

TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT FRIDAY 16/06/2017

FOR: EVENTS OF THURSDAY 15/06/2017

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	17,720	21:30	15/06/2017
GENERATION CAPABILITY	7236	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4766.5	-do-	-do-
PEAK GENERATION	4293	-do-	-do-
LOWEST GENERATION	3488.7	11:00	15/06/2017
8-HOURLY DURATION PEAK	3841.7	0000-0800	-do-
	3706.2	0900-1600	-do-
	4293	1700-2400	-do-
PEAK GENERATION TO DATE	5074.7	21:30	02/02/2016
MAXIMUM AVAILABLE CAPACITY TO DATE	7492.6	06:00	14/04/2014
MAXIMUM PEAK GENERATION CAPABILITY TO DATE	7099	07:00	13/04/2014
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	354	Omotosho T/S	01:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe &Kano	09:00 & 09:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.517	16:19
LOWEST FREQUENCY	49.632	18:56

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 8th May, 2017								No. of days since last total collapse: 37							
Date of last partial collapse: 16 th March, 2017								No. of days since last partial collapse: 90							
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		
2009	Total	1	--	--	--	2	5	5	4	1	--	--	1	19	
	Partial	--	5	4	3	3	--	--	1	--	2	1	1	20	
2010	Total	--	3	1	--	3	3	--	2	2	1	4	22		
	Partial	1	--	--	1	1	3	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	--	--	2	--	3	1	--	1	--	--	9		
	Partial	--	--	--	--	1	--	--	--	--	2	1	4		
2015	Total	1	--	1	--	2	--	1	--	--	1	--	6		
	Partial	--	--	1	--	2	--	--	--	1	--	--	4		
2016	Total	--	--	2	3	6	5	--	1	1	2	2	22		
	Partial	--	--	1	--	1	3	1	--	--	--	--	6		
2017	Total	5	3	--	3	1	--	--	--	--	--	--	12		
	Partial	1	--	1	--	--	--	--	--	--	--	--	2		

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN(MW)
1 KAINJI	HYDRO	219	124
2 JEBBA	HYDRO	353	184
3 SHIRORO	HYDRO	266	0
4 EGBIN ST2 - 5	STEAM	377	319
5 SAPELE	STEAM	0	0
6 DELTA	GAS	489	436
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	285	246
9 OMOTOSHO GAS	GAS	213.6	238.6
10 OLORUNSOGO GAS	GAS	177.1	126.6
11 GEREGU NIPP	GAS	142	90
12 SAPELE NIPP	GAS	108.4	108.1
13 ALAQUI NIPP	GAS	113	109
14 OLORUNSOGO NIPP	GAS	220.7	210.9
15 OMOTOSHO NIPP	GAS	111	216
16 ODUKPANI NIPP	GAS	113.8	114.4
17 IHOVBOR NIPP	GAS	209	169.4
18 OKPAI	GAS	352	276
19 AFAM VI	GAS	140	105
20 IBOM POWER	GAS	47.4	52.7
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	82.4	85.2
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 EGBIN ST6	(GAS)	212	212
27 PARAS ENERGY	(GAS)	61.6	65.8
28 GBARAIN NIPP	GAS	0	0
TOTAL		4293	3488.7

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	3,394.00	141.42	3,375.20	140.63
2 JEBBA	HYDRO	5,751.00	239.63	5,724.92	238.54
3 SHIRORO	HYDRO	3,660.00	152.50	3,630.50	151.27
4 EGBIN ST2 - 5	STEAM	8,192.00	341.33	7,781.10	324.21
5 SAPELE	STEAM	251.80	10.49	139.00	5.79
6 DELTA	GAS	10,409.73	433.74	10,202.80	425.12
7 AFAM IV-V	GAS	-	0.00	-	0.00
8 GEREGU GAS	GAS	6,540.10	272.50	6,511.91	271.33
9 OMOTOSHO GAS	GAS	5,430.00	226.25	5,394.70	224.78
10 OLORUNSOGO GAS	GAS	3,620.57	150.86	3,592.18	149.67
11 GEREGU NIPP	GAS	3,005.75	125.24	2,992.31	124.68
12 SAPELE NIPP	GAS	2,602.45	108.44	2,593.73	108.07
13 ALAQUI NIPP	GAS	2,664.80	111.03	2,648.50	110.35
14 OLORUNSOGO NIPP	GAS	5,104.50	212.69	5,059.40	210.81
15 OMOTOSHO NIPP	GAS	3,701.40	154.23	3,685.80	153.58
16 ODUKPANI NIPP	GAS	2,721.70	113.40	2,697.30	112.39
17 IHOVBOR NIPP	GAS	4,298.25	179.09	4,272.11	178.00
18 OKPAI	GAS	6,062.00	252.58	5,909.10	246.21
19 AFAM VI	GAS	3,060.80	127.53	2,970.60	123.78
20 IBOM	GAS	921.19	38.38	912.00	38.00
21 ASCO	GAS	-	0.00	-	0.00
22 A.E.S	GAS	-	0.00	-	0.00
23 OMOKU	GAS	1,969.20	82.05	1,926.93	80.29
24 TRANS AMADI	GAS	-	0.00	-	0.00
25 RIVERS IPP	GAS	-	0.00	-	0.00
26 EGBIN ST6	STEAM	5,073.00	211.38	4,849.30	202.05
27 PARAS ENERGY	GAS	1,496.10	62.34	1,488.40	62.02
28 GBARAIN NIPP	GAS	-	0.00	-	0.00
TOTAL		89,930.34	3,747.10	88,357.79	3,681.57

GENERATION POSITION AT 06:00HRS OF FRIDAY 16/06/2017

	STATIONS	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	1G5, 11 & 12 3	320	320	1G5, 11 & 12 3	320	223	1G6 - Out on annual preventive maintenance. 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.
	JEBBA HYDRO	2G1 - 5 5	482	450	2G2, 3 & 5 3	268	268	2G1 & 4 - Out for water management. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	411G1 & 2 2	300	270	0 0	0	0	411G1 & 2 - Out due to frequency management. 411G3 & 4 - Out on maintenance.
	EGBIN STEAM	ST2, 3 & 5 3	660	660	ST2 & 3 2	440	362	ST1 - Tripped on generator CB trouble. ST4 - Out of production since 17/11/2016. ST5 - Out due to gas constraints.
	SAPELE (STEAM)	0 0	0	0	0 0	0	0	ST1 - Tripped on low control oil pressure. ST2 - Tripped on loss of control pump oil. ST4 & 5 - Awaiting major overhaul. ST6 - Tripped on gas control valve not following reference point.
	DELTA (GAS)	GT4, 7 - 13,15, 16, 18 & 19 12	600	560	GT4, 7 - 13,15, 16, 18 & 19 12	560	530	GT3 & 5 - Out due to generator winding fault. GT6 - Out on maintenance. GT14 - Out on major overhaul. GT17 - Out on excitation trouble. GT20 - Out on major inspection.
	AFAM IV & V (GAS)	0 0	0	0	0 0	0	0	GT1 - 12 - De-commissioned and scrapped. GT13 - 16 - Out on blade failure. GT17 & 18 - Out due to burnt generator transformer. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	GT12 & 13 2	292	292	GT12 & 13 2	292	292	GT11 - Shut down for maintenance work.
	OMOTOSHO GAS	GT1 - 8 8	336	304	GT2 - 8 7	216.8	216.8	GT1 - Out due to gas constraints.
	OLORUNSOGO GAS	GT1 - 5, 7 & 8 7	294	266	GT1 - 4, 7 & 8 6	201.2	201.2	GT5 - Out due to gas constraints. GT6 - Out on vibration trouble.
NIPP	GEREGU NIPP	GT21 - 23 3	435	435	GT23 1	144	144	GT21 & 22 - Out due to gas constraints.
	SAPELE NIPP	GT2 1	112.5	112.5	GT2 1	109.4	109.4	GT1 - Out on undisclosed fault. GT3 - Out on bearing lift pump trouble. GT4 - Tripped on loss of auxiliary.
	ALAOJI NIPP GAS	GT1, 2 & 4 3	375	360	GT1 1	113.8	113.8	GT2 & 4 - Out due to gas constraints. GT3 - Shut down due to generator air inlet filter trouble.
	OLORUNSOGO NIPP GAS	GT1, 2 & 3 3	375	360	GT1 & 2 2	214.4	214.4	GT3 - Out due to gas constraints. GT4 & ST2 - Out of production since 25/10/2016.
	OMOTOSHO NIPP GAS	GT1, 2 & 4 3	375	360	GT1 1	120	109.3	GT2 - Shut down due to frequency management. GT3 - Out of production since 02/08/2016. GT4 - Out due to gas constraints.
	ODUKPANI NIPP	GT2 & 5 2	250	240	GT5 1	116.8	116.8	GT1 - Shut down due to high temperature on the RTD. GT3 - Out on fault. GT4 - Out on unit transformer problem. GT2 - Out on frequency management.
	IHOVBOR NIPP	GT2 & 3 2	225	225	GT2 & 3 2	225	193.8	GT1 - Out on defective generator RTD. GT4 - On maintenance.
IPP	OKPAI GAS/STEAM	GT11, 12 & ST18 3	450	367	GT11, 12 & ST18 3	367	338	Generation limited to 367MW due to unavailability of one boiler.
	AFAM VI GAS/STEAM	GT11- 13 & ST10 4	650	650	GT11 1	150	145	GT12, 13 & ST10 - Out due to condensate along the gas pipeline.
	IBOM POWER GAS	GT2 & 3 2	150	150	GT3 1	115.3	24	GT2 - Shut down due to cut jumper conductor on Uyo/Eket 132kV line at Eket T/S. GT3 - On island operation feeding Eket and Uyo due to forced outage on Itu/Uyo 132kV line.
	AES	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
	ASCO	0 0	0	0	0 0	0	0	GT1 - Shut down due to leakage in the furnace.
	OMOKU GAS	GT2, 3, 5 & 6 4	100	86.5	GT2, 3, 5 & 6 4	78.7	78.7	GT1 - Shut down due high wheel stance temperature. GT4 - Out for overhaul.
	TRANS-AMADI	0 0	0	0	0 0	0	0	Out of production since 20/11/2016.
	RIVERS	0 0	0	0	0 0	0	0	Out of production since 16/09/2016.
	GBARAIN NIPP GAS	GT2 1	112.5	112.5	0 0	0	0	GT2 - Out due to fault on Owerri/Ahoada 132kV line 2.
	SUB TOTAL	73	6894	6580.5	53	4052.4	3680.2	Frequency = 50.09Hz.

1.7B GENERATION POSITION AT 06:00HRS OF FRIDAY 16/06/2017 FOR UNITS ON BILATERAL AGREEMENT

FEEDER NAME	UNIT	MAX. LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	REMARK
EGBIN	ST6	220	220	214	Available unit on bar.
	1			214	
PARAS ENERGY	GT3-9	65.8	65.8	65.8	GT2 - Shut down due to high exhaust gas.
	7			65.8	
SUB TOTAL		8	285.8	285.8	
GRAND TOTAL		81	7179.8	6866.3	61 4,332.20 3,960.00 Frequency = 50.09Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - THURSDAY 15/06/2017

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	ON	NIL	24	NIL
	PTCEXPRESS	11	0800hrs	24	NIL
	SANKYO	ON	NIL	24	NIL
	FEEDER 8	8	1000hrs	23	Tripped on O/C
IKORODU	PULK IT	OUT	NIL	0	latched
	INDUSTRIAL	15	1700hrs	9	Tripped on E/F
	SPINTEX	9	1700hrs	24	NIL
	DANGOTE	OUT	NIL	0	latched
ALAUSA	LAND CRAFT	26	1800hrs	21	Planned Outage
	TR4 -15MVA	5.3	0900hrs	22	Tripping @ IKJ.WEST
	TR5 -15MVA	4.4	0900hrs	22	Tripping @ IKJ.WEST
MLAND	ALAUSA	11.6	1100hrs	22	Tripping @ IKJ.WEST
	PTC (MARYLAND)	15	1600hrs	24	NIL
TOTAL LOAD		105.3			
GRAND TOTAL					

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
SAKATE/IKEJA WEST 330KV LINE	66.5	01:00	24	NIL

1.8 HYDROLOGICAL DATA: FRIDAY 16/06/2017

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	132.80	100.79	361.84
TAIL WATER ELEVATION (METERS)	102.80	74.10	270.50
GROSS OPERATING HEAD (METERS)	30	26.69	91.34
AVERAGE TURBINE DISCHARGE (M3/SEC)	514	994	198
AVERAGE SPILLAGE (M3/SEC)	0	0	0
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	514	994	198
COMPUTED INFLOW (M3/SEC)	514	739	493
STORAGE DIFFERENTIAL	0	-255	295
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 THURSDAY 15/06/2017

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	473.7	12:00	457.26	301.9	02:00
EKO	441.8	21:00	518.25	345	12:00
IKEJA	524.9	22:00	570.35	233.9	15:00

2.0 GAS POSITION: FRIDAY 16/06/2017

STATION	SIGNED ACQ Annual Contracted Quantity MMSCF/D	NGC DECLARED QUANTITY (MMS317.578CF/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	362		1100		440	660
DELTA (GAS)	530		765		560	205
OMOTOSHO GAS	216.8		336.8		216.8	120
OMOTOSHO NIPP	109.3		500		120	380
OLORUNSOGO (GAS)	201.2		336		201.2	134.8
OLORUNSOGO NIPP	214.4		750		214.4	535.6
SAPELE NIPP	109.4		500		109.4	390.6
SAPELE STEAM	0		720		0	720
AFAM IV-V	0		300		0	300
AFAM VI	145		650		150	500
GEREGU GAS	292		435		292	143
GEREGU NIPP	144		435		144	291
OKPAI (GAS/STEAM)	338		480		367	113
ALAOJI NIPP	113.6		504		113.6	390.4
IHOVBOR NIPP	193.8		450		225	225
IBOM	24		198		115.3	82.7
ODUKPANI NIPP	116.8		625		116.8	508.2
TOTAL	3110.3		9084.8		3385.5	5699.3

1 MMSCF IS EQUIVALENT TO 3.75MW

2.1 SYSTEM BLACK START CAPABILITY

Delta, Shiroro & Egbin - Available.

SPINNING RESERVE FOR : THURSDAY 15/06/2017

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

3.0 SYSTEM SPINNING RESERVE AS AT 0600HRS OF FRIDAY 16/06/2017 = 0MW. FREQUENCY 50.09Hz.

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	
3	Delta	GT16	40	0	0
		GT17	40	0	
4	Olorunsogo NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
5	Geregu NIPP	GT22	35	0	0
6	Omotosho NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
TOTAL (MW)			295	0	0

4.0 UNUTILIZED GENERATION CAPABILITY

The unutilized generation capability for Friday 16/06/2017 as at 0600Hrs was = 2532.8MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNUTILIZED GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Geregu NIPP GT21 & 22	290	0	290	1566
2	Olorunsogo NIPP GT3	120	0	120	
3	Egbin ST5	220	0	220	
4	Omotosho Gas GT1	38	0	38	
5	Alaoji NIPP GT2 & 4	240	0	240	
6	Omotosho NIPP GT4	120	0	120	
7	Olorunsogo Gas GT5	38	0	38	
8	Afam VI GT12, 13 & ST10	500	0	500	
				0	
				0	
				0	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1519.81MMSCF OF GAS (EQUIVALENT TO 5699.3MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Ibom GT2 & 3	150.3	24	126.3	238.8
2	Gbarin NIPP GT2	112.5	0	112.5	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY LOSS OF DISCOS' FEEDERS					
1	Shiroro 411G1 & 2	270	0	270	728
2	Jebba 2G1 & 4	180	0	180	
3	Odukpani GT2	120	0	120	
4	Olorunsogo Gas GT2	38	0	38	
5	Omotosho NIPP GT2	120	0	120	
				0	
4.4 DUE TO WATER MANAGEMENT					
				0	
Total					2532.8

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 04:46 through 24:00Hrs, Sapele P/S ST02 tripped on loss of control oil pump. LHR = 56MW.
- 13:03 – 14:14Hrs, Ihovbor G/S GT2 tripped on reverse power due to the tripping of ccts H7V & V7B. LHR = 97.8MW.
- 13:03 – 14:35Hrs, Ihovbor G/S GT3 tripped on reverse power due to the tripping of ccts H7V & V7B. LHR = 91.8MW.
- 18:24 through 24:00Hrs, Sapele P/S ST1 tripped on main protection operated. Load loss = 35MW.

5 (B) FORCED OUTAGES TRANSMISSION:-

- 10:05 – 10:29Hrs, Osogbo/Offa/Omuaran 132kV line CB tripped at Osogbo T/S on NARI Relay, O/C 3-Phase, period = 22ms. LHR = 12MW.
- 12:02 – 12:52Hrs, Ikorodu/Shagamu 132kV line CB tripped at Ikorodu T/S on distance protection Phase C, zone 1, location = 15.20km. LHR = 32MW.
- 12:58 – 13:31Hrs, Ayede/Shagamu 132kV line CB tripped at Ayede T/S on Optimho Relay: distance protection, DEF delay. On Micom Relay: O/C Red Phase and instantaneous E/F. LHR = 50MW.
- 13:03 – 13:22Hrs, Osogbo/Ihovbor 330kV line (cct H7V) CBs tripped at both ends on the following relay indication:-
At Osogbo T/S: On Ohmega Relay – zone 2 Phase B earth, distance = 495.34km, 86 ABC & T/2.
On ABB Relay: start L2 and PE, Fuse VTSZ. LHR = 90.8MW.
At Ihovbor T/S: On Micom Relay – Distance protection fault record started Phase Phase B-N O/C start I>I earth fault start IN>12 O/V start V>I AB, BC, CA, fault location = 117.8km. LHR = 336.6MW.
- 13:03 -13:22Hrs, Ihovbor/Benin 330kV line (cct V7B) CB tripped only at Ihovbor T/S on the following relays.
On Back up protection relay: trip alarm flagged
On Micom Relay: Fault record started, Phase N – earth, fault distance protection, start IN>I, fault location = - 22.8km, master trip relay 3-Phases. LHR = 164.9MW.
- 16:17 – 16:48Hrs, Mando/Jos 330kV line (cct M2S) tripped at both ends on the following relay indications:-
At Mando T/S: ABB Relay – O/C Red Phase, zone 1 trip, VT fuse failure, telemetering carrier send, DEF carrier send, lockout trip.
Auxiliary Relay: VAJ 21 86/ ABC, Distance = N/A.
At Jos T/S: SEL 311 main protection 2 relay – event AGT location = 193.5km, Frequency = 50.37Hz, zone 2 trip. LHR = 168MW.
- 19:44 – 20:30Hrs, Alaoji/Owerri 132kV line 2 CB tripped at Alaoji T/S on Siemens Relay: instantaneous trip, le>>, Red & Yellow Phases. LHR = 28MW.
Weather – rainfall.
- 19:44 – 20:02Hrs, Owerri/Alaoji 132kV line 1 CB tripped at Owerri T/S on instantaneous zone 1, B-G, external trip. LHR = 12MW. Weather – rainfall.

5 (C) PLANNED OUTAGES:

- 09:16 - 16:24Hrs, Jebba/Shiroro 330kV line 2 (cct J7R) was taken out to enable maintenance crew carry out annual preventive maintenance on the line CB and associated equipment at Jebba T/S. No load loss as cct J3R was in service.
- 09:47 – 11:58Hrs, Gombe/Ashaka/Potiskum 132kV line was taken out to enable maintenance crew carry out annual preventive maintenance on the line CB and associated equipment at Gombe T/S. Load loss = 18MW.
- 09:55 - 18:31Hrs, Ikeja West/Otta132kV line 1 was taken out to enable maintenance crew carry out annual preventive maintenance on the line CB and associated equipment at Ikeja West T/S. No load loss as Ikeja West/Otta 132kV line 2 was in service.
- 10:35 – 14:38Hrs, Maryland 132kV line 1 was taken out for annual preventive maintenance on the line breaker and isolators. Load loss = 2MW.
- 12:18 - 17:56Hrs, Kainji P/S 1G11 was shut down to enable maintenance crew continue inspection of the unit's stop log rail and structure. LHR = 71MW.
- 12:24 - 17:00Hrs, Kainji P/S 1G12 was shut down as additional apparatus for safe working space due to the planned outage on 1G11. LHR = 60MW.
- 13:02 – 13:35Hrs, Afam T/S 162MVA 330/132/33kV transformer T1A was taken out to enable maintenance crew replace vandalized earth continuity wire on the gantry base and CT base. Load loss = 30MW.
- 13:30 - 15:29Hrs, Olorunsogo T/S CB #3552 (Tie CB to Olorunsogo Gas GT7 & 8 and cct R2A) was taken out for annual preventive maintenance on the breaker and associated equipment. No load loss as the bus bar breakers CB #3551 and 3553 were in service.
- 14:19 – 17:23Hrs, Offa T/S 30MVA 132/33kV transformer T1 was taken out for annual preventive maintenance of the primary CB bay. LHR = 8.8MW.
- 14:46 – 15:46Hrs, Maryland 132kV line 2 was taken out for annual preventive maintenance of its line breaker. No load loss as line 1 was in service.

5 (E) EMERGENCY OUTAGES:-

The under mentioned lines were opened on frequency control:-

- 18:54 – 18:58Hrs & 21:04 – 21:09Hrs, Osogbo/Offa/Omuaran 132kV line. LHR = 28MW & 23MW respectively. Frequency was 49.56Hz & 49.87Hz respectively.
- 21:06 – 21:35Hrs, Kankia/Katsina 132kV line. LHR = 48MW. Frequency was 49.32Hz.
- 21:37 – 21:41Hrs, Osogbo/Ilesha/Ife 132kV line. LHR= 67MW. Frequency was 49.65Hz.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION: NIL

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts J2L & U2A.

5 (I) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- ccts K1J, A2K & N4J.

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

5 (K) 330KV LINES THAT ARE OUT ON LINE FAULT:- cct L7G

9 WEATHER REPORT: Rainfall was reported in Alaoji & Owerri.

10 INTERNATIONAL LINES:-

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

Maximum load - 256MW at 01:00Hrs.
Minimum load - 209MW at 07:00Hrs.

B BIRNIN KEBBI/NAMEYI 132KV LINE

Maximum load - 84MW at 23:00Hrs.
Minimum load - 64MW at 11:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 45.0MW at 22:00Hrs.
Minimum load - 33.0MW at 06:00Hrs.

11 MISCELLANEOUS:-

- 00:02 -04:49Hrs, Shiroro P/S 411G2 was shut down due to frequency management. LHR = 130MW.
- 00:04 – 05:01Hrs, Shiroro P/S 411G1 was shut down due to frequency management. LHR = 133MW.
- 01:28 – 14:40Hrs, Jebba P/S 2G2 was shut down due to frequency management. LHR = 89MW.
- 01:53- 12:14Hrs, Kainji P/S 1G5 was shut down due to frequency management. LHR = 71MW.

5(D) URGENT OUTAGES:

- 1 10:56 – 12:33Hrs, Osogbo T/S 30MVA 132/33kV transformer T5 transformer was taken out to treat hot spot on the transformer secondary bus Blue Phase extension. Load loss = 7.7MW.
- 2 12:25- 17:22Hrs, Owerri/Ahoada 132kV line 1 was taken out as additional apparatus for safe working space due to the urgent outage on Owerri/Ahoada 132kV line 2. Load loss = 1.2MW.
- 3 12:50 - 17:20Hrs, Owerri/Ahoada 132kV line 2 was taken out to enable maintenance crew mend cut Yellow Phase jumper on tower #93 along the line. No load loss as the line had been on soak.
- 4 13:14 – 16:03Hrs, New Haven T/S 30MVA 132/33kV transformer T1A was taken out for maintenance crew to investigate and treat cause of Buchholz relay that came upon the transformer. No load loss as the feeders on the transformers were already out.
- 5 13:43 – 14:11Hrs, Kaduna Town T/S 30MVA 132/33kV transformer T1B was taken out to enable maintenance crew top up the conservator tank oil to normal level. Load loss = 15MW.

6 GENERATOR MERIT ORDER BASED ON SYSTEM RESPONSE AND GRID RELIABILITY

GROUP 1 - ALL UNITS OFFERING FREE GOVERNOR FREQUENCY RESPONSE.

GROUP 2 - ALL UNITS OFFERING REGULATING RESERVE.

GROUP 3 - ALL UNITS OFFERING SPINNING RESERVE.

GROUP 4 - HYDRO IN HIGH FLOOD PERIOD SEASON, KAINJI, JEBBA AND SHIRORO.

GROUP 5 - ALL UNITS USED TO AVOID OVERLOADING TRANSMISSION LIMITS.

GROUP 6 - ALL UNITS OFFERING VOLTAGE SUPPORT OUTSIDE NORMAL LEVEL.

GROUP 7 - ALL UNITS IN LOCATION TO DIMINISH LOSSES

GROUP 8 - ALL UNITS NOT OFFERING ANY SERVICES.

8 (A) COMMUNICATION MEDIA

STATIONS	NO. INSTALLED	NO. WORKING
PLC/PAX	37	35
OPTIC FIBRE	13	11
PLS	14	6

8 (B) SCADA RTU STATUS

STATIONS	TOTAL NO OF STATIONS	NO OF RTU INSTALLED	NO OF RTU WORKING
POWER STATIONS	23	8	3
330kV	41	17	13
132kV	119	103	19

12.0 UNAVAILABLE EQUIPMENTS

12(A) UNAVAILABLE TRANSFORMERS/REACTORS:

SHIRORO REGION:

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

KADUNA REGION:

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

ENUGU REGION:

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

12 (B) UNAVAILABLE BREAKERS/ISOLATORS

- 5 07:47- 19:01Hrs, Jebba P/S 2G4 was shut down due to frequency management. LHR = 86MW.
- 6 09:15Hrs, Okpai P/S ST18 was tied. The unit had been out on maintenance.
- 7 09:56Hrs, Mando T/S 330kV 75MX Shunt Reactor 3R3 was taken out of service for voltage control. Voltage Profile: 300/309kV.
- 8 10:16 – 11:37Hrs, Shiroro P/S 411G2 was shut down due to frequency management. LHR = 50MW.
- 9 10:18 – 11:25Hrs, Shiroro P/S 411G1 was shut down due to frequency management. LHR = 50MW.
- 10 11:05 - 17:05Hrs, Jebba P/S 2G5 was shut down due to frequency management. LHR = 91MW.
- 11 11:37 through 24:00Hrs, Omotosho NIPP P/S GT2 was shut down due to frequency management. LHR = 109MW.
- 12 12:28Hrs, Jebba T/S 330kV 75MX Reactor 2R1 was taken out for voltage control. Voltage Profile:- 327/330kV.
- 13 12:34Hrs, Jebba T/S 75MX Reactor 2R2 was taken out for voltage control. Voltage Profile:- 330/333kV.
- 14 18:08Hrs, Sapele ST1 was tied. The unit had been out on fault.
- 15 19:29Hrs, Delta P/S GT11 was tied. The unit had been out due to gas constraints.
- 16 19:44Hrs, Delta P/S GT9 was tied. The unit had been out due to gas constraints.
- 17 23:42 through 24:00Hrs, Shiroro 411G1 was shut down due to frequency management. LHR=130MW.
- 18 23:45 through 24:00Hrs, Shiroro 411G1 was shut down due to frequency management. LHR = 135MW.

12(D) LAGOS REGION

- 1 Egbin/Aja 330kV line 2 (cct N4J) - faulty breaker at Aja T/S.
- 2 132kV Akangba/Itire line 1- Faulty line isolator at Akangba T/S.
- 3 Aja/Alagbon 132kV line 2 - detached conductor on tower 56 and 57.
- 4 Agbara/Ojo line 1 on soak.

SHIRORO REGION

- 1 Lokoja/Gwagwalada 330kV line 2 - Cut sky wire between towers 339 & 340.

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 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.

OSOGBO REGION:

- 1 Omotosho 330kV T/S, 2nd series 330kV CB #3322 out due to control circuit problem.
- 2 Jebba/Osogbo 330kV line 1 (cct J1H) - Defective line isolator mechanism at Osogbo T/S
- 3 Osogbo/Ganmo 330kV line (cct H3G) - Defective breaker at Osogbo T/S

ENUGU REGION:

- 1 New Haven/Yendev 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/Yendev 132kV By pass isolator - Canibalized to repair the line isolator.

SHIRORO REGION

- 1 Kainji/Jebba 330kV line 1 - CB problem at Kainji T/S.
- 2 Jebba T/S 75MX reactor 2R2 CB - exploded.

PORT HARCOURT REGION

- 1 Alaoji/Ikot-Ekpen 330KV line 2 (cct A2K) Yellow Phase isolator not latching properly.

12 (C) UNAVAILABLE/DEFECTIVE GROUND SWITCHES

Benin Region

- 1 Irrua T/S: Benin/Irrua 132kV line Earth Switch - faulty.

ENUGU REGION:

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

12 (F) LINES WITH MISSING SKY WIRE

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21
- 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.
- 1 Jebba T/S 330kV Osogbo lines 1 & 2 and Ganmo line - 9 spans
- 2 Minna T/S 132kV Bida line - 32 spans
- 3 Apo T/S 132kV Keffi line - 36 spans

- 4 Shiroro T/S 330kV Jebba line 2 - 28 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) - 08066067487, CUG: 09021765320
- f Coordinator (S/O) - 08037868916, 08054353904, 08028332125, CUG Airtel 08129458481.
- g SYSTEM OPERATIONS WEB SITE: www.nigeriasystemoperator.org