

पॉवर सिस्टम ऑपरेशन कार्पोरेशन लिमिटेड

(पब्लिसिड की पूर्ण स्वायत्तिय प्राप्त सार्वजनिक कंपनी)



उत्तरी क्षेत्रीय भार प्रेषण केंद्र

CIN: U40105DL2009GOI188682

Power Supply Position in Northern Region for 25.08.2015
Date of Reporting : 26.08.2015

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
47176	2891	50066	49.99	42641	2580	45221	50.03	1060.9	61.56

* 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	45.92	25.02		70.94	120.75	120.45	-0.30	191.39	0.00
Haryana	49.56	0.58		50.14	121.52	120.18	-1.34	170.32	0.00
Rajasthan	112.42	1.07	19.58	133.07	70.47	74.39	3.93	207.46	0.03
Delhi	14.02			14.02	94.13	92.58	-1.55	106.60	0.08
UP	117.99	13.20		131.19	142.73	149.68	6.94	280.86	50.41
Uttarakhand		22.46		22.46	12.24	14.50	2.26	36.96	2.27
HP		23.24		23.24	2.07	2.70	0.63	25.93	0.32
J & K		14.31	0.00	14.31	19.24	21.31	2.08	35.62	8.46
Chandigarh				0.00	6.16	5.77	0.27	5.77	0.00
Total	339.90	99.88	19.58	459.36	589.31	601.55	12.91	1060.91	61.56

* 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	8725	0	-35	1631	7263	0	20	1809	8776
Haryana	8420	5	-186	1915	7303	0	106	1873	8436
Rajasthan	8738	0	-17	160	8768	0	297	272	9467
Delhi	4589	0	-71	673	4123	0	67	627	5161
UP	11492	2265	-92	314	11611	2230	467	358	12413
Uttarakhand	1792	155	210	-125	1307	145	83	-436	1792
HP	1280	0	115	-1292	920	0	8	-1449	1280
J&K	1863	466	253	-456	1159	205	100	-946	1863
Chandigarh	277	0	0	0	187	0	-17	0	295
Total	47176	2891	177	2818	42641	2580	1131	2108	47531

* 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 Net MU	
										UI
A. NTPC	Singrauli STPS (5*200+2*500)	2000	1865	2058	2038	45.61	1900	44.71	0.89	
	Rihand I STPS (2*500)	1000	739	897	620	17.77	740	17.50	0.27	
	Rihand II STPS (2*500)	1000	943	970	1034	23.17	966	22.44	0.73	
	Rihand III STPS (2*500)	1000	480	514	508	11.50	479	11.39	0.11	
	Dadri I STPS (4*210)	840	600	398	386	8.59	358	8.86	-0.27	
	Dadri II STPS (2*490)	980	970	950	673	19.61	817	20.65	-1.03	
	Unchahar I TPS (2*210)	420	400	430	435	9.18	382	9.51	-0.33	
	Unchahar II TPS (2*210)	420	385	433	417	9.08	379	9.13	-0.05	
	Unchahar III TPS (1*220)	210	200	219	215	4.64	193	4.70	-0.05	
	ISTPP (Jhajjar) (3*500)	1500	1436	780	630	16.21	676	16.47	-0.26	
	Dadri GPS (4*130.19+2*154.51)	830	523	339	257	7.72	322	7.87	-0.15	
	Anta GPS (3*88.71+1*153.2)	419	396	236	199	5.46	228	5.38	0.09	
	Auraiya GPS (4*111.19+2*109.30)	663	634	304	295	6.88	287	7.00	-0.12	
	Dadri Solar	5	1	0	0	0.02	1	0.03	0.00	
	Unchahar Solar	10	3	0	0	0.03	1	0.06	-0.03	
	Singrauli Solar	15	3	0	0	0.07	3	0.07	0.00	
	KHEP	800	696	637	819	17.19	716	16.70	0.49	
	Sub Total (A)	12112	10273	9165	8526	203	8448	202	0	
	B. NPC	NAPS (2*220)	440	378	396	415	8.79	366	9.07	-0.28
		RAPS- B (2*220)	440	187	208	212	4.43	185	4.49	-0.06
RAPS- C (2*220)		440	375	428	428	9.16	382	9.00	0.16	
Sub Total (B)		1320	940	1032	1055	22.38	932	22.56	-0.18	
C. NHPC	Chamera I HPS (3*180)	540	534	543	545	13.03	543	12.82	0.22	
	Chamera II HPS (3*100)	300	300	304	303	7.02	292	6.96	0.06	
	Chamera III HPS (3*77)	231	229	232	172	4.86	203	4.73	0.14	
	Bairasuil HPS (3*60)	180	179	178	109	2.27	95	2.05	0.23	
	Salal-HPS (6*115)	690	648	671	671	16.17	674	15.55	0.61	
	Tanakpur-HPS (3*40)	94	42	60	93	1.08	45	1.02	0.07	
	Uri-I HPS (4*120)	480	369	462	380	9.57	399	8.89	0.68	
	Uri-II HPS (4*60)	240	214	193	237	5.39	224	5.15	0.24	
	Dhauliganga-HPS (4*70)	280	280	281	290	6.70	279	6.58	0.12	
	Dulhasti-HPS (3*130)	390	381	402	395	9.25	385	9.14	0.11	
	Sewa-II HPS (3*40)	120	119	129	0	1.25	52	1.11	0.14	
	Parbati 3 (4*130)	520	130	130	130	3.13	130	3.12	0.01	
	Sub Total (C)	4065	3426	3586	3324	80	3322	77	3	
	D.SJVNL	NJPC (6*250)	1500	1605	1622	1617	38.79	1616	38.52	0.27
Rampur HEP (6*68.67)		412	428	428	430	10.36	432	10.27	0.09	
Sub Total (D)		1912	2033	2050	2047	49.15	2048	48.79	0.36	
E. THDC	Tehri HPS (4*250)	1000	1050	1050	250	12.93	539	12.70	0.23	
	Koteshwar HPS (4*100)	400	171	403	95	4.39	183	4.30	0.09	
	Sub Total (E)	1400	1221	1453	345	17.32	722	17.00	0.32	
F. BBMB	Bhakra HPS (2*108+3*126+5*157)	1379	906	1457	651	21.71	905	21.74	-0.03	
	Dehar HPS (6*165)	990	601	825	560	14.37	599	14.42	-0.05	
	Pong HPS (6*66)	396	249	384	186	5.98	249	5.97	0.01	
	Sub Total (F)	2765	1755	2666	1397	42.06	1752	42.13	-0.07	
	G. IPP(s)/JV(s)	ALLAIN DUHANGAN HPS(IPP) (2*96)	192	0	139	110	2.61	109	3.18	-0.56
KARCHAM WANGTOO HPS(IPP) (4*250)		1000	0	1144	1125	26.00	1083	25.96	0.04	
Malana Stg-II HPS (2*50)		100	0	110	80	1.86	77	1.76	0.10	
Shree Cement TPS (2*150)		300	0	297	291	6.87	286	6.82	0.05	
Budhil HPS(IPP) (2*35)		70	0	76	76	1.47	61	1.80	-0.33	
Sub Total (G)		1662	0	1767	1682	38.81	1617	39.51	-0.70	
H. Total Regional Entities (A-G)	25237	19648	21719	18376	452.18	18841	449.54	2.64		

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UI [OG:(+ve), UG: (-ve)]

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	320	320	7.52	313	
	Guru Nanak Dev TPS(Bhatinda) (2*110+2*120)	460	108	80	2.03	85	
	Guru Hargobind Singh TPS(L.mbt) (2*210+2*250)	920	215	182	4.13	172	
	Goindwal(GVK)		0	0	0.00	0	
	Rajpura (2*700)	1400	1370	709	23.48	979	
	Talwandi Saboo (1*660)	660	346	344	8.76	365	
	Thermal (Total)	4700	2359	1635	45.92	1913	
	Total Hydro	1000	1075	966	25.02	1043	
	Total Punjab	5700	3434	2601	70.94	2956	
	Haryana	Panipat TPS (4*110+2*210+2*250)	1367	446	464	10.09	421
DCRTPP (Yamuna nagar) (2*300)		600	524	553	11.50	479	
Faridabad GPS (NTPC)		432	0	187	0.91	38	
RGTPP (khedar) (IPP) (2*600)		1200	1119	571	17.84	743	
Magnum Diesel (IPP)		25	0	0	0.00	0	
Jhajjar(CLP) (2*660)		1320	375	371	9.22	384	
Thermal (Total)		4944	2464	2146	49.56	2065	
Total Hydro		62	25	26	0.58	24	
Total Haryana		5006	2489	2172	50.14	2089	
Rajasthan		kota TPS (2*110+2*195+3*210)	1240	941	1103	24.36	1015
		suratgarh TPS (6*250)	1500	1024	1111	25.83	1076
		Chabra TPS (4*250)	1000	86	87	2.02	84
		Dholpur GPS (3*110)	330	95	0	1.01	42
	Ramgarh GPS (1*37.5 + 1*35.5 +2*37.5 +1*110 +1*50)	271	153	150	3.79	158	
	RAPS A (NPC) (1*100+1*200)	300	158	157	3.91	163	
	Barsingsar (NLC) (2*125)	250	59	92	1.47	61	
	Giral LTPS (2*125)	250	85	86	1.19	50	
	Rajwest LTPS (IPP) (8*135)	1080	836	840	20.07	836	
	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	1205	1200	28.79	1199	
	Thermal (Total)	8876	4642	4826	112	4684	
	Total Hydro	550	111	69	1.07	44	
	Wind power	3214	808	749	18.83	785	
	Biomass	99	26	26	0.63	26	
	Solar	730	0	0	0.13	5	
	Renewable/Others (Total)	4043	834	775	19.58	816	
	Total Rajasthan	13469	5587	5670	133.07	5545	
	UP	Anpara TPS (3*210+2*500)	1630	1255	1272	30.60	1275
Obra TPS (2*50+2*94+5*200)		1194	341	323	7.80	325	
Panicha TPS (2*110+2*220+2*250)		1140	761	721	17.50	729	
Panki TPS (2*105)		210	63	59	1.40	58	
Harduaganj TPS (1*60+1*105+2*250)		665	421	470	10.50	438	
Tanda TPS (NTPC) (4*110)		440	185	182	4.49	187	
Roza TPS (IPP) (4*300)		1200	1094	1080	23.40	975	
Anpara-C (IPP) (2*600)		1200	540	545	13.00	542	
Bajaj Energy Pvt.Ltd(IPP) TPS (10*45)		450	365	363	8.10	338	
Anpara-D(1*500)		500	0	0	0.00	0	
Lalitpur TPS(1*660)		660	0	0	0.00	0	
Thermal (Total)		9289	5025	5015	117	4866	
Vishnuparyag HPS (IPP)(4*110)		440	0	0	0.00	0	
Alakananda(4*82.5)		330	330	328	7.80	325	
Other Hydro		527	193	218	5.40	225	
Cogeneration		981	50	50	1.20	50	
Total UP	11567	5598	5611	131	5466		
Uttarakhand	Total Hydro	1398	906	954	22.46	936	
	Total Uttarakhand	1398	906	954	22.46	936	
Delhi	Rajghat TPS (2*67.5)	135	0	0	-0.03	-1	
	Delhi Gas Turbine (6x30 + 3x34)	282	32	31	0.77	32	
	Pragati Gas Turbine (2x104+ 1x122)	330	143	146	3.51	146	
	Riithala GPS (3*36)	95	0	0	0.00	0	
	Bawana GPS (4*216+2*253)	1370	0	0	-0.05	-2	
	Badarpur TPS (NTPC) (3*95+2*210)	705	321	317	9.82	409	
	Thermal (Total)	2917	496	494	14.02	584	
	Total Delhi	2917	496	494	14.02	584	
HP	Baspa HPS (IPP) (3*100)	300	329	329	7.65	319	
	Malana HPS (IPP) (2*43)	86	67	67	1.55	64	
	Other Hydro	878	588	587	14.04	585	
	Total HP	1264	984	983	23.24	968	
J & K	Baglihar HPS (IPP) (3*150)	450	440	440	10.57	440	
	Other Hydro/IPP	560	176	152	3.74	156	
	Gas/Diesel/Others	190	0	0	0.00	0	
	Total J & K	1200	616	592	14.31	596	
Total State Control Area Generation		42521	20110	19077	459.36	19140	
J. Net Inter Regional Exchange [Import (+ve)/Export (-ve)]			7396	6723	172.78	7199	
Total Regional Availability(Gross)		67758	49225	44177	1084.32	45180	

IV. Total Hydro Generation:

Regional Entities Hydro	12234	11786	9248	235.91	9830
State Control Area Hydro	6581	4240	4136	100	4162
Total Regional Hydro	18815	16026	13384	335.79	13991

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)	150	50	150	50	1.60	0.40	1.20
765 KV Gwalior-Agra (D/C)	2495	1861	2517	0	48.80	0.00	48.80
400 KV Zerda-Kankroli	-71	-110	0	295	0.00	3.41	-3.41
400 KV Zerda-Bhimmal	-46	-86	0	249	0.00	2.76	-2.76
220 KV Auraiya-Malanpur	-67	-76	0	104	0.00	1.40	-1.40
220 KV Badod-Kota/Morak	100	13	88	34	0.99	0.00	0.99
Mundra-Mohinderqarh(HVDC Bipole)	1802	2009	2304	0	47.11	0.00	47.11
400 KV Vindhychal - Rihand	493	491	513	0	12.00	0.00	12.00
765 kV Phagi-Gwalior (D/C)	1171	960	650	0	24.46	0.00	24.46
Sub Total WR	6027	5112			134.94	7.96	126.98
Pusauli Bypass/HVDC	400	400	400	0	8.90	0.00	8.90
400 KV MZP- GKP (D/C)	224	420	688	0	11.75	0.00	11.75
400 KV Patna-Balia(D/C) X 2	134	218	238	0	4.64	0.00	4.64
400 KV B'Sharif-Balia (D/C)	24	89	303	0	4.01	0.00	4.01
765 KV Pusauli-Balia	72	61	228	0	1.35	0.00	1.35
765 KV Gaya-Fatehpur	189	120	369	0	5.45	0.00	5.45
220 KV Pusauli-Sahupuri	154	147	190	0	3.50	0.00	3.50
132 KV K'nasa-Sahupuri	0	0	0	0	0.00	0.00	0.00
132 KV Son Ngr-Rihand	-34	-38	0	48	0.00	0.84	-0.84
132 KV Garhwa-Rihand	0	0	0	0	0.00	0.00	0.00
765 KV Sasaram - Fatehpur	-10	-8	204	73	1.81	0.00	1.81
400 KV Barh -GKP (D/C)	216	202	276	0	5.23	0.00	5.23
Sub Total ER	1369	1611			46.64	0.84	45.80
Total IR Exch	7396	6723			181.58	8.80	172.78

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
26.86	4.03	30.89	21.56	12.17	7.00	-0.12	2.29	-2.29
Total IR Schedule (MU)			Total IR Actual (MU)			Net IR UI (MU)		
Through ER	Through WR Incids Mndra	Total	Through ER	Through WR	Total	Through ER	Through WR	Total
61.74	100.24	161.98	45.80	126.98	172.78	-15.94	26.74	10.80

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	-20	-23	0	29	0	1	-0.51

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	2.12	31.35	79.69	63.06	4.98	0.63	0.00	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	49.94	0.09	0.07	50.20	49.91
50.13	13.02	49.72	9.41					

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	02:04	397	15:50	0.0	0.0	0.0	0.0
Gorakhpur	400	416	06:53	397	13:51	0.0	0.0	0.0	0.0
Bareilly	400	408	21:49	398	23:27	0.0	0.0	0.0	0.0
Kanpur	400	415	04:02	395	14:33	0.0	0.0	0.0	0.0
Dadri	400	411	03:25	390	14:30	0.0	0.0	0.0	0.0
Ballabgarh	400	418	05:31	392	14:29	0.0	0.0	0.0	0.0
Bawana	400	415	05:24	394	14:27	0.0	0.0	0.0	0.0
Bassi	400	420	04:01	398	11:23	0.0	0.0	0.0	0.0
Hissar	400	411	06:00	391	14:27	0.0	0.0	0.0	0.0
Moga	400	410	03:55	392	14:30	0.0	0.0	0.0	0.0
Abdullapur	400	408	07:37	389	20:35	0.0	0.1	0.0	0.0
Nalagarh	400	416	03:56	398	14:29	0.0	0.0	0.0	0.0
Kishenpur	400	414	03:52	400	20:13	0.0	0.0	0.0	0.0
Wagoora	400	408	03:54	383	20:14	0.0	9.4	0.0	0.0
Amritsar	400	410	03:43	392	14:27	0.0	0.0	0.0	0.0
Kashipur	400	416	00:48	408	11:52	0.0	0.0	0.0	0.0
Hamirpur	400	0	00:00	9999	00:00	0.0	0.0	0.0	0.0
Rishikesh	400	405	02:51	383	11:54	0.0	35.4	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	770	04:04	732	13:50	0.0	13.0	0.0	0.0
Balia	765	767	07:01	735	13:48	0.0	9.3	0.0	0.0
Moga	765	785	04:02	749	14:33	0.0	0.0	0.0	0.0
Agra	765	788	04:04	747	14:29	0.0	0.0	0.0	0.0
Bhiwani	765	793	06:01	755	14:26	0.0	0.0	0.0	0.0
Unnao	765	763	04:01	729	13:50	0.0	28.5	0.0	0.0
Lucknow	765	773	05:19	737	13:50	0.0	4.4	0.0	0.0
Meerut	765	798	04:03	755	14:27	0.0	0.0	0.0	0.0
Jhatikara	765	785	00:00	785	00:00	0.0	0.0	0.0	0.0
Bareilly	765	0	00:00	9999	00:00	0.0	0.0	0.0	0.0
Anta	765	785	04:05	764	11:15	0.0	0.0	0.0	0.0
Phagi	765	786	03:27	738	11:16	0.0	0.1	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	510.24	1560.04	509.82	1545.02	916.11	657.09
Pong	426.72	384.05	422.65	1020.81	416.26	730.66	438.23	337.14
Tehri	829.79	740.04	815.55	913.26	812.45	851.28	432.54	296.00
Koteshwar	612.50	598.50	610.43	4.69	610.86	4.97	296.00	289.21
Chamera-I	760.00	748.75	756.05	0.00	0.00	0.00	288.75	352.96
Rihand	268.22	252.98	0.00	0.00	0.00	0.00	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	521.58	13.81	516.25	11.50	338.84	488.43

* 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	1584	225	0	1582	49	0	38.01	3.38	41.39
Delhi	468	159	0	631	41	0	13.25	5.68	18.93
Haryana	1635	238	0	1687	228	0	39.46	3.02	42.48
HP	-1119	-330	0	-918	-374	0	-23.08	-8.78	-31.86
J&K	-542	-405	0	-491	35	0	-12.28	-2.41	-14.69
CHD	0	0	0	0	0	0	0.24	0.15	0.39
Rajasthan	-498	767	2	-498	655	2	-11.94	17.04	5.10
UP	358	0	0	314	0	0	8.48	0.00	8.48
Uttarakhand	-188	-248	0	-147	22	0	-3.68	-1.44	-5.12
Total	1699	407	2	2160	656	2	48.45	16.65	65.10

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

State	Bilateral (MW)		IEX (MW)		PXIL (MW)	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Punjab	1584	1582	231	49	0	0
Delhi	1051	184	523	-6	0	0
Haryana	1687	1635	248	-244	0	0
HP	-851	-1172	-330	-393	0	0
J&K	-491	-542	35	-405	0	0
CHD	29	0	34	0	0	0
Rajasthan	-498	-498	885	476	2	2
UP	415	277	0	0	0	0
Uttarakhand	-136	-188	45	-248	0	0

XI. System Constraints:

XII. Grid Disturbance / Any Other Significant Event:

XIII. Weather Conditions For 25.08.2015 :
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 :