GRID REPORT

NOVEMBER 2002

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

SUMMARY REPORT:

- **Important events:**

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

1. Pragati GT #2 synchronized on 14.11.2002 at 15.30 hrs.
2. 400 kV Allahabad- Sasaram charged first time on 26.11.2002 at 11.47 hrs.

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

The average system frequency during the month of November 2002 was 50.14 Hz and frequency remained between 49.0 & 50.5 Hz for 70.69% 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 November 2002.The details of minor incidents are given at 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 NOVEMBER 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	24.81	20.36	4.06	4.1	4.05	0.51	45.68	45.72	78.60	70.66
2	Delhi	720.49	689.82	28.53	28.53	77.37	33.38	0.00	0.00	826.38	751.74
3	Haryana	320.43	324.62	35.31	35.32	51.81	93.45	194.69	196.89	602.24	650.27
4	H.P.	120.76	121.04	16.62	16.61	14.31	16.42	20.94	21.08	172.63	175.14
5	J & K	235.61	241.77	61.39	61.39	53.61	125.17	0.00	0.00	350.61	428.32
6	Punjab	389.51	392.36	53.21	53.20	76.56	57.05	274.82	277.86	794.10	780.48
7	Rajasthan	480.16	484.77	24.64	24.63	197.61	164.01	160.83	161.85	863.23	835.25
8	U.P.	1196.06	1199.19	38.45	38.45	86.49	69.61	0.00	0.00	1320.99	1307.24
9	Uttranchal	27.50	26.07	3.66	3.66	0.00	2.20	0.00	0.00	31.16	31.93
9	MP / N.F.F.	0.00	34.73	0.00	0.00	0.00	0.00	14.40	7.95	14.40	42.68
10	Bihar	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88
11	Trans. Losses	104.74	104.18	5.63	5.64	10.94	10.94	38.96	38.96	160.27	159.71
12	Others	63.02	43.32	0.00	0.00	0.00	0.00	0.00	0.00	63.02	43.32
	Total	**3683.09**	**3683.09**	**271.49**	**271.49**	**572.75**	**572.75**	**750.31**	**750.31**	**5277.63**	**5277.63**

III. INTER REGIONAL EXCHANGES IN *MU* AND PEAK *MW*

		Energy (MU)	Peak MW
a.	Import over HVDC Back to Back at Vindhyachal	0.00	0
b.	M.P. to Rajasthan(Ujjain - Kota)	0.00	0
c.	Eastern region to Northern region (Import)	96.18	350
d.	Export over HVDC Back to Back at Vindhyachal	121.12	500
e.	220 KV Auraiya -Malanpur	42.74	74
f.	Northern region to Bihar (Export)	0.79	8
g.	Tanakpur to Mahendranagar(NEPAL) (Export)	6.42	10

IV. FREQUENCY PROFILE

a. Maximum frequency	51.36	Hz	at	13.08	hours on	29.11.2002
Minimum frequency	48.20	Hz	at	18.04	hours on	05.11.2002

Average frequency 50.14 Hz

b. Frequency distribution in %

Hz	< 48.5	<49.0	49.0-50.5	> 50.5
% of time	0.16	2.07	70.69	27.24

c. Frequency Variation Index

Monthly Average	2.78
Maximum	4.25
Minimum	1.20

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	2.35	2.35	0.00	0.00
Delhi	46.15	46.31	0.16	0.35
Haryana	48.21	48.74	0.53	1.09
H.P.	9.31	9.31	0.00	0.00
J & K	19.06	19.79	0.73	3.69
Punjab	62.63	66.22	3.59	5.42
Rajasthan	72.69	72.82	0.13	0.18
U.P.	100.84	127.09	26.25	20.65
Uttranchal	9.88	10.11	0.23	2.27
N.F.F./Rail	1.71	1.71	0.00	0.00
Total	**372.83**	**404.45**	**31.62**	**7.82**

b. Peak MW

State / U.T.	MAX. Availability MW	MAX. Requirement MW	Shortage MW		Shortage %	
			ARITH-	AT MAXM.	ARITH-	AT MAXM.

			METICAL	REQT HR	METICAL	REQT HR
	A	B	C=B-A	D	(C/B)*100	(D/B)*100
Chandigarh	145	145	0	0	0.00	0.00
Delhi	2720	2769	49	159	1.77	5.74
Haryana	2746	2746	0	116	0.00	4.22
H.P. *	531	531	0	0	0.00	0.00
J & K *	1041	1199	158	158	13.18	13.18
Punjab	3619	3813	194	281	5.09	7.37
Rajasthan	3735	3735	0	0	0.00	0.00
U.P.	5699	6527	828	1438	12.69	22.03
Uttranchal	692	712	20	20	2.81	2.81
N.F.F./Rail	79	79	0	0	0.00	0.00
Region	**20130**	**22047**	**1917**	**1917**	**8.70**	**8.70**

Diversity Factor = **1.04**

* Approximate and Estimated

DETAILED REPORT

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

STATION	INSTALLED CAPACITY (MW)		EFFECTIVE CAPACITY	
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	2x108	216.00	2x108	216.00
Total DELHI		**895.50**		**894.50**
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)		**28641.93**		**28129.77**

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

Agency / Source	Hydro	Thermal	Gas/Diesel/Wind	Nuclear	Total	% of Total
NTPC	---	5825.00	2344.04	---	8169.04	29.04%
NHPC	1984.20	---	---	---	1984.20	7.05%
NPC	---	---	---	1180.00	1180.00	4.19%
BBMB	2864.15	---	---	---	2864.15	10.18%
CHANDIGARH	---	---	1.40	---	1.40	0.00%
DELHI	---	396.50	498.00	---	894.50	3.18%
HARYANA	48.00	1025.00	25.20	---	1098.20	3.90%
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	11.64%
RAJASTHAN	434.85	1850.00	52.51	---	2337.36	8.31%
UP	529.90	3909.00	---	---	4438.90	15.78%
UTTRANCHAL	980.85	---	---	---	980.85	3.49%
Total	8710.94	15135.50	3103.33	1180.00	28129.77	100.00%
% of TOTAL	30.97%	53.81%	11.03%	4.19%	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 = 99
	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 28176.77 MW.

3. BREAKUP OF EFFECTIVE HYDRO CAPACITY (MW) IN NORTHERN REGION AS ON 30.11.2002

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

Pragati GT in Delhi 108 MW Commissioned on 14.11.2002 at 15.30 hrs.

II. SALIENT FEATURES OF SYSTEM CONDITIONS

1. Effective Generation Capacity at the end of month

Constituent	Effective Capacity		Increase	
	November 2002	**November 2001**	MW	%
Chandigarh	1.40	1.40	0.00	0.00
Delhi	894.50	678.50	216.00	31.83
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
Uttranchal	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	28129.77	27304.63	825.14	3.02

2. Power Supply Position

State/UT	November 2002			November 2001			Percentage increase over 2001	
	Energy(MU/day)			Energy(MU/day)				
	Demand met	**Reqt.**	**%Shortage**	**Demand met**	**Reqt.**	**%Shortage**	**Demand met**	**Reqt.**
Chandigarh	2.35	2.35	0.00	2.33	2.34	0.43	0.86	0.43
Delhi	46.15	46.31	0.35	44.16	44.80	1.43	4.51	3.37
Haryana	48.21	48.74	1.09	43.37	43.85	1.09	11.16	11.15
HP	9.31	9.31	0.00	8.85	8.85	0.00	5.20	5.20
J&K	19.06	19.79	3.69	17.14	18.11	5.36	11.20	9.28
Punjab	62.63	66.22	5.42	59.97	61.36	2.27	4.44	7.92
Rajasthan	72.69	72.82	0.18	72.22	72.22	0.00	0.65	0.83
UP	100.84	127.09	20.65	122.44	131.45	6.85	-17.64	-3.32
Uttranchal	9.88	10.11	2.27	-----	-----	-----	-----	-----
NFF/Rail	1.71	1.71	0.00	1.20	1.20	0.00	42.50	42.50
REGION	372.83	404.45	7.82	371.68	384.18	3.25	0.31	5.28

Frequency Regime	November 2002	November 2001
Average (Hz)	50.14	49.88
Above 50.5 Hz (%)	27.25	12.05
Above 50.2 Hz (%)	51.98	32.59
Below 49.5 Hz (%)	11.89	26.39
Below 49.0 Hz (%)	2.07	7.72
Below 48.5 Hz (%)	0.16	1.27

3. Peak Power Supply Position

State/UT	November 2002			November 2001			Percentage increase over 2001	
	Peak (MW)			Peak (MW)				
	Demand met	Reqt.	%Shortage	Demand met	Reqt.	%Shortage	Demand met	Reqt.
Chandigarh	145	145	0.00	140	140	0.00	3.57	3.57
Delhi	2720	2769	1.77	2481	2645	6.20	9.63	4.69
Haryana	2746	2746	0.00	2528	2593	2.51	8.62	5.90
HP	531	531	0.00	519	519	0.00	2.31	2.31
J&K	1041	1199	13.18	909	1179	22.90	14.52	1.70
Punjab	3619	3813	5.09	3466	3716	6.73	4.41	2.61
Rajasthan	3735	3735	0.00	3603	3603	0.00	3.66	3.66
UP	5699	6527	12.69	6887	7492	8.08	-17.25	-12.88
Uttranchal	692	712	2.81	-----	-----	------	------	------
NFF/Rail	79	79	0.00	59	59	0.00	33.90	33.90
REGION	20130	22047	8.70	20072	21733	7.64	0.29	1.44

III. FREQUENCY PROFILE DURING NOVEMBER 2002

DATE	Average	MAX.		MIN.		Std dev	Frequency
	Hz	Hz	Time	Hz	Time	Hz	Var. Index(FVI)
1	50.12	51.12	15.21	48.80	11.11	0.41	1.83
2	50.22	51.16	16.01	48.96	10.44	0.40	2.07
3	50.19	51.20	15.06	48.68	4.52	0.46	2.48
4	50.22	51.16	9.03	48.28	18.20	0.61	4.24
5	50.27	51.20	21.52	48.20	18.04	0.45	2.70
6	50.41	51.20	13.59	48.24	6.01	0.39	3.24
7	50.25	51.08	8.03	49.16	18.12	0.32	1.63
8	50.21	51.24	15.05	49.00	4.35	0.42	2.20
9	50.31	51.16	8.02	49.12	18.13	0.40	2.57
10	50.31	51.32	15.03	49.00	11.09	0.41	2.64
11	50.15	51.28	15.02	48.60	5.37	0.48	2.48
12	50.07	51.24	22.44	48.60	11.06	0.52	2.79
13	50.14	51.28	15.03	48.24	18.57	0.49	2.64
14	50.11	51.20	15.02	48.64	8.21	0.46	2.28
15	49.98	51.16	15.11	48.24	17.44	0.51	2.64
16	49.77	50.16	23.59	49.24	23.47	0.26	1.20
17	50.00	50.64	1.22	48.80	5.46	0.41	1.70
18	50.29	51.20	13.27	49.20	7.11	0.44	2.85
19	50.24	51.20	21.55	48.60	0.10	0.49	3.02
20	49.94	51.36	15.06	48.48	5.18	0.56	3.19
21	49.85	51.16	15.05	48.24	6.20	0.47	2.44
22	49.83	51.12	14.10	48.48	6.25	0.47	2.52
23	49.71	50.96	15.07	48.24	18.06	0.45	2.87
24	50.03	51.16	21.46	48.32	11.13	0.60	3.61
25	50.16	51.16	2.12	48.32	11.11	0.53	3.10
26	50.15	51.32	13.03	48.24	11.16	0.63	4.25
27	50.20	51.32	15.02	48.80	11.57	0.53	3.18

28	50.37	51.24	1.48	48.68	11.07	0.48	3.65
29	50.29	51.36	13.08	48.36	5.39	0.52	3.53
30	50.29	51.20	5.11	48.40	17.58	0.55	3.90
31			0.00				
Monthly	**50.14**	**51.36**		**48.20**		**0.50**	**2.78**

Note : where F = frequency measured at 10 second interval

IV. VOLTAGE PROFILE DURING NOVEMBER 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	411	386	412	382	408	396	408	382	218	197
2	410	389	414	388	414	398	414	382	220	206
3	413	388	418	390	416	398	416	389	220	206
4	417	384	418	382	412	394	412	389	219	195
5	422	393	420	390	416	398	416	385	218	204
6	413	384	418	392	408	396	408	387	219	201
7	410	382	416	382	410	389	410	380	219	197
8	408	380	418	380	414	396	414	381	219	200
9	408	402	416	386	413	389	413	385	219	201
10	410	397	418	396	414	396	414	387	218	206
11	408	395	416	388	412	392	412	383	218	202
12	408	395	416	386	391	398	391	388	219	200
13	408	388	416	382	413	394	413	389	216	200
14	408	393	418	386	415	394	415	385	216	200
15	415	382	414	382	412	389	412	380	218	202
16	410	384	414	406	411	394	413	381	216	200
17	410	390	414	396	412	392	412	380	213	199
18	408	395	414	392	411	396	411	386	214	201
19	410	395	416	392	413	394	413	386	214	202
20	410	404	414	388	412	394	412	384	214	198
21	408	393	416	386	413	394	413	384	215	200
22	410	395	414	386	409	392	409	386	215	200

23	408	395	416	388	409	394	409	383	215	201
24	408	395	416	388	413	394	413	385	216	202
25	408	395	418	390	412	394	412	388	218	201
26	411	384	418	390	412	392	412	374	216	198
27	408	395	414	388	410	392	410	374	215	201
28	408	384	416	386	412	392	412	379	216	200
29	410	384	418	382	412	392	412	372	218	201
30	411	384	416	384	418	392	418	371	216	198
31										
Month	**422**	**380**	**420**	**380**	**418**	**389**	**418**	**371**	**220**	**195**

V. PERFORMANCE OF GENERATING STATIONS DURING NOVEMBER 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	410.04	373.80	3596.17	3280.66
(b)	Singrauli STPS	2000.00	1364.97	1313.80	10584.93	9886.37
(c)	Rihand STPS	1000.00	674.22	632.91	4937.86	4541.22
(d)	Dadri NCTPS	840.00	494.49	474.19	4069.16	3762.73
(e)	Unchahar-I TPS	420.00	207.32	194.25	1951.99	1786.72
(f)	Unchahar-II TPS	420.00	268.06	254.06	2005.20	1833.92
(g)	Tanda TPS	440.00	206.75	180.87	1594.47	1395.22
(h)	Anta GPS	419.33	231.09	234.77	1771.05	1733.62
(i)	Auraiya GPS	663.36	324.14	329.87	2881.06	2840.54
(j)	Dadri GPS	829.78	524.79	527.96	3336.73	3257.57
(k)	Faridabad GPS	431.57	249.15	244.04	1872.52	1829.82
	Total NTPC	**8169.04**	**4955.01**	**4760.51**	**38601.12**	**36148.38**
B	**NHPC**					
(a)	Bairasiul	180.00	20.16	20.16	514.32	511.33
(b)	Salal	690.00	94.53	94.22	2663.78	2657.67
(c)	Tanakpur HPS	94.20	30.56	30.28	328.45	326.34

(d)	Chamera HPS	540.00	66.05	66.05	1839.55	1838.20
(e)	Uri HPS	480.00	72.59	71.15	1912.58	1894.64
	Total NHPC	**1984.20**	**283.89**	**281.86**	**7258.68**	**7228.18**
C	**NPC**					
(a)	RAPS -A	300.00	137.44	121.30	1024.88	917.15
(b)	RAPS -B	440.00	326.13	295.76	2192.37	1973.92
(c)	NAPS	440.00	315.74	287.19	2303.35	2076.70
	Total NPC	**1180.00**	**779.31**	**704.24**	**5520.59**	**4967.77**
2	**JOINTLY OWNED (BBMB)**					
(a)	Bhakra Complex	1465.15	524.44	522.32	4716.84	4695.93
(b)	Dehar	990.00	122.13	122.13	2814.42	2814.42
(c)	Pong	366.00	105.86	105.86	557.16	557.16
	Total BBMB	**2821.15**	**752.43**	**750.31**	**8088.42**	**8067.52**
3	**DELHI**					
(a)	Indra Prastha	247.50	50.37	44.33	384.77	338.59
(b)	Rajghat	149.00	80.30	71.47	566.91	504.55
(c)	Gas Turbines	282.00	90.24	87.54	811.20	786.86
(d)	Pragati Gas Turbines	216.00	80.00	79.20	360.83	357.22
	Total DELHI	**894.50**	**300.91**	**282.53**	**2123.71**	**1987.23**
4	**HARYANA**					
(a)	WYC	48.00	15.39	15.23	194.84	192.90
(b)	Faridabad (New)	165.00	92.00	79.58	641.06	554.52
(c)	Panipat	860.00	392.49	345.39	3188.80	2806.14
(d)	Magnum Diesel(IPP)	25.20	7.50	7.42	59.64	59.04
	Total Haryana	**1098.20**	**507.37**	**447.62**	**4084.34**	**3612.60**
5	**HP**					
(a)	Giri	60.00	10.58	10.51	131.30	130.12
(b)	Bassi	60.00	10.02	9.97	240.63	240.29
(c)	Binwa	6.00	1.29	1.28	17.49	17.42
(d)	Rongtong	15.02	2.65	2.62	16.94	16.64

	(+Nogli+Micro+Thirot+Sal-2)					
(e)	Andhra	16.95	3.17	3.15	61.17	61.03
(f)	Bhabha (H)	120.00	28.38	28.04	471.65	469.50
(g)	Baner (H)	12.00	1.34	1.33	25.85	25.39
(h)	Gaj (H)	10.50	1.40	1.40	30.67	30.58
(i)	Gumma	3.00	0.60	0.59	10.70	10.62
(j)	Ghanvi	22.50	3.73	3.70	70.82	70.29
(k)	Malana (IPP)	86.00	8.83	8.83	310.04	310.03
	Total HP	**411.97**	**71.99**	**71.44**	**1387.24**	**1381.92**
6	**J & K**					
(a)	Lower Jhelum	105.00	0.00	0.00	3.36	3.33
(b)	Upper Sindh	127.60	16.69	16.52	252.76	250.23
(c)	Ganderbal	15.00	1.43	1.42	17.08	16.91
(d)	Mohra	9.00	0.00	0.00	0.00	0.00
(e)	Chenani	25.30	3.11	3.08	52.77	52.24
(f)	Stakna	9.75	0.00	0.00	0.00	0.00
(g)	Small Hydel }	3.54	2.92	2.89	2.92	2.89
(h)	Pampore GT St - I }	75.00	10.41	10.31	10.41	10.31
	Pampore GT St - II	100.00				
	Total J & K	**470.19**	**34.56**	**34.21**	**339.30**	**335.90**
7	**PUNJAB**					
(a)	Jogindernagar/ Shanan	110.00	16.86	16.84	412.95	415.74
(b)	UBDC	90.00	21.94	21.84	295.00	294.07
(c)	Mukerian	207.00	108.91	108.32	608.75	604.62
(d)	Anandpur Sahib (APS)	134.00	47.81	47.73	580.10	579.40
(e)	Ranjit Sagar HPS	600.00	58.55	58.41	850.06	848.29
(f)	Small Hydel	4.10	0.99	0.98	6.60	6.53
(g)	GNDTPS (Bhatinda)	440.00	197.58	178.76	1696.70	1539.31
(h)	GGSTPS (Ropar)	1260.00	674.02	617.50	5716.03	5243.71
(i)	Jhalkeri Rice Straw Fired	10.00	0.00	0.00	0.00	0.00
(j)	Lehra Mohabbat TPS	420.00	209.48	190.12	2062.82	1879.47
	Total Punjab	**3275.10**	**1336.13**	**1240.50**	**12229.00**	**11411.13**

8	**RAJASTHAN**					
(a)	Mahi Bajaj Sagar	140.00	8.43	8.35	10.26	10.19
(b)	Rana Pratap Sagar (RPS)	172.00	1.11	1.07	6.30	6.06
(c)	Jawahar Sagar (JS)	99.00	0.75	0.73	13.49	13.46
(d)	Anoopgarh	9.00	0.00	0.00	3.26	3.22
(e)	Small Hydro	14.32	0.92	0.90	2.62	2.58
(f)	Kota TPS }	850.00	610.78	552.56	4181.36	3769.47
(g)	RAMGARH GT }	3.00	0.00	0.00		
(h)	RAMGARH GT EXT	35.50	22.24	22.24	136.66	135.65
(I)	Suratgarh TPS	750.00	708.27	645.27	4542.33	4123.37
(j)	Wind Farm	4.00	1.40	1.40	33.81	33.81
	Total Rajasthan	**2076.82**	**1353.89**	**1232.51**	**8930.08**	**8097.82**
9	**U.P.**					
	HYDRO					
(a)	Rihand	300.00	53.43	52.90	410.91	406.80
(b)	Obra	99.00	20.35	20.14	171.01	169.30
(c)	Matatilla	30.00	21.87	21.65	72.15	71.42
(d)	Khara	72.00	22.09	21.87	336.22	332.86
	Total U.P. (Hydro)	**501.00**	**117.73**	**116.56**	**990.29**	**980.39**
	THERMAL					
(e)	Obra	1442.00	496.73	434.64	4314.87	3775.51
(f)	Panki	242.00	108.21	94.68	594.91	520.54
(g)	Harduaganj	375.00	69.31	60.64	561.07	490.94
(h)	Paricha	220.00	55.29	48.38	613.49	536.80
(i)	Anpara	1630.00	905.99	792.74	7905.93	6917.69
	Total U.P. (Thermal)	**3909.00**	**1635.52**	**1431.08**	**13990.26**	**12241.48**
	Total U.P.	**4410.00**	**1753.25**	**1547.64**	**14980.55**	**13221.87**
10	**UTTRANCHAL**					
(a)	Khatima	41.40	12.92	12.79	120.56	119.35

(b)	Ramganga	198.00	1.27	1.26	82.69	81.86
(c)	Ganga Canal	32.70	11.74	11.62	95.13	94.18
(d)	Yamuna (I & IV)	114.75	31.09	30.78	492.67	487.74
(e)	Chibro	240.00	41.11	40.70	736.05	728.69
(f)	Khodri	120.00	19.49	19.29	340.67	337.26
(g)	Chilla	144.00	46.25	45.79	505.57	500.52
(h)	Maneri Bhali	90.00	44.24	43.80	338.21	334.83
	Total Uttranchal	**980.85**	**208.11**	**206.03**	**2711.55**	**2684.44**
	Total Region	**27772.02**	**12336.84**	**11559.40**	**106254.59**	**99144.76**

Notes : 1. The ex-bus generations are either actual values or based on the following assumptions in respect of auxiliary consumption

-----Hydro and diesel/gas power stations in open cycle------1.0% Nuclear stations-----12.5%

------Gas power stations in combined cycle----------3.0%

------Coal fired power stations

IP ----12% Rajghat----11% Faridabad----13.5% Suratgarh-----10.0%

Panipat----12.0% RTP----7.5% GNDTP----10.5% Tanda----12.5%

Lehra Mohabbat----10.5% KTPS----10% UP----12.5%

2. The generation on small hydro& Sobla in U.P. and on small diesel gen. Sets in UT Chandigarh, H.P.and J&K has been neglected.

VI. CENTRAL GENERATING STATIONS SHARE vs DRAWAL OF ALL CONSTITUENTS DURING NOVEMBER 2002

Sl. No.	State/UT/ System	Singrauli STPS		Rihand STPS		BTPS	W. Grid	VSTPS (WR)
		Entitlement	Actual	Entitlement	Actual	Actual	Actual	Actual
1	Chandigarh	2.93	2.93	7.72	6.55	0.00	0.00	0.00
2	Delhi	105.75	105.75	72.43	72.57	373.80	0.00	0.00
3	Haryana	146.58	146.58	58.73	58.85	0.00	0.00	0.00
4	H.P.	22.57	22.57	32.67	32.72	0.00	0.00	0.00
5	J & K	36.14	36.14	61.52	61.68	0.00	0.00	0.00
6	Punjab	110.74	110.74	65.81	65.99	0.00	0.00	0.00
7	Rajasthan	211.68	211.68	81.69	81.84	0.00	0.00	0.00
8	U.P.	416.57	416.57	194.25	194.60	0.00	0.00	0.00
9	MP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Uttranchal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Trans. Losses	43.88	43.88	23.68	23.68	0.00	0.00	0.00
	TOTAL	**1096.84**	**1096.84**	**598.50**	**598.50**	**373.80**	**0.00**	**0.00**

Note :- Singrauli sentout excludes 121.124 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	0.40	0.25	1.57	0.41
2	Delhi	383.04	356.99	6.69	6.71	17.69	11.98
3	Haryana	5.18	5.18	3.86	3.88	24.26	27.16
4	H.P.	0.00	0.00	2.46	2.47	10.77	11.41
5	J & K	4.74	4.80	4.63	4.68	29.25	33.27
6	Punjab	12.95	12.67	9.05	9.10	27.74	30.10
7	Rajasthan	0.00	0.00	6.37	6.37	30.17	33.67
8	U.P.	49.56	54.38	130.08	130.08	84.32	79.93

9	MP	0.00	20.79	0.00	0.00	0.00	0.00
10	Uttranchal	0.00	0.00	0.00	0.00	9.62	7.46
11	Bihar	0.00	0.66	0.00	0.00	0.00	0.00
12	Trans. Losses	0.00	0.00	7.19	7.19	9.34	9.34
	Total	**455.47**	**455.47**	**170.73**	**170.73**	**244.72**	**244.72**

Sl. No.	State/UT/ System	Anta GPS		Auraiya GPS		Uri HPS	
		Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.71	2.71	2.32	0.97	0.75	0.75
2	Delhi	24.69	24.69	35.65	34.34	7.75	7.75
3	Haryana	18.18	18.18	26.02	25.12	3.93	3.93
4	H.P.	12.52	12.52	16.51	15.29	2.04	2.04
5	J & K	22.55	22.55	31.14	30.15	23.82	23.82
6	Punjab	26.49	26.49	40.35	37.74	9.21	9.21
7	Rajasthan	52.92	52.92	41.69	40.17	6.36	6.36
8	U.P.	47.91	47.91	101.19	97.48	14.04	14.04
9	MP	0.00	0.00	0.00	13.94	0.00	0.00
10	Uttranchal	0.00	0.00	0.00	0.00	2.55	2.55
11	Bihar	0.00	0.00	0.00	0.21	0.00	0.00
12	Trans. Losses	9.02	9.02	11.63	11.07	0.71	0.71
	TOTAL	**216.99**	**216.99**	**306.50**	**306.50**	**71.15**	**71.15**

Sl. No.	State/UT/	Dadri GPS		Bairasiul HPS		Salal HPS	
	System	Entitlement	Actual	Entitlement	Actual	Entitlement	Actual
1	Chandigarh	2.13	1.51	0.00	0.00	0.25	0.25
2	Delhi	44.32	46.55	2.13	2.13	10.63	10.63
3	Haryana	19.49	21.54	5.90	5.90	13.74	13.74
4	H.P.	18.24	19.03	2.32	2.32	0.91	0.91
5	J & K	40.62	43.46	0.00	0.00	33.26	33.26
6	Punjab	96.38	99.52	9.00	9.00	24.33	24.33
7	Rajasthan	50.62	53.10	0.00	0.00	2.70	2.70

8	U.P.	157.22	163.28	0.00	0.00	6.35	6.35
9	Uttranchal	17.87	18.60	0.00	0.00	1.11	1.11
10	Railways	63.02	43.32	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	0.80	0.80	0.94	0.94
	Total	**509.91**	**509.91**	**20.15**	**20.15**	**94.22**	**94.22**

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	0.29	0.29	2.77	2.77	0.00	0.00	0.01	0.00
2	Delhi	2.94	2.94	5.08	5.08	0.00	42.30	12.64	0.00
3	Haryana	1.47	1.47	10.27	10.27	0.00	25.52	56.66	0.00
4	H.P.	0.88	0.88	10.47	10.47	0.00	0.00	3.11	0.00
5	J & K	1.76	1.76	2.55	2.55	0.00	24.07	81.25	0.00
6	Punjab	4.12	4.12	6.55	6.55	0.00	44.91	22.95	0.00
7	Rajasthan	2.65	2.65	12.93	12.93	121.30	158.96	109.06	0.00
8	U.P.	4.90	4.90	13.16	13.16	0.00	0.00	7.86	180.87
9	Uttranchal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Trans. Losses	0.91	0.91	2.27	2.27	0.00	0.00	2.20	0.00
11	0thers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**19.92**	**19.92**	**66.05**	**66.05**	**121.30**	**295.76**	**295.76**	**180.87**

Note :- Tanakpur sentout excludes 6.417 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	4.05	0.50	45.68	45.72	0.00	0.00	0.00	5.02
2	Delhi	35.07	20.74	0.00	0.00	0.00	0.00	0.00	30.23
3	Haryana	26.29	36.79	143.07	145.28	34.87	16.75	244.04	18.14
4	H.P.	14.31	13.30	12.66	12.80	8.28	0.00	0.00	5.02
5	J & K	29.54	43.92	0.00	0.00	0.00	0.00	0.00	5.02
6	Punjab	31.65	34.10	197.40	200.44	52.31	25.12	0.00	0.00
7	Rajasthan	38.65	54.94	80.02	81.05	21.79	59.01	0.00	5.02
8	U.P.	86.49	61.74	0.00	0.00	0.00	0.00	0.00	14.95

9	N.F.F.	0.00	0.00	14.40	7.95	0.00	0.00	0.00	0.00
10	Uttranchal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Trans. Losses	10.94	10.94	29.09	29.09	4.88	4.98	0.00	12.75
	Total	**276.99**	**276.99**	**522.32**	**522.32**	**122.13**	**105.86**	**244.04**	**96.18**

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

VII. BILATERAL EXCHANGES IN THE NORTHERN REGION DURING NOVEMBER 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	-61.03	0.00	0.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
Haryana	0.00	61.03	0.00	0.00	0.00	0.00	0.00	0.00	22.00	0.00	0.00	0.00
Himachal	0.00	0.00	0.00	0.00	0.00	8.60	0.00	0.00	0.00	0.00	0.00	0.00
J & K	0.00	0.00	0.00	0.00	0.00	105.05	0.00	0.00	0.00	0.00	0.00	0.00
Punjab	0.00	0.00	0.00	-8.60	-105.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	-54.00	-22.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**7.03**	**-83.03**	**-8.60**	**-105.05**	**113.65**	**0.00**	**0.00**	**76.00**	**0.00**	**0.00**	**0.00**

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

i) Harayana's share in IP station of Delhi	**14.948** MU
ii) Himachal's share in Shanan & RSD power station of Punjab	**5.335** MU
iii) Himachal's share in Yamuna hydro power complex of UP & Uttranchal	**26.971** MU
iv) Maruti to Harayana	**0.000** MU

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 30.11.2002

CONSTITUENT	REQUIREMENT AT THE END OF 2002-03	CAPACITORS AS ON 30.11.2002	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	2489	416	137	308
H.P.	319	261	57	56	58
J & K	924	147	12	0	777
Punjab	5107	4673	199	43	434
Rajasthan	2695	2655	59	178	40
U.P.	5225	4933	485	242	292
Uttranchal	286				286
BBMB	396	381	0	0	15
TOTAL	20797	18362	1632	754	2435

SOURCE: Minutes of 335th OCC meeting of NREB held on 09th December, 2002.

IX. HYDRAULIC DATA FOR RESERVOIRS DURING NOVEMBER 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 (m) November 2002 (ft)	495.78 1626.59	404.05 1325.62	262.59 861.50	346.43 1136.58	381.63 1252.06
Level on last day of (m) November 2001 (ft)	493.06 1617.66	411.33 1349.50	266.76 875.20	349.84 1147.77	383.55 1258.38
Live Capacity as on (mhmt) last day of November 2002(maft)	0.42 3.40	0.24 1.96	0.31 2.50	0.04 0.34	0.01 0.08
Live Capacity as on (mhmt) last day of November 2001(maft)	0.41 3.32	0.37 2.96	0.50 4.05	0.10 0.82	0.05 0.38
Energy content as on last day of November 2002 (MU)	1700.00	325.00	1010.00	84.00	70.00
Energy content as on last day of November 2001 (MU)	1550.00	525.00	975.00	180.00	140.00
Maximum level (m)	501.06	407.13	263.44	346.43	382.50

	(ft)	1643.90	1335.74	864.30	1136.58	1254.91
	(date)	01.11.2002	01.11.2002	01.11.2002	25.11.2002	01.11.2002
Minimum level	(m)	495.78	404.05	262.59	345.95	381.63
	(ft)	1626.59	1325.62	861.50	1135.00	1252.06
	(date)	30.11.2002	30.11.2002	30.11.2002	01.11.2002	25.11.2002

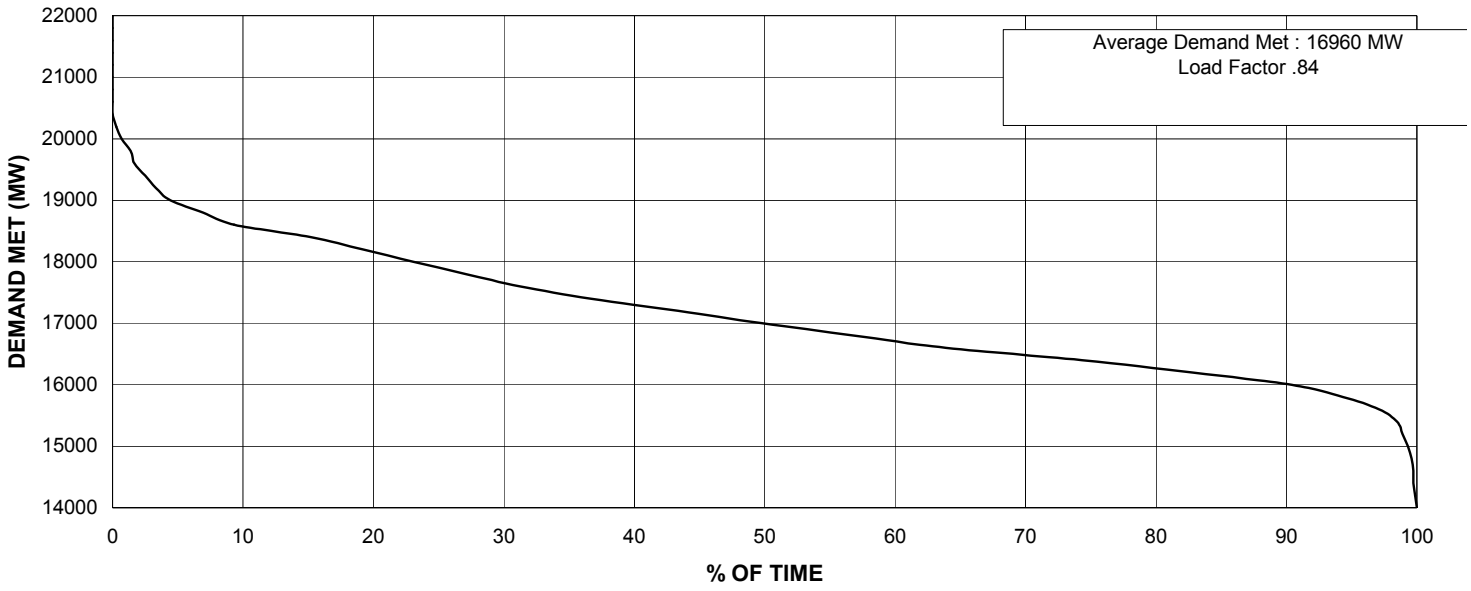
Energy content of Bhakra : Total Energy content at Bhakra, Ganguwal and Kotla power stations

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

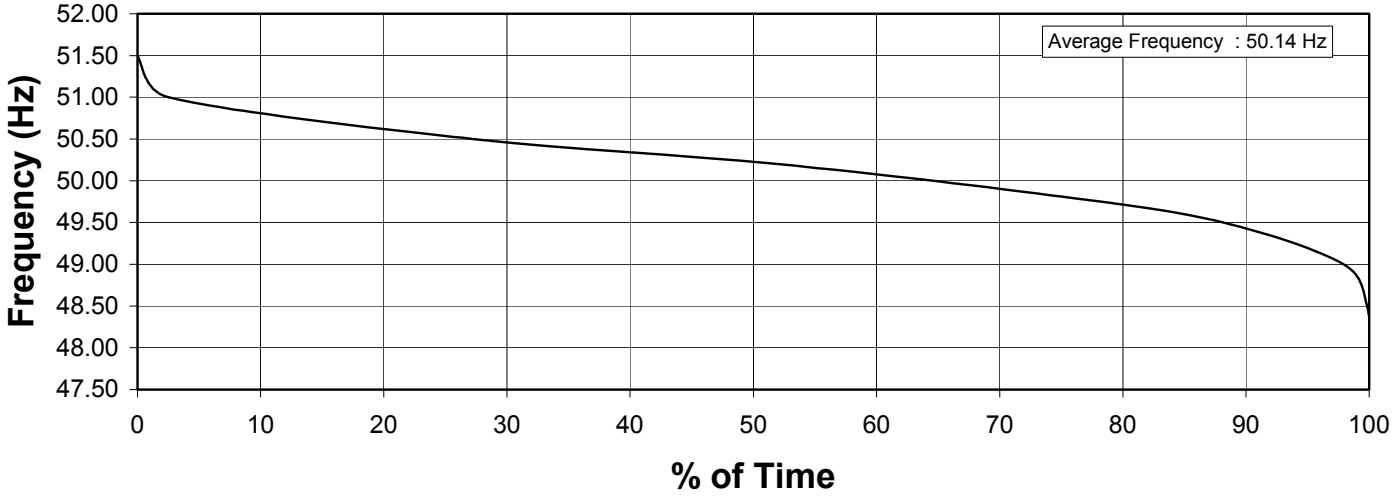
Energy content of RPS : Total Energy content of Rana Pratap Sagar and Jawahar Sagar Power Stations.

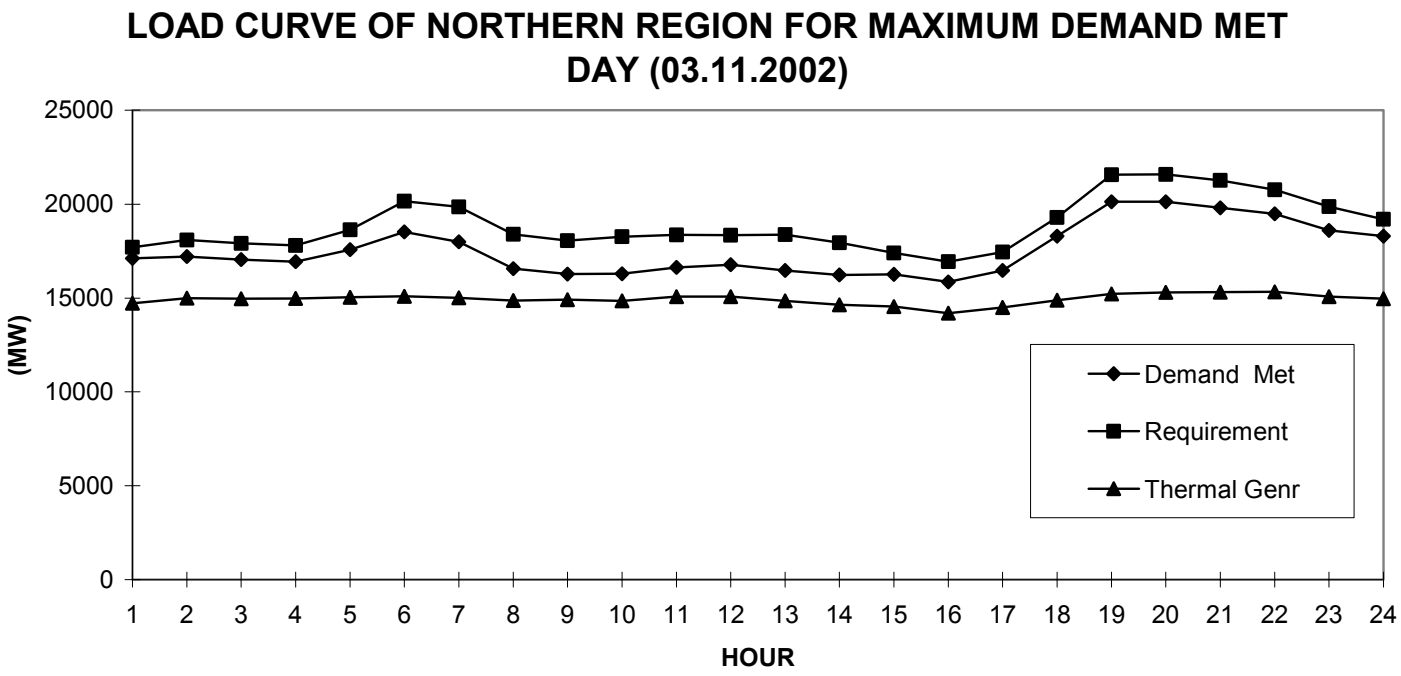
Energy Content of G. Sagar : Total Energy content at Gandhi Sagar, RP Sagar and Jawahar Sagar Power Stations.

LOAD DURATION CURVE OF NORTHERN REGION FOR NOVEMBER 2002



FREQUENCY DURATION CURVE OF NORTHERN REGION FOR NOVEMBER 2002

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10000
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(MW)
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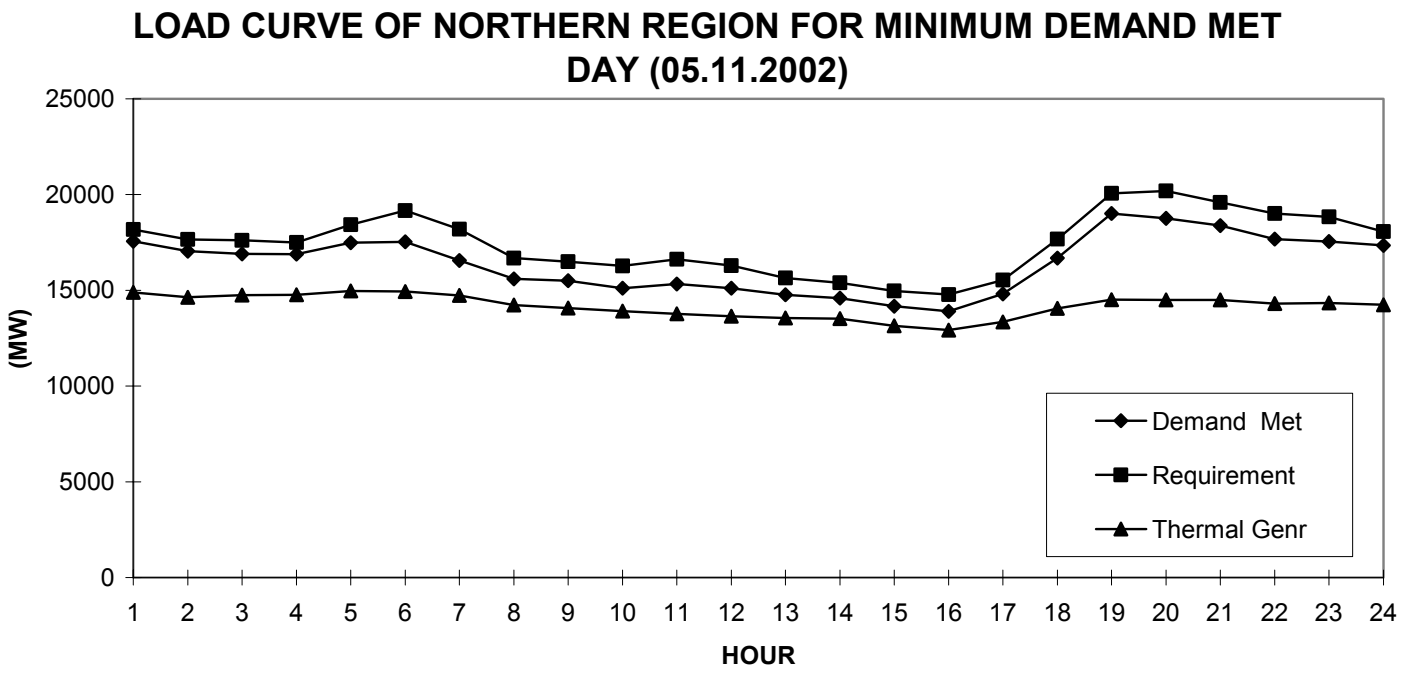
HOUR
Demand Met
Requirement
Thermal Genr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0
(MW)
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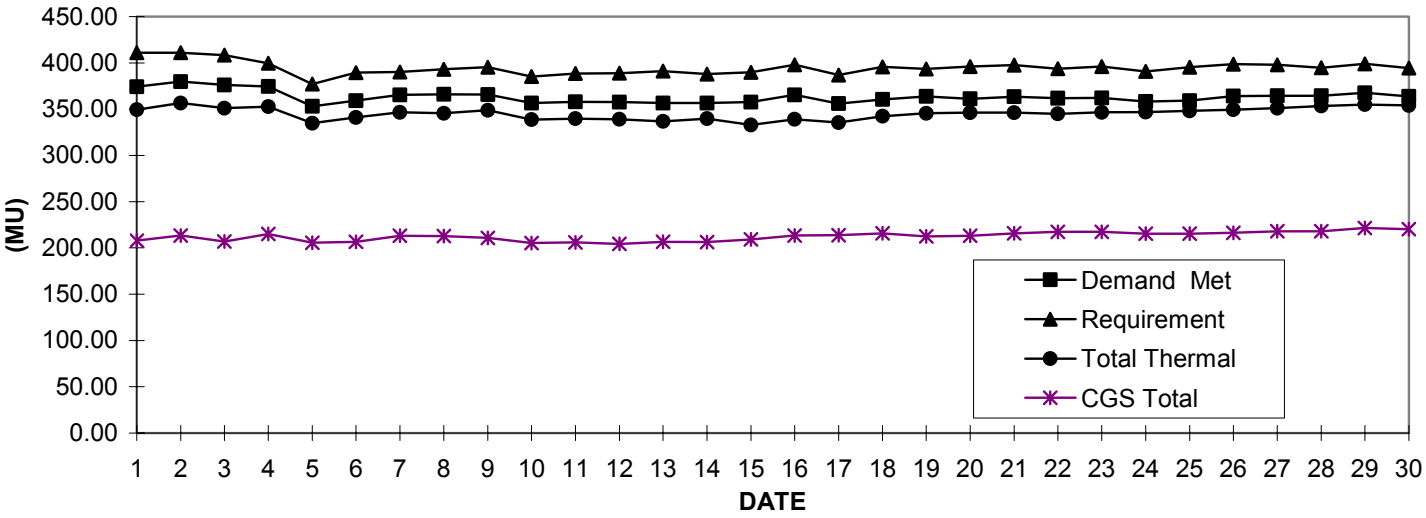
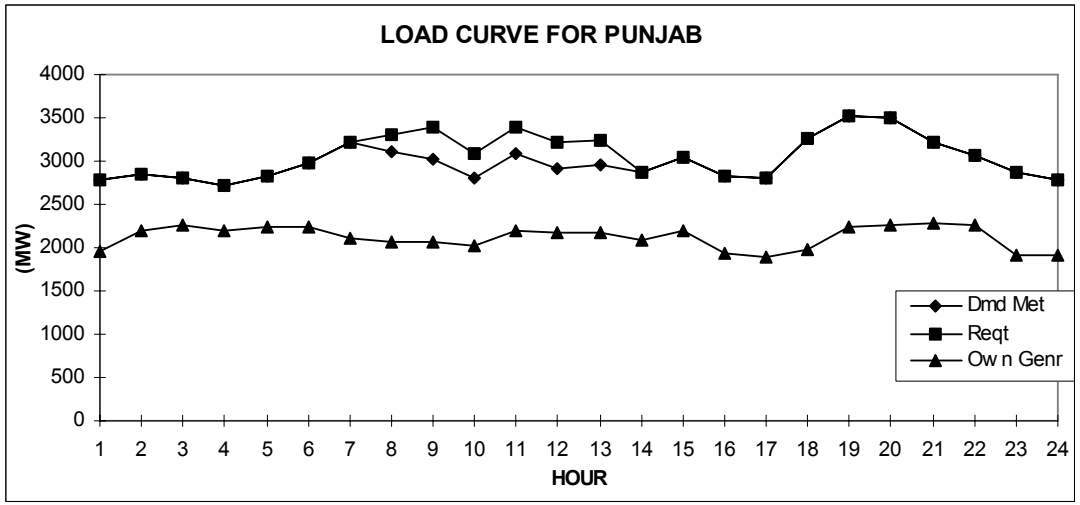
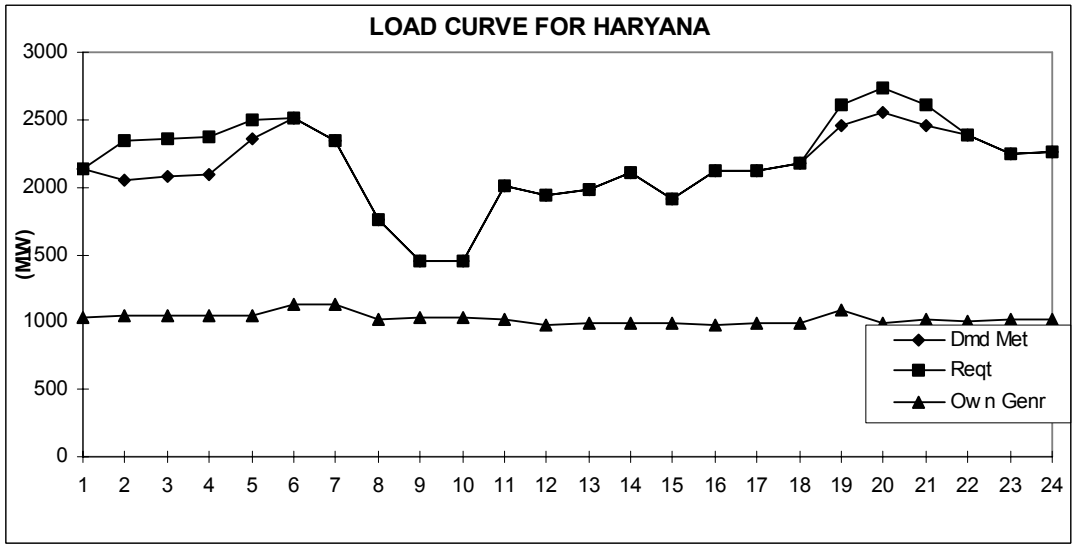
HOUR
Demand Met
Requirement
Thermal Genr

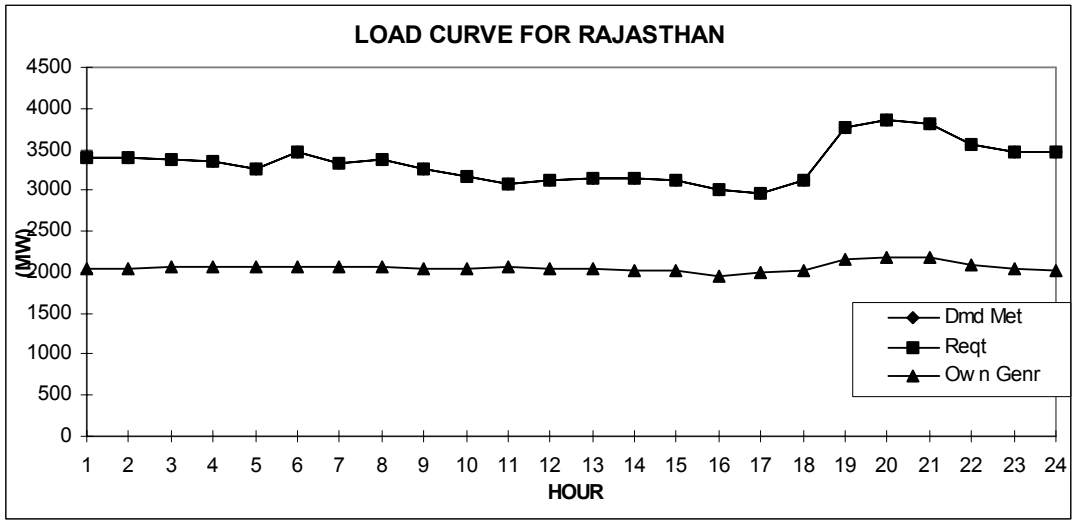
DAYWISE DEMAND MET AND REQUIREMENT (In MU) OF NORTHERN REGION DURING NOVEMBER 2002



STATE LOAD CURVES FOR REGIONAL MAXIMUM DEMAND MET DAY(03.11.2002)



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3000
2500
2000
1500
1000
500
0
(MW)
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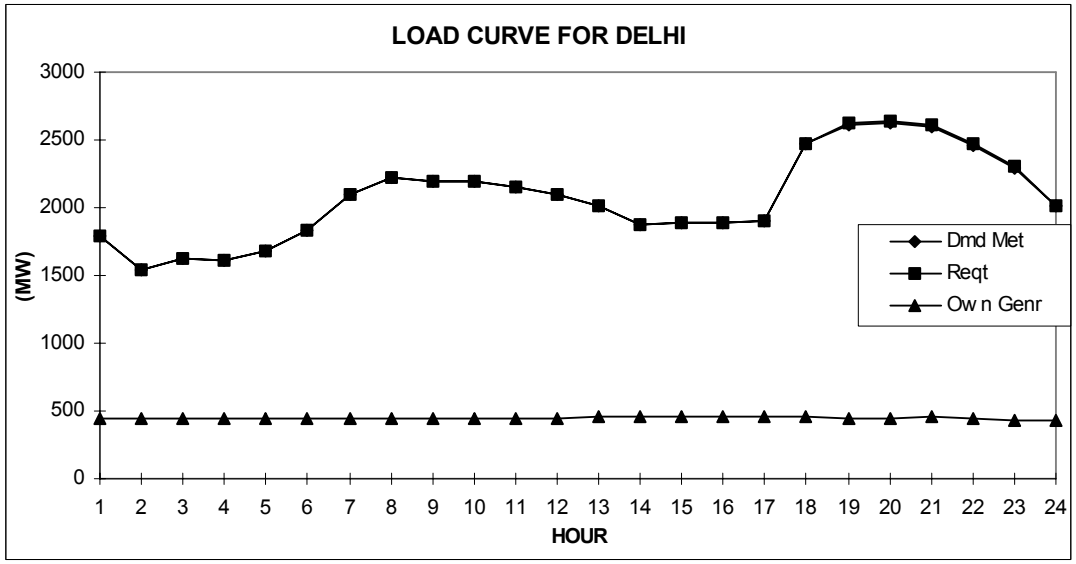
HOUR
Dmd Met
Reqt
Ow n Genr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(MW)
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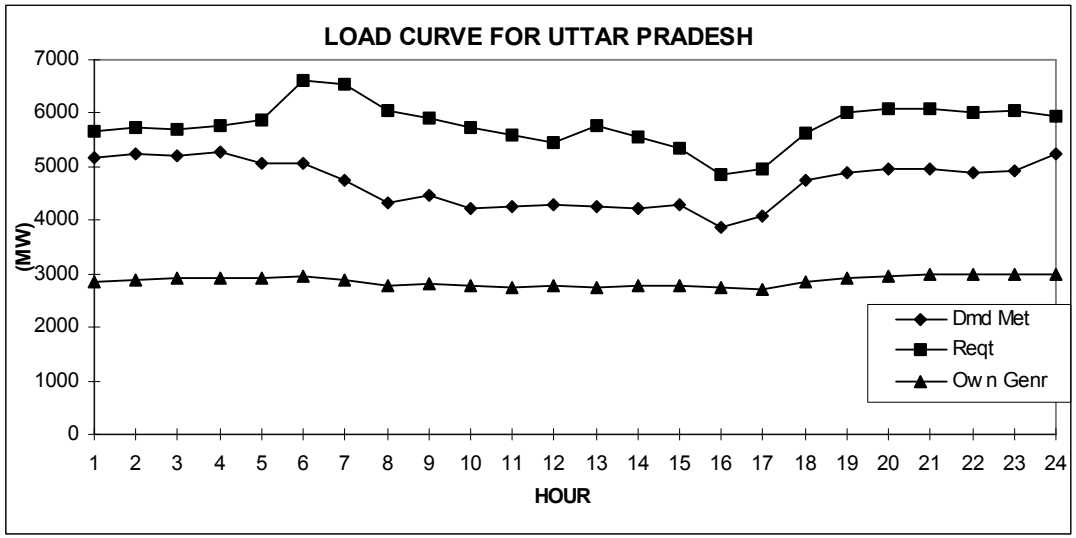
HOUR
Dmd Met
Reqt
Ow n Genr



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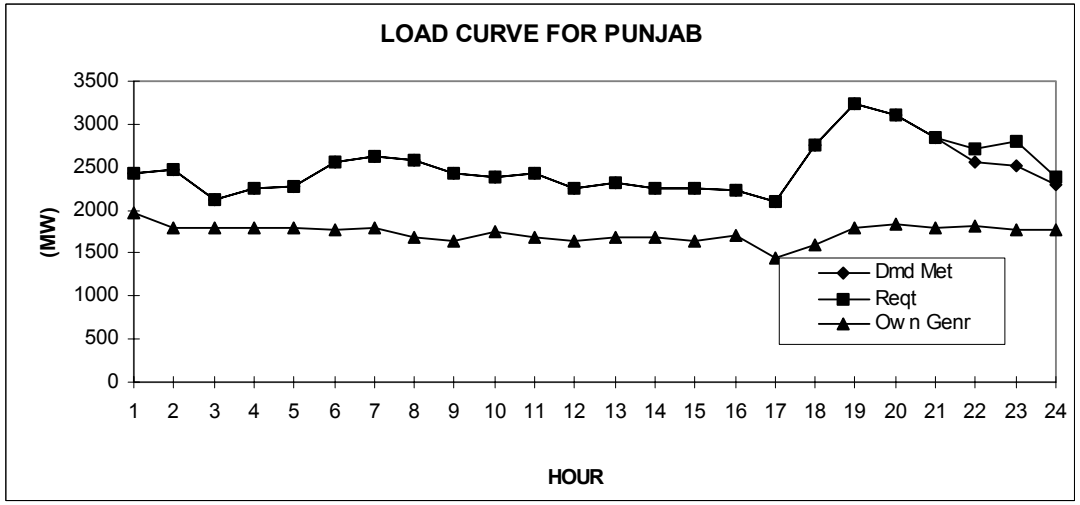

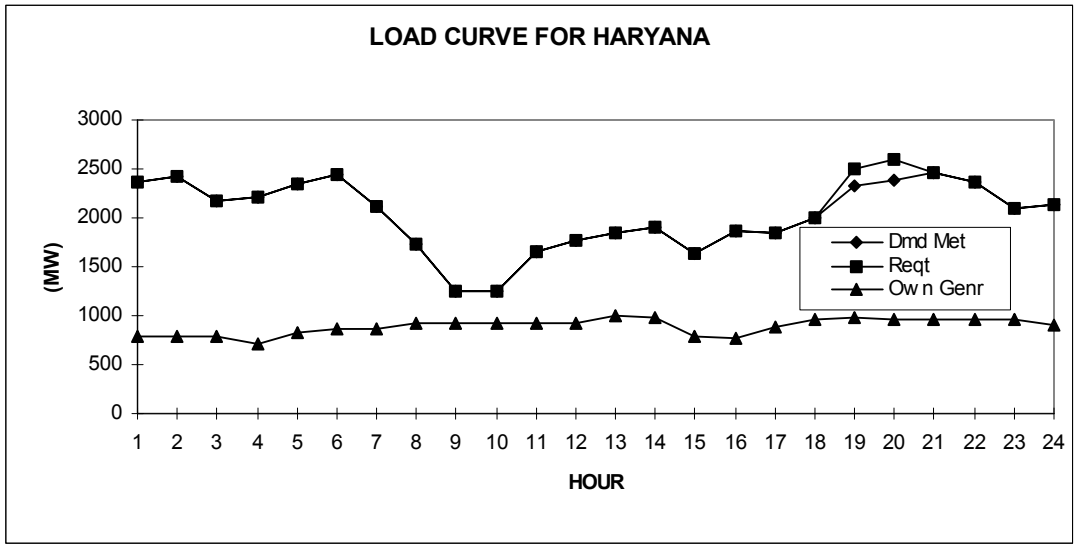
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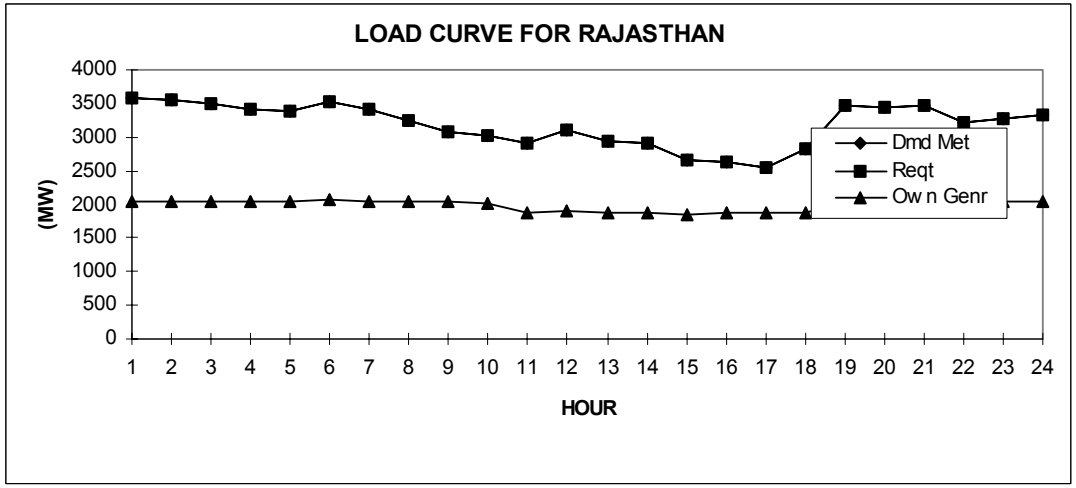
HOUR
Dmd Met
Reqt
Ow n Genr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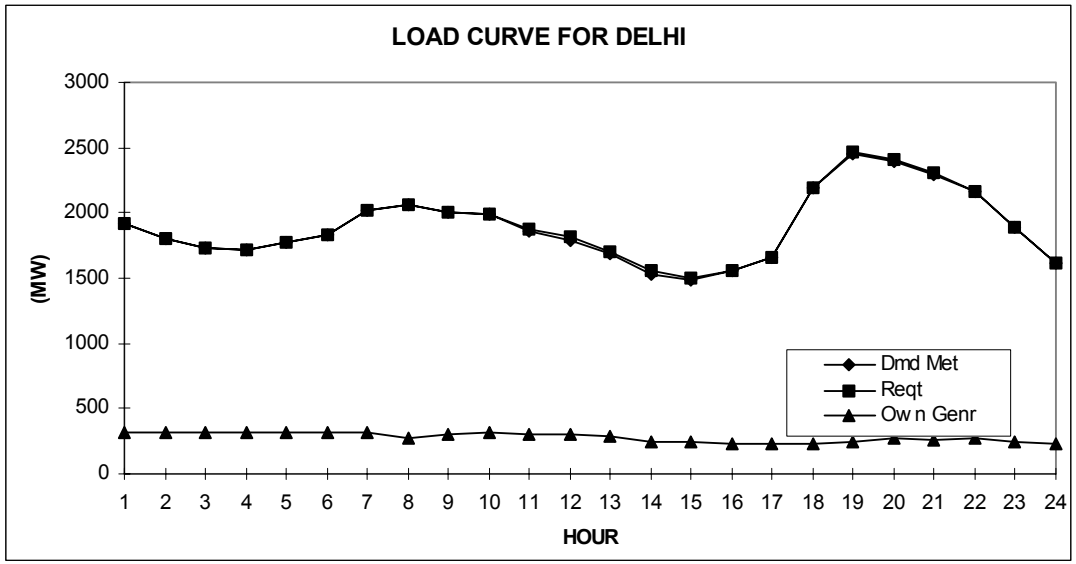
HOUR
Dmd Met
Reqt
Ow n Genr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Dmd Met
Reqt
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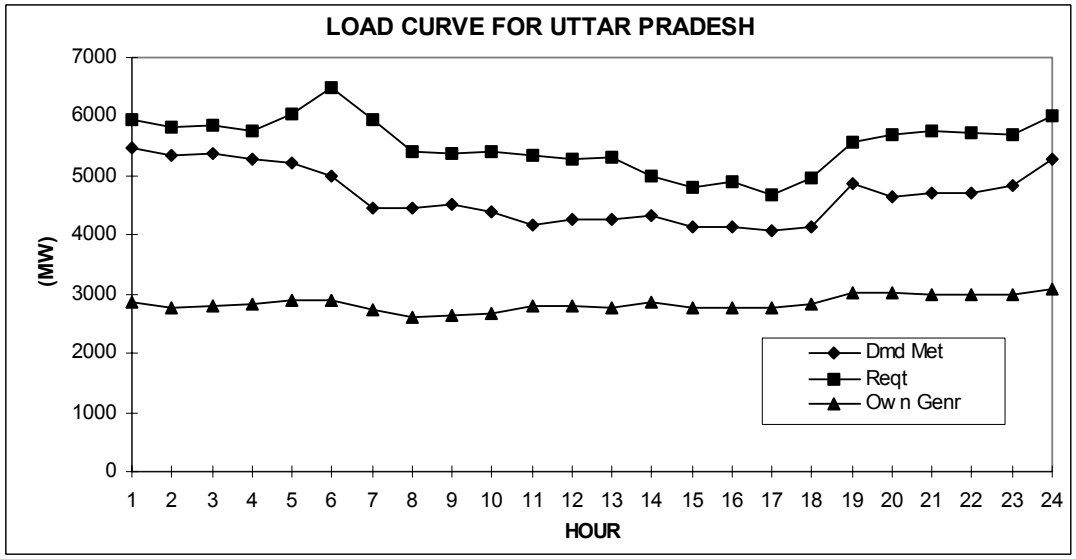
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2000
1000
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(MW)
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HOUR
Dmd Met
Reqt
Ow n Genr

MINOR GRID INCIDENTS DURING NOVEMBER 2002

S No.	DATE	TIME	INCIDENT
1.	08.11.2002	13.01 hrs	220 kV Barnala-Malerkotla ckt tripped due to snapping of conductor .Simultaneously 220 kV Sunam-Mansa D/C tripped and due to the tripping of the above, the 220 kV Bhatinda-MKS-Moga ckt tripped on O/C which resulted in tripping of all the four running units at Bhatinda and two running units at Lehra Mohabat The units at Bhatinda and Lehra Mohabat were synchronized by 15.55 hrs.