OPTCL

(**Approved by OERC vide Letter No. OERC-Engg-5/98 (Vol.XXV)/ 1154 dt. 05.10.2024**)

PERFORMANCE OF THE TRANSMISSION SYSTEM OF OPTCL FOR 2023-24

[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 2023-24.

1. Procurement of Power:

Source	Energy Requirement of the State as per Commission's Approval (MU)	Actual Drawl of Energy for the State Consumption (MU)	Remarks
OHPC	5862.48	5533.97	The State's Maximum and Minimum demand was 6432 MW (on 27.08.2023) and 4072 MW (on 01.01.2024) respectively
Thermal (OPGC)	12026.35	10968.93	
CPP & Co-generation Plants		446.23	
Renewable Generation (State)	1180.35	1157.37	
IPP	5471.26	5151.49	
Central Sector (Thermal+ Hydro+ RE)	13645.13	16864.25	
Deviation (Export)		(-) 585.33	
Net Banking +IEX + Trading		(-) 2980.08	
Total	**38185.57**	**36556.82**	

2. Voltages profile of Major Grid Sub-stations:

Allowable Voltage Range at 220 kV level (245-198 kV)			
Sl. No.	**Name of the Sub-station**	**Maximum Voltage in kV**	**Minimum Voltage in kV**
1	**AskaN**	238.71	217.71
2	**Atri**	232.32	200.22
3	**Balasore**	235.26	202.59
4	**Balimela**	244.39	209.05
5	**Barkote**	235.67	204.49
6	**Bargarh**	231.68	200.85
7	**Bhadrak**	236.48	208.88
8	**Bhanjanagar**	238.79	203.74
9	**Bidanasi**	235.26	203.11
10	**BolangirN**	233.18	206.74
11	**Budhipadar**	231.57	208.76
12	**Chandaka**	230.88	203.07
13	**Cuttack**	232.09	207.09
14	**Duburi Old**	231.11	213.21
15	**Duburi New**	232.43	213.15
16	**Infocity-II GIS**	232.37	208.19
17	**Jayanagar**	239.59	223.43
18	**Joda**	230.41	215.29
19	**Katapalli**	230.47	212.57
20	**KeonjharGIS**	227.41	208.01
21	**Lapanga**	234.57	216.96
22	**Laxmipur**	242.94	208.76
23	**Malkangiri**	245.22	203.28
24	**Mendhasal**	233.70	205.83
25	**Meramundali**	228.45	197.22
26	**Narsinghpur**	229.12	215.35
27	**Narendrapur**	238.27	211.82
28	**Nayagarh**	241.91	208.07
29	**Paradeep**	232.09	202.24
30	**Tarkera**	231.11	205.01
31	**Theruvali**	244.21	222.62
32	**Rengali**	229.78	219.27

Allowable Voltage Range at 400 kV level (380 -420 kV)			
Sl. No.	**Name of the Sub station**	**Maximum Voltage in kV**	**Minimum Voltage in kV**
1	**Duburi (N)**	419.33	384.75
2	**Lapanga**	421.70	395.72
3	**Mendhasal**	416.21	386.13
4	**Meramundali**	414.54	395.48

Allowable Voltage Range at 132 kV level (145 -122 kV)			
Sl. No.	**Name of the Sub-station**	**Maximum Voltage in kV**	**Minimum Voltage in kV**
1	**Bhubaneswar**	141.68	118.30
2	**Cuttack**	141.10	116.74
3	**Khurda**	140.70	114.89
4	**Nimapara**	141.45	113.97
5	**Paradeep**	140.75	116.91
6	**Puri**	140.41	110.11
7	**Balasore**	141.74	117.49
8	**Bhadrak**	141.10	111.48
9	**DuburiO**	139.48	113.04
10	**Joda**	139.48	125.05
11	**Berhampur**	141.24	119.72
12	**Narendrapur**	145.78	123.55
13	**Therubali**	145.31	126.96
14	**Bolangir**	142.02	114.66
15	**Budhipadar**	139.48	131.23
16	**Katapali**	139.60	127.30
17	**Lapanga**	138.79	127.76
18	**Rourkela**	143.58	127.82

3. System Interruptions due to Major Incident:

INTERRUPTION DUE TO MAJOR INCIDENT			
Nature of Incident	**Duration of Interruption (Hrs:Min:Sec)**	**No. of Interruption**	**Remarks**
Snapping of Jumper / Conductor / Earth wire	20:48:00	70	The duration of interruption in the transmission line(s), sub-station(s)/ sub-station equipment is the sum total of interruptions that occurred in different areas during the year. However, no total blackout was experienced by the State during the year 2023-24.
Insulator Failure	34:22:00	38	
Bursting of CT / PT	08:33:00	25	
Major System Disturbance	08:21:00	06	
Failure of LA	16:35:00	23	
Others	222:37:00	331	

Note: Issued in the Public interest. Detailed report on system Performance as regards to operation of the Transmission System of OPTCL is available on the SLDC website i.e**., www.sldcorissa.org.in**

COMMISSION'S OBSERVATION/ DIRECTION ON THE SYSTEM PERFORMANCE REPORT SUBMITTED BY SLDC AS REGARDS TO OPERATION OF TRANSMISSION SYSTEM OF OPTCL FOR FY 2023-24

Background:

M/s. Odisha Power Transmission Corporation Limited (OPTCL) being a deemed Transmission Licensee undertakes Intra State transmission business in the State of Odisha and has been notified as the State Transmission Utility (STU). OPTCL is responsible for developing, maintaining and operating an efficient, coordinated and economical Transmission System. SLDC is assigned the responsibility to ensure the integrated operation of the State's power system on a real-time basis and to maintain Grid discipline. It has submitted the system performance report of OPTCL for FY 2023-24. The information relating to system operation is also available on the SLDC website i.e., www.sldcorissa.org.in. The observations and direction of the Commission on the system performance report for the smooth operation of the State Grid are as follows:

A. Energy Consumption and Transaction through Open Access & Energy Banking:

2. The energy consumption from various sources, transactions through open access and energy banking for the FY 2023-24 w.r.t. Commission's approval are summarized in the following table:

Source	Energy Requirement of the State as per the Commission's Approval (MU)	Actual Drawl of Energy for the State Consumption (MU)	Remarks
OHPC	5862.48	5533.97	The state's Maximum and Minimum demand was 6432 MW (on 27.08.2023) and 4072 MW (on 01.01.2024) respectively
Thermal (OPGC)	12026.35	10968.93	
CPP & Co-generation Plants		446.23	
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Deviation (Export)		(-) 585.33	
Net Banking +IEX+ Trading		(-) 2980.08	
Total	**38185.57**	**36556.82**	

3. During FY 2023-24, the daily peak demand touched 6432 MW on dt.27.08.2023 and the minimum demand was 4072 MW on dt.01.01.2024. The peak demand in 2023-24 is about 8 MW more than the peak demand experienced during the previous year 2022-23 (6424 MW). The total energy drawal for the State Consumption is about 36556.82 MU in FY 2023-24 against 32342.77 MU in 2022-23, which indicates an increase in electricity consumption of around 4214.05 MU (13.02 %) in the State. The Maximum energy (3237 MU) and Minimum energy (2335 MU) requirements occurred in the month of May and December respectively.

B. Frequency Profile:

4. As per the provisions in the Indian Electricity Grid Code Regulations, 2023, all users, SEBs, SLDCs, distribution licensees & bulk consumers shall take all possible measures to ensure that grid frequency always remains within the 49.90 to 50.05 Hz band. OPTCL system has experienced frequency as low as 49.54 Hz during the 3rd quarter and as high as 50.35 Hz during the 1st quarter of FY 2023-24. DISCOMs should adhere to their drawl schedule to avoid over-drawl from the grid during low frequency in order to maintain grid discipline. Further, large-scale integration of generation from renewable resources introduces challenges for the smooth operation of future power systems due to the reduction in system inertia and introduction of synthetic inertia in a big way. Therefore, effective methods may also be adopted in case of sudden changes in demand/ generation in order to maintain the frequency within acceptable limits.

C. 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 of 122-145 kV at 132 kV level, 198-245 kV at 220 kV level and 380-420 kV at 400 kV level. As reported, at 132 kV level, OPTCL had experienced lower voltage beyond the permissible limit at 11 Nos. Grid Substations. However, the voltage at the Narendrapur and Therubali Substations had marginally gone beyond 145 kV. The voltage profile at 220 kV level was quite satisfactory except at the Meramundali Grid Substation where the voltage (197.22 kV) had marginally gone below the permissible limits. Therefore, the OLTC of the power transformers should be in healthy condition and should be operated on auto mode to maintain the voltage within the permissible limits in addition to other measures including reactive compensation. Further, OPTCL should carry out a reactive compensation study for better voltage control and reliable operation of its transmission system. Further, the reactive load of DISCOMs is to be monitored regularly and OPTCL shall take up

the matter with DISCOMs for providing adequate compensation in the distribution system as remedial measures and required system studies may also be carried out for advising DISCOMs to resolve such issues.

The development of transmission and distribution systems should be taken in a coordinated manner adhering to matching timelines (a) for optimum use of transmission and distribution assets (b) to address low voltage issues and (c) to meet load growth.

D. Interruption due to failure/ outage of transmission system and planning of Transmission system:

6. The OPTCL system had experienced 311.26 Hours of power interruption during the FY 2023-24 due to failure/ outage of various transmission system elements, i.e., on account of conductor/jumper/earth wire snapping, insulator failure, bursting of Current Transformer/ Potential Transformer, failure of Lightening Arrester and other major system disturbances (large command area affected due to outage of transmission lines and generators). However, no blackout was experienced in the State during the FY 2023-24. OPTCL should have a regular protocol in place to check the healthiness of transformers and other elements/equipment in service in the transmission system in order to extend reliability & quality of power to the consumers of the State. The Commission observed that the No. of interruptions due to the failure of transmission towers, CTs, PTs, SAs, etc. is quite high and the reasons for such failures need to be analysed by OPTCL and corrective measures need to be taken to avoid repetition of such failures in future. Further, OPTCL is required to build an effective disaster-resilient transmission system and take appropriate measures to reduce transmission loss in future years.

E. Load Restriction:

7. M/s. OPTCL has claimed that the rescheduling of Generation due to transmission constraint is 'NIL'. However, there were 14.58 Hours of load restriction imposed in the State on rotation basis to curtail demand due to the non-availability of generation/ failure of generating stations and transmission capacity. Many transmission projects remain unutilized or underutilized due to the absence of connectivity with the downstream network of DISCOMs. Therefore, OPTCL and DISCOMs need to work together to plan new Grid Sub-stations (GSS) & Primary Sub-stations (PSS). OPTCL should take steps to increase the average loading of the GSS instead of adding more Substations in close vicinity of the existing substations. Further, the OPTCL need to consider expansion of the transmission network at 220 kV level like the

upgradation of its existing 132 kV Grid Substations to 220 kV level wherever feasible to meet future load growth and to reduce transmission loss.

The concept of dynamic line ratings may also be considered during planning to accommodate additional power flow during night peak hours when ambient temperature is lower than daytime temperature.

F. Smooth Operation of the Grid with large-scale integration of generation from RE sources:

8. SLDC is the apex body responsible for the optimum scheduling and dispatch of electricity within the state to ensure the integrated operation and maintain grid discipline of the power system of the state on a real-time basis. SLDC is responsible for the smooth, secure and reliable operation of the intra-state transmission system while carrying out real-time operations. Further, SLDC shall ensure stable operation of the state grid and take appropriate measures against cyber-attacks for safe, secure & efficient operation of the power system.

SLDC is required to ensure an integrated operation of the power system within the state and supervise, monitor & control the system operation in an effective manner within the allowable limit of voltage and frequency. SAMAST is in the process of implementation in SLDC with the aim of achieving an efficient mechanism for the proper scheduling to settlement of electricity transactions in a transparent manner for the power transactions across intra-state boundaries of the state. SLDC should expedite the completion of the SAMAST scheme within the scheduled time.

In addition to the above, the reduction in generation from conventional sources and increase in generation from renewable energy sources, particularly during the daytime, is causing fundamental changes in the steady state and dynamic behavior of the power system. The efficient real-time operation and control by SLDC are very much required for the smooth flow of power. The operation feedback by SLDC to STU/ OPTCL/DISCOMs regarding underloading/overloading of transmission lines in operation at different voltage levels, over-voltage and overloading of power transformers under the prevailing environment is essential for the long-term planning of the power system in the state. It is high time for SLDC to go for planning of the islanding schemes to isolate major cities and prevent complete blackouts in case of major disturbance.

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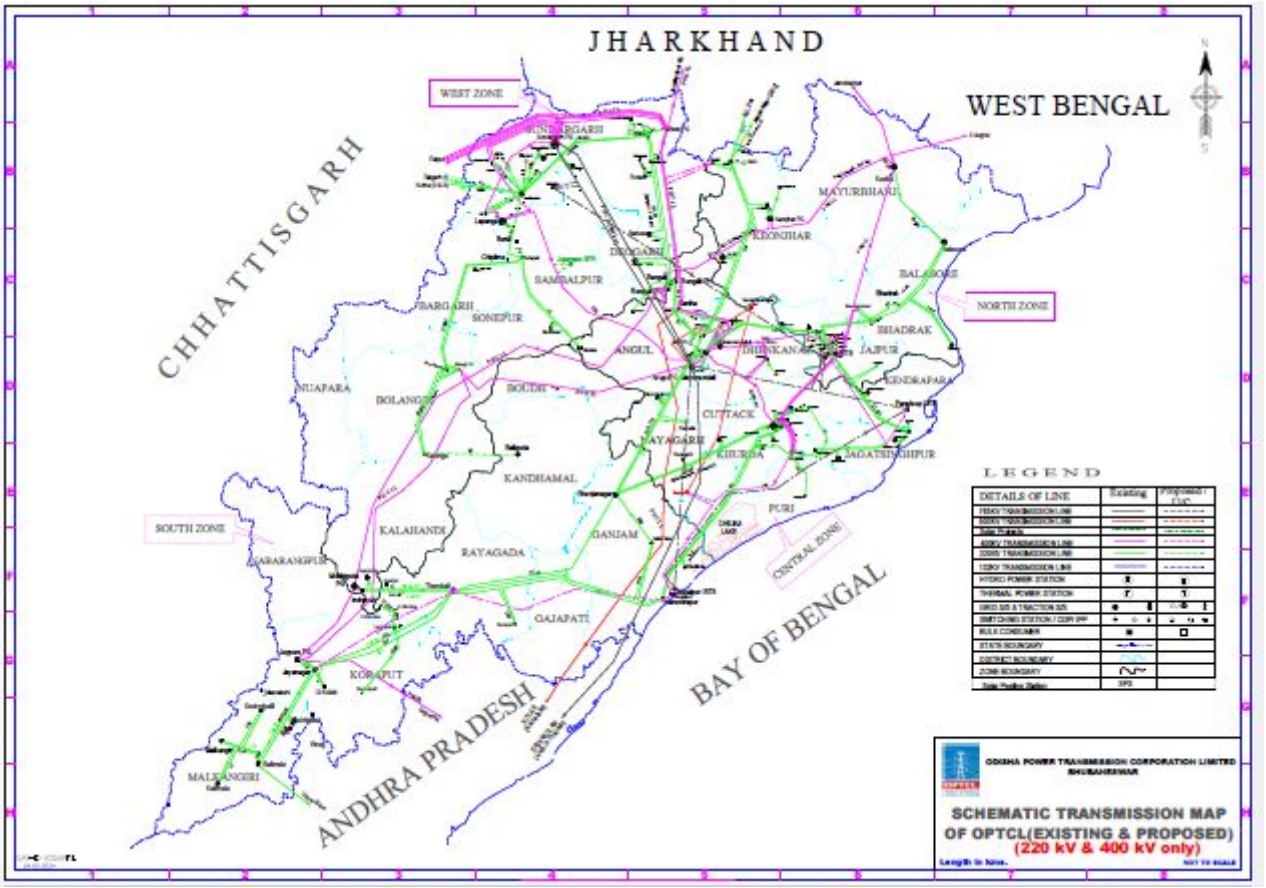
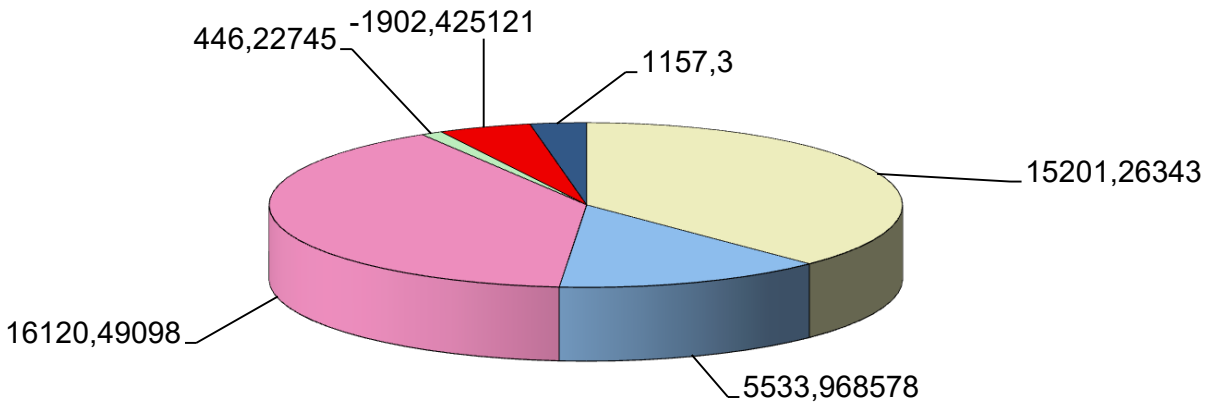

JHARKHAND
WEST BENGAL
CHHATTISGARH
ANDHRA PRADESH
BAY OF BENGAL
WEST ZONE
NORTH ZONE
SOUTH ZONE
CENTRAL ZONE
SUNDERGARH
MAYURBHANJ
KEONJHAR
DEOGARH
SAMBALPUR
BARGARH
SONEPUR
BALASORE
BHADRAK
JAJPUR
ANGUL
DHENKANAL
KENDRAPARA
NUAPARA
BOLANGIR
BOUDH
CUTTACK
AYAGARH
KHURDA
JAGATSINGHPUR
KANDHAMAL
PURI
KALAHANDI
GANJAM
RAYAGADA
GAJAPATI
KORAPUT
MALKANGIRI
LEGEND
DETAILS OF LINE
Existing
Proposed / UC
HYDRO POWER STATION
THERMAL POWER STATION
STATE BOUNDARY
DISTRICT BOUNDARY
ZONE BOUNDARY
ODISHA POWER TRANSMISSION CORPORATION LIMITED
BHUBANESWAR
SCHEMATIC TRANSMISSION MAP
OF OPTCL(EXISTING & PROPOSED)
(220 kV & 400 kV only)
Length in kms.
NOT TO SCALE

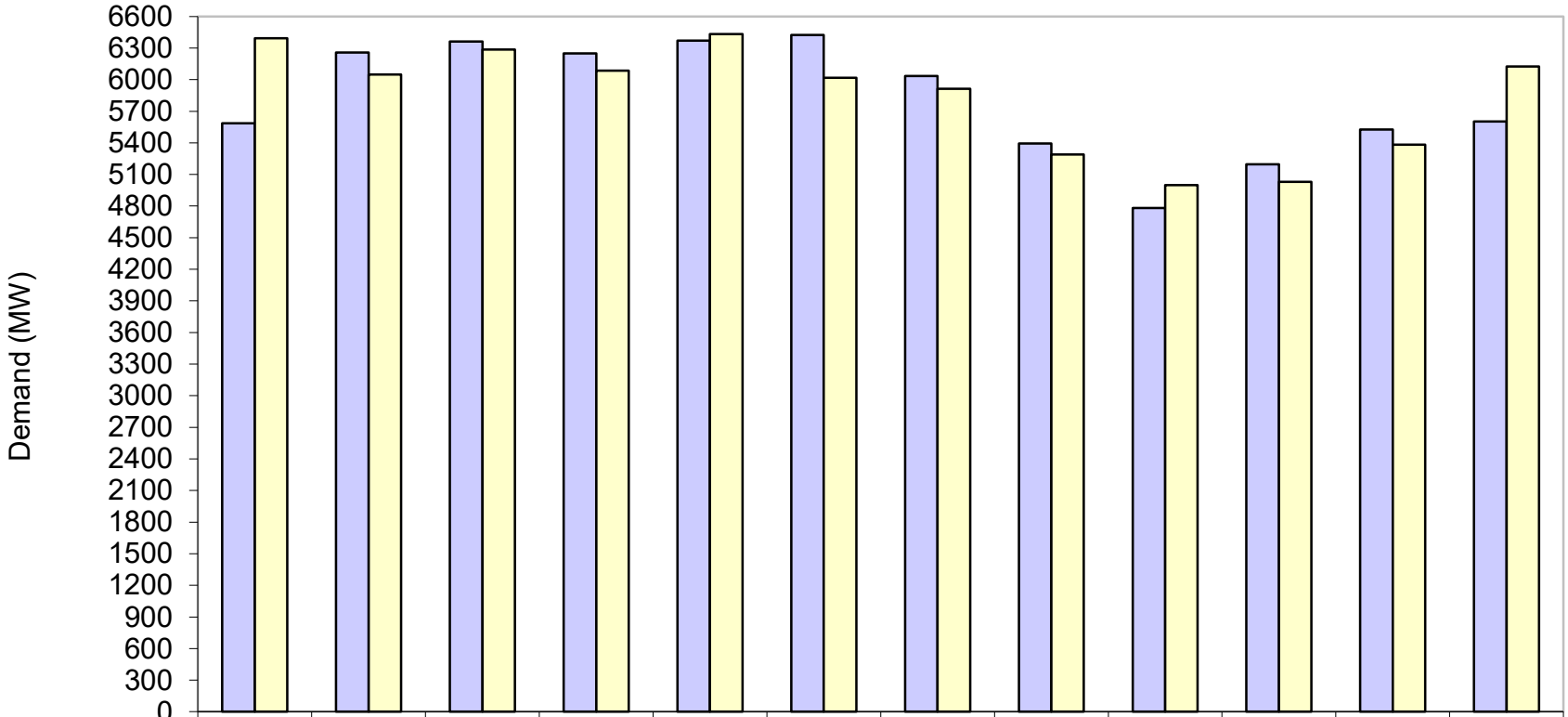
GRID DEMAND FOR THE YEAR 2023-24
[Total Drawal 36556.825 MU]



DAILY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR 2023-24

Day	Apr.23	Mai.23	Jun.23	Jul.23	Aug.23	Sep.23	Okt.23	Nov.23	Dez.23	Jän.24	Feb.24	Mär.24	Max	Min
1	4988	4790	6144	5988	4983	5859	5500	4828	4742	4072	4593	5231	6144	4072
2	5320	5026	5880	6085	4234	5660	5601	4886	4488	4270	4626	5365	6085	4234
3	5023	4944	5720	5928	5345	4912	5334	4834	4470	4215	4649	5253	5928	4215
4	4783	4882	6046	5727	5019	4857	5248	4640	4348	4233	4523	5358	6046	4233
5	4911	4808	6287	5421	5389	4886	5414	4742	4416	4318	4741	5429	6287	4318
6	4615	4976	6070	5357	5557	5128	5912	4844	4291	4210	4518	5727	6070	4210
7	5082	5237	5981	5207	5457	4915	5846	4826	4499	4182	4342	5940	5981	4182
8	4795	5476	5876	5398	5516	5461	5715	5192	4628	4248	4451	5751	5876	4248
9	5619	5676	5826	5557	5447	5597	5818	5291	4168	4435	4454	5855	5855	4168
10	5322	5635	5431	5576	5657	6018	5751	4614	4365	4570	4471	6124	6124	4365
11	5479	5492	5331	5622	5443	5875	5635	4636	4468	4503	4423	5758	5875	4423
12	5590	5361	5084	5792	5385	5582	5291	4266	4999	4563	4495	5740	5792	4266
13	5633	5212	4887	5956	5231	4971	5358	4580	4790	4511	4457	5821	5956	4457
14	5715	5967	5085	5396	5363	4949	5215	4643	4871	4410	5060	5541	5967	4410
15	5996	6040	4986	4980	5365	5101	5249	4526	4335	4700	5077	5727	6040	4335
16	6115	5473	5481	5163	5270	5166	5227	4505	4237	4884	5088	5446	6115	4237
17	6045	5519	5593	5030	4909	5571	5438	4688	4288	4484	5128	5463	6045	4288
18	6139	5820	5925	4817	4909	5823	5606	4817	4269	4535	5165	5929	6139	4269
19	6392	6048	5524	5084	4987	5603	5224	4555	4751	4587	5130	5330	6392	4555
20	5795	5645	5806	4856	5063	5165	5023	4634	4698	4469	5165	4870	5806	4469
21	5464	5451	5671	4820	5239	4880	5034	4561	4432	4234	5253	5447	5671	4234
22	5246	5423	5468	5132	5055	5385	4782	4494	4209	4303	5078	5816	5816	4209
23	5141	5741	4676	5602	5272	5460	4592	4602	4194	4373	5206	5979	5979	4194
24	5218	5763	4635	5640	5201	5351	5033	4416	4381	4315	4898	5641	5763	4315
25	4873	5671	4989	5262	5434	5711	5299	4514	4136	4429	4901	5143	5711	4136
26	4873	5709	4661	5758	5396	5444	5036	4473	4606	4429	5069	5163	5758	4429
27	5364	5393	4889	5611	6432	5468	4674	4283	4944	4818	5020	5566	6432	4283
28	5188	5782	5153	5531	6156	5563	4622	4910	4865	4724	5382	5768	6156	4622
29	5006	5588	5482	5205	5646	5648	4725	4933	4976	5030	5151	5777	5777	4725
30	5261	5784	5603	5609	5456	5327	4766	5033	4746	4993		5902	5902	4746
31		5974		5389	5857		4756		4775	4739		5717	5974	4739
MAX	**6392**	**6048**	**6287**	**6085**	**6432**	**6018**	**5912**	**5291**	**4999**	**5030**	**5382**	**6124**	**6432**	**4746**
MIN	**4615**	**4790**	**4635**	**4817**	**4234**	**4857**	**4592**	**4266**	**4136**	**4072**	**4342**	**4870**	**5671**	**4072**

COMPARISON OF MONTHLY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR ENDING 2022-23 & 2023-24



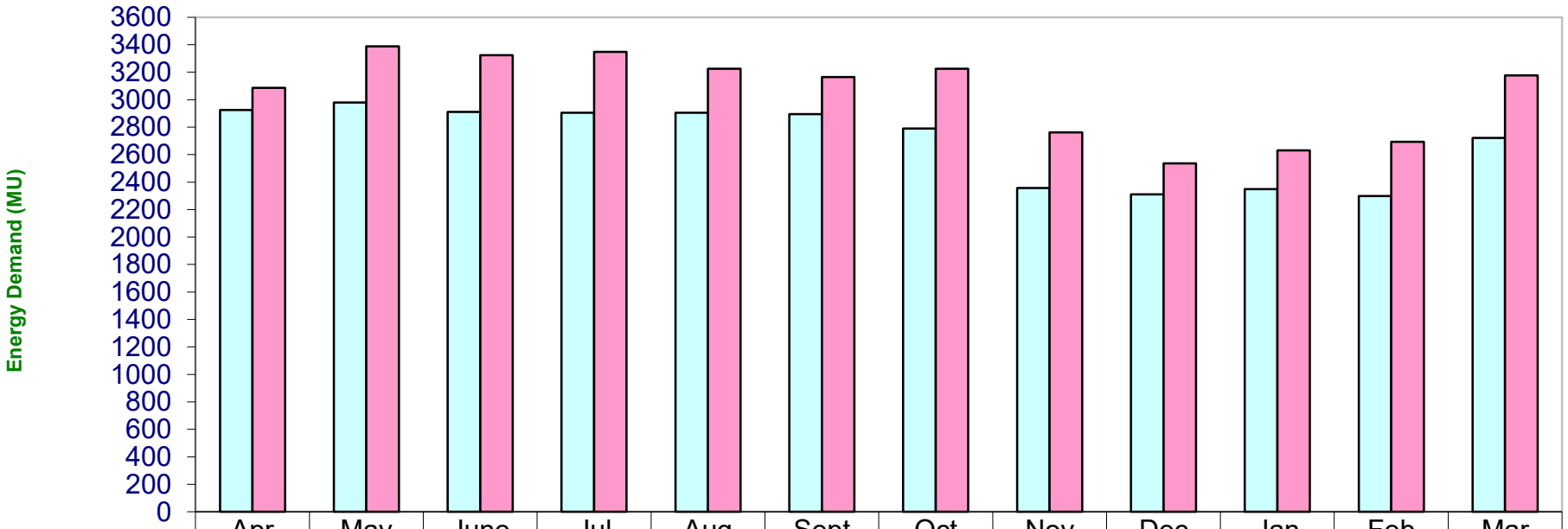
	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
2022-23	5587	6257	6361	6250	6372	6424	6036	5395	4782	5197	5526	5602
2023-24	6392	6048	6287	6085	6432	6018	5912	5291	4999	5030	5382	6124

Month

Annual Peak Demand : 2022-23 - 6424 MW 2023-24 - 6432 MW

2022-23 2023-24

COMPARISON OF MONTHLY ENERGY DEMAND (MU) EXCLUDING TRADING & RETURN BANKING POWER FOR THE YEAR ENDING 2022-23 & 2023-24

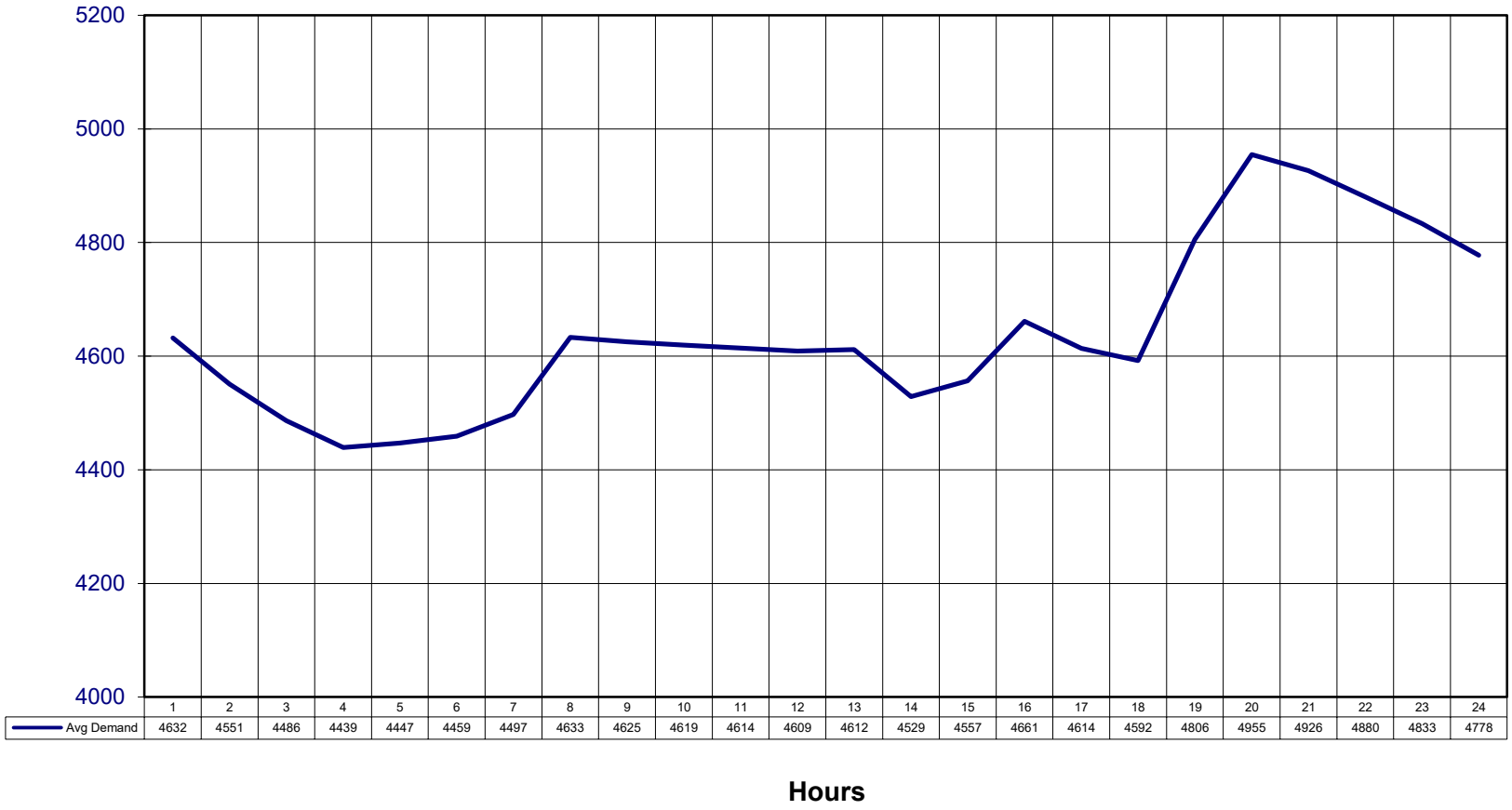


	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
2022-23	2925	2978	2910	2905	2904	2895	2790	2357	2310	2349	2299	2720
2023-24	3085	3388	3323	3348	3225	3165	3225	2762	2536	2630	2694	3176

Month

Annual Energy Demand : 2022-23 - 32342.90 MU 2023-24 - 36556.83 MU

DEMAND CURVE FOR HOURLY AVERAGE DEMAND EXCLUDING TRADING FOR YEAR ENDING MARCH 2024

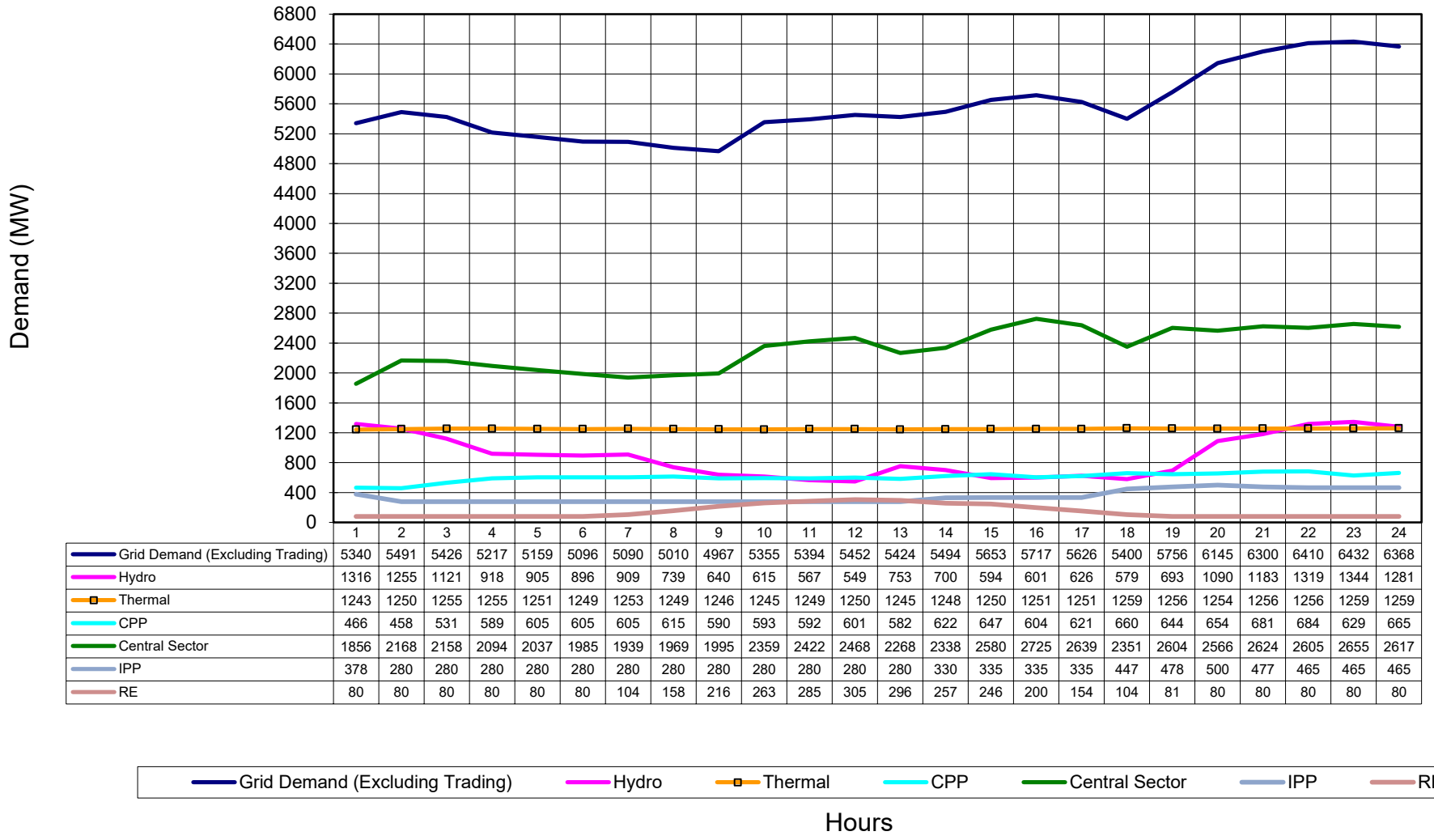


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Avg Demand	4632	4551	4486	4439	4447	4459	4497	4633	4625	4619	4614	4609	4612	4529	4557	4661	4614	4592	4806	4955	4926	4880	4833	4778

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

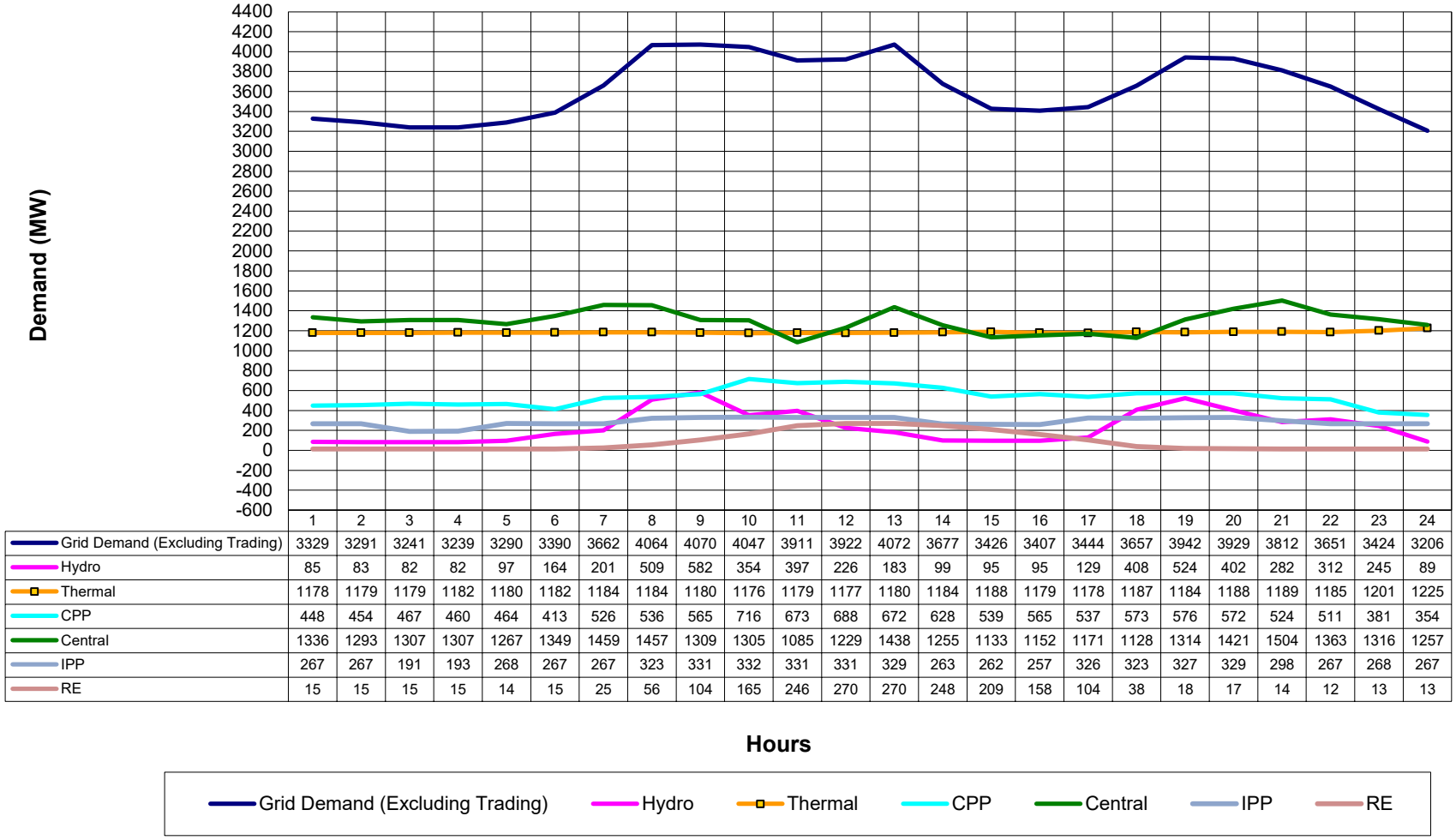
Hours--->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Apr.23	4976	4844	4732	4670	4623	4569	4460	4513	4539	4590	4657	4720	4808	4823	4940	5070	4955	4721	4914	5173	5167	5155	5179	5135
Mai.23	5051	4951	4844	4779	4734	4594	4531	4621	4655	4736	4882	4988	5139	5165	5217	5273	5001	4600	4622	4984	5043	5083	5239	5253
Jun.23	4993	4908	4797	4671	4627	4476	4410	4590	4653	4745	4879	4967	5017	5070	5102	5174	4927	4436	4286	4774	4911	5023	5145	5189
Jul.23	5169	5069	5003	4932	4907	4821	4829	4918	4870	4876	4817	4797	4823	4770	4866	5009	4967	4755	4868	5257	5301	5302	5316	5312
Aug.23	4966	4852	4811	4763	4768	4756	4648	4690	4685	4744	4796	4789	4792	4745	4800	4851	4759	4651	4911	5232	5234	5237	5190	5138
Sep.23	4974	4901	4844	4788	4777	4750	4688	4808	4885	4931	4923	4921	4910	4856	4855	4864	4752	4674	5125	5213	5178	5207	5180	5115
Okt.23	4795	4701	4643	4610	4563	4566	4509	4641	4681	4734	4723	4715	4722	4654	4699	4805	4738	4813	5182	5155	5085	5082	4972	4911
Nov.23	3962	3886	3863	3868	3939	4061	4252	4398	4335	4231	4152	4056	3990	3844	3837	4028	4146	4508	4671	4573	4475	4309	4132	4069
Dez.23	3637	3600	3585	3581	3670	3793	3950	4173	4086	3918	3826	3798	3768	3583	3516	3591	3673	4029	4225	4104	3958	3853	3783	3703
Jän.24	3517	3473	3433	3420	3509	3723	4078	4403	4367	4225	4061	3995	3892	3635	3567	3699	3813	4159	4427	4345	4253	4052	3781	3623
Feb.24	4465	4437	4375	4334	4379	4501	4662	4802	4733	4660	4611	4501	4455	4281	4288	4461	4516	4641	5053	5151	5039	4898	4791	4644
Mär.24	5077	4989	4904	4858	4870	4897	4948	5039	5010	5041	5047	5059	5024	4918	4991	5111	5119	5121	5384	5493	5474	5365	5290	5244
Avg. Annual	**4632**	**4551**	**4486**	**4439**	**4447**	**4459**	**4497**	**4633**	**4625**	**4619**	**4614**	**4609**	**4612**	**4529**	**4557**	**4661**	**4614**	**4592**	**4806**	**4955**	**4926**	**4880**	**4833**	**4778**

HOURLY DEMAND CURVE FOR 27.08.2023 (MAX PEAK DEMAND OF THE YEAR (2023-24)



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Grid Demand (Excluding Trading)	5340	5491	5426	5217	5159	5096	5090	5010	4967	5355	5394	5452	5424	5494	5653	5717	5626	5400	5756	6145	6300	6410	6432	6368
Hydro	1316	1255	1121	918	905	896	909	739	640	615	567	549	753	700	594	601	626	579	693	1090	1183	1319	1344	1281
Thermal	1243	1250	1255	1255	1251	1249	1253	1249	1246	1245	1249	1250	1245	1248	1250	1251	1251	1259	1256	1254	1256	1256	1259	1259
CPP	466	458	531	589	605	605	605	615	590	593	592	601	582	622	647	604	621	660	644	654	681	684	629	665
Central Sector	1856	2168	2158	2094	2037	1985	1939	1969	1995	2359	2422	2468	2268	2338	2580	2725	2639	2351	2604	2566	2624	2605	2655	2617
IPP	378	280	280	280	280	280	280	280	280	280	280	280	280	330	335	335	335	447	478	500	477	465	465	465
RE	80	80	80	80	80	80	104	158	216	263	285	305	296	257	246	200	154	104	81	80	80	80	80	80

HOURLY DEMAND CURVE FOR 01.01.2024 (MIN PEAK DEMAND OF THE YEAR 2023-24)



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Grid Demand (Excluding Trading)	3329	3291	3241	3239	3290	3390	3662	4064	4070	4047	3911	3922	4072	3677	3426	3407	3444	3657	3942	3929	3812	3651	3424	3206
Hydro	85	83	82	82	97	164	201	509	582	354	397	226	183	99	95	95	129	408	524	402	282	312	245	89
Thermal	1178	1179	1179	1182	1180	1182	1184	1184	1180	1176	1179	1177	1180	1184	1188	1179	1178	1187	1184	1188	1189	1185	1201	1225
CPP	448	454	467	460	464	413	526	536	565	716	673	688	672	628	539	565	537	573	576	572	524	511	381	354
Central	1336	1293	1307	1307	1267	1349	1459	1457	1309	1305	1085	1229	1438	1255	1133	1152	1171	1128	1314	1421	1504	1363	1316	1257
IPP	267	267	191	193	268	267	267	323	331	332	331	331	329	263	262	257	326	323	327	329	298	267	268	267
RE	15	15	15	15	14	15	25	56	104	165	246	270	270	248	209	158	104	38	18	17	14	12	13	13

1

INSTALLED CAPACITY (AS ON 31.3.2024) ENERGY GENERATION / ENERGY DRAWAL BY OPTCL

SECTOR	Installed capacity (MW)	Energy Generation (incl. Aux) (MU)	Energy Drawal by GRIDCO (MU)
A. STATE SECTOR			
OHPC(Hydro)*	2009.5	5703.000	5533.969
OPGC (Thermal)	1740	11799.660	10969.003
TTPS (Thermal)	-	0.000	0.000
TTPS (UI-OD)			0.000
IPPs			5151.488
CPP (Synchronised to OPTCL System)			446.227
Renewable Energy Including Co-gen	-		1157.300
B. CENTRAL SECTOR (Orissa Share)			
Hydro	**268.38**		
Thermal	**1778.763**	-	15786.591
C. Banking Power+OA+Trading+IEX (Import)			1077.655
TOTAL DRAWAL			**40122.233**
D. Banking Power+OA+Trading+IEX (Export)			2980.081
E. Deviation(Export)			585.327
Net GRIDCO demand			**36556.825**
Export to ICCL			28.815
Export to NALCO			154.908

* Includes Orissa share from Machhkund.

2 TRANSMISSION LINES AND SUBSTATIONS

A.CIRCUIT LINES	As on 31.03.2023	Capacity Addition in 2023-2024	As on 1.4.2024	Remark
400 kV line (ckt.km)	1196.872	0.000	1196.872	
220kV line (ckt.km)	6675.772	155.593	6831.365	-
132kV line (ckt.km)	8156.737	323.094	8479.831	-

B. SUBSTATIONS				New Substation
400 / 220 /132kV (nos.)	3		3	-
400 / 220 (nos.)	2		2	-
220/132/33kV (nos.)	27	1	28	Dhamra
220/132	1		1	
220/33kV (nos.)	17	1	18	Kantabada
132/33 kV (nos.)	112	4	116	Boriguma, Lakhanpur,Bhatli, R.Udayagiri
132/33/25 kV (nos.)	0		0	-
132/33/11 kV (nos.)	0		0	-
132kV Switching Stations (OPTCL)	3		3	-
132kV LILO Switching Stations of Industries	23		23	
Total	**188**	**6**	**194**	-

Note:

Capacity addition details for 220kV:

1. 220 kV Dhamara LILO DC(220 kV New Duburi-Balasore)– 70.438 ckm
2. 220 kV Kantabada LILO DC(220 kV Chandaka-Mendhasal Ckt-III)– 0.092 ckm
3. 220 kV Aska New LILO DC(on Therubali - Narendrapur Ckt II)– 85.063 ckm

Capacity addition details for 132kV:

1. 132 kV Boriguma LILO DC(132 kV Jayanagar-Nabarangpur)– 32.8 ckm
2. 132 kV LILO Lakhanpur in DC/MC (from new 132 kV Budhipadar- Brajrajnagar Ckt- II) – 39.018 ckm
3. 132 kV Palasingi RTSS(from 220/132/33 kV Gunupur S/s)– 16.214 ckm
4. 132 kV Bhawanipatna- Bhawanipatna RTSS SC/DC (in DC Towers) – 2.102 ckm
5. 132 kV LILO from Loc. No. 17 of old 132 kV Budhipadar- MCL (Jurabaga) Ckt-II to Brajrajnagar GSS – 12.470 ckm
6. 132 kV Bargarh New- Bhatli DC – 80.450 ckm
7. 132 kV Brajrajnagar -Belpahar RTSS DC on DC/MC towers – 22.586 ckm
8. 132 kV Turumunga LILO DC (on 132 kV Palasponga-Karanjia SC Line) – 62.708 ckm
9. 132 kV Dhamara - Chandbali DC – 54.746 ckm

3 PERFORMANCE OF OPTCL DURING 2023-24

3 A. POWER SUPPLY SECURITY

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

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(In Hrs)	0.00	13.00	0.58	0.00	13.58
Percentage(%)	0.00	0.59	0.03	0.00	0.16

* ⟶ 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	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(In Hrs)	1	0	0	0	1
Percentage(%)	0.05	0.00	0.00	0.00	0.01

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

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(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	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(In Hrs)	478.33	355.85	358.20	367.87	1560.25
Percentage(%)	21.90	16.12	16.22	16.84	17.78

(ii) Maximum continous period beyond 50.05 Hz

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(In Hrs)	2.22	2.38	1.13	1.53	2.38
Percentage(%)	0.10	0.11	0.05	0.07	0.03

(iii) Maximum Frequency occurrence

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
Hz	50.35	50.30	50.30	50.30	50.35
Date/Time	18.05.23	30.07.23	11.11.23	03.03.24	18.05.23
	01:15 hr	13:00 hr	13:00 hr	13:15hr	01:15 hr

(iv) Below 49.9 Hz

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(In Hrs)	202.93	132.90	180.00	147.28	663.12
Percentage(%)	9.29	6.02	8.15	6.74	7.55

(v) Maxm. Continous period below 49.9 Hz

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
(In Hrs)	1.23	1.38	1.47	0.77	1.47
Percentage(%)	0.06	0.06	0.07	0.04	0.02

(vi) Lowest Frequency Occurrence

Duration	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Annual
Hz	49.95	49.57	49.54	49.67	49.54
Date/Time	14.06.23	09.08.23	16.10.23	28.03.24	16.10.23
	22:30 hr	19:15 hr	09:30 hr	22:15 hr	09:30 hr

3. C - 2 VOLTAGE PROFILE (2023-24)

MAXIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (400kV)

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	Duburi (N)	419.33	17.06.2023	06:00	415.17	12.09.2023	06:00	415.00	24.10.2023	03:15	414.42	02.01.2024	01:45	**419.33**	**17.06.2023**	**06:00**
2	Lapanga	421.70	10.06.2023	21:30	412.11	21.07.2023	13:15	412.57	29.10.2023	22:15	412.57	12.02.2024	02:45	**421.70**	**10.06.2023**	**21:30**
3	Mendhasal	416.21	25.06.2023	05:00	413.56	31.07.2023	17:15	413.73	24.10.2023	05:00	414.13	02.01.2024	01:45	**416.21**	**25.06.2023**	**05:00**
4	Meramundali	414.54	25.06.2023	05:00	414.48	29.08.2023	10:30	414.08	30.11.2023	00:15	412.40	08.01.2024	02:45	**414.54**	**25.06.2023**	**05:00**

MINIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (400kV)

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	Duburi (N)	384.75	12.06.2023	13:30	396.93	25.07.2023	22:30	399.93	09.10.2023	23:00	394.39	28.03.2024	14:15	**384.75**	**12.06.2023**	**13:30**
2	Lapanga	403.16	19.04.2023	15:45	395.72	21.07.2023	12:30	402.01	16.10.2023	09:45	401.32	11.03.2024	09:30	**395.72**	**21.07.2023**	**12:30**
3	Mendhasal	386.13	10.06.2023	14:15	391.50	02.07.2023	22:45	393.81	06.11.2023	17:15	392.94	28.03.2024	14:15	**386.13**	**10.06.2023**	**14:15**
4	Meramundali	396.99	11.04.2023	14:30	398.49	26.07.2023	20:45	395.48	30.10.2023	16:15	399.93	04.03.2024	10:30	**395.48**	**30.10.2023**	**16:15**

Note:

The bus voltages are recorded from 15min block voltage from meter data .

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

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	AskaN	238.71	10.06.2023	18:00	235.94	02.09.2023	14:45	236.52	27.11.2023	00:00	236.62	02.01.2024	01:45	**238.71**	**10.06.2023**	**18:00**
2	Atri	231.57	23.04.2023	01:45	231.05	31.07.2023	17:15	232.09	19.12.2023	03:00	232.32	02.01.2024	01:45	**232.32**	**02.01.2024**	**01:45**
3	Balasore	235.26	12.06.2023	19:15	232.09	02.08.2023	06:00	230.53	17.12.2023	03:45	231.11	25.03.2024	21:45	**235.26**	**12.06.2023**	**19:15**
4	Balimela	243.12	24.06.2023	04:45	244.27	02.08.2023	03:45	243.58	26.11.2023	14:45	244.39	14.01.2024	04:15	**244.39**	**14.01.2024**	**04:15**
5	Barkote	235.21	24.06.2023	04:45	235.67	14.09.2023	05:45	234.17	01.10.2023	19:00	233.59	02.01.2024	01:30	**235.67**	**14.09.2023**	**05:45**
6	Bargarh	229.72	27.05.2023	21:15	229.32	02.08.2023	03:45	228.62	08.12.2023	04:00	231.68	20.03.2024	20:00	**231.68**	**20.03.2024**	**20:00**
7	Bhadrak	236.48	12.06.2023	19:15	233.07	02.08.2023	05:45	230.93	17.12.2023	03:45	231.57	02.01.2024	02:00	**236.48**	**12.06.2023**	**19:15**
8	Bhanjanagar	238.79	10.06.2023	18:00	235.67	02.09.2023	14:45	236.36	19.12.2023	03:00	236.48	02.01.2024	01:45	**238.79**	**10.06.2023**	**18:00**
9	Bidanasi	233.13	23.04.2023	01:45	233.59	31.07.2023	17:15	234.74	28.12.2023	03:45	235.26	02.01.2024	01:45	**235.26**	**02.01.2024**	**01:45**
10	BolangirN	233.18	21.04.2023	06:30	232.67	02.09.2023	16:00	231.97	18.12.2023	21:30	232.38	19.03.2024	20:00	**233.18**	**21.04.2023**	**06:30**
11	Budhipadar	230.82	25.06.2023	06:00	230.41	02.08.2023	22:00	231.57	27.11.2023	03:15	231.34	17.01.2024	03:30	**231.57**	**27.11.2023**	**03:15**
12	Chandaka	230.59	19.05.2023	18:15	230.24	31.07.2023	17:15	230.88	17.12.2023	03:45	230.76	25.01.2024	02:45	**230.88**	**17.12.2023**	**03:45**
13	Cuttack	230.24	19.05.2023	18:15	230.24	31.07.2023	17:15	231.63	28.12.2023	02:30	232.09	02.01.2024	01:45	**232.09**	**02.01.2024**	**01:45**
14	Duburi Old	231.11	13.06.2023	05:45	230.70	02.08.2023	05:45	230.41	24.10.2023	06:00	230.24	02.01.2024	03:30	**231.11**	**13.06.2023**	**05:45**
15	Duburi New	232.43	12.06.2023	14:15	231.86	02.08.2023	05:45	231.74	24.10.2023	06:00	231.51	02.01.2024	02:00	**232.43**	**12.06.2023**	**14:15**
16	Infocity-II GIS	232.01	23.04.2023	01:45	231.75	31.07.2023	17:15	232.37	17.12.2023	03:45	232.22	25.01.2024	02:45	**232.37**	**17.12.2023**	**03:45**
17	Jayanagar	239.25	25.06.2023	04:00	239.59	02.08.2023	04:45	239.48	16.11.2023	03:45	239.59	09.01.2024	13:45	**239.59**	**02.08.2023**	**04:45**
18	Joda	229.43	25.06.2023	06:00	229.66	02.08.2023	02:45	230.36	19.12.2023	02:00	230.41	18.03.2024	23:00	**230.41**	**18.03.2024**	**23:00**
19	Katapalli	229.43	25.06.2023	06:00	229.72	02.08.2023	03:45	230.41	19.12.2023	02:00	230.47	19.03.2024	21:15	**230.47**	**19.03.2024**	**21:15**
20	KeonjharGIS	227.41	12.06.2023	18:15	225.28	19.08.2023	05:45	224.01	01.10.2023	13:30	219.79	08.01.2024	02:45	**227.41**	**12.06.2023**	**18:15**
21	Lapanga	232.78	25.06.2023	05:45	232.55	02.08.2023	14:00	234.57	01.12.2023	21:30	233.36	01.01.2024	02:45	**234.57**	**01.12.2023**	**21:30**
22	Laxmipur	241.15	25.06.2023	04:00	241.33	02.08.2023	03:45	242.19	16.11.2023	04:00	242.94	07.01.2024	23:30	**242.94**	**07.01.2024**	**23:30**
23	Malkangiri	243.29	26.06.2023	04:30	244.27	02.08.2023	03:45	244.10	16.12.2023	02:15	245.22	14.01.2024	04:15	**245.22**	**14.01.2024**	**04:15**
24	Mendhasal	232.72	23.04.2023	01:45	232.61	31.07.2023	17:15	233.30	17.12.2023	03:45	233.70	02.01.2024	01:45	**233.70**	**02.01.2024**	**01:45**
25	Meramundali	228.28	25.06.2023	05:00	228.10	08.09.2023	14:00	228.10	24.10.2023	03:15	228.45	11.02.2024	03:00	**228.45**	**11.02.2024**	**03:00**
26	Narsinghpur	227.74	10.06.2023	18:00	227.66	02.08.2023	05:00	229.12	06.10.2023	09:00	228.47	11.01.2024	14:00	**229.12**	**06.10.2023**	**09:00**
27	Narendrapur	235.49	16.06.2023	11:00	231.63	02.08.2023	03:45	238.03	19.12.2023	03:00	238.27	08.01.2024	02:45	**238.27**	**08.01.2024**	**02:45**
28	Nayagarh	241.91	10.06.2023	18:00	231.81	15.07.2023	14:00	232.28	19.12.2023	03:00	232.93	02.01.2024	01:45	**241.91**	**10.06.2023**	**18:00**
29	Paradeep	229.84	23.04.2023	03:00	231.97	02.09.2023	17:00	230.47	24.10.2023	06:00	232.09	27.01.2024	03:45	**232.09**	**27.01.2024**	**03:45**
30	Tarkera	231.11	20.06.2023	19:45	230.53	02.08.2023	14:00	231.05	11.12.2023	03:15	230.76	11.02.2024	22:15	**231.11**	**20.06.2023**	**19:45**
31	Theruvali	237.46	21.04.2023	07:45	239.07	13.08.2023	17:45	241.09	22.12.2023	00:15	244.21	04.02.2024	21:30	**244.21**	**04.02.2024**	**21:30**
32	Rengali	229.49	25.06.2023	05:00	229.78	14.09.2023	06:00	228.16	15.11.2023	02:30	226.95	02.01.2024	01:45	**229.78**	**14.09.2023**	**06:00**

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	AskaN	222.68	21.06.2023	11:30	217.71	02.07.2023	22:45	222.57	01.12.2023	17:30	219.42	30.03.2024	15:15	**217.71**	**02.07.2023**	**22:45**
2	Atri	200.22	19.04.2023	16:30	212.05	02.07.2023	22:45	216.96	09.10.2023	15:00	214.71	28.03.2024	14:15	**200.22**	**19.04.2023**	**16:30**
3	Balasore	202.59	17.06.2023	23:15	211.02	03.07.2023	22:30	216.50	10.10.2023	21:00	214.31	10.02.2024	09:15	**202.59**	**17.06.2023**	**23:15**
4	Balimela	209.05	12.06.2023	15:15	232.90	24.08.2023	09:45	232.15	01.12.2023	17:00	230.99	30.03.2024	15:30	**209.05**	**12.06.2023**	**15:15**
5	Barkote	204.49	09.06.2023	15:30	224.47	28.09.2023	14:30	224.29	07.10.2023	18:30	223.37	15.03.2024	15:45	**204.49**	**09.06.2023**	**15:30**
6	Bargarh	207.90	19.04.2023	16:00	205.18	29.08.2023	06:15	203.80	11.10.2023	18:30	200.85	30.03.2024	14:45	**200.85**	**30.03.2024**	**14:45**
7	Bhadrak	221.98	19.04.2023	16:15	208.88	04.07.2023	22:45	212.29	16.12.2023	08:30	214.77	29.03.2024	14:45	**208.88**	**04.07.2023**	**22:45**
8	Bhanjanagar	203.74	10.06.2023	12:45	218.12	02.07.2023	22:45	222.56	01.12.2023	17:30	217.94	02.01.2024	15:00	**203.74**	**10.06.2023**	**12:45**
9	Bidanasi	203.11	20.04.2023	14:30	210.67	02.07.2023	22:45	213.79	11.10.2023	15:00	214.02	28.03.2024	14:30	**203.11**	**20.04.2023**	**14:30**
10	BolangirN	207.55	12.06.2023	12:15	206.74	30.08.2023	16:30	214.02	01.12.2023	17:45	209.05	13.03.2024	16:30	**206.74**	**30.08.2023**	**16:30**
11	Budhipadar	208.76	12.06.2023	12:15	223.95	28.08.2023	16:15	211.71	07.10.2023	09:00	218.52	30.03.2024	15:45	**208.76**	**12.06.2023**	**12:15**
12	Chandaka	203.07	17.06.2023	00:15	209.34	02.07.2023	22:45	215.29	09.10.2023	15:00	212.57	10.01.2024	08:45	**203.07**	**17.06.2023**	**00:15**
13	Cuttack	227.58	15.05.2023	11:00	207.15	02.07.2023	22:45	207.09	03.11.2023	15:15	207.72	15.03.2024	15:15	**207.09**	**03.11.2023**	**15:15**
14	Duburi Old	213.21	19.04.2023	16:30	216.21	04.07.2023	22:45	218.75	09.10.2023	23:30	219.21	28.03.2024	14:15	**213.21**	**19.04.2023**	**16:30**
15	Duburi New	213.15	19.04.2023	16:30	217.37	04.07.2023	22:45	219.91	09.10.2023	23:30	220.83	10.01.2024	08:45	**213.15**	**19.04.2023**	**16:30**
16	Infocity-II GIS	208.19	26.05.2023	12:30	212.43	02.07.2023	22:45	217.69	09.10.2023	15:00	215.58	28.03.2024	14:15	**208.19**	**26.05.2023**	**12:30**
17	Jayanagar	223.43	19.04.2023	16:30	228.91	24.08.2023	09:30	228.39	01.12.2023	17:00	228.10	30.03.2024	15:45	**223.43**	**19.04.2023**	**16:30**
18	Joda	227.93	15.06.2023	23:15	215.29	29.07.2023	20:15	218.52	12.10.2023	11:45	215.35	30.03.2024	14:45	**215.29**	**29.07.2023**	**20:15**
19	Katapalli	231.63	19.04.2023	14:45	212.57	04.08.2023	10:30	219.21	14.10.2023	16:30	215.46	30.03.2024	14:45	**212.57**	**04.08.2023**	**10:30**
20	KeonjharGIS	208.24	09.06.2023	15:30	217.60	19.07.2023	22:45	208.01	25.11.2023	07:30	209.34	04.01.2024	09:30	**208.01**	**25.11.2023**	**07:30**
21	Lapanga	216.96	19.04.2023	14:45	225.91	28.08.2023	10:15	226.55	06.10.2023	16:30	223.72	30.03.2024	15:15	**216.96**	**19.04.2023**	**14:45**
22	Laxmipur	208.76	19.04.2023	14:45	228.51	25.07.2023	19:45	229.61	01.12.2023	17:00	226.89	29.03.2024	15:15	**208.76**	**19.04.2023**	**14:45**
23	Malkangiri	203.28	15.06.2023	22:45	232.95	24.08.2023	09:45	232.76	01.12.2023	17:00	231.56	30.03.2024	16:15	**203.28**	**15.06.2023**	**22:45**
24	Mendhasal	205.83	16.06.2023	15:00	212.34	02.07.2023	22:30	216.50	08.11.2023	17:30	216.10	31.01.2024	11:30	**205.83**	**16.06.2023**	**15:00**
25	Meramundali	197.22	18.06.2023	00:00	218.12	19.07.2023	23:15	218.81	27.12.2023	10:30	219.33	27.03.2024	14:45	**197.22**	**18.06.2023**	**00:00**
26	Narsinghpur	217.94	21.06.2023	11:30	215.35	30.08.2023	15:00	216.42	13.12.2023	09:00	215.69	27.03.2024	15:00	**215.35**	**30.08.2023**	**15:00**
27	Narendrapur	211.82	15.05.2023	13:00	212.34	01.07.2023	22:45	218.35	11.10.2023	15:00	216.85	30.03.2024	15:00	**211.82**	**15.05.2023**	**13:00**
28	Nayagarh	220.66	01.06.2023	14:45	208.07	31.08.2023	12:00	214.58	11.10.2023	22:45	211.73	22.03.2024	12:00	**208.07**	**31.08.2023**	**12:00**
29	Paradeep	202.24	25.04.2022	14:30	207.96	04.07.2023	22:45	209.98	12.10.2023	21:30	211.30	28.03.2024	15:00	**202.24**	**25.04.2022**	**14:30**
30	Tarkera	205.01	29.04.2022	10:15	219.73	28.09.2023	14:30	211.82	04.12.2023	21:15	221.47	30.03.2024	15:30	**205.01**	**29.04.2022**	**10:15**
31	Theruvali	222.62	02.06.2022	14:30	222.91	25.07.2023	19:45	223.20	01.12.2023	17:00	224.99	29.03.2024	15:15	**222.62**	**02.06.2022**	**14:30**
32	Rengali	219.27	08.06.2022	14:30	221.98	26.07.2023	20:45	220.60	14.12.2023	10:00	220.60	12.01.2024	11:15	**219.27**	**08.06.2022**	**14:30**

Note:

The bus voltages are recorded from 15min block voltage from meter data .

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

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	Bhubaneswar	141.39	19.06.2023	00:15	141.68	31.07.2023	17:30	139.48	17.12.2023	03:45	139.48	02.01.2024	01:45	**141.68**	**31.07.2023**	**17:30**
2	Cuttack	140.98	10.06.2023	18:15	141.10	31.07.2023	17:15	140.52	17.12.2023	03:45	139.02	01.01.2024	02:45	**141.10**	**31.07.2023**	**17:15**
3	Khurda	139.54	10.06.2023	18:00	140.70	31.07.2023	17:30	138.62	05.12.2023	04:00	137.92	21.03.2024	03:00	**140.70**	**31.07.2023**	**17:30**
4	Nimapara	141.45	23.04.2023	02:00	141.10	31.07.2023	17:15	138.68	19.12.2023	02:45	138.39	25.01.2024	02:45	**141.45**	**23.04.2023**	**02:00**
5	Paradeep	140.23	27.05.2023	18:00	140.75	02.09.2023	15:45	136.65	24.10.2023	03:00	136.60	02.01.2024	02:45	**140.75**	**02.09.2023**	**15:45**
6	Puri	140.41	07.06.2023	18:15	138.05	31.07.2023	17:15	137.43	20.10.2023	03:00	137.47	19.03.2024	02:00	**140.41**	**07.06.2023**	**18:15**
7	Balasore	141.74	12.06.2023	18:15	139.77	02.08.2023	04:00	138.04	17.12.2023	02:45	139.02	25.03.2024	02:00	**141.74**	**12.06.2023**	**18:15**
8	Bhadrak	141.10	23.04.2023	02:00	138.44	02.08.2023	04:00	137.17	17.12.2023	02:45	137.58	02.01.2024	02:45	**141.10**	**23.04.2023**	**02:00**
9	DuburiO	139.37	13.06.2023	18:15	139.48	02.08.2023	04:00	139.14	05.12.2023	02:45	138.91	02.01.2024	02:45	**139.48**	**02.08.2023**	**04:00**
10	Joda	139.48	28.06.2023	14:00	138.50	30.07.2023	14:15	137.17	12.11.2023	22:00	137.87	18.03.2024	04:45	**139.48**	**28.06.2023**	**14:00**
11	Berhampur	141.24	19.06.2023	03:45	140.04	14.09.2023	04:45	140.07	27.11.2023	00:00	139.54	08.01.2024	02:45	**141.24**	**19.06.2023**	**03:45**
12	Narendrapur	145.78	19.06.2023	03:45	144.62	02.08.2023	03:45	144.62	27.11.2023	00:00	143.81	08.01.2024	02:45	**145.78**	**19.06.2023**	**03:45**
13	Therubali	142.25	23.04.2023	02:15	143.24	13.08.2023	17:45	144.45	22.12.2023	00:15	145.31	17.01.2024	13:30	**145.31**	**17.01.2024**	**13:30**
14	Bolangir	142.02	27.05.2023	21:15	140.64	02.09.2023	16:00	140.47	18.12.2023	21:30	141.45	19.03.2024	20:00	**142.02**	**27.05.2023**	**21:15**
15	Budhipadar	138.27	25.06.2023	06:00	139.48	21.09.2023	03:00	139.02	16.10.2023	03:00	138.16	01.01.2024	03:00	**139.48**	**21.09.2023**	**03:00**
16	Katapali	137.41	25.06.2023	05:45	136.77	02.08.2023	03:45	139.20	19.12.2023	02:00	139.60	18.03.2024	23:00	**139.60**	**18.03.2024**	**23:00**
17	Lapanga	138.50	25.06.2023	05:45	138.44	03.08.2023	13:45	138.79	19.12.2023	02:00	138.27	12.02.2024	03:00	**138.79**	**19.12.2023**	**02:00**
18	Rourkela	143.58	22.05.2023	17:15	136.37	02.08.2023	20:15	137.00	11.12.2023	03:00	137.29	12.02.2024	02:45	**143.58**	**22.05.2023**	**17:15**

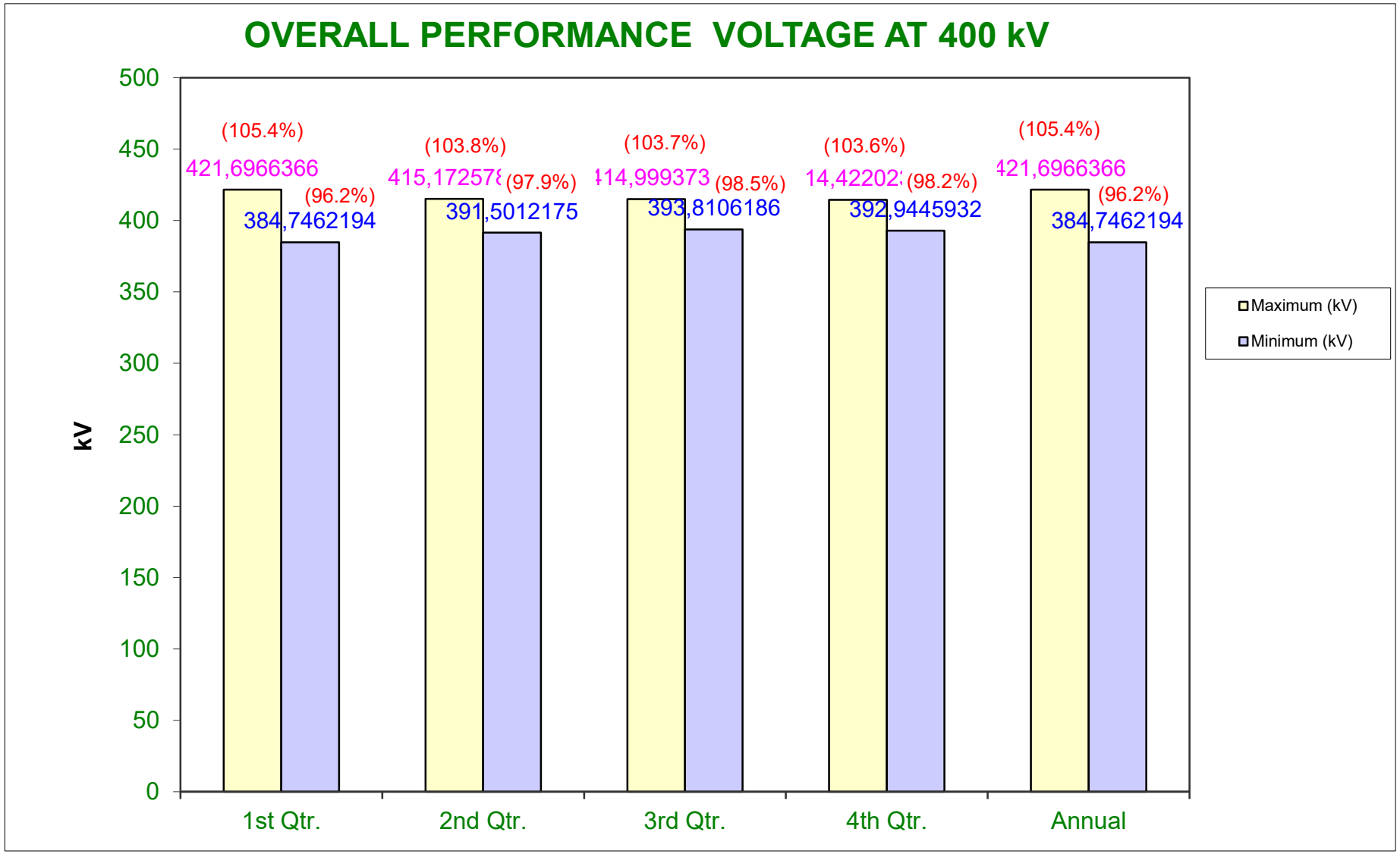
MINIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (132kV)

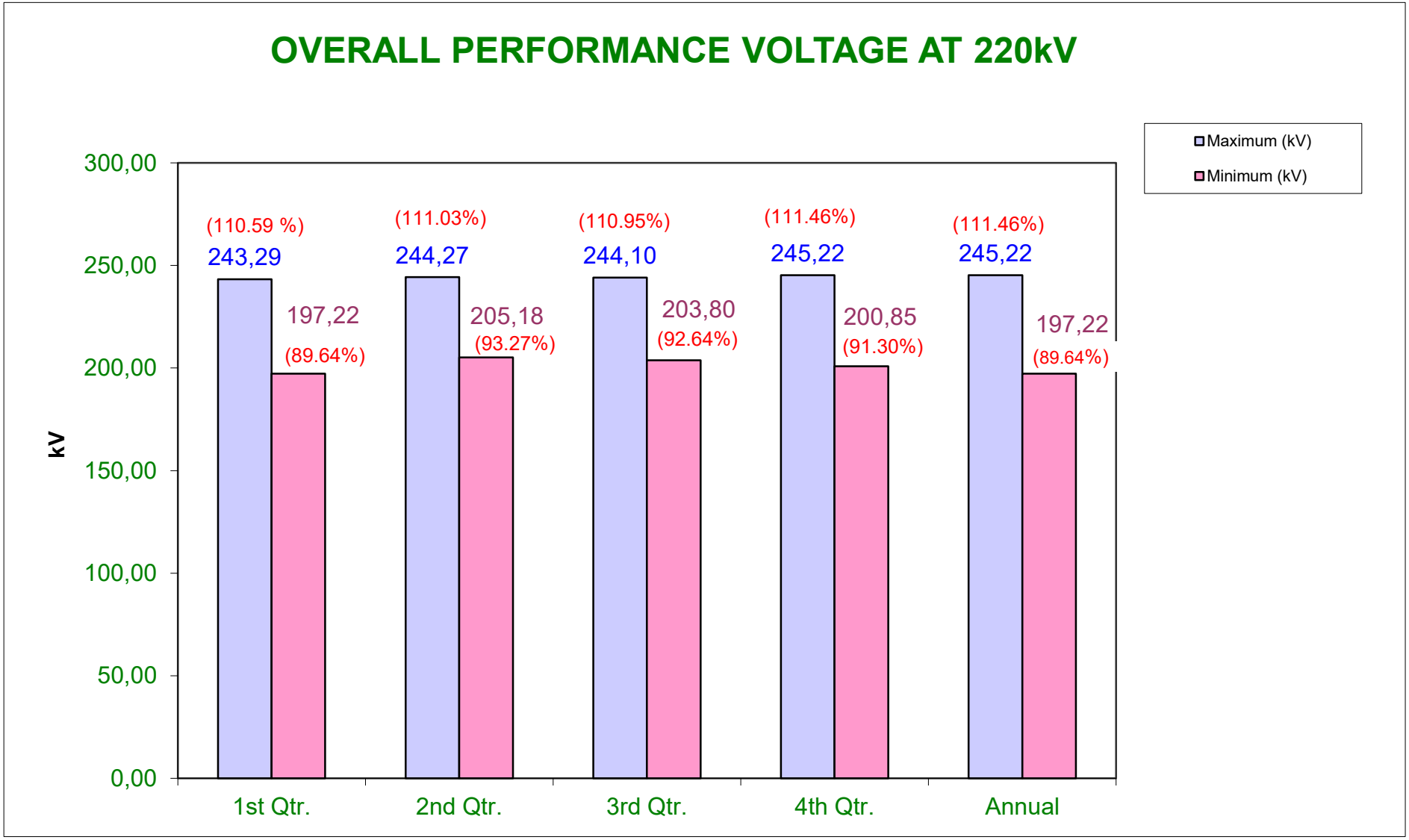
Sl. No.	Name of the Sub-station	Quarter - 1			Quarter - 2			Quarter - 3			Quarter - 4			**ANNUAL**		
		Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.	Voltage in kV	Date	Time in Hrs.
1	Bhubaneswar	118.30	12.06.2023	15:15	125.97	02.07.2023	22:45	126.90	23.12.2023	08:45	126.38	30.03.2024	15:00	**118.30**	**12.06.2023**	**15:15**
2	Cuttack	116.74	10.06.2023	14:15	125.11	02.07.2023	22:45	120.84	20.12.2023	16:15	124.53	15.03.2024	15:15	**116.74**	**10.06.2023**	**14:15**
3	Khurda	114.89	12.06.2023	15:15	126.15	02.07.2023	22:45	124.47	10.11.2023	10:30	126.67	03.03.2024	08:30	**114.89**	**12.06.2023**	**15:15**
4	Nimapara	113.97	17.06.2023	14:30	118.41	02.07.2023	22:30	123.78	06.10.2023	14:45	123.90	13.03.2024	12:15	**113.97**	**17.06.2023**	**14:30**
5	Paradeep	116.91	20.06.2023	14:30	121.70	02.07.2023	22:30	122.34	12.10.2023	14:45	122.80	28.03.2024	12:15	**116.91**	**20.06.2023**	**14:30**
6	Puri	110.11	16.05.2023	14:45	115.31	10.07.2023	22:30	116.32	09.10.2023	14:45	117.57	27.03.2024	12:15	**110.11**	**16.05.2023**	**14:45**
7	Balasore	121.70	17.05.2023	14:45	125.28	03.07.2023	22:30	129.03	10.10.2023	14:45	117.49	21.02.2024	10:45	**117.49**	**21.02.2024**	**10:45**
8	Bhadrak	111.48	17.05.2023	14:45	120.20	26.09.2023	15:15	125.17	16.12.2023	08:30	126.38	29.03.2024	12:15	**111.48**	**17.05.2023**	**14:45**
9	DuburiO	113.04	20.04.2023	15:45	129.38	04.07.2023	22:30	131.40	09.10.2023	14:45	131.75	30.03.2024	12:15	**113.04**	**20.04.2023**	**15:45**
10	Joda	125.05	19.04.2023	19:15	128.80	25.09.2023	12:30	129.73	07.10.2023	12:30	128.17	12.01.2024	12:15	**125.05**	**19.04.2023**	**19:15**
11	Berhampur	119.72	16.06.2023	10:30	127.82	02.07.2023	22:45	128.99	15.12.2023	08:30	127.33	29.03.2024	15:15	**119.72**	**16.06.2023**	**10:30**
12	Narendrapur	123.55	16.06.2023	10:30	132.04	02.07.2023	22:45	134.63	28.12.2023	15:45	131.29	29.03.2024	15:15	**123.55**	**16.06.2023**	**10:30**
13	Therubali	126.96	15.05.2023	13:00	133.48	25.07.2023	19:45	133.65	01.12.2023	17:00	132.67	29.03.2024	15:15	**126.96**	**15.05.2023**	**13:00**
14	Bolangir	121.70	11.04.2023	17:15	117.08	29.09.2023	15:30	114.66	06.10.2023	14:45	122.28	29.03.2024	15:30	**114.66**	**06.10.2023**	**14:45**
15	Budhipadar	131.23	19.04.2023	16:15	133.25	12.09.2023	11:00	133.83	22.11.2023	11:30	131.40	09.03.2024	16:30	**131.23**	**19.04.2023**	**16:15**
16	Katapali	127.30	19.04.2023	16:30	130.30	19.09.2023	11:15	130.88	09.10.2023	16:15	129.78	30.03.2024	14:45	**127.30**	**19.04.2023**	**16:30**
17	Lapanga	131.29	19.04.2023	16:15	127.88	19.09.2023	11:30	127.76	09.10.2023	15:00	131.34	30.03.2024	15:15	**127.76**	**09.10.2023**	**15:00**
18	Rourkela	127.82	21.06.2023	14:45	128.34	28.09.2023	12:15	128.92	07.10.2023	18:45	129.38	30.03.2024	15:30	**127.82**	**21.06.2023**	**14:45**

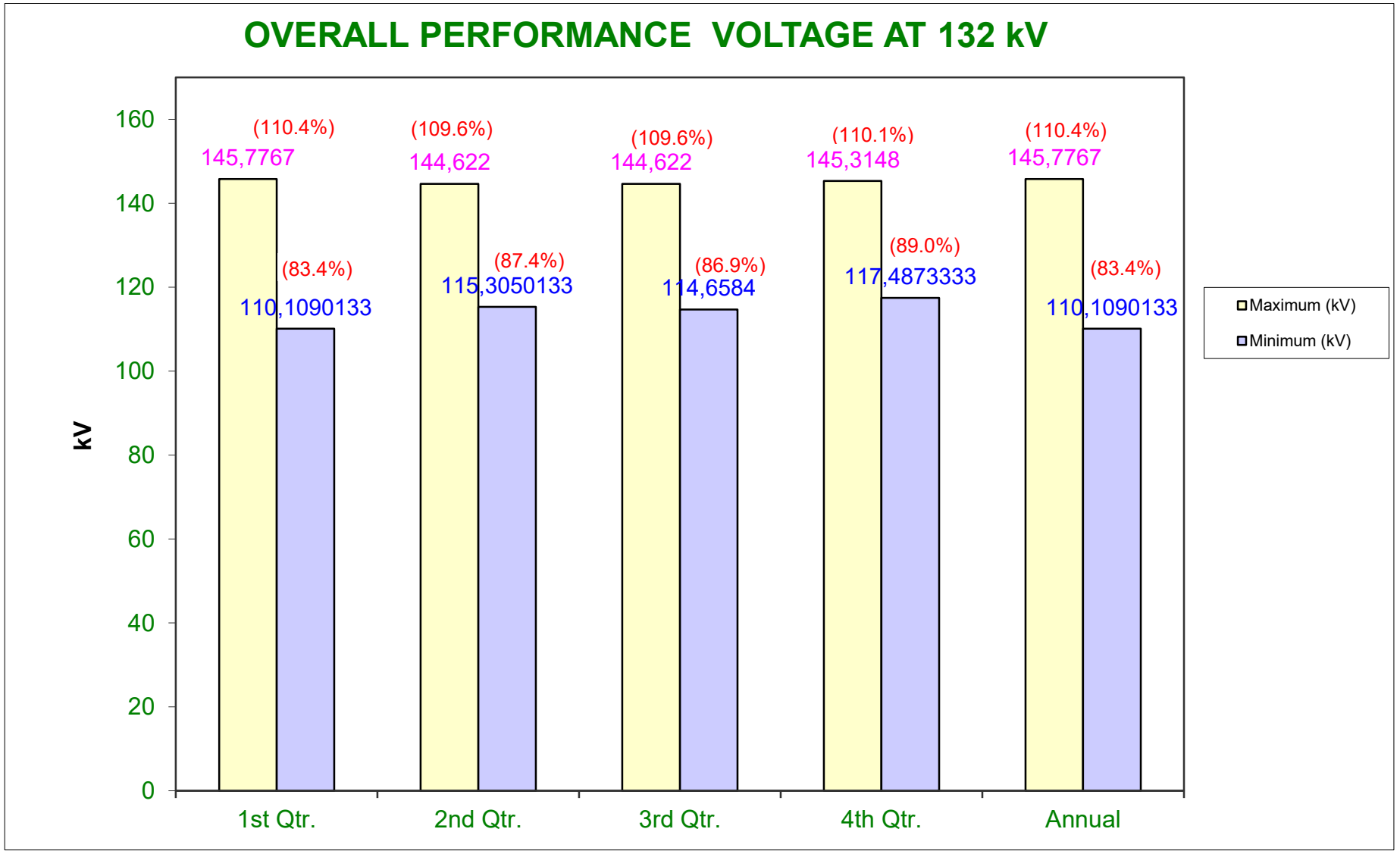
Note:

The bus voltages are recorded from 15min block voltage from meter data .

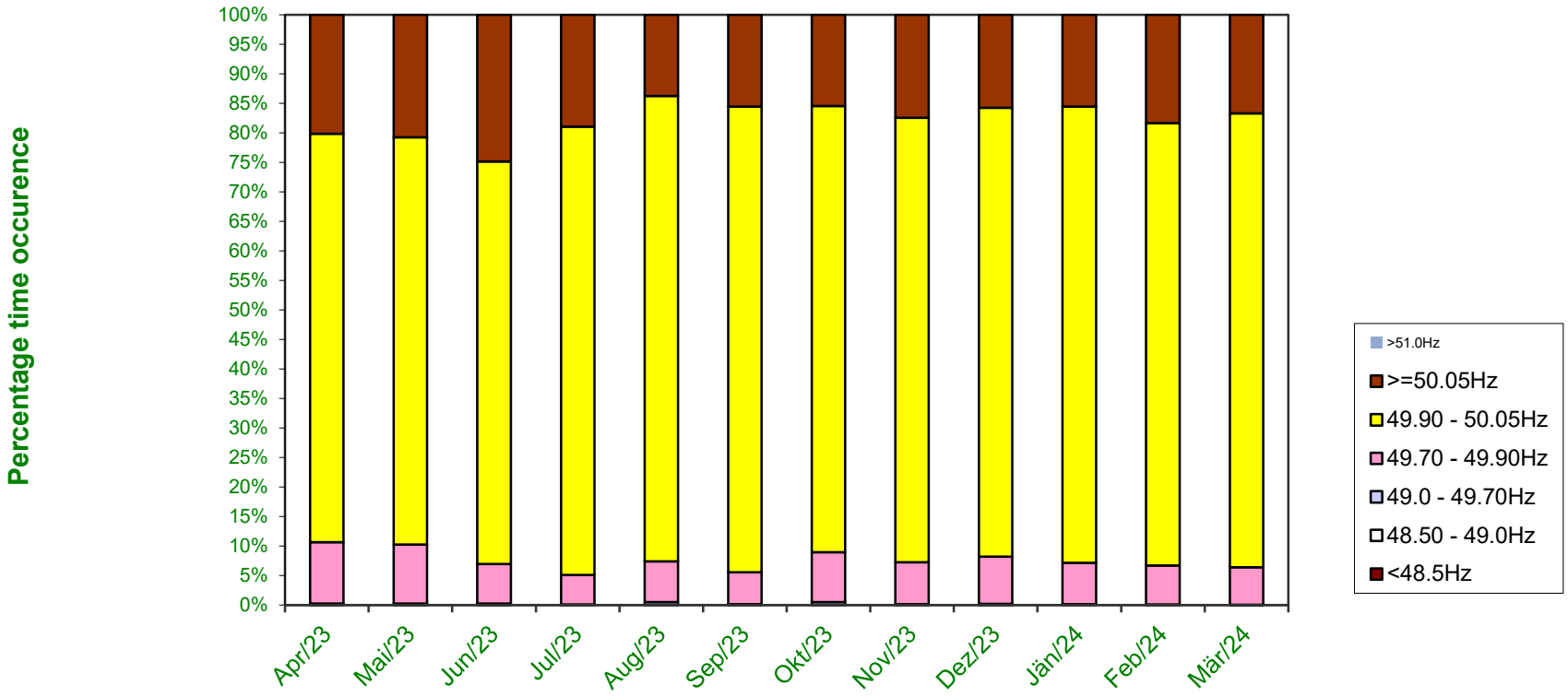
Further, low voltages during contigency conditions are also recorded as minimum voltages excluding disturbance period and any PT failure period.


OVERALL PERFORMANCE VOLTAGE AT 400 kV
kV
500
450
400
350
300
250
200
150
100
50
0
(105.4%)
421,6966366
(96.2%)
384,7462194
(103.8%)
415,17257
(97.9%)
391,5012175
(103.7%)
414,999373
(98.5%)
393,8106186
(103.6%)
14,42202
(98.2%)
392,9445932
(105.4%)
421,6966366
(96.2%)
384,7462194
1st Qtr.
2nd Qtr.
3rd Qtr.
4th Qtr.
Annual
Maximum (kV)
Minimum (kV)


OVERALL PERFORMANCE VOLTAGE AT 220kV
Maximum (kV)
Minimum (kV)
kV
300,00
250,00
200,00
150,00
100,00
50,00
0,00
(110.59 %)
243,29
197,22
(89.64%)
(111.03%)
244,27
205,18
(93.27%)
(110.95%)
244,10
203,80
(92.64%)
(111.46%)
245,22
200,85
(91.30%)
(111.46%)
245,22
197,22
(89.64%)
1st Qtr.
2nd Qtr.
3rd Qtr.
4th Qtr.
Annual


OVERALL PERFORMANCE VOLTAGE AT 132 kV
kV
160
140
120
100
80
60
40
20
0
(110.4%)
145,7767
(83.4%)
110,1090133
(109.6%)
144,622
(87.4%)
115,3050133
(109.6%)
144,622
(86.9%)
114,6584
(110.1%)
145,3148
(89.0%)
117,4873333
(110.4%)
145,7767
(83.4%)
110,1090133
1st Qtr.
2nd Qtr.
3rd Qtr.
4th Qtr.
Annual
Maximum (kV)
Minimum (kV)

Frequency Performance FOR FY 2023-24



	Apr.23	Mai.23	Jun.23	Jul.23	Aug.23	Sep.23	Okt.23	Nov.23	Dez.23	Jän.24	Feb.24	Mär.24
>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	20,14	20,75	24,85	18,98	13,77	15,58	15,48	17,47	15,75	15,58	18,34	16,70
49.90 - 50.05Hz	69,23	69,00	68,18	75,91	78,82	78,90	75,56	75,27	76,03	77,29	74,96	76,89
49.70 - 49.90Hz	10,40	10,02	6,73	5,02	6,90	5,40	8,46	7,13	8,03	6,99	6,59	6,34
49.0 - 49.70Hz	0,22	0,23	0,24	0,10	0,50	0,12	0,50	0,12	0,18	0,14	0,11	0,06
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	20:48:00	70
Insulator Failure	34:22:00	38
Bursting of CT / PT	8:33:00	25
Breaker Problem	0:00:00	2
Major System Disturbance*	8:21:00	6
Failure of LA	16:35:00	23
Others	222:37:00	331

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 2023-24.