

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 21.08.2015
Date of Reporting : 22.08.2015

I. Regional Availability/Demand:

Demand Met	Evening Peak (20:00 Hrs) MW			Freq* (Hz)	Off Peak (03:00 Hrs) MW			Demand Met	Day Energy (Net MU)	
	Shortage	Requirement			Shortage	Requirement	Freq* (Hz)		Shortage	Requirement
43903	2756	46659		49.99	41712	1926	43638	50.07	1033.2	47.56

* 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	47.41	25.35		72.75	125.56	125.04	-0.52	197.79	0.00
Haryana	24.68	0.36		25.04	134.98	134.03	-0.95	159.07	0.14
Rajasthan	88.44	4.99	29.54	122.97	63.36	63.53	0.17	186.49	0.00
Delhi	11.09			11.09	91.84	91.05	-0.80	102.13	0.07
UP	122.79	12.17		134.96	147.03	150.54	3.51	285.50	39.24
Uttarakhand		22.46		22.46	13.42	14.35	0.93	36.80	0.18
HP		23.55		23.55	0.56	2.85	2.29	26.40	0.00
J & K		14.86	0.00	14.86	18.93	18.52	-0.41	33.38	7.94
Chandigarh				0.00	6.22	5.61	0.27	5.61	0.00
Total	294.40	103.75	29.54	427.68	601.90	605.50	4.49	1033.18	47.56

* 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	8065	0	-217	1776	7957	0	-6	1957	9086
Haryana	7526	556	-105	1843	6668	0	-170	1881	7641
Rajasthan	7695	0	21	76	7827	0	-17	220	8533
Delhi	4501	8	-3	748	4119	0	63	668	4928
UP	11353	1610	-344	631	12055	1740	-1	1063	12863
Uttarakhand	1593	155	79	-107	1052	0	57	-397	1663
HP	1190	0	122	-1344	789	0	-23	-1597	2061
J&K	1705	426	176	-456	1057	186	-28	-871	1714
Chandigarh	275	0	-12	0	188	0	-34	-15	292
Total	43903	2756	-284	3166	41712	1926	-159	2908	45157

* 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	1702	2002	1506	41.51	1730	40.24	1.27	
	Rihand I STPS (2*500)	1000	893	893	777	18.89	787	18.93	-0.04	
	Rihand II STPS (2*500)	1000	943	927	778	20.22	842	20.15	0.07	
	Rihand III STPS (2*500)	1000	480	507	405	9.60	400	9.49	0.11	
	Dadri I STPS (4*210)	840	600	401	355	7.50	312	7.79	-0.30	
	Dadri II STPS (2*490)	980	970	788	714	16.31	679	16.88	-0.57	
	Unchahar I TPS (2*210)	420	400	379	305	6.98	291	7.60	-0.61	
	Unchahar II TPS (2*210)	420	400	383	257	6.62	276	7.17	-0.55	
	Unchahar III TPS (1*220)	210	200	138	131	3.16	132	3.58	-0.41	
	ISTPP (Jhajhar) (3*500)	1500	1436	983	629	16.05	669	16.52	-0.47	
	Dadri GPS (4*130.19+2*154.51)	830	600	377	182	7.21	301	7.73	-0.52	
	Anta GPS (3*88.71+1*153.2)	419	396	-1	-1	0.00	0	0.00	0.00	
	Auraiya GPS (4*111.19+2*109.30)	663	638	156	309	4.74	198	4.88	-0.14	
	Dadri Solar	5	1	0	0	0.02	1	0.02	0.00	
	Unchahar Solar	10	3	0	0	0.03	1	0.06	-0.03	
	Singrauli Solar	15	3	0	0	0.05	2	0.07	-0.02	
	KHEP	800	845	845	842	20.25	844	20.28	-0.03	
	Sub Total (A)	12112	10510	8778	7189	179	7464	181	-2	
	B. NPC	NAPS (2*220)	440	370	413	415	8.97	374	8.88	0.09
		RAPS- B (2*220)	440	211	212	211	4.36	182	5.06	-0.70
RAPS- C (2*220)		440	303	356	222	5.31	221	5.40	-0.09	
Sub Total (B)		1320	884	981	848	18.63	776	19.34	-0.71	
C. NHPC	Chamera I HPS (3*180)	540	527	546	542	12.81	534	12.64	0.17	
	Chamera II HPS (3*100)	300	300	302	303	7.22	301	7.20	0.02	
	Chamera III HPS (3*77)	231	229	237	234	5.63	235	5.50	0.13	
	Bairasuil HPS (3*60)	180	165	183	61	2.90	121	2.75	0.14	
	Salal-HPS (6*115)	690	648	672	672	16.20	675	15.55	0.65	
	Tanakpur-HPS (3*40)	94	90	89	96	2.25	94	2.16	0.09	
	Uri-I HPS (4*120)	480	414	467	429	10.46	436	9.91	0.55	
	Uri-II HPS (4*60)	240	230	236	234	5.61	234	5.52	0.09	
	Dhauliganga-HPS (4*70)	280	235	214	286	5.76	240	5.65	0.11	
	Dulhasti-HPS (3*130)	390	386	401	397	9.34	389	9.26	0.07	
	Sewa-II HPS (3*40)	120	79	85	0	1.51	63	1.40	0.11	
	Parbati 3 (4*130)	520	260	262	265	4.49	187	4.42	0.07	
	Sub Total (C)	4065	3563	3695	3518	84	3507	82	2	
	D. SJVNL	NJPC (6*250)	1500	1605	1589	1605	38.33	1597	38.52	-0.19
Rampur HEP (6*68.67)		412	428	428	432	10.35	431	10.27	0.08	
Sub Total (D)		1912	2033	2017	2037	48.68	2028	48.79	-0.11	
E. THDC	Tehri HPS (4*250)	1000	1050	1058	1009	25.13	1047	25.00	0.13	
	Koteshwar HPS (4*100)	400	358	398	305	8.60	358	8.60	0.00	
	Sub Total (E)	1400	1408	1456	1314	33.73	1405	33.60	0.13	
F. BBMB	Bhakra HPS (2*108+3*126+5*157)	1379	1307	1462	1457	31.52	1313	31.36	0.16	
	Dehar HPS (6*165)	990	580	825	560	13.94	581	13.92	0.02	
	Pong HPS (6*66)	396	380	384	384	9.11	379	9.12	-0.01	
	Sub Total (F)	2765	2267	2671	2401	54.57	2274	54.40	0.17	
G. IPP(s)/JV(s)	ALLAIN DUHANGAN HPS(IPP) (2*96)	192	0	163	141	3.66	152	3.65	0.00	
	KARCHAM WANGTOO HPS(IPP) (4*250)	1000	0	1200	1200	28.67	1195	28.51	0.16	
	Malana Stg-II HPS (2*50)	100	0	102	111	2.49	104	2.36	0.13	
	Shree Cement TPS (2*150)	300	0	295	270	6.77	282	6.71	0.06	
	Budhil HPS(IPP) (2*35)	70	0	76	76	1.80	75	1.80	0.01	
Sub Total (G)	1662	0	1836	1798	43.39	1808	43.03	0.35		
H. Total Regional Entities (A-G)	25237	20664	21434	19106	462.31	19263	462.53	-0.22		

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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	480	510	10.96	457	
	Guru Nanak Dev TPS(Bhatinda) (2*110+2*120)	460	80	80	1.69	70	
	Guru Hargobind Singh TPS(L.mbt) (2*210+2*250)	920	385	388	8.76	365	
	Goindwal(GVK)		0	0	0.00	0	
	Rajpura (2*700)	1400	702	706	18.65	777	
	Talwandi Saboo (1*660)	660	333	329	7.34	306	
	Thermal (Total)	4700	1980	2013	47.41	1975	
	Total Hydro	1000	955	1076	25.35	1056	
	Total Punjab	5700	2935	3089	72.75	3031	
	Haryana	Panipat TPS (4*110+2*210+2*250)	1367	391	0	4.58	191
DCRTPP (Yamuna nagar) (2*300)		600	548	453	11.74	489	
Faridabad GPS (NTPC)		432	367	319	8.37	349	
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	1306	772	24.68	1028	
Total Hydro		62	19	21	0.36	15	
Total Haryana		5006	1325	793	25.04	1044	
Rajasthan		kota TPS (2*110+2*195+3*210)	1240	712	696	16.69	696
		suratgarh TPS (6*250)	1500	602	565	14.35	598
		Chabra TPS (4*250)	1000	113	336	5.09	212
		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	150	21	3.23	135
	RAPS A (NPC) (1*100+1*200)	300	158	158	3.91	163	
	Barsingsar (NLC) (2*125)	250	91	91	2.07	86	
	Giral LTPS (2*125)	250	87	45	1.32	55	
	Rajwest LTPS (IPP) (8*135)	1080	656	808	17.90	746	
	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	1014	864	23.87	995	
	Thermal (Total)	8876	3583	3584	88	3685	
	Total Hydro	550	253	218	4.99	208	
	Wind power	3214	876	1252	26.66	1111	
	Biomass	99	26	26	0.63	26	
	Solar	730	0	0	2.25	94	
	Renewable/Others (Total)	4043	902	1278	29.54	1231	
	Total Rajasthan	13469	4738	5080	122.97	5124	
	UP	Anpara TPS (3*210+2*500)	1630	1315	1330	31.89	1329
Obra TPS (2*50+2*94+5*200)		1194	403	426	9.85	411	
Panicha TPS (2*110+2*220+2*250)		1140	745	551	14.97	624	
Panki TPS (2*105)		210	68	72	1.69	70	
Harduaganj TPS (1*60+1*105+2*250)		665	461	483	11.19	466	
Tanda TPS (NTPC) (4*110)		440	265	269	6.50	271	
Roza TPS (IPP) (4*300)		1200	1081	1076	25.20	1050	
Anpara-C (IPP) (2*600)		1200	554	540	13.07	545	
Bajaj Energy Pvt.Ltd(IPP) TPS (10*45)		450	236	322	7.23	301	
Anpara-D(1*500)		500	0	0	0.00	0	
Lalitpur TPS(1*660)		660	0	0	0.00	0	
Thermal (Total)		9289	5128	5069	122	5066	
Vishnuparyag HPS (IPP)(4*110)		440	0	0	0.00	0	
Alakananda(4*82.5)		330	331	330	7.92	330	
Other Hydro		527	283	224	4.25	177	
Cogeneration		981	50	50	1.20	50	
Total UP	11567	5792	5673	135	5623		
Uttarakhand	Total Hydro	1398	951	869	22.46	936	
	Total Uttarakhand	1398	951	869	22.46	936	
Delhi	Rajghat TPS (2*67.5)	135	0	0	0.00	0	
	Delhi Gas Turbine (6x30 + 3x34)	282	33	34	0.79	33	
	Pragati Gas Turbine (2x104+ 1x122)	330	143	147	3.51	146	
	Riithala GPS (3*36)	95	0	0	0.00	0	
	Bawana GPS (4*216+2*253)	1370	0	0	0.00	0	
	Badarpur TPS (NTPC) (3*95+2*210)	705	317	324	6.79	283	
	Thermal (Total)	2917	493	504	11.09	462	
	Total Delhi	2917	493	504	11.09	462	
HP	Baspa HPS (IPP) (3*100)	300	334	304	7.59	316	
	Malana HPS (IPP) (2*43)	86	77	77	2.36	98	
	Other Hydro	878	556	587	13.60	567	
	Total HP	1264	967	968	23.55	981	
J & K	Baglihar HPS (IPP) (3*150)	450	440	440	10.56	440	
	Other Hydro/IPP	560	187	185	4.30	179	
	Gas/Diesel/Others	190	0	0	0.00	0	
	Total J & K	1200	627	625	14.86	619	
Total State Control Area Generation		42521	17828	17601	427.68	17820	
J. Net Inter Regional Exchange [Import (+ve)/Export (-ve)]			7028	7120	163.10	6796	
Total Regional Availability(Gross)		67758	46290	43827	1053.09	43879	

IV. Total Hydro Generation:

Regional Entities Hydro	12234	12149	11565	276.22	11509
State Control Area Hydro	6581	4386	4331	104	4323
Total Regional Hydro	18815	16535	15896	379.96	15832

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)	50	250	250	100	2.04	1.24	0.80
765 KV Gwalior-Agra (D/C)	2156	1558	2156	0	40.03	0.00	40.03
400 KV Zerda-Kankroli	-110	-140	0	296	0.00	4.32	-4.32
400 KV Zerda-Bhimmal	-134	-176	0	329	0.00	4.70	-4.70
220 KV Auraiya-Malanpur	30	73	0	127	0.00	1.11	-1.11
220 KV Badod-Kota/Morak	53	14	70	54	0.50	0.00	0.50
Mundra-Mohinderqarh(HVDC Bipole)	2199	2500	2510	0	57.06	0.00	57.06
400 KV Vindhychal - Rihand	493	463	501	0	10.35	0.00	10.35
765 kV Phagi-Gwalior (D/C)	990	740	990	0	18.95	0.00	18.95
Sub Total WR	5727	5282			128.93	11.38	117.54
Pusauli Bypass/HVDC	400	400	400	0	9.11	0.00	9.11
400 KV MZP- GKP (D/C)	266	548	630	0	12.25	0.00	12.25
400 KV Patna-Balia(D/C) X 2	222	197	379	0	6.25	0.00	6.25
400 KV B'Sharif-Balia (D/C)	12	175	251	0	3.62	0.00	3.62
765 KV Pusauli-Balia	35	86	123	0	0.71	0.00	0.71
765 KV Gaya-Fatehpur	144	130	275	0	4.88	0.00	4.88
220 KV Pusauli-Sahupuri	162	175	205	0	3.74	0.00	3.74
132 KV K'nasa-Sahupuri	0	0	0	0	0.48	0.00	0.48
132 KV Son Ngr-Rihand	-30	-40	0	42	0.00	0.72	-0.72
132 KV Garhwa-Rihand	0	0	0	0	0.00	0.00	0.00
765 KV Sasaram - Fatehpur	-37	12	155	64	1.67	0.00	1.67
400 KV Barh -GKP (D/C)	127	175	250	0	3.58	0.00	3.58
Sub Total ER	1301	1838			46.28	0.72	45.56
Total IR Exch	7028	7120			175.21	12.10	163.10

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
22.35	3.91	26.26	25.19	8.86	13.92	-0.20	2.09	-2.09
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
67.45	92.69	160.14	45.56	117.54	163.10	-21.88	24.85	2.97

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	-35	0	0	40	0	0	-0.38

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	0.49	10.10	55.86	74.62	10.94	4.25	0.15	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				
50.22	18.02	49.75	6.23	49.99	0.05	0.07	50.24	44.05

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	405	18:16	398	00:07	0.0	0.0	0.0	0.0
Gorakhpur	400	414	06:01	396	11:28	0.0	0.0	0.0	0.0
Bareilly	400	407	17:34	401	00:00	30.0	30.0	0.0	0.0
Kanpur	400	416	18:01	400	11:27	0.0	0.0	0.0	0.0
Dadri	400	412	05:59	394	14:22	0.0	0.2	0.0	0.0
Ballabgarh	400	420	06:01	398	14:27	0.0	0.0	0.0	0.0
Bawana	400	417	06:01	396	14:27	0.0	0.0	0.0	0.0
Bassi	400	422	04:03	401	14:28	0.0	0.0	2.3	0.0
Hissar	400	414	06:02	390	14:28	0.0	0.0	0.0	0.0
Moga	400	410	06:02	394	14:24	0.0	0.0	0.0	0.0
Abdullapur	400	412	06:02	393	10:12	0.0	0.0	0.0	0.0
Nalagarh	400	415	05:59	400	14:22	0.0	0.0	0.0	0.0
Kishenpur	400	413	08:00	404	11:24	0.0	0.0	0.0	0.0
Wagoora	400	407	03:00	389	20:11	0.0	0.0	0.0	0.0
Amritsar	400	410	06:06	393	00:01	0.0	0.0	0.0	0.0
Kashipur	400	413	23:37	404	14:23	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	401	23:45	377	14:27	2.5	49.4	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	780	17:57	743	11:28	0.0	0.0	0.0	0.0
Balia	765	770	18:03	739	22:43	0.0	1.0	0.0	0.0
Moga	765	786	06:01	752	14:28	0.0	0.0	0.0	0.0
Agra	765	796	18:02	760	11:29	0.0	0.0	0.0	0.0
Bhiwani	765	795	06:00	760	11:34	0.0	0.0	0.0	0.0
Unnao	765	754	06:02	412	17:59	38.0	55.9	0.0	0.0
Lucknow	765	770	18:05	739	22:18	0.0	2.2	0.0	0.0
Meerut	765	801	06:02	0	17:40	0.2	0.2	0.0	0.0
Jhatikara	765	785	17:58	785	17:58	0.0	0.0	0.0	0.0
Bareilly	765	770	18:17	736	14:24	0.0	4.9	0.0	0.0
Anta	765	785	18:00	767	00:00	0.0	0.0	0.0	0.0
Phagi	765	790	04:04	758	09:58	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	509.58	1530.03	509.76	1530.03	1435.72	1033.45
Pong	426.72	384.05	422.43	1005.78	415.99	718.14	1656.28	519.05
Tehri	829.79	740.04	814.95	902.26	811.90	842.28	602.97	578.00
Koteshwar	612.50	598.50	610.11	4.62	610.99	5.00	578.00	567.02
Chamera-I	760.00	748.75	757.50	0.00	0.00	0.00	368.14	347.03
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	522.61	13.93	517.70	11.55	359.62	549.54

* 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	1604	353	0	1586	190	0	38.25	7.44	45.69
Delhi	418	250	0	470	278	0	10.11	9.14	19.25
Haryana	1606	275	0	1594	249	0	38.07	2.25	40.31
HP	-1119	-478	0	-918	-426	0	-23.08	-11.64	-34.72
J&K	-795	-76	0	-491	35	0	-14.51	-0.79	-15.30
CHD	0	-15	0	0	0	0	0.24	0.00	0.23
Rajasthan	-510	728	2	-720	794	2	-15.44	17.68	2.24
UP	1063	0	0	631	0	0	18.59	1.30	19.90
Uttarakhand	-188	-209	0	-147	40	0	-3.68	-1.14	-4.82
Total	2078	829	2	2005	1159	2	48.54	24.24	72.78

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

State	Bilateral (MW)		IEX (MW)		PXIL (MW)	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Punjab	1604	1586	353	190	0	0
Delhi	787	184	749	47	0	0
Haryana	1657	1561	284	-396	0	0
HP	-851	-1172	-388	-576	0	0
J&K	-491	-795	35	-152	0	0
CHD	29	0	29	-15	0	0
Rajasthan	-510	-753	940	655	2	2
UP	1063	586	489	0	0	0
Uttarakhand	-136	-188	59	-221	0	0

XI. System Constraints:

XII. Grid Disturbance / Any Other Significant Event:

XIII. Weather Conditions For 21.08.2015 :
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 :