

OPTCL



(Approved by OERC vide Letter No. OERC-Engg-5/98 (Vol.XIII)/ 4042 dt. 07.09.2012)

PERFORMANCE OF THE TRANSMISSION SYSTEM OF OPTCL FOR 2011-2012

[This report is prepared in pursuance of Licence Condition 16.7 & Clause 13.7 of Appendix-4B of the OERC (Conduct of Business) Regulations, 2004]

PERFORMANCE OF TRANSMISSION SYSTEM OF OPTCL (AS REPORTED) DURING THE YEAR 2011-12

1. Procurement of Power:

Source	Commission's Approval (MU)	Actual Drawl for the State Consumption(MU)	Remarks
OHPC	5881.74	5044.511	State's Maximum and Minimum demand was 3511 MW and 2414 MW respectively
THERMAL (TTPS & OPGC)	5849.81	5977.929	
CGPs	1116.81	2041.151	
RENEWABLE ENERGY INCLUDING CO-GEN	300	276.48	
IPPs	3357.12	1962.823	
EASTERN GRID (Net)	6984.26	6843.991	
BankingPower+IEX+STOA (Net)		142.559	
TOTAL	23489.18	22289.443	

2. Voltages profile of Major Grid Sub-stations

Allowable Range (245-198 KV)

Sl. No.	Name of the 220/132 kV Grid Sub-station	Maximum Voltage in kV	Minimum Voltage in kV
1	Jaynagar	258	227
2	Duburi	240	208
3	Joda	238	205
4	Tarkera	236	220
5	Budhipadar	239	219
6	Balasore	240	196
7	Narendrapur	246	203
8	Chandaka	236	173
9	Bhanjanagar	237	194
10	Theruvalli	253	207
11	Meramundali	233	210
12	Bidanasi	239	195
13	Katapalli	239	207
14	Bhadrak	240	180
15	Paradeep	232	190
16	Bolangir	243	201
17	Mendhasal	238	175

Allowable Range (145 -122 KV)

Sl. No.	Name of the 132/33 kV Grid Sub-station	Maximum Voltage in kV	Minimum Voltage in kV
1	Cuttack	138	98
2	Puri	142	98
3	Khurda	140	92
4	Berhampur	143	106
Balance 132/33 kV S/S, the voltage profile is satisfactory i.e. within allowable limits			

3. System Interruptions due to Major Incident:

INTERRUPTION DUE TO MAJOR INCIDENT			
Incident	Duration of Interruption (Hrs:Min:Sec)	No. of Interruption	Remarks
Snapping of Jumper / Conductor / Earth wire	132:11:00	89	The duration of interruption indicated above is the sum total of interruptions occurred at different areas (S/s) during the year. However there was no total blackout experienced for the State during the year 2011-12.
Insulator Failure	69:18:00	49	
Bursting of CT / PT	14:57:00	17	
Breaker Problem	1:39:00	8	
System Disturbance	13:02:00	18	
Failure of LA	14:07:00	34	
Others	99:51:00	110	

Note:

Issued in the Public interest. Detailed report on Performance of Transmission System of OPTCL is available in SLDC website i.e., www.sldcorissa.org.

**COMMISSION'S OBSERVATION ON THE PERFORMANCE OF THE
TRANSMISSION SYSTEM OF OPTCL FOR 2011-12**

The salient features of the performance of transmission system of OPTCL for the year 2011-12 is given below and the detail information in support to that is available in SLDC website i.e., www.sldcorissa.org

A. Procurement of Power:

The Commission had approved the purchase of power by GRIDCO from various sources in the ARR & Tariff order for 2011-12 against which the actual performance have been found to be deviating in the following manner:

Source	Commission's Approval (MU)	Actual Drawl for the State Consumption(MU)	Remarks
OHPC	5881.74	5044.511	State's Maximum and Minimum demand was 3511 MW and 2414 MW respectively
THERMAL (TTPS & OPGC)	5849.81	5977.929	
CGPs	1116.81	2041.151	
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IPPs	3357.12	1962.823	
EASTERN GRID (Net)	6984.26	6843.991	
BankingPower+IEX+STOA (Net)		142.559	
TOTAL	23489.18	22289.443	

There is an import of 186.906 MU (88.29 MU through power banking, 37.11 through trading & IEX, 60.705 MU through Open Access) and export of 44.347 MU (40.323 through trading and 4.024 through Open Access) during the FY 2011-12. Hence, in the said financial year GRIDCO has purchased a net energy of 142.559 MU on this account.

2. During FY 2011-12 the daily peak demand touched at 3511 MW maximum on dt.11.09.2011 and a minimum of 2414 MW on dt.30.01.2012. The peak demand of 3511 MW in 2011-12 is about 164 MW above the peak demand experienced during the previous year 2010-11 (of 3347 MW). But the total energy drawl is 22267 MU in FY 2011-12 against 22170 MU in 2010-11, which indicates a marginal growth in electricity consumption of around 97 MU in the state.

B. Line Interruption:

3. OPTCL's system has faced aggregated Annual interruptions varying from 1 ½ hour to 102 hours at different locations on account of conductor/jumper snapping, insulator failure, bursting of Current Transformer/Potential Transformer, breaker problem, system disturbance, Lightning Arrester failures and others. However, OPTCL has claimed that it has arranged to maintain power supply (without resorting to total power failure due to non-availability of transmission capacity) from other nearby transmission facilities. The same effort has been made by OPTCL in maintaining uninterrupted power supply even in the event of generation failures. OPTCL claimed that there was no black out experienced in the State during the FY 2011-12.

C. Frequency Profile:

4. As per Regulations 3(1)(a) of Central Electricity Authority(Grid Standards) Regulations, 2010, the frequency should not be allowed to go beyond the range 49.2 to 50.3 Hz, except during the transient period following tripping. As per the provisions in Indian Electricity Grid Code Regulations, 2010, all users, SEBs, SLDCs, RLDCs and NLDC shall take all possible measures to ensure that grid frequency always remains within 49.5 to 50.2 Hz band. Orissa Grid Code also provides that restriction of drawl should start at 49.5HZ and generators should back down after 50.5 HZ. OPTCL, in 2011-12, has experienced frequency as low as 48.53 Hz and as high as 50.93 Hz during 1st quarter. However, OPTCL does not have much control over the frequency parameter since it is dependant upon the NEW Grid. OPTCL hopes that DISCOMs should adhere to their schedule drawl and for the interest of themselves as well as for state shall reduce their drawl during low frequency in the NEW grid.

D. Voltage Profile:

5. The EHT voltage, as per Regulations 3(1)(b) of Central Electricity Authority(Grid Standards) Regulations, 2010 should be in the range 122-145 kV for voltage at 132 kV, 198-245 kV for voltage at 220 KV and 380-420 kV for 400 kV level. OPTCL has however experienced 173 kV minimum and 258 kV maximum in its 220 KV system and 92 KV minimum and 140 KV maximum in its 132 KV system. Hence, due to such abnormal voltage performance in some of the Grid S/Ss of OPTCL, distribution licensees are facing difficulty in supplying power at the correct voltage to their consumers. OPTCL is advised to take suitable action like putting up capacitor banks and additional remedial measures like system up-gradation to improve the voltage profile. OPTCL should also monitor the reactive drawl of DISCOMs from its grid S/s and wherever DISCOM draw excessive reactive load at low

voltage condition in grid S/S, it shall take up with them for remedial measure M/s.OPTCL should keep its on-line Tap Changer of the Power Transformers in healthy condition and all the field engineers should be trained to operate OLTC during peak and low load condition of the day.

E. Load Restriction:

6. M/s.OPTCL has claimed that the load restriction due to non-availability of the transmission and transformation capacity as 'NIL' which in turn indicates that during FY 2011-12, OPTCL system availability was 100%. This needs further verification by OPTCL to substantiate their statement as it is understood that DISCOMs are complaining that they are not able to draw their full requirement of power from some of the grid S/S due to low transformations capacity as well as upstream EHT line loading problem. OPTCL and DISCOM authorities should discuss and take action on augmentation of transformer and line capacity of the problematic area of the transmission system.

7. Due to non-availability of generation/failure of generating stations, OPTCL, however, has resorted of load restriction in 2011-12 totalling only 22 hours in the year. To avoid such problem and to meet 100% of the power supply security standards, OPTCL is required to develop appropriate ring system so that power supply to the affected areas can be easily made available from the neighboring areas fed from other generating stations of the state and Orissa share from Inter State Generating Station of Eastern Region.

F. Augmentation of Transmission Capacity:

8. It may be noted that while approving the ARR & Transmission Tariff for the year 2012-13, the Commission has directed as below:

Para 208.OPTCL has inherited from GRIDCO a considerable ageing transmission network. Continuous up-gradation and regular repairs and maintenance are required to keep the network in a safe and operational condition and to meet the growing requirements of DISCOMs' demand as well as to fulfill the Commission's and consumers' expectations on quality of supply, performance standards and availability of transmission network. As a result of this, the Commission, over the past several years, has been allowing a significantly higher amount for R&M expenses for encouraging the Licensee to undertake regular and adequate maintenance. X X X

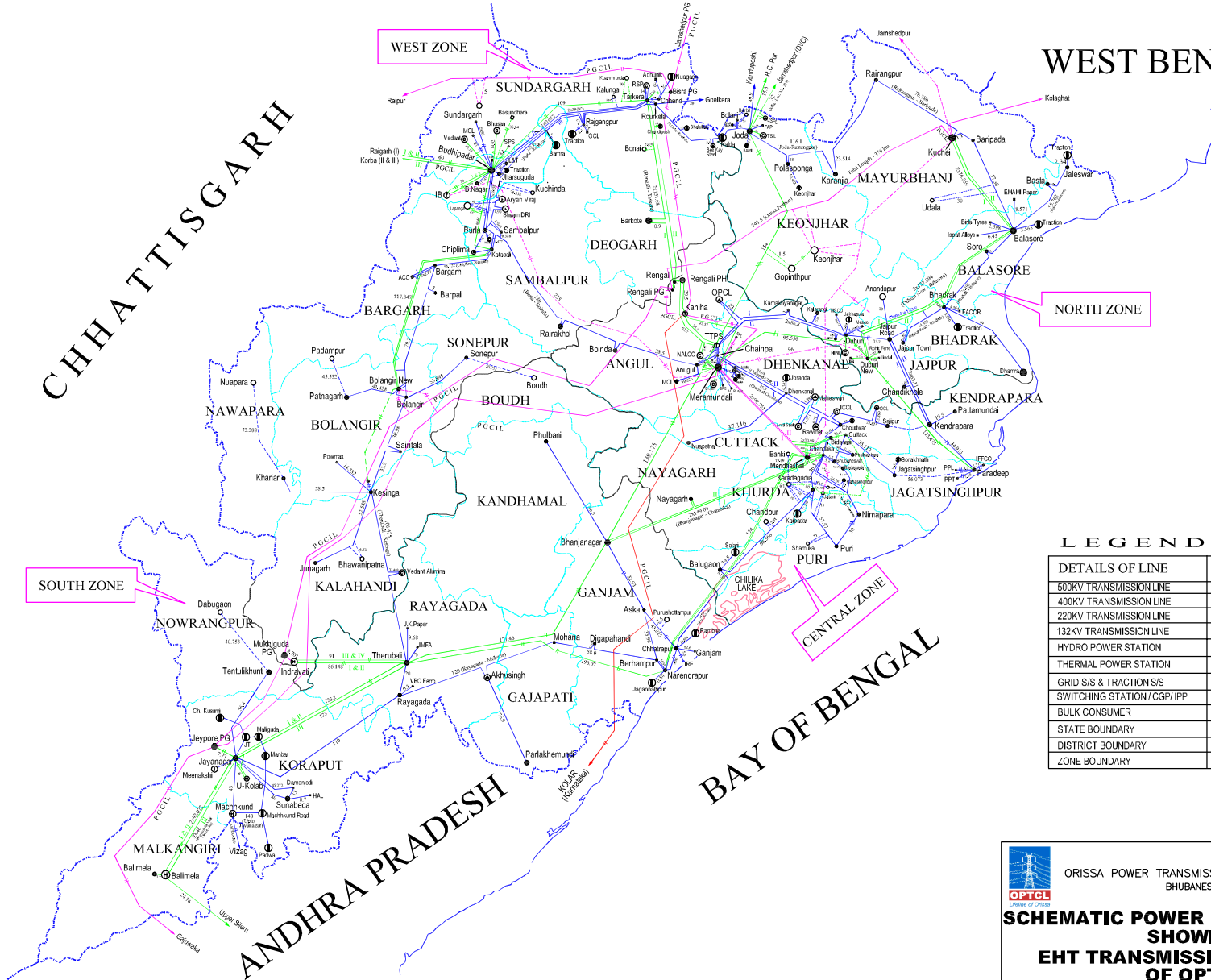
Para 218. Many objectors pointed out that the strategy of OPTCL in execution of Projects is not matching to the downstream network planning of the State. Commission is not able to appreciate the reason cited by the OPTCL as regard to inordinate delay in completion of its on-going projects. The Licensee is adopting a casual approach towards completion of Projects. Responsibility and accountability must be fixed on Project Managers for effecting completion of the Projects as per the schedule. The Project Managers must identify the critical paths ahead of schedule. The Commission further direct OPTCL that DISCOMs are to be intimated before hand so that they should be prepared for receiving power from new/augmented grid s/s and accordingly build their down stream distribution lines for evacuation of power. OPTCL should discuss with the DISCOMs before submission of transmission project for approval of OERC, so that the investment on s/s should not be left idle due to non-completion inter linking transmission lines.

OPTCL is advised to take action to comply the above direction.

JHARKHAND

WEST BENGAL

CHHATTISGARH



LEGEND

DETAILS OF LINE	Existing	Proposed / U/C
500KV TRANSMISSION LINE	—	---
400KV TRANSMISSION LINE	---	---
220KV TRANSMISSION LINE	---	---
132KV TRANSMISSION LINE	---	---
HYDRO POWER STATION	(H)	(H)
THERMAL POWER STATION	(T)	(T)
GRID S/S & TRACTION S/S	●	○
SWITCHING STATION / CGPI / IPP	⊗	⊗
BULK CONSUMER	■	□
STATE BOUNDARY	—	---
DISTRICT BOUNDARY	---	---
ZONE BOUNDARY	---	---



ORISSA POWER TRANSMISSION CORPORATION LIMITED
BHUBANESWAR

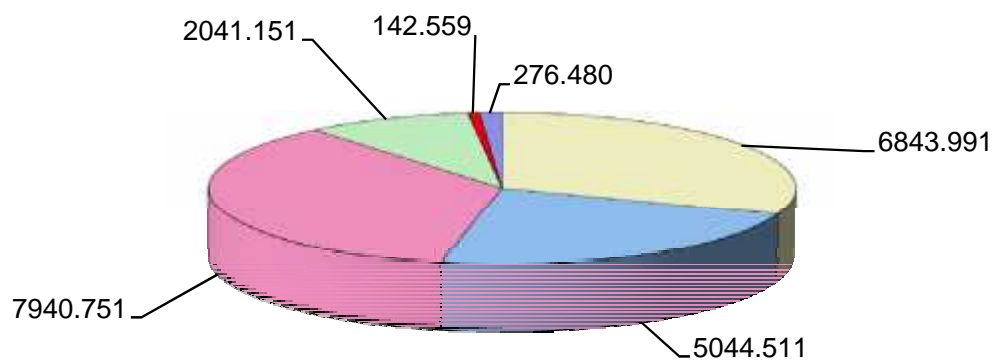
SCHEMATIC POWER MAP OF ORISSA SHOWING EHT TRANSMISSION NETWORK OF OPTCL

Length in kms. under OPTCL maintenance

NOT TO SCALE

GRID DEMAND FOR THE YEAR 2011-12

[Total Drawal 22289.443 MU]

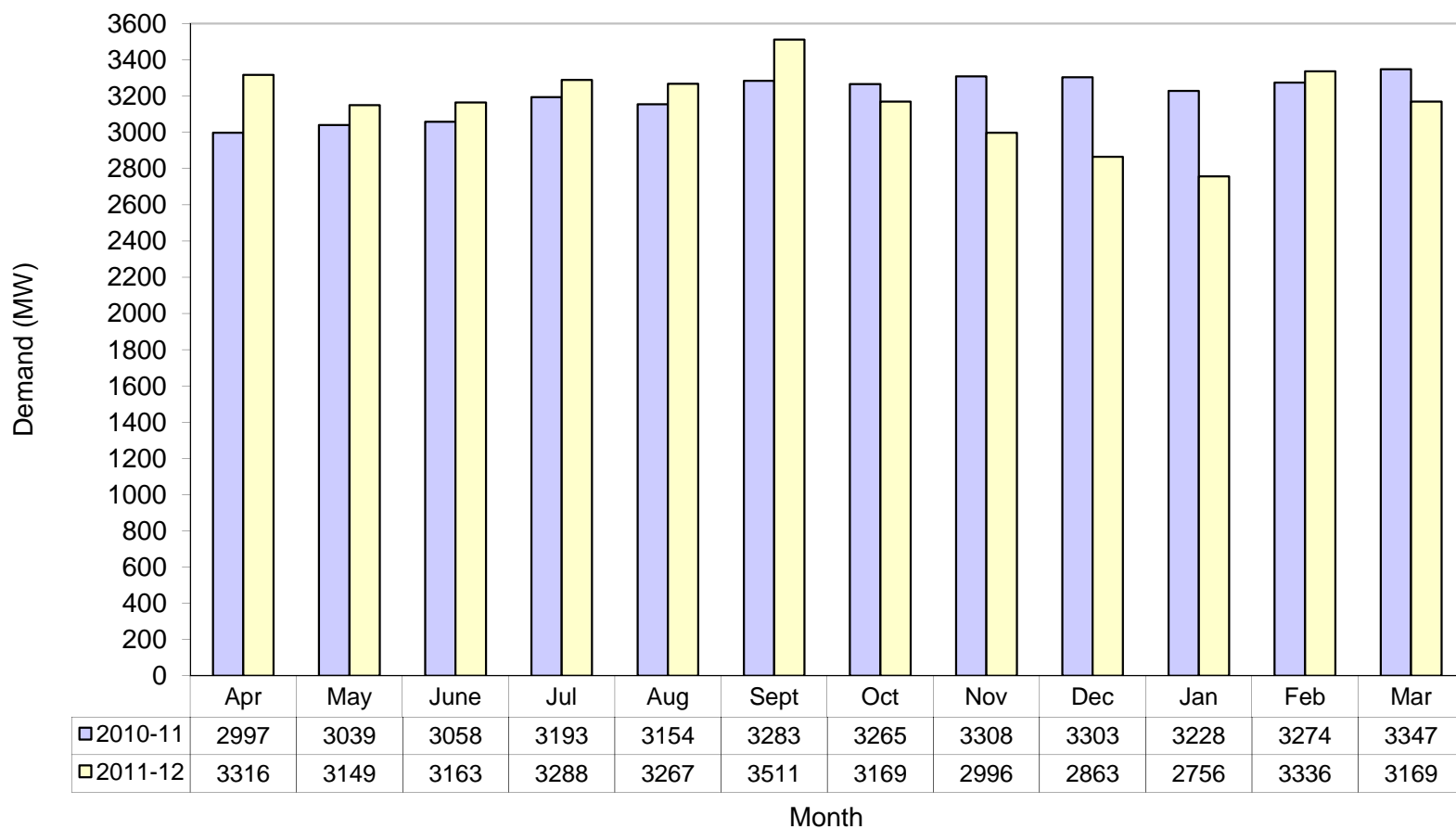


■ Net EREB ■ Total Hydro ■ Total Thermal (OPGC + TTPS+IPP) ■ CPP ■ Net BankingPower+IEX+STOA ■ Renewable Energy
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DAILY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR 2011-12

Day	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Max	Min
1	3195	2540	3042	3084	2833	3320	2877	2934	2863	2488	2996	2950	3320	2488
2	3290	2877	3014	2947	2835	3099	2708	2940	2564	2634	2880	2923	3290	2564
3	3305	2971	3027	2800	2840	3435	3030	2953	2465	2601	3024	2900	3435	2465
4	3171	2987	2765	2942	3027	3377	3003	2958	2604	2623	3087	2776	3377	2604
5	3024	2856	2997	2968	2776	3313	2771	2938	2570	2756	2991	2977	3313	2570
6	2898	2983	3138	3060	2846	3136	2771	2996	2582	2632	3114	2929	3138	2582
7	3187	3014	2993	2904	2809	3235	2812	2910	2563	2669	3336	3169	3336	2563
8	3265	3015	3070	3288	2715	3035	2646	2934	2740	2688	3059	3028	3288	2646
9	3226	3037	2837	3090	2906	3161	2583	2934	2622	2481	3290	2605	3290	2481
10	3248	3015	3054	3058	2882	3322	2861	2934	2531	2515	3173	2951	3322	2515
11	3248	3073	2982	3129	2873	3511	2946	2934	2441	2691	3082	2968	3511	2441
12	3316	2840	2755	3036	3038	3360	2973	2934	2513	2599	3099	2919	3360	2513
13	2852	3036	2589	3168	3035	3195	2903	2934	2767	2610	2985	2886	3195	2589
14	3270	2858	2571	3122	3205	3012	2897	2934	2541	2575	3144	2880	3270	2541
15	3152	2938	2530	3057	3118	3095	2819	2934	2507	2535	2913	2865	3152	2507
16	3050	2943	2727	3081	3003	3057	2765	2934	2605	2566	2874	2492	3081	2492
17	2883	3053	2809	2830	3018	3076	2759	2934	2491	2688	3030	2999	3076	2491
18	2952	3149	2725	3140	2997	3094	2932	2934	2476	2537	3121	2974	3149	2476
19	2751	2688	2825	3259	3044	2985	2853	2934	2593	2667	2986	2932	3259	2593
20	3032	2720	3067	2953	3209	2907	2847	2934	2538	2634	2805	3081	3209	2538
21	2778	3000	3128	2677	3117	2987	2806	2934	2533	2701	3144	3138	3144	2533
22	3103	2849	2956	2861	3029	3075	2856	2934	2549	2480	3189	2976	3189	2480
23	3111	3063	3023	2880	3056	3042	2889	2934	2612	2574	2865	3026	3111	2574
24	2893	2679	3163	3121	3015	3037	2715	2934	2660	2460	2879	2963	3163	2460
25	2897	2924	3063	3095	3113	2936	2968	2934	2548	2639	2903	2927	3113	2548
26	3103	2633	3021	3165	2915	3183	3169	2934	2586	2678	2793	2994	3183	2586
27	2875	2804	3140	3197	3200	3056	3122	2934	2590	2522	2907	2953	3200	2522
28	3265	3104	3098	3147	2957	3065	3015	2934	2622	2463	2827	2984	3265	2463
29	2995	3044	3023	3162	3111	2935	3071	2934	2555	2616	2847	2947	3162	2555
30	3171	2960	3139	3016	3267	3005	2831	2934	2614	2414		2793	3267	2414
31		2667		3129	3179		2863		2662	2656		2878	3179	2656
MAX	3316	3149	3163	3288	3267	3511	3169	2996	2863	2756	3336	3169	3511	2656
MIN	2751	2540	2530	2677	2715	2907	2583	2910	2441	2414	2793	2492	3076	2414

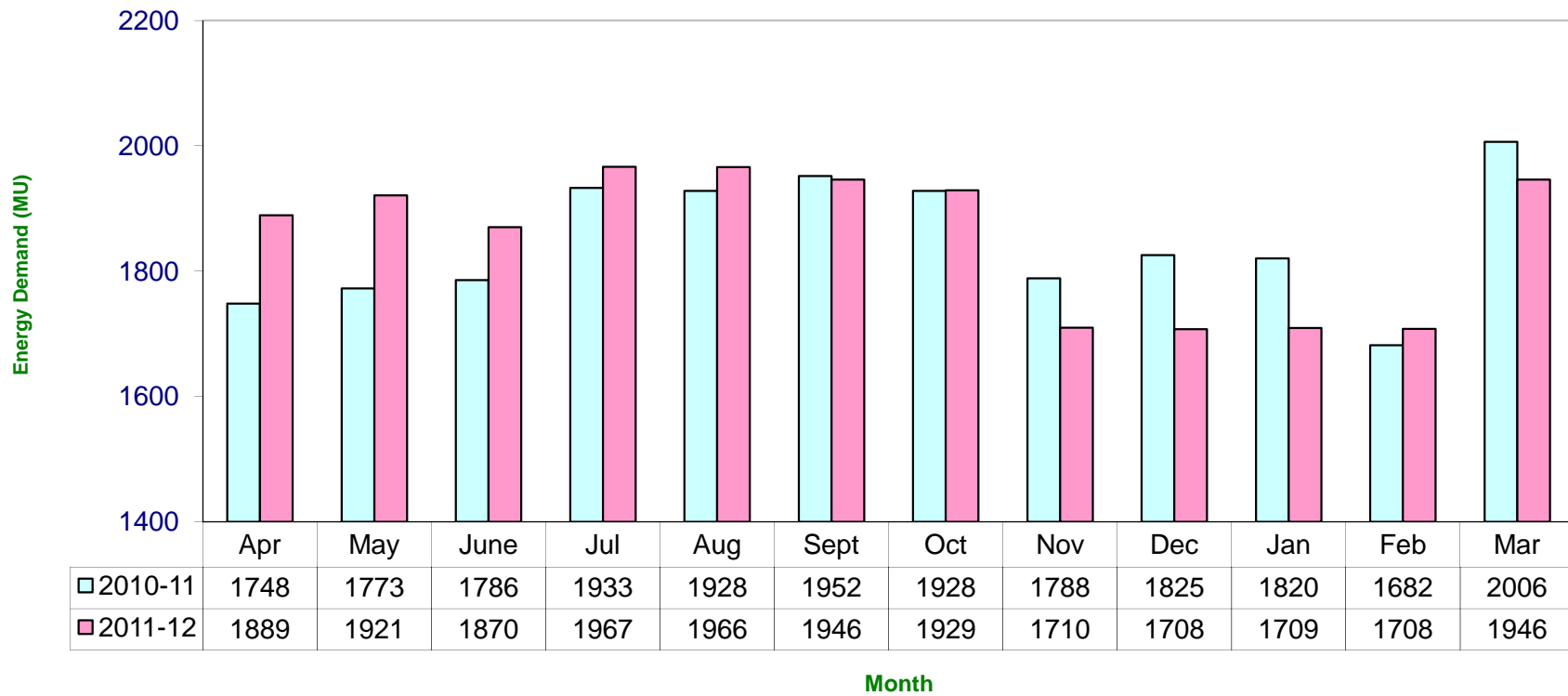
COMPARISON OF MONTHLY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR ENDING 2010-11 & 2011-12



Annual Peak Demand : 2011-12 - 3511 MW 2010-11 - 3347 MW

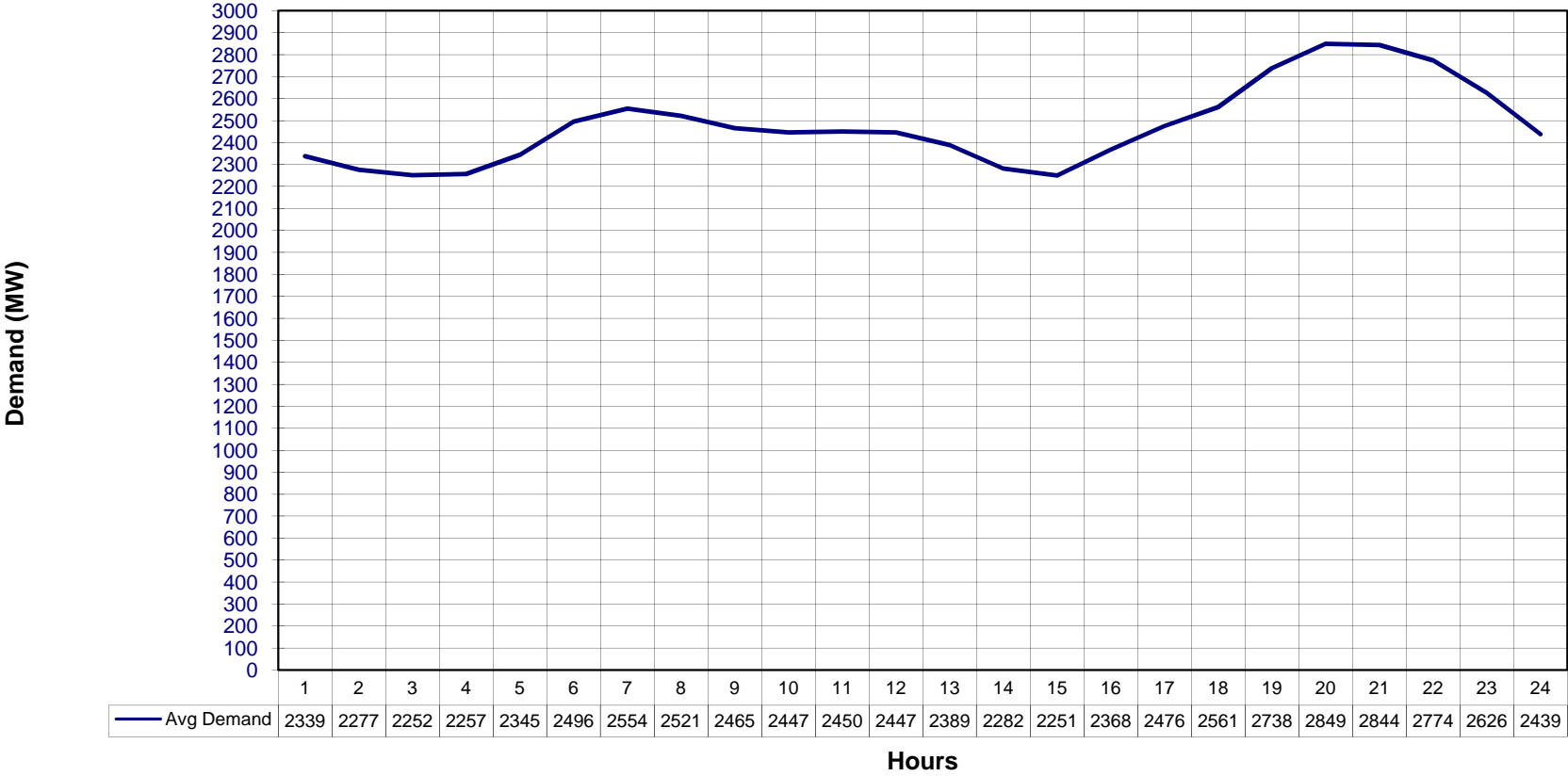
■ 2010-11 ■ 2011-12

COMPARISON OF MONTHLY ENERGY DEMAND (MU) EXCLUDING TRADING & RETURN BANKING POWER FOR THE YEAR ENDING 2010-11 & 2011-12



Annual Energy Demand : 2011-12 - 22269 MU 2010-11 - 22170 MU

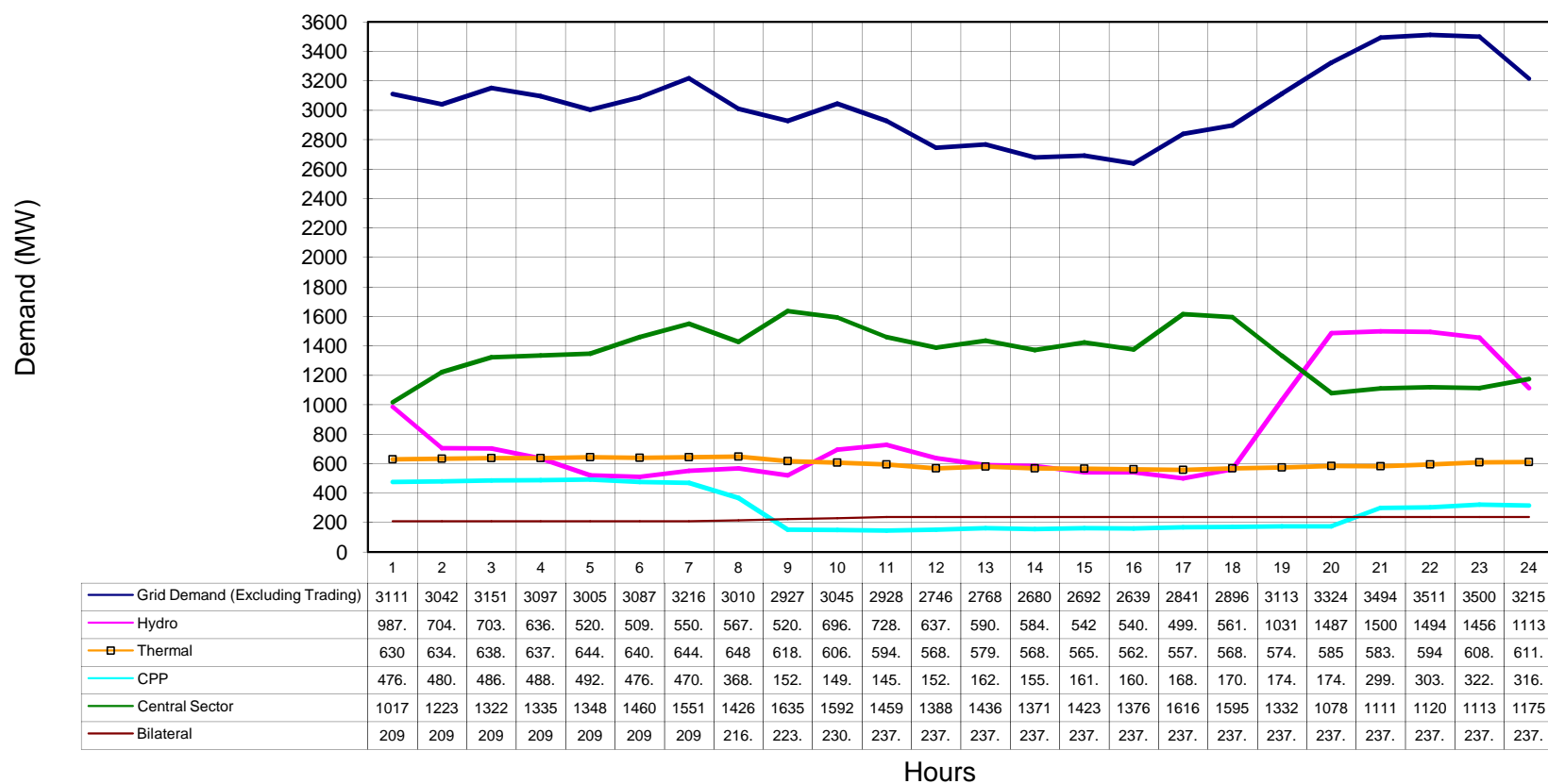
DEMAND CURVE FOR HOURLY AVERAGE DEMAND EXCLUDING TRADING FOR YEAR ENDING MARCH 2012



Hourly Average Demand (Month wise) in support of Page-6

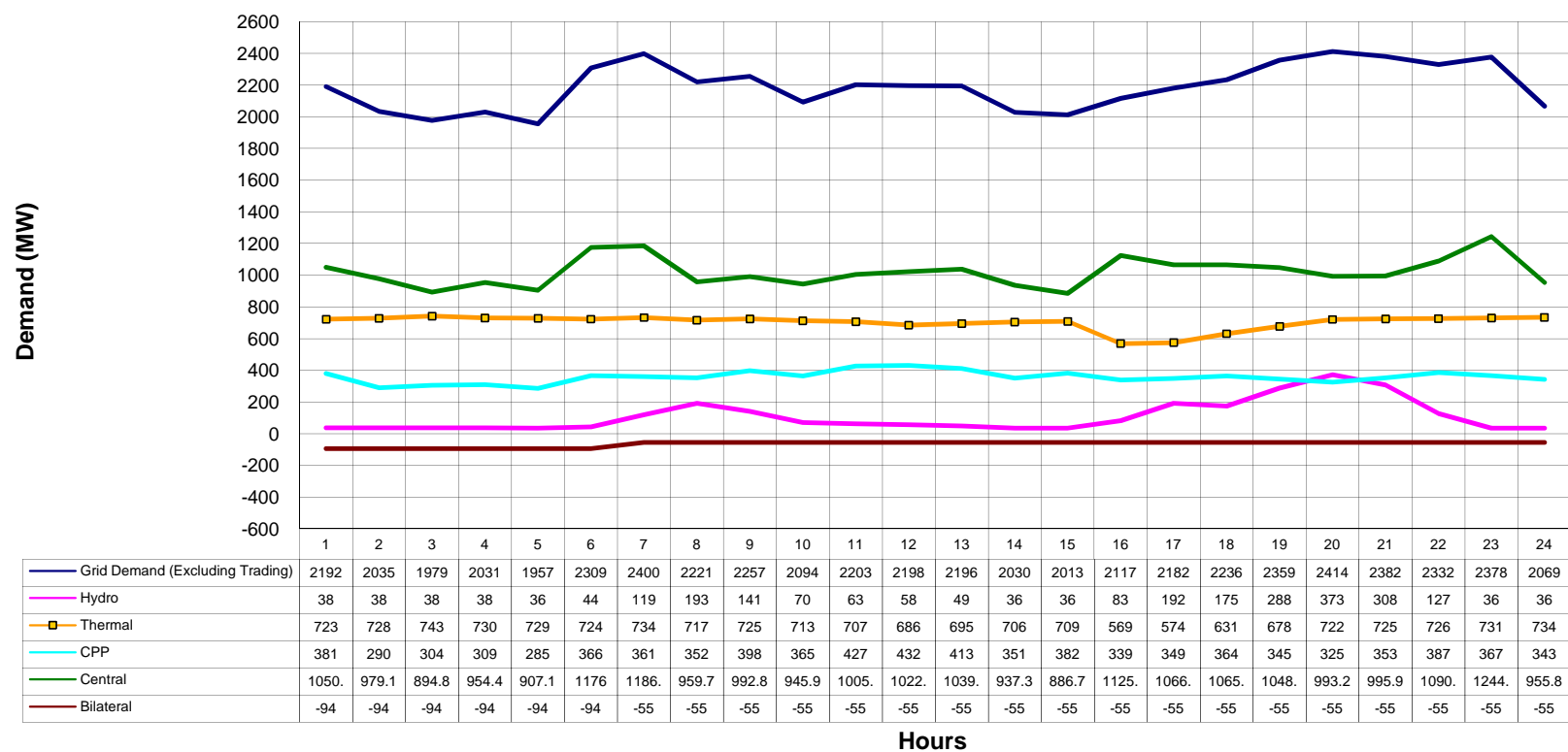
Hours--->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Apr-11	2442	2373	2364	2363	2438	2528	2525	2548	2516	2497	2510	2535	2519	2427	2373	2497	2535	2528	2825	3054	2992	2964	2755	2594
May-11	2482	2413	2346	2340	2385	2442	2456	2497	2471	2469	2473	2499	2481	2423	2432	2456	2409	2353	2535	2800	2836	2755	2653	2569
Jun-11	2445	2371	2328	2279	2328	2441	2470	2539	2514	2542	2489	2470	2430	2357	2324	2422	2445	2449	2581	2861	2894	2846	2704	2572
Jul-11	2434	2327	2285	2290	2326	2476	2545	2637	2623	2583	2540	2488	2387	2293	2244	2365	2430	2479	2714	2992	2990	2925	2738	2575
Aug-11	2408	2358	2338	2361	2394	2525	2597	2649	2630	2572	2540	2476	2387	2261	2218	2360	2458	2550	2806	2964	2953	2891	2727	2551
Sep-11	2612	2537	2517	2510	2533	2652	2786	2786	2748	2727	2707	2679	2594	2489	2494	2601	2737	2889	3034	3051	3052	2967	2887	2700
Oct-11	2320	2250	2253	2254	2327	2500	2557	2492	2416	2347	2372	2407	2301	2174	2173	2332	2490	2746	2826	2839	2785	2720	2546	2425
Nov-11	2176	2122	2103	2047	2232	2447	2593	2411	2302	2382	2445	2419	2304	2030	2039	2170	2535	2909	2934	2912	2835	2639	2414	2152
Dec-11	1991	1961	1959	1994	2174	2415	2536	2361	2261	2250	2238	2226	2185	2089	2045	2190	2357	2447	2463	2438	2502	2455	2306	2063
Jan-12	2045	1998	1975	2033	2170	2386	2489	2385	2322	2274	2242	2278	2252	2157	2093	2212	2324	2396	2511	2478	2546	2484	2382	2103
Feb-12	2152	2121	2075	2113	2235	2430	2503	2434	2334	2300	2365	2395	2346	2257	2181	2307	2443	2500	2894	2978	2892	2773	2568	2313
Mar-12	2557	2496	2481	2504	2598	2705	2593	2517	2448	2418	2480	2490	2480	2425	2392	2501	2545	2490	2730	2819	2849	2871	2829	2649
Avg. Annual	2339	2277	2252	2257	2345	2496	2554	2521	2465	2447	2450	2447	2389	2282	2251	2368	2476	2561	2738	2849	2844	2774	2626	2439

HOURLY DEMAND CURVE FOR 11.09.2011 (MAX PEAK DEMAND OF THE YEAR (2011-12))



— Grid Demand (Excluding Trading)
 — Hydro
 —□— Thermal
 — CPP
 — Central Sector
 — Bilateral

HOURLY DEMAND CURVE FOR 30.01.2012 (MIN PEAK DEMAND OF THE YEAR 2011-12)



— Grid Demand (Excluding Trading)
 — Hydro
 —□— Thermal
 — CPP
 — Central
 — Bilateral

1 INSTALLED CAPACITY (AS ON 31.3.2012) ENERGY GENERATION / ENERGY DRAWAL BY OPTCL

	Installed capacity (MW)	Energy Generation (incl. Aux) (MU)	Energy Drawal by GRIDCO (MU)
A. STATE SECTOR			
OHPC(Hydro)*	2084.875	5212.108	5044.511
OPGC (Thermal)	420	2950.149	2635.480
TTPS (Thermal)	460	3740.096	3322.561
TTPS (UI-OD)			19.888
IPPs			1962.823
CPP (Synchronised to OPTCL System)			2041.151
Renewable Energy Including Co-gen	-		276.480
B. CENTRAL SECTOR			
Orissa Share			
Hydro	199.00		
Thermal	884.60	-	7453.907
C. Banking Power			88.290
D. Trading+IEX (Import)			37.911
E. STOA (Sterlite)			60.705
TOTAL DRAWAL			22943.706
F. Trading+IEX (Export)			40.323
F. Banking Power Export			0.000
G. Export to EREB			609.916
H. STOA(VAL+JSPL+NBVL)			4.024
Net GRIDCO demand			22289.443

Export to ICCL 13.224
Export to NALCO 205.508

* Includes Orissa share from Machhkund.

2 TRANSMISSION LINES AND SUBSTATIONS

	As on 31.03.2011	Capacity Addition in 2011-2012	As on 1.4.2012
A. 400 kV line (ckt.km)	521.935	0.000	521.935
B. 220kV line (ckt.km)	5483.925	2.400	5486.325
C. 132kV line (ckt.km)	5226.769	60.934	5287.703
<i>N.B. 400kV line length has been corrected and the difference has been added to 220kV Category</i>			
D. Substations			
400 / 220 /132kV (nos.)	2	0	2
220/132/33kV (nos.)	16	0	16
220/33kV (nos.)	4	0	4
132/33/11kV (nos.)	62	0	62
132kV Switching Stations (OPTCL)	2	1	3
132kV LILO Switching Stations of Industries	11	2	13
Total	97	3	100

Note: 1. (The above data in (2) are received from O & M branche of OPTCL system.)

3 **PERFORMANCE OF OPTCL DURING 2011 - 12**

3 A. **POWER SUPPLY SECURITY**

3 A.1 Load Restriction due to non-availability of Generation / Failure of generating Stations.

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	14.50	8.00	0.00	0.00	22.50
Percentage(%)	0.66	0.36	0.00	0.00	0.26

* —→ Load restriction imposed in the State on rotation basis to curtail the demand.

3 B. **TRANSMISSION SECURITY**

3 B.1 Load Restriction due to non-availability of Transmission capacity

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	0	0	0.00	0	0
Percentage(%)	0.00	0.00	0.00	0.00	0.00

3 B.2 Rescheduling of Generation due to non- availability of Transmission capacity

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	0	0	0	0	0
Percentage(%)	0	0	0	0	0

3 C **OVERALL PERFORMANCE**

3 C-1 **FREQUENCY**

(i) Above 50.2 Hz

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	102.47	92.8	11.88	9.95	217.10
Percentage(%)	4.69	4.20	0.54	0.46	2.47

(ii) Maximum continous period beyond 50.2 Hz

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	3.28	3.48	3.83	4.67	4.67
Percentage(%)	0.15	0.16	0.17	0.21	0.05

(iii) Maximum Frequency occurrence

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration Hz	50.93	50.71	50.62	50.80	50.93
Date/Time	<u>22.05.2011</u> 3:10hr	<u>15.08.2011</u> 7:22hr	<u>26.10.2011</u> 16:09hr	<u>02.01.2012</u> 4:02hr	<u>22.05.2011</u> 3:10hr

(iv) Below 49.5 Hz

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	99.80	136	409.5	10.870947	656.22
Percentage(%)	4.57	6.16	18.55	0.50	0.75

(v) Maxm. Continous period below 49.5 Hz

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration (In Hrs)	0.77	1.97	9.87	0.42	9.87
Percentage(%)	0.04	0.09	0.45	0.00	0.11

(vi) Lowest Frequency Occurrence

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Duration Hz	48.79	48.78	48.53	48.99	48.53
Date/Time	<u>11.04.2011</u> 19:10 hr	<u>29.09.2011</u> 21:08 hr	<u>10.10.2011</u> 14:56hr	<u>19.01.2012</u> 19:09hr	<u>10.10.2011</u> 14:56hr

3. C - 2 VOLTAGE PROFILE (2011-2012)

MAXIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (220kV)

Sl. No.	Name of the Sub-station	Quarter - 1			Quarter - 2			Quarter - 3			Quarter - 4			ANNUAL		
		Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.
1	Jaynagar	253	22.04.11	7:00	253	21.08.11	16:00	251	06.10.11	13:00	258	08.03.12	15:00	258	08.03.12	15:00
2	Duburi	235	14.04.11	1:00	235	09.07.11	1:00	240	19.12.11	1:00	240	07.01.12	10:00	240	19.12.11	1:00
3	Joda	235	06.05.11	6:00	235	03.07.11	17:00	235	27.10.11	6:00	238	02.01.12	4:00	238	02.01.12	4:00
4	Tarkera	232	19.04.11	23:00	230	03.07.11	17:00	232	01.11.11	4:00	236	04.01.12	7:00	236	04.01.12	7:00
5	Budhipadar	234	19.04.11	24:00	239	26.05.11	13:00	236	10.11.11	2:00	238	09.01.12	4:00	239	26.05.11	13:00
6	Balasore	236	23.05.11	6:00	235	29.08.11	14:00	238	20.11.11	24:00	240	01.01.12	24:00	240	01.01.12	24:00
7	Narendrapur	245	20.05.11	5:00	242	03.07.11	17:00	246	29.12.11	1:00	241	08.02.12	2:00	246	29.12.11	1:00
8	Chandaka	235	22.04.11	9:00	234	03.07.11	18:00	236	29.12.11	3:00	236	01.01.12	3:00	236	29.12.11	3:00
9	Bhanjanagar	234	20.05.11	4:00	234	03.07.11	16:00	237	11.11.11	2:00	236	02.01.12	1:00	237	11.11.11	2:00
10	Theruvuli	250	20.05.11	5:00	250	29.08.11	13:00	253	25.11.11	15:00	250	29.01.12	17:00	253	25.11.11	15:00
11	Meramundali	227	26.04.11	3:00	230	06.07.11	3:00	233	29.12.11	1:00	233	02.01.12	2:00	233	29.12.11	1:00
12	Bidanasi	232	19.06.11	3:00	230	06.07.11	3:00	239	23.12.11	2:00	239	16.01.12	2:00	239	23.12.11	2:00
13	Katapalli	234	27.04.11	1:00	234	22.09.11	14:00	239	02.11.11	17:00	238	09.01.12	3:00	239	02.11.11	17:00
14	Bhadrak	235	17.06.11	7:00	235	29.08.11	16:00	236	16.12.11	1:00	240	02.01.12	9:00	240	02.01.12	9:00
15	Paradeep	230	26.04.11	6:00	230	02.07.11	1:00	232	12.12.11	14:00	230	08.01.12	1:00	232	12.12.11	14:00
16	Bolangir	240	27.04.11	15:00	237	13.08.11	11:00	236	16.12.11	8:00	243	09.01.12	7:00	243	09.01.12	7:00
17	Mendhasal	231	26.04.11	6:00	233	07.07.11	1:00	237	16.12.11	20:00	238	03.01.12	1:00	238	03.01.12	1:00

MINIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (220kV)

Sl. No.	Name of the Sub-station	Quarter - 1			Quarter - 2			Quarter - 3			Quarter - 4			ANNUAL		
		Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.
1	Jaynagar	227	11.04.11	19:00	230	20.08.11	20:00	232	12.10.11	20:00	231	21.02.12	19:00	227	11.04.11	19:00
2	Duburi	208	27.05.11	22:00	212	05.08.11	20:00	210	26.10.11	17:00	217	30.03.12	22:00	208	27.05.11	22:00
3	Joda	205	15.05.11	1:00	205	12.07.11	20:00	215	13.10.11	19:00	215	16.02.12	19:00	205	15.05.11	1:00
4	Tarkera	220	06.04.11	7:00	220	18.07.11	9:00	220	04.10.11	7:00	220	01.01.12	2:00	220	06.04.11	7:00
5	Budhipadar	219	08.04.11	20:00	223	26.08.11	15:00	224	23.11.11	1:00	226	17.03.12	20:00	219	08.04.11	20:00
6	Balasore	196	07.06.11	20:00	200	29.07.11	19:00	208	21.10.11	20:00	215	15.02.12	19:00	196	07.06.11	20:00
7	Narendrapur	205	26.06.11	9:00	203	28.08.11	14:00	212	08.11.11	14:00	215	06.01.12	6:00	203	28.08.11	14:00
8	Chandaka	173	11.06.11	12:00	184	07.08.11	12:00	176	23.11.11	16:00	214	21.02.12	19:00	173	11.06.11	12:00
9	Bhanjanagar	194	11.06.11	19:00	204	07.09.11	9:00	212	14.10.11	20:00	215	03.02.12	18:00	194	11.06.11	19:00
10	Theruvuli	215	28.05.11	15:00	220	08.07.11	21:00	207	23.11.11	16:00	228	28.03.12	13:00	207	23.11.11	16:00
11	Meramundali	210	13.05.11	19:00	210	10.07.11	20:00	215	15.10.11	18:00	215	18.02.12	20:00	210	13.05.11	19:00
12	Bidanasi	200	11.06.11	19:00	210	10.07.11	20:00	195	23.11.11	16:00	216	17.02.12	19:00	195	23.11.11	16:00
13	Katapalli	208	10.06.11	21:00	207	20.09.11	11:00	221	10.10.11	18:00	216	17.03.12	20:00	207	20.09.11	11:00
14	Bhadrak	180	02.04.11	20:00	180	28.07.11	19:00	190	24.10.11	18:00	205	18.02.12	20:00	180	02.04.11	20:00
15	Paradeep	190	12.05.11	20:00	205	01.07.11	19:00	208	18.10.11	19:00	210	11.02.12	19:00	190	12.05.11	20:00
16	Bolangir	201	02.04.11	18:00	203	22.08.11	21:00	213	25.10.11	6:00	204	21.03.12	16:00	201	02.04.11	18:00
17	Mendhasal	175	11.04.11	12:00	200	27.08.11	21:00	186	23.11.11	16:00	203	21.03.12	11:00	175	11.04.11	12:00

MAXIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (132kV)

Sl. No.	Name of the Sub-station	Quarter - 1			Quarter - 2			Quarter - 3			Quarter - 4			ANNUAL		
		Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.
1	Cuttack	134	20.04.11	8:00	138	24.09.11	10:00	136	11.12.11	10:00	136	11.02.12	1:00	138	24.09.11	10:00
2	Puri	142	19.05.11	23:00	138	01.09.11	3:00	135	14.11.11	14:00	132	01.01.12	2:00	142	19.05.11	23:00
3	Khurda	140	19.05.11	22:00	140	20.07.11	17:00	130	14.11.11	16:00	130	01.01.12	23:00	140	19.05.11	22:00
4	Berhampur	143	05.04.11	17:00	141	02.07.11	15:00	140	22.11.11	14:00	137	11.01.12	1:00	143	05.04.11	17:00

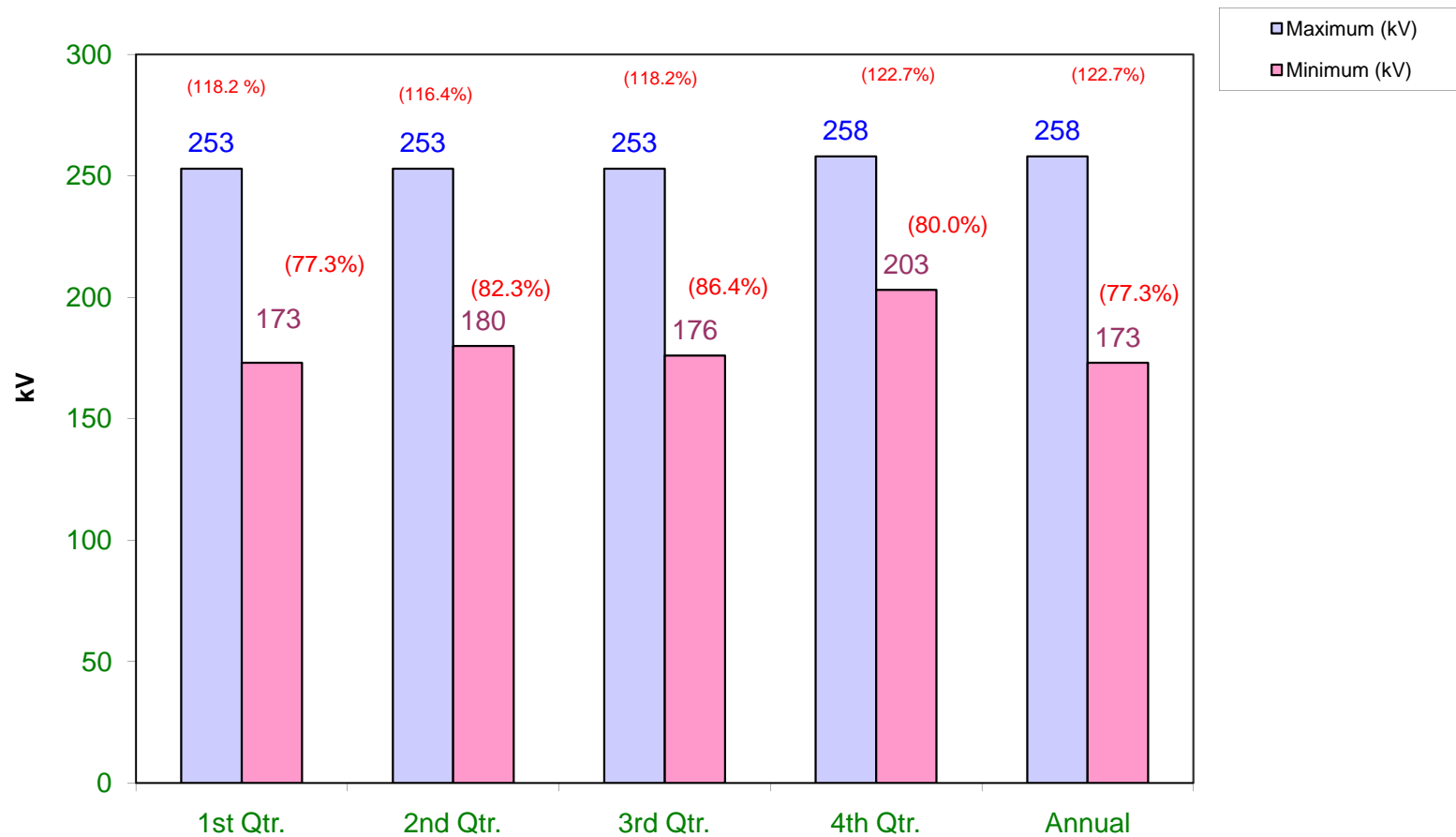
MINIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (132kV)

Sl. No.	Name of the Sub-station	Quarter - 1			Quarter - 2			Quarter - 3			Quarter - 4			ANNUAL		
		Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.
1	Cuttack	100	13.05.11	21:00	98	07.08.11	16:00	102	10.10.11	18:00	108	16.02.12	19:00	98	07.08.11	16:00
2	Puri	98	11.06.11	9:00	104	20.09.11	19:00	100	15.10.11	18:00	100	11.02.12	19:00	98	11.06.11	9:00
3	Khurda	92	18.05.11	20:00	94	06.09.11	20:00	96	10.10.11	22:00	94	18.02.12	20:00	92	18.05.11	20:00
4	Berhampur	106	20.06.11	9:00	115	07.08.11	8:00	116	23.11.11	16:00	117	17.02.12	19:00	106	20.06.11	9:00

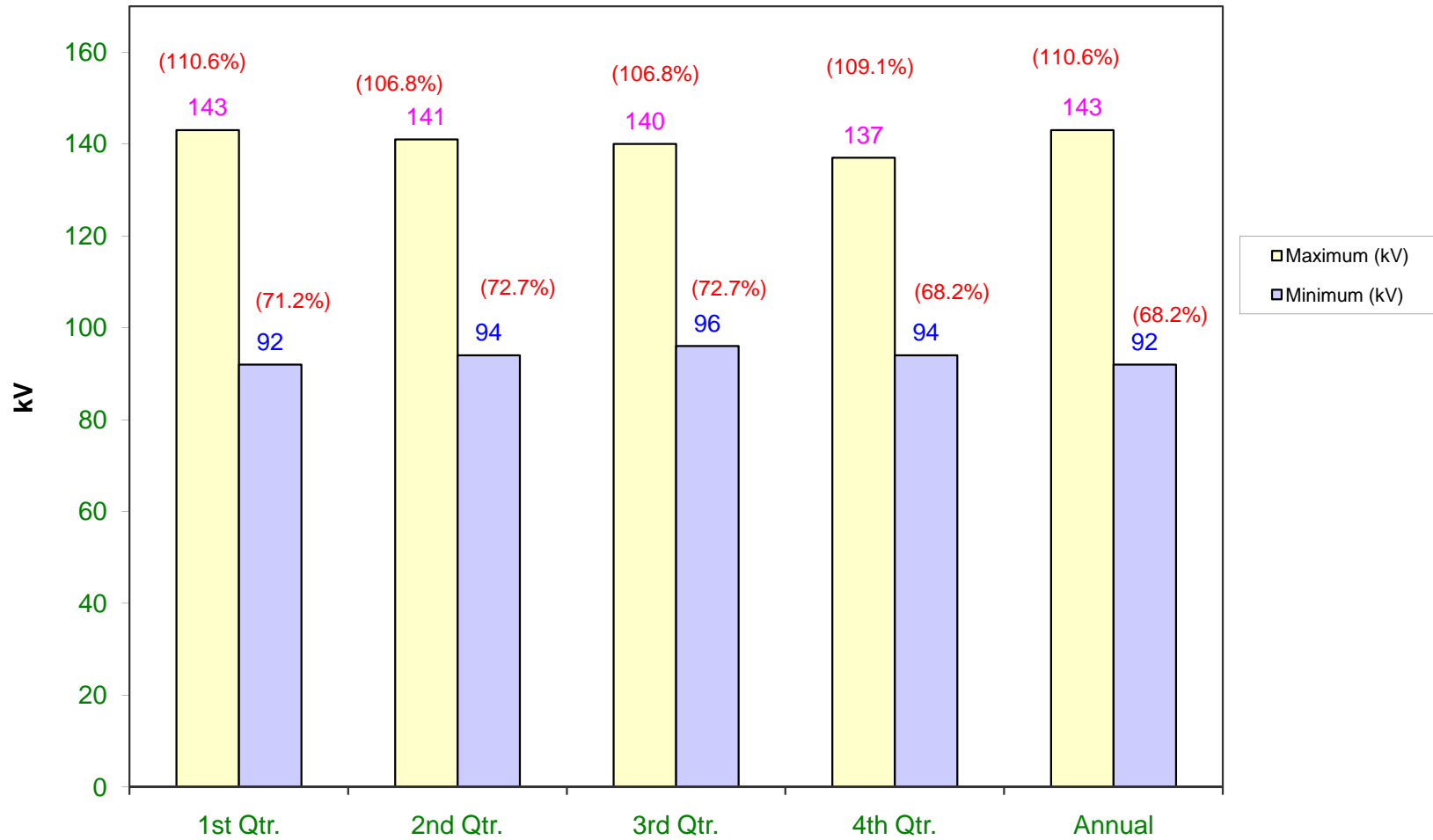
Note:

1. The minimum bus voltages are based on the instantaneous log book readings and hence do not reflect the voltage profile of the concerned Grid S/s. Further, low voltages during contingency conditions are also recorded as minimum voltages.

OVERALL PERFORMANCE VOLTAGE AT 220kV

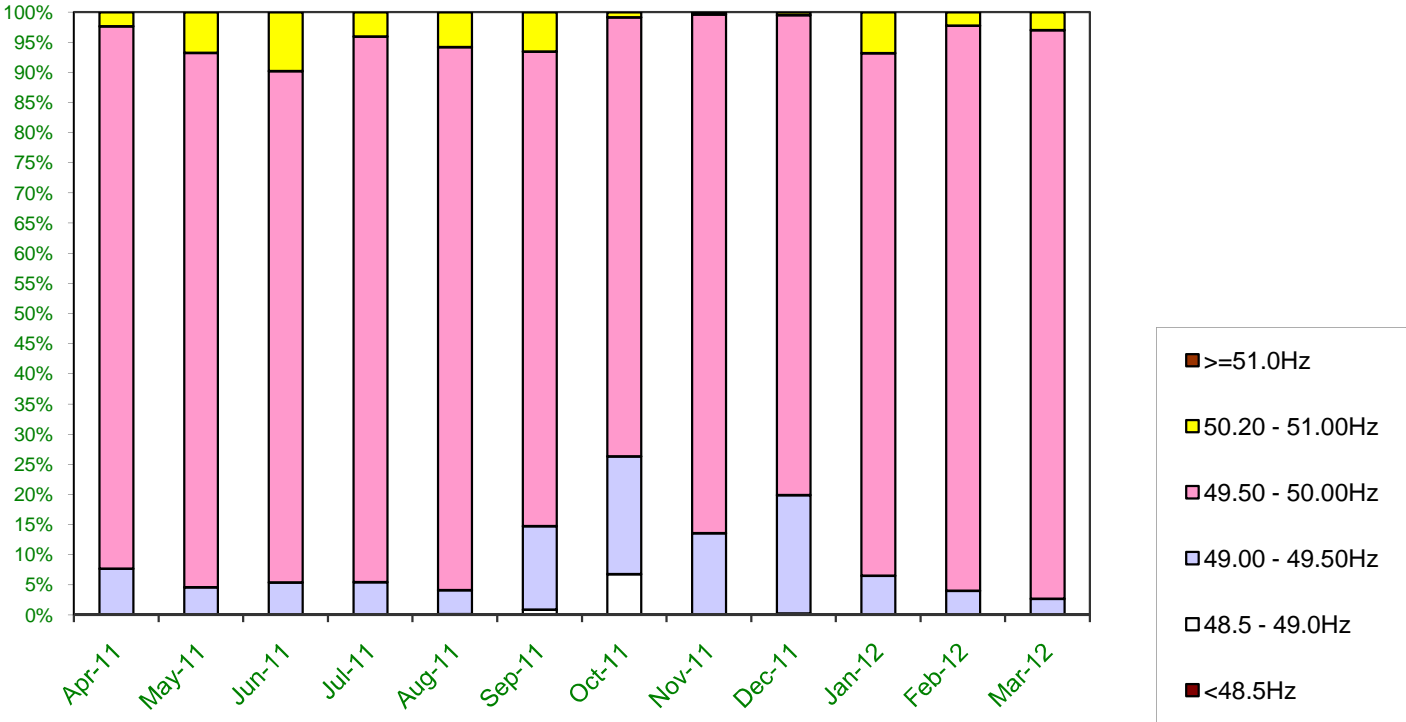


OVERALL PERFORMANCE VOLTAGE AT 132 kV



Frequency Performance

Percentage time occurrence

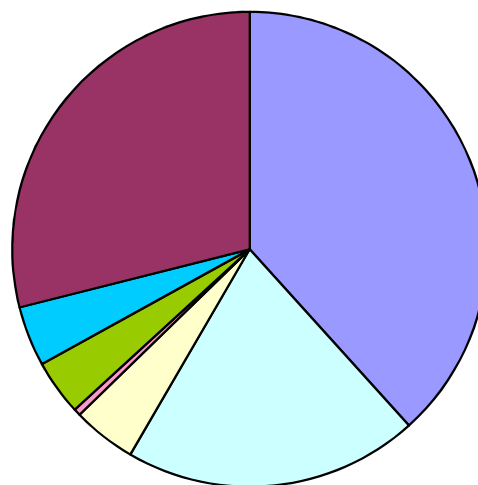


	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12
■ >=51.0Hz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
■ 50.20 - 51.00Hz	2.00	5.11	6.95	3.13	4.52	4.99	0.81	0.34	0.47	5.59	1.88	2.47
■ 49.50 - 50.00Hz	75.91	66.87	60.17	70.16	69.98	59.98	67.64	80.99	73.06	71.10	78.00	78.48
■ 49.00 - 49.50Hz	6.40	3.45	3.75	4.18	3.07	10.55	18.10	12.70	18.05	5.33	3.32	2.22
□ 48.5 - 49.0Hz	0.08	0.00	0.07	0.05	0.13	0.67	6.31	0.06	0.23	0.00	0.00	0.00
■ <48.5Hz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Months

INTERRUPTION DUE TO MAJOR INCIDENT

Incident	Duration of Interruption	No. of Interruption
Snapping of Jumper / Conductor / Earth wire	132:11:00	89
Insulator Failure	69:18:00	49
Bursting of CT / PT	14:57:00	17
Breaker Problem	1:39:00	8
System Disturbance	13:02:00	18
Failure of LA	14:07:00	34
Others	99:51:00	110
The duration of interruption indicated above is the sum total of interruptions occurred at different areas(S/s) during the year. However there was no total blackout experienced for the State during the year 2011-12.		

INTERRUPTION (HRS) DUE TO MAJOR INCIDENT DURING 2011-12

- Snapping of Jumper / Conductor / Earth wire
- Insulator Failure
- Bursting of CT / PT
- Breaker Problem
- System Disturbance
- Failure of LA
- Others



पावर मैप पूर्वी क्षेत्र

POWER MAP OF EASTERN REGION

