

पॉवर सिस्टम ऑपरेशन कार्पोरेशन लिमिटेड

(सार्वजनिक की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)



उत्तरी क्षेत्रीय भार प्रेषण केंद्र

CIN: U40105DL2009GOI188682

Power Supply Position in Northern Region for 22.11.2015
Date of Reporting : 23.11.2015

I. Regional Availability/Demand:

Evening Peak (19:00 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
35417	4348	39766	50.04	29261	659	29920	50.07	768.7	38.80

* 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	40.97	9.24		50.21	38.37	36.42	-1.96	86.63	0.00
Haryana	36.63	0.45		37.08	62.49	62.35	-0.14	99.42	0.00
Rajasthan	112.37	4.42	9.17	125.96	72.85	73.58	0.73	199.54	0.00
Delhi	14.21			14.21	39.93	40.12	0.18	54.33	0.11
UP	111.54	6.60		118.14	112.68	112.15	-0.53	230.28	28.31
Uttarakhand		5.83		5.83	24.72	26.13	1.41	31.96	0.64
HP		4.98		4.98	17.75	17.12	-0.62	22.11	0.00
J & K		8.90	0.00	8.90	31.92	32.51	0.59	41.41	9.73
Chandigarh				0.00	3.11	3.01	0.27	3.01	0.00
Total	315.72	40.43	9.17	365.32	403.81	403.37	-0.07	768.69	38.80

* 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 (19:00 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	3865	0	-304	-317	3021	0	-87	-381	4479
Haryana	5547	0	-274	-308	3096	0	46	-187	5547
Rajasthan	8481	0	-357	131	8025	0	40	645	9716
Delhi	2856	217	-138	-113	1570	0	162	-1051	3000
UP	9842	3566	-268	-314	9929	370	-33	102	10162
Uttarakhand	1584	75	-105	362	1177	0	83	388	1623
HP	1120	0	-36	-225	712	0	13	190	1181
J&K	1962	490	81	310	1640	289	60	376	1962
Chandigarh	160	0	-35	-45	91	0	1	-30	162
Total	35417	4348	-1436	-519	29261	659	285	53	35417

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

Diversity is 1.07

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 Net MU
A. NTPC	Singrauli STPS (5*200+2*500)	2000	1900	1801	1994	44.42	1851	43.93	0.48
	Rihand I STPS (2*500)	1000	870	745	872	18.16	757	18.45	-0.29
	Rihand II STPS (2*500)	1000	963	667	949	18.95	790	19.32	-0.37
	Rihand III STPS (2*500)	1000	964	757	838	19.61	817	20.19	-0.58
	Dadri I STPS (4*210)	840	610	146	148	3.39	141	3.43	-0.04
	Dadri II STPS (2*490)	980	607	346	355	7.57	315	8.05	-0.47
	Unchahar I TPS (2*210)	420	406	297	302	6.81	284	7.51	-0.70
	Unchahar II TPS (2*210)	420	404	257	264	6.20	258	6.84	-0.65
	Unchahar III TPS (1*220)	210	202	132	130	3.09	129	3.41	-0.32
	ISTPP (Jhajjar) (3*500)	1500	1500	747	615	15.82	659	16.41	-0.60
	Dadri GPS (4*130.19+2*154.51)	830	636	558	553	13.12	547	13.47	-0.35
	Anta GPS (3*88.71+1*153.2)	419	419	191	212	5.17	215	5.63	-0.46
	Auraiya GPS (4*111.19+2*109.30)	663	653	287	283	6.79	283	7.04	-0.25
	Dadri Solar	5	1	0	0	0.00	0	0.02	-0.02
	Unchahar Solar	10	1	0	0	0.00	0	0.02	-0.02
	Singrauli Solar	15	1	0	0	0.00	0	0.03	-0.03
	Sub Total (A)	12112	10792	7057	7515	171	7131	176	-5
B. NPC	NAPS- (2*220)	440	198	220	223	4.77	199	4.75	0.02
	RAPS- B (2*220)	440	383	438	416	9.29	387	9.19	0.10
	RAPS- C (2*220)	440	410	456	459	9.90	413	9.84	0.06
	Sub Total (B)	1320	991	1114	1098	23.96	998	23.78	0.18
C. NHPC	Chamera I HPS (3*180)	540	540	379	0	1.78	74	1.62	0.16
	Chamera II HPS (3*100)	300	200	205	0	1.57	66	1.53	0.05
	Chamera III HPS (3*77)	231	229	149	0	0.91	38	0.83	0.08
	Bairasuli HPS(3*60)	180	122	122	0	0.61	25	0.58	0.03
	Salal-HPS (6*115)	690	172	337	150	4.87	203	4.13	0.74
	Tanakpur-HPS (3*40)	94	27	59	20	0.78	33	0.66	0.13
	Uri-I HPS (4*120)	480	344	411	418	8.73	364	8.25	0.47
	Uri-II HPS (4*60)	240	213	231	213	5.20	217	5.11	0.09
	Dhauliganga-HPS (4*70)	280	280	269	0	1.21	50	1.10	0.11
	Dulhasti-HPS (3*130)	390	387	396	0	3.65	152	3.50	0.15
	Sewa-II HPS (3*40)	120	119	126	0	0.56	23	0.50	0.06
	Parbati 3 (4*130)	520	130	132	0	0.81	34	0.39	0.42
	Sub Total (C)	4065	2763	2817	801	31	1278	28	2
	D.SJVNL	NJPC (6*250)	1500	1605	1612	0	9.43	393	9.41
Rampur HEP (6*68.67)		412	432	438	0	2.68	112	2.62	0.06
Sub Total (D)		1912	2037	2050	0	12.11	504	12.04	0.07
E. THDC	Tehri HPS (4*250)	1000	1056	1019	0	6.05	252	6.00	0.05
	Koteshwar HPS (4*100)	400	92	100	92	2.22	93	2.20	0.02
	Sub Total (E)	1400	1148	1119	92	8.27	345	8.20	0.07
F. BBMB	Bhakra HPS (2*108+3*126+5*157)	1379	549	1017	343	13.24	552	13.17	0.07
	Dehar HPS (6*165)	990	161	495	140	3.73	156	3.86	-0.12
	Pong HPS (6*66)	396	239	318	192	5.46	227	5.74	-0.28
	Sub Total (F)	2765	949	1830	675	22.43	935	22.77	-0.34
G. IPP(s)/JV(s)	ALLAIN DUHANGAN HPS(IPP) (2*96)	192	0	0	0	0.62	26	0.59	0.02
	KARCHAM WANGTOO HPS(IPP) (4*250)	1000	0	640	0	5.24	219	5.28	-0.03
	Malana Stg-II HPS (2*50)	100	0	0	0	0.00	0	0.00	0.00
	Shree Cement TPS (2*150)	300	0	108	109	2.62	109	2.67	-0.06
	Budhil HPS(IPP) (2*35)	70	0	75	0	0.24	10	0.23	0.01
Sub Total (G)	1662	0	823	109	8.72	363	8.77	-0.06	
H. Total Regional Entities (A-G)	25237	18679	16810	10290	277.31	11555	279.48	-2.17	

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	160	160	3.55	148	
	Guru Nanak Dev TPS(Bhatinda) (2*110+2*120)	460	90	90	1.97	82	
	Guru Har Gobind Singh TPS(L.mbt) (2*210+2*250)	920	202	203	4.64	193	
	Goindwal(GVK)		0	0	0.00	0	
	Rajpura (2*700)	1400	350	360	8.60	359	
	Talwandi Saboo (2*660)	1320	998	1013	22.20	925	
	Thermal (Total)	5360	1800	1826	40.97	1707	
	Total Hydro	1000	261	361	9.24	385	
	Total Punjab	6360	2061	2187	50.21	2092	
	Haryana	Panipat TPS (4*110+2*210+2*250)	1367	0	0	0.00	0
DCRTPP (Yamuna nagar) (2*300)		600	545	482	11.56	482	
Faridabad GPS (NTPC)		432	199	284	5.57	232	
RGTPP (khedar) (IPP) (2*600)		1200	568	389	9.89	412	
Magnum Diesel (IPP)		25	0	0	0.00	0	
Jhajjar(CLP) (2*660)		1320	560	375	9.61	400	
Thermal (Total)		4944	1872	1530	36.63	1526	
Total Hydro		62	10	26	0.45	19	
Total Haryana		5006	1882	1556	37.08	1545	
Rajasthan		kota TPS (2*110+2*195+3*210)	1240	1002	1026	25.10	1046
	suratgarh TPS (6*250)	1500	414	412	10.21	425	
	Chabra TPS (4*250)	1000	509	373	8.67	361	
	Dholpur GPS (3*110)	330	86	87	2.25	94	
	Ramgarh GPS (1*37.5 + 1*35.5 +2*37.5 +1*110 +1*50)	271	187	186	4.65	194	
	RAPS A (NPC) (1*100+1*200)	300	160	161	3.99	166	
	Barsingar (NLC) (2*125)	250	94	94	2.15	89	
	Giral LTPS (2*125)	250	0	0	0.00	0	
	Rajwest LTPS (IPP) (8*135)	1080	554	843	18.50	771	
	VS LIGNITE LTPS (IPP) (1*135)	135	0	0	0.00	0	
	Kalisindh Thermal(2*600)	1200	478	478	11.37	474	
	Kawai(Adani) (2*660)	1320	933	982	25.51	1063	
	Thermal (Total)	8876	4417	4642	112	4682	
	Total Hydro	550	201	135	4.42	184	
	Wind power	3214	350	756	8.57	357	
	Biomass	99	25	25	0.60	25	
	Solar	730	0	0	0.00	0	
	Renewable/Others (Total)	4043	375	781	9.17	382	
	Total Rajasthan	13469	4993	5558	125.96	5248	
	UP	Anpara TPS (3*210+2*500)	1630	947	944	22.30	929
		Obra TPS (2*50+2*94+5*200)	1194	383	360	9.00	375
		Paricha TPS (2*110+2*220+2*250)	1140	696	706	16.40	683
		Panki TPS (2*105)	210	68	68	1.50	63
Harduaganj TPS (1*60+1*105+2*250)		665	538	360	12.90	538	
Tanda TPS (NTPC) (4*110)		440	273	370	8.54	356	
Roza TPS (IPP) (4*300)		1200	194	275	8.70	363	
Anpara-C (IPP) (2*600)		1200	1078	1081	25.90	1079	
Bajaj Energy Pvt.Ltd(IPP) TPS (10*45)		450	58	81	1.50	63	
Anpara-D(1*500)		500	0	0	0.00	0	
Lalitpur TPS(1*660)		660	0	0	0.00	0	
Bara(1*660)		660	0	0	0.00	0	
Thermal (Total)		9949	4235	4245	107	4447	
Vishnuparyag HPS (IPP)(4*110)		440	117	112	2.70	113	
Alaknanda(4*82.5)		330	75	76	1.70	71	
Other Hydro		527	40	152	2.20	92	
Cogeneration		981	200	200	4.80	200	
Total UP		12227	4667	4785	118	4922	
Uttarakhand		Total Hydro	1398	399	178	5.83	243
		Total Uttarakhand	1398	399	178	5.83	243
Delhi	Rajghat TPS (2*67.5)	135	0	0	-0.01	0	
	Delhi Gas Turbine (6x30 + 3x34)	282	40	40	0.92	39	
	Pragati Gas Turbine (2x104+ 1x122)	330	158	158	3.77	157	
	Rithala GPS (3*36)	95	0	0	0.00	0	
	Bawana GPS (4*216+2*253)	1370	253	256	6.04	252	
	Badarpur TPS (NTPC) (3*95+2*210)	705	165	165	3.49	146	
	Thermal (Total)	2917	616	619	14.21	592	
Total Delhi	2917	616	619	14.21	592		
HP	Baspa HPS (IPP) (3*100)	300	60	30	1.36	57	
	Malana HPS (IPP) (2*43)	86	0	0	0.30	12	
	Other Hydro	878	184	103	3.33	139	
	Total HP	1264	244	133	4.98	208	
J & K	Baglihar HPS (IPP) (3*150)	450	260	260	6.24	260	
	Other Hydro/IPP	560	104	115	2.66	111	
	Gas/Diesel/Others	190	0	0	0.00	0	
	Total J & K	1200	364	375	8.90	371	
Total State Control Area Generation		43841	15226	15391	365.32	15221	
J. Net Inter Regional Exchange [(Import +ve)/Export (-ve)]			4255	5225	141.14	5881	
Total Regional Availability(Gross)		69078	36291	30906	783.77	32657	

IV. Total Hydro Generation:

Regional Entities Hydro	12234	8582	1568	81.41	3392
State Control Area Hydro	6581	1711	1548	40	1685
Total Regional Hydro	18815	10293	3116	121.83	5076

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

Element	Peak(19:00 Hrs)		Off Peak(03:00 Hrs)		Maximum Interchange (MW)		Energy (MU)		Net Energy MU
	MW		MW		Import	Export	Import	Export	
Vindhychal(HVDC B/B)	-150		-300		0	300	0.00	5.02	-5.02
765 KV Gwalior-Agra (D/C)	1816		1901		2666	0	54.98	0.00	54.98
400 KV Zerda-Kankroli	-98		-254		32	254	0.00	2.56	-2.56
400 KV Zerda-Bhinmal	26		186		119	225	0.00	0.71	-0.71
220 KV Auraiya-Malanpur	-120		-118		0	124	0.00	2.39	-2.39
220 KV Badod-Kota/Morak	-78		-147		0	154	0.00	2.76	-2.76
Mundra-Mohindergarh(HVDC Bipole)	1698		2102		2106	0	47.83	0.00	47.83
400 KV Vindhychal - Rihand	0		0		0	0	0.00	0.00	0.00
765 kV Phagi-Gwalior (D/C)	763		785		1339	0	23.52	0.00	23.52
Sub Total WR	3857		4155				126.32	13.44	112.88
Pusaull Bypass/HVDC	350		350		350	0	8.48	0.00	8.48
400 KV MZP -GKP (D/C)	44		224		480	17	5.71	0.00	5.71
400 KV Patna-Balia(D/C) X 2	258		324		482	0	8.70	0.00	8.70
400 KV B'Sharif-Balia (D/C)	-14		55		202	67	1.96	0.00	1.96
765 KV Gaya-Balia	75		147		252	0	1.87	0.00	1.87
765 KV Gaya-Fatehpur	1		102		325	0	3.99	0.00	3.99
220 KV Pusaull-Sahupuri	114		135		188	0	2.84	0.00	2.84
132 KV K'nasa-Sahupuri	0		0		0	0	0.00	0.00	0.00
132 KV Son Ngr-Rihand	-22		-25		0	30	0.00	0.60	-0.60
132 KV Garhwa-Rihand	0		0		0	0	0.00	0.00	0.00
765 KV Sasaram - Fatehpur	-162		-56		141	193	0.00	0.06	-0.06
400 KV Barh -GKP (D/C)	254		314		376	0	7.45	0.00	7.45
Sub Total ER	898		1570				40.99	0.66	40.34
+/- 800 KV BiswanathCharialli-Agra	-500		-500		0	500	0.00	12.07	-12.07
Sub Total NER	-500		-500				0.00	12.07	-12.07
Total IR Exch	4255		5225				167.31	26.17	141.14

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

ISGS/LT Schedule (MU)			Bilateral Schedule (MU)			Power Exchange Shdl (MU)		Wheeling (MU)	
ER	Bhutan	Total	Through ER	Through WR	Through ER	Through WR	Through ER	Through WR	
29.37	0.80	30.17	3.23	-15.18	5.18	25.63	5.88	-5.88	
Total IR Schedule (MU)			Total IR Actual (MU)			Net IR UI (MU)			
Through ER	Through WR Incids Mndra	Total	Through ER(including NER)	Through WR	Total	Through ER(including NER)	Through WR	Total	
44.46	98.80	143.26	28.26	112.88	141.14	-16.20	14.08	-2.12	

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

Element	Peak(19:00 Hrs)		Off Peak(03:00 Hrs)		Maximum Interchange (MW)		Energy (MU)		Net Energy MU
	MW		MW		Import	Export	Import	Export	
132 KV Tanakpur - Mahendarnagar	-31		-29		0	32	0	1	-0.73

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	0.00	0.57	6.62	47.40	67.94	16.57	7.91	1.06	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					
50.27	22.00	49.77	8.40	50.01	0.054	0.073	50.20	49.84

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	404	20:01	398	08:37	0.0	0.0	0.0	0.0
Gorakhpur	400	421	05:03	406	12:19	0.0	0.0	0.2	0.0
Bareilly(PG)400kV	400	421	21:54	400	10:26	0.0	0.0	0.1	0.0
Kanpur	400	411	21:51	403	08:38	0.0	0.0	0.1	0.0
Dadri	400	426	03:05	406	11:22	0.0	0.0	24.6	0.0
Ballabgarh	400	431	02:59	411	09:15	0.0	0.0	64.6	2.4
Bawana	400	429	02:50	409	11:21	0.0	0.0	44.5	0.0
Bassi	400	427	20:59	393	08:40	0.0	0.0	13.3	0.0
Hissar	400	424	20:58	402	08:35	0.0	0.0	14.3	0.0
Moga	400	422	02:51	403	08:40	0.0	0.0	7.5	0.0
Abdullapur	400	423	01:14	394	17:53	0.0	0.0	4.6	0.0
Nalagarh	400	435	21:55	411	09:30	0.0	0.0	65.4	10.6
Kishenpur	400	424	03:22	400	18:37	0.0	0.0	8.6	0.0
Wagoora	400	404	13:01	374	18:37	10.2	45.3	0.0	0.0
Amritsar	400	429	03:01	411	08:40	0.0	0.0	49.7	0.0
Kashipur	400	0	00:00	9999	00:00	0.0	0.0	0.0	0.0
Hamirpur	400	426	21:56	405	11:18	0.0	0.0	35.4	0.0
Rishikesh	400	0	00:00	9999	00:00	0.0	0.0	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	20:25	741	08:43	0.0	0.1	0.0	0.0
Balia	765	773	04:06	748	10:29	0.0	0.0	0.0	0.0
Moga	765	801	02:59	762	08:37	0.0	0.0	1.5	0.0
Agra	765	792	20:24	751	08:38	0.0	0.0	0.0	0.0
Bhiwani	765	810	20:56	761	11:20	0.0	0.0	20.9	0.0
Unnao	765	771	21:54	739	10:22	0.0	5.4	0.0	0.0
Lucknow	765	781	04:16	750	10:24	0.0	0.0	0.0	0.0
Meerut	765	812	03:03	766	11:24	0.0	0.0	25.1	0.0
Jhatikara	765	0	00:00	9999	00:00	0.0	0.0	0.0	0.0
Bareilly 765 kV	765	0	00:00	9999	00:00	0.0	0.0	0.0	0.0
Anta	765	786	20:55	760	08:36	0.0	0.0	0.0	0.0
Phagi	765	798	20:57	748	08:38	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	507.34	1411.35	504.28	1272.20	162.45	382.87
Pong	426.72	384.05	416.59	743.22	411.09	534.70	55.39	330.66
Tehri	829.79	740.04	813.50	872.00	820.10	1003.00	71.20	140.00
Koteshwar	612.50	598.50	610.61	4.95	609.44	4.30	140.00	146.00
Chamera-I	760.00	748.75	0.00	0.00	0.00	0.00	56.85	48.05
Rihand	268.22	252.98	850.10	257.10	853.30	309.60	0.00	0.00
RPS	352.80	343.81	1138.19	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	506.53	2.49	509.78	1.55	83.03	142.26

* NA: Not Available

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

State	Off- Peak Hours (03:00 Hrs)			Peak Hours (19:00 Hrs)			Day Energy (MU)		
	Bilateral (MW)	IEX (MW)	PXIL (MW)	Bilateral (MW)	IEX (MW)	PXIL (MW)	Bilateral (MU)	IEX / PXIL (MU)	Total (MU)
Punjab	-673	293	0	-600	283	0	-12.63	6.85	-5.78
Delhi	-958	-93	0	-548	435	0	-15.73	6.63	-9.10
Haryana	-322	135	0	-517	209	0	-8.85	1.89	-6.96
HP	151	39	0	142	-367	0	5.48	-2.15	3.33
J&K	427	-50	0	411	-101	0	9.87	-0.85	9.02
CHD	-30	0	0	0	-45	0	-0.24	-0.33	-0.57
Rajasthan	0	643	2	0	129	2	9.34	16.42	25.75
UP	102	0	0	-314	0	0	-4.47	0.00	-4.47
Uttarakhand	194	194	0	194	168	0	4.66	5.70	10.36
Total	-1110	1161	2	-1232	711	2	-12.58	34.16	21.58

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

State	Bilateral (MW)		IEX (MW)		PXIL (MW)	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Punjab	-196	-673	312	208	0	0
Delhi	-544	-958	718	-148	0	0
Haryana	-308	-517	264	-378	0	0
HP	317	142	39	-725	0	0
J&K	427	391	0	-161	0	0
CHD	0	-30	0	-80	0	0
Rajasthan	718	0	1496	-125	2	2
UP	122	-346	0	0	0	0
Uttarakhand	194	194	444	110	0	0

XI. System Constraints:

XII. Grid Disturbance / Any Other Significant Event:

XIII. Weather Conditions For 22.11.2015 :
Normal.

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 :