

# पॉवर सिस्टम ऑपरेशन कार्पोरेशन लिमिटेड

(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)

## उत्तरी क्षेत्रीय भार प्रेषण केंद्र

CIN: U40105DL2009GOI188682

Power Supply Position in Northern Region for 23.11.2016

Date of Reporting : 24.11.2016



### 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
38943	1106	40049	50.05	27766	493	28259	50.06	804.64	15.72

\* 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	35.53	7.50	0.34	43.37	47.74	50.26	2.52	93.63	0.00
Haryana	22.81	0.47	0.00	23.28	84.44	83.95	-0.48	107.23	0.00
Rajasthan	103.42	4.15	4.97	112.54	78.38	81.35	2.97	193.89	14.42
Delhi	14.27		0.00	14.27	41.54	41.84	0.30	56.11	0.01
UP	162.23	7.26	0.00	169.49	84.91	86.47	1.56	255.96	1.25
Uttarakhand		7.20	0.00	13.53	17.10	18.41	1.31	31.94	0.00
HP		3.75	1.72	5.47	18.86	19.59	0.73	25.06	0.04
J & K		5.61	0.00	5.61	33.92	31.88	-2.04	37.49	0.00
Chandigarh				0.00	3.17	3.34	0.17	3.34	0.00
<b>Total</b>	<b>338.27</b>	<b>35.93</b>	<b>7.02</b>	<b>387.55</b>	<b>410.06</b>	<b>417.09</b>	<b>7.03</b>	<b>804.64</b>	<b>15.72</b>

\* Shortage furnished by the respective constituent's 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				Maximum Demand Met (MW) and Time(Hrs)	Shortage (MW)	
	Demand Met	Shortage	UI	STOA/PX transaction	Demand Met	Shortage	UI	STOA/PX transaction			
Punjab	4841	0	-35	-456	2913	0	120	-455	4841	19:00	0
Haryana	5811	0	-48	32	3044	0	-46	-228	5811	19:00	0
Rajasthan	8702	651	266	527	6983	137	271	525	9591	8:00	1422
Delhi	2953	0	27	-305	1464	0	-2	-455	3035	11:00	0
UP	11741	10	-268	-149	10009	0	-103	124	11967	7:00	125
Uttarakhand	1702	0	11	226	1078	0	64	199	1708	8:00	0
HP	1239	0	-44	80	761	0	27	395	1380	8:00	0
J&K	1779	445	-129	322	1424	356	-185	352	1779	19:00	445
Chandigarh	174	0	-12	-30	89	0	12	-30	182	9:00	0
<b>Total</b>	<b>38943</b>	<b>1106</b>	<b>-231</b>	<b>247</b>	<b>27766</b>	<b>493</b>	<b>158</b>	<b>428</b>	<b>38943</b>	<b>1</b>	<b>1106</b>

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

### III. Regional Entities :

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	Net MU
<b>A. NTPC</b>									
Singrauli STPS (5*200+2*500)	2000	1481	1785	1361	35.88	1495	35.21	0.67	
Rihand I STPS (2*500)	1000	944	998	919	22.12	921	21.75	0.36	
Rihand II STPS (2*500)	1000	948	1016	791	21.89	912	21.42	0.46	
Rihand III STPS (2*500)	1000	950	984	800	21.75	906	21.63	0.13	
Dadri I STPS (4*210)	840	815	191	170	4.33	180	4.55	-0.22	
Dadri II STPS (2*490)	980	490	475	335	9.38	391	10.00	-0.62	
Unchahar I TPS (2*210)	420	360	374	259	7.40	308	7.85	-0.45	
Unchahar II TPS (2*210)	420	404	387	292	8.07	336	8.56	-0.49	
Unchahar III TPS (1*210)	210	202	177	136	3.87	161	4.18	-0.31	
ISTPP (Jhajjar) (3*500)	1500	1028	483	320	10.80	450	11.04	-0.24	
Dadri GPS (4*130.19+2*154.51)	830	785	303	315	7.28	303	7.84	-0.56	
Anta GPS (3*88.71+1*153.2)	419	409	0	0	0.00	0	0.00	0.00	
Auraiya GPS (4*111.19+2*109.30)	663	624	0	0	0.00	0	0.00	0.00	
Dadri Solar(5)	5	1	0	0	0.02	1	0.02	0.00	
Unchahar Solar(10)	10	2	0	0	0.05	2	0.04	0.00	
Singrauli Solar(15)	15	2	0	0	0.01	0	0.05	-0.04	
KHEP(4*200)	800	865	539	0	2.95	123	2.60	0.35	
<b>Sub Total (A)</b>	<b>12112</b>	<b>10310</b>	<b>7712</b>	<b>5698</b>	<b>156</b>	<b>6491</b>	<b>157</b>	<b>-0.96</b>	
<b>B. NPC</b>									
NAPS (2*220)	440	405	441	447	9.68	403	9.72	-0.04	
RAPS- B (2*220)	440	382	423	426	9.12	380	9.17	-0.04	
RAPS- C (2*220)	440	220	235	236	5.03	209	5.28	-0.25	
<b>Sub Total (B)</b>	<b>1320</b>	<b>1007</b>	<b>1099</b>	<b>1109</b>	<b>23.83</b>	<b>993</b>	<b>24.17</b>	<b>-0.34</b>	
<b>C. NHPC</b>									
Chamera I HPS (3*180)	540	540	180	0	2.03	85	1.80	0.23	
Chamera II HPS (3*100)	300	201	208	0	1.60	67	1.45	0.15	
Chamera III HPS (3*77)	231	231	145	0	0.79	33	0.70	0.09	
Bairasuli HPS(3*60)	180	120	124	0	0.56	23	0.52	0.04	
Salal-HPS (6*115)	690	118	302	122	3.40	142	2.83	0.57	
Tanakpur-HPS (3*31.4)	94	26	33	30	0.80	33	0.62	0.18	
Uri-I HPS (4*120)	480	77	233	24	2.07	86	1.86	0.22	
Uri-II HPS (4*60)	240	58	60	40	1.48	62	1.40	0.08	
Dhauliganga-HPS (4*70)	280	210	212	0	1.24	52	1.16	0.09	
Dulhasti-HPS (3*130)	390	379	378	0	3.93	164	3.70	0.23	
Sewa-II HPS (3*40)	120	80	78	0	0.22	9	0.25	-0.03	
Parbati 3 (4*130)	520	200	121	0	0.61	25	0.57	0.04	
<b>Sub Total (C)</b>	<b>4065</b>	<b>2239</b>	<b>2072</b>	<b>216</b>	<b>19</b>	<b>780</b>	<b>17</b>	<b>1.88</b>	
<b>D.SJVNL</b>									
NJPC (6*250)	1500	1605	1592	0	9.18	383	8.99	0.20	
Rampur HEP (6*68.67)	412	442	446	0	2.61	109	2.49	0.12	
<b>Sub Total (D)</b>	<b>1912</b>	<b>2047</b>	<b>2038</b>	<b>0</b>	<b>11.79</b>	<b>491</b>	<b>11.48</b>	<b>0.32</b>	
<b>E. THDC</b>									
Tehri HPS (4*250)	1000	1075	934	0	6.65	277	6.50	0.15	
Koteshwar HPS (4*100)	400	96	181	90	2.36	98	2.31	0.05	
<b>Sub Total (E)</b>	<b>1400</b>	<b>1171</b>	<b>1115</b>	<b>90</b>	<b>9.01</b>	<b>375</b>	<b>8.81</b>	<b>0.20</b>	
<b>F. BBMB</b>									
Bhakra HPS (2*108+3*126+5*157)	1379	533	1018	391	12.94	539	12.79	0.15	
Dehar HPS (6*165)	990	159	495	145	3.88	162	3.82	0.07	
Pong HPS (6*66)	396	144	264	66	3.45	144	3.46	-0.01	
<b>Sub Total (F)</b>	<b>2765</b>	<b>836</b>	<b>1777</b>	<b>602</b>	<b>20.27</b>	<b>845</b>	<b>20.07</b>	<b>0.21</b>	
<b>G. IPP(s)/JV(s)</b>									
ALLAIN DUHANGAN HPS(IPP) (2*96)	192	0	64	0	0.53	22	0.52	0.01	
KARCHAM WANGTOO HPS(IPP) (4*250)	1000	0	750	0	4.86	202	4.62	0.23	
Malana Stg-II HPS (2*50)	100	0	0	0	0.29	12	0.27	0.02	
Shree Cement TPS (2*150)	300	0	0	0	0.00	0	0.00	0.00	
Budhil HPS(IPP) (2*35)	70	0	0	0	0.22	9	0.23	0.00	
<b>Sub Total (G)</b>	<b>1662</b>	<b>0</b>	<b>814</b>	<b>0</b>	<b>5.89</b>	<b>245</b>	<b>5.64</b>	<b>0.25</b>	
<b>H. Total Regional Entities (A-G)</b>	<b>25237</b>	<b>17611</b>	<b>16627</b>	<b>7715</b>	<b>245.31</b>	<b>10221</b>	<b>243.75</b>	<b>1.56</b>	

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	0	0	-0.12	-5	
	Guru Nanak Dev TPS(Bhatinda) (2*110+2*120)	460	0	0	-0.03	-1	
	Guru Hargobind Singh TPS(L.mbt) (2*210+2*250)	920	0	0	-0.06	-3	
	Goindwal(GVK) (2*270)	540	0	0	-0.03	-1	
	Rajpura (2*700)	1400	660	330	14.31	596	
	Talwandi Saboo (3*660)	1980	906	616	21.46	894	
	<b>Thermal (Total)</b>	<b>6560</b>	<b>1566</b>	<b>946</b>	<b>35.53</b>	<b>1481</b>	
	Total Hydro	1000	341	316	7.50	312	
	Wind Power	0	0	0	0.00	0	
	Biomass	288	12	12	0.28	12	
	Solar	560	2	2	0.05	2	
	<b>Renewable(Total)</b>	<b>848</b>	<b>14</b>	<b>14</b>	<b>0.34</b>	<b>14</b>	
	<b>Total Punjab</b>	<b>8408</b>	<b>1921</b>	<b>1276</b>	<b>43.37</b>	<b>1807</b>	
	Haryana	Panipat TPS (2*210+2*250)	920	0	0	0.00	0
		DCRTPP (Yamuna nagar) (2*300)	600	557	463	11.73	489
Faridabad GPS (NTPC)(2*137.75+1*156)		432	0	0	0.00	0	
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	588	366	11.08	462	
<b>Thermal (Total)</b>		<b>4497</b>	<b>1145</b>	<b>829</b>	<b>22.81</b>	<b>951</b>	
Total Hydro		62	15	24	0.47	19	
Wind Power		0	0	0	0.00	0	
Biomass		40	0	0	0.00	0	
Solar		0	0	0	0.00	0	
<b>Renewable(Total)</b>		<b>40</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	
<b>Total Haryana</b>		<b>4599</b>	<b>1160</b>	<b>853</b>	<b>23.28</b>	<b>970</b>	
Rajasthan		kota TPS (2*110+2*195+3*210)	1240	1148	1142	27.43	1143
		suratgarh TPS (6*250)	1500	445	438	10.66	444
	Chabra TPS (4*250)	1000	909	912	22.27	928	
	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	154	156	3.93	164	
	RAPS A (NPC) (1*100+1*200)	300	0	0	0.00	0	
	Barsingar (NLC) (2*125)	250	112	112	2.58	108	
	Giral LTPS (2*125)	250	0	0	0.00	0	
	Rajwest LTPS (IPP) (8*135)	1080	837	836	19.86	828	
	VS LIGNITE LTPS (IPP) (1*135)	135	0	0	0.00	0	
	Kalisindh Thermal(2*600)	1200	298	85	6.96	290	
	Kawai(Adani) (2*660)	1320	414	409	9.73	405	
	<b>Thermal (Total)</b>	<b>8876</b>	<b>4317</b>	<b>4090</b>	<b>103.42</b>	<b>4309</b>	
	Total Hydro	550	197	169	4.15	173	
	Wind power	4017	76	92	2.05	85	
	Biomass	99	13	13	0.32	13	
	Solar	1295	2	0	2.60	108	
	Renewable/Others (Total)	5411	91	105	4.97	207	
<b>Total Rajasthan</b>	<b>14837</b>	<b>4605</b>	<b>4364</b>	<b>112.54</b>	<b>4689</b>		
UP	Anpara TPS (3*210+2*500)	1630	730	1179	24.00	1000	
	Obra TPS (2*50+2*94+5*200)	1194	302	305	7.10	296	
	Paricha TPS (2*110+2*220+2*250)	1160	726	576	16.57	690	
	Panki TPS (2*105)	210	0	0	0.06	3	
	Harduaganj TPS (1*60+1*105+2*250)	665	427	311	9.24	385	
	Tanda TPS (NTPC) (4*110)	440	293	204	6.47	270	
	Roza TPS (IPP) (4*300)	1200	824	560	18.25	760	
	Anpara-C (IPP) (2*600)	1200	1080	981	24.27	1011	
	Bajaj Energy Pvt.Ltd(IPP) TPS (10*45)	450	304	282	7.65	319	
	Anpara-D(2*500)	1000	448	453	10.90	454	
	Lalitpur TPS(3*660)	1980	362	356	9.79	408	
	Bara(2*660)	1320	450	539	11.13	464	
	<b>Thermal (Total)</b>	<b>12449</b>	<b>5946</b>	<b>5746</b>	<b>145.43</b>	<b>6060</b>	
	Vishnuparyag HPS (IPP)(4*110)	440	107	102	2.51	105	
	Alaknada(4*82.5)	330	75	75	1.56	65	
	Other Hydro	527	192	102	3.19	133	
	Cogeneration	981	700	700	16.80	700	
	Wind Power	0	0	0	0.00	0	
	Biomass	26	0	0	0.00	0	
	Solar	102	0	0	0.00	0	
	<b>Renewable(Total)</b>	<b>128</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	
<b>Total UP</b>	<b>14855</b>	<b>7020</b>	<b>6725</b>	<b>169.49</b>	<b>7062</b>		
Uttarakhand	Other Hydro	1250	583	191	7.20	300	
	Total Gas	225	184	295	6.28	261	
	Wind Power	0	0	0	0.00	0	
	Biomass	127	0	0	0.00	0	
	Solar	20	0	0	0.05	2	
	Small Hydro (< 25 MW)	180	0	0	0.00	0	
	<b>Renewable(Total)</b>	<b>327</b>	<b>0</b>	<b>0</b>	<b>0.05</b>	<b>2</b>	
	<b>Total Uttarakhand</b>	<b>1802</b>	<b>767</b>	<b>486</b>	<b>13.53</b>	<b>564</b>	
Delhi	Rajghat TPS (2*67.5)	135	0	0	-0.01	0	
	Delhi Gas Turbine (6x30 + 3x34)	282	77	77	1.92	80	
	Pragati Gas Turbine (2x104+ 1x122)	330	261	266	6.44	268	
	Rithala GPS (3*36)	95	0	0	0.00	0	
	Bawana GPS (4*216+2*253)	1370	250	280	6.01	251	
	Badarpur TPS (NTPC) (3*95+2*210)	705	-4	-4	-0.09	-4	
	<b>Thermal (Total)</b>	<b>2917</b>	<b>584</b>	<b>619</b>	<b>14.27</b>	<b>595</b>	
	Wind Power	0	0	0	0.00	0	
	Biomass	16	0	0	0.00	0	
	Solar	2	0	0	0.00	0	
<b>Renewable(Total)</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>		
<b>Total Delhi</b>	<b>2935</b>	<b>584</b>	<b>619</b>	<b>14.27</b>	<b>595</b>		

HP	Baspa HPS (IPP) (3*100)	300	25	0	1.33	55
	Malana HPS (IPP) (2*43)	86	44	0	0.34	14
	Other Hydro	372	111	36	2.09	87
	Wind Power	0	0	0	0.00	0
	Biomass	0	0	0	0.00	0
	Solar	0	0	0	0.00	0
	Small Hydro (< 25 MW)	486	79	67	1.72	72
	<b>Renewable(Total)</b>	<b>486</b>	<b>79</b>	<b>67</b>	<b>1.72</b>	<b>72</b>
	<b>Total HP</b>	<b>1244</b>	<b>259</b>	<b>103</b>	<b>5.47</b>	<b>228</b>
	J & K	Baglihar HPS (IPP) (3*150+3*150)	900	174	142	2.84
Other Hydro/IPP(including 98 MW Small Hydro)		308	137	148	2.77	115
Gas/Diesel/Others		190	0	0	0.00	0
Wind Power		0	0	0	0.00	0
Biomass		0	0	0	0.00	0
Solar		0	0	0	0.00	0
Small Hydro (< 25 MW)Included in Other Hydro Above		98	0	0	0.00	0
<b>Renewable(Total)</b>		<b>98</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>
<b>Total J &amp; K</b>		<b>1398</b>	<b>311</b>	<b>290</b>	<b>6</b>	<b>234</b>
<b>Total State Control Area Generation</b>		<b>50078</b>	<b>16627</b>	<b>14716</b>	<b>387.55</b>	<b>16148</b>
<b>J. Net Inter Regional Exchange [Import (+ve)/Export (-ve)]</b>		<b>6281</b>	<b>5600</b>	<b>203.02</b>	<b>8459</b>	
<b>Total Regional Availability(Gross)</b>	<b>75315</b>	<b>39535</b>	<b>28031</b>	<b>835.89</b>	<b>34829</b>	

IV. Total Hydro Generation:

Regional Entities Hydro	12234	8355	908	68.42	2851
State Control Area Hydro	7163	2264	1667	37.65	1832
<b>Total Regional Hydro</b>	<b>19397</b>	<b>10619</b>	<b>2575</b>	<b>106.07</b>	<b>4683</b>

V. Total Renewable Generation:

Regional Entities Renewable	30	0	0	0.07	3
State Control Area Renewable	7356	184	186	7.07	295
<b>Total Regional Renewable</b>	<b>7386</b>	<b>184</b>	<b>186</b>	<b>7.14</b>	<b>298</b>

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

Element	Peak(19:00 Hrs) MW	Off Peak(03:00 Hrs) MW	Maximum Interchange (MW)		Energy (MU)		Net Energy MU
			Import	Export	Import	Export	
Vindhyachal(HVDC B/B)	-50	-250	250	350	1.09	3.82	-2.72
765 KV Gwalior-Agra (D/C)	1768	1596	2511	0	51.17	0.00	51.17
400 KV Zerda-Kankroli	-69	-58	65	180	0.00	1.72	-1.72
400 KV Zerda-Bhinmal	0	25	194	61	0.73	0.00	0.73
220 KV Auraiya-Malanpur	-99	-112	0	113	0.00	2.02	-2.02
220 KV Badod-Kota/Morak	-50	-77	0	124	0.00	1.49	-1.49
Mundra-Mohindergarh(HVDC Bipole)	2198	1001	2208	0.00	43.81	0.00	43.81
400 KV RAPP- Sujalpur	360	270	420	0	7.92	0.00	7.92
400 KV Vindhyachal-Rihand	0	0	0	0	0.00	0.00	0.00
765 kV Phagi-Gwalior (D/C)	856	1650	1842	0	33.85	0.00	33.85
<b>Sub Total WR</b>	<b>4914</b>	<b>4045</b>			<b>138.57</b>	<b>9.04</b>	<b>129.53</b>
400 kV Sasaram - Varanasi	-158	-132	158	0	5.07	0.00	5.07
400 kV Sasaram - Allahabad	14	150	15	0	3.59	0.00	3.59
400 KV MZP- GKP (D/C)	-4	170	241	44	2.82	0.00	2.82
400 KV Patna-Balia(D/C) X 2	382	408	563	0	11.08	0.00	11.08
400 KV B'Sharif-Balia (D/C)	66	152	208	0	3.33	0.00	3.33
765 KV Gaya-Balia	264	258	336	0	7.46	0.00	7.46
765 KV Gaya-Varanasi (D/C)	-326	-553	732	0	13.38	0.00	13.38
220 KV Pusauli-Sahupuri	228	220	228	0	4.59	0.00	4.59
132 KV K'nasa-Sahupuri	-22	-24	0	28	0.00	0.50	-0.50
132 KV Son Ngr-Rihand	-40	-43	0	45	0.00	0.90	-0.90
132 KV Garhwa-Rihand	0	0	0	0	0.00	0.00	0.00
765 KV Sasaram - Fatehpur	-198	-113	37	203	0.00	2.15	-2.15
400 KV Barh -GKP (D/C)	364	380	462	0	9.35	0.00	9.35
400 kV B'Sharif - Varanasi (D/C)	97	-18	98	97	0.16	0.00	0.16
<b>Sub Total ER</b>	<b>667</b>	<b>855</b>			<b>60.83</b>	<b>3.56</b>	<b>57.28</b>
+/- 800 KV Biswanath Charialli-Agra	700	700	700	0.00	16.22	0.00	16.22
<b>Sub Total NER</b>	<b>700</b>	<b>700</b>			<b>16.22</b>	<b>0.00</b>	<b>16.22</b>
<b>Total IR Exch</b>	<b>6281</b>	<b>5600</b>			<b>215.62</b>	<b>12.60</b>	<b>203.02</b>

VI(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
50.58	1.29	51.87	1.03	-9.49	14.88	13.37	0.00	0.00

Total IR Schedule (MU)			Total IR Actual (MU)			Net IR UI (MU)		
Through ER	Through WR Inclds Mndra	Total	Through ER(including NER)	Through WR	Total	Through ER (including NER)	Through WR	Total
67.78	118.10	185.88	73.50	129.53	203.02	5.72	11.43	17.15

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

Element	Peak(19:00 Hrs) MW	Off Peak(03:00 Hrs) MW	Maximum Interchange (MW)		Energy (MU)		Net Energy MU
			Import	Export	Import	Export	
132 KV Tanakpur - Mahendarnagar	30	0	0	-32	0	0	0.07

VII. 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	0.52	14.20	58.37	67.86	13.44	5.13	0.00	0.00

<----- Frequency (Hz) ----->				Average Frequency Hz	Frequency Variation Index	Std. Dev.	Frequency in 15 Min Block		Freq Dev Index (% of Time)
Maximum		Minimum					MAX (Hz)	MIN (Hz)	
Freq	Time	Freq	Time						
50.18	18.01	49.76	15.37	49.98	0.056	0.073	0.00	0.00	32.14

## VIII(A). Voltage profile 400 kV

Station	Voltage Level (kV)	Maximum		Minimum		Voltage (in % of Time)				Voltage Deviat
		Voltage(KV)	Time	Voltage (KV)	Time	<380 kV	<390 kV	>420 kV	>430 kV	
Rihand	400	411	0:00	402	8:17	0.0	0.0	0.0	0.0	0.0
Gorakhpur	400	420	4:01	403	17:39	0.0	0.0	0.0	0.0	0.0
Bareilly(PG)400kV	400	424	2:01	400	12:18	0.0	0.0	15.7	0.0	15.7
Kanpur	400	420	2:01	400	12:18	0.0	0.0	0.0	0.0	0.0
Dadri	400	430	2:01	401	12:10	0.0	0.0	26.5	0.0	26.5
Ballabgarh	400	434	2:02	403	12:18	0.0	0.0	41.0	16.5	41.0
Bawana	400	431	1:00	403	12:12	0.0	0.0	38.6	1.8	38.6
Bassi	400	424	19:43	396	6:15	0.0	0.0	7.1	0.0	7.1
Hissar	400	424	2:02	394	12:19	0.0	0.0	18.5	0.0	18.5
Moga	400	424	0:59	399	12:13	0.0	0.0	22.3	0.0	22.3
Abdullapur	400	428	0:49	398	11:45	0.0	0.0	23.1	0.0	23.1
Nalagarh	400	434	0:52	401	12:19	0.0	0.0	38.5	18.8	38.5
Kishenpur	400	420	1:35	396	11:10	0.0	0.0	0.0	0.0	0.0
Wagoora	400	399	13:01	364	18:15	57.5	84.5	0.0	0.0	57.5
Amritsar	400	433	4:00	406	8:46	0.0	0.0	42.2	13.0	42.2
Kashipur	400	0	0:00	0	0:00	0.0	0.0	0.0	0.0	0.0
Hamirpur	400	428	0:55	397	11:14	0.0	0.0	46.7	0.0	46.7
Rishikesh	400	422	2:01	393	12:18	0.0	0.0	2.5	0.0	2.5

## VIII(B). Voltage profile 765 kV

Station	Voltage Level (kV)	Maximum		Minimum		Voltage (in % of Time)				Voltage Deviat
		Voltage(KV)	Time	Voltage (KV)	Time	<728 kV	<742 kV	>800 kV	>820 kV	
Fatehpur	765	776	2:01	745	12:18	0.0	0.0	0.0	0.0	0.0
Balia	765	793	2:00	765	17:40	0.0	0.0	0.0	0.0	0.0
Moga	765	806	21:28	758	12:11	0.0	0.0	5.7	0.0	5.7
Agra	765	792	19:43	753	22:08	0.0	0.0	0.0	0.0	0.0
Bhiwani	765	811	1:59	763	12:12	0.0	0.0	25.9	0.0	25.9
Unnao	765	776	2:01	743	12:18	0.0	0.0	0.0	0.0	0.0
Lucknow	765	805	2:01	771	12:18	0.0	0.0	14.1	0.0	14.1
Meerut	765	810	20:57	761	12:18	0.0	0.0	6.7	0.0	6.7
Jhatikara	765	811	4:00	758	12:18	0.0	0.0	21.5	0.0	21.5
Bareilly 765 kV	765	799	2:00	757	12:18	0.0	0.0	0.0	0.0	0.0
Anta	765	800	21:01	718	14:47	2.5	2.5	0.0	0.0	2.5
Phagi	765	802	3:59	764	11:56	0.0	0.0	5.8	0.0	5.8

Note : '0' in Max / Min Col -&gt; Telemetry Outage

## 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 <sup>3</sup> /s)	Usage (m <sup>3</sup> /s)
Bhakra	513.59	445.62	496.14	948.89	507.23	1411.35	162.57	377.07
Pong	426.72	384.05	412.30	577.87	416.47	730.66	64.31	220.87
Tehri	829.79	740.04	818.90	982.26	813.30	868.80	43.13	148.00
Kotesshwar	612.50	598.50	609.77	4.48	610.57	4.95	148.00	155.48
Chamera-I	760.00	748.75	0.00	0.00	0.00	0.00	53.49	54.37
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	510.41	2.73	506.51	1.15	60.10	122.57

\* 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	-456	1	0	-456	0	0	-13.56	-0.05	-13.61
Delhi	-109	-346	0	-232	-73	0	-6.39	-1.68	-8.07
Haryana	-594	367	0	-315	348	0	-9.97	8.55	-1.42
HP	292	103	0	198	-118	0	7.93	-1.21	6.72
J&K	352	0	0	337	-15	0	8.63	-0.10	8.53
CHD	-30	0	0	-30	0	0	-0.36	0.00	-0.36
Rajasthan	-7	532	0	-7	534	0	6.70	22.91	29.60
UP	124	0	0	-49	-100	0	-6.45	-0.81	-7.26
Uttarakhand	146	53	0	146	79	0	3.71	2.75	6.46
Total	-282	710	0	-408	655	0	-9.77	30.35	20.58

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

State	Bilateral (MW)		IEX (MW)		PXIL (MW)	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Punjab	-456	-719	1	-110	0	0
Delhi	-109	-423	270	-412	0	0
Haryana	-81	-627	396	-88	0	0
HP	469	198	103	-546	0	0
J&K	411	304	0	-15	0	0
CHD	0	-30	0	0	0	0
Rajasthan	659	-7	1980	514	0	0
UP	161	-808	0	-100	0	0
Uttarakhand	182	146	329	-34	0	0

**XI. System Reliability Indices(Violation of TTC and ATC):**

(i)%age of times N-1 Criteria was violated in the inter - regional corridors

<b>WR</b>	<b>0.00%</b>
<b>ER</b>	<b>0.00%</b>
<b>Simultaneous</b>	<b>0.69%</b>

(ii)%age of times ATC violated on the inter-regional corridors

<b>WR</b>	<b>1.04%</b>
<b>ER</b>	<b>0.00%</b>
<b>Simultaneous</b>	<b>21.18%</b>

(iii)%age of times Angular Difference on Important Buses was beyond permissible limits(40 deg.)

<b>Rihand - Dadri</b>	<b>0.00%</b>
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**XII. Zero Crossing Violations**

State	No. of violations(Maximum 8 in a day)	Maximum number of continuous blocks without sign change
Punjab	4	46
Haryana	2	15
Rajasthan	2	18
Delhi	4	25
UP	1	17
Uttarakhand	3	43
HP	2	30
J & K	6	42
Chandigarh	6	49

**XIII. System Constraints:****XIV. Grid Disturbance / Any Other Significant Event:****XV. Weather Conditions For 23.11.2016 :**  
Normal**XVI. Synchronisation of new generating units :****XVII. Synchronisation of new 220 / 400 / 765 KV lines and energising of bus / /substation :****XVIII. Tripping of lines in pooling stations :****XIX. Complete generation loss in a generating station :**

Note: Data(regarding drawal,generation, shortage , inter-regional flows and reservoir levels)of the constituents filled in the report are as per last furnished data by the respective state/constituent to NRLDC.