

# TRANSMISSION COMPANY OF NIGERIA

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

## DAILY OPERATIONAL REPORT OF TUESDAY 24/04/2018

### FOR: EVENTS OF MONDAY 23/04/2018

#### 1.0 EXECUTIVE OPERATIONS SUMMARY:

##### 1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	23,030		23/04/2018
GENERATION CAPABILITY	7789.9	22:00	-do-
UNITS ON BAR CAPABILITY AT PEAK	5464.9	-do-	-do-
PEAK GENERATION	4659.7	-do-	-do-
LOWEST GENERATION	3929.2	15:00	23/04/2018
8-HOURLY DURATION PEAK	4362	0100-0800	-do-
	4162.7	0900-1600	-do-
	4659.7	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	356	Omotosho T/S	01:00
LOWEST VOLTAGE FOR THE DAY	275	Makurdi T/S	20:00

##### 1.3 FREQUENCY RANGE

	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	50.57	07:06
LOWEST FREQUENCY	49.94	18:56

##### 1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018										No. of days since last total collapse: 74			
Date of last partial collapse: 12 <sup>th</sup> April., 2018										No. of days since last partial collapse: 10			
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	1	1	1	1	3	3	4	2	3	2	1	4	22
Partial	1	1	1	1	1	3	4	4	3	2	1	1	20
2011	1	1	1	1	4	3	1	1	1	2	1	1	13
Partial	1	1	1	1	1	1	1	1	1	1	2	1	6
2012	1	2	1	5	2	1	1	1	1	2	2	1	16
Partial	1	2	3	1	1	1	1	1	1	1	1	1	8
2013	1	2	2	3	4	1	1	1	1	1	4	2	22
Partial	1	2	2	3	4	1	1	1	1	1	4	2	2
2014	2	1	0	2	3	1	0	0	0	1	0	0	9
Partial	2	1	0	1	0	0	0	0	0	0	2	1	4
2015	1	0	1	0	2	0	1	0	0	0	1	0	6
Partial	1	0	1	0	2	0	0	0	0	1	0	0	4
2016	1	2	3	6	5	0	0	0	0	1	2	2	22
Partial	1	2	3	6	5	0	0	0	0	0	0	0	6
2017	5	3	0	3	1	1	0	0	1	1	1	1	15
Partial	1	0	1	0	0	0	1	0	3	3	1	1	9
2018	5	1	0	1	1	1	1	1	1	1	1	1	6
Partial	0	0	0	1	1	1	1	1	1	1	1	1	6

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)
1 KAINJI	HYDRO	333	232
2 JEBBA	HYDRO	255	175
3 SHIRORO	HYDRO	422	200
4 EGBIN ST2 - 5	STEAM	358	352
5 SAPELE	STEAM	45	44
6 DELTA	GAS	459	300
7 AFAM IV-V	GAS	62	61
8 GEREGU GAS	GAS	335	313
9 OMOTOSHO GAS	GAS	151.7	151.5
10 OLORUNSOGO GAS	GAS	131.6	130.3
11 GEREGU NIPP	GAS	127	125
12 SAPELE NIPP	GAS	90.9	81.6
13 ALAOJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	109.4	105.6
15 OMOTOSHO NIPP	GAS	78.2	80.9
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	96.3	80.1
18 OKPAI	GAS	295	357
19 AFAM VI	GAS	417	522
20 IBOM POWER	GAS	75.2	72.2
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	78.4	0.4
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	90	0
26 AZURA - EDO IPP	(GAS)	474	295
27 EGBIN ST6	(GAS)	142	103
28 PARAS ENERGY	(GAS)	33	67.8
29 GBARAIN NIPP	GAS	0	79.8
TOTAL		4659.7	3929.2

##### 1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	6562.00	273.42	6547.10	272.80
2 JEBBA	HYDRO	4850.00	202.08	4823.36	200.97
3 SHIRORO	HYDRO	6186.00	257.75	6157.70	256.57
4 EGBIN ST2 - 5	STEAM	8268.00	344.50	7858.20	327.43
5 SAPELE	STEAM	898.90	37.45	871.90	36.33
6 DELTA	GAS	10968.55	457.02	10847.30	451.57
7 AFAM IV-V	GAS	1459.00	60.78	1454.80	60.61
8 GEREGU GAS	GAS	7145.70	297.74	7115.95	296.50
9 OMOTOSHO GAS	GAS	3564.00	148.50	3531.90	147.16
10 OLORUNSOGO GAS	GAS	3215.60	133.98	3186.59	132.77
11 GEREGU NIPP	GAS	2978.25	124.09	2963.64	123.49
12 SAPELE NIPP	GAS	3211.81	133.83	3188.47	132.85
13 ALAOJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	2794.90	116.45	2758.90	114.95
15 OMOTOSHO NIPP	GAS	2026.50	84.44	2006.10	83.59
16 ODUKPANI NIPP	GAS	0.00	0.00	0.00	0.00
17 IHOVBOR NIPP	GAS	2267.50	94.48	2251.77	93.82
18 OKPAI	GAS	7412.00	308.83	7249.50	302.06
19 AFAM VI	GAS	11159.26	464.97	10898.35	454.10
20 IBOM	GAS	1810.14	75.42	1801.00	75.04
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	4813.15	192.21	4599.80	191.66
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1577.20	65.72	1539.83	64.16
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	1220.60	50.86	1214.93	50.62
27 EGBIN ST6	STEAM	3085.00	128.54	2911.00	121.29
28 PARAS ENERGY	GAS	1471.90	61.33	1465.30	61.06
29 GBARAIN NIPP	GAS	1753.88	73.08	1739.78	72.49
TOTAL		100,499.84	4,187.49	98,983.17	4,124.30

1.7A **GENERATION POSITION AT 06:00HRS OF TUESDAY 24/04/2018**

	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)	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12	440	440	1G5, 6, 11 & 12	440	275	1G5, 6 & 12 - On frequency response. 1G7 - Out on stator winding failure. 1G8 - Out due to loss of supply to the auxiliary. 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. 1G11 - Generation reduced due to low head water elevation.
			4			4			
	JEBBA HYDRO	6	2G1 - 5	475	475	2G1, 3 & 5	285	233	2G2 & 4 - Out on water management. 2G6 - Out due to burnt generator winding and AVR.
			5			3			
	SHIRORO HYDRO	4	411G2 - 4	450	450	411G2, 3 & 4	450	249	411G2 & 3 - Generation reduced on frequency management.
			3			3			
	EGBIN STEAM	5	ST1, 2 & 4	660	660	ST1 & 2	310	310	ST3 - Tripped on high vibration since 19th June 2017. ST4 - Out on frequency management. ST5 - Out on fault.
			3			2			
	SAPELE (STEAM)	6	ST2	120	45	ST2	45	45	ST1 - Tripped on low drum level. ST3 - Out on stator winding problem. ST4 & 5 - Awaiting major overhaul. ST6 - Tripped on gas control valve not following reference point.
			1			1			
	DELTA (GAS)	18	GT4, 7, 9 - 13, 15, 16 & 18 - 20	655	655	GT4, 7, 9 - 13, 15, 16, 18 & 20	535	480	GT3 & 5 - Out due to generator winding fault. GT6 & 14 - Out on major overhaul. GT17 - Out on excitation trouble. GT19 - Out on frequency management.
			12			11			
NIPP	AFAM IV & V (GAS)	8	GT18	75	63	GT18	63	63	GT1 - 12 - De-commissioned and scrapped. GT13 -16 - Out on blade failure. GT17 - Tripped on loss of excitation. GT19 & 20 - Awaiting major overhaul.
			1			1			
	GEREGU GAS	3	GT11 - 13	435	435	GT11 - 13	435	197	GT11 - 13 - Generation reduced on frequency management.
			3			3			
	OMOTOSHO GAS	8	GT1 - 8	336	304	GT1, 2, 4, 6 & 7	190	127.2	GT3, 5 & 8 - Out due to gas constraint. Generation reduced on frequency management.
			8			5			
	OLORUNSOGO GAS	8	GT1 - 8	336	304	GT2, 4, 5, 6 & 8	190	137.7	GT1, 3 & 7 - Out due to gas constraint. Generation reduced on frequency management.
			8			5			
	GEREGU NIPP	3	GT23	145	145	GT23	145	87	GT21 - Out on maintenance. GT22 - Out due to instrumentation problem. GT23 - Generation reduced on frequency management.
			1			1			
	SAPELE NIPP	4	GT1 & 4	225	225	GT1 & 4	225	152.1	GT3 - Out on frequency management. . GT1 & 4 - On frequency response.
			2			2			
	ALAOJI NIPP GAS	4	GT1, 2 & 4	375	360	0	0	0	GT1, 2 & 4 - Tripped due to low gas pressure. GT3 - Shut down due to generator air inlet filter trouble.
			3			0			
	OLORUNSOGO NIPP	6	GT1 - 3	375	360	GT1 & 2	240	152.4	GT1 & 2 - On frequency response. GT3 - Out on gas constraint. GT4 - Out due to ignition failure and control relay failure alarm. ST13 & ST23 - Out on maintenance.
			3			2			
	OMOTOSHO NIPP GAS	4	GT1, 2 & 4	375	360	GT2	120	75.1	GT1 & 4 - Out due to gas constraint. GT2 - On frequency response. GT3 - Shut down due to oil leakage on the unit.
			3			1			
	ODUKPANI NIPP	5	GT4 & 5	240	230	0	0	0	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Tripped on high air inlet differential pressure. GT4 & 5- Shut down due to work on gas pipe line equipment.
			2			0			
	IHOVBOR NIPP	4	GT2	112.5	110	GT2	110	95.8	GT1, 3 & 4 - Out on maintenance.
			1			1			
	GBARAIN NIPP GAS	1	GT2	112.5	112.5	0	0	0	GT2 - Out due to line constraint.
			1			0			
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18	375	375	GT11, 12 & ST18	375	210	GT11 - Generation reduced on frequency management. GT12 - On frequency response.
			3			3			
	AZURA - EDO	3	GT11 - 13	480	480	GT11 - 13	480	480	Available units on bar.
			3			3			
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10	640	640	GT11 - 12 & ST10	490	425	GT13 - Out on frequency management.
			4			3			
	IBOM POWER GAS	3	GT3	115	115	GT3	115	77.8	GT1 & 2 - Out on fault. GT3 - Generation reduced on line constraint.
			1			1			
	AES	0	0	0	0	0	0	0	Out of production since 27/09/2014.
			0			0			
	ASCO	1	0	0	0	0	0	0	GT1 - Shut down due to leakage in the furnace.
			0			0			
	OMOKU GAS	6	GT1, 2, 5 & 6	100	80	GT1, 2, 5 & 6	80	70.2	GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul.
			4			4			
	TRANS-AMADI	4	GT1 & 2	50	40	0	0	0	GT1 & 2 - Out due to line constraint. GT3 - Out on fault. GT4 - Tripped on generator differential lockout.
			2			0			
	RIVERS	1	GT1	180	160	GT1	160	50	Generation reduced on frequency management.
			1			1			
	<b>SUB TOTAL</b>	<b>130</b>	<b>82</b>	<b>7882</b>	<b>7623.5</b>	<b>60</b>	<b>5483</b>	<b>3992.3</b>	Frequency = 50.52Hz.

1.7B GENERATION POSITION AT 06:00HRS OF TUESDAY 24/04/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	ST6	220	140	ST6	140	140	Available unit on bar.
		1			1			
PARAS ENERGY	8	GT2 - 9	68.6	68.6	GT2 - 9	68.6	68.6	Available units on bar.
		8			8			
SUB TOTAL	9	9	288.6	208.6	9	208.6	208.6	
GRAND TOTAL	139	91	8170.6	7832.1	69	5,691.60	4,200.90	Frequency = 50.52Hz.

1.7C

BILATERAL AGREEMENT UNITS DISPATCH - MONDAY 23/04/2018					
FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)			REMARK
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	1	0700HRS	24	NIL
	PTCEXPRESS	12	1000HRS	24	NIL
	SANKYO	ON	0100HRS	24	NIL
	FEEDER 8	14	1100HRS	24	NIL
IKORODU	PULK IT	3	200	24	NIL
	INDUSTRIAL	25	2200	24	NIL
	SPINTEX	12	1300	24	NIL
	DANGOTE	3	1200	24	NIL
	LAND CRAFT	17	2200	24	NIL
ALAUISA	TR4 15MVA	8.7	10:00	23	WORK PRMIT ON T3-60MVA PRY. CT
	TR5 -15MVA	5.5	12:00	23	WORK PRMIT ON T3-60MVA PRY. CT
	ALAUISA	14.7	8:00	23	WORK PRMIT ON T3-60MVA PRY. CT
	PTC (MARYLAND)	18	9:00	24	NIL
MILAND	TOTAL LOAD	133.9			

BILATERAL AGREEMENT LOAD DISPATCH 60MW PARAS ENERGY GENERATION TO CEB				
FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	69.4	01:00	22	Out due to maintenance work on Ikorodu/Shagamu 132kV line CB.

### 1.8 HYDROLOGICAL DATA: TUESDAY 24/04/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	135.29	100.11	368.48
TAIL WATER ELEVATION (METERS)	102.42	73.6	270.20
GROSS OPERATING HEAD (METERS)	<b>32.87</b>	<b>26.51</b>	<b>98.28</b>
AVERAGE TURBINE DISCHARGE (M3/SEC)	925.00	853.00	305.00
AVERAGE SPILLAGE (M3/SEC)	30.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	<b>955</b>	<b>853</b>	<b>305</b>
COMPUTED INFLOW (M3/SEC)	0.00	969.00	10.00
STORAGE DIFFERENTIAL	<b>-955.00</b>	<b>116</b>	<b>-295</b>
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	382.5
MINIMUM LEVEL BELOW WHICH NO GENERATION	130	99	355

### 1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT MONDAY 23/04/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	541.00	23:00	619.82	369	09:00
EKO	479.60	24:00	645.05	375.4	15:00
IKEJA	620.7	21:00	743.25	469	13:00

### 2.0 GAS POSITION: TUESDAY 24/04/2018

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	354	1100		450	650
DELTA (GAS)	490	915		535	380
OMOTOSHO GAS	152.1	336.8		190	146.8
OMOTOSHO NIPP	101.2	500		120	380
OLORUNSOGO (GAS)	130.3	336		190	146
OLORUNSOGO NIPP	111.3	750		120	630
SAPELE NIPP	185.8	500		225	275
SAPELE STEAM	45	720		45	675
AFAM IV-V	62	300		63	237
AFAM VI	549	650		490	160
GEREGU GAS	318	435		435	0
GEREGU NIPP	136	435		145	290
OKPAI (GAS/STEAM)	222	480		375	105
ALAOJI NIPP	0	504		0	504
IHOVBOR NIPP	85.5	450		110	340
IBOM	83.2	198		115	83
ODUKPANI NIPP	0	625		0	625
<b>TOTAL</b>	<b>3025.4</b>	<b>9235.68</b>		<b>3608</b>	<b>5626.8</b>

1 MMSCF IS EQUIVALENT TO 3.75MW

### 3.0 SPINNING RESERVE FOR : MONDAY 23/04/2018

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

### 3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF TUESDAY 24/04/2018 = 0MW. FREQUENCY Hz.

S/N	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
5	Omotosho NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
TOTAL (MW)			295	0	0

### 4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Tuesday 24/04/2018 as at 0600Hrs was = 2414.8MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Omotosho NIPP GT1 & 4	240	0	240	1178
2	Alaoji NIPP GT1, 2 & 4	360	0	360	
3	Olorunsogo Gas GT1, 3 & 7	114	0	114	
4	Olorunsogo NIPP GT3	120	0	120	
5	Omotosho gas GT3, 5 & 8	114	0	114	
6	Odukupi NIPP GT4 & 5	230	0	230	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1403.41MSCF OF GAS (EQUIVALENT TO 5262.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Trans-Amadi GT1 & 2	40	0	40	189.7
2	Ibom GT3	115	77.8	37.2	
3	Gbarain GT2	112.5	0	112.5	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Okpai GT11	150	50	100	857.1
2	Shiroro 411G2 & 3	300	106	194	
3	Delta GT19	100	0	100	
4	Omotosho Gas GT1, 2, 4, 6 & 7	190	127.2	62.8	
5	Geregu Gas GT11 - 13	435	197	238	
6	Rivers GT1	160	50	110	
7	Olorunsogo Gas GT2, 4, 5, 6 & 8	190	137.7	52.3	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
1	Jebba G3 & 4	190	0	190	190
Grand Total					2414.8

## 5.0 OUTAGES:-

### 5 (A) FORCED OUTAGES (GENERATION):-

- 18:50 – 21:41Hrs, Egbin ST1 tripped on loss of 6.6kV board. LHR = 170MW.
- 21:18 – 22:47Hrs, Olorunsogo NIPP GT2 tripped on hazardous gas failure. LHR = 70MW.
- 21:25 through 24:00Hrs, Gbarin P/S GT2 tripped on reverse power due to tripping of Alaoji/Owerri 132kV lines 1 & 2. LHR = 98.6MW.

### 5 (B) FORCED OUTAGES (TRANSMISSION):-

- 06:58 – 07:25Hrs, Alaoji/Afam 132kV line 2 CB tripped at Alaoji T/S on I>L2, PI<L1, L2. LHR = 56MW
- 15:47 – 16:01Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line CB tripped at Ayede T/S on Siemens relay – O/C Red Phase. LHR = 60MW.
- 21:25 – 22:24Hrs, Alaoji/Owerri 132kV lines 1 & 2 tripped at Alaoji T/S on the following relay indications:  
On line 1: Optimho relay –zone 1, CN 67.7km.  
Siemens relay – Instantaneous trip IE >> LHR = 20MW.  
On line 2: Siemens relay – Instantaneous trip IE >>. LHR = 20MW.
- 21:13 – 21:53Hrs, Nkalagu/Abakaliki 132kV line 1 CB tripped at Nkalagu T/S on instantaneous E/F. LHR = 14.2MW.
- 21:13 – 22:20Hrs, New Haven/Nkalagu 132kV line 1 CB tripped at New Haven T/S on instantaneous O/C Blue Phase and E/F. LHR = 0.01MW.
- 21:47 – 22:33Hrs, New Haven/Otukpo/Nsukka 132kV line CB tripped at New Haven T/S on instantaneous O/C 3-Phases and instantaneous E/F. LHR = 0.01MW.
- 22:34 – 22:45Hrs, Ikorodu/Maryland 132kV line 1 CB tripped at Ikorodu T/S on O/C Phase C –N, distance = 38km. LHR = 17MW.
- 23:05 through 24:00Hrs, Alaoji/Afam 132kV line 2 tripped at Alaoji T/S on O/C I > and ti >. LHR = 42MW.

### 5 (C) PLANNED OUTAGES:-

- 08:15 - 19:41Hrs, Kainji P/S 1G12 was taken out for planned monthly preventive maintenance on the unit. Load loss = 60MW
- 08:20 - 20:19Hrs, Ugwuaji/Makurdi 330kV line 2 (cct U2A) was taken out for safe working space to enable contractor continue with the stringing of conductors on cct U1A. No load loss as ccts A2S and M2S were in service.
- 11:02 – 18:17Hrs, Akangba/Iltre 132kV line 2 was taken out at Akangba T/S for MBH contractor to re-wire the bus bar current sensing unit of the line and also carry out primary injection test for the commissioning of the bus bar. No load loss as line 1 was in service.
- 19:03 – 21:34Hrs, Ikorodu/Shagamu 132kV line CB was taken out to enable maintenance crew connect Odogunyan T/S to the line. LHR = 0.1MW.

### 5(D) URGENT OUTAGES:-

- 06:26 through 24:00Hrs, Delta P/S GT19 was taken out to enable maintenance crew replace the hydrogen control panel. Load loss = 67MW
- 08:05 – 15:24Hrs, Ayede T/S 100MVA 132/33kV transformer T1 primary CB was taken out to replace burnt Yellow Phase jumper. Load loss = 27MW.
- 13:05 – 13:35Hrs, Ajaokuta T/S 132/33kV transformer T1 primary CB was taken out to build up low SF6 gas pressure on its Blue pole to normal level. Load loss = 0.1MW.
- 19:01Hrs, Paras Energy GTs 2- 9 were de-loaded and opened by control due to outage on Ikorodu/Shagamu 132kV line. Total Load loss = 68.6MW.  
21:46Hrs - GT2 was tied, 21:48Hrs - GT3 was tied, 21:50Hrs - GT4 was tied, 21:52Hrs - GT5 was tied, 21:54Hrs - GT6 was tied,  
21:56Hrs - GT7 was tied, 21:58Hrs - GT8 was tied & 22:01Hrs - GT9 was tied.
- 23:05 through 24:00Hrs, Omoku P/S GTs 1, 2, 5 & 6 went on Island operation feeding Port Harcourt due to tripping of Alaoji/Afam 132kV line 2. Load reduced from 78.3MW – 62.6MW.
- 23:05 through 24:00Hrs, Rivers IPP went on house load due to tripping of Alaoji/Afam 132kV line 2. LHR = 80MW.

## 9 GENERATOR MERIT ORDER BASED ON SYSTEM RESPONSE AND GRID RELIABILITY

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

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.

## 5 (E) EMERGENCY OUTAGES:- Nil

## 5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:- NIL

## 5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A2K & A1S.

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

## 5 (I) 330KV LINES THAT ARE OUT ON PLANNED OUTAGE:- NIL

## 5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- ccts U1A, J2H, K3U & S5B.

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

## 6 WEATHER REPORT:- Rainfall was reported in New Haven.

## 7 INTERNATIONAL LINES:-

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

Maximum load - 262MW at 20:00Hrs.

Minimum load - 172MW at 07:00Hrs.

### B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 101MW at 16:00Hrs.

Minimum load - 84MW at 06:00Hrs.

### C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 42.0MW at 22:00Hrs.

Minimum load - 30.0MW at 06:00Hrs.

## 8 MISCELLANEOUS:-

- 00:03 - 15:42Hrs, Jebba P/S 2G3 was shut down on frequency management. Load loss = 82MW
- 01:04Hrs, Kainji P/S reduced generation by 50MW on frequency management.
- 01:12Hrs, Delta P/S reduced generation by 100MW on frequency management.
- 08:04Hrs, Shiroro P/S placed Hold Off Tag (OF 12) on cct J7R for the continuation of optic fibre cable upgrade along the line.
- 08:20Hrs, Egbin P/S reduced generation by 50MW on frequency management.
- 08:40Hrs, Azura-Edo/IPP GT11 was tied on reliability test.
- 09:12Hrs, Benin T/S placed Hold Off Tag (OFs 12) on ccts B5M and B6N for the continuation of glass insulators replacement with silicone types.
- 09:40Hrs, Makurdi T/S 75MX 330kV Shunt Reactor SR1 was taken out of service for voltage control. V/P = 291/315kV
- 10:04 - 19:36Hrs, Shiroro P/S 411G2 was shut down on frequency management. Load loss = 50MW
- 10:10 - 18:51Hrs, Delta P/s GT16 was shut down on frequency management. Load loss = 75MW
- 10:50Hrs, Calabar T/S 60MVA 132/33kV transformer T4 was commissioned and placed on soak by the Head of Service of the Federation.
- 11:29Hrs, Azura-Edo/IPP GT12 was tied on reliability test.
- 11:49 - 15:48Hrs, Delta P/S GT20 was shut down on frequency management. Load loss = 60MW.

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

GROUP 4 - OTHER UNITS OFFERING SPINNING RESERVE (THE POWER PLANTS CONTACTED 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).

- 14 11:59 - 23:56Hrs, Sapele NIPP GT1 was taken out at Sapele T/S due to non-compliance by Sapele NIPP with NCC's directive to shut down the unit on frequency management .  
Load loss = 87.5MW.
- 15 14:45 – 15:27Hrs, Akangba/Ojo 132kV line 2 was taken out to reduce load flow on Omotosho/Ikeja West 330kV line (cct M5W). LHR = 37.4MW.
- 16 17:12Hrs, Egbin ST2 was tied. The unit was out on maintenance.
- 17 18:20 through 24:00Hrs, Afam VI P/S GT13 was shut down on frequency management.  
Load loss = 110MW.
- 18 19:06Hrs, Lekki T/S 60MVA 132/33kV transformer TR12 was restored. The transformer tripped at 15:34Hrs of 22/04/2018.
- 19 20:17Hrs, Olorunsogo NIPP GT2 was tied. The unit was out due to gas constraint.

\*\*\*\*\* 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.

11 (A) COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	29
OPTIC FIBRE	13	10
PLS	14	0

11 (B) SCADA RTU STATUS

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	NO OF RTU WORKING
POWER STATIONS	8	6	2
330kV	19	7	12
132kV	102	78	24

**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.
- 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.

**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.

**12(D) LAGOS REGION**

- 1 Agbara/Ojo 132kV line 1 on soak from Agbara end.

**12(E) UNAVAILABLE CAPACITOR BANK:**

- (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.

**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/Iire 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 (G) UNAVAILABLE SYNCHROSCOPES :**

- 1 Benin, Ikeja West, Onitsha, Egbin, Uguwaji, Osogbo, Kaduna, Jos, Gwagwalada & Alaoji 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.
- e AGM (S/O) - 08056002757, CUG: 08129458475





