

TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT THURSDAY 15/06/2017

FOR: EVENTS OF WEDNESDAY 14/06/2017

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	17,720	22:00	14/06/2017
GENERATION CAPABILITY	6968.5	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4665.5	-do-	-do-
PEAK GENERATION	4240.1	-do-	-do-
LOWEST GENERATION	3275.5	03:00	14/06/2017
8-HOURLY DURATION PEAK	3551.7	0000-0800	-do-
	3484.8	0900-1600	-do-
	4240.1	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	358	OmotoshoT/S	15:00
LOWEST VOLTAGE FOR THE DAY	300	GombeT/S	03:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.43	12:15
LOWEST FREQUENCY	49.64	18:47

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 8th May, 2017							No. of days since last total collapse: 36							
Date of last partial collapse: 16 th March, 2017							No. of days since last partial collapse: 89							
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	3	--	2	2	1	4	22
	Partial	1	--	--	1	1	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	4	--	1	1	1	2	1	--	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	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	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	161	207
2 JEBBA	HYDRO	353	92
3 SHIRORO	HYDRO	264	0
4 EGBIN ST2 - 5	STEAM	358	323
5 SAPELE	STEAM	57	56
6 DELTA	GAS	434	404
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	285	100
9 OMOTOSHO GAS	GAS	246.2	183.8
10 OLORUNSOGO GAS	GAS	167.3	202.9
11 GEREGU NIPP	GAS	145	148
12 SAPELE NIPP	GAS	109.2	85.6
13 ALAQJI NIPP	GAS	114.5	80.4
14 OLORUNSOGO NIPP	GAS	193.6	226.5
15 OMOTOSHO NIPP	GAS	220	134.3
16 ODUKPANI NIPP	GAS	114.4	100.1
17 IHOVBOR NIPP	GAS	213.4	111.9
18 OKPAI	GAS	259	234
19 AFAM VI	GAS	130	151
20 IBOM POWER	GAS	56	70.6
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	82	91.1
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 EGBIN ST6	(GAS)	211	211
27 PARAS ENERGY	(GAS)	66.5	62.3
28 GBARAIN NIPP	GAS	0	0
TOTAL		4240.1	3275.5

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	4,113.00	171.38	4,094.30	170.60
2 JEBBA	HYDRO	4,266.00	177.75	4,240.28	176.68
3 SHIRORO	HYDRO	2,520.00	105.00	2,490.32	103.76
4 EGBIN ST2 - 5	STEAM	8,062.00	335.92	7,653.20	318.88
5 SAPELE	STEAM	1,215.70	50.65	1,168.30	48.68
6 DELTA	GAS	10,156.94	423.21	9,953.90	414.75
7 AFAM IV-V	GAS	-	0.00	-	0.00
8 GEREGU GAS	GAS	5,468.60	227.86	5,442.12	226.76
9 OMOTOSHO GAS	GAS	4,794.00	199.75	4,759.40	198.31
10 OLORUNSOGO GAS	GAS	4,445.62	185.23	4,415.96	184.00
11 GEREGU NIPP	GAS	2,864.87	119.37	2,851.66	118.82
12 SAPELE NIPP	GAS	2,483.90	103.50	2,476.50	103.19
13 ALAQJI NIPP	GAS	2,108.69	87.86	2,092.99	87.21
14 OLORUNSOGO NIPP	GAS	5,099.60	212.48	5,053.20	210.55
15 OMOTOSHO NIPP	GAS	3,281.00	136.71	3,256.30	135.68
16 ODUKPANI NIPP	GAS	2,848.80	110.37	2,827.90	109.50
17 IHOVBOR NIPP	GAS	2,935.44	122.31	2,912.52	121.36
18 OKPAI	GAS	5,582.00	232.58	5,519.00	229.96
19 AFAM VI	GAS	3,363.40	140.14	3,274.30	136.43
20 IBOM	GAS	1,906.22	79.43	1,897.00	79.04
21 ASCO	GAS	-	0.00	-	0.00
22 A.E.S	GAS	-	0.00	-	0.00
23 OMOKU	GAS	2,052.70	85.53	1,999.01	83.29
24 TRANS AMADI	GAS	-	0.00	-	0.00
25 RIVERS IPP	GAS	-	0.00	-	0.00
26 EGBIN ST6	STEAM	5,064.00	211.00	4,840.50	201.69
27 PARAS ENERGY	GAS	1,569.40	65.39	1,561.20	65.05
28 GBARAIN NIPP	GAS	-	0.00	-	0.00
TOTAL		86,001.88	3,583.41	84,579.86	3,524.16

GENERATION POSITION AT 06:00HRS OF THURSDAY 15/06/2017

	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	1G11 & 12 2	200	131	1G5 - Shut down due to high frequency. 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	2G3, 4 & 5 3	267	267	2G1 & 2 - Shut down for frequency management. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	411G1 & 2 2	300	270	411G1 & 2 2	270	100	411G3 & 4 - Out on maintenance. Generation reduced due to frequency management.
	EGBIN STEAM	ST2, 3 & 5 3	660	660	ST2 & 3 2	440	349	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, 8, 11, 13, 15, 16, 18 & 19 11	575	540	GT4, 7, 8, 10, 13, 15, 16, 18 & 19 9	500	429	GT3 & 5 - Out due to generator winding fault. GT 9 & 11 - Out due to frequency management. GT6 - Out on maintenance. GT12 - Shut down due to gas leakage from the combustion chamber. 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	290	290	GT12 & 13 2	282	282	GT11 - Shut down for maintenance work.
	OMOTOSHO GAS	GT1 - 8 8	336	304	GT2 - 8 7	247.3	247.3	GT1 - Out due to gas constraints.
	OLORUNSOGO GAS	GT1 - 5, 7 & 8 7	294	266	GT1, 3, 4, 7 & 8 5	167.9	167.9	GT2, Shut down due to high frequency. GT5 - Out due to gas constraints. GT6 - Out on vibration trouble.
NIPP	GEREGU NIPP	GT21 - 23 3	435	435	GT23 1	139	139	GT21 & 22 - Out due to gas constraints.
	SAPELE NIPP	GT2 1	112.5	112.5	GT2 1	110.1	110.1	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	113.6	113.6	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	222.2	222.2	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 & 2 2	240	217.4	GT3 - Out of production since 02/08/2016. GT4 - Out due to gas constraints.
	ODUKPANI NIPP	GT2 & 5 2	250	240	GT5 1	115.8	115.8	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	201.2	GT1 - Out on defective generator RTD. GT4 - On maintenance.
IPP	OKPAI GAS/STEAM	GT11 & 12 2	300	300	GT11 & 12 2	300	194	ST18 - Out on maintenance.
	AFAM VI GAS/STEAM	GT11- 13 & ST10 4	650	650	GT11 1	150	130	GT12, 13 & ST10 - Out due to condensate along the gas pipeline.
	IBOM POWER GAS	GT2 & 3 2	150	150	GT3 1	115.3	28.4	GT2 - Shut down due to cut jumper conductor on Uyo/Eket 132kV line at Eket T/S. GT3 - On island operation feeding Eket and Uyu 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	86.5	86.5	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/Ahoadia 132kV line 2.
	SUB TOTAL	71	6717	6491.5	50	4191.7	3531.4	Frequency = 50.16Hz.

1.7B **GENERATION POSITION AT 06:00HRS OF THURSDAY 15/06/2017 FOR UNITS ON BILATERAL AGREEMENT**

FEEDER NAME	ST6	MAX. LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	REMARK	
EGBIN	1	220	220	211	211	Available unit on bar.
	GT3-9					
PARAS ENERGY	7	285.8	285.8	276.8	276.8	Frequency = 50.16Hz.
SUB TOTAL	8					
GRAND TOTAL	79					

1.7C **BILATERAL AGREEMENT UNITS DISPATCH - WEDNESDAY 14/06/2017**

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	23	L/S
	PTCEXPRESS	11	1700hrs	23	L/S
	SANKYO	ON	NIL	23	L/S
	FEEDER 8	8	1000hrs	17	Planned Outage
IKORODU	PULK IT	OUT	NIL	0	latched
	INDUSTRIAL	20	0800hrs	19	Tripped on E/F
	SPINTEX	9	1200hrs	24	NIL
	DANGOTE	OUT	NIL	0	latched
ALAUSA	LAND CRAFT	22	0100hrs	24	NIL
	TR4 -15MVA	5.9	1400hrs	24	NIL
	TR5 -15MVA	4.6	1100hrs	24	NIL
	ALAUSA	10.7	1900hrs	12	Tripped on E/F
MLAND	PTC (MARYLAND)	15	1500hrs	24	NIL
TOTAL LOAD		106.2			
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	11:00	24	Nil

1.8 HYDROLOGICAL DATA: THURSDAY 15/06/2017

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	132.80	100.87	361.65
TAIL WATER ELEVATION (METERS)	102.90	74.10	270.00
GROSS OPERATING HEAD (METERS)	29.9	26.77	91.65
AVERAGE TURBINE DISCHARGE (M3/SEC)	611	750	135
AVERAGE SPILLAGE (M3/SEC)	0	0	0
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	611	750	135
COMPUTED INFLOW (M3/SEC)	0	900	282
STORAGE DIFFERENTIAL	-611	150	147
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 WEDNESDAY 14/06/2017

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	0	0:00	0	0	0:00
EKO	422.7	20:00	492.82	304.3	15:00
IKEJA	491	19:00	551.1	329.1	15:00

2.0 GAS POSITION: THURSDAY 15/06/2017

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	349		1100		440	660
DELTA (GAS)	429		765		500	265
OMOTOSHO GAS	247.3		336.8		247.3	89.5
OMOTOSHO NIPP	217.4		500	240	260	
OLORUNSOGO (GAS)	167.9		336	167.9	168.1	
OLORUNSOGO NIPP	222.2		750	222.2	527.8	
SAPELE NIPP	110.1		500	110.1	389.9	
SAPELE STEAM	0		720	0	720	
AFAM IV-V	0		300	0	300	
AFAM VI	130		650	150	500	
GEREGU GAS	282		435	282	153	
GEREGU NIPP	139		435	139	296	
OKPAI (GAS/STEAM)	194		480	300	180	
ALAOJI NIPP	113.6		504	113.6	390.4	
IHOVBOR NIPP	201.2		450	225	225	
IBOM	28.4		198	115.3	82.7	
ODUKPANI NIPP	115.8		625	115.8	509.2	
TOTAL	2946.9		9084.8		3368.2	5716.6

1 MMSCF IS EQUIVALENT TO 3.75MW

2.1 SYSTEM BLACK START CAPABILITY

Delta, Shiroro & Egbin - Available.

SPINNING RESERVE FOR : WEDNESDAY 14/06/2017

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

3.0 SYSTEM SPINNING RESERVE AS AT 0600HRS OF THURSDAY 15/06/2017 = 0MW. FREQUENCY 50.16Hz.

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 Thursday 15/06/2017 as at 0600Hrs was = 2468.4MW.

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 1524.42MMSCF OF GAS (EQUIVALENT TO 5716.6W WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Ibom GT2 & 3	150.3	28.4	121.9	234.4
2	Gbarain 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	100	170	668
2	Jebba 2G1 & 2	180	0	180	
3	Odukpani GT2	120	0	120	
4	Delta GT9 & 11	40	0	40	
5	Kainji1G5	120	0	120	
6	Olorunsogo Gas GT2	38	0	38	
4.4 DUE TO WATER MANAGEMENT					
				0	
Total					2468.4

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 03:59 - 04:37Hrs, Delta GT16 tripped on high exhaust temperature. LHR = 66MW.
- 16:28 through 24:00Hrs, Omoku P/S GT1 was shut down due to wheel stance temperature high. LHR = 15MW.
- 19:51 through 24:00Hrs, Ibom Power GT3 went on island operation feeding Eket and Uyo due to forced outage on Itu/Uyo 132kV line. Generation reduced from 87MW to 37MW.
- 20:32Hrs, Omoku P/S GTs 2, 3, 5 & 6 tripped on reverse power due to the urgent outage on Port Harcourt/Rumuosi 132kV line. LHR on GT2 = 19.0MW, GT3 = 16.2MW, GT5 = 21.1MW, GT6 = 22.3MW.
20:55Hrs-Omoku P/S GT5 was tied, 20:57Hrs-Omoku P/S GT2 was tied, 20:58Hrs-Omoku P/S GT3 was tied, 20:59Hrs-Omoku P/S GT6 was tied.

5 (B) FORCED OUTAGES TRANSMISSION:-

- 08:11 – 14:52Hrs, Ajaokuta II 132kV T/S 60MVA 132/33kV transformer T2 primary and secondary breakers tripped simultaneously on differential. LHR = 5.3MW. The transformer was tested and certified okay before restoration.
- 15:28 – 16:10Hrs, Osogbo/Ganmo 330kV line (cct H3G) CBs tripped at both ends on the following relay indications:-
At Osogbo T/S: Micom P443 Relay – start Phase B-N, Distance zones 1, 2 & 3, start >I, fault duration = 65.00ms, fault duration = 38.00ms, fault location = 6.427km, 86ABC/1.
Auxiliary Relay: Carrier signal receive, trip cct. supervision.
At Ganmo T/S: ABB Relay: Carrier protection relay trip. No load loss as ccts J3G & J1H were in service.
- 15:28 – 16:08Hrs, Osogbo/Offa/Omuaran 132kV line CB tripped at Osogbo T/S on NARI Relay: instantaneous E/F relay 3-Phases, period = 11ms. LHR = 12MW.
- 16:18 – 16:55Hrs, Ayede/Iwo/Iseyin 132kV line CB tripped at Ayede T/S on Siemens Backup Relay: O/C Red, Yellow Phases and E/F relay. LHR = 30MW. Weather – rainfall.
- 16:18 – 16:59Hrs, Iwo T/S 40MVA 132/33kV T1 mobitra primary CB trip on 132kV O/C relay. LHR = 0.1MW. Weather – rainfall.
- 16:36 – 17:50Hrs, Okene T/S 60MVA 132/33kV transformer T2 secondary breaker tripped on instantaneous E/F. LHR = 16.6MW. Weather - rainfall
- 18:46 – 20:02Hrs, Alaoji NIPP/Alaoji T.S 330kV line 1 (cct L7A) CBs tripped at both ends on the following relay indications:-
At Alaoji T/S: Differential protection main, trip 87, fault type A, C & G.
At Alaoji NIPP: Line differential protection main, fault type B, C & G. No load loss as cct L8A was in service.
- 18:46- 20:07Hrs, Afam T/S 162MVA 330/132/33kV transformer T1A primary CB tripped on SBEF, breaker fail protection QO trip relay. Load loss = 50.9MW. Weather – rainfall.
- 18:46 - 20:11Hrs, Afam/Alaoji 132kV line 2 CB tripped at Afam T/S on O/C Red Phase. LHR = 18.5MW. Weather – rainfall.
- 19:40 through 24:00Hrs, Itu/Uyo 132kV line CB tripped at Itu T/S on E/F. LHR = 40MW. Physical inspection revealed shattered Yellow Phase CVT of the line. The line has been isolated.
- 19:46 - 20:06Hrs, Afam/Alaoji 330kV line 1 (cct F1A) CBs tripped at both ends on the following relay indications:-
At Alaoji T/S: Distance protection, instantaneous trip, zone 1, Phase A-N, line differential protection main, fault type A & G zone1.
At Afam T/S: Distance protection zone 1, SOFT. No load loss as cct F2A was in service.

5 (C) PLANNED OUTAGES:

- 12:17 – 14:51Hrs, Ganmo T/S 60MVA 132/33kV transformer T2B was taken out for annual preventive maintenance. LHR = 10.5MW.
- 14:09 through 24:00Hrs, Akangba T/S 90MVA 330/132kV transformer 5T1A was isolated for MBH contractor to dismantle 5No 330kV isolators, transfer the control to a new panel and replace the marshaling kiosk. No load loss as 3x90MVA 330/132kV transformers 5T1B, 5T2A & 5T2B were in service.

5 (E) EMERGENCY OUTAGES:-

18:45 – 18:50Hrs, Osogbo/Ife/Ondo 132kV line. LHR = 80MW. Frequency was 49.21Hz.

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 Ayede, Ikeja West, Iwo, Afam, Alaoji, Okene & Osogbo.

10 INTERNATIONAL LINES:-

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

Maximum load - 275MW at 22:00Hrs.
Minimum load - 213MW at 07:00Hrs.

B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 78MW at 15:00Hrs.
Minimum load - 55MW at 03:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 43.0MW at 21:00Hrs.

11 MISCELLANEOUS:-

- 00:01 - 04:20Hrs, Sapele NIPP deloaded from 90MW to 80MW due to high system frequency.
- 00:21Hrs, Jebba 2G1 was shut down on frequency management. LHR = 85MW.
- 01:04 - 04:13Hrs, Geregu P/S reduced generation by 55MW each on GT12 & 13. Frequency was 50.32Hz.
- 01:15Hrs, Delta GT11 was shut down on frequency management. LHR = 20MW.
- 01:17Hrs, Delta GT9 was shut down on frequency management. LHR = 20MW.
- 04:14Hrs, Jebba 2G5 was tied. The unit has been out on water management

5(D) URGENT OUTAGES:

- 1 04:38 through 24:00Hrs, Odukpani GT1 was shut down due to high temperature on the resistance thermocouple device. LHR =114MW.
- 2 09:08 - 10:40Hrs, Calabar T/S 60MVA 132/33kV transformer T1 was taken out as additional apparatus for safe working space to enable maintenance crew treat hot spot on its 33kV bus isolator. Load loss = 6.9MW.
- 3 10:30 – 13:47Hrs, Jebba G/S 2G3 was shut down for maintenance crew to carry out tests on the unit's generator transformer. LHR = 93MW.
- 4 11:10 - 18:50Hrs, Gusau T/S 132kV incoming line breaker was opened to deaden the station for heavy duty truck to off-load a 60MVA transformer in the station. Load loss =10MW.
- 5 12:27 through 24:00Hrs, Kainji 1G11 was shut down for maintenance crew to inspect the stop log rail and structure of the unit. LHR = 62MW.
- 6 12:34 - 17:02Hrs, Kainji P/S 1G12 was shut down as additional apparatus for safe working space due to the outage on unit 1G11. LHR = 69MW.
- 7 13:08 - 19:42Hrs, Effurun T/S 60MVA 132/33kV transformer T21 was taken out to enable PC & M crew carry out further protection check and tests on the transformer. Load loss = 13.5MW.
- 8 13:49 – 17:38Hrs, Alaoji/Owerri 132kV line 1 CB was opened to enable PC & M crew replace burnt 132kV C.T. No load loss as line 2 was in service.
- 9 14:14 – 14:43Hrs, Ikeja West/Akangba 330kV line 1 (cct W3L) was taken out to enable MBH contractors disconnect jumpers on the main and reserve bus bars at Akangba T/S. No load loss as cct W4L was in service.

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 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

- 7 04:22Hrs, Odukpani GT5 was tied. The unit had been out due to line constraints.
- 8 07:08 - 10:29Hrs, Jebba 2G5 was shut down on frequency management. LHR = 94MW.
- 9 07:31Hrs, Geregu GTs12 & 13 were reduced to 80MW each. Frequency was 50.31Hz.
- 10 08:36 - 14:27Hrs, OF 12 was placed on Zaria/Funtua/Gusau 132kV line for live line crew to replace broken insulators on tower #s448 & 460 along the line.
- 11 08:52 - 19:52Hrs, Omotosho NIPP GT2 was shut down on frequency management. LHR = 64MW.
- 12 10:25Hrs, Shiroro P/S 411G2 was tied. The unit had been out on frequency management.
- 13 10:33Hrs, Shiroro P/S 411G1 was tied. The unit had been out for frequency management.
- 14 10:36Hrs, Afam VI GT13 was placed on free governor response mode.
- 15 10:57Hrs, Delta P/S GT7 was tied. The unit had been out due to loss of flame.
- 16 14:52Hrs, Afam VI GT11 was tied. The unit has been out due to gas constraints.
- 17 15:19Hrs Afam VI GT13 was shut down due to gas constraints. 123MW was transferred to GT11.
- 18 16:13Hrs of 07/06/2017 – Ahoada/Yenagoa 132kV line 1 CB tripped at Ahoada T/S on E/F. No load loss as the line was on soak. Line patrol revealed fallen tree on Ahoada/Yenagoa 132kV lines 1 & 2. 19:58Hrs, Ahoada/Yenagoa 132kV line 1 was restored. 19:59Hrs, Ahoada/Yenagoa 132kV line 2 was restored. The restoration was after the tree was removed from the lines.
- 19 17:35Hrs, Jebba P/S 2G2 was tied. The unit had been out due to frequency management.
- 20 18:15Hrs, Jebba 2G4 was tied. The unit had been out due to frequency management.
- 21 19:10 through 24:00Hrs, Olorunsogo Gas GT2 was shut down due to low gas pressure. LHR = 23.9MW.
- 22 19:44Hrs, Ihovbor NIPP GT3 was tied. The unit had been out on fault.
- 23 19:46Hrs, Omotosho Gas GT8 was tied to the grid. The unit had been outage due to gas constraints.
- 24 20:39Hrs, Apir T/S 75MX Reactor was switched off for voltage control. Voltage Profile: 308/320kV.
- 25 21:05Hrs, Okpai P/S GT12 was placed on free governor response mode as they cancelled their plans for the conditioning of the steam turbine for now.

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/SOLATORS

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/kot-Ekpene 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(D) LAGOS REGION

- 1 Egbin/Aja 330kV line 2 (cct N4J) - faulty breaker at Aja T/S.
- 2 132kV Akangba/Ire 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.

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/Ire 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 -

- PAX 09/300, 309, 303 & 305.
- NCC GSM - 08074888524, 08069379367, 08023572651 & 08051401331. CUG Nos. 08129458488, 08129458489, 08129929806; 08036665323.
- PLS - 622
- GM (NCC) -08036744641.
- AGM (S/O) - 08066067487, CUG: 09021765320
- Coordinator (S/O) - 08037868916, 08054353904, 08028332125, CUG Airtel 08129458481.
- SYSTEM OPERATIONS WEB SITE: www.nigeriasystemoperator.org