10.82
	Total	301.75	301.75	579.92	579.92	198.57	71.84	229.10	146.50

Note

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

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING OCTOBER 2002

	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	0.00
Delhi	0.00	0.00	-3.38	0.00	0.00	0.00	0.00	0.00	111.60	0.00	0.00	0.00
Haryana	0.00	3.38	0.00	0.00	0.00	4.80	0.00	0.00	9.00	0.00	0.00	0.00
Himachal	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	0.00	0.00	0.00	0.00	0.00
J & K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Punjab	0.00	0.00	-4.80	3.60	0.00	0.00	-34.20	0.00	0.00	-16.90	0.00	0.00
Rajasthan	0.00	0.00	0.00	0.00	0.00	34.20	0.00	0.00	18.00	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	-111.60	-9.00	0.00	0.00	0.00	-18.00	0.00	0.00	0.00	0.00	-9.90
MP	0.00	0.00	0.00	0.00	0.00	16.90	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90	0.00	0.00	0.00
Total	0.00	-108.23	-17.18	3.60	0.00	52.30	-52.20	0.00	148.50	-16.90	0.00	-9.90

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

i) Harayana's share in IP station of Delhi	14.042MU
ii) Himachal's share in Shanan & RSD power station of Punjab	8.195MU
iii) Himachal's share in Yamuna hydro power complex of UP & Uttranchal	46.969MU
iv) Maruti to Harayana	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 31.10.2002(ALL FIGS IN MVAR)

CONSTITUENT	REQUIREMENT AT THE END OF 2002-03	CAPACITORS AS ON 31.10.2002	CAPACITORS ADDITION DURING		ADDITIONAL REQUIRED DURING 2002-03
		INSTALLED	2001-02	April 02 -March 03	
Chandigarh	116	92	7	0	24
Delhi	2932	2731	397	98	201
Haryana	2797	2352	416	0	445
H.P.	319	260	57	55	59
J & K	924	147	12	0	777
Punjab	5107	4673	199	43	434
Rajasthan	2695	2639	59	162	56
U.P.	5225	4933	485	242	292
Uttranchal	286				286
BBMB	396	381	0	0	15
TOTAL	20797	18208	1632	600	2589

SOURCE: Minutes of 334th OCC meeting of NREB held on 11th November, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING OCTOBER 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 October 2002 (m) (ft)	501.40 1645.00	407.29 1336.26	263.44 864.30	345.77 1134.42	383.37 1257.77
Level on last day of October 2001 (m) (ft)	498.18 1634.46	414.35 1359.41	266.82 875.40	351.31 1152.60	384.63 1261.90
Live Capacity as on (mhmt) last day of October 2002(maft)	0.52 4.20	0.27 2.16	0.35 2.85	0.03 0.28	0.04 0.33
Live Capacity as on (mhmt) last day of October 2001(maft)	0.47 3.82	0.43 3.46	0.50 4.05	0.13 1.02	0.05 0.44
Energy content as on last day of October 2002 (MU)	2020.00	380.00	585.00	80.00	72.00
Energy content as on last day of October 2001 (MU)	1860.00	420.00	845.00	144.00	90.00
Maximum level (m)	504.90	408.41	263.93	383.37	345.77

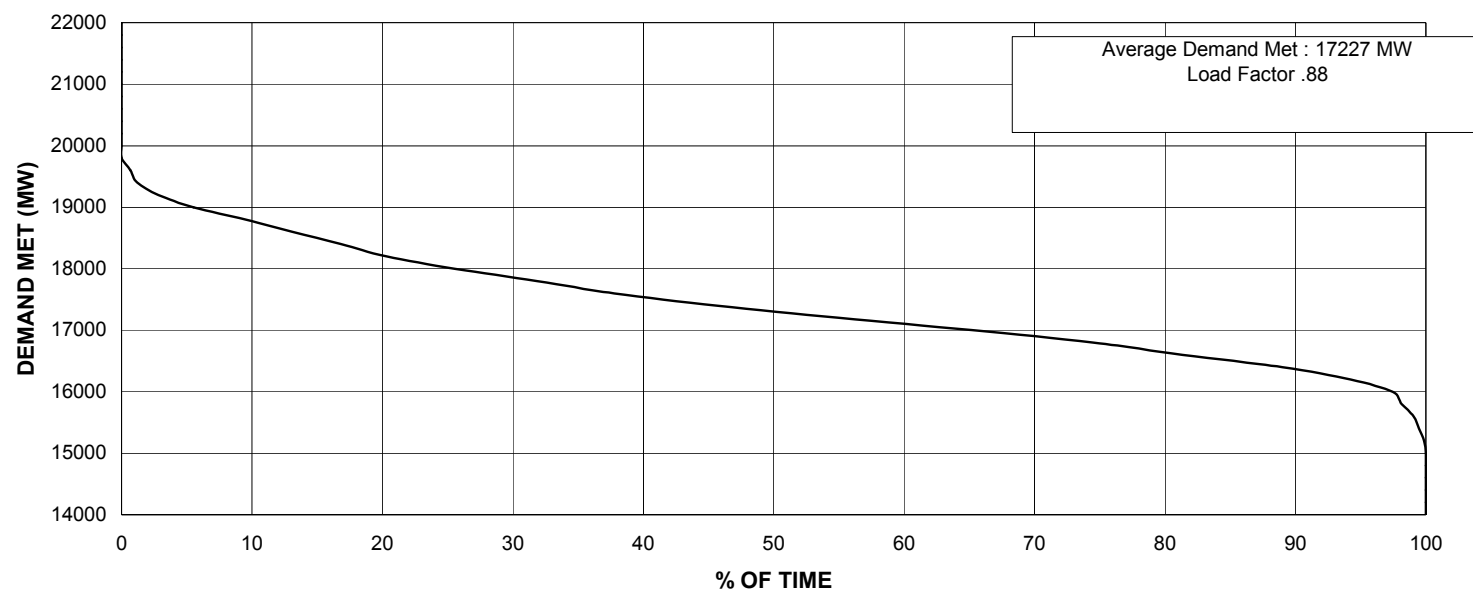
	(ft)	1656.50	1339.93	865.90	1257.77	1134.42
	(date)	01.10.2002	04.10.2002	04.10.2002	06.10.2002	25.10.2002
Minimum level	(m)	501.40	407.29	263.44	382.73	345.38
	(ft)	1645.00	1336.26	864.30	1255.66	1133.13
	(date)	30.10.2002	30.10.2002	31.10.2002	25.10.2002	22.10.2002

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

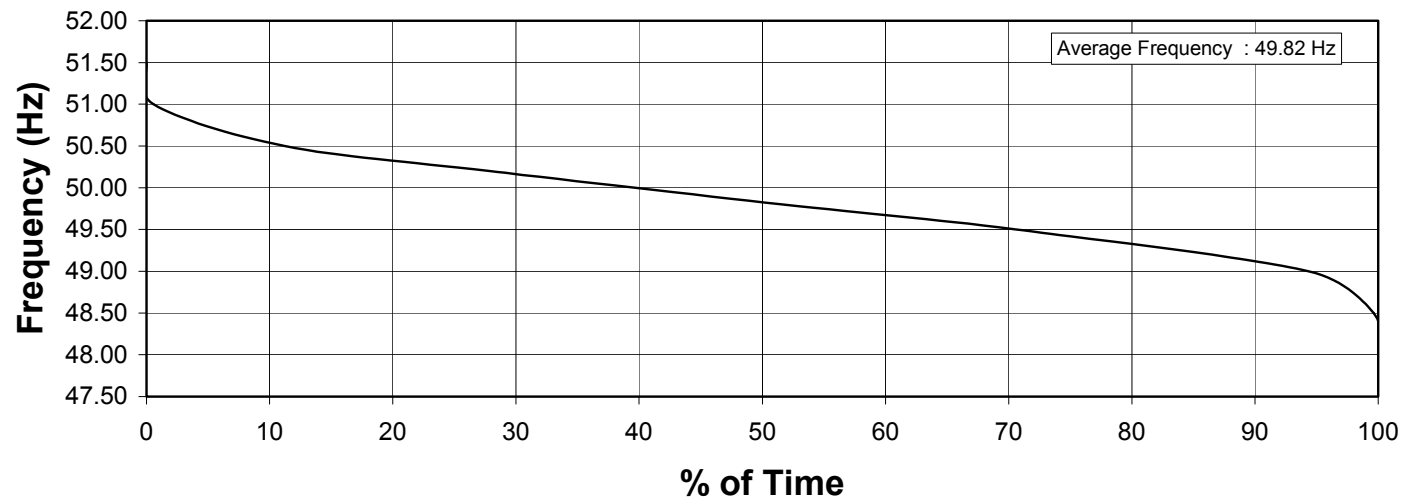
Energy content of Rihand : Total Energy content at Rihand & Obra power stations

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

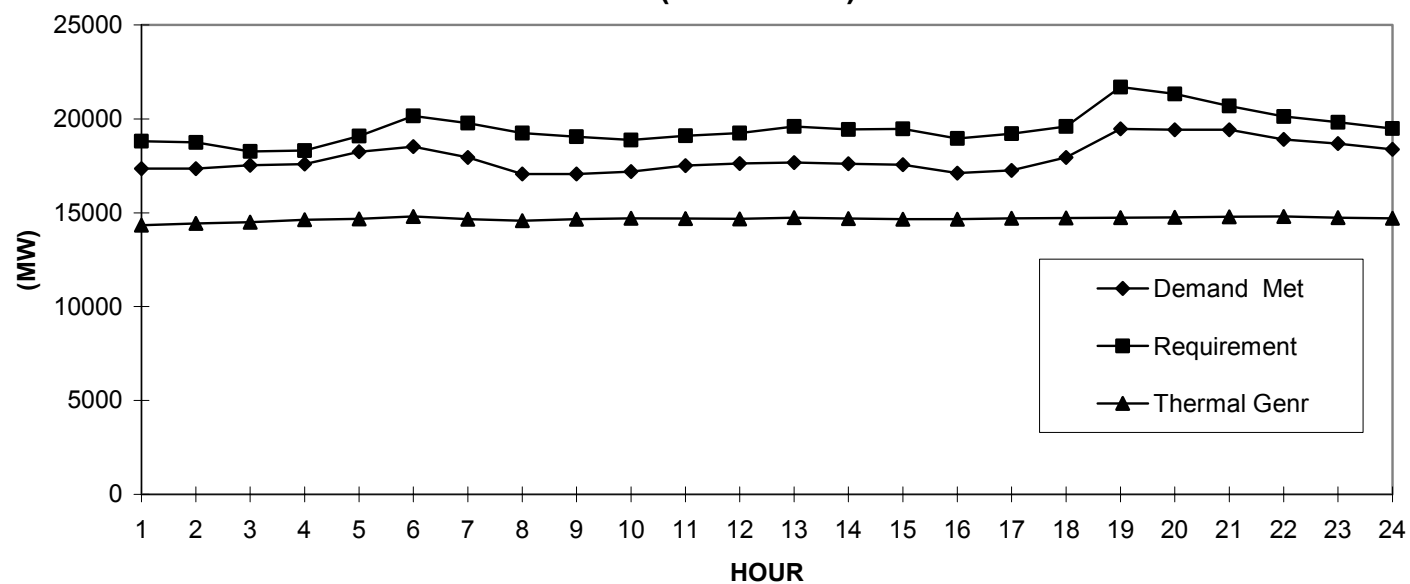
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

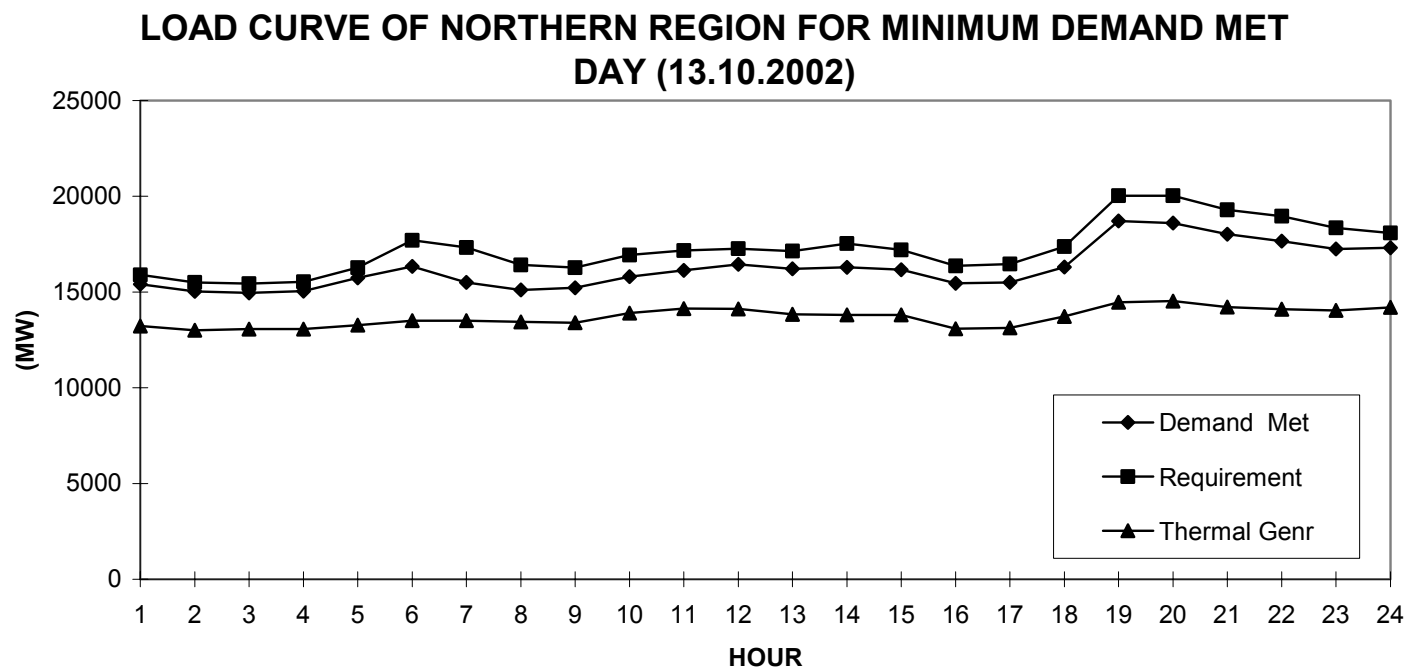
LOAD DURATION CURVE OF NORTHERN REGION FOR OCTOBER 2002

FREQUENCY DURATION CURVE OF NORTHERN REGION FOR OCTOBER 2002

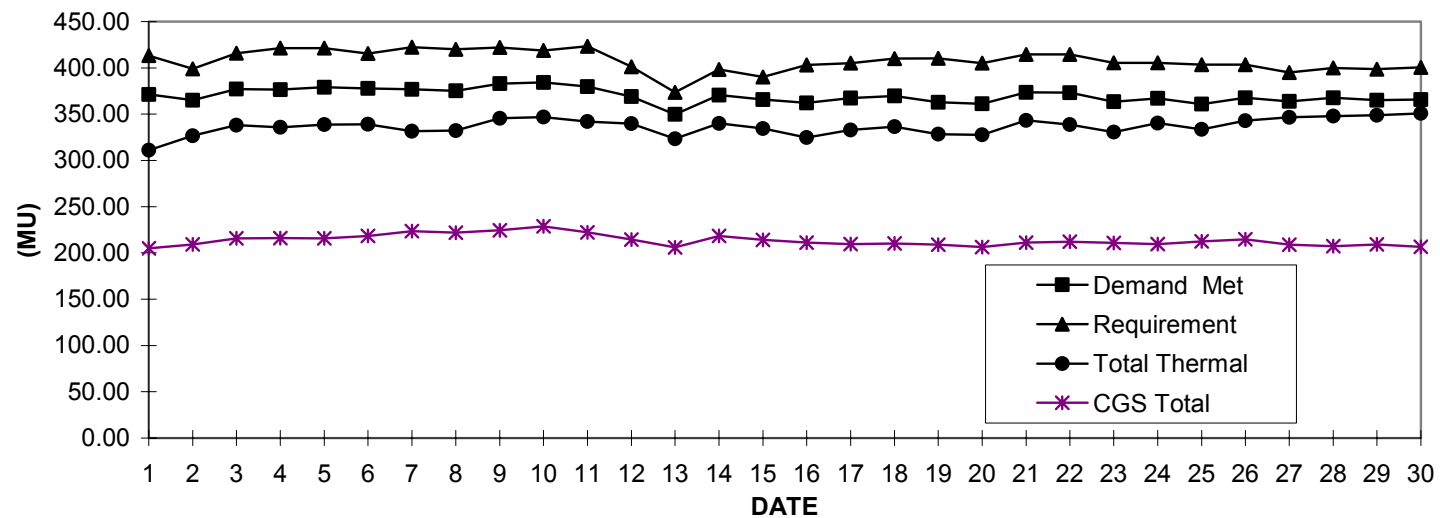


LOAD CURVE OF NORTHERN REGION FOR MAXIMUM DEMAND MET DAY (09.10.2002)

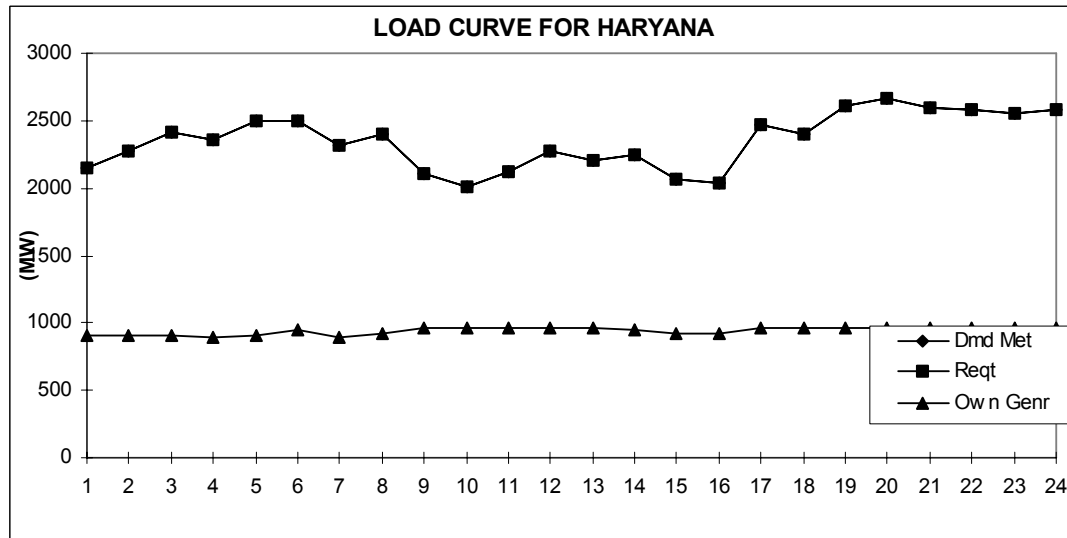
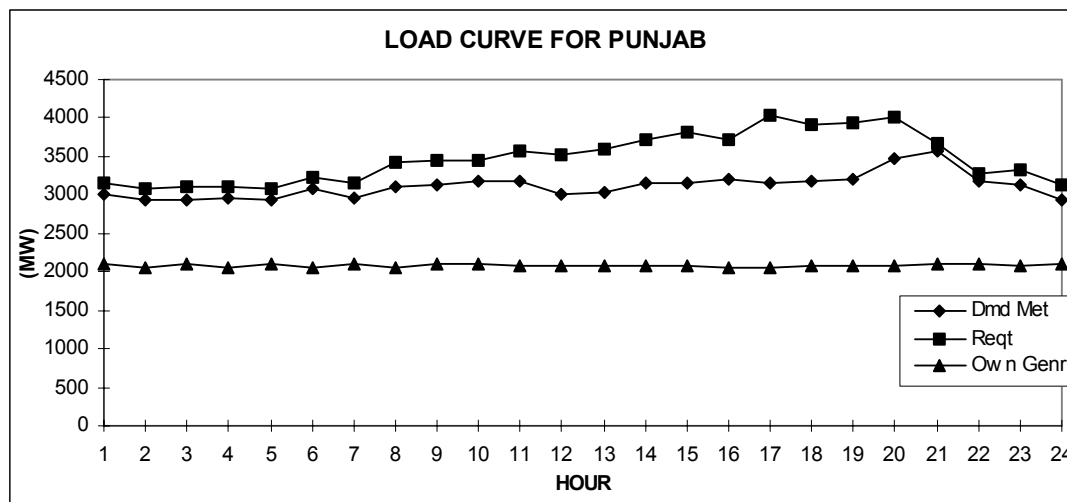


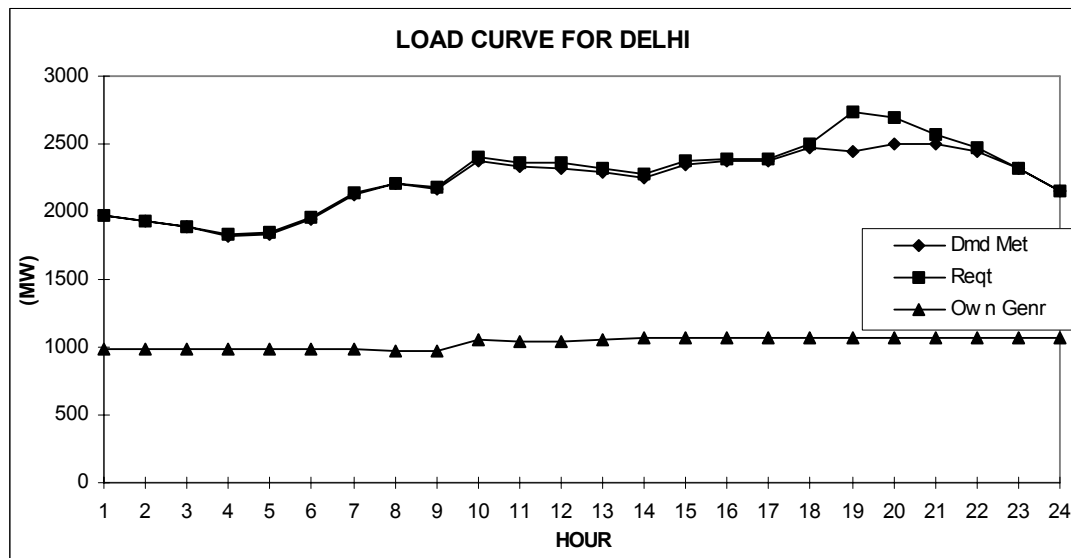
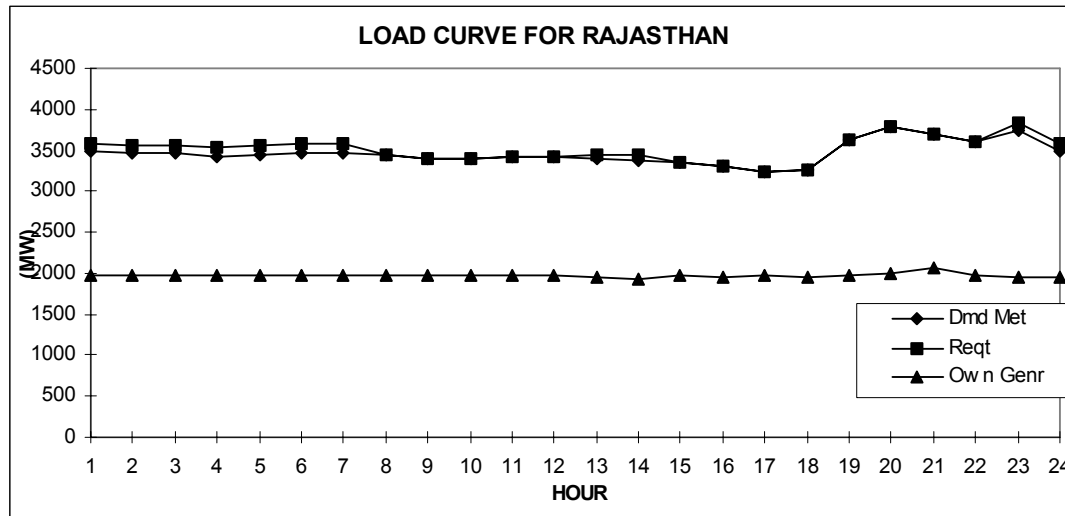


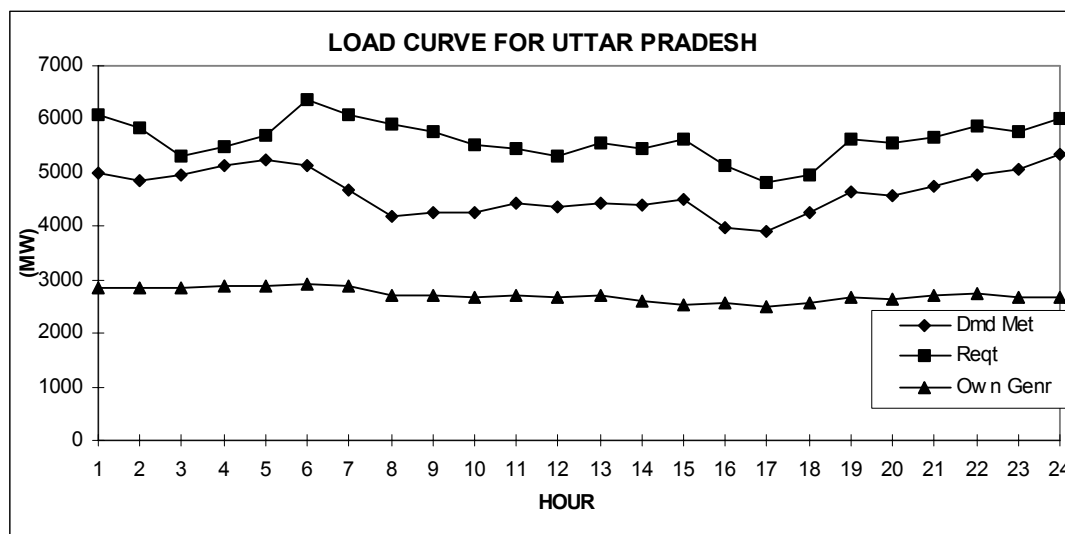
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING OCTOBER 2002



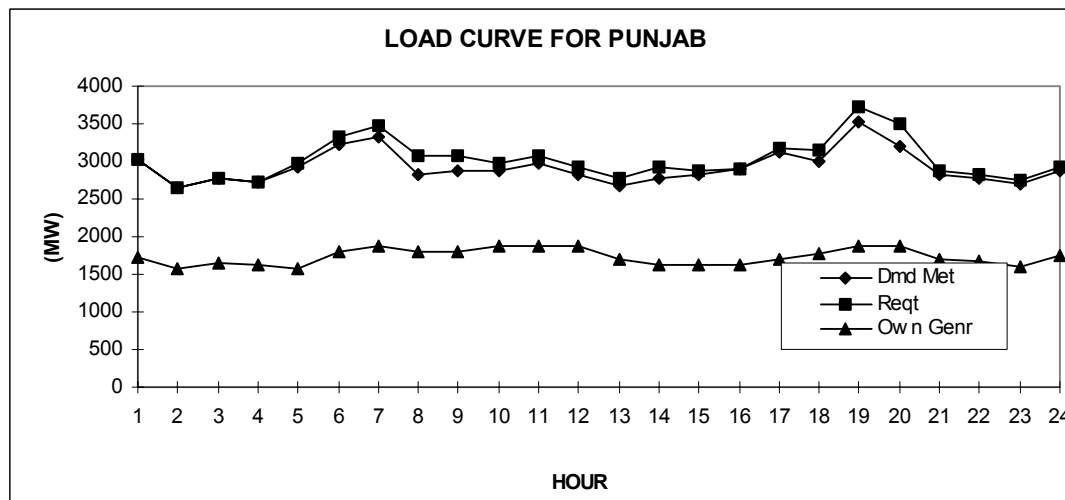
STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(09.10.2002)

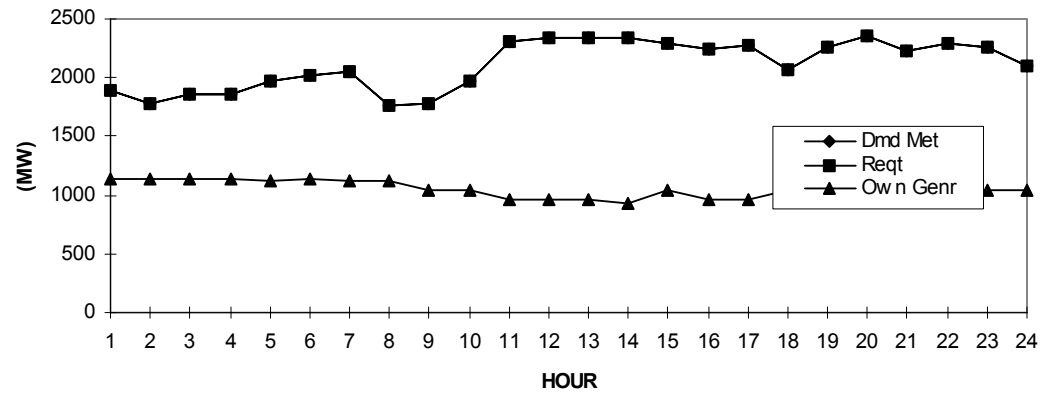
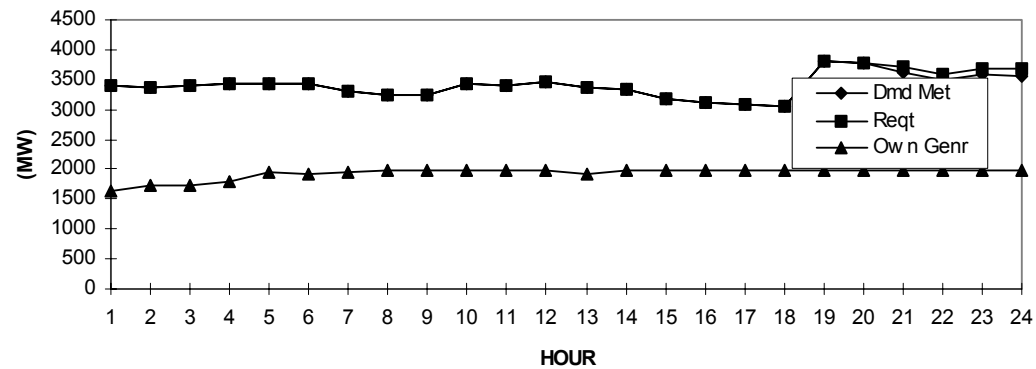


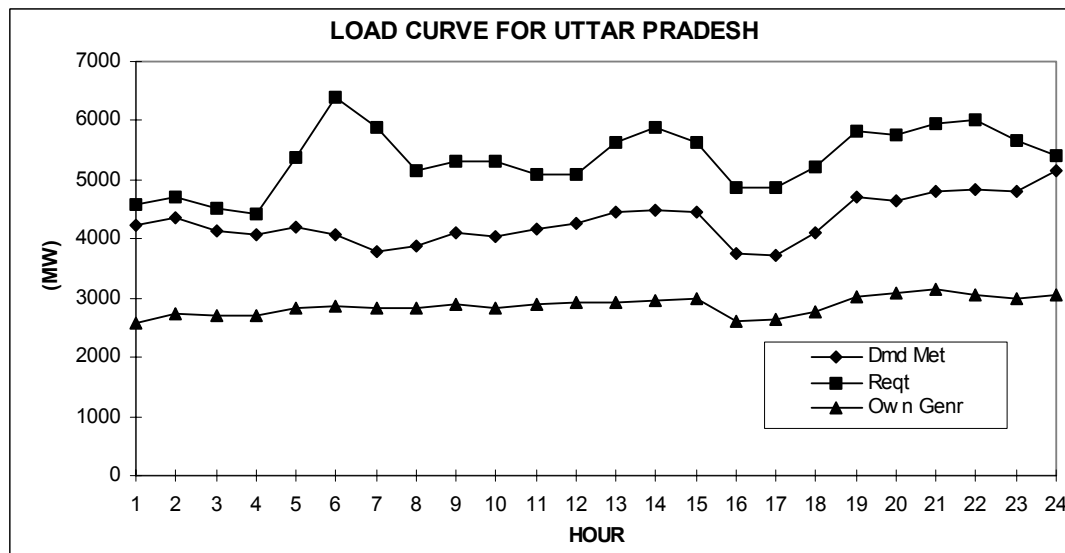
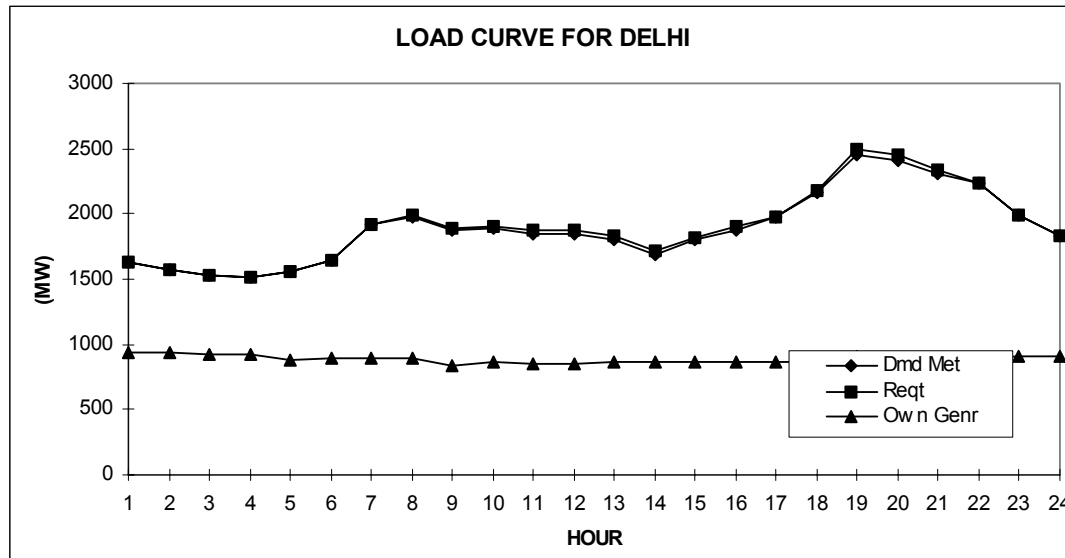




STATE LOAD CURVES FOR REGIONAL MINIMUM DEMAND MET DAY(13.10.2002)



LOAD CURVE FOR HARYANA**LOAD CURVE FOR RAJASTHAN**



MINOR GRID INCIDENTS DURING OCTOBER 2002

S No.	DATE	TIME	INCIDENT
			-----NIL-----