

OPTCL



(Approved by OERC vide Letter No. OERC-Engg-5/98 (Vol.XV)/ 1364 dt. 24.09.2015)

PERFORMANCE OF THE TRANSMISSION SYSTEM OF OPTCL FOR 2014-2015

[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 2014-15.**1. Procurement of Power:**

Source	Commission's Approval (MU)	Actual Drawl for the State Consumption (MU)	Remarks
OHPC	5881.74	6358.819	State's Maximum and Minimum demand was 3981 MW and 2659 MW respectively
Thermal(TTPS+OPGC)	5769.29	5877.485	
CGP including Co-generation		655.414	
Co-generation Plants	1160		
Renewable Generation	546.91	446.534	
IPP	5205.24	4256.919	
EREB	6932.53	7907.641	
Total	25495.71	25502.812	
Net Banking + IEX+STOA		-1066.974	
	25495.71	24435.838	

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	255	215
2	Duburi	241	200
3	Joda	242	215
4	Tarkera	236	215
5	Budhipadar	244	193
6	Balasore	245	200
7	Narendrapur	252	192
8	Chandaka	238	196
9	Bhanjanagar	248	203
10	Theruvali	251	206
11	Meramundali	235	205
12	Bidanasi	255	193
13	Katapalli	250	213
14	Bhadrak	245	198
15	Paradeep	242	190
16	Bolangir	244	204
17	Mendhasal	239	207

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	140	100
2	Puri	137	84
3	Khurda	144	90
4	Berhampur	149	108

3. System Interruptions due to Major Incident:

INTERRUPTION DUE TO MAJOR INCIDENT			
Incident Duration of Interruption No. of Interruption	Duration of Interruption (Hrs:Min:Sec)	No. of Interruption	Remarks
Snapping of Jumper / Conductor / Earth wire	116:11:00	64	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 2014-15.
Insulator Failure	39:10:00	27	
Bursting of CT / PT	7:43:00	5	
Breaker Problem	0:00:00	4	
System Disturbance	13:57:00	9	
Failure of LA	4:54:00	35	
Others	46:24:00	107	

**COMMISSION'S OBSERVATION ON THE PERFORMANCE OF THE
TRANSMISSION SYSTEM OF OPTCL FOR 2014-15**

The salient features of the performance of transmission system of OPTCL for the year 2014-15 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 2014-15 against which the actual performance have been indicated in the following table:

Source	Commission's Approval (MU)	Actual Drawl for the State Consumption (MU)	Remarks
OHPC	5881.74	6358.819	State's Maximum and Minimum demand was 3981 MW and 2659 MW respectively
Thermal(TTPS+OPGC)	5769.29	5877.485	
Co-generation plants including co-generation	1160	655.414	
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	25495.71	24435.838	

There is an import of 190.31 MU through power banking, open access, trading & IEX) and export of 1257.905 MU (43.812 as sales to other utilities, 92.546 on account of UI deviation and 1121.547 through trading, OA, banking & IEX export) during the FY 2014-15. Hence, in the said financial year GRIDCO has an export of 1066.974 MU on this account.

2. During FY 2014-15 the daily peak demand touched at 3981 MW maximum on dt.25.03.2015 and a minimum of 2659 MW on dt.12.10.2014. The peak demand of 3981MW in 2014-15 is about 276 MW above the peak demand experienced during the previous year 2013-14 (of 3705 MW). But the total energy drawl is 24436 MU in FY 2014-15 against 23323MU in 2013-14, which indicates a growth in electricity consumption of around 1113 MU in the State.

B. Line Interruption:

3. OPTCL's system has faced aggregated Annual interruptions varying from 5 hour to 116 hours at different locations on account of conductor/jumper snapping, insulator failure, bursting of Current Transformer/Potential Transformer, breaker problem, system disturbance, Lightening 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. It has been reported about 123 hours and 42 hours of load restriction in the first and second quarter of the FY 2014-15 due to non-availability of Generation/Failure of generating stations. OPTCL claimed that there was no black out experienced in the State during the FY 2014-15.

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, distribution licensee & bulk consumer shall take all possible measures to ensure that grid frequency always remains within 47.9 to 50.05 Hz band. OPTCL, in 2014-15, has experienced frequency as low as 49.06 Hz and as high as 50.71 Hz during 1st quarter. However, OPTCL does not have much control over the frequency parameter since it is dependant upon the National 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 from the 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 190 kV minimum and 255 kV maximum in its 220 KV system and 84 KV minimum and 149 KV maximum in its 132 KV system. OPTCL is advised to take suitable measures in order to maintain the voltage profile within the allowable limit. 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.

E. Load Restriction:

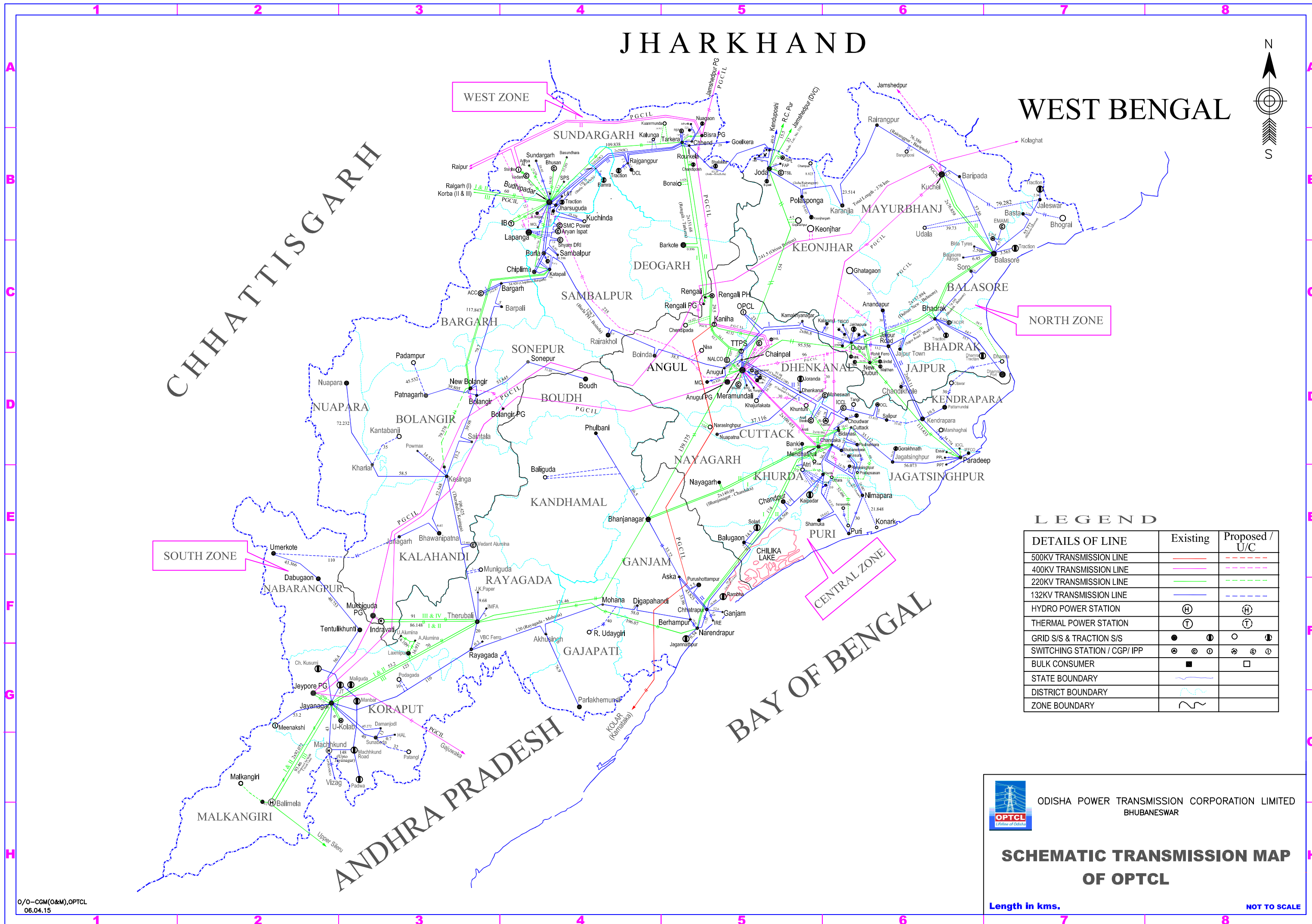
6. M/s. OPTCL has claimed that the load restriction due to non-availability of the transmission and transformation capacity as 'NIL' which in turn indicates that during FY 2013-14 and OPTCL system availability was 100%. OPTCL should also identify the low voltage pockets in the state particularly in border areas and should take steps for strengthening transmission system. OPTCL should discuss with DISCOM authorities and take action on system strengthening. DISCOMs should be intimated as regards to commissioning of new s/s and up-gradation etc. so that no investment of OPTCL shall remain idle due to non-availability of downward evacuation arrangement.

7. Due to non-availability of generation/failure of generating stations, OPTCL, however, has resorted of load restriction totaling to 165 hours in FY 2014-15. Further, during the said period load restriction was imposed on rotational basis in the state to curtail demand due to non-availability of generation/failure of generating stations. 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. Efficient Operation of Transmission System:

OPTCL should complete the SCADA provision work in all 220 kV and above S/S for proper monitoring and efficient functioning of the power system. Energy Accounting and Settlement Service Centre (EASSC) should be fully functional under the control of SLDC.

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



LEGEND		
DETAILS OF LINE	Existing	Proposed / U/C
500KV TRANSMISSION LINE		
400KV TRANSMISSION LINE		
220KV TRANSMISSION LINE		
132KV TRANSMISSION LINE		
HYDRO POWER STATION		
THERMAL POWER STATION		
GRID S/S & TRACTION S/S		
SWITCHING STATION / CGP/ IPP		
BULK CONSUMER		
STATE BOUNDARY		
DISTRICT BOUNDARY		
ZONE BOUNDARY		



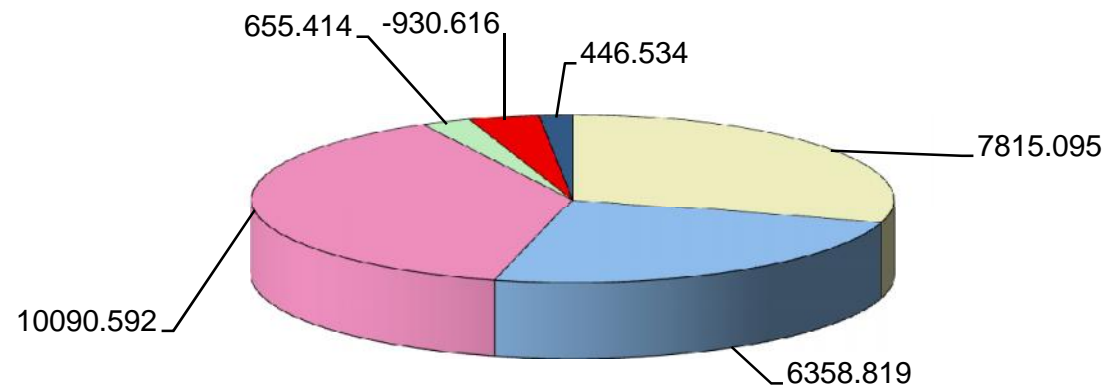
ODISHA POWER TRANSMISSION CORPORATION LIMITED
BHUBANESWAR

**SCHEMATIC TRANSMISSION MAP
OF OPTCL**

Length in kms. NOT TO SCALE

GRID DEMAND FOR THE YEAR 2014-15

[Total Drawal 24435.839 MU]

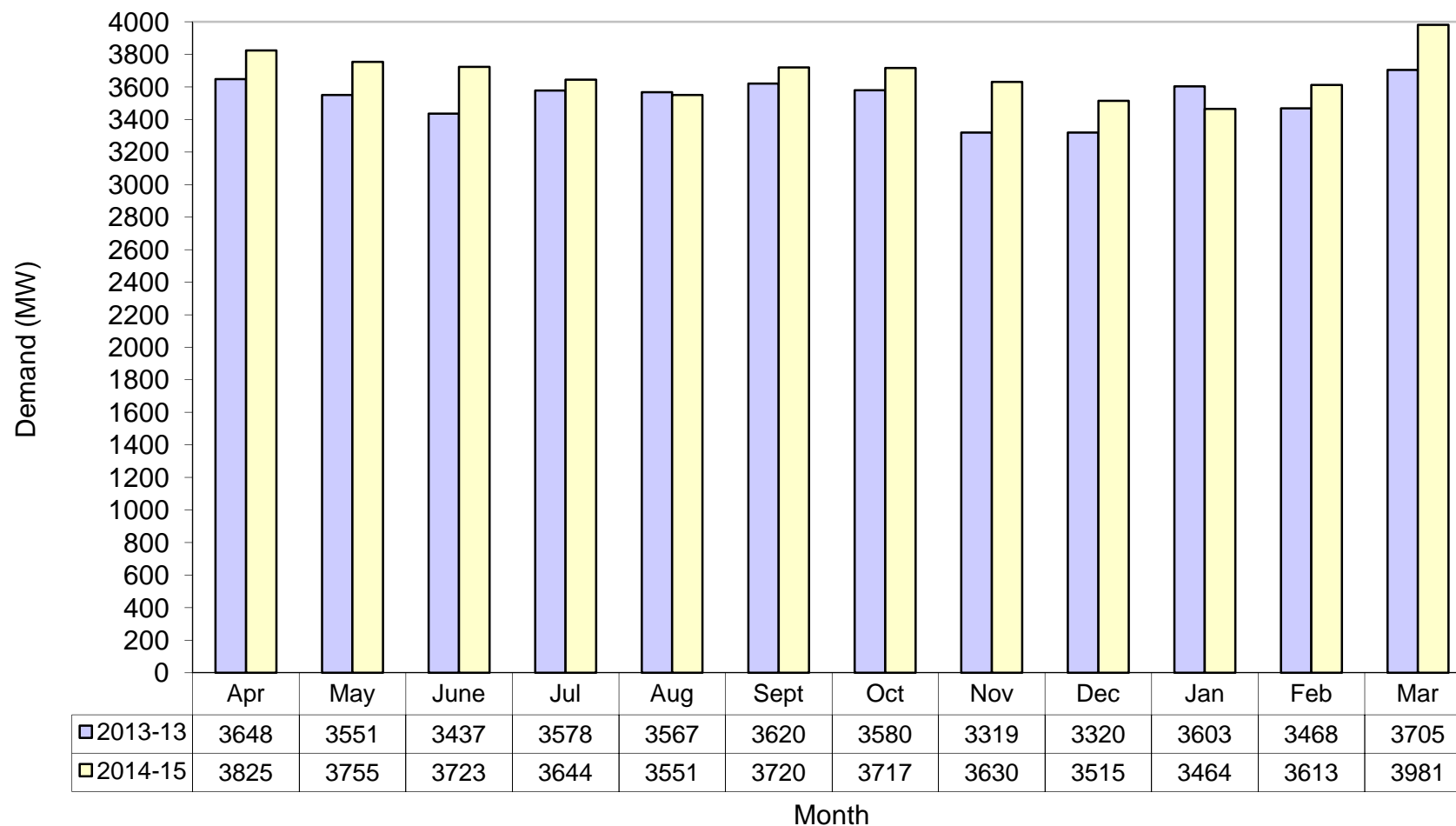


Net EREB Total Hydro NET Thermal (OPGC + TTPS+IPP) CPP Net (BankingPower+IEX+STOA) Renewable Energy

DAILY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR 2014-15

Day	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Max	Min
1	3331	3483	3311	3536	3395	3506	3636	3514	3365	2933	3328	3436	3636	2933
2	3588	3511	3364	3241	3380	3516	3440	3483	3412	3397	3370	3558	3588	3241
3	3640	3580	3495	3525	3138	3380	3463	3443	3413	3210	3322	3440	3640	3138
4	3730	2995	3561	3461	2832	3489	3516	3566	3362	3344	3513	3439	3730	2832
5	3753	3468	3723	3528	3008	3275	3462	3400	3348	3380	3459	3401	3753	3008
6	3722	3499	3707	3644	3379	3428	3394	3405	3415	3352	3403	3359	3722	3352
7	3583	3529	3554	3481	3454	3442	3616	3603	3330	3267	3395	3542	3616	3267
8	3711	3407	3498	3107	3330	3479	3664	3538	3310	3251	3288	3450	3711	3107
9	3600	3216	3674	3496	3376	3188	3691	3611	3389	3235	3333	3538	3691	3188
10	3641	3472	3689	3208	3438	3403	3532	3618	3491	3234	3367	3597	3689	3208
11	3599	3539	3656	3347	3469	3500	3347	3615	3453	3150	3066	3534	3656	3066
12	3347	3696	3665	3362	3301	3581	2659	3630	3395	3300	3165	3447	3696	2659
13	3033	3628	3612	3377	3458	3476	3231	3494	3450	3254	3395	3509	3628	3033
14	3543	3559	3469	3504	3389	3554	3434	3507	3364	3317	3290	3571	3571	3290
15	3649	3734	3547	3525	3528	3439	3412	3380	3448	3359	3185	3583	3734	3185
16	3477	3755	3494	3411	3064	3572	3086	3411	3489	3348	3342	3695	3755	3064
17	3195	3696	3119	3498	3331	3585	3547	3425	3227	3376	3330	3667	3696	3119
18	3666	3346	3511	3410	3387	3562	3482	3379	3363	3350	3577	3678	3678	3346
19	3685	3738	3270	3421	3464	3589	3508	3498	3396	3386	3435	3541	3738	3270
20	3246	3700	3245	3309	3309	3586	3663	3353	3395	3371	3481	3809	3809	3245
21	3603	3739	3678	3202	3513	3556	3552	3423	3497	3180	3382	3795	3795	3180
22	3608	3709	3715	3284	3444	3568	3644	3466	3320	3236	3382	3676	3715	3236
23	3696	3502	3622	3514	3375	3611	3511	3422	3515	3464	3447	3706	3706	3375
24	3631	3668	3474	3438	3540	3688	3580	3415	3436	3275	3493	3865	3865	3275
25	3600	3408	3237	3382	3493	3701	3489	3465	3441	3332	3541	3981	3981	3237
26	3713	3177	3606	3355	3387	3720	3717	3374	3382	3295	3613	3828	3828	3177
27	3606	3555	3239	3477	3299	3631	3554	3407	3306	3407	3501	3512	3631	3239
28	3458	3748	3417	3495	3468	3640	3515	3454	3226	3248	3503	3142	3748	3142
29	3653	3647	3228	3464	3551	3645	3549	3494	3287	3360		3616	3653	3228
30	3825	3629	3409	3533	3490	3551	3567	3442	3307	3350		3516	3825	3307
31		3286		3537	3389		3539		3226	3332		3629	3629	3226
MAX	3825	3755	3723	3644	3551	3720	3717	3630	3515	3464	3613	3981	3981	3375
MIN	3033	2995	3119	3107	2832	3188	2659	3353	3226	2933	3066	3142	3571	2659

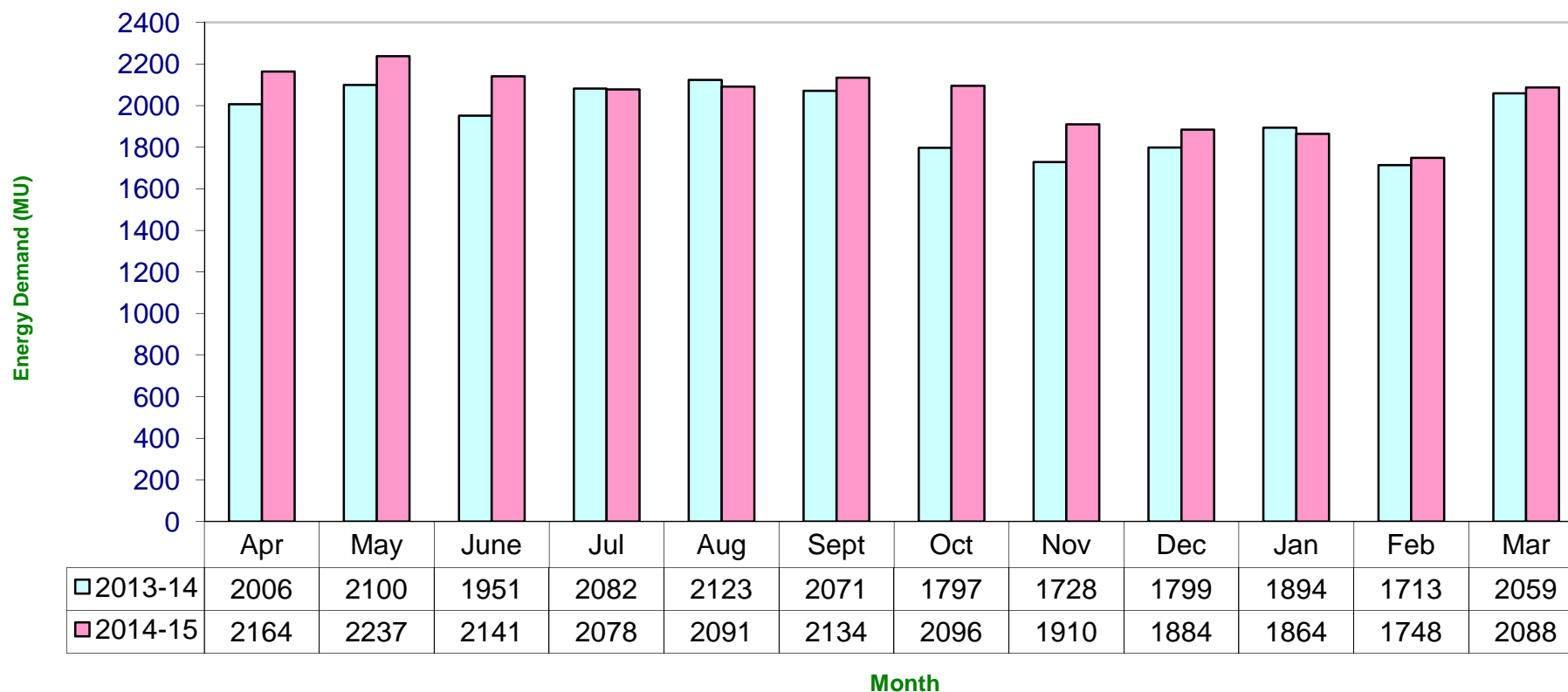
COMPARISON OF MONTHLY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR ENDING 2013-14 & 2014-15



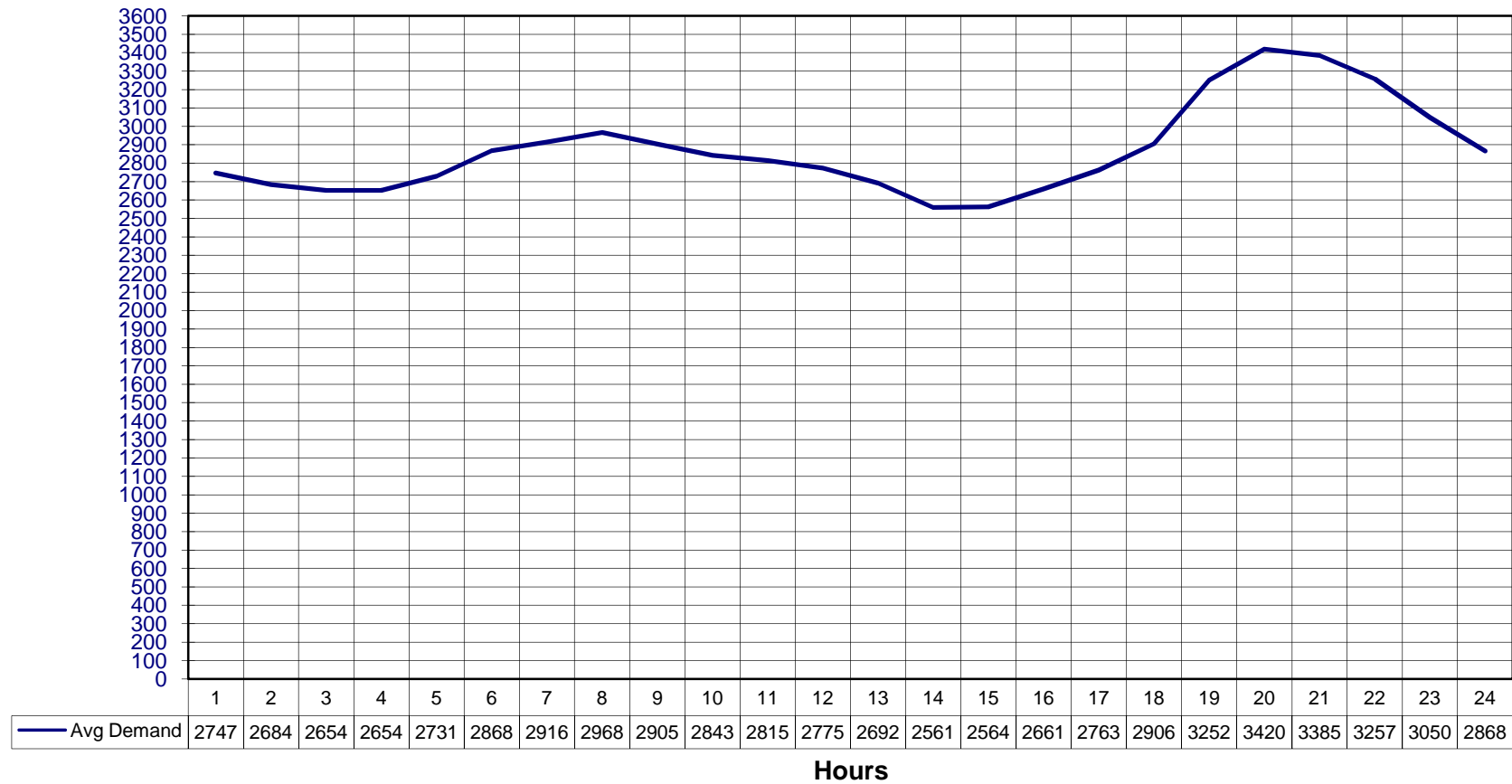
Annual Peak Demand : 2013-14 - 3705 MW 2014-15 - 3981 MW

■ 2013-13 ■ 2014-15

COMPARISON OF MONTHLY ENERGY DEMAND (MU) EXCLUDING TRADING & RETURN BANKING POWER FOR THE YEAR ENDING 2013-14 & 2014-15



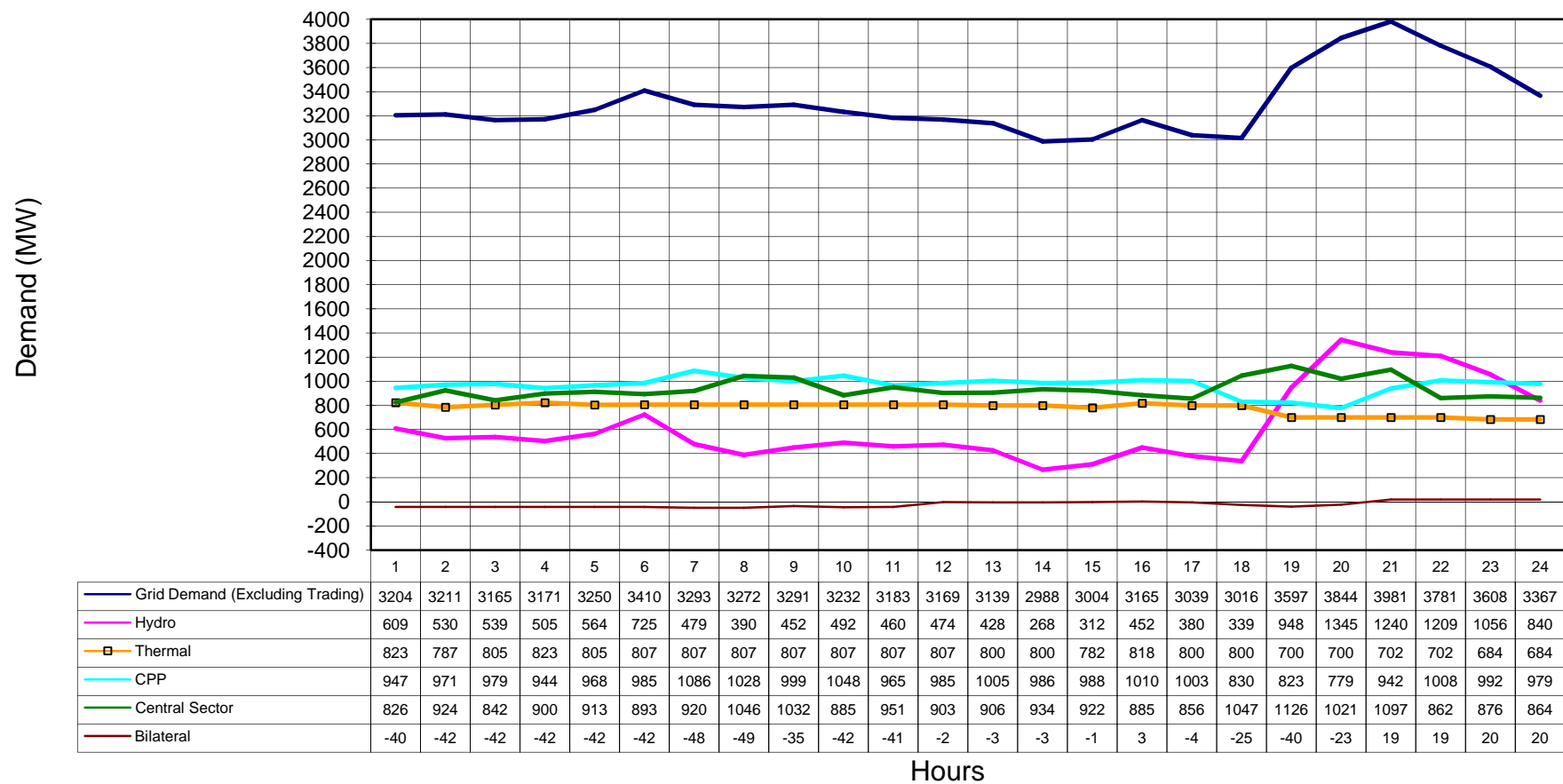
Annual Energy Demand : **2013-14 - 23323 MU** **2014-15 - 24436 MU**

DEMAND CURVE FOR HOURLY AVERAGE DEMAND EXCLUDING TRADING FOR YEAR ENDING MARCH 2015

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

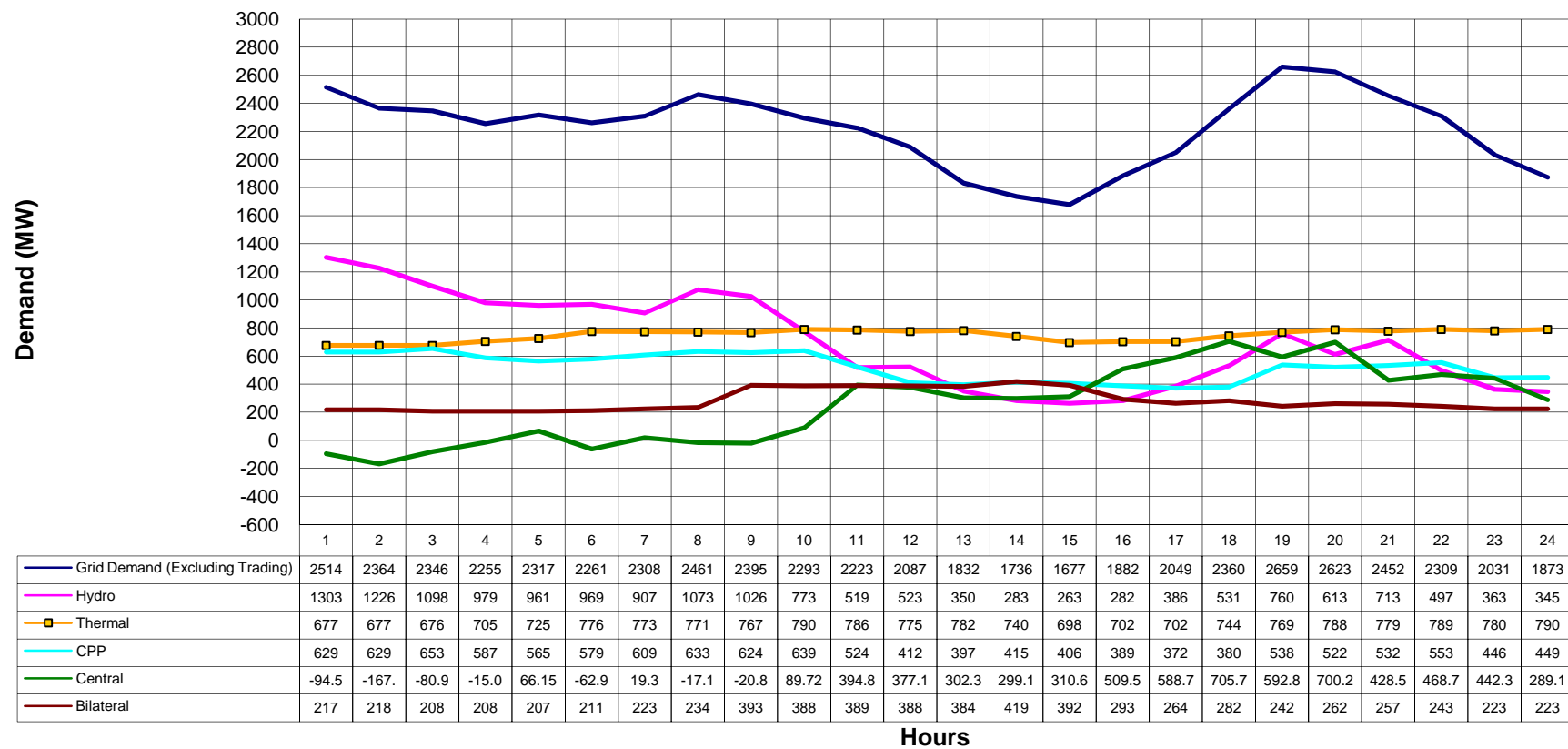
Hours-->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Apr-14	3125	3065	3000	2991	3059	3131	2998	3009	2989	2993	3020	3064	3040	2952	2989	3046	3019	2940	3247	3524	3528	3477	3382	3261
May-14	3133	3065	3018	2983	3052	3030	2930	2948	2945	2938	2969	2995	2984	2917	2971	3035	3024	2909	3083	3454	3480	3440	3328	3245
Jun-14	3110	3011	2994	2988	3025	3005	2959	2952	2916	2899	2933	2938	2919	2888	2919	2982	2977	2882	2987	3415	3427	3386	3281	3197
Jul-14	2833	2766	2718	2688	2748	2806	2861	2914	2858	2800	2772	2724	2694	2611	2639	2722	2792	2820	3094	3349	3350	3295	3153	2986
Aug-14	2878	2810	2789	2771	2833	2911	2950	2999	2917	2838	2784	2764	2709	2603	2608	2697	2753	2833	3174	3334	3306	3302	3178	2995
Sep-14	2966	2896	2859	2846	2893	3007	3064	3118	3039	2968	2922	2866	2796	2701	2726	2826	2917	3051	3410	3465	3504	3425	3259	3110
Oct-14	2750	2688	2656	2674	2703	2859	2889	2939	2853	2784	2748	2710	2615	2490	2485	2594	2711	3027	3441	3440	3358	3217	3030	2835
Nov-14	2441	2399	2384	2413	2568	2835	2945	3021	2844	2731	2676	2618	2465	2256	2261	2419	2659	3152	3445	3458	3341	3083	2772	2557
Dec-14	2206	2166	2147	2182	2318	2597	2779	2887	2825	2695	2648	2542	2414	2188	2148	2304	2581	3033	3339	3356	3252	2958	2595	2324
Jan-15	2198	2145	2130	2155	2257	2555	2827	2952	2892	2751	2672	2560	2414	2202	2152	2244	2471	2799	3238	3289	3191	2935	2562	2320
Feb-15	2435	2372	2358	2370	2466	2685	2846	2936	2871	2792	2716	2632	2493	2279	2243	2343	2492	2658	3240	3389	3342	3145	2837	2574
Mar-15	2892	2830	2797	2783	2848	2995	2949	2936	2915	2929	2920	2885	2765	2646	2627	2723	2764	2765	3324	3562	3546	3424	3219	3006
Avg. Annual	2747	2684	2654	2654	2731	2868	2916	2968	2905	2843	2815	2775	2692	2561	2564	2661	2763	2906	3252	3420	3385	3257	3050	2868

HOURLY DEMAND CURVE FOR 25.03.2015 (MAX PEAK DEMAND OF THE YEAR (2014-15))



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

HOURLY DEMAND CURVE FOR 12.10.2014 (MIN PEAK DEMAND OF THE YEAR 2014-15)



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

1 INSTALLED CAPACITY (AS ON 31.3.2015) 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	6940.830	6358.819
OPGC (Thermal)	420	3060.583	2494.564
TTPS (Thermal)	460	4051.783	3363.896
TTPS (UI-OD)			19.025
IPPs			4256.919
CPP (Synchronised to OPTCL System)			655.414
Renewable Energy Including Co-gen	-		446.534
B. CENTRAL SECTOR			
Orissa Share			
Hydro	189.40		
Thermal	1075.26	-	7907.641
C. Banking Power+OA+Trading+IEX (Import)			190.931
TOTAL DRAWAL			25693.743
D. Banking Power+OA+Trading+IEX (Export)			1121.547
E. Deviation(Export)			92.546
F. Sold to Other Utilities			43.812
Net GRIDCO demand			24435.839

Export to ICCL 0.000

Export to NALCO 0.000

* Includes Orissa share from Machhkund.

2 TRANSMISSION LINES AND SUBSTATIONS

	As on 31.03.2014	Capacity Addition in 2014-2015	As on 1.4.2015
A. 400 kV line (ckt.km)	518.234	210.000	728.234
B. 220kV line (ckt.km)	5730.334	0.000	5730.334
C. 132kV line (ckt.km)	5455.911	169.196	5625.107
D. Substations			
400 / 220 /132kV (nos.)	2	0	2
220/132/33kV (nos.)	17	0	17
220/33kV (nos.)	5	0	5
132/33 kV (nos.)	63	5	68
132/33/25 kV (nos.)	1	0	1
132/33/11 kV (nos.)	1	1	2
132/11 kV (nos.)	2	-1	1
132kV Switching Stations (OPTCL)	3	0	3
132kV LILO Switching Stations of Industries	14	0	14
Total	108	5	113

Note:1. 400KV Meramundali-Lapanga Ckt.-I has been newly added.

2. 132kV Khariar-Nuapara SC,132kV Banki(T-off 220kV Narendrapur-Mendhasal Line), 132kV Sonepur-Boudh SC, 132kV Shamuka LILO DC has been newly added.

3. 132/33kV Arugul,Nuapara,Boudh,Banki,Shamuka Grid S/ss have been newly added.

4. 132/11kV Jharsuguda upgraded to 132/33/11kV

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

3 **PERFORMANCE OF OPTCL DURING 2014 - 15**

3 A. **POWER SUPPLY SECURITY**

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

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	123.00	42.00	0.00	0.00	165.00
Percentage(%)	5.63	1.90	0.00	0.00	1.88

* —→ 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

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(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

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

3 C **OVERALL PERFORMANCE**

3 C-1 **FREQUENCY**

(i) **Above 50.05 Hz**

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	482.48	375.40	662.10	673.92	2193.90
Percentage(%)	22.09	17.00	29.99	31.20	25.04

(ii) **Maximum continous period beyond 50.05 Hz**

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	4.47	1.57	5.75	4.92	5.75
Percentage(%)	0.20	0.07	0.26	0.23	0.07

(iii) **Maximum Frequency occurrence**

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Hz	50.71	50.50	50.58	50.56	50.71
Date/Time	<u>03.06.14</u> 12:59hr	<u>26.08.14</u> 23:10hr	<u>15.12.14</u> 00:00hr	<u>17.02.15</u> 18:03hr	<u>03.06.14</u> 12:59hr

(iv) **Below 49.7 Hz**

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	45.35	56.72	12.58	6.83	121.48
Percentage(%)	2.08	2.57	0.57	0.32	1.39

(v) **Maxm. Continous period below 49.7 Hz**

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	0.70	0.70	0.27	0.30	0.70
Percentage(%)	0.03	0.03	0.01	0.01	0.01

(vi) **Lowest Frequency Occurrence**

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
Hz	49.06	49.35	49.56	49.52	49.06
Date/Time	<u>03.06.14</u> 12:38 hr	<u>09.09.14</u> 19:11 hr	<u>16.10.14</u> 06:20hr	<u>20.03.15</u> 06:02hr	<u>03.06.14</u> 12:38 hr

3. C - 2 VOLTAGE PROFILE (2014-2015)

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	252	29.06.14	18:00	250	02.07.14	13:00	255	12.10.14	10:15	247.56	07.02.15	01:45	255	12.10.14	10:15
2	Duburi	238	13.04.14	18:00	240	21.07.14	01:00	239.94	22.11.14	03:45	241.325	02.01.15	02:00	241	02.01.15	02:00
3	Joda	235	27.05.14	06:00	235	21.07.14	13:00	238.61	19.11.14	17:15	241.762	16.02.15	13:30	242	16.02.15	13:30
4	Tarkera	235	21.06.14	06:00	235	03.07.14	06:00	235.84	30.11.14	03:45	235.032	02.01.15	04:30	236	30.11.14	03:45
5	Budhipadar	237	21.06.14	03:00	244	29.07.14	22:00	236.59	30.11.14	03:30	236.88	02.01.15	04:30	244	29.07.14	22:00
6	Balasore	235	26.05.14	06:00	245	08.09.14	11:00	240.517	04.12.14	13:45	241.21	02.01.15	03:45	245	08.09.14	11:00
7	Narendrapur	252	08.06.14	22:00	246	11.07.14	13:00	245.31	12.10.14	22:30	234.744	08.02.15	00:15	252	08.06.14	22:00
8	Chandaka	229	04.05.14	18:00	231	01.09.14	03:00	238.03	18.12.14	14:15	236.938	01.01.15	02:45	238	18.12.14	14:15
9	Bhanjanagar	233	29.06.14	18:00	238	01.08.14	14:00	248.2	09.12.14	13:30	244.789	08.01.15	17:15	248	09.12.14	13:30
10	Theruvai	249	20.06.14	14:00	248	02.07.14	13:00	251.31	12.10.14	11:00	234.917	02.02.15	13:00	251	12.10.14	11:00
11	Meramundali	230	04.05.14	18:00	230	09.07.14	06:00	234.8	21.11.14	14:30	234.686	02.01.15	00:30	235	21.11.14	14:30
12	Bidanasi	232	04.05.14	18:00	234	13.09.14	10:00	255.07	12.10.14	13:15	253.623	15.01.15	04:30	255	12.10.14	13:15
13	Katapalli	235	14.06.14	18:00	250	19.07.14	01:00	242.83	13.10.14	04:15	236.649	14.01.15	01:30	250	19.07.14	01:00
14	Bhadrak	245	07.06.14	22:00	241	04.08.14	07:00	241.96	04.12.14	13:45	242.365	02.01.15	02:00	245	07.06.14	22:00
15	Paradeep	232	13.04.14	19:00	238	07.09.14	14:00	241.67	14.10.14	22:00	241.094	02.01.15	02:00	242	14.10.14	22:00
16	Bolangir	238	14.06.14	18:00	239	15.08.14	11:00	244.15	13.10.14	04:15	237.169	04.01.15	03:30	244	13.10.14	04:15
17	Mendhasal	235	29.06.14	18:00	235	21.09.14	14:00	239.305	04.12.14	13:45	237.573	02.01.15	06:15	239	04.12.14	13:45

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	228	25.04.14	21:00	227	13.07.14	08:00	215.06	19.11.12	10:15	224.294	30.03.15	07:00	215	19.11.12	10:15
2	Duburi	200	06.06.14	15:00	205	27.09.14	20:00	210.9	08.10.12	19:00	206.223	27.03.15	20:45	200	06.06.14	15:00
3	Joda	215	24.04.14	19:00	220	17.07.14	21:00	215.345	20.12.14	08:00	218.446	26.03.15	21:00	215	24.04.14	19:00
4	Tarkera	215	05.05.14	19:00	222	12.07.14	21:00	222.16	09.10.14	18:45	223.139	28.03.15	19:15	215	05.05.14	19:00
5	Budhipadar	218	05.04.14	16:00	216	08.07.14	24:00	220.83	16.10.14	09:15	192.54	16.03.15	19:15	193	16.03.15	19:15
6	Balasore	200	07.04.14	21:00	210	06.07.14	20:00	208.3	08.10.14	21:00	217.135	28.02.15	19:00	200	07.04.14	21:00
7	Narendrapur	192	25.04.14	19:00	192	23.07.14	21:00	198.31	10.11.14	18:15	196.813	13.03.15	18:30	192	25.04.14	19:00
8	Chandaka	196	30.04.14	18:00	201	22.08.14	20:00	207.9	14.10.14	18:15	206.628	31.03.15	19:00	196	30.04.14	18:00
9	Bhanjanagar	207	26.04.14	21:00	203	22.08.14	19:00	219.16	14.10.14	18:15	212.978	31.03.15	19:15	203	22.08.14	19:00
10	Theruvai	223	25.04.14	21:00	220	18.07.14	06:00	220.14	01.11.14	18:15	205.762	31.03.15	19:15	206	31.03.15	19:15
11	Meramundali	205	07.06.14	15:00	217	22.08.14	19:00	222.33	16.12.14	17:30	217.65	31.03.15	19:15	205	07.06.14	15:00
12	Bidanasi	193	07.06.14	21:00	206	26.08.14	19:00	225.8	30.10.14	18:00	211.766	31.03.15	19:15	193	07.06.14	21:00
13	Katapalli	213	05.05.14	16:00	213	21.07.14	11:00	219.5	12.10.14	10:45	212.863	20.03.15	20:00	213	20.03.15	20:00
14	Bhadrak	198	03.04.14	21:00	201	31.07.14	20:00	201	08.10.14	21:00	203.51	27.03.15	23:00	198	03.04.14	21:00
15	Paradeep	190	03.04.14	20:00	197	27.09.14	19:00	195.66	08.10.14	19:00	193	27.03.15	20:15	190	03.04.14	20:00
16	Bolangir	204	06.05.14	17:00	205	17.07.14	20:00	209.92	22.10.14	19:15	203.97	23.03.15	20:00	204	23.03.15	20:00
17	Mendhasal	207	07.06.14	15:00	212	22.08.14	20:00	207.03	14.10.14	18:15	209.572	31.03.15	19:00	207	07.06.14	15:00

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	135	22.05.14	17:00	140	04.07.14	05:00	140.41	11.12.14	15:45	138.96	02.01.15	03:00	140	11.12.14	15:45
2	Puri	129	16.06.14	16:00	131	04.07.14	06:00	137.06	12.10.14	12:00	136.77	12.02.15	15:15	137	12.10.14	12:00
3	Khurda	136	20.04.14	18:00	140	05.08.14	23:00	143.06	26.11.14	10:15	144.04	18.01.15	12:45	144	18.01.15	12:45
4	Berhampur	142	04.05.14	17:00	145	11.07.14	06:00	149.13	13.10.14	01:30	141.33	02.01.15	02:30	149	13.10.14	01:30

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

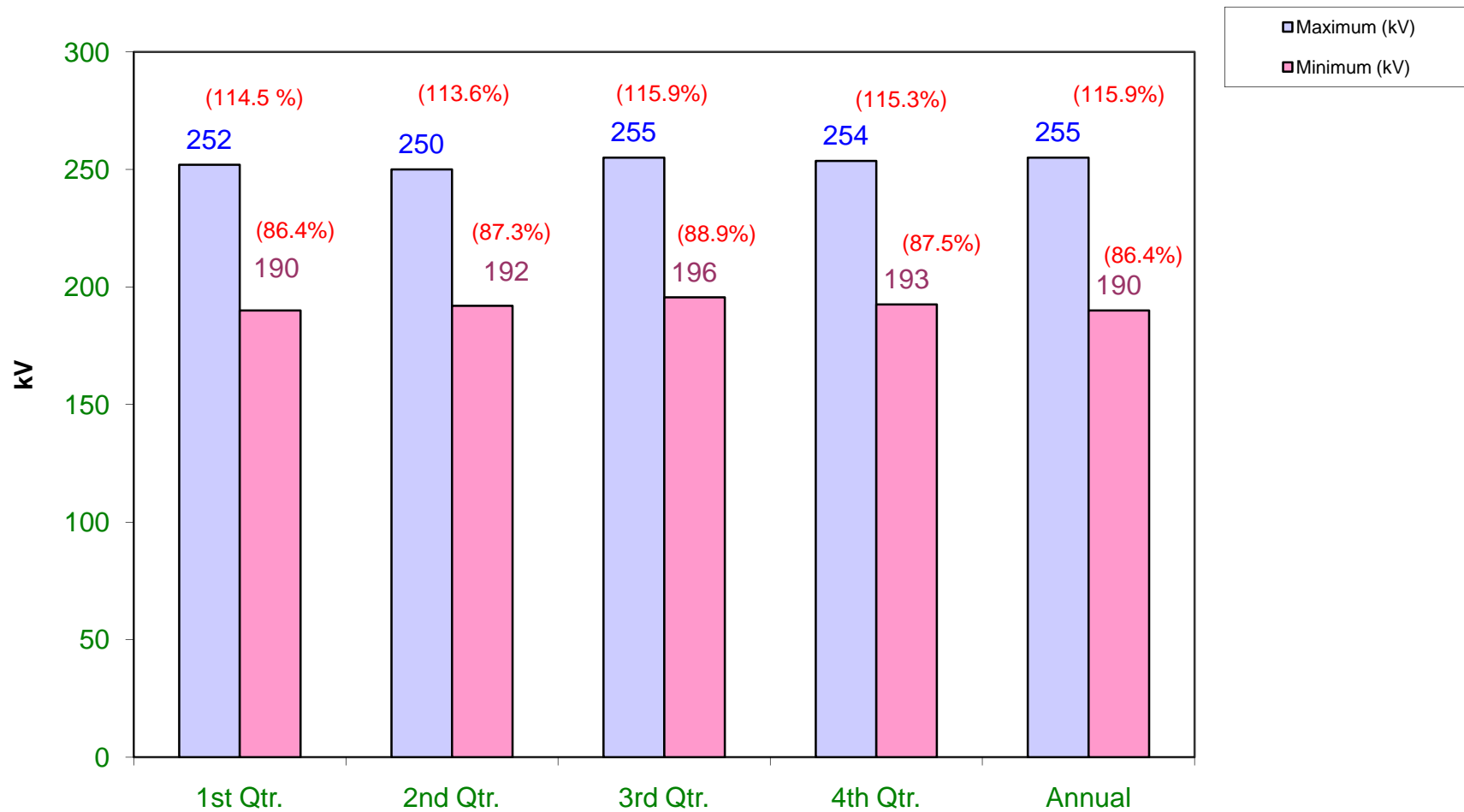
Sl. No.	Name of the Sub-station	Quarter - 1			Quarter - 2			Quarter - 3			Quarter - 4			ANNUAL		
		Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.
1	Cuttack	100	03.04.14	21:00	108	23.09.14	19:00	104.79	10.11.14	18:45	104.27	27.03.15	20:00	100	03.04.14	21:00
2	Puri	100	07.06.14	20:00	84	21.08.14	15:00	96.126	19.12.14	17:15	106.86	31.03.15	20:15	84	21.08.14	15:00
3	Khurda	90	25.04.14	21:00	98	08.08.14	19:00	101.21	14.10.14	19:00	94.336	23.03.15	19:30	90	25.04.14	21:00
4	Berhampur	108	26.04.14	19:00	112	23.07.14	21:00	117.55	15.10.14	17:45	120.49	02.01.15	18:30	108	26.04.14	19:00

Note:

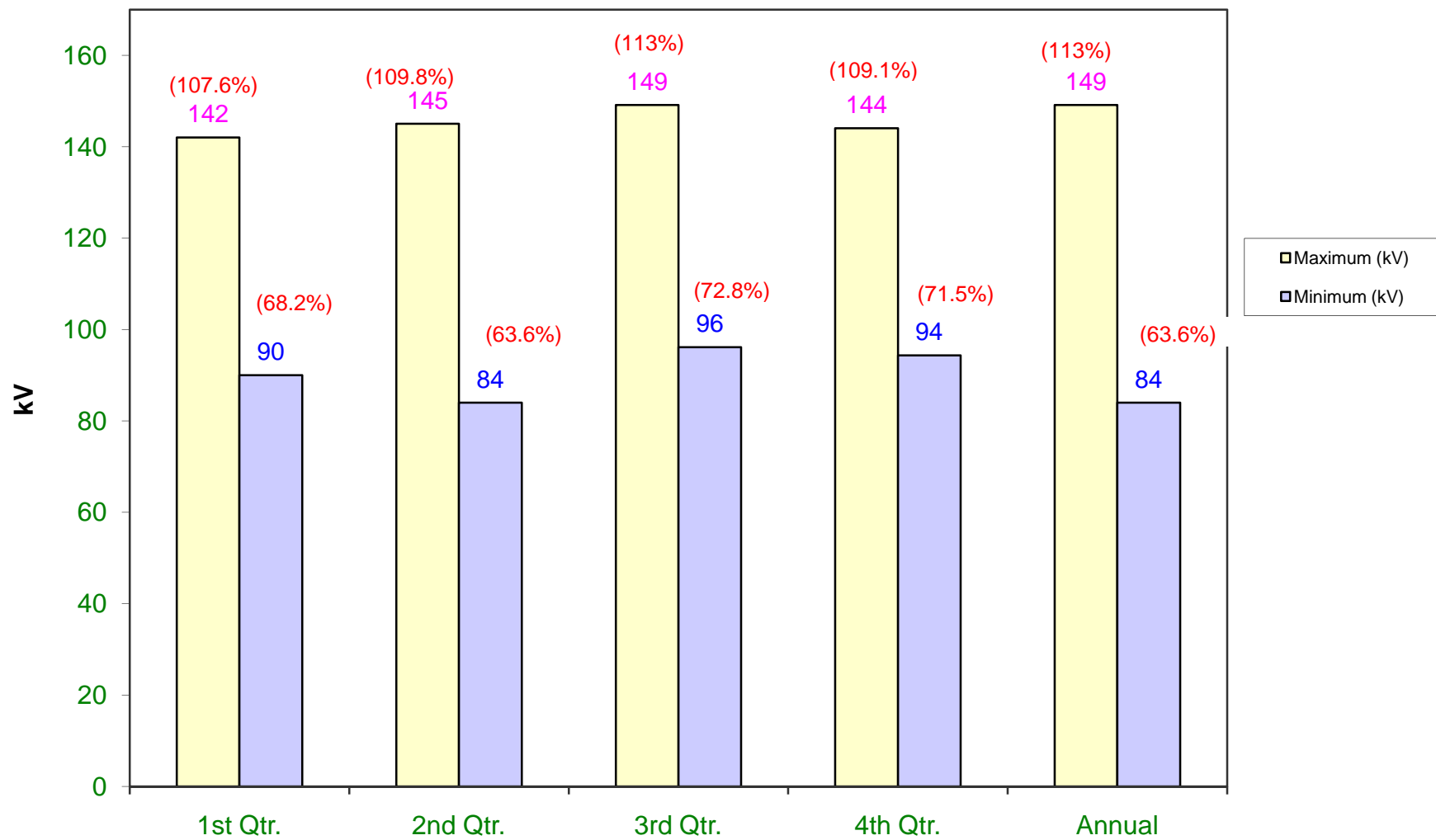
The bus voltages are based on the instantaneous log book readings(April'14- September'14) and 15min block voltage from meter data (from Oct'14-March'15).

Further, low voltages during contingency conditions are also recorded as minimum voltages excluding disturbance period and any PT failure period.

OVERALL PERFORMANCE VOLTAGE AT 220kV

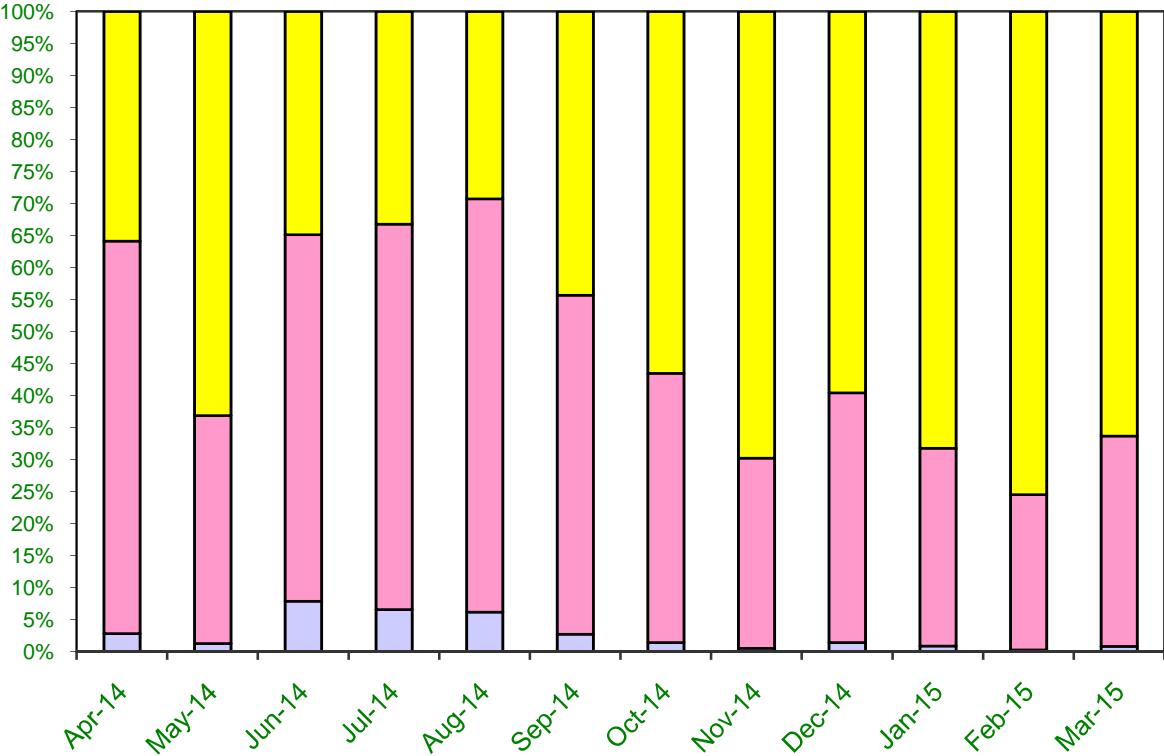


OVERALL PERFORMANCE VOLTAGE AT 132 kV



Frequency Performance

Percentage time occurrence



- >51.0Hz
- >=50.05Hz
- 49.70 - 49.90Hz
- 49.0 - 49.70Hz
- 48.50 - 49.0Hz
- <48.5Hz

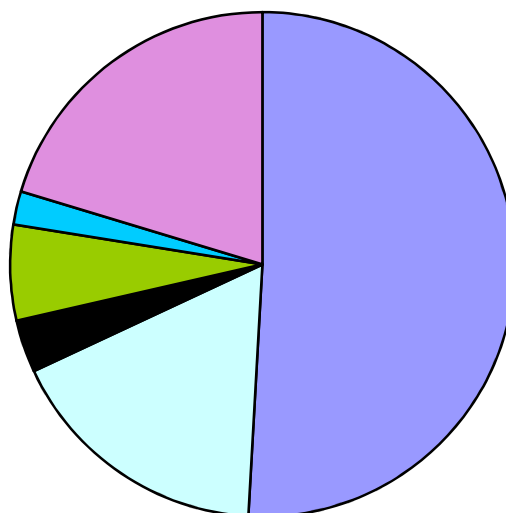
	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15
>51.0Hz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>=50.05Hz	17.06	29.83	19.12	16.63	14.84	19.62	26.46	32.54	31.04	33.14	32.17	28.39
49.70 - 49.90Hz	29.18	16.84	31.37	30.13	32.73	23.43	19.68	13.84	20.30	15.03	10.34	14.04
49.0 - 49.70Hz	1.34	0.60	4.33	3.30	3.14	1.22	0.69	0.26	0.75	0.43	0.13	0.37
48.50 - 49.0Hz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<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	116:11:00	64
Insulator Failure	39:10:00	27
Bursting of CT / PT	7:43:00	5
Breaker Problem	0:00:00	4
Major System Disturbance	13:57:00	9
Failure of LA	4:54:00	35
Others	46:24:00	107
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 2014-15.		

INTERRUPTION (HRS) DUE TO MAJOR INCIDENT DURING 2014-15



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



पावर मैप

POWER MAP OF EASTERN REGION

