

TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja
From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT OF WEDNESDAY 08/08/2018

FOR: EVENTS OF TUESDAY 07/08/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

| DETAILS | MW | HRS | DATE |
|--|------------|-----------|------------|
| PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD) | 22,560 | 21:15 | 07/08/2018 |
| GENERATION CAPABILITY | 7840.2 | -do- | -do- |
| UNITS ON BAR CAPABILITY AT PEAK | 5069 | -do- | -do- |
| PEAK GENERATION | 4782.9 | -do- | -do- |
| LOWEST GENERATION | 2885.8 | 05:00 | 07/08/2018 |
| 8-HOURLY DURATION PEAK | 3388 | 0100-0800 | -do- |
| | 3846.8 | 0900-1600 | -do- |
| | 4782.9 | 1700-2400 | -do- |
| PEAK GENERATION TO DATE | 5222.3 | 21:00 | 18/12/2017 |
| MAXIMUM AVAILABLE CAPACITY TO DATE | 7652.6 | 06:00 | 14/04/2014 |
| MAXIMUM ENERGY GENERATED (MWH) TO DATE | 109,372.01 | 0000-2400 | 02/02/2016 |

1.2 CRITICAL VOLTAGE

| DETAILS | KV | STATION | HRS |
|-----------------------------|---------------|--------------------|-------|
| NOMINAL VOLTAGE | 330 | | |
| STATUTORY LIMITS | 280.5 - 346.6 | | |
| HIGHEST VOLTAGE FOR THE DAY | 348 | Birmin - Kebbi T/S | 18:00 |
| LOWEST VOLTAGE FOR THE DAY | 295 | Sakete T/S | 20:00 |

1.3 FREQUENCY RANGE

| DETAILS | HZ | HRS |
|-------------------|---------------|-------|
| NOMINAL FREQUENCY | 50 | |
| STATUTORY LIMITS | 49.75 - 50.25 | |
| HIGHEST FREQUENCY | 50.73 | 00:37 |
| LOWEST FREQUENCY | 49.75 | 14:19 |

1.4 SYSTEM COLLAPSE UP DATE

| | |
|--|--|
| Date of last total collapse: 8th July, 2018 | No. of days since last total collapse: 21 |
| Date of last partial collapse: 12 th April, 2018 | No. of days since last partial collapse: 113 |
| Highest No of days ever attained in-between total collapses: 134 | Highest No of days ever attained in-between partial collapses: 240 |

| | Jan | Feb. | Mar. | Apr | May | Jun | Jul | Aug | Sep. | Oct | Nov | Dec | Total |
|------|---------|------|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-------|
| 2010 | Total | --- | 3 | 1 | -- | 3 | 3 | 3 | -- | 2 | 1 | 4 | 22 |
| | Partial | 1 | -- | -- | 1 | 3 | 4 | 4 | 3 | 2 | -- | 1 | 20 |
| 2011 | Total | -- | -- | -- | -- | 4 | 3 | 1 | 1 | 1 | 2 | -- | 13 |
| | Partial | -- | 1 | 1 | -- | -- | -- | 1 | -- | 1 | 2 | -- | 6 |
| 2012 | Total | -- | -- | 2 | 1 | 5 | 2 | 1 | -- | 2 | 2 | 1 | 16 |
| | Partial | -- | -- | 2 | 3 | -- | -- | -- | 1 | -- | 1 | 1 | 8 |
| 2013 | Total | -- | 1 | 2 | 2 | 3 | 4 | 1 | 1 | 1 | 4 | 2 | 22 |
| | Partial | -- | -- | -- | -- | -- | -- | -- | 2 | | | | 2 |
| 2014 | Total | 2 | | 0 | 2 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 9 |
| | Partial | | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 4 |
| 2015 | Total | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 6 |
| | Partial | -- | -- | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 2016 | Total | -- | -- | 2 | 3 | 6 | 5 | 0 | 0 | 1 | 2 | 2 | 22 |
| | Partial | -- | -- | 1 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 6 |
| 2017 | Total | 5 | 3 | 0 | 3 | 1 | 1 | 0 | 0 | 1 | 1 | | 15 |
| | Partial | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | | 9 |
| 2018 | Total | 5 | 1 | 0 | 0 | 0 | 1 | 1 | | | | | 8 |
| | Partial | 0 | 0 | 0 | 1 | 0 | | | | | | | 1 |

1.5 BREAKDOWN OF PEAK & OFF PEAK GENERATION (NATIONAL PEAK & OFF PEAK)

| STATION | TURBINE | PEAK GEN. (MW) | OFF-PEAK GEN.(MW) | | |
|--|---------|------------------|-------------------|------------------|-----------------|
| 1 KAINJI | HYDRO | 320 | 282 | | |
| 2 JEBBA | HYDRO | 423 | 251 | | |
| 3 SHIRORO | HYDRO | 587 | 275 | | |
| 4 EGBIN ST2 - 5 | STEAM | 572 | 475 | | |
| 5 SAPELE | STEAM | 0 | 0 | | |
| 6 DELTA | GAS | 555 | 297 | | |
| 7 AFAM IV-V | GAS | 0 | 62 | | |
| 8 GEREGU GAS | GAS | 0 | 0 | | |
| 9 OMOTOSHO GAS | GAS | 136.2 | 121.5 | | |
| 10 OLORUNSOGO GAS | GAS | 165.8 | 113.5 | | |
| 11 GEREGU NIPP | GAS | 0 | 0 | | |
| 12 SAPELE NIPP | GAS | 212.6 | 75.7 | | |
| 13 ALAQJI NIPP | GAS | 84.8 | 85.1 | | |
| 14 OLORUNSOGO NIPP | GAS | 219.9 | 104.8 | | |
| 15 OMOTOSHO NIPP | GAS | 220.9 | 91.7 | | |
| 16 ODUKPANI NIPP | GAS | 0 | 0 | | |
| 17 IHOVBOR NIPP | GAS | 219.1 | 84.5 | | |
| 18 OKPAI | GAS | 260 | 0 | | |
| 19 AFAM VI | GAS | 247 | 110 | | |
| 20 IBOM POWER | GAS | 53.8 | 52.9 | | |
| 21 ASCO | GAS | 0 | 0 | | |
| 22 A.E.S | GAS | 0 | 0 | | |
| 23 OMOKU | GAS | 55.4 | 56.6 | | |
| 24 TRANS AMADI | GAS | 0 | 0 | | |
| 25 RIVERS IPP | (GAS) | 0 | 0 | | |
| 26 AZURA - EDO IPP | (GAS) | 280 | 200 | | |
| 27 EGBIN ST6 | (GAS) | 0 | 0 | | |
| 28 PARAS ENERGY | (GAS) | 70.2 | 68.6 | | |
| 29 GBARAIN NIPP | GAS | 100.2 | 78.9 | | |
| TOTAL | | 4782.9 | 2885.8 | | |
| 1.6 ENERGY GENERATED/ENERGY SENT OUT: | | | | | |
| STATION | TURBINE | ENERGY GENERATED | | ENERGY SENT OUT | |
| | | MWH | MWH/H | MWH | MWH/H |
| 1 KAINJI | HYDRO | 7022.00 | 292.58 | 7006.70 | 291.95 |
| 2 JEBBA | HYDRO | 7264.00 | 302.67 | 7240.00 | 301.67 |
| 3 SHIRORO | HYDRO | 10613.00 | 442.21 | 10590.30 | 441.26 |
| 4 EGBIN ST2 - 5 | STEAM | 12469.00 | 519.54 | 11815.80 | 492.33 |
| 5 SAPELE | STEAM | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 DELTA | GAS | 12120.01 | 505.00 | 11875.80 | 494.83 |
| 7 AFAM IV-V | GAS | 1186.00 | 49.42 | 1180.56 | 49.19 |
| 8 GEREGU GAS | GAS | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 OMOTOSHO GAS | GAS | 3232.00 | 134.67 | 3208.70 | 133.70 |
| 10 OLORUNSOGO GAS | GAS | 3406.21 | 141.93 | 3376.12 | 140.67 |
| 11 GEREGU NIPP | GAS | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 SAPELE NIPP | GAS | 2744.13 | 114.34 | 2725.27 | 113.55 |
| 13 ALAQJI NIPP | GAS | 2031.19 | 84.63 | 2019.99 | 84.17 |
| 14 OLORUNSOGO NIPP | GAS | 3522.40 | 146.77 | 3469.50 | 144.56 |
| 15 OMOTOSHO NIPP | GAS | 3225.90 | 134.41 | 3211.20 | 133.80 |
| 16 ODUKPANI NIPP | GAS | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 IHOVBOR NIPP | GAS | 3004.38 | 125.18 | 2980.00 | 124.17 |
| 18 OKPAI | GAS | 2144.00 | 89.33 | 2082.30 | 86.76 |
| 19 AFAM VI | GAS | 3602.77 | 150.12 | 3553.17 | 148.05 |
| 20 IBOM | GAS | 1619.65 | 67.49 | 1611.00 | 67.13 |
| 21 ASCO | GAS | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 AZURA - EDO IPP | GAS | 5753.05 | 239.71 | 5743.70 | 239.32 |
| 23 A.E.S | GAS | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 OMOKU | GAS | 1237.90 | 51.58 | 1210.90 | 50.45 |
| 25 TRANS AMADI | GAS | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 RIVERS IPP | GAS | 1295.40 | 53.98 | 1290.45 | 53.77 |
| 27 EGBIN ST6 | STEAM | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 PARAS ENERGY | GAS | 1662.30 | 69.26 | 1657.00 | 69.04 |
| 29 GBARAIN NIPP | GAS | 2077.30 | 86.55 | 2061.50 | 85.90 |
| TOTAL | | 91,232.59 | 3,801.36 | 89,909.96 | 3,746.25 |

1.7A GENERATION POSITION AT 06:00HRS OF WEDNESDAY 08/08/2018

| | STATIONS | NO OF INSTALLED UNITS | AVAILABLE UNITS | INSTALLED CAPACITY OF AVAILABLE UNITS(MW) | GENERATION CAPABILITY OF AVAILABLE UNITS(MW) | UNITS ON BAR | CAPABILITY OF UNITS ON BAR (MW) | GENERATION AT 06:00HRS (MW) AT 50.36Hz. | REMARKS |
|----------------------|-------------------|-----------------------|----------------------------------|---|--|----------------------------|---------------------------------|---|--|
| PRIVATISED COMPANIES | KAINJI HYDRO | 8 | 1G5, 6, 11 & 12 4 | 440 | 320 | 1G5, 6, 11 & 12 4 | 320 | 297 | 1G7 - Out on stator winding failure. 1G8 - Out due to oil leakage on governor runner head. 1G9 - Out due to burnt 7.5MVA 33/0.415kV & 183.6MVA 16/330kV station service transformer and generator transformer. 1G10 - Shut down due to thrust bearing temperature problem. |
| | JEBBA HYDRO | 6 | 2G1 - 5 5 | 475 | 450 | 2G1, 3 - 5 4 | 360 | 296 | 2G1, 3 - 5 - On frequency response. 2G2 - Out on frequency management. 2G6 - Out due to burnt generator winding and AVR. |
| | SHIRORO HYDRO | 4 | 411G1 - 4 4 | 600 | 600 | 411G1, 2 & 4 3 | 450 | 266 | 411G1 & 2 - Generation reduced on frequency management. 411G4 - Out on frequency management. |
| | EGBIN STEAM | 5 | ST1, 2, 4 & 5 4 | 880 | 575 | ST2, 4 & 5 3 | 575 | 519 | ST1 - Out on oil leakage. ST3 - Out on high vibration since 19th June 2017. Generation reduced on frequency management. |
| | SAPELE (STEAM) | 6 | 0 0 | 0 | 0 | 0 0 | 0 | 0 | ST1 - Shut down due to alarm on inlet gas guide control trouble. ST2 - Tripped without relay indication. ST3 - Out on stator winding problem. ST4 & 5 - Awaiting major overhaul. ST6 - Out on gas control valve not following reference point. |
| | DELTA (GAS) | 18 | GT9 - 13, 15, 16 & 18 - 20 10 | 615 | 615 | GT9 - 13, 15, 18 & 20 8 | 420 | 411 | GT3 & 5 - Out due to generator winding fault. GT4 - Out on loss of excitation. GT6, 8 & 14 - Out on major overhaul. GT7 - Out on fault. GT16 & 19 - Out on frequency management. GT17 - Tripped on bearing vibration than maximum. |
| | AFAM IV & V (GAS) | 8 | 0 0 | 0 | 0 | 0 0 | 0 | 0 | GT1 - 12 - De-commissioned and scrapped. GT13 -16 - Out on blade failure. GT17 - Out due to technical issues. GT18 - Out due to loss of excitation. GT19 & 20 - Awaiting major overhaul. |
| | GEREGU GAS | 3 | GT11 - 13 3 | 435 | 435 | 0 0 | 0 | 0 | GT11 - 13 - Out due to low gas pressure. |
| | OMOTOSHO GAS | 8 | GT1 - 8 8 | 336 | 304 | GT1, 6 - 8 4 | 152 | 140.3 | GT2 - 5 - Out due to gas constraint. |
| | OLORUNSOGO GAS | 8 | GT1 - 8 8 | 336 | 304 | GT2, 4, 5 & 8 4 | 152 | 137.6 | GT1 & 6 - Out on frequency management. GT3 & 7 - Out due to gas constraint. |
| NIPP | GEREGU NIPP | 3 | GT22 & 23 2 | 290 | 290 | 0 0 | 0 | 0 | GT21 - Out on maintenance. GT22 & 23 - Out due to gas constraint. |
| | SAPELE NIPP | 4 | GT1, 3 & 4 3 | 337.5 | 337.5 | GT1 & 3 2 | 225 | 169 | GT4 - Out on frequency management. GT2 - Out due to high air inlet differential pressure. |
| | ALAOJI NIPP GAS | 4 | GT1, 2 & 4 3 | 375 | 360 | GT2 1 | 84.7 | 84.7 | GT1 & 4 - Out due to gas constraint. GT3 - Shut down due to lack of spare parts. |
| | OLORUNSOGO NIPP | 6 | GT1 - 3 3 | 375 | 360 | GT1 1 | 111.3 | 111.3 | GT2 & 3 - Out due to gas constraint. GT4 - Out due to ignition failure and control relay failure alarm. ST13 & ST23 - Out on maintenance. |
| | OMOTOSHO NIPP GAS | 4 | GT1, 2 & 4 3 | 375 | 360 | GT2 & 4 2 | 240 | 198.1 | GT1 - Out due to gas constraint. GT3 - Out due to oil leakage on the unit. |
| | ODUKPANI NIPP | 5 | GT4 & 5 2 | 240 | 230 | 0 0 | 0 | 0 | GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Out on high air inlet differential pressure. GT4 & 5 - Shut down due to work on gas pipe line equipment. |
| | IHOVBOR NIPP | 4 | GT1 & 2 2 | 225 | 225 | GT1 & 2 2 | 174.8 | 174.8 | GT2 - On manual frequency adjustment. GT3 - Tripped on high vibration. GT4 - Out on maintenance. |
| GBARAIN NIPP GAS | 1 | GT2 1 | 112.5 | 112.5 | GT2 1 | 112.5 | 86.2 | Available unit on bar. | |
| IPP | OKPAI GAS/STEAM | 3 | GT11, 12 & ST18 3 | 450 | 427 | GT11 & 12 2 | 300 | 100 | ST18 - Out on frequency management. GT11 & 12 - Generation reduced on frequency management. |
| | AZURA - EDO | 3 | GT11 & 12 2 | 307 | 307 | GT11 & 12 2 | 307 | 150 | GT13 - Out on maintenance. GT11 & 12 - Generation reduced on frequency management. |
| | AFAM VI GAS/STEAM | 4 | GT11 - 13 & ST10 4 | 650 | 640 | GT11 1 | 150 | 122 | GT12, 13 & ST10 - Out on frequency management. |
| | IBOM POWER GAS | 3 | 0 0 | 0 | 0 | 0 0 | 0 | 0 | GT3 - Out on fault. |
| | AES | 0 | 0 0 | 0 | 0 | 0 0 | 0 | 0 | Out of production since 27/09/2014. |
| | ASCO | 2 | 0 0 | 0 | 0 | 0 0 | 0 | 0 | ST1 - Shut down due to leakage in the furnace. |
| | OMOKU GAS | 6 | GT1, 2 & 5 3 | 75 | 60 | GT1, 2 & 5 3 | 55.8 | 55.8 | GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul. GT6 Out on maintenance. |
| | TRANS-AMADI | 4 | GT1, 2 & 4 3 | 75 | 65 | 0 0 | 0 | 0 | GT1, 2 & 4 - Out due to low gas pressure. GT3 - Out on fault. |
| | RIVERS | 1 | GT1 1 | 180 | 160 | 0 0 | 0 | 0 | GT1 - Out due to gas constraint. |
| | SUB TOTAL | 131 | 81 | 8184 | 7537 | 47 | 4190.1 | 3318.8 | Frequency = 50.36Hz. |

1.7B GENERATION POSITION AT 06:00HRS OF WEDNESDAY 08/08/2018 FOR UNITS ON BILATERAL AGREEMENT

| | | | | | | | | |
|--------------|-----|---------|--------|--------|---------|----------|----------|---|
| EGBIN | 1 | 0 | 0 | 0 | 0 | 0 | 0 | ST6 - Shut down on Egbin management decision. |
| PARAS ENERGY | 8 | GT2 - 9 | 70.2 | 70.2 | GT2 - 9 | 70.2 | 70.2 | Available units on bar. |
| SUB TOTAL | 9 | 8 | 70.2 | 70.2 | 8 | 70.2 | 70.2 | |
| GRAND TOTAL | 140 | 89 | 8254.2 | 7607.2 | 55 | 4,260.30 | 3,389.00 | Frequency = 50.36Hz. |

1.7C

| BILATERAL AGREEMENT UNITS DISPATCH - TUESDAY 07/08/2018. | | | | | | | |
|--|-------------------|--------------|---------------|------------|----------------|-------------|---------------------------------|
| EGBIN ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY | | | | | | | |
| FEEDERS NAME | MAX. LOAD (MW) | TIME (HRS) | MIN LOAD (MW) | TIME (HRS) | HRS IN SERVICE | TOTAL (MWH) | REMARK |
| OGBA | U-STEEL | OUT | NIL | | NIL | | T1 60MVA IS O/S ON DIFFERENTIAL |
| | PTCEXPRESS | OUT | NIL | | NIL | | T1 60MVA IS O/S ON DIFFERENTIAL |
| | SANKYO | ON | 0100HRS | | 24 | | NIL |
| | FEEDER 8 | 16 | 1300HRS | | 24 | | NIL |
| IKORODU | PULK IT | 4 | 1000HRS | | 24 | | NIL |
| | INDUSTRIAL | 9 | 0800HRS | | 24 | | NIL |
| | SPINTEX | 13 | 2200HRS | | 24 | | NIL |
| | DANGOTE | 3 | 0200HRS | | 24 | | NIL |
| | LAND CRAFT | 14 | 2100HRS | | 24 | | NIL |
| ALAUSA | TR4 15MVA | 6.4 | 1600HRS | | 24 | | NIL |
| | TR5 -15MVA | 5.7 | 1400HRS | | 24 | | NIL |
| | ALAUSA | 15.6 | 1500HRS | | 24 | | NIL |
| M/LAND | PTC (MARYLAND) | 16 | 1400HRS | | 20 | | TRIPPED ON E/F |
| | TOTAL LOAD | 102.7 | | | | | |

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB OF TUESDAY 07/08/018

| FEEDER | MAX LOAD (MW) | TIME (HRS) | MIN LOAD (MW) | TIME (HRS) | HOURS IN SERVICE | TOTAL (MWH) | REMARK |
|------------------------------|---------------|------------|---------------|------------|------------------|-------------|--------|
| Ikeja West/Sakete 330kV line | 71 | 07:00 | 62.4 | 24:00 | 24 | 1600.8 | NIL |

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: TUESDAY 07/08/2018

| COMPANY NAME | VOL-TAGE LEVEL | CON-TRAC-TUAL LOAD (MW) | MAX LOAD (MW) | TIME (HRS) | MIN LOAD (MW) | TIME (HRS) | HOURS IN SERVICE | TOTAL (MWH) | REMARK |
|------------------|----------------|-------------------------|---------------|------------|---------------|------------|------------------|-------------|------------------------|
| INNER GALAXY | | ON | ON | ON | ON | ON | ON | ON | NIL |
| KAM STEEL | 132kV line 2 | 15.0 | 0.3 | 01:00 | 0.2 | 09:00 | 24 | 5.4 | SUPPLY NOT INTERRUPTED |
| ASAKA CEMENT | | 0 | 9.1 | 23:00 | 3.7 | 21:00 | 24 | 156.5 | NIL |
| KAM INTEGRATED | 33kV feeder | 15.0 | 4.4 | 23:00 | 1.8 | 20:00 | 24 | 63.0 | SUPPLY NOT INTERRUPTED |
| OLAM FLOUR MILLS | | 3.0 | 2.0 | 05:00 | 0.5 | 23:00 | 24.00 | 30.0 | SUPPLY NOT INTERRUPTED |
| LORDSMITH | | 3 | 0.4 | 15:00 | 0.2 | 08:00 | 21 | 6.4 | ON SOAK |

1.8 HYDROLOGICAL DATA: WEDNESDAY 08/08/2018

| | KAINJI | JEBBA | SHIRORO |
|--|----------------|----------------|---------------|
| HEAD WATER ELEVATION (METERS) | 133.97 | 101.47 | 371.70 |
| TAIL WATER ELEVATION (METERS) | 103.65 | 74.20 | 270.8 |
| GROSS OPERATING HEAD (METERS) | 30.32 | 27.27 | 100.90 |
| AVERAGE TURBINE DISCHARGE (M3/SEC) | 1048.00 | 1271.00 | 507.00 |
| AVERAGE SPILLAGE (M3/SEC) | 0.00 | 0.00 | 0.00 |
| AVERAGE TOTAL STATION DISCHARGE (M3/SEC) | 1048.00 | 1271.00 | 507.00 |
| COMPUTED INFLOW (M3/SEC) | 2842.00 | 1340.00 | 1016.00 |
| STORAGE DIFFERENTIAL | 1794.00 | 69 | 509.00 |
| MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT | 141.73 | 103 | 388.50 |
| MINIMUM LEVEL BELOW WHICH NO GENERATION | 129 | 99 | 355 |

1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT TUESDAY 07/08/2018

| | MAXIMUM LOAD(MW) | TIME(HRS) | ALLOCATED LOAD (MW) | MINIMUM LOAD(MW) | TIME(HRS) |
|-------|------------------|-----------|---------------------|------------------|-----------|
| ABUJA | 521.3 | 21:00 | 5:16 | 309.1 | 04:00 |
| EKO | 422.8 | 23:00 | 597.6 | 232.3 | 07:00 |
| IKEJA | 574.7 | 22:00 | 678.54 | 430 | 06:00 |

2.0 GAS POSITION: WEDNESDAY 08/08/2018

| STATION | SIGNED ACQ Annual Contracted Quantity MMSCF/D | INSTALLED CAPACITY OF THERMAL STATIONS (MW) | PREVIOUS DAY OFF-TAKE (MMSCF/D) | CAPABILITY OF UNITS ON BAR OF THERMAL STATIONS (MW) | DIFFERENCE (MW) |
|-------------------|---|---|---------------------------------|---|-----------------|
| EGBIN P/S | 297 | 1100 | | 575 | 525 |
| DELTA (GAS) | 411 | 915 | | 420 | 495 |
| OMOTOSHO GAS | 140.3 | 336.8 | | 152 | 184.8 |
| OMOTOSHO NIPP | 198.1 | 500 | | 240 | 260 |
| OLORUNSOGO (GAS) | 137.6 | 336 | | 152 | 184 |
| OLORUNSOGO NIPP | 111.3 | 750 | | 111.3 | 638.7 |
| SAPELE NIPP | 169 | 500 | | 225 | 275 |
| SAPELE STEAM | 0 | 720 | | 0 | 720 |
| AFAM IV-V | 0 | 300 | | 0 | 300 |
| AFAM VI | 122 | 650 | | 150 | 500 |
| GEREGU GAS | 0 | 435 | | 0 | 435 |
| GEREGU NIPP | 0 | 435 | | 0 | 435 |
| ORPAT (GAS/STEAM) | 100 | 480 | | 0 | 480 |
| ALAOJI NIPP | 84.7 | 504 | | 87.1 | 416.9 |
| IHOVBOR NIPP | 174.8 | 450 | | 174.8 | 275.2 |
| IBOM | 0 | 198 | | 0 | 198 |
| ODUKPANI NIPP | 0 | 625 | | 0 | 625 |
| TOTAL | 1945.8 | 9234.80 | | 2287.2 | 6947.6 |

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : TUESDAY 07/08/2018

| | (MW) | TIME | FREQUENCY |
|--------------|------|------|-----------|
| Maximum (MW) | | | |
| Minimum | | | |
| AVERAGE (MW) | | | |

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF WEDNESDAY 08/08/2018 = 0MW, FREQUENCY 50.36Hz.

| 0 | POWER STATION | UNIT ON SPINNING RESERVE | CONTRACTED RESERVE | ACTUAL RESERVE (MW) | TOTAL (MW) |
|-------------------|-----------------|--------------------------|--------------------|---------------------|------------|
| 1 | Egbin | ST2 | 100 | 0 | 0 |
| | | ST4 | | 0 | |
| | | ST5 | | 0 | |
| | | ST6 | | 0 | |
| 2 | Delta | GT16 | 40 | 0 | 0 |
| | | GT17 | 40 | 0 | |
| 3 | Olorunsogo NIPP | GT1 | 40 | 0 | 0 |
| | | GT2 | | 0 | |
| | | GT3 | | 0 | |
| | | GT4 | | 0 | |
| 4 | Geregu NIPP | GT22 | 35 | 0 | 0 |
| | | GT1 | | 0 | |
| 5 | Omotosho NIPP | GT2 | 40 | 0 | 0 |
| | | GT3 | | 0 | |
| | | GT4 | | 0 | |
| TOTAL (MW) | | | 295 | 0 | 0 |

4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Wednesday 08/08/2018 as at 0600Hrs was = 3828.5MW.

| S/NO | STATION | ACTUAL GENERATION CAPABILITY (MW) | GENERATION AT 0600HRS (MW) | UNAVAILABLE GENERATION CAPABILITY (MW) | SUB-TOTAL |
|--|--------------------------|-----------------------------------|----------------------------|--|---------------|
| 4.1 DUE TO GAS CONSTRAINTS: | | | | | |
| 1 | Alaoji NIPP GT1 & 4 | 240 | 0 | 240 | 2503 |
| 2 | Omotosho NIPP GT1 | 120 | 0 | 120 | |
| 3 | Geregu NIPP GT22 & 23 | 290 | 0 | 290 | |
| 4 | Omotosho Gas GT2 - 5 | 152 | 0 | 152 | |
| 5 | Olorunsogo NIPP GT2 & 3 | 240 | 0 | 240 | |
| 6 | Odukpani NIPP GT4 & 5 | 230 | 0 | 230 | |
| 7 | Olorunsogo Gas GT3 & 7 | 76 | 0 | 76 | |
| 8 | Afame VI GT12, 13 & ST10 | 500 | 0 | 500 | |
| 9 | Geregu Gas GT11 - 13 | 435 | 0 | 435 | |
| 10 | Trans -Amadi GT1, 2 & 4 | 60 | 0 | 60 | |
| 11 | Rivers NIPP GT1 | 160 | 0 | 160 | |
| | | | | 0 | |
| | | | | 0 | |
| IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1852.69MMSCF OF GAS (EQUIVALENT TO 6947.6MW WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR. | | | | | |
| 4.2 DUE TO LINE CONSTRAINTS | | | | | |
| | | | | 0 | 0 |
| | | | | 0 | |
| | | | | 0 | |
| 4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND | | | | | |
| 1 | Jebba 2G2 | 85 | 0 | 85 | 1325.5 |
| 2 | Azura Edo GT11 & 12 | 307 | 150 | 157 | |
| 3 | Shiroro 411G1 - 3 | 450 | 118 | 332 | |
| 4 | Sapele NIPP GT4 | 112.5 | 0 | 112.5 | |
| 5 | Delta GT16 & 19 | 180 | 0 | 180 | |
| 6 | Olorunsogo gas GT1 & 6 | 76 | 0 | 76 | |
| 7 | Okpai GT11,12 & ST18 | 427 | 100 | 327 | |
| 8 | Egbin ST2, 4 & 5 | 575 | 519 | 56 | |
| | | | | 0 | |
| | | | | 0 | |
| | | | | 0 | |
| | | | | 0 | |
| | | | | 0 | |
| | | | | 0 | |
| | | | | 0 | |
| 4.1 DUE TO WATER MANAGEMENT: | | | | | |
| | | | | | |
| | | | | | |
| Grand Total | | | | | 3828.5 |

5.0 OUTAGES:

5(A) FORCED OUTAGES (GENERATION):-

- 00:57 - 15:33Hrs, Olorunsogo Gas GT5 tripped due to system surge. LHR = 36.3MW.
- 06:01 through 24:00Hrs, Azura –Edo GT13 tripped on small load rejection. LHR = 75MW.
- 06:47 - 14:21Hrs, Delta GT15 tripped on low gas fuel temperature. LHR = 108MW.
- 14:18 - 19:50Hrs, Afam VI GT11 tripped due to low gas pressure. LHR = 130MW.
- 14:18 - 20:51Hrs, Afam VI GT13 tripped due to low gas pressure. LHR = 130MW.

5(B) FORCED OUTAGES (TRANSMISSION):-

- 00:57 - 21:17Hrs, Olorunsogo/Ikeja West 330kV line (cct R1W) CB tripped at Olorunsogo T/S on NARI Relay – PLK PCBKR off. No load loss as ccts H1W, R2A & H2A were in service. (LHR = 2MW).
- 03:51 – 03:54Hrs, Akangba/Ojo 132kV line 2 CB tripped at Akangba T/S on distance protection A, B & C. LHR = 40MW.
- 09:35 – 10:12Hrs, Ajaokuta/Lokoja 330kV line 1 (cct J1L) CB tripped at Ajaokuta T/S on O/C Yellow & Blue Phases zone 3. No load loss as cct J2L was in service. (LHR = 255MW).
- 09:53 – 10:34Hrs, Lokoja/Gwagwalada 330kV line 2 (cct L7G) CBs tripped at both ends on the following relay indications:-
At Lokoja T/S: O/C Yellow & Blue Phases.
At Gwagwalada T/S: Distance protection and ABC trip. No load loss as cct L6G was in service. (LHR = 191MW).
- 11:01 – 11:55Hrs, Benin/Asaba 330kV line CB tripped at Benin T/S on Siprotec Relay: E/F forward L3, E/F pickup 310 trip, distance pickup L3E, distance loop L3E, fault loop L3E, distance = 45.9km. Auxiliary Relay: TPA 2331 flag. LHR = 38MW.
- 11:05 – 12:15Hrs, Asaba/Onitsha 330kV line (cct D3T) CB tripped at Onitsha T/S on Siprotec Relay – Pickup period = 4278ms, location = 22.2km. No load loss as the line was on soak
- 13:22 – 14:02Hrs, Odukpiani/Ikot-Ekpene 330kv line 1 (cct D1K) CB tripped at Ikot -Ekpene T/S on SEL relay – zone 1, E/F Phase C –N, location = 48.87km. LHR = 27MW.
- 15:16 – 18:11Hrs, Kumbotso/Dakata 132kV line CB tripped at Kumbotso T/S on O/C 3-Phases. LHR = 68MW.
- 19:44 through 24:00Hrs, Itu/Uyo 132kV line CB tripped at Itu T/S on instantaneous E/F. LHR = 32MW.
- 13:20 through 24:00Hrs, Alaaji NIPP/Alaaji T/S 330kV line 2 (cct L8A) CB tripped at Alaaji NIPP on line differential protection fault types C & G. No load loss as cct L7A was in service.
- 22:47 – 22:59Hrs, Alaaji/Afam 132kV line 2 CB tripped at Alaaji T/S on Micom relay: 1 > L2, L1 > L1 2 & 3. LHR = 40MW.

5(C) PLANNED OUTAGES:-

- 14:07- 17:46Hrs, Kainji P/S 1G5 was shut down to check faulty fire fighting alarm. Load loss = 84MW.

5(D) URGENT OUTAGES:-

- 15:09 - 17:35Hrs, Sapele/Benin 330kV line 2 (cct S4B) was taken out to replace burnt Yellow Phase terminal clamp at Benin T/S. No load loss as ccts S3B & S4G were in service.
- 16:57 through 24:00Hrs, Egbin ST1 was shut down due to oil leakage on the unit transformer. Load loss = 112MW.
- 20:05 through 24:00Hrs, Afam IV GT18 was shut down due to loss of excitation. Load loss = 62MW.

9 GENERATOR MERIT ORDER BASED ON SYSTEM RESPONSE AND GRID RELIABILITY

GROUP 1 - HYDRO UNITS (LEAST COST) ON FREE GOVERNOR CONTROL AND ANCILLARY SERVICE .

5 (E) EMERGENCY OUTAGES:-

The under mentioned line was opened on frequency control.

- 21:30 – 21:53Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line . Load loss = 60MW. Frequency was 49.92Hz.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:- NIL

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A1K, U1A, K4U & A1S.

5 (H) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- NIL.

5 (I) 330KV LINES THAT ARE OUT ON PLANNED OUTAGE:- cct B1T

5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- ccts L8A, J2H & S5B.

5 (K) 330KV LINES THAT ARE ON SOAK:- ccts N4J & F1K.

6 WEATHER REPORT:- Rainfall was reported at Akangba & Osogbo.

7 INTERNATIONAL LINES:-

A IKEJA WEST/SAKETE 330KV LINE(TCN+PARAS)

Maximum load - 256MW at 20:00Hrs.

Minimum load - 199MW at 14:00Hrs.

B BIRNIN KEBBI/NAMEY 132KV LINE

Maximum load - 102MW at 16:00Hrs.

Minimum load - 63MW at 07:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 35.0MW at 21:00Hrs.

Minimum load - 22.0MW at 04:00Hrs.

8 MISCELLANEOUS:-

- 00:34 – 07:16Hrs, Okpai/Onitsha 330kV lines 1 & 2 (ccts K1T & K2T) were opened to take out Okpai P/S out of the grid due to non compliance with NCC instruction on frequency management. Load loss = 254MW.
- 00:52 - 19:59Hrs, Jebba 2G4 was shut down on frequency management. Load loss = 70MW.
- 02:25Hrs, Olorunsogo NIPP GT2 was shut down on frequency management. Load loss = 80.2MW.
- 02:43 – 08:11Hrs, Afam VI GT13 was shut down on frequency management. Load loss = 110MW.
- 05:33Hrs, Jebba 2G2 was tied. The unit was out on frequency management.
- 06:34Hrs, Azura –Edo GT11 was tied. The unit was out on frequency management.
- 08:50 - 12:39Hrs, Jebba 2G2 was shut down on frequency management. Load loss = 71MW.
- 15:16Hrs, Olorunsogo NIPP GT3 was tied. The unit was out due to gas constraint.
- 15:18Hrs, Omotosho NIPP GT4 was tied. The unit was out on frequency management.
- 15:18Hrs, Olorunsogo Gas GT4 was tied. The unit was out due to gas constraint.

GROUP 2A - UNITS FROM ODUKPANI, AZURA, SHELL AFAM VI AGIP OKPAI, OLORUNSOGO POWER PLC AND OMOTOSHO POWER PLC.

GROUP 2B - OTHER GENERATING UNITS IDENTIFIED TO BE ON FREE GOVERNOR CONTROL.

GROUP 3 - OTHER UNITS IDENTIFIED TO BE OFFERING REGULATORY RESERVE.

GROUP 4 - OTHER UNITS OFFERING SPINNING RESERVE (THE POWER PLANTS CONTRACTED FOR THE ANCILLARY SERVICE).

GROUP 5 - ALL PLANTS DISPATCHED SUBJECT TO TRANSMISSION CONSTRAINT (NOT YET IDENTIFIED).

GROUP 6 - ALL PLANTS PROVIDING VOLTAGE SUPPORT ABOVE STATUTORY LIMIT (NOT YET IDENTIFIED).

10 COMMUNICATION MEDIA

| STATIONS | NO INSTALLED | NO. WORKING |
|-------------|--------------|-------------|
| PLC/PAX | 37 | 33 |
| OPTIC FIBRE | 13 | 10 |
| PLS | 14 | 3 |

11 SCADA RTU STATUS

| STATIONS | NO. INSTALLED | NO OF RTU DISTURBED | NO OF RTU WORKING |
|----------------|---------------|---------------------|-------------------|
| POWER STATIONS | 8 | 6 | 2 |
| 330kV | 19 | 12 | 7 |
| 132kV | 102 | 82 | 20 |

12(A) UNAVAILABLE TRANSFORMERS/REACTORS:

SHIRORO REGION:

- 1 Birnin Kebbi 75MX Reactor R1.

ABUJA REGION

- 1 Apo T/S 60MVA 132/33kV transformer TR3 - Burnt.

KADUNA REGION:

- 1 Kumbotso 150MVA 330/132/33kV transformer T1A - Burnt control cables.

BAUCHI REGION:

- 1 Gombe T/S -30MX Reactor R2A.

ENUGU REGION:

- 1 Onitsha T/S 90MVA 330/132/13.8kV transformer 9T2 - Out due to differential fault.

LAGOS REGION:

- 1 Oke-Aro T/S: 75MX Reactor R1.

PORT HARCOURT REGION

- 1 Ikot-Ekpene T/S: No available reactor.

12 (B) UNAVAILABLE BREAKERS/ISOLATORS

LAGOS REGION:

- 1 Akangba T/S. 132kV Bus Coupler CB - Serious Air leakage.(Undergoing repair)
- 2 Egbin/Aja 330kV line 2 (cct N4J) - faulty breaker at Aja T/S
- 3 Otta/Ogba 132kV line isolator - defective control shaft.
- 4 Osogbo/Ikeja West and Olorunsogo/Ikeja West tie CB at Ikeja West T/S - defective pole .
- 5 Oke-Aro/Ikeja West 330kV lines 1 & 2 tie CB at Ikeja West T/S - Defective pole.
- 6 Jebba G.S/Jebba T.S 330kV line 2 CB at Jebba T/S.
- 7 Omotosho/Ikeja West 330kV line CB at Ikeja West T/S.

BENIN REGION:

- 1 Omotosho T/S 330kV, 2nd series 330kV CB #3322 out due to control circuit problem.

ENUGU REGION:

- 1 New Haven/Yandev 132kV line CB - Faulty Red phase CB pole. Protection is transferred to the bus coupler CB.
- 2 Abakaliki T/S 30MVA 132/33kV transformer T1A and 60MVA 132/33kV transformer T2 primary CBs - Breakers were not provided since commissioning but the transformers are protected by Nkalagu 132kV line CB.

- 11 16:02Hrs, Ihovbor NIPP GT1 was tied. The unit was out on frequency management.
- 12 16:04Hrs, Jebba 2G2 was shut down on frequency management. Load loss = 73MW.
- 13 17:30Hrs, Sapele NIPP GT1 was tied. The unit was out on frequency management.
- 14 17:45Hrs, Okpai GT12 was tied. The unit was out on frequency management.
- 15 19:28Hrs, Shiroro P/S increased generation to maximum on the 3 units. Frequency was 50.19Hz.
- 16 21:48Hrs, Olorunsogo GT3 was tied. The unit was out due to gas constraint.
- 17 23:35Hrs, Delta GT16 was shut down on frequency management. Load loss = 73MW.
- **** LACK OF REACTOR AND UNRELIABLE STATION SERVICE SUPPLY AT IKOT-EKPENE T/S ARE HINDERING SMOOTH OPERATION.
- **** THE SCADA COVERAGE OF ONLY LIMITED AREAS IS NOT GOOD FOR THE SMOOTH OPERATION OF THE GRID.

12(D) UNAVAILABLE CAPACITOR BANK:

- 1 (i) Ogba T.S, (ii) Maiduguri T/S, (iii) Isolo T/S, (iv) Ado-Ekiti T/S, (v) Ilorin T/S, (vi) Akure T/S.

12(E) UNAVAILABLE SKYWIRES

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21 spans.
- 2 Ikeja West/Olorunsogo line (cct R1W) - 80 spans.
- 3 330kV Ikeja West/Osogbo line. - 95 spans.
- 4 Ikeja West/Alimosho/Ogba 132kV lines 1 & 2 - 15 spans.
- 5 Ikeja West/Akangba 330kV line 2 - 1 span.
- 6 Ikeja West/ Ilupeju 132kV lines 1 & 2 - 8 spans.
- 7 Akangba/Itire 132kV lines 1 & 2 - 1 span.
- 8 Ikeja West/Agbara 132kV lines 1 & 2 - 61 spans.
- 9 Ikeja West/Otta 132kV lines 1 & 2- 17 spans.

SHIRORO REGION

- 1 Jebba T/S 330kV Osogbo lines 1 & 2 and Ganmo line - 9 spans
- 2 Minna T/S 132kV Bida line - 32 spans
- 3 Shiroro T/S 330kV Jebba line 2 - 28 spans

ABUJA REGION

- 1 Apo T/S 132kV Keffi line - 36 spans

12 (F) UNAVAILABLE SYNCHROSCOPES :

- 1 Benin, Ikeja West, Onitsha, Egbin, Ugwujaji, Jos, Gwagwalada & Alaaji T/S.

FOR MORE INFORMATION: NCC Telephone Lines -

- a PAX 09/300, 309, 303 & 305.
- b NCC GSM - 08074888524, 08069379367, 08023572651 & 08051401331. CUG Nos. 08129458488, 08129458489, 08129929806; 08036665323.
- c PLS - 622
- d GM (NCC) - 08036744641.

- 3 Oji River T/S 30MVA 132/33kV transformer T1A primary CB - The breaker is completely out of service and bypassed. The transformer is either protected by Onitsha/Oji 132kV line CB or New Haven/Oji 132kV line CB.
- 4 Oturkpo/Yandev 132kV By pass isolator - Canibalized to repair the line isolator.

e AGM (S/O) - 08056002757. CUG: 08129458475

SHIRORO REGION

- 1 Jebba T/S 75MX reactor 2R2 CB - exploded.

PORT HARCOURT REGION

- 1 New Haven/Nkalagu 132kV line 2 ground switch - Canibalized Red phase female contact and canibalized Yellow phase male contact.

