

पॉवर सिस्टम ऑपरेशन कार्पोरेशन लिमिटेड

(पब्लिसिड की पूर्ण स्वामित्व प्राप्त सार्वजनिक कंपनी)



उत्तरी क्षेत्रीय भार प्रेषण केंद्र

CIN: U40105DL2009GOI188682

Power Supply Position in Northern Region for 17.08.2015
Date of Reporting : 18.08.2015

I. Regional Availability/Demand:

Evening Peak (20:00 Hrs) MW				Off Peak (03:00 Hrs) MW				Day Energy (Net MU)	
Demand Met	Shortage	Requirement	Freq* (Hz)	Demand Met	Shortage	Requirement	Freq* (Hz)	Demand Met	Shortage
43486	2314	45800	49.99	38376	2059	40435	50.09	979.7	56.07

* Half hourly (two 15 minutes block—one block each before and after the designated time) average frequency

II. A. State's Load Details (At States periphery) in MUs:

State	State's Control Area Generation (Net MU)				Drawal Schedule (Net MU)	Actual Drawal (Net MU)	UI (Net MU)	Consumption (Net MU)	Shortages* (MU)
	Thermal	Hydro	Renewable/others \$	Total					
Punjab	56.76	25.43		82.20	126.03	125.56	-0.48	207.75	0.00
Haryana	16.30	0.56		16.86	130.85	129.98	-0.88	146.83	0.00
Rajasthan	68.68	7.32	18.07	94.08	59.63	60.12	0.49	154.20	0.00
Delhi	13.48			13.48	89.02	87.76	-1.26	101.24	0.28
UP	108.50	12.80		121.30	144.89	146.09	1.20	267.39	47.27
Uttarakhand		22.46		22.46	12.75	14.24	1.50	36.71	0.15
HP		24.10		24.10	0.59	0.38	-0.21	24.48	0.05
J & K		15.01	0.00	15.01	20.43	20.07	-0.36	35.09	8.33
Chandigarh				0.00	6.37	5.98	0.27	5.98	0.00
Total	263.73	107.69	18.07	389.49	590.55	590.18	0.28	979.67	56.07

* Shortage furnished by the respective constituent. \$ Others include UP Co-generation and JK Diesel

II. B. State's Demand Met in MWs:

State	Evening Peak (20:00 Hrs) MW				Off Peak (03:00 Hrs) MW				# Max(hourly) Demand Met of Day (MW)
	Demand Met	Shortage	UI	STOA/PX transaction	Demand Met	Shortage	UI	STOA/PX transaction	
Punjab	9236	0	-6	1623	7835	0	-69	1885	9454
Haryana	7018	0	-341	1784	5808	0	109	1746	7106
Rajasthan	6925	0	172	105	5943	0	45	136	7257
Delhi	4420	0	-136	527	3546	0	-134	440	4730
UP	11015	1880	-146	398	11663	1850	-304	776	12150
Uttarakhand	1768	0	103	-147	1386	0	48	-480	1768
HP	1084	0	61	-1330	814	0	-24	-1555	1207
J&K	1736	434	140	-507	1185	209	-99	-871	1778
Chandigarh	285	0	1	0	196	0	-26	-20	299
Total	43486	2314	-151	2453	38376	2059	-454	2058	43999

* STOA figures are at sellers boundary & PX figures are at regional boundary. # figures may not be at simultaneous hour.

III. Regional Entities :

Entity	Station/ Constituent	Inst. Capacity (Effective) MW	Declared Capacity(MW)	Peak MW (Gross)	Off Peak MW (Gross)	Energy (Net MU)	Average Sentout(MW)	Schedule Net MU	UI [OG:(+ve), UG: (-ve)]	
									Net MU	Net MU
A. NTPC	Singrauli STPS (5*200+2*500)	2000	1365	1531	1436	33.20	1383	31.99	1.21	
	Rihand I STPS (2*500)	1000	871	964	938	20.48	853	19.62	0.86	
	Rihand II STPS (2*500)	1000	943	1038	755	21.22	884	20.94	0.28	
	Rihand III STPS (2*500)	1000	480	514	403	10.64	443	10.57	0.07	
	Dadri I STPS (4*210)	840	600	399	276	7.98	332	8.34	-0.37	
	Dadri II STPS (2*490)	980	970	895	680	17.16	715	18.08	-0.92	
	Unchahar I TPS (2*210)	420	400	426	310	7.59	316	8.37	-0.78	
	Unchahar II TPS (2*210)	420	400	434	287	7.20	300	7.85	-0.66	
	Unchahar III TPS (1*220)	210	200	208	132	3.48	145	3.83	-0.35	
	ISTPP (Jhajjar) (3*500)	1500	1436	995	627	15.12	630	15.44	-0.32	
	Dadri GPS (4*130.19+2*154.51)	830	802	178	179	3.92	163	4.06	-0.14	
	Anta GPS (3*88.71+1*153.2)	419	396	0	0	0.00	0	0.00	0.00	
	Auraiya GPS (4*111.19+2*109.30)	663	639	277	161	5.25	219	5.24	0.01	
	Dadri Solar	5	1	0	0	0.01	1	0.03	-0.01	
	Unchahar Solar	10	3	0	0	0.01	1	0.06	-0.05	
	Singrauli Solar	15	3	0	0	0.03	1	0.07	-0.04	
	KHEP	800	810	841	841	19.68	820	19.45	0.23	
Sub Total (A)	12112	10319	8703	7025	173	7207	174	-1		
B. NPC	NAPS (2*220)	440	373	411	414	8.86	369	8.95	-0.09	
	RAPS- B (2*220)	440	387	434	436	9.32	388	9.29	0.03	
	RAPS- C (2*220)	440	375	414	413	8.90	371	9.00	-0.10	
	Sub Total (B)	1320	1135	1259	1263	27.08	1128	27.24	-0.16	
C. NHPC	Chamera I HPS (3*180)	540	536	542	542	13.03	543	12.86	0.17	
	Chamera II HPS (3*100)	300	300	305	302	7.23	301	7.20	0.03	
	Chamera III HPS (3*77)	231	144	161	150	3.65	152	3.39	0.26	
	Bairasuli HPS (3*60)	180	179	184	183	3.97	165	3.93	0.04	
	Salal-HPS (6*115)	690	657	666	666	16.02	667	15.76	0.25	
	Tanakpur-HPS (3*40)	94	92	93	94	2.18	91	2.20	-0.02	
	Uri-I HPS (4*120)	480	448	467	456	10.89	454	10.76	0.14	
	Uri-II HPS (4*60)	240	140	234	175	2.93	122	3.41	-0.48	
	Dhauliganga-HPS (4*70)	280	280	284	284	6.78	282	6.72	0.06	
	Dulhasti-HPS (3*130)	390	386	397	393	9.35	390	9.26	0.09	
	Sewa-II HPS (3*40)	120	119	126	128	2.92	122	2.86	0.06	
	Parbati 3 (4*130)	520	260	260	264	5.75	240	5.72	0.03	
	Sub Total (C)	4065	3542	3717	3638	85	3529	84	1	
D.SJVNL	NJPC (6*250)	1500	1605	1628	1604	38.64	1610	38.52	0.12	
	Rampur HEP (6*68.67)	412	428	431	431	10.40	433	10.27	0.13	
	Sub Total (D)	1912	2033	2059	2035	49.05	2044	48.79	0.26	
E. THDC	Tehri HPS (4*250)	1000	1044	1053	1015	24.75	1031	24.60	0.15	
	Koteshwar HPS (4*100)	400	342	401	287	8.20	342	8.20	0.00	
	Sub Total (E)	1400	1386	1454	1302	32.95	1373	32.80	0.15	
F. BBMB	Bhakra HPS (2*108+3*126+5*157)	1379	1450	1461	1463	34.82	1451	34.80	0.02	
	Dehar HPS (6*165)	990	594	825	560	14.17	590	14.25	-0.08	
	Pong HPS (6*66)	396	380	384	384	9.11	379	9.12	-0.01	
	Sub Total (F)	2765	2424	2670	2407	58.10	2421	58.17	-0.07	
G. IPP(s)/JV(s)	ALLAIN DUHANGAN HPS(IPP) (2*96)	192	0	226	174	4.18	174	4.61	-0.43	
	KARCHAM WANGTOO HPS(IPP) (4*250)	1000	0	1200	1200	28.70	1196	28.51	0.19	
	Malana Stg-II HPS (2*50)	100	0	111	111	2.63	109	2.48	0.15	
	Shree Cement TPS (2*150)	300	0	298	230	6.30	262	6.28	0.02	
	Budhil HPS(IPP) (2*35)	70	0	70	0	0.27	11	0.17	0.10	
Sub Total (G)	1662	0	1905	1715	42.07	1753	42.04	0.03		
H. Total Regional Entities (A-G)	25237	20838	21768	19384	466.91	19455	467.07	-0.15		

I. State Entities	Station	Effective Installed Capacity (MW)	Peak MW	Off Peak MW	Energy(MU)	Average(Sent out MW)	
Punjab	Guru Gobind Singh TPS (Ropar) (6*210)	1260	690	690	15.89	662	
	Guru Nanak Dev TPS(Bhatinda) (2*110+2*120)	460	80	80	1.82	76	
	Guru Hargobind Singh TPS(L.mbt) (2*210+2*250)	920	392	387	8.76	365	
	Goindwal(GVK)		0	0	0.00	0	
	Rajpura (2*700)	1400	1382	710	22.68	945	
	Talwandi Saboo (1*660)	660	338	328	7.62	317	
	Thermal (Total)	4700	2882	2195	56.76	2365	
	Total Hydro	1000	1076	1045	25.43	1060	
	Total Punjab	5700	3958	3240	82.20	3425	
	Haryana	Panipat TPS (4*110+2*210+2*250)	1367	0	0	0.00	0
DCRTPP (Yamuna nagar) (2*300)		600	538	236	8.14	339	
Faridabad GPS (NTPC)		432	323	317	8.16	340	
RGTPP (khedar) (IPP) (2*600)		1200	0	0	0.00	0	
Magnum Diesel (IPP)		25	0	0	0.00	0	
Jhajjar(CLP) (2*660)		1320	0	0	0.00	0	
Thermal (Total)		4944	861	553	16.30	679	
Total Hydro		62	26	8	0.56	23	
Total Haryana		5006	887	561	16.86	702	
Rajasthan		kota TPS (2*110+2*195+3*210)	1240	493	463	11.09	462
		suratgarh TPS (6*250)	1500	423	374	9.37	390
		Chabra TPS (4*250)	1000	137	174	4.56	190
		Dholpur GPS (3*110)	330	0	0	0.00	0
		Ramgarh GPS (1*37.5 + 1*35.5 +2*37.5 +1*110 +1*50)	271	193	186	4.06	169
	RAPS A (NPC) (1*100+1*200)	300	167	173	4.07	170	
	Barsingsar (NLC) (2*125)	250	103	186	3.51	146	
	Giral LTPS (2*125)	250	0	0	0.00	0	
	Rajwest LTPS (IPP) (8*135)	1080	705	443	12.42	517	
	V/S LIGNITE LTPS (IPP) (1*135)	135	0	0	0.00	0	
	Kalisindh Thermal(2*600)	1200	0	0	0.00	0	
	Kawai(Adani) (2*660)	1320	857	853	19.60	817	
	Thermal (Total)	8876	3078	2852	69	2862	
	Total Hydro	550	277	330	7.32	305	
	Wind power	3214	486	599	14.99	625	
	Biomass	99	27	27	0.65	27	
	Solar	730	0	0	2.43	101	
	Renewable/Others (Total)	4043	513	626	18.07	753	
	Total Rajasthan	13469	3868	3808	94.08	3920	
	UP	Anpara TPS (3*210+2*500)	1630	1274	1389	31.40	1308
Obra TPS (2*50+2*94+5*200)		1194	406	408	9.50	396	
Panicha TPS (2*110+2*220+2*250)		1140	741	626	17.00	708	
Panki TPS (2*105)		210	0	0	0.01	0	
Harduaganj TPS (1*60+1*105+2*250)		665	489	484	11.30	471	
Tanda TPS (NTPC) (4*110)		440	268	265	5.90	246	
Roza TPS (IPP) (4*300)		1200	946	549	19.70	821	
Anpara-C (IPP) (2*600)		1200	0	549	2.40	100	
Bajaj Energy Pvt.Ltd(IPP) TPS (10*45)		450	324	322	6.60	275	
Anpara-D(1*500)		500	0	0	0.00	0	
Lalitpur TPS(1*660)		660	276	198	3.50	146	
Thermal (Total)		9289	4724	4790	107	4471	
Vishnuparyag HPS (IPP)(4*110)		440	0	0	0.00	0	
Alakananda(4*82.5)		330	326	325	7.80	325	
Other Hydro		527	126	342	5.00	208	
Cogeneration		981	50	50	1.20	50	
Total UP		11567	5226	5507	121	5054	
Uttarakhand	Total Hydro	1398	947	946	22.46	936	
	Total Uttarakhand	1398	947	946	22.46	936	
Delhi	Rajghat TPS (2*67.5)	135	0	0	-0.01	0	
	Delhi Gas Turbine (6x30 + 3x34)	282	32	0	0.76	32	
	Pragati Gas Turbine (2x104+ 1x122)	330	142	0	1.57	65	
	Riithala GPS (3*36)	95	0	0	0.00	0	
	Bawana GPS (4*216+2*253)	1370	0	0	-0.10	-4	
	Badarpur TPS (NTPC) (3*95+2*210)	705	114	323	11.26	469	
	Thermal (Total)	2917	288	323	13.48	562	
	Total Delhi	2917	288	323	13.48	562	
HP	Baspa HPS (IPP) (3*100)	300	330	307	7.59	316	
	Malana HPS (IPP) (2*43)	86	103	103	2.43	101	
	Other Hydro	878	548	607	14.09	587	
	Total HP	1264	981	1017	24.10	1004	
J & K	Baglihar HPS (IPP) (3*150)	450	450	450	10.80	450	
	Other Hydro/IPP	560	179	184	4.21	176	
	Gas/Diesel/Others	190	0	0	0.00	0	
	Total J & K	1200	629	634	15.01	626	
Total State Control Area Generation		42521	16784	16036	389.49	16229	
J. Net Inter Regional Exchange [Import (+ve)/Export (-ve)]			7234	4217	140.22	5843	
Total Regional Availability(Gross)		67758	45786	39637	996.63	41526	

IV. Total Hydro Generation:

Regional Entities Hydro	12234	12282	11707	279.97	11665
State Control Area Hydro	6581	4388	4647	108	4487
Total Regional Hydro	18815	16670	16354	387.66	16153

V(A). Inter Regional Exchange [Import (+ve)/Export (-ve)] [Linkwise]

Element	Peak(20:00 Hrs)	Off Peak(03:00 Hrs)	Maximum Interchange (MW)		Energy (MU)		Net Energy MU
	MW	MW	Import	Export	Import	Export	
Vindhychal(HVDC B/B)	100	150	250	100	1.55	1.55	0.00
765 KV Gwalior-Agra (D/C)	2462	897	2462	0	42.13	0.00	42.13
400 KV Zerda-Kankroli	47	-205	47	222	0.00	3.11	-3.11
400 KV Zerda-Bhimmal	45	-222	61	265	0.00	3.13	-3.13
220 KV Auraiya-Malanpur	-40	-81	0	87	0.00	1.19	-1.19
220 KV Badod-Kota/Morak	66	-47	67	47	0.17	0.00	0.17
Mundra-Mohinderqarh(HVDC Bipole)	1260	2006	2010	0	39.20	0.00	39.20
400 KV Vindhychal - Rihand	499	298	500	0	10.62	0.00	10.62
765 kV Phagi-Gwalior (D/C)	996	514	1137	0	17.69	0.00	17.69
Sub Total WR	5435	3310			111.36	8.97	102.39
Pusauli Bypass/HVDC	400	400	400	0	8.98	0.00	8.98
400 KV MZP- GKP (D/C)	388	220	636	0	9.64	0.00	9.64
400 KV Patna-Balia(D/C) X 2	255	155	290	0	5.43	0.00	5.43
400 KV B'Sharif-Balia (D/C)	127	21	224	0	2.96	0.00	2.96
765 KV Pusauli-Balia	116	18	120	0	0.83	0.00	0.83
765 KV Gaya-Fatehpur	157	-27	267	32	3.27	0.00	3.27
220 KV Pusauli-Sahupuri	122	150	200	0	1.65	0.00	1.65
132 KV K'nasa-Sahupuri	0	0	0	0	0.00	0.00	0.00
132 KV Son Ngr-Rihand	-35	-32	0	42	0.00	0.70	-0.70
132 KV Garhwa-Rihand	0	0	0	0	0.00	0.00	0.00
765 KV Sasaram - Fatehpur	2	-157	177	179	1.01	0.00	1.01
400 KV Barh -GKP (D/C)	267	159	244	0	4.77	0.00	4.77
Sub Total ER	1799	907			38.54	0.70	37.84
Total IR Exch	7234	4217			149.90	9.68	140.22

V(B). Inter Regional Schedule & Actual Exchanges [Import (+ve)/Export (-ve)] [Corridor wise]

ER	ISGS/LT Schedule (MU)		Bilateral Schedule (MU)		Power Exchange Shdl (MU)		Wheeling (MU)	
	Bhutan	Total	Through ER	Through WR	Through ER	Through WR	Through ER	Through WR
28.03	3.89	31.92	15.81	10.07	6.29	-0.51	2.09	-2.09
Total IR Schedule (MU)								
Through ER	Through WR Incids Mndra	Total	Through ER	Through WR	Total	Through ER	Through WR	Total
56.10	89.16	145.26	37.84	102.39	140.22	-18.27	13.23	-5.04

V(C). Inter National Exchange with Nepal [Import (+ve)/Export (-ve)] [Linkwise]

Element	Peak(20:00 Hrs)	Off Peak(03:00 Hrs)	Maximum Interchange (MW)		Energy (MU)		Net Energy MU
	MW	MW	Import	Export	Import	Export	
132 KV Tanakpur - Mahendarnagar	-23	-25	0	34	0	1	-0.55

VI. Frequency Profile <----- % of Time Frequency ----->

<49.2	<49.7	<49.8	<49.9	<50.0	49.9-50.05	50.05-50.10	50.10-50.20	>50.20	>50.50
0.00	0.36	2.25	11.49	59.53	74.81	11.11	2.63	0.02	0.00

<----- Frequency (Hz) ----->				Average Frequency Hz	Frequency Variation Index	Std. Dev.	Frequency in 15 Min Block	
Maximum		Minimum					MAX (Hz)	MIN (Hz)
Freq	Time	Freq	Time	Hz				
50.20	18.01	49.64	14.20	49.98	0.06	0.07	50.19	49.89

VII. Voltage profile 400 kV

Station	Voltage Level (kV)	Maximum		Minimum		Voltage (in % of Time)			
		Voltage(KV)	Time	Voltage (KV)	Time	<380 kV	<390 kV	>420 kV	>430 kV
Rihand	400	407	03:31	399	22:16	0.0	0.0	0.0	0.0
Gorakhpur	400	423	06:59	403	00:11	0.0	0.0	7.8	0.0
Bareilly	400	416	06:02	400	12:31	0.0	0.0	0.0	0.0
Kanpur	400	418	06:03	403	19:53	0.0	0.0	0.0	0.0
Dadri	400	414	02:18	398	14:17	0.0	0.0	0.0	0.0
Ballabgarh	400	422	03:32	259	15:27	15.0	15.0	10.0	0.0
Bawana	400	417	03:31	400	14:18	0.0	0.0	0.0	0.0
Bassi	400	426	04:07	403	19:52	0.0	0.0	20.2	0.0
Hissar	400	413	03:46	396	14:19	0.0	0.0	0.0	0.0
Moga	400	408	03:16	396	20:08	0.0	0.0	0.0	0.0
Abdullapur	400	411	06:00	396	14:21	0.0	0.0	0.0	0.0
Nalagarh	400	414	02:21	400	14:21	0.0	0.0	0.0	0.0
Kishenpur	400	413	03:17	403	19:35	0.0	0.0	0.0	0.0
Wagoora	400	409	03:31	388	19:47	0.0	4.6	0.0	0.0
Amritsar	400	411	03:17	393	08:04	0.0	0.0	0.0	0.0
Kashipur	400	416	01:57	408	12:41	0.0	0.0	0.0	0.0
Hamirpur	400	402	00:00	402	00:00	0.0	0.0	0.0	0.0
Rishikesh	400	407	03:44	388	14:20	0.0	5.0	0.0	0.0

VIII. Voltage profile 765 kV

Station	Voltage Level (kV)	Maximum		Minimum		Voltage (in % of Time)			
		Voltage(KV)	Time	Voltage (KV)	Time	<728 kV	<742 kV	>800 kV	>820 kV
Fatehpur	765	774	17:09	748	19:50	0.0	0.0	0.0	0.0
Balia	765	779	07:02	749	22:09	0.0	0.0	0.0	0.0
Moga	765	780	18:00	756	12:16	0.0	0.0	0.0	0.0
Agra	765	791	04:06	758	19:53	0.0	0.0	0.0	0.0
Bhiwani	765	793	03:47	766	14:18	0.0	0.0	0.0	0.0
Unnao	765	769	06:05	735	13:12	0.0	9.2	0.0	0.0
Lucknow	765	780	06:03	749	22:09	0.0	0.0	0.0	0.0
Meerut	765	798	04:08	762	12:30	0.0	0.0	0.0	0.0
Jhatikara	765	796	06:04	764	20:03	0.0	0.0	0.0	0.0
Bareilly	765	778	06:03	750	22:08	0.0	0.0	0.0	0.0
Anta	765	767	00:00	767	00:00	0.0	0.0	0.0	0.0
Phagi	765	796	04:02	758	19:49	0.0	0.0	0.0	0.0

IX. Reservoir Parameters:

Name of Reservoir	Parameters		Present Parameters		Last Year		Last day	
	FRL (m)	MDDL (m)	Level (m)	Energy (MU)	Level (m)	Energy (MU)	Inflow (m ³ /s)	Usage (m ³ /s)
Bhakra	513.59	445.62	509.09	1500.16	509.49	1530.03	1506.99	1159.80
Pong	426.72	384.05	421.70	975.89	415.23	680.86	827.30	521.88
Tehri	829.79	740.04	813.60	874.27	811.25	827.28	779.97	601.00
Koteshwar	612.50	598.50	610.13	4.69	610.96	4.95	521.00	542.80
Chamera-I	760.00	748.75	756.38	0.00	0.00	0.00	402.06	352.80
Rihand	268.22	252.98	850.20	258.70	855.90	353.80	0.00	0.00
RPS	352.80	343.81	0.00	0.00	0.00	0.00	0.00	0.00
Jawahar Sagar	298.70	295.78	0.00	0.00	0.00	0.00	0.00	0.00
RSD	527.91	487.91	523.67	14.35	518.92	8.93	720.86	432.12

* NA: Not Available

X(A). Short-Term Open Access Details:

State	Off- Peak Hours (03:00 Hrs)			Peak Hours (20:00 Hrs)			Day Energy (MU)		
	Bilateral (MW)	IEX (MW)	PXIL (MW)	Bilateral (MW)	IEX (MW)	PXIL (MW)	Bilateral (MU)	IEX / PXIL (MU)	Total (MU)
Punjab	1515	370	0	1416	207	0	34.22	8.43	42.65
Delhi	418	22	0	573	-44	-2	11.49	2.56	14.05
Haryana	1576	170	0	1585	199	0	37.23	3.44	40.67
HP	-1119	-435	0	-944	-387	0	-23.15	-10.48	-33.62
J&K	-795	-76	0	-542	35	0	-14.71	-0.74	-15.45
CHD	0	-20	0	0	0	0	0.24	-0.17	0.07
Rajasthan	-498	634	0	-498	601	2	-11.95	14.97	3.02
UP	776	0	0	398	0	0	12.24	0.00	12.24
Uttarakhand	-242	-239	0	-184	37	0	-5.01	-2.29	-7.29
Total	1632	426	0	1804	649	0	40.60	15.73	56.33

X(B). Short-Term Open Access Details:

State	Bilateral (MW)		IEX (MW)		PXIL (MW)	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Punjab	1515	1199	402	205	0	0
Delhi	971	184	395	-153	0	-2
Haryana	1628	1341	226	-123	0	0
HP	-851	-1172	-385	-526	0	0
J&K	-542	-795	35	-152	0	0
CHD	29	0	0	-32	0	0
Rajasthan	-498	-498	653	553	2	0
UP	776	357	0	0	0	0
Uttarakhand	-152	-263	37	-242	0	0

XI. System Constraints:

XII. Grid Disturbance / Any Other Significant Event:

XIII. Weather Conditions For 17.08.2015 :
cloudy weather and scattered rain in parts of NR

XIV. Synchronisation of new generating units :

XV. Synchronisation of new 220 / 400 / 765 KV lines and energising of bus / /substation :

XVI. Tripping of lines in pooling stations :

XVII. Complete generation loss in a generating station :