

OPTCL



(Approved by OERC vide Letter No. OERC-Engg-5/98 (Vol.XXIV)/ 298 dt. 05.09.2023)

PERFORMANCE OF THE TRANSMISSION SYSTEM OF OPTCL FOR 2022-23

[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 2022-23.

1. Procurement of Power:

Source	Energy Requirement as per Commission's Approval (MU)	Actual Drawl of energy for the State Consumption (MU)	Remarks
OHPC	5862.48	5040.56	State's Maximum and Minimum demand was 6424 MW (on 25.09.2022) and 3810 MW (on 01.01.2023) respectively
Thermal(OPGC)	7498.08	9858.48	
CPP & Co-generation Plants		425.61	
Renewable Generation	3312.22	1129.57	
IPP	4338.36	5447.58	
EREB	9463.10	14286.49	
Deviation(Export)		-213.23	
Net Banking +IEX+ STOA+Trading		-3632.29	
Total	30474.24	32342.77	

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	240.29	214.27
2	Atri	235.96	210.38
3	Balasore	234.40	209.17
4	Balimela	246.75	229.43
5	Barkote	236.94	219.16
6	Bargarh	231.51	201.60
7	Bhadrak	242.31	202.47
8	Bhanjanagar	258.70	215.00
9	Bidanasi	237.92	204.66
10	BolangirN	234.74	204.26
11	Budhipadar	246.17	213.15
12	Chandaka	234.34	206.57
13	Cuttack	235.84	202.41
14	Duburi Old	232.49	208.53
15	Duburi New	234.57	215.29
16	Infocity-II GIS	236.10	209.64
17	Jayanagar	243.87	227.99
18	Joda	230.64	205.47
19	Katapalli	230.70	206.34
20	KeonjharGIS	229.09	207.26
21	Lapanga	233.07	212.17
22	Laxmipur	244.79	227.82
23	Malkangiri	250.33	229.26
24	Mendhasal	236.82	209.92
25	Meramundali	230.53	218.46
26	Narsinghpur	227.20	208.42
27	Narendrapur	239.36	207.32
28	Nayagarh	235.78	210.03
29	Paradeep	235.73	202.24
30	Tarkera	231.34	204.55
31	Theruvai	241.56	222.62
32	Rengali	232.32	219.27

Allowable Voltage Range at 400 kV level (380 -420 kV)			
Sl. No.	Name of the Substation	Maximum Voltage in kV	Minimum Voltage in kV
1	Duburi (N)	424	396
2	Lapanga	415	391
3	Mendhasal	425	385
4	Meramundali	427	399

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	142.14	119.51
2	Cuttack	145.89	119.80
3	Khurda	139.43	113.79
4	Nimapara	142.49	114.37
5	Paradeep	141.45	118.76
6	Puri	142.32	111.31
7	Balasore	140.87	117.78
8	Bhadrak	140.64	113.62
9	DuburiO	141.50	126.03
10	Joda	139.14	120.66
11	Berhampur	141.50	121.70
12	Narendrapur	146.64	116.16
13	Therubali	144.74	126.23
14	Bolangir	152.99	119.62
15	Budhipadar	138.50	128.98
16	Katapali	138.50	119.97
17	Lapanga	139.08	120.89
18	Rourkela	138.04	126.90

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	30:36:00	66	The duration of interruption in transmission line(s), sub-station(s)/ sub-station equipment is the sum total of interruptions occurred in different areas during the year. However no total blackout was experienced by the State during the year 2022-23.
Insulator Failure	10:37:00	34	
Bursting of CT / PT	06:08:00	15	
Breaker Problem	00:14:00	4	
Major System Disturbance	06:23:00	10	
Failure of LA	06:49:00	16	
Others	230:37:00	451	

Note: Issued in the Public interest. Detailed report on system Performance as regards to operation of Transmission System of OPTCL is available in 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 2022-23**

Background:

OPTCL is operating as State Transmission Utility (STU) and is responsible for development of Transmission system (Transmission lines and Sub-stations) of 132 kV and above voltage level. SLDC is assigned with the responsibility to ensure integrated operation of the power system of the state on real time basis and to maintain grid discipline. The information relating to system operation is available in SLDC website i.e., www.sldcorissa.org.in. The observations and direction of the Commission on the system performance report submitted by SLDC for smooth operation of state grid for the FY 2022-23 are as follows:

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

2. The energy consumption from various sources, transaction through open access and energy banking for the FY 2022-23 are summarized in the following table:

Source	Energy Requirement as per Commission's Approval (MU)	Actual Drawl of energy for the State Consumption (MU)	Remarks
OHPC	5862.48	5040.56	State's Maximum and Minimum demand was 6424 MW (on 25.09.2022) and 3810 MW (on 01.01.2023) respectively
Thermal(OPGC)	7498.08	9858.48	
CPP & Co-generation Plants		425.61	
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Deviation(Export)		-213.23	
Net Banking +IEX+ STOA+Trading		-3632.29	
Total	30474.24	32342.77	

There is an import of 504.983 MU through power banking, open access, trading & IEX) and export of 4350.505 MU (209.305 MU as sales to other utilities, 427 MU on account of deviation and 3714.200 MU through trading, OA, banking & IEX export) during the FY 2022-23. Hence, in the said financial year GRIDCO has an export of 3845.522 MU on this account.

3. During FY 2022-23, the daily peak demand touched 6424 MW on dt.25.09.2022 and minimum demand was 3810 MW on dt.01.01.2023. The peak demand in 2022-23 is about 779 MW (13.80%) more than the peak demand experienced during the previous year 2021-22 (5645 MW). The total energy drawl is about 32343 MU in FY 2022-23 against 27627 MU in 2021-22, which indicates the increase in electricity consumption of around 4716 MU (17.07%) in the State.

B. Frequency Profile:

4. 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 49.9 to 50.05 Hz band. OPTCL has experienced frequency as low as 49.5 Hz during the 1st quarter and as high as 50.44 Hz during the 3rd quarter of FY 2022-23. 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 challenge for smooth operation of future power system due to 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 the 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, OPTCL has experienced minimum voltage at thirteen (13) 132 kV substations beyond the permissible limit. The voltage at Bolangir substation has gone upto 153 kV. The voltage profile at 220 kV level was quite satisfactory except at Balimela, Bhanjanagar, Budhipadar and Malkangiri sub-stations where voltage has gone beyond permissible limit, i.e., 247, 259, 246 and 250 kV respectively. Therefore, OLTC of the power transformers should be in healthy condition and should be operated to maintain the voltage within the permissible limits in addition to other measures including reactive compensation. Hence, OPTCL should carry out reactive compensation study for a better voltage control and reliable operation of its transmission system. Also, the reactive load of DISCOMs is to be monitored regularly and OPTCL shall take up the matter with

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

The development of transmission and distribution system in a co-ordinate manner and in matching time frame is essential (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 system interruption during the FY 2022-23 is observed to vary from 14 minutes to more than 30 hours 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, breaker problem, system disturbance, Lightning Arrester failures etc. It has been reported that the load restriction has been imposed on rotational basis to curtail demand due to non-availability of generation/ failure of generating stations. But no black out has been experienced in the State during the FY 2022-23. OPTCL should have a regular protocol in place to check the health of transformers and other elements/equipment available in the transmission system in order to extend reliable & quality of power to the consumers of the State. Further, OPTCL is required to build effective disaster resilient transmission system and take appropriate measures to reduce the transmission loss in future years. The concept of dynamic line ratings may be considered during planning to accommodate additional power flow during night peak hours, when ambient temperature is lower than day time temperature. Further, the requirement of additional transmission network for meeting GNA requirement as per plan of CEA, CERC (Connectivity and General Network Access to the Inter-state Transmission System) Regulations and Generation Resource Adequacy plan of CEA need to be taken into account, while planning the transmission system of the state.

E. Load Restriction:

7. M/s. OPTCL has claimed that the load restriction due to transmission constraint is 'NIL'. Many transmission projects remain unutilized or underutilized due to absence of connectivity with downstream network of DISCOMs. Therefore, OPTCL and DISCOMs need to work together to plan new Grid Sub-stations (GSS) & Primary Sub-stations (PSS). The

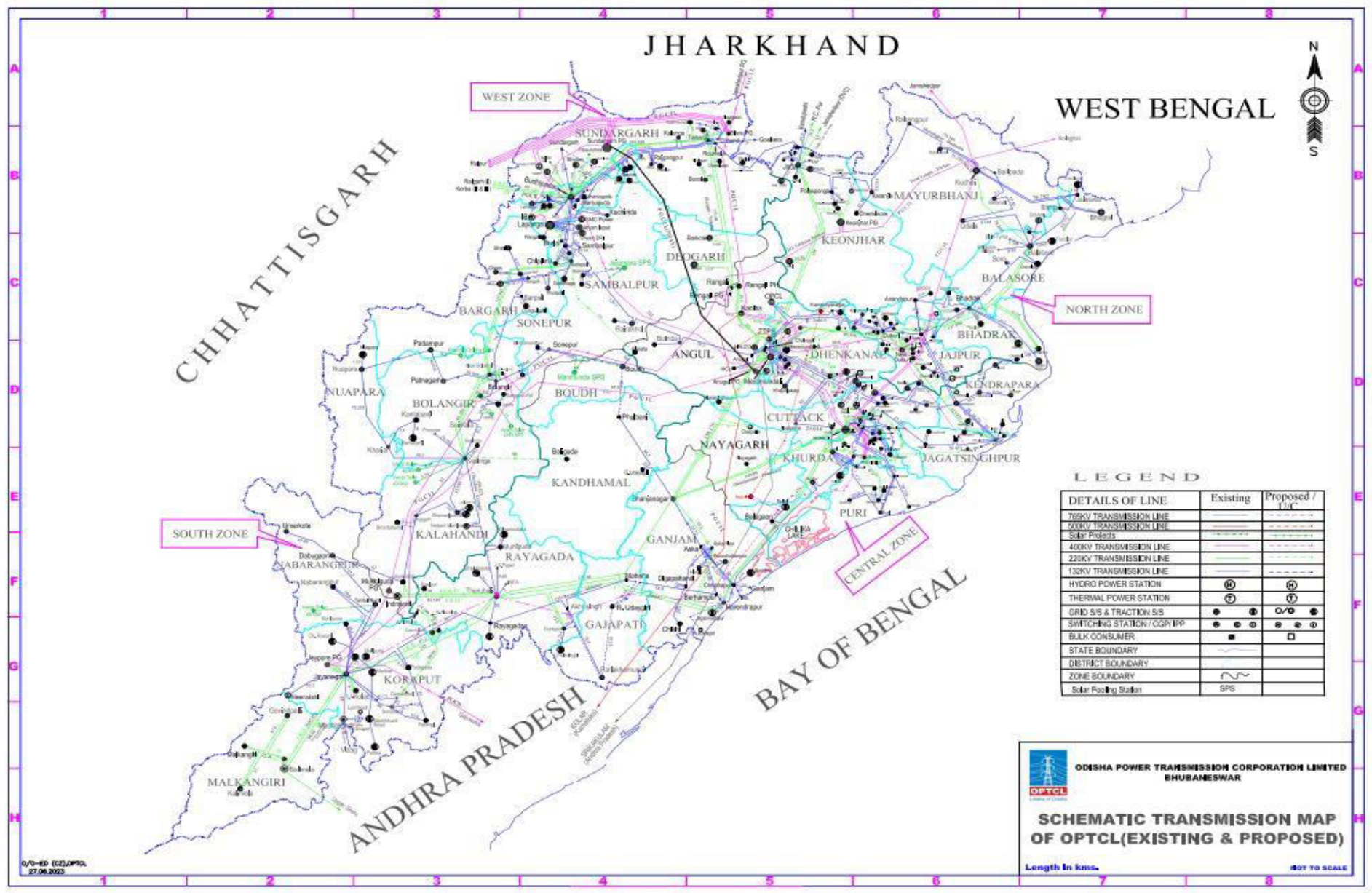
concerned officer(s) of OPTCL needs to share the details of unutilized 33 kV feeders at different Grid Sub-stations (220/33 kV or 132/33 kV or 220/132/33 kV) with DISCOMs and discuss with them for immediate utilization of these feeders. There is also need for standardization of MVA capacity of Grid sub-stations at different voltage levels and corresponding equipment including transformer rating, which would help in optimum utilization of assets and investment plan.

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

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

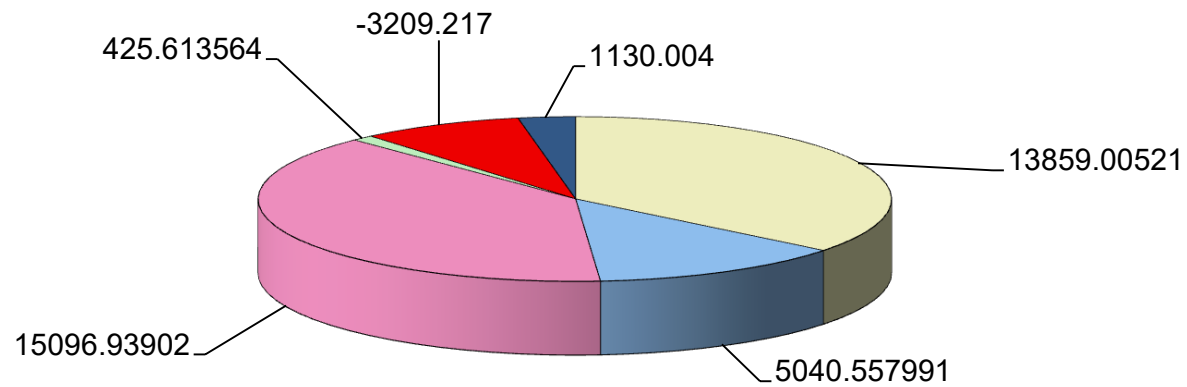
SLDC is required to ensure an integrated operation of the power system within the state and supervise, monitor & control the system operation in an effective manner within the allowable limit of voltage and frequency. SAMAST is in the process of implementation in SLDC with the aim of achieving an efficient 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 therefore take steps for timely implementation of SAMAST scheme.

In addition to the above, the reduction in addition of traditional source of generation and increase in generation from renewable energy sources, particularly during day time, is causing fundamental changes in steady state and dynamic behavior of the power system. The real time operation and control by SLDC is very much required for smooth flow of power. The operation feedback by SLDC to STU/ OPTCL/DISCOMs under the prevailing environment is essential for long term planning of the power system in the state.



GRID DEMAND FOR THE YEAR 2022-23

[Total Drawal 32342.903 MU]



Net EREB

Total Hydro

NET Thermal

CPP

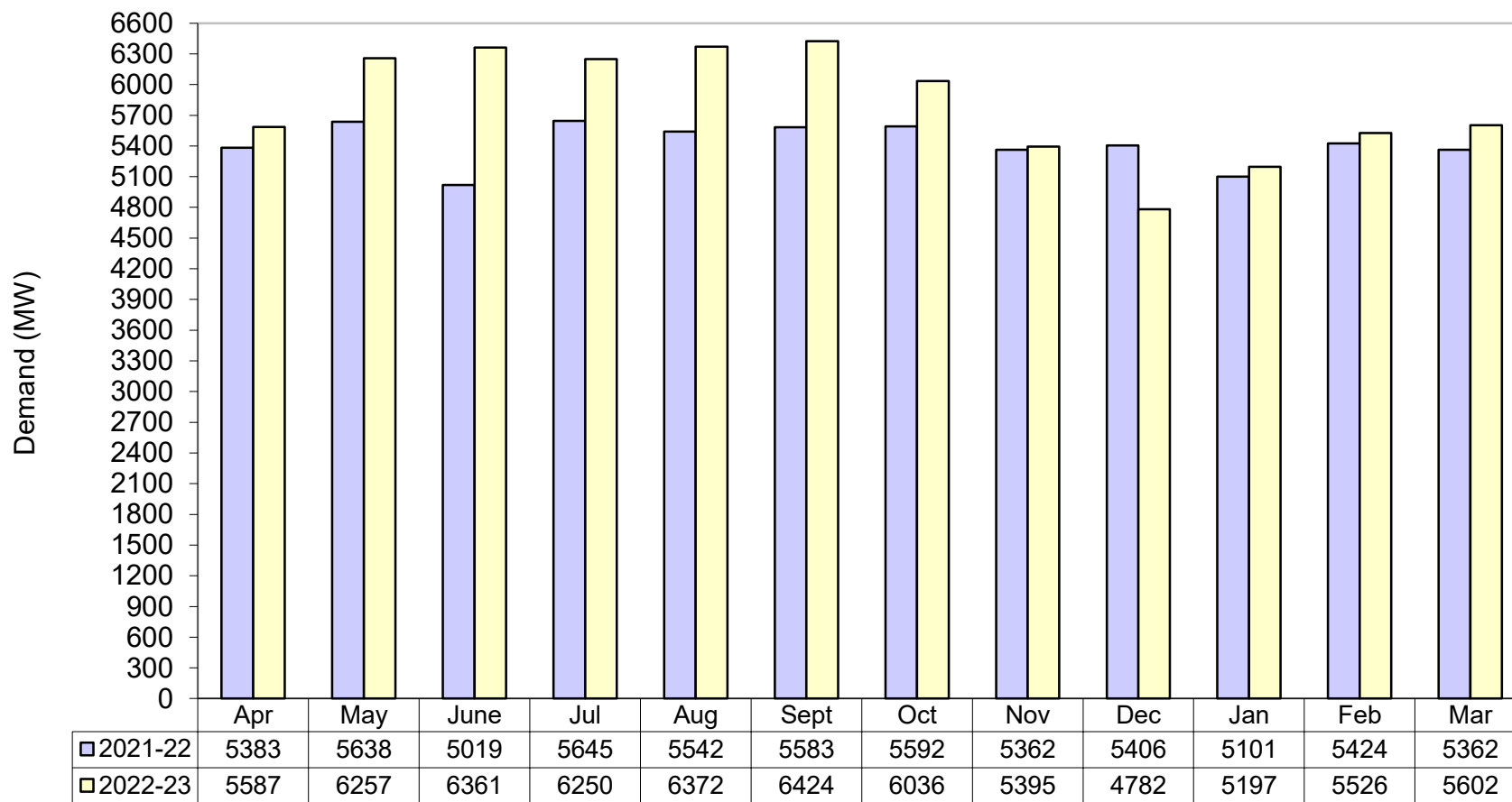
Net (BankingPower+IEX+STOA)

Renewable Energy

DAILY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR 2022-23

Day	Apr.22	Mai.22	Jun.22	Jul.22	Aug.22	Sep.22	Okt.22	Nov.22	Dez.22	Jän.23	Feb.23	Mär.23	Max	Min
1	4845	5070	5415	5543	5999	6175	5636	5124	4138	3810	4547	5063	6175	3810
2	5373	5436	5832	5032	6136	6291	5837	5153	4241	4179	4758	4961	6291	4179
3	5238	5250	6017	5107	6152	6133	5823	4820	4337	4444	4596	5193	6152	4337
4	4806	5285	5821	5152	6372	5923	5797	4633	4543	4384	4642	5568	6372	4384
5	4886	5130	5675	5182	6110	5966	5812	5019	4629	3996	4517	5386	6110	3996
6	4961	4831	5262	5110	5769	5744	5998	4946	4306	3994	4697	5197	5998	3994
7	4969	5356	5667	5272	5617	5660	5918	4796	4246	4100	4590	5053	5918	4100
8	5068	5830	6001	4926	5356	5522	5648	5395	4162	3963	5113	4763	6001	3963
9	5464	5692	6146	4955	5565	5435	5757	4961	4157	4182	5182	5036	6146	4157
10	5541	5520	5948	5682	5669	5305	5464	4689	4149	4133	4739	4912	5948	4133
11	5587	5176	5737	5360	5415	5576	5108	4374	4178	4226	4933	5451	5737	4178
12	5387	5518	5910	5146	5391	5563	5027	4609	4144	4599	4831	5602	5910	4144
13	5403	5346	6361	5135	5410	5846	5410	4396	4280	4703	4774	5248	6361	4280
14	5286	5942	6210	5057	5519	6203	5287	4491	4064	4441	4677	5235	6210	4064
15	5198	5703	5623	5289	5209	6022	5267	4357	4097	4532	4772	5110	6022	4097
16	5409	5614	5974	5729	5474	6155	5482	4348	4230	4625	4856	4887	6155	4230
17	5167	5561	5898	5730	5566	6250	5345	4364	4259	4491	4802	5184	6250	4259
18	5185	5792	5559	5579	5805	6153	5338	4322	4000	4092	4742	4883	6153	4000
19	5420	5678	5957	5901	5524	5491	5083	4186	4428	4053	4871	4785	5957	4053
20	5369	6257	5588	5840	5277	5620	5150	4149	4600	4676	5526	4786	6257	4149
21	5238	6175	6047	5786	5527	6136	4961	4242	4367	4663	5416	4832	6175	4242
22	5259	5513	5843	5461	5725	5952	5175	4368	4201	4488	5038	5021	5952	4201
23	5140	5912	5799	6250	5692	6065	5504	4313	4202	5197	4940	5216	6250	4202
24	5356	5704	5535	6087	5508	6385	5652	4403	4371	5042	5139	5274	6385	4371
25	5282	5918	5362	5703	5514	6424	6036	4429	4782	5112	5293	5458	6424	4429
26	5359	5806	5449	5730	5597	6112	5882	4845	4741	4660	4833	5340	6112	4660
27	5278	5663	5700	5826	5508	5553	5511	4807	4091	4540	5135	5435	5826	4091
28	5189	5374	5780	5676	5704	5775	5114	4468	4209	4671	5113	5241	5780	4209
29	5249	5718	5368	5847	5684	5442	4958	4271	4120	4524		4966	5847	4120
30	5267	5742	5625	5972	5773	5604	4744	4271	4004	4596		5048	5972	4004
31		5602		6079	5695		4930		4039	4577		4810	6079	4039
MAX	5587	6257	6361	6250	6372	6424	6036	5395	4782	5197	5526	5602	6424	4660
MIN	4806	4831	5262	4926	5209	5305	4744	4149	4000	3810	4517	4763	5737	3810

COMPARISON OF MONTHLY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR ENDING 2021-22 & 2022-23

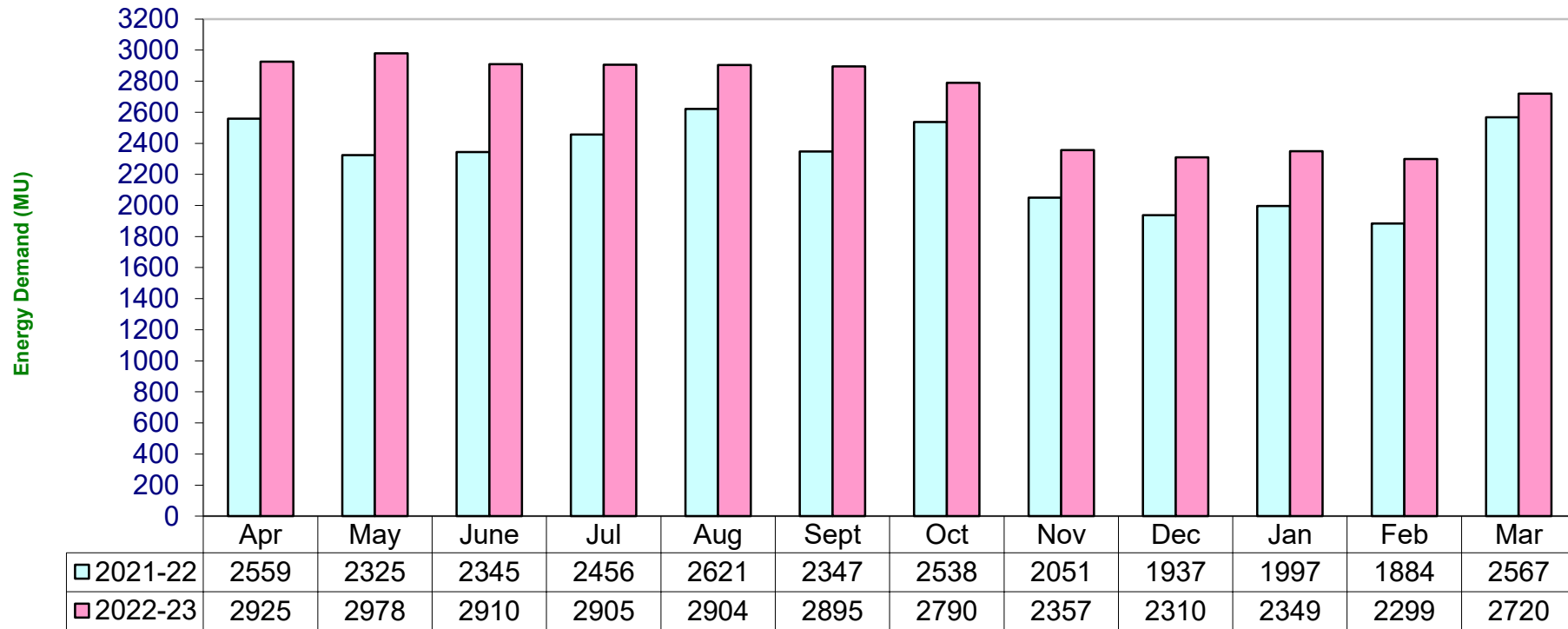


Month

Annual Peak Demand : 2022-23 - 6424 MW 2021-22 - 5645 MW

■ 2021-22 ■ 2022-23

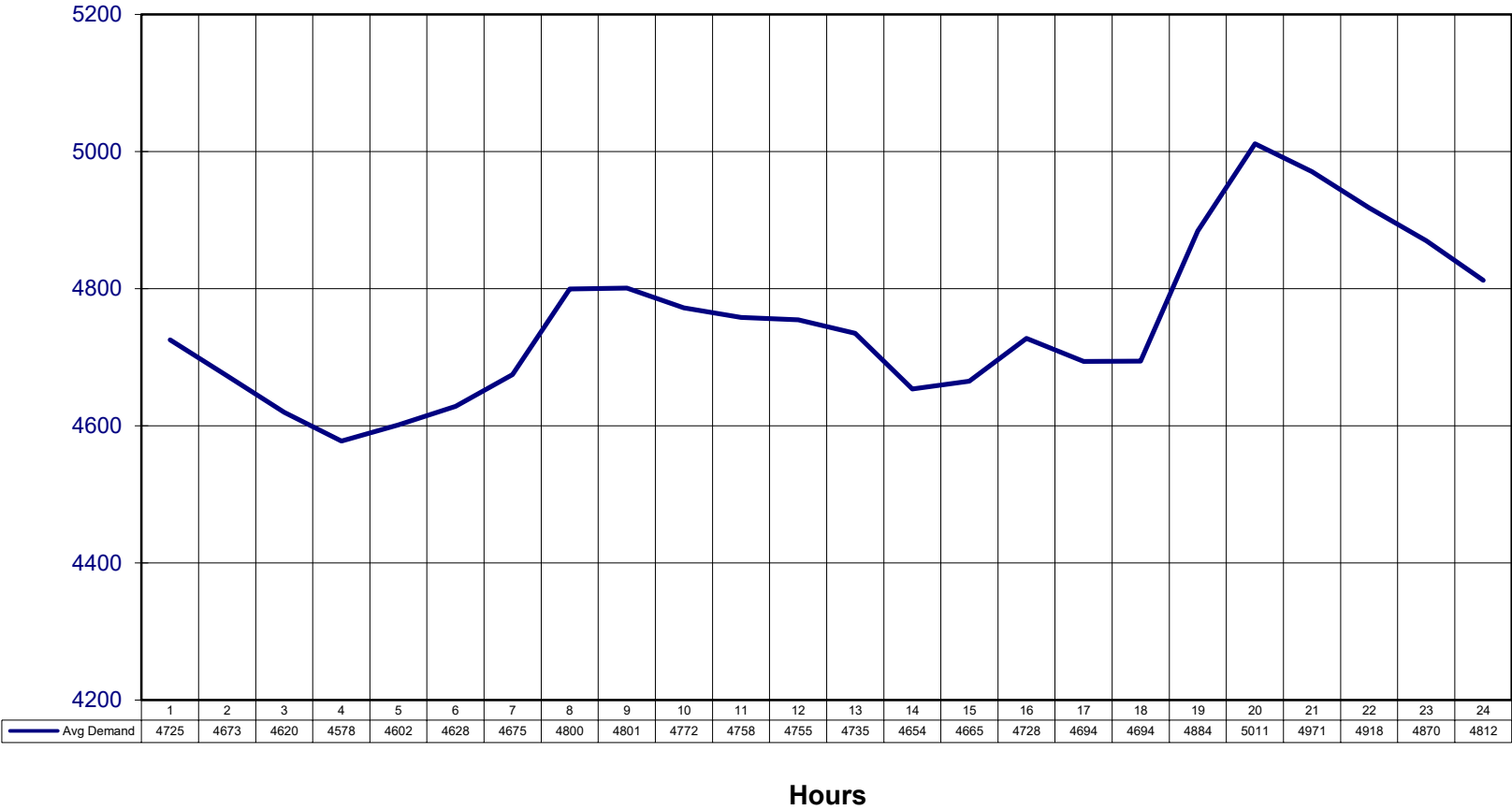
COMPARISON OF MONTHLY ENERGY DEMAND (MU) EXCLUDING TRADING & RETURN BANKING POWER FOR THE YEAR ENDING 2021-22 & 2022-23



Month

Annual Energy Demand : **2022-23 - 32342.903 MU** **2021-22 - 27626.563 MU**

DEMAND CURVE FOR HOURLY AVERAGE DEMAND EXCLUDING TRADING FOR YEAR ENDING MARCH 2023



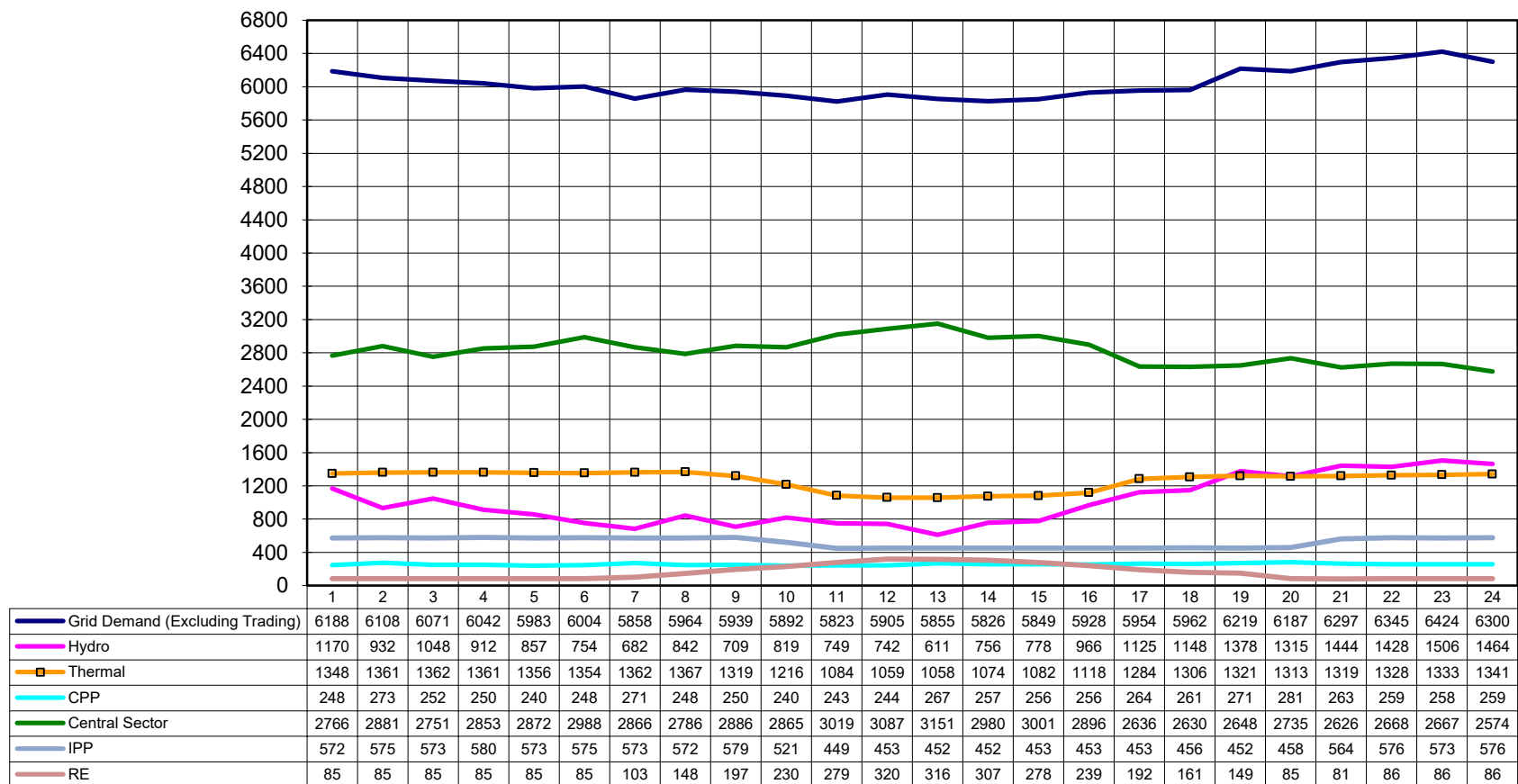
Hourly Average Demand (Month wise) in support of Page-6

Page - 6(a)

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.22	5002	4903	4809	4743	4736	4614	4423	4433	4435	4488	4617	4760	4872	4895	5007	5060	4821	4553	4781	5047	5087	5119	5173	5173
Mai.22	5202	5078	4949	4842	4837	4788	4632	4692	4745	4826	4942	5065	5171	5248	5349	5403	5151	4743	4773	5180	5248	5283	5343	5341
Jun.22	5432	5364	5291	5222	5212	5181	5144	5239	5290	5324	5402	5499	5522	5491	5525	5528	5304	5003	4984	5356	5414	5427	5522	5535
Jul.22	5180	5100	5022	4963	4951	4910	4936	5057	5111	5157	5177	5149	5123	5067	5093	5153	5047	4899	5044	5451	5471	5441	5400	5322
Aug.22	5374	5391	5372	5315	5313	5271	5242	5315	5352	5352	5315	5295	5247	5199	5264	5311	5249	5150	5270	5463	5441	5432	5383	5339
Sep.22	5614	5594	5555	5499	5492	5421	5355	5430	5563	5556	5557	5546	5497	5457	5518	5580	5521	5407	5604	5680	5647	5652	5680	5638
Okt.22	5162	5120	5051	5018	5034	5051	5073	5186	5220	5226	5243	5213	5153	5062	5078	5159	5122	5182	5240	5164	5188	5226	5223	5185
Nov.22	3970	3932	3904	3893	3994	4153	4327	4415	4326	4239	4161	4131	4090	3937	3896	3995	4091	4373	4531	4420	4346	4221	4053	4014
Dez.22	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.23	3616	3586	3569	3570	3607	3746	3999	4260	4215	4067	3895	3771	3709	3577	3474	3520	3686	4040	4393	4329	4169	3985	3807	3702
Feb.23	4012	3971	3946	3945	4008	4170	4437	4682	4620	4485	4356	4251	4187	3986	3913	3979	4164	4390	4848	4871	4734	4537	4338	4181
Mär.23	4502	4440	4381	4344	4365	4441	4579	4714	4646	4629	4607	4575	4482	4341	4347	4452	4496	4560	4917	5069	4945	4835	4734	4616
Avg. Annual	4725	4673	4620	4578	4602	4628	4675	4800	4801	4772	4758	4755	4735	4654	4665	4728	4694	4694	4884	5011	4971	4918	4870	4812

Demand (MW)

HOURLY DEMAND CURVE FOR 25.09.2022 (MAX PEAK DEMAND OF THE YEAR (2022-23))



Grid Demand (Excluding Trading)

Hydro

Thermal

CPP

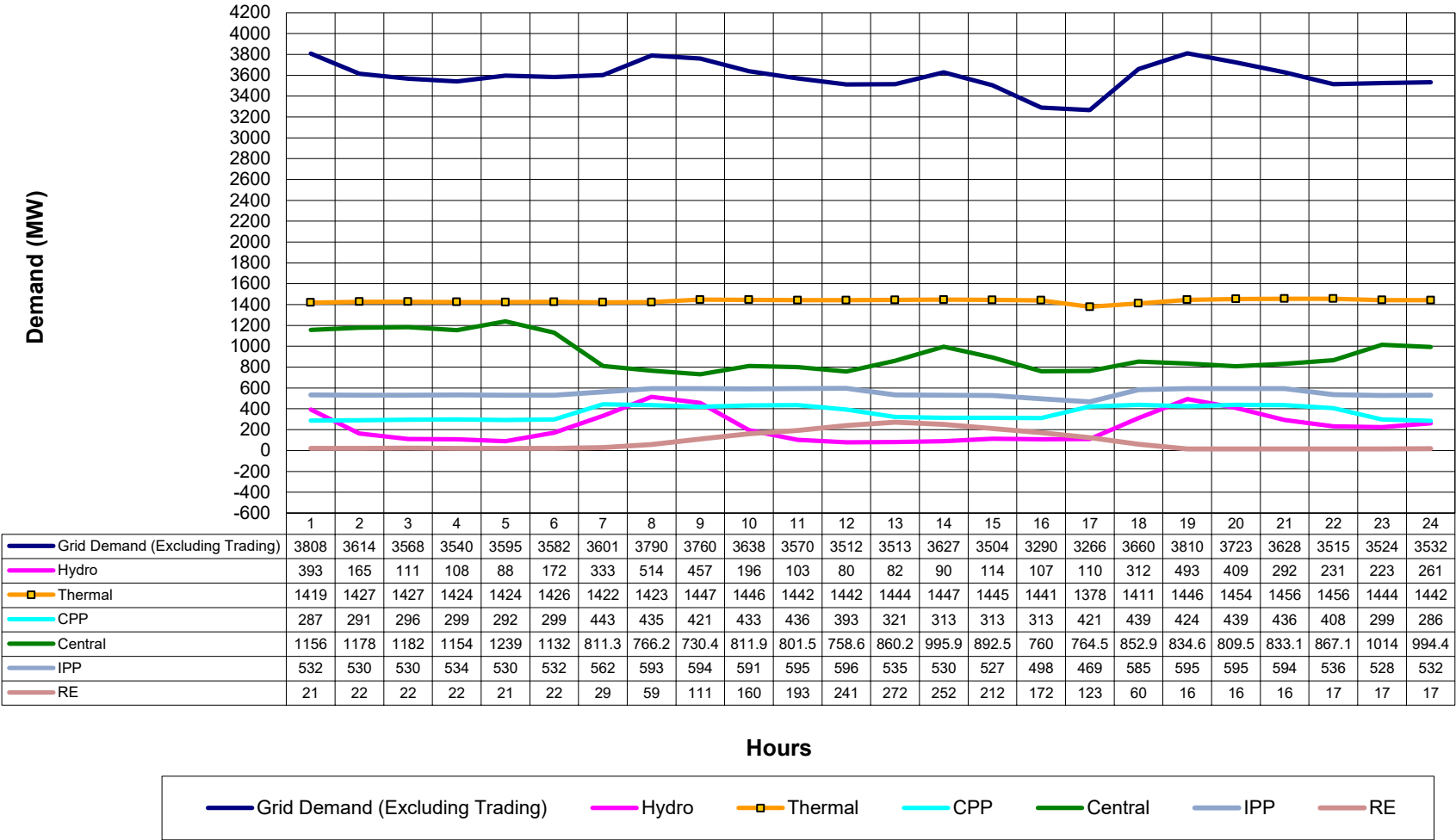
Central Sector

IPP

RE

Hours

HOURLY DEMAND CURVE FOR 01.01.2023 (MIN PEAK DEMAND OF THE YEAR 2022-23)



INSTALLED CAPACITY (AS ON 31.3.2021) 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	6178.217	5040.558
OPGC (Thermal)	1740	11710.429	9858.645
TTPS (Thermal)	-	0.000	0.000
TTPS (UI-OD)			0.000
IPPs			5447.599
CPP (Synchronised to OPTCL System)			425.614
Renewable Energy Including Co-gen	-		1130.004
B. CENTRAL SECTOR (Orissa Share)			
Hydro	268.38		
Thermal	1778.763	-	14286.005
C. Banking Power+OA+Trading+IEX (Import)			504.983
TOTAL DRAWAL			36693.408
D. Banking Power+OA+Trading+IEX (Export)			3714.200
E. Deviation(Export)			427.000
F. Sold to Other Utilities			209.305
Net GRIDCO demand			32342.903

Export to ICCL

34.141

Export to NALCO

38.874

* Includes Orissa share from Machhkund.

2 TRANSMISSION LINES AND SUBSTATIONS

A.CIRCUIT LINES	As on 31.03.2022	Capacity Addition in 2022-2023	As on 1.4.2023	Remark
400 kV line (ckt.km)	1196.872	0.000	1196.872	
220kV line (ckt.km)	6499.154	176.618	6675.772	-
132kV line (ckt.km)	8011.428	145.309	8156.737	-
B. SUBSTATIONS				New Substation
400 / 220 /132kV (nos.)	3	0	3	-
400 / 220 (nos.)	2	0	2	-
220/132/33kV (nos.)	25	2	27	+2 (Bamra, Kuarnmunda)
220/132	1	0	1	
220/33kV (nos.)	15	2	17	+2 (Godisahi, Kalimela)
132/33 kV (nos.)	108	4	112	+4 (Birmaharajpur, Hinjili, Bahugram, Chandipur)
132/33/25 kV (nos.)	0	0	0	-
132/33/11 kV (nos.)	0	0	0	-
132kV Switching Stations (OPTCL)	3	0	3	-
132kV LILO Switching Stations of Industries	20	3	23	+3 (ABReL, Shiva Cement, Ultratech Cement)
Total	177	11	188	-

Note:

Capacity addition details for 220kV:

- 220 kV Telkoi LILO from 220 kV TTPS - Joda Ckt-I -29.166 ckm
- 220 kV Deogah LILO DC from 220 kV Rengali-Barkote line - 24.740 ckm
- 220 kV Lephipada LILO (220 kV Budhipadar - Basundhara) - 7.750 ckm
- 220 kV Bonai-Bimlagarh RTSS SC on DC Towers - 20.218 ckm
- 220 kV Laxmipur RTSS SC on DC - 2.450 ckm
- 220 kV T- Connection from Meramundali-Duburi line to Meramundali-B GSS - 0.658 ckm
- 220 kV T- Connection from Meramundali-Goda line to Meramundali-B GSS - 0.658 ckm
- 220 kV New Bolangir-Kesinga SC on DC - 83.856 ckm
- 220 kV Bolangir PG-Kesinga SC on DC - 80.596 ckm
- 220 kV Gunupur LILO DC (on Therubali - Narendrapur Ckt I) - 27.200 ckm

Capacity addition details for 132kV:

- 132 kV Sonapur - Birmaharajpur SC (in DC Towers) - 24.774 ckm
- 132 kV ABREL LILO, (132 kV Tusura-Saintala)- 2.300 ckm
- 132 kV Bamra LILO, (132 kV Budhipadar - Rajgangpur)- 11.600 ckm
- 132 kV Chandipur LILO DC from 132 kV Balasore - Soro SC line - 52.464 ckm
- 132 kV Barbil- RML (KSP) SC on DC, (OH line-23.711 km & UG Cable- 8.1 km)- 31.811 ckm
- 132 kV SHIVA LILO DCfrom 132 kV Rajgangpur- Kuchinda line- 0.212 ckm
- 132 kV Meramundali -Rungta Mines Ltd., DSP SC (in DC Towers) - 10.530 ckm
- 132 kV SHIVA Sw. Stn. to Shiva Cement MRSS SC on DC - 3.010 ckm
- 132 kV Ultratech LILO DC(from 132 kV Aarti Steel- TS Alloy line) - 15.268 ckm
- 132 kV Jabamayee Ferro Alloys- Sukinda RTSS (SC on DC)

(OH= 3.07 km & UG Cable= 0.8 km)- 3.870 ckm

3 **PERFORMANCE OF OPTCL DURING 2022-23**

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)	12.50	2.50	0.00	0.00	15.00
Percentage(%)	0.57	0.11	0.00	0.00	0.17

* —▶ 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	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)	258.20	327.17	441.37	533.12	1559.85
Percentage(%)	11.82	14.82	19.99	24.68	17.81

(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)	3.95	1.55	2.62	1.58	3.95
Percentage(%)	0.18	0.07	0.12	0.07	0.05

(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	50.30	50.27	50.44	50.32	50.44
Date/Time	<u>23.05.22</u> 08:45 hr	<u>15.08.22</u> 13:45 hr	<u>20.12.22</u> 13:00 hr	<u>10.02.23</u> 13:00hr	<u>20.12.22</u> 13:00 hr

(iv) Below 49.9 Hz

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	409.13	169.30	194.10	249.05	1021.58
Percentage(%)	18.73	7.67	8.79	11.53	11.66

(v) Maxm. Continous period below 49.9 Hz

Duration	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>	<u>Annual</u>
(In Hrs)	4.48	4.10	2.57	2.72	4.48
Percentage(%)	0.21	0.19	0.12	0.13	0.05

(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	49.5	49.51	49.5	49.50	49.5
Date/Time	<u>27.04.22</u> 14:30 hr	<u>18.07.22</u> 19:15 hr	<u>20.12.22</u> 09:30 hr	<u>20.01.23</u> 09:00 hr	<u>27.04.22</u> 14:30 hr

3. C - 2 VOLTAGE PROFILE (2022-23)**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)	423.66	20.06.2022	17:15	418.98	11.08.2022	14:00	417.48	03.12.2022	03:00	416.50	18.03.2023	21:15	423.66	20.06.2022	17:15
2	Lapanga	412.63	19.06.2022	14:00	412.86	15.07.2022	05:00	413.79	20.12.2022	22:00	414.60	07.01.2023	04:00	414.60	07.01.2023	04:00
3	Mendhasal	424.76	20.06.2022	16:30	416.90	10.08.2022	04:00	420.02	03.12.2022	02:45	415.69	18.03.2023	19:45	424.76	20.06.2022	16:30
4	Meramundali	426.72	20.06.2022	16:30	416.85	11.08.2022	13:30	418.46	03.12.2022	03:00	412.92	03.01.2023	02:00	426.72	20.06.2022	16:30

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)	396.29	25.04.2022	14:15	398.31	31.07.2022	22:30	400.68	08.11.2022	19:00	399.41	23.03.2023	11:30	396.29	25.04.2022	14:15
2	Lapanga	392.77	09.04.2022	09:30	403.51	26.09.2022	09:15	404.49	06.10.2022	16:30	390.52	24.01.2023	09:45	390.52	24.01.2023	09:45
3	Mendhasal	384.69	25.04.2022	14:15	393.87	29.07.2022	15:30	395.48	20.12.2022	08:45	391.33	23.03.2023	11:30	384.69	25.04.2022	14:15
4	Meramundali	398.54	08.04.2022	15:15	401.55	29.07.2022	15:30	402.07	28.12.2022	09:00	399.82	30.01.2023	08:30	398.54	08.04.2022	15:15

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	236.46	22.05.2022	07:45	238.95	13.09.2022	13:00	240.29	12.12.2022	03:00	237.64	21.01.2023	03:15	240.29	12.12.2022	03:00
2	Atri	235.96	20.06.2022	16:30	232.09	10.08.2022	04:15	235.03	03.12.2022	03:00	234.11	18.03.2023	19:45	235.96	20.06.2022	16:30
3	Balasore	234.40	14.06.2022	18:00	232.49	20.08.2022	03:00	231.51	22.11.2022	03:45	232.49	18.03.2023	21:15	234.40	14.06.2022	18:00
4	Balimela	243.52	22.05.2022	13:00	243.98	17.07.2022	04:45	246.75	24.12.2022	12:30	243.69	02.01.2023	13:45	246.75	24.12.2022	12:30
5	Barkote	234.34	22.06.2022	14:00	236.94	11.08.2022	13:30	235.61	27.11.2022	03:00	235.03	16.01.2023	23:45	236.94	11.08.2022	13:30
6	Bargarh	231.51	19.06.2022	13:30	229.89	18.09.2022	21:30	228.80	09.12.2022	03:30	230.93	18.03.2023	16:00	231.51	19.06.2022	13:30
7	Bhadrak	235.73	14.06.2022	18:00	231.63	20.08.2022	03:00	231.86	19.12.2022	03:30	242.31	16.02.2023	05:15	242.31	16.02.2023	05:15
8	Bhanjanagar	236.76	24.05.2022	03:45	238.96	13.09.2022	13:00	240.34	12.12.2022	03:00	258.70	16.03.2023	17:15	258.70	16.03.2023	17:15
9	Bidanasi	236.88	24.05.2022	03:45	233.18	14.08.2022	05:15	237.92	03.12.2022	02:45	235.55	18.03.2023	20:00	237.92	03.12.2022	02:45
10	BolangirN	234.74	21.04.2022	20:45	233.82	18.09.2022	21:30	233.24	09.12.2022	03:30	234.11	18.03.2023	16:00	234.74	21.04.2022	20:45
11	Budhipadar	229.84	19.06.2022	14:00	229.61	15.07.2022	05:00	231.05	21.11.2022	03:00	246.17	09.02.2023	14:15	246.17	09.02.2023	14:15
12	Chandaka	234.34	24.05.2022	03:45	230.76	14.08.2022	05:15	233.76	03.12.2022	02:45	232.78	18.03.2023	19:45	234.34	24.05.2022	03:45
13	Cuttack	234.57	20.06.2022	16:30	235.84	05.07.2022	10:30	234.05	30.11.2022	01:45	232.61	18.03.2023	20:00	235.84	05.07.2022	10:30
14	Duburi Old	232.49	14.06.2022	18:15	230.01	11.08.2022	14:00	230.88	14.12.2022	02:15	227.35	18.03.2023	21:15	232.49	14.06.2022	18:15
15	Duburi New	234.57	14.06.2022	18:15	232.55	11.08.2022	14:00	232.61	14.12.2022	02:15	228.97	18.03.2023	21:15	234.57	14.06.2022	18:15
16	Infocity-II GIS	236.10	20.06.2022	16:30	232.66	14.08.2022	05:15	235.49	03.12.2022	03:00	234.14	18.03.2023	20:00	236.10	20.06.2022	16:30
17	Jayanagar	241.04	25.06.2022	17:30	241.09	12.07.2022	05:30	243.87	24.12.2022	13:00	241.27	18.01.2023	13:00	243.87	24.12.2022	13:00
18	Joda	230.47	19.06.2022	13:45	229.37	18.09.2022	20:45	229.72	09.12.2022	03:30	230.64	18.03.2023	16:00	230.64	18.03.2023	16:00
19	Katapalli	230.47	19.06.2022	13:45	229.26	18.09.2022	20:45	229.66	09.12.2022	03:30	230.70	18.03.2023	16:15	230.70	18.03.2023	16:15
20	KeonjharGIS	229.09	07.05.2022	06:00	225.56	02.07.2022	13:15	222.74	28.10.2022	14:00	222.10	11.02.2023	15:45	229.09	07.05.2022	06:00
21	Lapanga	229.49	19.06.2022	14:00	228.80	12.07.2022	14:15	230.07	20.12.2022	22:00	233.07	20.03.2023	02:15	233.07	20.03.2023	02:15
22	Laxmipur	241.21	25.06.2022	14:00	241.56	14.08.2022	04:00	244.79	08.12.2022	13:30	242.08	02.01.2023	13:45	244.79	08.12.2022	13:30
23	Malkangiri	243.35	22.05.2022	13:15	243.98	17.07.2022	04:45	248.31	24.12.2022	12:30	250.33	13.02.2023	13:00	250.33	13.02.2023	13:00
24	Mendhasal	236.82	20.06.2022	16:30	233.53	14.08.2022	05:15	236.36	03.12.2022	02:45	234.80	18.03.2023	19:45	236.82	20.06.2022	16:30
25	Meramundali	230.24	11.05.2022	06:00	230.30	15.08.2022	03:45	230.53	03.12.2022	03:00	227.58	19.02.2023	02:45	230.53	03.12.2022	03:00
26	Narsinghpur	226.74	05.05.2022	17:45	227.20	08.07.2022	16:45	227.12	03.12.2022	03:00	224.62	16.01.2023	23:45	227.20	08.07.2022	16:45
27	Narendrapur	239.36	14.06.2022	15:00	236.82	14.08.2022	03:00	238.67	26.11.2022	03:30	238.67	18.03.2023	19:45	239.36	14.06.2022	15:00
28	Nayagarh	235.61	20.06.2022	16:30	234.22	14.08.2022	05:15	235.78	26.11.2022	03:15	234.00	18.03.2023	19:45	235.78	26.11.2022	03:15
29	Paradeep	235.73	14.06.2022	18:15	230.88	14.08.2022	05:15	234.17	14.12.2022	02:15	229.43	18.03.2023	21:15	235.73	14.06.2022	18:15
30	Tarkera	228.57	21.05.2022	21:45	228.91	09.07.2022	18:00	230.99	20.12.2022	22:00	231.34	16.01.2023	02:00	231.34	16.01.2023	02:00
31	Theruvalli	238.03	15.06.2022	18:00	239.94	29.09.2022	14:15	241.56	05.10.2022	02:45	240.92	21.01.2023	03:00	241.56	05.10.2022	02:45
32	Rengali	229.72	25.06.2022	17:45	232.32	11.08.2022	13:30	231.11	03.12.2022	02:45	229.61	16.01.2023	23:45	232.32	11.08.2022	13:30

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	214.27	02.04.2022	15:45	218.95	28.07.2022	22:45	220.36	28.12.2022	09:00	217.27	06.01.2023	08:45	214.27	02.04.2022	15:45
2	Atri	210.38	25.04.2022	14:15	215.40	28.07.2022	22:45	219.10	08.11.2022	18:45	211.30	13.01.2023	08:15	210.38	25.04.2022	14:15
3	Balasore	209.17	07.06.2022	14:15	212.69	31.07.2022	22:30	218.75	31.12.2022	08:30	212.52	06.01.2023	07:45	209.17	07.06.2022	14:15
4	Balimela	229.43	01.04.2022	10:15	231.28	15.09.2022	10:15	232.03	28.12.2022	09:00	231.86	20.02.2023	11:00	229.43	01.04.2022	10:15
5	Barkote	220.60	04.04.2022	10:30	219.16	07.07.2022	13:00	224.99	30.11.2022	09:00	225.16	31.03.2023	10:30	219.16	07.07.2022	13:00
6	Bargarh	201.60	12.04.2022	16:30	208.53	28.07.2022	16:45	207.03	29.12.2022	09:30	206.22	17.03.2023	06:15	201.60	12.04.2022	16:30
7	Bhadrak	202.47	07.06.2022	22:30	207.38	16.07.2022	19:30	213.73	09.11.2022	17:15	213.67	31.01.2023	08:45	202.47	07.06.2022	22:30
8	Bhanjanagar	215.00	02.04.2022	15:45	219.50	27.08.2022	13:45	222.50	19.12.2022	18:00	218.12	06.01.2023	08:45	215.00	02.04.2022	15:45
9	Bidanasi	204.66	29.04.2022	14:45	215.11	28.07.2022	22:45	220.43	08.11.2022	18:45	216.62	27.03.2023	12:30	204.66	29.04.2022	14:45
10	BolangirN	204.26	27.05.2022	16:15	209.11	03.08.2022	19:30	207.84	23.12.2022	17:45	211.13	04.03.2023	16:45	204.26	27.05.2022	16:15
11	Budhipadar	213.15	01.04.2022	16:45	222.97	27.09.2022	14:45	219.44	23.12.2022	17:15	223.08	08.02.2023	09:30	213.15	01.04.2022	16:45
12	Chandaka	206.57	25.04.2022	14:15	213.61	28.07.2022	22:45	217.48	08.11.2022	18:45	214.36	27.03.2023	12:30	206.57	25.04.2022	14:15
13	Cuttack	202.41	08.06.2022	15:00	209.05	05.09.2022	15:15	214.77	26.12.2022	08:45	211.25	01.03.2023	16:45	202.41	08.06.2022	15:00
14	Duburi Old	208.53	25.04.2022	14:30	213.67	05.08.2022	22:15	215.69	05.11.2022	09:45	216.44	30.03.2023	10:45	208.53	25.04.2022	14:30
15	Duburi New	215.29	25.04.2022	14:15	216.67	28.07.2022	22:45	220.95	31.12.2022	08:30	217.71	30.03.2023	15:15	215.29	25.04.2022	14:15
16	Infocity-II GIS	209.64	25.04.2022	14:15	216.04	28.07.2022	22:45	219.75	08.11.2022	18:45	216.90	23.03.2023	11:30	209.64	25.04.2022	14:15
17	Jayanagar	227.99	01.04.2022	10:30	229.78	15.09.2022	10:15	228.85	28.12.2022	09:00	228.45	23.03.2023	09:15	227.99	01.04.2022	10:30
18	Joda	205.47	27.05.2022	16:30	217.48	02.08.2022	19:15	217.71	23.12.2022	17:45	211.36	25.03.2023	12:15	205.47	27.05.2022	16:30
19	Katapalli	206.34	27.05.2022	16:30	217.54	02.08.2022	19:15	217.60	23.12.2022	17:45	211.36	25.03.2023	12:15	206.34	27.05.2022	16:30
20	KeonjharGIS	212.46	03.05.2022	14:45	214.48	29.07.2022	14:45	210.03	17.12.2022	12:15	207.26	20.01.2023	09:00	207.26	20.01.2023	09:00
21	Lapanga	212.17	24.05.2022	18:15	222.10	02.08.2022	19:15	222.10	22.12.2022	07:45	216.79	04.02.2023	12:45	212.17	24.05.2022	18:15
22	Laxmipur	227.82	01.04.2022	10:15	229.03	28.07.2022	22:15	229.49	08.12.2022	17:30	230.82	06.01.2023	08:30	227.82	01.04.2022	10:15
23	Malkangiri	229.26	01.04.2022	10:30	231.57	15.09.2022	10:15	231.97	28.12.2022	09:15	231.86	20.02.2023	11:00	229.26	01.04.2022	10:30
24	Mendhasal	209.92	25.04.2022	14:15	216.67	28.07.2022	22:45	220.48	08.11.2022	18:45	217.19	23.03.2023	11:30	209.92	25.04.2022	14:15
25	Meramundali	218.46	07.06.2022	15:00	219.04	28.07.2022	22:45	219.10	08.11.2022	19:15	218.46	09.01.2023	09:15	218.46	07.06.2022	15:00
26	Narsinghpur	208.42	01.04.2022	15:00	213.07	28.07.2022	22:45	214.23	28.12.2022	09:15	212.11	06.01.2023	09:15	208.42	01.04.2022	15:00
27	Narendrapur	207.32	27.04.2022	14:15	211.25	28.07.2022	22:45	210.21	12.12.2022	07:00	219.68	06.01.2023	08:45	207.32	27.04.2022	14:15
28	Nayagarh	210.03	28.04.2022	11:45	215.98	28.07.2022	22:45	215.01	20.10.2022	08:30	212.56	06.01.2023	08:45	210.03	28.04.2022	11:45
29	Paradeep	202.24	25.04.2022	14:30	205.07	28.07.2022	22:45	215.98	07.12.2022	21:30	211.19	30.03.2023	15:15	202.24	25.04.2022	14:30
30	Tarkera	205.01	29.04.2022	10:15	220.19	02.08.2022	11:30	214.36	05.10.2022	13:15	204.55	06.01.2023	15:45	204.55	06.01.2023	15:45
31	Theruvalli	222.62	02.06.2022	14:30	224.06	28.07.2022	22:15	223.83	08.12.2022	17:30	225.62	23.03.2023	09:45	222.62	02.06.2022	14:30
32	Rengali	219.27	08.06.2022	14:30	223.72	02.08.2022	11:30	222.74	30.12.2022	09:15	221.52	13.03.2023	15:00	219.27	08.06.2022	14:30

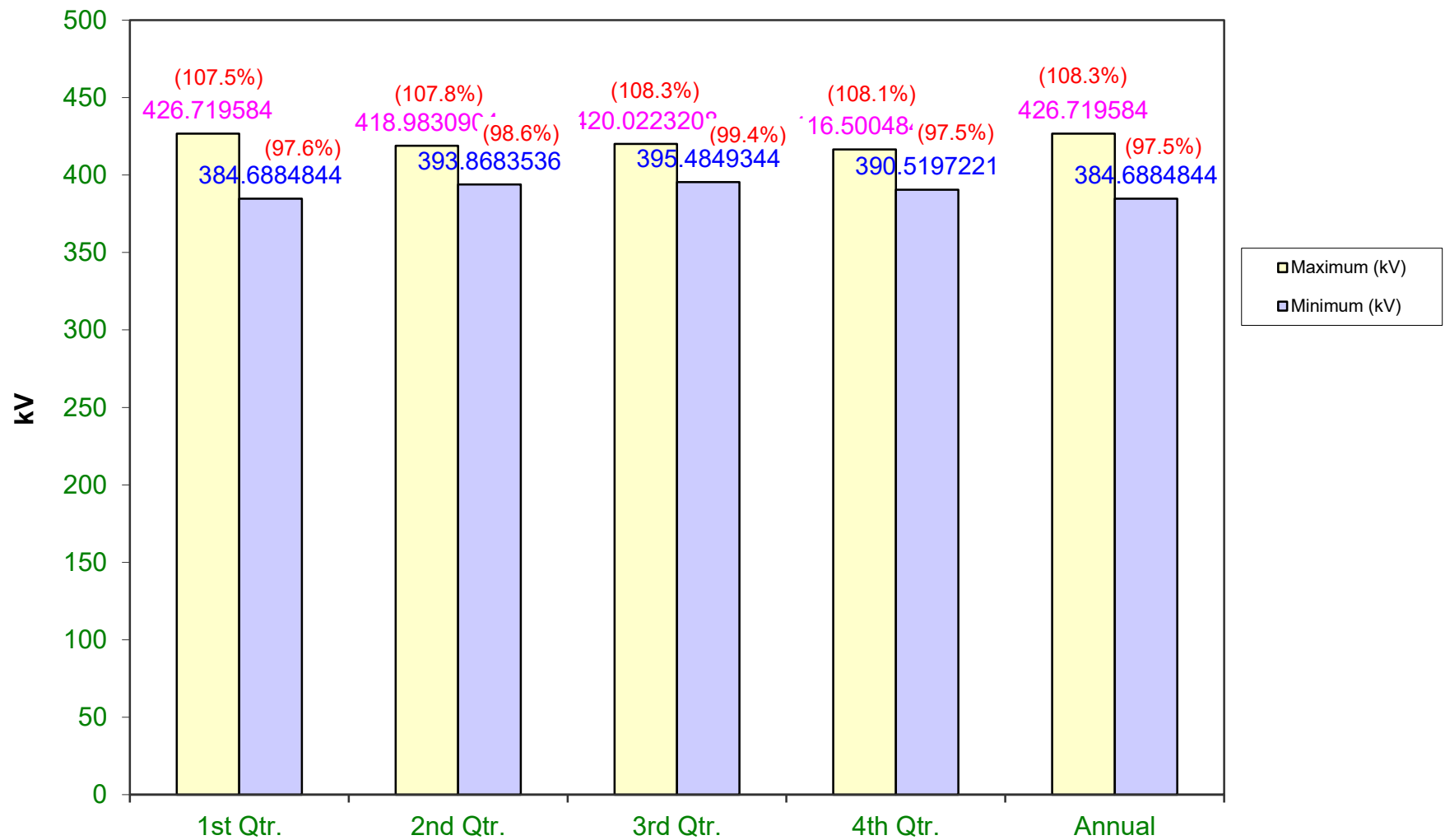
MAXIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (132kV)

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	142.14	24.05.2022	03:45	139.89	14.08.2022	05:15	140.75	14.11.2022	04:00	139.02	18.03.2023	20:00	142.14	24.05.2022	03:45
2	Cuttack	141.22	24.05.2022	03:30	137.75	14.08.2022	05:15	138.21	18.11.2022	02:45	145.89	28.03.2023	16:45	145.89	28.03.2023	16:45
3	Khurda	139.43	24.05.2022	03:30	136.14	14.08.2022	05:15	138.10	14.11.2022	04:00	136.89	18.03.2023	19:45	139.43	24.05.2022	03:30
4	Nimapara	142.49	24.05.2022	03:45	138.50	16.07.2022	05:45	139.31	21.11.2022	02:45	138.27	18.03.2023	20:00	142.49	24.05.2022	03:45
5	Paradeep	141.45	24.05.2022	03:45	140.52	02.07.2022	05:45	139.14	04.10.2022	03:30	140.23	18.03.2023	20:00	141.45	24.05.2022	03:45
6	Puri	142.32	24.05.2022	03:45	137.11	10.08.2022	04:15	137.13	04.10.2022	03:30	135.51	18.03.2023	20:00	142.32	24.05.2022	03:45
7	Balasore	140.87	14.06.2022	14:15	139.60	20.08.2022	04:15	138.79	19.12.2022	02:45	138.79	19.12.2022	20:00	140.87	14.06.2022	14:15
8	Bhadrak	140.64	14.06.2022	14:15	137.12	14.08.2022	04:15	137.17	27.12.2022	02:45	137.17	27.12.2022	20:00	140.64	14.06.2022	14:15
9	DuburiO	141.50	14.06.2022	14:15	139.43	10.08.2022	04:15	139.66	14.12.2022	02:45	139.66	14.12.2022	20:00	141.50	14.06.2022	14:15
10	Joda	136.02	07.06.2022	12:00	139.14	20.08.2022	05:45	138.56	10.11.2022	14:00	137.64	12.12.2022	22:15	139.14	20.08.2022	05:45
11	Berhampur	141.50	14.06.2022	15:00	139.67	10.08.2022	04:15	140.12	07.10.2022	02:15	139.48	18.03.2023	21:15	141.50	14.06.2022	15:00
12	Narendrapur	146.64	14.06.2022	15:00	143.99	10.08.2022	04:15	144.51	07.10.2022	02:15	143.24	22.12.2022	00:00	146.64	14.06.2022	15:00
13	Therubali	142.60	15.06.2022	18:00	143.76	29.09.2022	14:15	144.74	05.10.2022	02:45	144.45	08.12.2022	13:00	144.74	05.10.2022	02:45
14	Bolangir	139.48	21.04.2022	20:45	152.99	17.07.2022	13:15	137.87	09.12.2022	02:00	139.25	18.03.2023	16:00	152.99	17.07.2022	13:15
15	Budhipadar	136.19	19.06.2022	14:00	135.62	29.09.2022	17:00	138.39	15.12.2022	03:45	138.50	20.03.2023	02:00	138.50	20.03.2023	02:00
16	Katapali	138.10	19.06.2022	13:45	136.83	18.09.2022	20:45	137.64	09.12.2022	03:30	138.50	18.03.2023	16:00	138.50	18.03.2023	16:00
17	Lapanga	137.92	19.06.2022	14:00	136.65	02.07.2022	09:00	138.85	15.12.2022	03:30	139.08	20.03.2023	02:15	139.08	20.03.2023	02:15
18	Rourkela	136.37	23.05.2022	23:00	135.79	03.07.2022	05:30	137.23	20.12.2022	22:00	138.04	16.01.2023	02:00	138.04	16.01.2023	02:00

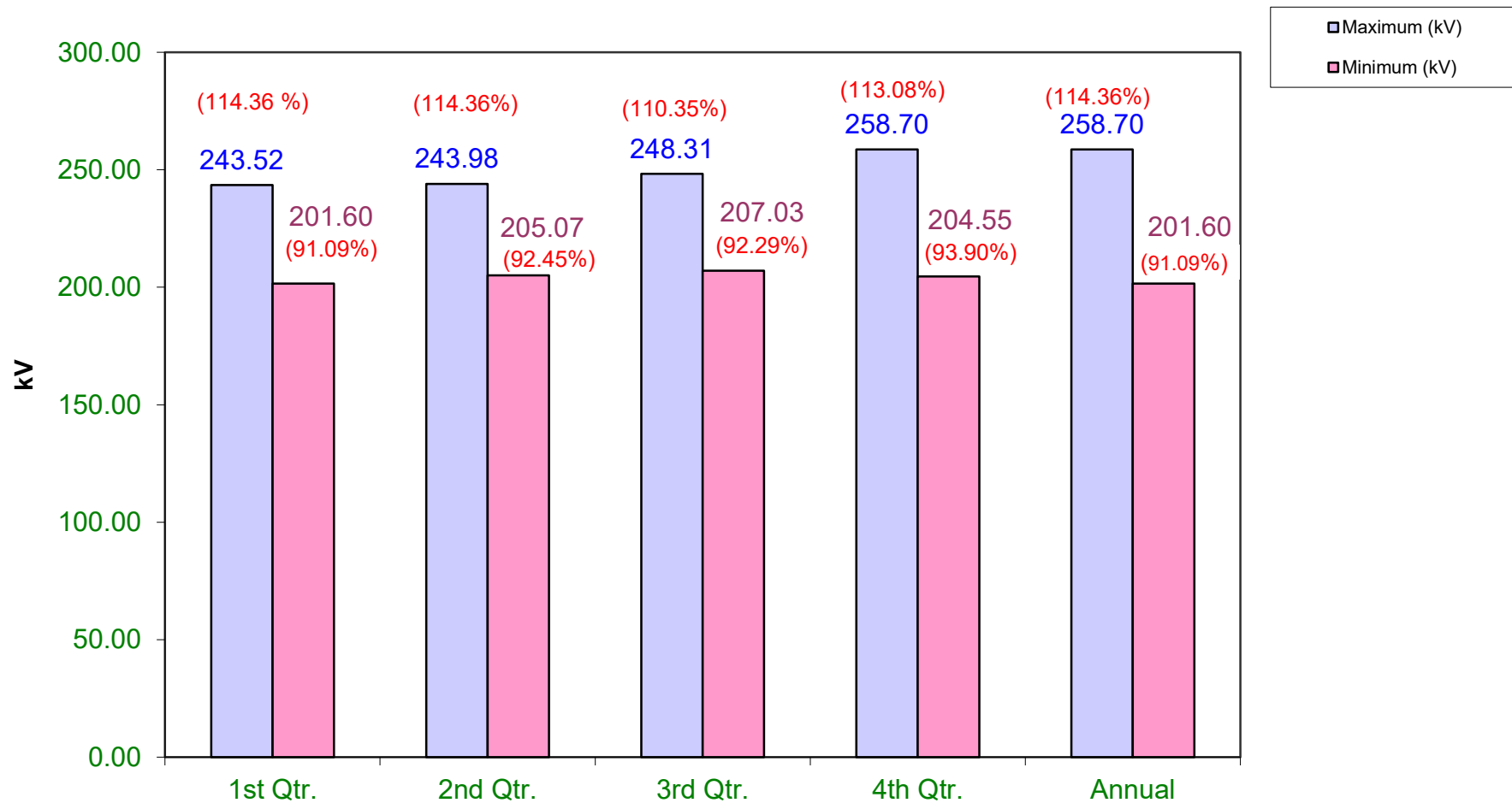
MINIMUM VOLTAGES OF MAJOR GRID SUB-STATIONS. (132kV)

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	Bhubaneswar	119.51	25.04.2022	14:15	128.23	28.07.2022	22:45	126.84	18.12.2022	09:30	126.44	28.03.2023	12:00	119.51	25.04.2022	14:15
2	Cuttack	119.80	25.04.2022	14:15	126.03	02.08.2022	12:15	125.86	27.12.2022	09:15	124.47	28.03.2023	11:30	119.80	25.04.2022	14:15
3	Khurda	113.79	22.04.2022	14:30	124.47	28.07.2022	22:45	126.26	29.12.2022	08:30	124.82	28.03.2023	12:15	113.79	22.04.2022	14:30
4	Nimapara	114.37	26.04.2022	13:15	124.53	30.08.2022	15:15	124.88	29.12.2022	08:30	122.80	24.02.2023	12:30	114.37	26.04.2022	13:15
5	Paradeep	118.76	04.05.2022	14:30	120.84	29.08.2022	15:15	125.63	27.12.2022	08:30	122.57	20.01.2023	08:45	118.76	04.05.2022	14:30
6	Puri	112.28	13.06.2022	15:15	111.31	28.07.2022	22:45	117.71	08.11.2022	18:45	118.61	22.03.2023	12:15	111.31	28.07.2022	22:45
7	Balasore	123.66	07.06.2022	15:15	126.03	31.07.2022	22:45	130.19	09.11.2022	18:45	117.78	03.02.2023	12:30	117.78	03.02.2023	12:30
8	Bhadrak	113.62	04.05.2022	14:30	120.14	31.07.2022	22:45	124.36	09.11.2022	18:45	118.06	07.02.2023	12:30	113.62	04.05.2022	14:30
9	DuburiO	127.94	25.04.2022	13:15	129.38	28.07.2022	22:45	126.03	09.11.2022	18:45	130.59	28.01.2023	08:45	126.03	09.11.2022	18:45
10	Joda	123.43	16.05.2022	15:15	120.66	27.07.2022	10:30	127.76	24.10.2022	09:45	129.03	04.01.2023	18:15	120.66	27.07.2022	10:30
11	Berhampur	121.70	27.04.2022	14:15	124.48	28.07.2022	22:45	121.70	12.12.2022	07:00	121.70	12.12.2022	07:00	121.70	27.04.2022	14:15
12	Narendrapur	116.16	01.04.2022	10:15	128.69	28.07.2022	22:45	125.57	12.12.2022	07:00	125.57	12.12.2022	07:00	116.16	01.04.2022	10:15
13	Therubali	133.36	02.06.2022	14:30	134.23	28.07.2022	22:15	134.06	08.12.2022	17:30	126.23	29.03.2023	13:30	126.23	29.03.2023	13:30
14	Bolangir	119.62	27.05.2022	16:15	120.14	10.09.2022	11:00	121.47	23.12.2022	17:45	122.86	04.03.2023	16:45	119.62	27.05.2022	16:15
15	Budhipadar	128.98	08.04.2022	15:15	129.61	02.08.2022	16:30	132.27	13.10.2022	16:45	132.38	30.03.2023	09:30	128.98	08.04.2022	15:15
16	Katapali	119.97	27.05.2022	14:00	130.13	02.08.2022	19:15	130.71	23.12.2022	17:45	126.44	25.03.2023	12:15	119.97	27.05.2022	14:00
17	Lapanga	131.00	08.04.2022	15:15	131.34	02.08.2022	19:15	120.89	31.10.2022	10:15	131.46	01.03.2023	13:15	120.89	31.10.2022	10:15
18	Rourkela	127.48	10.06.2022	12:00	129.09	02.08.2022	11:30	126.90	05.10.2022	13:15	129.26	10.03.2023	22:30	126.90	05.10.2022	13:15

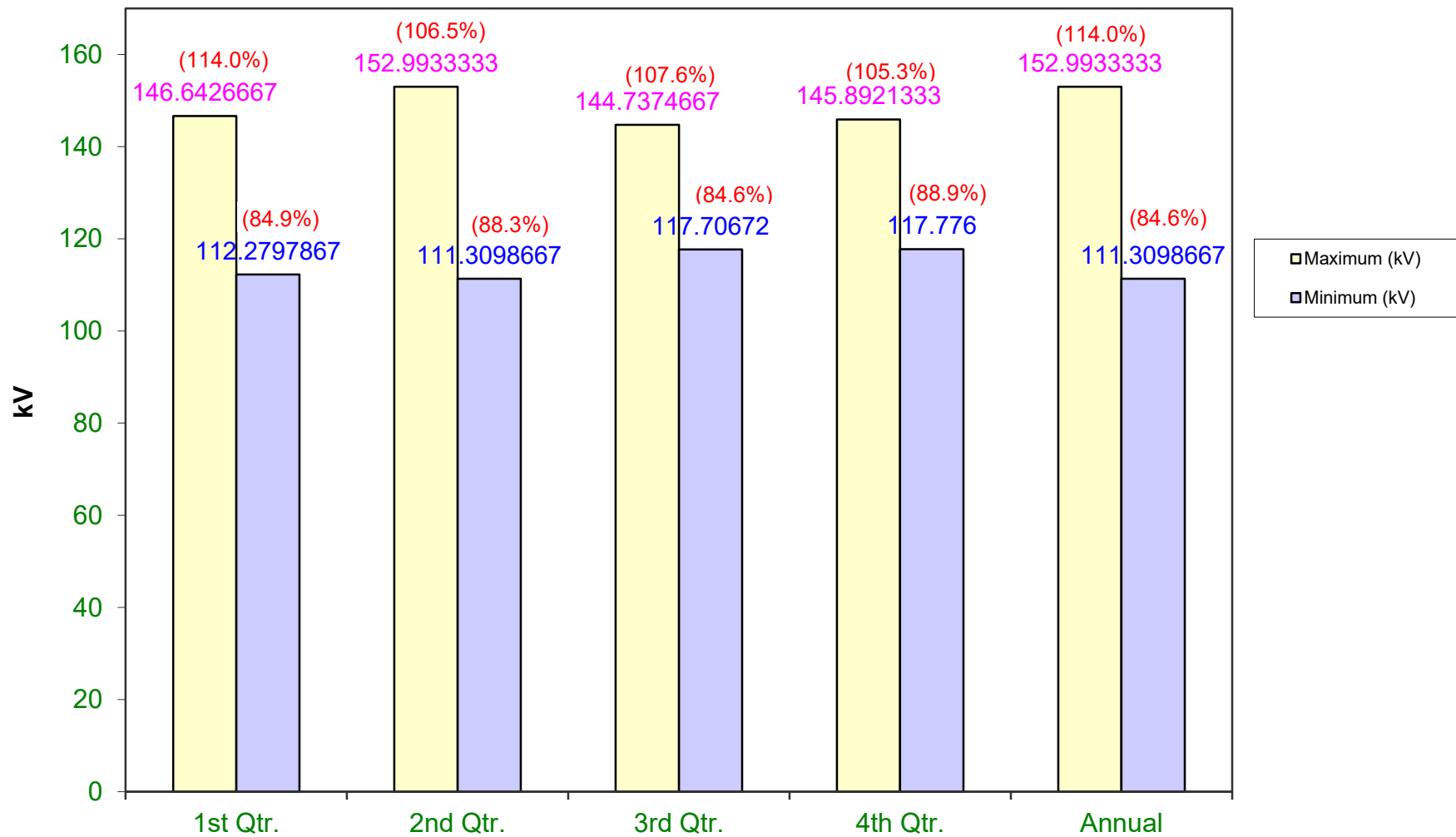
OVERALL PERFORMANCE VOLTAGE AT 400 kV



OVERALL PERFORMANCE VOLTAGE AT 220kV

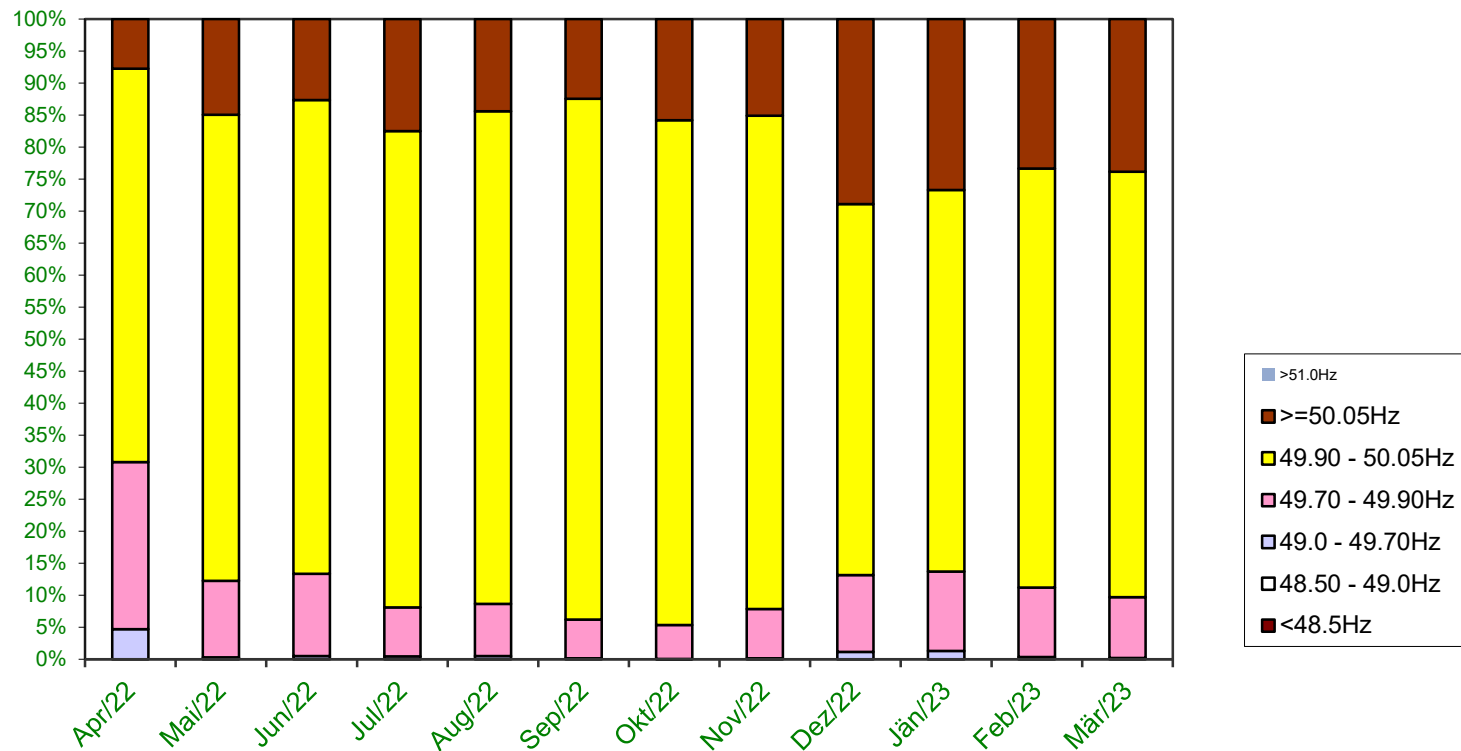


OVERALL PERFORMANCE VOLTAGE AT 132 kV



Frequency Performance FOR FY 2022-23

Percentage time occurrence



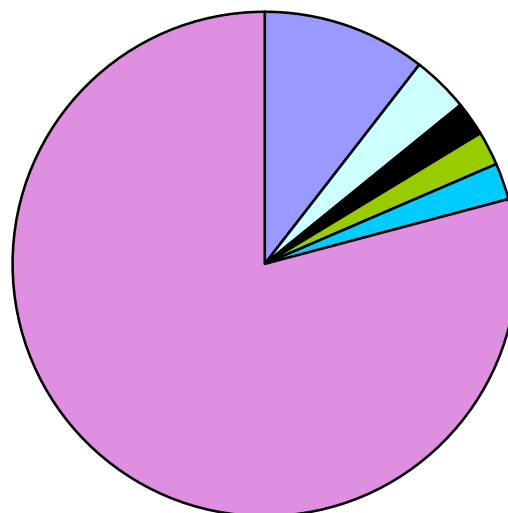
	Apr.22	Mai.22	Jun.22	Jul.22	Aug.22	Sep.22	Okt.22	Nov.22	Dez.22	Jän.23	Feb.23	Mär.23
>51.0Hz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>=50.05Hz	7.75	14.97	12.64	17.52	14.40	12.46	15.79	15.10	28.92	26.70	23.37	23.85
49.90 - 50.05Hz	61.43	72.79	73.99	74.40	76.94	81.33	78.86	77.07	57.92	59.61	65.45	66.47
49.70 - 49.90Hz	26.11	11.96	12.89	7.66	8.15	6.04	5.30	7.71	12.02	12.40	10.85	9.50
49.0 - 49.70Hz	4.71	0.28	0.47	0.42	0.52	0.16	0.05	0.12	1.15	1.29	0.34	0.19
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	30:36:00	66
Insulator Failure	10:37:00	34
Bursting of CT / PT	6:08:00	15
Breaker Problem	0:14:00	4
Major System Disturbance*	6:23:00	10
Failure of LA	6:49:00	16
Others	230:37:00	451
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 2022-23.		

INTERRUPTION (HRS) DUE TO MAJOR INCIDENT DURING 2022-23



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