

OPTCL



(Approved by OERC vide Letter No. OERC-Engg-5/98 (Vol.XX)/ 70 dt. 14.01.2020)

PERFORMANCE OF THE TRANSMISSION SYSTEM OF OPTCL FOR 2018-2019

[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]

SALIENT FEATURE ON PERFORMANCE OF TRANSMISSION SYSTEM OF OPTCL DURING THE YEAR 2018-19**1. Procurement of Power:**

| Source | Commission's Approval (MU) | Actual Drawl for the State Consumption (MU) | Remarks |
|----------------------|----------------------------|---|---|
| OHPC | 5881.74 | 6154.32 | State's Maximum and Minimum demand was 5427 MW and 3186 MW respectively |
| Thermal(TTPS+OPGC) | 6288.89 | 5966.83 | |
| CPP | 0 | 468.67 | |
| Renewable Generation | 1102 | 806.59 | |
| IPP | 7889.53 | 2865.67 | |
| EREB | 5641.65 | 9780.376 | |
| Net Banking +IEX+OA | | 226.238 | |
| Total | 26803.81 | 26268.694 | |

2. Voltages profile of Major Grid Sub-stations**Allowable Range (245-198 KV)**

| Sl. No. | Name of the 220/132 kV Grid Sub-station | Maximum Voltage in kV | Minimum Voltage in kV |
|---------|---|-----------------------|-----------------------|
| 1 | ATRI | 236 | 208 |
| 2 | Balasore | 236 | 201 |
| 3 | Bhadrak | 239 | 204 |
| 4 | Bhanjanagar | 238 | 213 |
| 5 | Bidanasi | 240 | 213 |
| 6 | Budhipadar | 234 | 201 |
| 7 | Chandaka | 235 | 206 |
| 8 | Duburi | 238 | 212 |
| 9 | Jaynagar | 240 | 221 |
| 10 | Joda | 235 | 209 |
| 11 | Katapalli | 235 | 205 |
| 12 | Lapanga | 236 | 204 |
| 13 | Laxmipur | 240 | 220 |
| 14 | Mendhasal | 238 | 208 |
| 15 | Meramundali | 229 | 216 |
| 16 | Narendrapur | 241 | 204 |
| 17 | Paradeep | 235 | 204 |
| 18 | Sadeipali | 232 | 200 |
| 19 | Tarkera | 248 | 220 |
| 20 | Theruvalli | 236 | 210 |

Allowable Range (145 -122 KV)

| Sl. No. | Name of the 132/33 kV Grid Sub-station | Maximum Voltage in kV | Minimum Voltage in kV |
|---------|--|-----------------------|-----------------------|
| 1 | Cuttack | 141 | 115 |
| 2 | Berhampur | 145 | 119 |
| 3 | Puri | 138 | 116 |
| 4 | Khurda | 139 | 122 |

3. System Interruptions due to Major Incident:

| INTERRUPTION DUE TO MAJOR INCIDENT | | | |
|---|--|---------------------|--|
| Incident Duration of Interruption No. of Interruption | Duration of Interruption (Hrs:Min:Sec) | No. of Interruption | Remarks |
| Snapping of Jumper / Conductor / Earth wire | 19:51:00 | 39 | 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 |
| Insulator Failure | 16:53:00 | 25 | |
| Bursting of CT / PT | 4:06:00 | 11 | |
| Breaker Problem | 0:00:00 | 0 | |
| Major System Disturbance | 12:09:00 | 9 | |
| Failure of LA | 7:28:00 | 10 | |
| Others | 81:35:00 | 172 | |

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

**COMMISSION'S OBSERVATION ON THE PERFORMANCE OF THE
TRANSMISSION SYSTEM OF OPTCL FOR 2018-19**

The salient features of the performance of transmission system of OPTCL for the year 2018-19 is given below and the detail information in support to that is available in SLDC website i.e., www.sldcorissa.org.in

A. Procurement of Power:

The Commission had approved the purchase of power by GRIDCO from various sources in the ARR & Tariff order for 2018-19 against which the actual performance have been indicated in the following table:

| Source | Commission's Approval (MU) | Actual Drawl for the State Consumption (MU) | Remarks |
|----------------------|-----------------------------|---|---|
| OHPC | 5881.74 | 6154.32 | State's Maximum and Minimum demand was 5427 MW and 3186 MW respectively |
| Thermal(TTPS+OPGC) | 6288.89 | 5966.83 | |
| CPP | 0 | 468.67 | |
| Renewable Generation | 1102 | 806.59 | |
| IPP | 7889.53 | 2865.67 | |
| EREB | 5641.65 | 9780.376 | |
| Net Banking +IEX+OA | | 226.238 | |
| Total | 26803.81 | 26268.694 | |

There is an import of 1248.657 MU through power banking, open access, trading & IEX and export of 1152.737 MU (46.694 MU as sales to other utilities, 130.32 on account of deviation and 975.73 through trading, OA, banking & IEX export) during the FY 2018-19. Hence, in the said financial year GRIDCO has an export of 95.92 MU on this account. Further, the less drawl from TTPS and OPGC against approval of OERC are due to some long outages (TTPS :- # 1- 50 days 11 hours 51 minutes, # 2 - 63 days 14 hours 5 minutes, # 3 - 111 days 23 hours 39 minutes, # 4 - 82 days 17 hours 1 minute, # 5 - 74 days 6 minutes, # 6 - 87 days 15 hours 40 minutes ; OPGC : - # 1- 17 days 4 hours, # 2 - 28 days 16 hours 49 minutes) of their units and backing down. It is observed that there have been long outages in case of TTPS. Therefore, they need to be more cautious about it so that power supply plan of GRIDCO is not unduly affected.

2. During FY 2018-19 the daily peak demand touched at 5427 MW maximum on dt.23.08.2018 and a minimum of 3186 MW on dt.17.12.2018. The peak demand of 5427 MW in 2018-19 is about 912 MW higher than the peak demand experienced during the previous year 2017-18 (4515 MW). The total energy drawl is 26269 MU in FY 2018-19 against 25392 MU in FY 2016-17, which indicates the enhancement in electricity consumption of around 877 MU in the State.

B. Line Interruption:

3. OPTCL's system has faced aggregated Annual interruptions varying from 4 hours to 81 hours at different locations on account of conductor/jumper/earth wire snapping, insulator failure, bursting of Current Transformer/Potential Transformer, breaker problem, system disturbance, Lightning Arrester failures and others. However, OPTCL has claimed that it has arranged to maintain power supply without resorting to total power failure. The same effort has been made by OPTCL in maintaining uninterrupted power supply even in the event of generation failures. It has been reported about 3.5, 12 and 6 hours of load restriction during the first, second and third quarter respectively for the FY 2018-19 on rotation basis. The load restriction has been imposed to curtail the demand. OPTCL claimed that there was no black out experienced in the State during the FY 2018-19. OPTCL should find out latest technical methods for effective utilization of existing level transmission system to increase power transfer capacity, reliability avoiding RoW problem. OPTCL is required to maintain the system to ensure power supply without interruptions in any part of the State and ISGS of Eastern Region. The Commission expects OPTCL to have periodic O&M and R&M activities with provision of sub-station automation and also plan for a Disaster Resilient Transmission System to prevent the damage to a large extent during natural disaster. Further, OPTCL should maintain its transmission elements without overloading in consultation with DISCOMs and upgrade the system, wherever required.

C. 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 49.90 to 50.05 Hz band. OPTCL has experienced frequency as low as 49.59 Hz during 4th quarter and as high as 50.29 Hz during 4th quarter of FY 2018-19. DISCOMs should be coordinated to adhere to their drawl schedule in order to reduce their drawl from the grid during low frequency and maintain grid discipline.

D. Voltage Profile:

5. The EHT voltage, as per Regulations 3(1)(b) of Central Electricity Authority(Grid Standards) Regulations, 2010 should be in the range 122-145 kV for voltage at 132 kV, 198-245 kV for voltage at 220 KV and 380-420 kV for 400 kV level. OPTCL has however experienced 200 kV minimum and 241 kV maximum in its 220 kV system and 115 kV minimum and 145 kV maximum in its 132 kV system. As reported, the voltage level at few 132 KV S/Ss have been lower than the allowable limits. Therefore, OLTC of the power

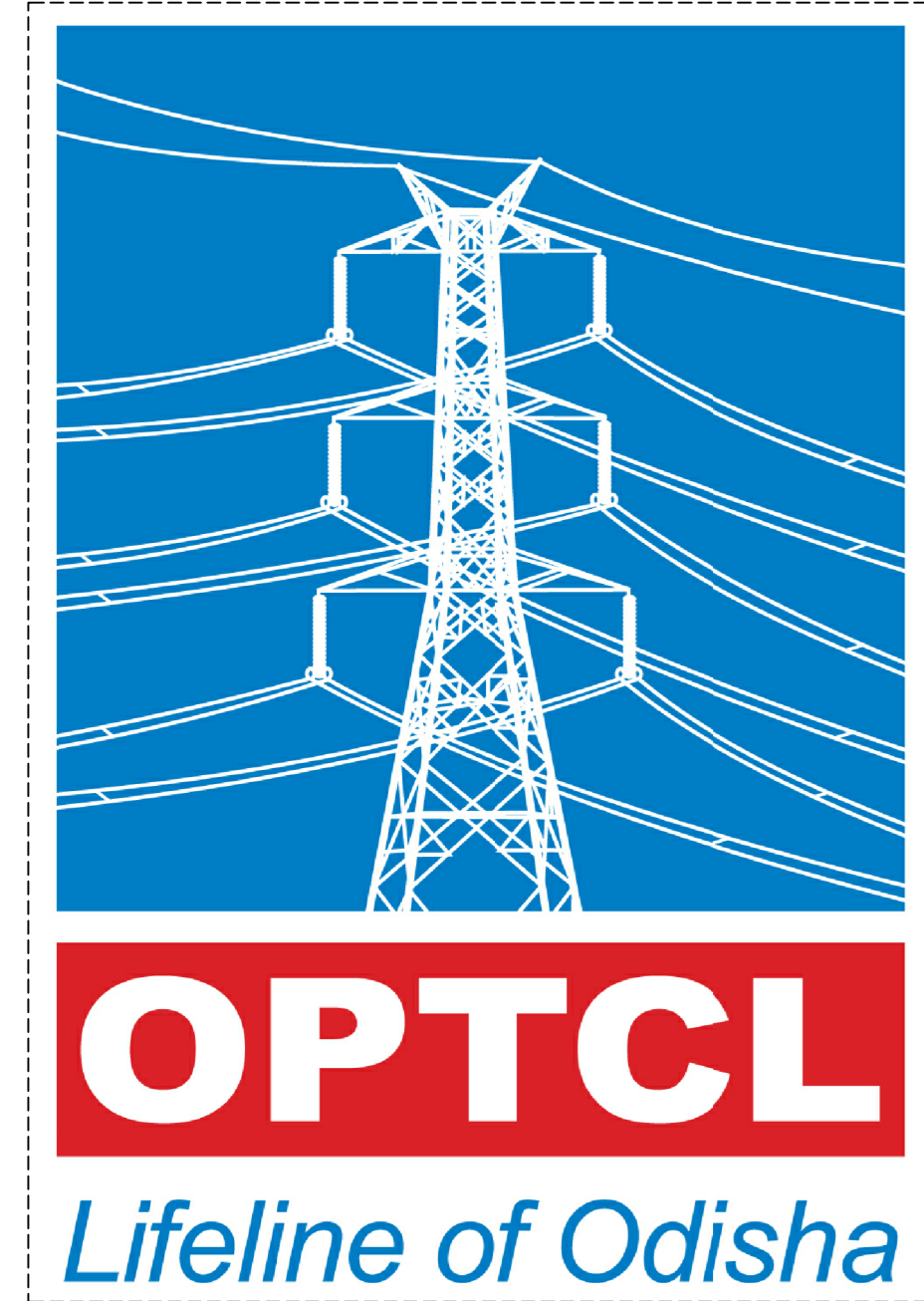
transformers should be in healthy condition and all the field engineers should be trained to operate it during peak and low load condition to maintain voltage. Also, OPTCL should monitor the reactive drawl of DISCOMs from its grid S/S and wherever DISCOM draw excessive reactive load at low voltage condition, it shall take up with them for remedial measure.

E. Load Restriction:

6. M/s. OPTCL has claimed that the load restriction due to non-availability of the transmission capacity as 'NIL' which in turn indicates that during FY 2018-19 that OPTCL system availability was 100%. The projects already approved by the Commission and is under execution should be completed by OPTCL within the time schedule to avoid cost & time over-run. Simultaneously, OPTCL needs to avoid under loading of lines & resultant to losses and should conduct comprehensive system study before proceeding for any network expansion plan. There should be periodic audit of relay/protection system of transmission system/distribution system within the state for reliable operation of the system

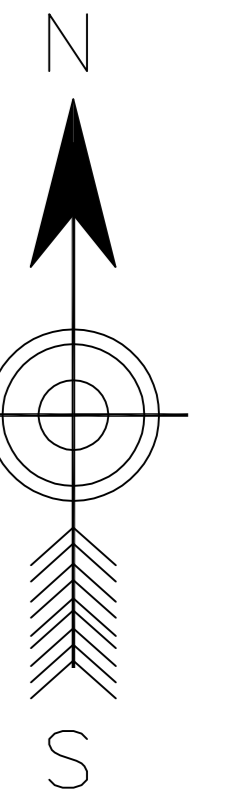
F. Efficient Operation of Transmission System:

7. SLDC, being the apex body to ensure integrated operation of the power system of the state, should be responsible for optimum scheduling and dispatch of electricity within the state. Since, SLDC is responsible for carrying out real time operations for grid control and dispatch of electricity through secure and economic operation of state grid, its staffs are to be appropriately trained for efficient functioning of the centre. Recommendation of "SAMAST" should be implemented.



JHARKHAND

WEST BENGAL



CHHATTISGARH

SOUTH ZONE

NORTH ZONE

BAY OF BENGAL

ANDHRA PRADESH

LEGEND

| DETAILS OF LINE | Existing | Proposed / U/C |
|------------------------------|----------|----------------|
| 765KV TRANSMISSION LINE | — | - - - |
| Solar Projects | — | — |
| 400KV TRANSMISSION LINE | — | - - - |
| 220KV TRANSMISSION LINE | — | - - - |
| 132KV TRANSMISSION LINE | — | - - - |
| HYDRO POWER STATION | (H) | (H) |
| THERMAL POWER STATION | (T) | (T) |
| GRID S/S & TRACTION S/S | ● | ○ |
| SWITCHING STATION / CGP/ IPP | ⊙ | ⊙ |
| BULK CONSUMER | ■ | □ |
| STATE BOUNDARY | — | — |
| DISTRICT BOUNDARY | — | — |
| ZONE BOUNDARY | — | — |
| Solar Pooling Station | SPS | |

ODISHA POWER TRANSMISSION CORPORATION LIMITED
BHUBANESWAR

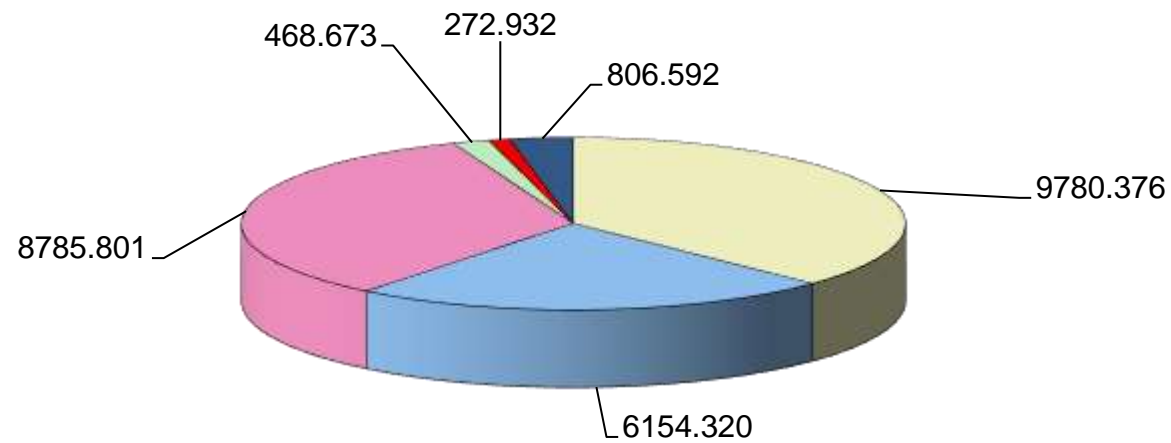
SCHEMATIC TRANSMISSION MAP OF OPTCL(EXISTING & PROPOSED)

Length in kms.

NOT TO SCALE

GRID DEMAND FOR THE YEAR 2018-19

[Total Drawal 26268.694 MU]

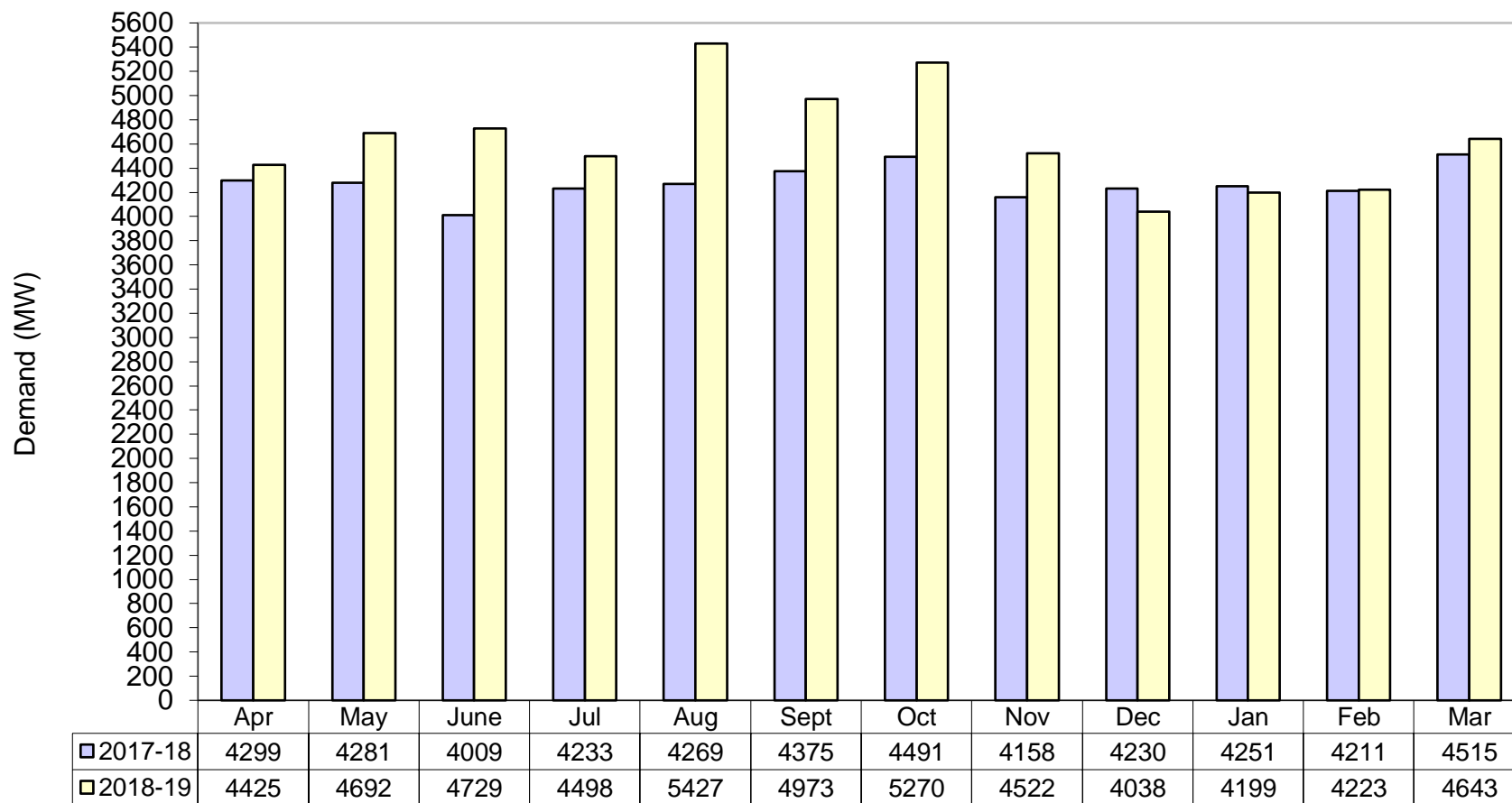


Net EREB Total Hydro NET Thermal (OPGC + TTPS+IPP) CPP Net (BankingPower+IEX+STOA) Renewable Energy

DAILY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR 2018-19

| Day | Apr-18 | May-18 | Jun-18 | Jul-18 | Aug-18 | Sep-18 | Oct-18 | Nov-18 | Dec-18 | Jan-19 | Feb-19 | Mar-19 | Max | Min |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|
| 1 | 3284 | 3610 | 4729 | 3990 | 4656 | 4519 | 4825 | 4329 | 4038 | 3632 | 3779 | 3794 | 4825 | 3284 |
| 2 | 4016 | 3877 | 4208 | 4050 | 4509 | 4663 | 5270 | 4235 | 3980 | 3646 | 3862 | 4344 | 5270 | 3646 |
| 3 | 4013 | 4303 | 4199 | 4065 | 4942 | 4772 | 5147 | 4236 | 3685 | 4109 | 3751 | 4252 | 5147 | 3685 |
| 4 | 3502 | 4421 | 4103 | 4112 | 5030 | 4377 | 5226 | 4291 | 3594 | 4059 | 3702 | 4217 | 5226 | 3502 |
| 5 | 3523 | 4554 | 4311 | 4062 | 4584 | 3973 | 5187 | 4394 | 3594 | 3820 | 3805 | 4036 | 5187 | 3523 |
| 6 | 3564 | 4436 | 4234 | 3910 | 4612 | 3800 | 5173 | 4471 | 3545 | 3746 | 3846 | 4014 | 5173 | 3545 |
| 7 | 3906 | 4692 | 4558 | 3887 | 4706 | 4824 | 5087 | 4388 | 3572 | 3833 | 3789 | 3919 | 5087 | 3572 |
| 8 | 3711 | 4542 | 4422 | 3895 | 4751 | 4786 | 5042 | 4522 | 3564 | 3496 | 3802 | 3926 | 5042 | 3496 |
| 9 | 3344 | 4237 | 4007 | 4035 | 5149 | 4867 | 4888 | 4385 | 3469 | 3569 | 3845 | 4117 | 5149 | 3344 |
| 10 | 3727 | 4103 | 4234 | 3938 | 4925 | 4440 | 4670 | 4324 | 3628 | 3683 | 3659 | 4006 | 4925 | 3628 |
| 11 | 3906 | 4007 | 4113 | 4284 | 5021 | 4554 | 4068 | 4160 | 3563 | 3633 | 3759 | 4317 | 5021 | 3563 |
| 12 | 3541 | 3855 | 4145 | 4330 | 4973 | 4475 | 4274 | 4190 | 3797 | 3672 | 3770 | 4125 | 4973 | 3541 |
| 13 | 3906 | 4105 | 3800 | 3955 | 4852 | 4470 | 4388 | 4275 | 3736 | 3530 | 3695 | 4092 | 4852 | 3530 |
| 14 | 3586 | 3330 | 4141 | 3767 | 4764 | 4349 | 4484 | 4144 | 3427 | 3505 | 4223 | 3999 | 4764 | 3330 |
| 15 | 3906 | 3721 | 4245 | 3713 | 4452 | 4434 | 4655 | 4191 | 3658 | 3626 | 4100 | 3863 | 4655 | 3626 |
| 16 | 3906 | 3609 | 4355 | 3407 | 4752 | 4186 | 4619 | 4142 | 3596 | 3711 | 3721 | 4232 | 4752 | 3407 |
| 17 | 3906 | 3438 | 4309 | 3936 | 5027 | 4266 | 4614 | 4186 | 3186 | 3604 | 3603 | 3685 | 5027 | 3186 |
| 18 | 3906 | 3728 | 4342 | 4003 | 4918 | 4550 | 4570 | 4189 | 3487 | 3664 | 3855 | 3993 | 4918 | 3487 |
| 19 | 4136 | 4203 | 4634 | 4196 | 4342 | 4553 | 4509 | 4199 | 3601 | 3674 | 3863 | 4181 | 4634 | 3601 |
| 20 | 3879 | 4593 | 4683 | 3677 | 4595 | 4175 | 4795 | 4214 | 3533 | 3616 | 3791 | 3980 | 4795 | 3533 |
| 21 | 4176 | 4190 | 4571 | 3257 | 4838 | 4291 | 4864 | 4140 | 3531 | 3685 | 3908 | 3971 | 4864 | 3257 |
| 22 | 4425 | 4537 | 3897 | 3669 | 5135 | 4708 | 4603 | 4122 | 3583 | 4027 | 4089 | 3700 | 5135 | 3583 |
| 23 | 4201 | 4345 | 4415 | 4246 | 5427 | 4854 | 4627 | 4114 | 3578 | 3888 | 4133 | 4074 | 5427 | 3578 |
| 24 | 4078 | 4466 | 4311 | 4090 | 5172 | 4810 | 4679 | 4159 | 3632 | 3771 | 4046 | 4124 | 5172 | 3632 |
| 25 | 4067 | 4310 | 4287 | 4174 | 5132 | 4398 | 4817 | 4133 | 3753 | 3693 | 3875 | 4212 | 5132 | 3693 |
| 26 | 3813 | 4330 | 4076 | 4107 | 4529 | 4239 | 4395 | 4192 | 3583 | 4058 | 3753 | 4587 | 4587 | 3583 |
| 27 | 3805 | 4327 | 3810 | 4030 | 4523 | 4421 | 4479 | 4516 | 3597 | 4023 | 3782 | 4643 | 4643 | 3597 |
| 28 | 3663 | 4536 | 3681 | 4498 | 4264 | 4563 | 4317 | 4393 | 3602 | 4129 | 3706 | 4235 | 4563 | 3602 |
| 29 | 3589 | 4208 | 3448 | 4460 | 4522 | 4752 | 4527 | 4156 | 3622 | 4199 | 4223 | 4247 | 4752 | 3448 |
| 30 | 3667 | 4345 | 3459 | 4256 | 4580 | 4973 | 4392 | 4148 | 3537 | 3976 | | 4335 | 4973 | 3459 |
| 31 | | 4473 | | 4326 | 4726 | | 4424 | | 3655 | 3952 | | 3915 | 4726 | 3655 |
| MAX | 4425 | 4692 | 4729 | 4498 | 5427 | 4973 | 5270 | 4522 | 4038 | 4199 | 4223 | 4643 | 5427 | 3693 |
| MIN | 3284 | 3330 | 3448 | 3257 | 4264 | 3800 | 4068 | 4114 | 3186 | 3496 | 3603 | 3685 | 4563 | 3186 |

COMPARISON OF MONTHLY PEAK DEMAND (MW) EXCLUDING TRADING FOR THE YEAR ENDING 2017-18 & 2018-19

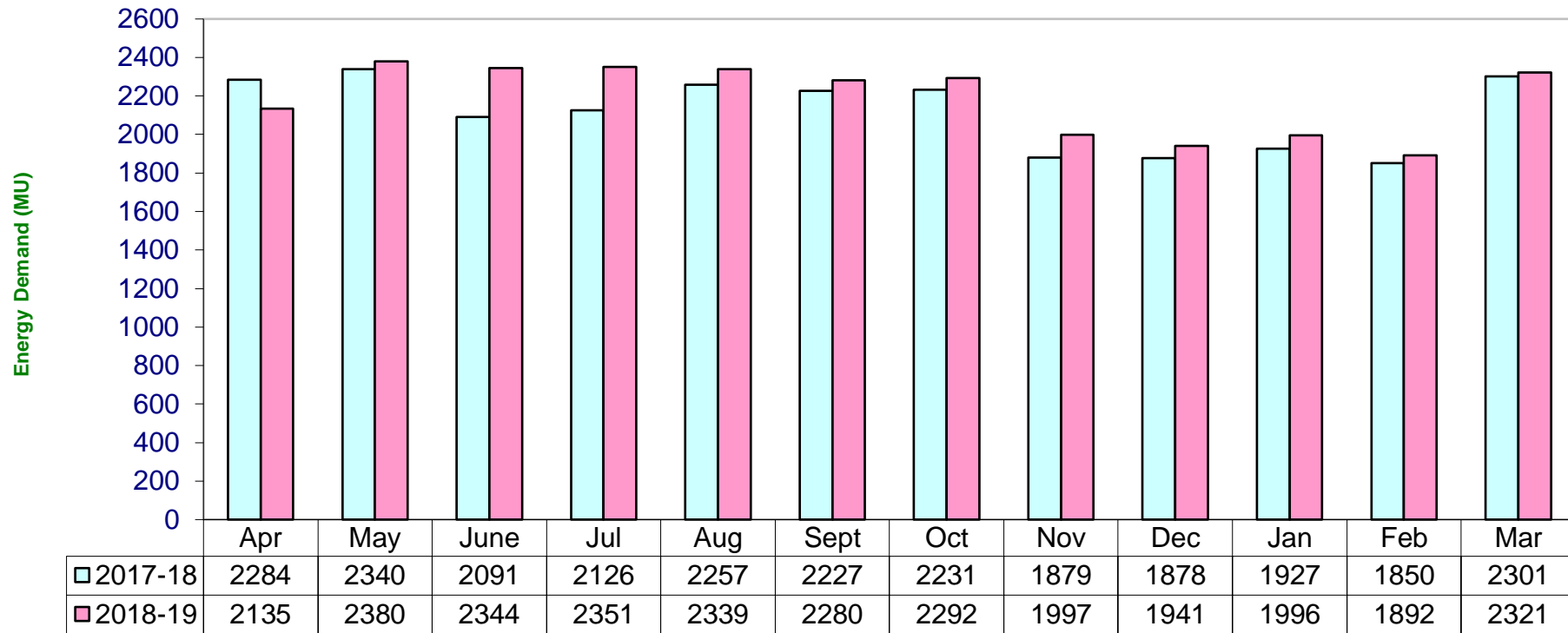


Month

Annual Peak Demand : 2017-18 - 4515 MW 2018-19 - 5427 MW

■ 2017-18 ■ 2018-19

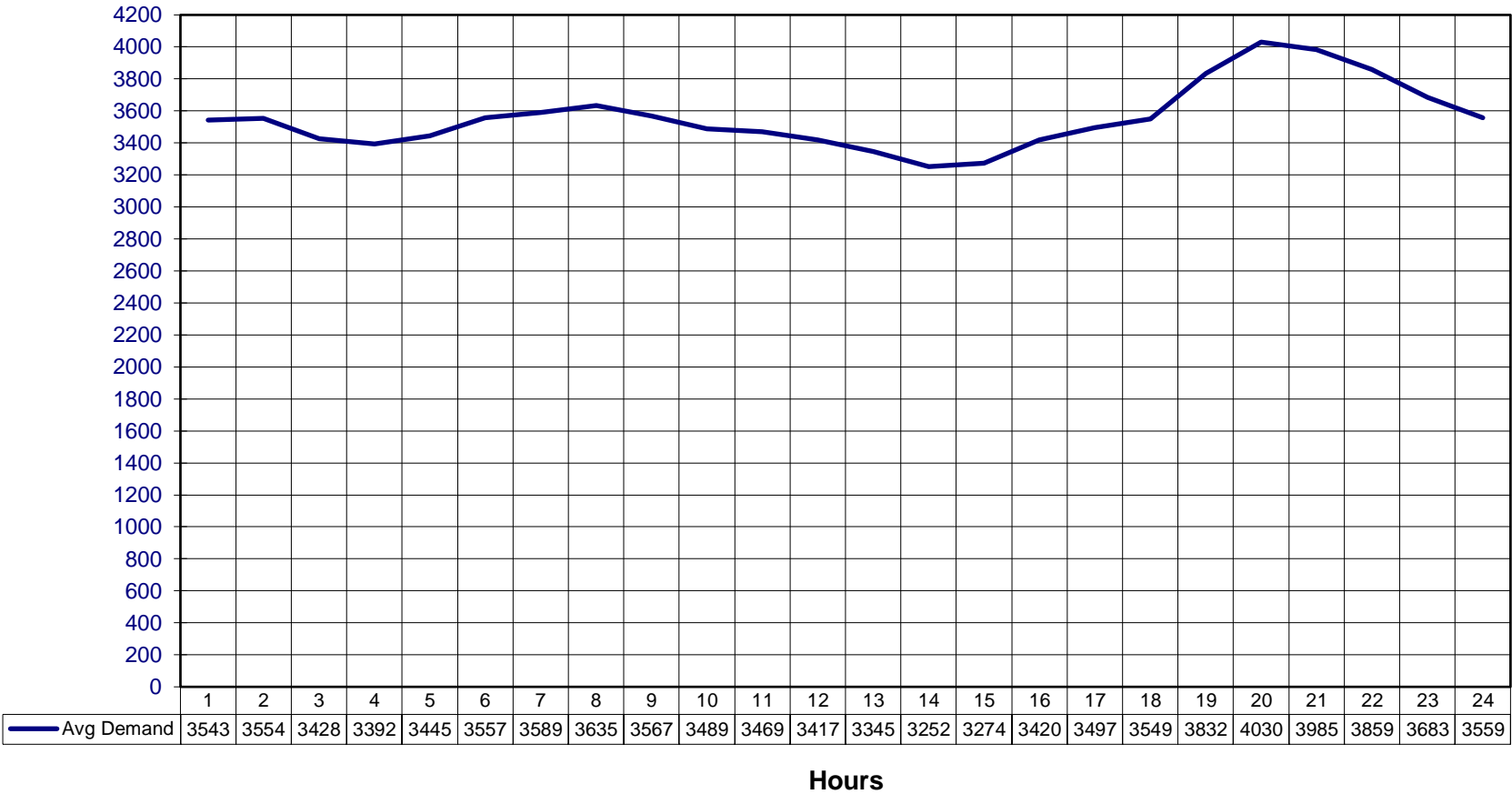
COMPARISON OF MONTHLY ENERGY DEMAND (MU) EXCLUDING TRADING & RETURN BANKING POWER FOR THE YEAR ENDING 2017-18 & 2018-19



Month

Annual Energy Demand : 2017-18 - 25391.664 MU 2018-19 - 26268.694 MU

DEMAND CURVE FOR HOURLY AVERAGE DEMAND EXCLUDING TRADING FOR YEAR ENDING MARCH 2019

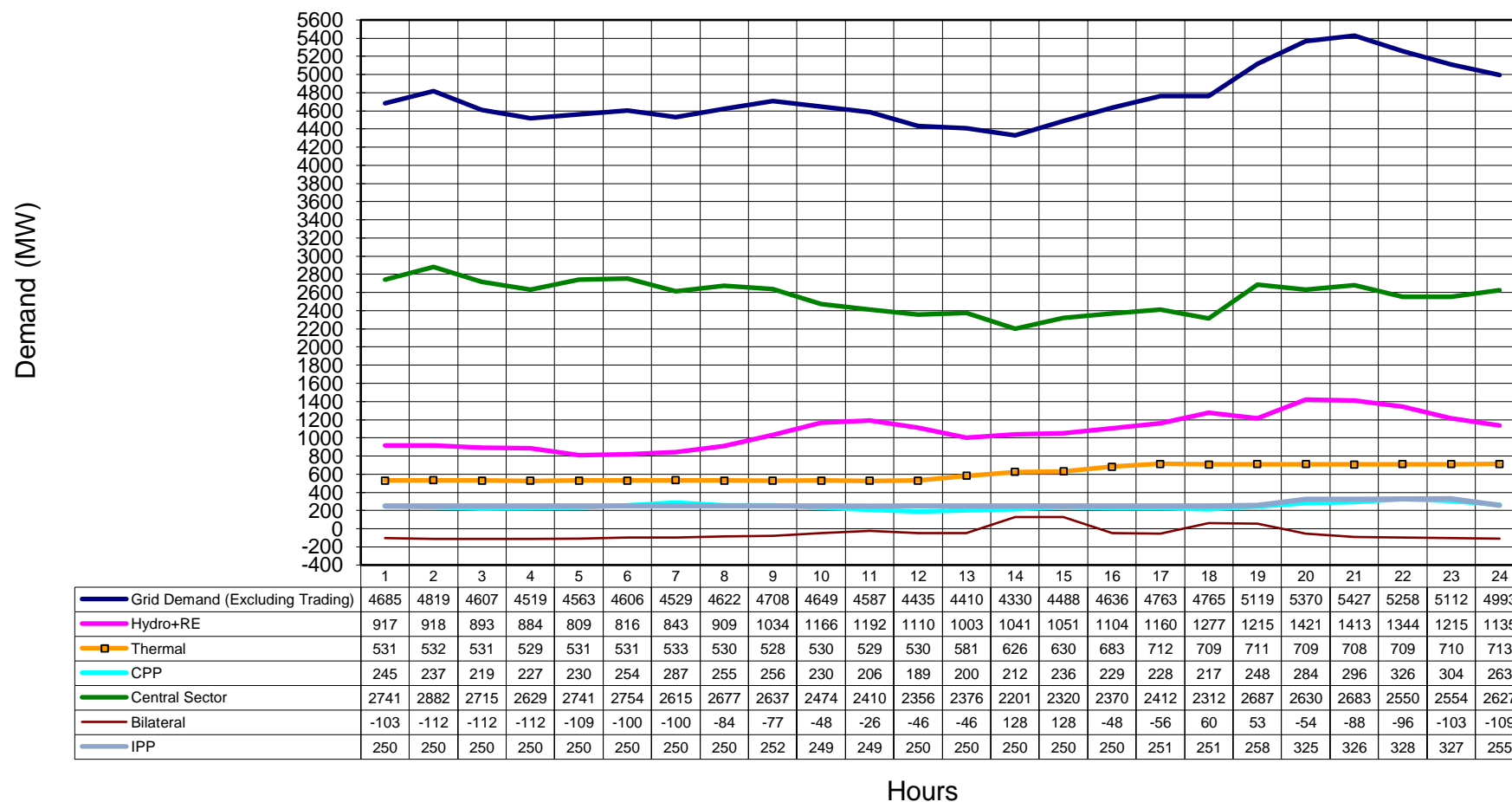


Hourly Average Demand (Month wise) in support of Page-6

Page - 6(a)

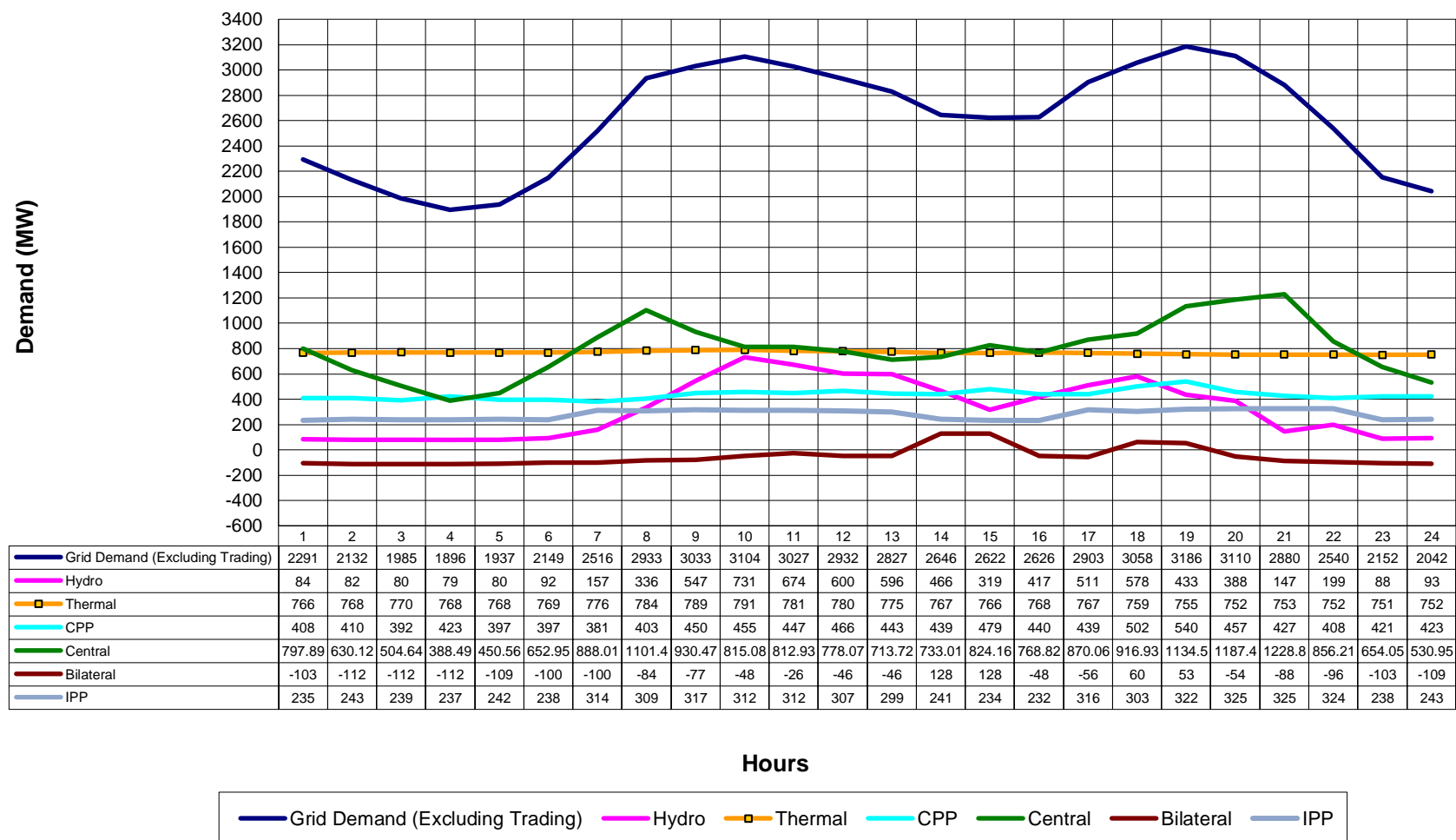
| Hours----> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Apr-18 | 3435 | 3357 | 3299 | 3241 | 3260 | 3298 | 3158 | 3174 | 3107 | 3084 | 3155 | 3236 | 3312 | 3284 | 3383 | 3476 | 3307 | 3099 | 3270 | 3645 | 3705 | 3658 | 3583 | 3483 |
| May-18 | 3881 | 3910 | 3766 | 3692 | 3703 | 3655 | 3556 | 3398 | 3333 | 3306 | 3345 | 3387 | 3438 | 3475 | 3634 | 3795 | 3749 | 3497 | 3558 | 3908 | 3883 | 3834 | 3799 | 3711 |
| Jun-18 | 4128 | 4180 | 3969 | 3904 | 3895 | 3795 | 3702 | 3261 | 3106 | 3060 | 3024 | 2999 | 3026 | 3020 | 3110 | 3295 | 3301 | 3215 | 3300 | 3649 | 3655 | 3621 | 3535 | 3471 |
| Jul-18 | 3608 | 3666 | 3458 | 3394 | 3389 | 3419 | 3397 | 3436 | 3390 | 3326 | 3274 | 3227 | 3174 | 3129 | 3158 | 3256 | 3290 | 3265 | 3513 | 3908 | 3936 | 3886 | 3779 | 3687 |
| Aug-18 | 4279 | 4342 | 4162 | 4123 | 4149 | 4208 | 4177 | 4259 | 4257 | 4165 | 4107 | 4045 | 3985 | 3935 | 3970 | 4088 | 4106 | 4150 | 4464 | 4747 | 4756 | 4682 | 4524 | 4405 |
| Sep-18 | 4004 | 4109 | 3885 | 3839 | 3853 | 3918 | 3897 | 3936 | 3907 | 3853 | 3809 | 3774 | 3714 | 3660 | 3668 | 3765 | 3791 | 3866 | 4328 | 4432 | 4459 | 4381 | 4258 | 4132 |
| Oct-18 | 4270 | 4291 | 4151 | 4102 | 4132 | 4232 | 4167 | 4202 | 4145 | 4066 | 4119 | 4084 | 3988 | 3930 | 3986 | 4142 | 4217 | 4377 | 4620 | 4627 | 4563 | 4467 | 4322 | 4326 |
| Nov-18 | 3407 | 3388 | 3306 | 3315 | 3446 | 3702 | 3726 | 3848 | 3752 | 3640 | 3618 | 3525 | 3383 | 3224 | 3212 | 3429 | 3638 | 3984 | 4232 | 4206 | 4092 | 3923 | 3662 | 3516 |
| Dec-18 | 2535 | 2497 | 2450 | 2459 | 2602 | 2883 | 3110 | 3384 | 3278 | 3161 | 3113 | 2978 | 2818 | 2609 | 2551 | 2743 | 3016 | 3257 | 3520 | 3574 | 3424 | 3171 | 2839 | 2623 |
| Jan-19 | 2654 | 2640 | 2578 | 2574 | 2697 | 2998 | 3305 | 3633 | 3564 | 3416 | 3356 | 3207 | 2991 | 2751 | 2637 | 2795 | 3053 | 3264 | 3661 | 3771 | 3628 | 3350 | 2994 | 2768 |
| Feb-19 | 2843 | 2820 | 2746 | 2735 | 2837 | 3081 | 3320 | 3515 | 3464 | 3327 | 3251 | 3125 | 2956 | 2760 | 2698 | 2863 | 3062 | 3179 | 3671 | 3839 | 3723 | 3472 | 3184 | 2985 |
| Mar-19 | 3477 | 3453 | 3363 | 3329 | 3373 | 3496 | 3552 | 3571 | 3495 | 3464 | 3454 | 3420 | 3355 | 3244 | 3277 | 3392 | 3432 | 3429 | 3850 | 4058 | 3994 | 3864 | 3717 | 3596 |
| Avg. Annual | 3543 | 3554 | 3428 | 3392 | 3445 | 3557 | 3589 | 3635 | 3567 | 3489 | 3469 | 3417 | 3345 | 3252 | 3274 | 3420 | 3497 | 3549 | 3832 | 4030 | 3985 | 3859 | 3683 | 3559 |

HOURLY DEMAND CURVE FOR 23.08.2018 (MAX PEAK DEMAND OF THE YEAR (2018-19))



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

HOURLY DEMAND CURVE FOR 17.12.2018 (MIN PEAK DEMAND OF THE YEAR 2018-19)



1

INSTALLED CAPACITY (AS ON 31.3.2019) 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)* | 2008.5 | 6526.671 | 6154.320 |
| OPGC (Thermal) | 420 | 3139.350 | 2743.108 |
| TTPS (Thermal) | 460 | 3609.342 | 3214.611 |
| TTPS (UI-OD) | | | 9.109 |
| IPPs | | | 2865.667 |
| CPP (Synchronised to OPTCL System) | | | 468.673 |
| Renewable Energy Including Co-gen | - | | 806.592 |
| B. CENTRAL SECTOR (Orissa Share) | | | |
| Hydro | 189.40 | | |
| Thermal | 1203.03 | - | 9910.694 |
| C. Banking Power+OA+Trading+IEX (Import) | | | 1248.657 |
| TOTAL DRAWAL | | | 27421.431 |
| D. Banking Power+OA+Trading+IEX (Export) | | | 975.725 |
| E. Deviation(Export) | | | 130.318 |
| F. Sold to Other Utilities | | | 46.694 |
| Net GRIDCO demand | | | 26268.694 |

Export to ICCL

7.836

Export to NALCO

54.622

* Includes Orissa share from Machhkund.

2 TRANSMISSION LINES AND SUBSTATIONS

| A.CIRCUIT LINES | As on 31.03.2018 | Capacity Addition in 2018-2019 | As on 1.4.2019 | Remark |
|---|----------------------------|--|--------------------------|---|
| 400 kV line (ckt.km) | 1133.404 | 63.468 | 1196.872 | 1.400 kV IB-Lapanga DC – 48.982ckm 2.400kV Lapanga LILO ckt-I&II on DC Towers and Multi ckt Towers(on 400 kV Meramundali - Vedanta DC) – 14.486 ckm |
| 220kV line (ckt.km) | 5950.812* | 24.044 | 5974.856 | - |
| 132kV line (ckt.km) | 6385.692 | 437.611 | 6823.303 | - |
| B. SUBSTATIONS | | | | |
| 400 / 220 /132kV (nos.) | 2 | 1 | 3 | (Lapanga added) |
| 400 / 220 (nos.) | 1 | 0 | 1 | - |
| 220/132/33kV (nos.) | 21 | -1 | 20 | (Lapanga excluded) |
| 220/33kV (nos.) | 8 | 2 | 10 | Narasinghpur, Keonjhar GIS |
| 132/33 kV (nos.) | 85 | 7 | 92 | Ghens, Jharsuguda, Khuntuni, Udala, Chandbali, Chikiti, Aska New |
| 132/33/25 kV (nos.) | 1 | 0 | 1 | - |
| 132/33/11 kV (nos.) | 2 | -1 | 1 | (Jharsuguda excluded) |
| 132kV Switching Stations (OPTCL) | 4 | 0 | 4 | - |
| 132kV LILO Switching Stations of Industries | 16 | 0 | 16 | - |
| Total | 140 | 8 | 148 | - |

Note: 1. *220 kV Katapali – HINDALCO DC of 28 ckm charged on 07.06.2016 added into OPTCL asset.

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

Capacity addition details for 220kV:

- 1.220 kV Narasinghpur LILO DC,(Bhanjanagr - Meramundali)–10.096ckm
2. 220 kV Keonjhar PG - Keonjhar SC in DC Towers–7.5ckm,
- 3.220 kV Kasipur LILO DC,(on Therubali - IndravatiCkt IV)– 6.448ckm
- 4.220 kV Katapali – HINDALCO DC of 28 ckm charged on 07.06.2016 added into OPTCL asset

Capacity addition details for 132kV:

- 1.132 kV Bargarh New- Ghens DC– 59.060ckm
- 2.132 kV Bolangir - Patnagarh DC,(DC from New Bolangir LILO Tower)-80.005 ckm
3. 132 kV Kesinga - Kesinga RTSS – 4.952 ckm
4. 132 kV Pratapsasan LILO in DC Towers,(Chandaka – Nimapara Line)-3.8 ckm
5. 132 kV Khuntuni LILO DC ,(132 kV Chainpal - ChoudwarCkt - II SC)-1.84 ckm
6. 132 kV Padampur - Dakshina Odisha 40MW Solar SC in DC Towers-9.7 ckm
7. 132 kV Banki - Nuapatana SC (in DC Towers)-21.014 ckm
8. 132 kV Muniguda - Bissamcuttack RTSS-13.85 ckm
9. 132 kV Udala LILO DC (on 132 kV Baripada - Balasore Line)-83.3 ckm
10. 132 kV Barpali - Dunguripalli RTSS-13.605 ckm
11. 132 kV Rairakhole RTSS-3.5 ckm
12. 132kV Tusura - Vento 2x40MW Solar DC-14.8 ckm
13. 132 kV Kesinga - Vento 2x40MW Solar DC-11.48 ckm
14. 132 kV Tentulikhunti - Vento 40MW Solar SC (in DC Towers)-4.192 ckm
15. 132 kV Sunabeda - Pottangi SC (in DC Towers)-33.4 ckm
16. 132 kV Sambalpur LILO DC,(Burla PH - Rairakhole - Boinda Line)-0.772 ckm
17. 132 kV Olavar - Chandbali DC-24.996 ckm
18. 132 kV Nuapada - Nuapada RTSS-4.528 ckm
19. 132 kV Digapahandi- Chikiti DC-59 ckm
20. 132 kV Aska New LILO DC (on 132 kV Aska - Chhatrapur Line)-12.4 ckm
21. 132 kV Chandaka B- Unit 8 UG Cable-11.4 ckm
22. 132 kV Betanati LILO DC-6.208 ckm

Upgraded

- 1.132 kV Bolangir - Patnagarh DC,(DC from New Bolangir LILO Tower)-(-)39.805 ckm
2. 132 kV Sambalpur 'T' SC in DC Towers,(Burla PH - Rairakhole - Boinda Line)-(-)0.386 ckm

3 **PERFORMANCE OF OPTCL DURING 2018 - 19**

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) | 3.50 | 12.00 | 6.00 | 0.00 | 21.50 |
| Percentage(%) | 0.16 | 0.54 | 0.27 | 0.00 | 0.25 |

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

3 B. **TRANSMISSION SECURITY**

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

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

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

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

3 C **OVERALL PERFORMANCE**

3 C-1 **FREQUENCY**

(i) Above 50.05 Hz

| Duration | <u>1st Qtr.</u> | <u>2nd Qtr.</u> | <u>3rd Qtr.</u> | <u>4th Qtr.</u> | <u>Annual</u> |
|---------------|-----------------|-----------------|-----------------|-----------------|---------------|
| (In Hrs) | 316.78 | 443.30 | 310.95 | 490.22 | 1561.25 |
| Percentage(%) | 14.50 | 20.08 | 14.08 | 22.70 | 17.82 |

(ii) Maximum continuous 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) | 1.98 | 1.67 | 2.55 | 1.43 | 2.55 |
| Percentage(%) | 0.09 | 0.08 | 0.12 | 0.07 | 0.03 |

(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 | 50.25 | 50.23 | 50.17 | 50.29 | 50.29 |
| Date/Time | <u>09.06.18</u> 17:31hr | <u>18.07.18</u> 00:01hr | <u>22.11.18</u> 21:45hr | <u>01.03.19</u> 04:35hr | <u>01.03.19</u> 04:35hr |

(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) | 273.38 | 150.47 | 206.65 | 178.28 | 808.79 |
| Percentage(%) | 12.52 | 6.81 | 9.36 | 8.25 | 9.23 |

(v) Maxm. Continuous 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) | 2.33 | 1.02 | 1.08 | 0.82 | 2.33 |
| Percentage(%) | 0.107 | 0.046 | 0.049 | 0.038 | 0.027 |

(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 | 49.6 | 49.6 | 49.72 | 49.59 | 49.59 |
| Date/Time | <u>26.05.18</u> 19:49 hr | <u>24.08.18</u> 18:23 hr | <u>21.12.18</u> 07:30 hr | <u>04.01.19</u> 07:32hr | <u>04.01.19</u> 07:32hr |

3. C - 2 VOLTAGE PROFILE (2018-2019)

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 | ATRI | 232.67 | 03.05.18 | 01:15 | 228.162 | 21.07.18 | 06:00 | 235.78 | 18.12.18 | 03:45 | 232.608 | 14.01.19 | 01:45 | 235.78 | 18.12.18 | 03:45 |
| 2 | Balasore | 235.55 | 01.04.18 | 21:45 | 232.55 | 21.09.18 | 06:00 | 234.11 | 18.12.18 | 03:00 | 231.568 | 02.01.19 | 03:00 | 235.55 | 01.04.18 | 21:45 |
| 3 | Bhadrak | 239.131 | 26.06.18 | 05:00 | 234.571 | 21.09.18 | 06:00 | 237.69 | 02.11.18 | 08:30 | 235.032 | 03.01.19 | 04:00 | 239.13 | 26.06.18 | 05:00 |
| 4 | Bhanjanagar | 235.437 | 01.04.18 | 23:45 | 235.148 | 21.09.18 | 14:15 | 237.69 | 18.12.18 | 03:45 | 235.552 | 22.01.19 | 03:45 | 237.69 | 18.12.18 | 03:45 |
| 5 | Bidanasi | 234.917 | 01.04.18 | 19:00 | 232.55 | 21.09.18 | 14:15 | 239.88 | 30.12.18 | 22:00 | 238.496 | 21.01.19 | 03:15 | 239.88 | 30.12.18 | 22:00 |
| 6 | Budhipadar | 231.973 | 27.06.18 | 14:30 | 232.896 | 19.08.18 | 04:00 | 233.53 | 18.12.18 | 03:30 | 234.34 | 16.01.19 | 03:00 | 234.34 | 16.01.19 | 03:00 |
| 7 | Chandaka | 232.954 | 01.04.18 | 23:45 | 234.34 | 21.09.18 | 14:15 | 235.32 | 18.12.18 | 03:45 | 232.896 | 21.01.19 | 02:00 | 235.32 | 18.12.18 | 03:45 |
| 8 | Duburi | 235.494 | 01.04.18 | 23:00 | 234.744 | 21.09.18 | 06:00 | 237.75 | 18.12.18 | 03:45 | 236.187 | 30.01.19 | 03:00 | 237.75 | 18.12.18 | 03:45 |
| 9 | Jaynagar | 239.882 | 15.05.18 | 04:45 | 238.901 | 23.07.18 | 13:00 | 239.77 | 17.12.18 | 05:30 | 237.169 | 22.01.19 | 03:45 | 239.88 | 15.05.18 | 04:45 |
| 10 | Joda | 233.243 | 01.04.18 | 19:15 | 234.397 | 31.08.18 | 14:30 | 234.34 | 18.12.18 | 06:00 | 235.321 | 16.02.19 | 03:45 | 235.32 | 16.02.19 | 03:45 |
| 11 | Katapalli | 231.511 | 01.05.18 | 01:00 | 235.148 | 19.08.18 | 04:00 | 232.49 | 18.12.18 | 03:30 | 230.067 | 07.01.19 | 16:00 | 235.15 | 19.08.18 | 04:00 |
| 12 | Lapanga | 232.723 | 01.05.18 | 01:45 | 235.552 | 19.08.18 | 04:00 | 233.7 | 17.12.18 | 13:15 | 232.723 | 16.01.19 | 02:15 | 235.55 | 19.08.18 | 04:00 |
| 13 | Laxmipur | 239.71 | 15.05.18 | 04:45 | 236.65 | 23.07.18 | 13:00 | 237.86 | 17.12.18 | 23:45 | 237.80 | 22.01.19 | 03:45 | 239.71 | 15.05.18 | 04:45 |
| 14 | Mendhasal | 234.11 | 01.05.18 | 23:45 | 235.21 | 21.09.18 | 14:15 | 238.27 | 18.12.18 | 04:00 | 234.63 | 14.01.19 | 01:45 | 238.27 | 18.12.18 | 04:00 |
| 15 | Meramundali | 227.873 | 01.04.18 | 23:45 | 227.412 | 07.09.18 | 02:15 | 229.37 | 17.12.18 | 03:45 | 228.104 | 07.01.19 | 02:00 | 229.37 | 17.12.18 | 03:45 |
| 16 | Narendrapur | 237.00 | 03.05.18 | 01:15 | 229.663 | 03.07.18 | 12:00 | 240.92 | 11.10.18 | 13:00 | 235.61 | 22.01.19 | 03:45 | 240.92 | 11.10.18 | 13:00 |
| 17 | Paradeep | 234.51 | 01.04.18 | 19:30 | 232.49 | 20.09.18 | 13:00 | 234.97 | 18.12.18 | 04:30 | 234.57 | 27.02.19 | 02:15 | 234.97 | 18.12.18 | 04:30 |
| 18 | Sadeipali | 231.80 | 29.06.18 | 12:45 | 231.86 | 22.07.18 | 06:00 | 230.99 | 18.12.18 | 03:00 | 228.97 | 16.02.19 | 00:45 | 231.86 | 22.07.18 | 06:00 |
| 19 | Tarkera | 247.96 | 01.06.18 | 13:00 | 233.36 | 22.07.18 | 17:00 | 230.93 | 18.12.18 | 03:30 | 231.74 | 07.01.19 | 02:00 | 247.96 | 01.06.18 | 13:00 |
| 20 | Theruvalli | 235.78 | 03.05.18 | 05:30 | 232.43 | 15.08.18 | 04:00 | 234.51 | 18.12.18 | 03:45 | 234.63 | 22.01.19 | 03:45 | 235.78 | 03.05.18 | 05:30 |

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 | ATRI | 208.01 | 16.06.18 | 05:31 | 210.842 | 29.07.18 | 22:30 | 216.27 | 03.10.18 | 20:45 | 207.955 | 29.03.19 | 17:00 | 207.96 | 29.03.19 | 17:00 |
| 2 | Balasore | 211.246 | 15.06.18 | 23:00 | 208.417 | 28.09.18 | 20:00 | 201 | 02.10.18 | 22:45 | 209.514 | 30.03.19 | 14:30 | 201.00 | 02.10.18 | 22:45 |
| 3 | Bhadrak | 210.958 | 14.06.18 | 20:30 | 209.11 | 23.08.18 | 20:45 | 207.67 | 02.10.18 | 22:45 | 204.03 | 31.03.19 | 14:45 | 204.03 | 31.03.19 | 14:45 |
| 4 | Bhanjanagar | 213.96 | 13.06.18 | 19:30 | 213.209 | 04.08.18 | 19:15 | 221.35 | 03.10.18 | 20:45 | 216.442 | 29.03.19 | 15:15 | 213.21 | 04.08.18 | 19:15 |
| 5 | Bidanasi | 212.805 | 09.05.18 | 15:30 | 212.863 | 07.08.18 | 08:15 | 219.39 | 20.11.18 | 17:45 | 215.345 | 26.02.19 | 18:15 | 212.81 | 09.05.18 | 15:30 |
| 6 | Budhipadar | 201.085 | 29.05.18 | 00:30 | 218.694 | 07.07.18 | 08:30 | 215.93 | 26.12.18 | 11:15 | 225.391 | 13.03.19 | 10:15 | 201.09 | 29.05.18 | 00:30 |
| 7 | Chandaka | 205.70 | 19.06.18 | 14:45 | 211.881 | 04.07.18 | 19:15 | 216.27 | 03.10.18 | 20:45 | 207.84 | 29.03.19 | 15:15 | 205.70 | 19.06.18 | 14:45 |
| 8 | Duburi | 211.593 | 17.04.18 | 18:45 | 216.052 | 04.07.18 | 17:30 | 219.39 | 05.10.18 | 19:15 | 218.867 | 30.03.19 | 22:30 | 211.59 | 17.04.18 | 18:45 |
| 9 | Jaynagar | 220.945 | 22.04.18 | 08:15 | 226.084 | 04.07.18 | 19:30 | 223.02 | 26.11.18 | 18:00 | 226.777 | 28.03.19 | 19:00 | 220.95 | 22.04.18 | 08:15 |
| 10 | Joda | 211.766 | 26.04.18 | 15:00 | 215.00 | 10.08.18 | 20:45 | 216.38 | 16.11.18 | 09:00 | 208.821 | 26.03.19 | 21:00 | 208.82 | 26.03.19 | 21:00 |
| 11 | Katapalli | 214.133 | 05.04.18 | 17:00 | 212.343 | 20.07.18 | 10:45 | 205.01 | 02.10.18 | 15:30 | 205.127 | 07.01.19 | 15:45 | 205.01 | 02.10.18 | 15:30 |
| 12 | Lapanga | 221.234 | 05.04.18 | 17:00 | 204.722 | 30.09.18 | 18:00 | 204.38 | 02.10.18 | 15:30 | 205.935 | 07.01.19 | 15:45 | 204.38 | 02.10.18 | 15:30 |
| 13 | Laxmipur | 219.62 | 13.06.18 | 19:45 | 223.89 | 04.07.18 | 19:30 | 225.62 | 10.11.18 | 17:45 | 224.64 | 28.03.19 | 19:00 | 219.62 | 13.06.18 | 19:45 |
| 14 | Mendhasal | 208.19 | 19.06.18 | 14:45 | 213.73 | 23.08.18 | 19:15 | 217.83 | 03.10.18 | 20:45 | 209.46 | 29.03.19 | 15:15 | 208.19 | 19.06.18 | 14:45 |
| 15 | Meramundali | 216.269 | 18.04.18 | 23:15 | 217.943 | 03.07.18 | 19:30 | 218.98 | 08.11.18 | 17:30 | 219.906 | 19.03.19 | 18:45 | 216.27 | 18.04.18 | 23:15 |
| 16 | Narendrapur | 205.184 | 13.06.18 | 19:30 | 209.226 | 04.08.18 | 19:15 | 209.75 | 06.11.18 | 17:45 | 204.203 | 29.03.19 | 15:15 | 204.20 | 29.03.19 | 15:15 |
| 17 | Paradeep | 203.91 | 19.06.18 | 22:30 | 203.91 | 23.08.18 | 21:00 | 206.80 | 03.10.18 | 20:45 | 206.97 | 28.03.19 | 21:00 | 203.91 | 19.06.18 | 22:30 |
| 18 | Sadeipali | 199.76 | 05.04.18 | 16:45 | 211.94 | 02.07.18 | 19:15 | 207.20 | 02.10.18 | 15:30 | 208.99 | 08.01.19 | 08:15 | 199.76 | 05.04.18 | 16:45 |
| 19 | Tarkera | 220.08 | 30.05.18 | 21:00 | 222.16 | 29.09.18 | 18:30 | 222.91 | 03.10.18 | 19:45 | 224.29 | 14.02.19 | 09:00 | 220.08 | 30.05.18 | 21:00 |
| 20 | Theruvalli | 209.57 | 13.06.18 | 21:30 | 214.19 | 04.07.18 | 20:30 | 214.42 | 01.10.18 | 18:15 | 217.65 | 28.03.19 | 23:00 | 209.57 | 13.06.18 | 21:30 |

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 | Cuttack | 139.022 | 01.04.18 | 19:00 | 138.156 | 21.09.18 | 14:15 | 140.87 | 18.12.18 | 03:45 | 139.48 | 28.02.19 | 00:00 | 140.87 | 18.12.18 | 03:45 |
| 2 | Berhampur | 141.50 | 03.05.18 | 01:00 | 139.426 | 21.09.18 | 02:00 | 144.97 | 11.10.18 | 13:00 | 139.95 | 22.01.19 | 03:45 | 144.97 | 11.10.18 | 13:00 |
| 3 | Puri | 135.10 | 03.05.18 | 01:00 | 136.77 | 21.09.18 | 14:15 | 137.58 | 18.12.18 | 03:00 | 135.33 | 31.03.19 | 21:15 | 137.58 | 18.12.18 | 03:00 |
| 4 | Khurda | 137.35 | 13.05.18 | 04:15 | 138.04 | 21.09.18 | 14:15 | 138.73 | 18.12.18 | 03:45 | 138.1 | 31.03.19 | 21:15 | 138.73 | 18.12.18 | 03:45 |

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

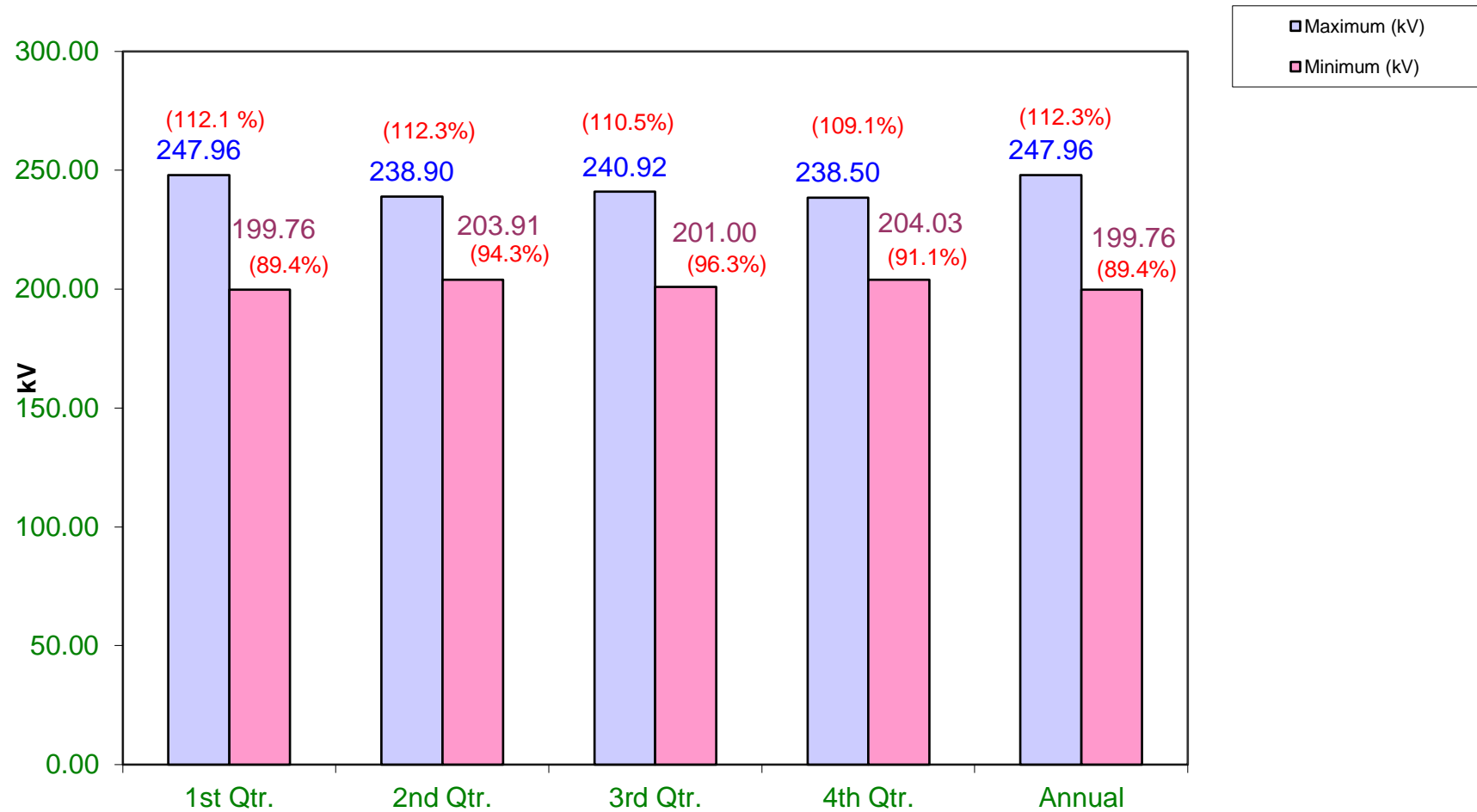
| Sl. No. | Name of the Sub-station | Quarter - 1 | | | Quarter - 2 | | | Quarter - 3 | | | Quarter - 4 | | | ANNUAL | | |
|---------|-------------------------|---------------|----------|--------------|---------------|----------|--------------|---------------|----------|--------------|---------------|----------|--------------|---------------|-----------------|--------------|
| | | Voltage in kV | Date | Time in Hrs. | Voltage in kV | Date | Time in Hrs. | Voltage in kV | Date | Time in Hrs. | Voltage in kV | Date | Time in Hrs. | Voltage in kV | Date | Time in Hrs. |
| 1 | Cuttack | 116.795 | 16.04.18 | 11:30 | 121.24 | 02.08.18 | 17:30 | 127.71 | 03.10.18 | 20:45 | 115 | 16.03.19 | 10:45 | 115.00 | 16.03.19 | 10:45 |
| 2 | Berhampur | 119.162 | 13.06.18 | 19:30 | 122.05 | 04.08.18 | 19:15 | 122.34 | 06.11.18 | 17:45 | 119.28 | 26.02.19 | 18:15 | 119.16 | 13.06.18 | 19:30 |
| 3 | Puri | 116.564 | 26.04.18 | 14:45 | 121.644 | 12.07.18 | 12:15 | 118.58 | 26.10.18 | 17:30 | 116.45 | 11.01.19 | 08:45 | 116.45 | 11.01.19 | 08:45 |
| 4 | Khurda | 121.93 | 31.05.18 | 20:30 | 123.90 | 04.08.18 | 19:15 | 125.51 | 05.11.18 | 17:45 | 122.16 | 29.03.19 | 14:45 | 121.93 | 31.05.18 | 20:30 |

Note:

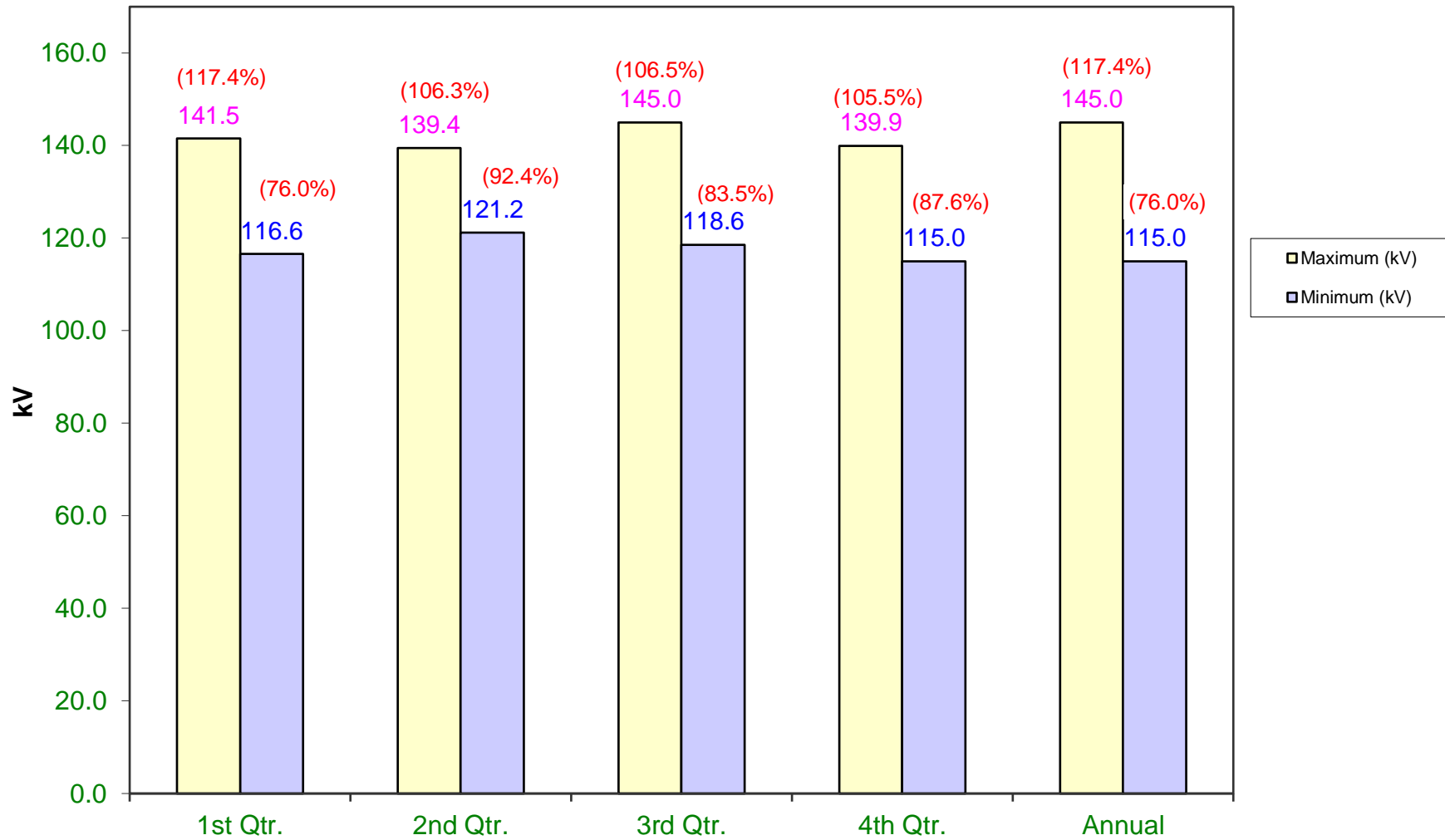
The bus voltages are recorded from 15min block voltage from meter data .

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

OVERALL PERFORMANCE VOLTAGE AT 220kV

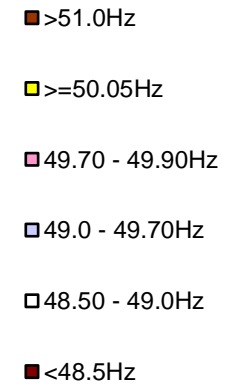
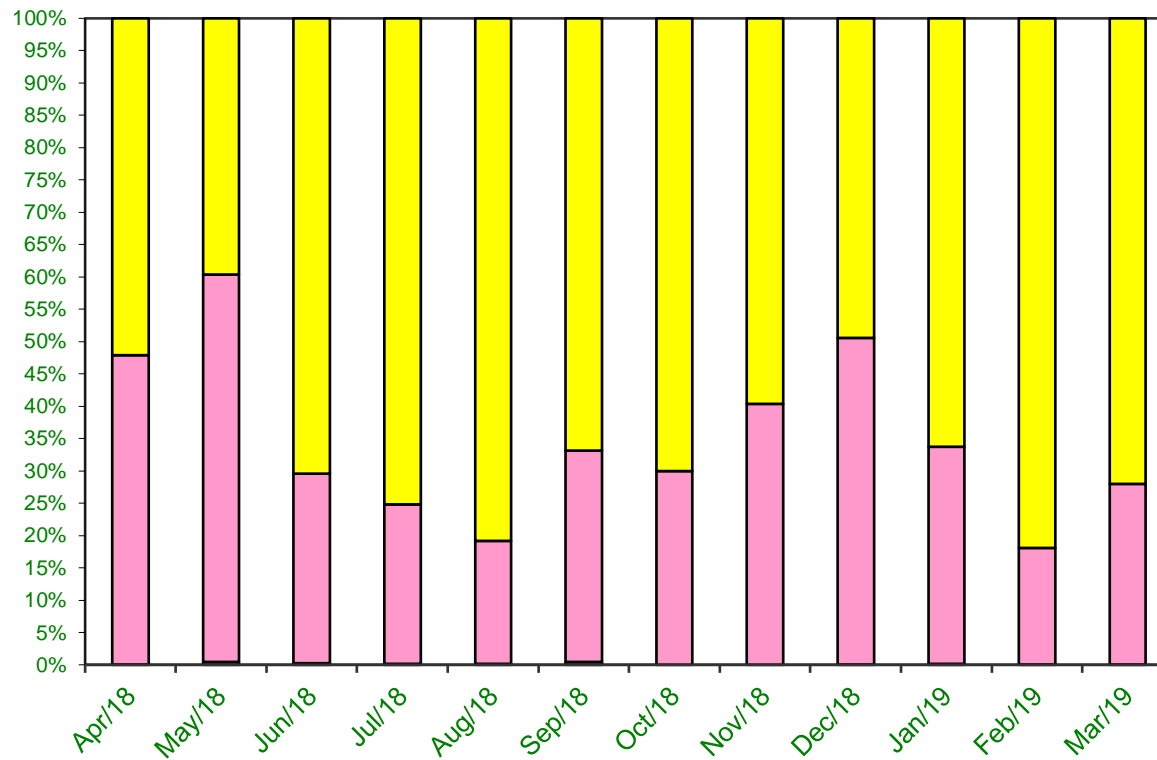


OVERALL PERFORMANCE VOLTAGE AT 132 kV



Frequency Performance

Percentage time occurrence



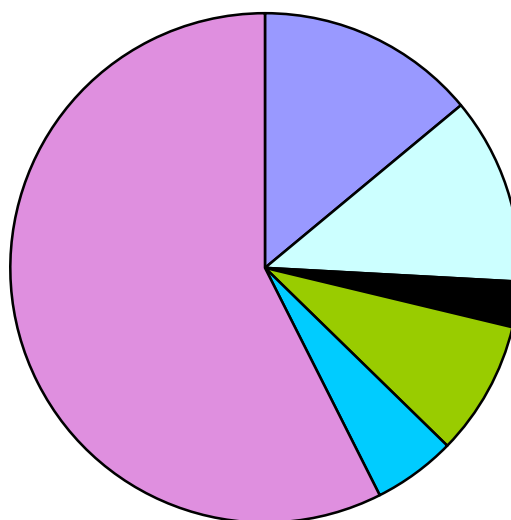
| | Apr-18 | May-18 | Jun-18 | Jul-18 | Aug-18 | Sep-18 | Oct-18 | Nov-18 | Dec-18 | Jan-19 | Feb-19 | Mar-19 |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ■ >51.0Hz | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ■ >=50.05Hz | 11.30 | 12.18 | 20.13 | 21.02 | 22.54 | 16.57 | 18.17 | 12.49 | 11.54 | 20.23 | 26.87 | 21.39 |
| ■ 49.70 - 49.90Hz | 10.35 | 18.41 | 8.36 | 6.90 | 5.30 | 8.09 | 7.78 | 8.47 | 11.78 | 10.24 | 5.91 | 8.31 |
| ■ 49.0 - 49.70Hz | 0.02 | 0.14 | 0.08 | 0.05 | 0.04 | 0.11 | 0.00 | 0.00 | 0.02 | 0.06 | 0.00 | 0.02 |
| ■ 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 | 19:51:00 | 39 |
| Insulator Failure | 16:53:00 | 25 |
| Bursting of CT / PT | 4:06:00 | 11 |
| Breaker Problem | 0:00:00 | 0 |
| Major System Disturbance | 12:09:00 | 9 |
| Failure of LA | 7:28:00 | 10 |
| Others | 81:35:00 | 172 |
| 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 2018-19. | | |

INTERRUPTION (HRS) DUE TO MAJOR INCIDENT DURING 2018-19



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



पावर मैप

POWER MAP OF EASTERN REGION

