

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF MONDAY 09/04/2018

FOR: EVENTS OF SUNDAY 08/04/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	23,030	21:15	08/04/2018
GENERATION CAPABILITY	7567.4	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4788.9	-do-	-do-
PEAK GENERATION	4379.6	-do-	-do-
LOWEST GENERATION	2886.9	11:00	08/04/2018
8-HOURLY DURATION PEAK	3517.4	0100-0800	-do-
	3899.3	0900-1600	-do-
	4379.6	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	368	Omotosho T/S	11:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe & Kumbotso T/S	06:00 & 12:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	50.960	01:22
LOWEST FREQUENCY	49.661	15:46

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018		No. of days since last total collapse: 61											
Date of last partial collapse: 17 th Oct., 2017		No. of days since last partial collapse: 163											
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	--	2	2	1	4	22
	Partial	1	--	--	1	1	3	4	4	3	2	--	1
2011	Total	--	--	--	4	3	1	1	1	2	1	--	13
	Partial	--	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	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	1	0	0	3	3		9
2018	Total	5	1										6
	Partial												0

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)
1 KAINJI	HYDRO	301	145
2 JEBBA	HYDRO	252	161
3 SHIRORO	HYDRO	191	134
4 EGBIN ST2 - 5	STEAM	629	491
5 SAPELE	STEAM	0	0
6 DELTA	GAS	477	305
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	279	120
9 OMOTOSHO GAS	GAS	172.7	121.2
10 OLORUNSOGO GAS	GAS	134	106.3
11 GEREGU NIPP	GAS	100	80
12 SAPELE NIPP	GAS	220.2	66
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	104.9	0
15 OMOTOSHO NIPP	GAS	109.5	80
16 ODUKPANI NIPP	GAS	332.4	165.8
17 IHOVBOR NIPP	GAS	0	83.9
18 OKPAI	GAS	145	92
19 AFAM VI	GAS	444	397
20 IBOM POWER	GAS	101.2	51.3
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	79.7	54.1
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	130	90
26 AZURA - EDO IPP	(GAS)	0	0
27 EGBIN ST6	(GAS)	0	0
28 PARAS ENERGY	(GAS)	69.4	67.8
29 GBARAIN NIPP	GAS	107.6	75.5
TOTAL		4379.6	2886.9

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	5101.00	212.54	5084.30	211.85
2 JEBBA	HYDRO	5429.00	226.21	5402.72	225.11
3 SHIRORO	HYDRO	3560.00	148.33	3529.16	147.05
4 EGBIN ST2 - 5	STEAM	13494.00	562.25	12747.00	531.13
5 SAPELE	STEAM	0.00	0.00	0.00	0.00
6 DELTA	GAS	10243.09	426.80	10023.90	417.66
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	5244.10	218.50	5217.53	217.40
9 OMOTOSHO GAS	GAS	3843.00	160.13	3811.70	158.82
10 OLORUNSOGO GAS	GAS	2941.81	122.58	2914.60	121.44
11 GEREGU NIPP	GAS	3031.75	126.32	3014.97	125.62
12 SAPELE NIPP	GAS	2871.88	119.66	2848.36	118.68
13 ALAQJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	1096.00	45.67	1084.20	44.34
15 OMOTOSHO NIPP	GAS	2213.60	92.23	2192.60	91.36
16 ODUKPANI NIPP	GAS	4899.00	204.13	4866.00	202.75
17 IHOVBOR NIPP	GAS	1530.00	63.75	1517.10	63.21
18 OKPAI	GAS	2634.00	109.75	2508.40	104.52
19 AFAM VI	GAS	9292.79	387.20	9106.30	379.43
20 IBOM	GAS	2089.71	87.07	2081.00	86.71
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	0.00	0.00	0.00	0.00
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1747.80	72.83	1712.58	71.36
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	2211.60	92.15	2205.72	91.91
27 EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	1650.10	68.75	1642.60	68.44
29 GBARAIN NIPP	GAS	2158.60	89.94	2142.10	89.25
TOTAL		87,282.83	3,636.78	85,632.84	3,568.04

1.7A GENERATION POSITION AT 06:00HRS OF MONDAY 09/04/2018

	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 & 12 3	290	290	1G5, 6 & 12 3	290	208	1G5 & 6 - Generation reduced on frequency management. 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 - Tripped on governor fault.
	JEBBA HYDRO	6	2G1 - 5 5	475	475	2G1 & 5 2	285	171	2G2 & 3 - Out on water management. 2G4 - Out on frequency management. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G2 & 3 2	300	300	411G2 & 3 2	183	183	Available units on bar.
	EGBIN STEAM	5	ST1, 2, 4 & 5 4	880	580	ST1, 2, 4 & 5 4	580	577	ST3 - Tripped on high vibration since 19th June 2017.
	SAPELE (STEAM)	6	0 0	0	0	0 0	0	0	ST1 - Tripped on low drum level. ST2 - Shut down for maintenance. ST3 - Out on stator winding problem. ST4 & 5 - Awaiting major overhaul. ST6 - Tripped on gas control valve not following reference point.
	DELTA (GAS)	18	GT7, 9 - 13, 16 & 18 - 20 10	520	520	GT7, 9 - 13, 16 18 & 19 9	420	402	GT3 & 5 - Out due to generator winding fault. GT4 - Shut down due to vibration problem. GT6 & 14 - Out on major overhaul. GT15 - Out on maintenance. GT17 - Out on excitation trouble. GT20 - Out on frequency management.
	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 - Tripped on loss of excitation. GT18 - Out on 4000Hrs inspection and maintenance since 04/04/2018. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 & 13 2	290	172	GT12 - Out due to gas constraint. Generation reduced due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT2, 3, 4, 6 & 8 5	190	177.9	GT1, 5 & 7 - Out due to gas constraint.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2, 4, 6 & 8 4	152	111.5	GT1, 3, 5 & 7 - Out due to gas constraint. Generation reduced due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT22 1	145	100	GT21 - Out on maintenance. GT22 - Generation reduced due to gas constraint. GT23 - Out due to gas constraint.
	SAPELE NIPP	4	GT1 & 4 2	225	225	GT1 & 4 2	225	174.3	GT2 & 3 - Out due to high air inlet differential pressure.
	ALAOJI NIPP GAS	4	GT1, 2 & 4 3	375	360	0 0	0	0	GT1, 2 & 4 - Tripped due to low gas pressure. GT3 - Shut down due to generator air inlet filter trouble.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT1 1	120	101.4	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 1	120	99.4	GT1 & 4 - Out due to gas constraint. GT3 - Shut down due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT3, 4 & 5 3	360	345	GT3 - 5 3	345	285.1	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve.
	IHOVBOR NIPP	4	GT1 1	112.5	112.5	0 0	0	0	GT1 - Out due to gas constraint. GT2 - Out due to gas outlet valve problem. GT3 - Tripped on bus under voltage. GT4 - Out on maintenance.
IPP	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	GT2 1	112.5	86.3	Available unit on bar.
	OKPAI GAS/STEAM	3	GT12 1	150	150	GT12 1	150	114	GT11 & ST18 - Out on maintenance.
	AZURA - EDO	3	GT11 & 13 2	300	300	0 0	0	0	GT12 - Awaiting commissioning. GT11 & 13 - Shut down after test.
	AFAM VI GAS/STEAM	4	GT11- 13 & ST10 4	650	650	GT11 - 13 3	450	350	ST10 - Shut down on frequency management.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	72.7	GT1 & 2 - Out on fault. GT3 - Generation reduced due to line constraint.
	AES	0	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
	ASCO	1	0 0	0	0	0 0	0	0	GT1 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT1, 2, 5 & 6 4	100	80	GT1, 2, 5 & 6 4	80	77	GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul.
	TRANS-AMADI	4	GT1 & 2 2	50	40	0 0	0	0	GT1 & 2 - Out due to line constraint. GT3 - Out on fault. GT4 - Tripped on generator differential lockout.
	RIVERS	1	GT1 1	180	160	GT1 1	160	126	GT1 - Generation reduced on frequency management.
	SUB TOTAL	130	76	7342	6868	50	4412.5	3588.6	Frequency = 50.34Hz.

1.7B GENERATION POSITION AT 06:00HRS OF MONDAY 09/04/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	0	0	0	0	0	0	ST6 - Shut down to clean condenser.
		0			0			
PARAS ENERGY	8	GT2 - 9	67.8	67.8	GT2 - 9	67.8	67.8	Available units on bar.
		8			8			
SUB TOTAL		8	67.8	67.8	8	67.8	67.8	
GRAND TOTAL		139	84	7409.8	6935.8	58	4,480.30	3,656.40 Frequency = 50.34Hz.

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1.7C BILATERAL AGREEMENT UNITS DISPATCH - SUNDAY 09/04/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	ON	0100HRS	9HRS	TRIPPED ON E/F
	PTCEXPRESS	9	2000HRS	24HRS	NIL
	SANKYO	ON	0100HRS	24HRS	NIL
	FEEDER 8	10	1900HRS	24HRS	NIL
IKORODU	PULK IT	4	1700	24	NIL
	INDUSTRIAL	21	2000	24	NIL
	SPINTEX	8	0100	24	NIL
	DANGOTE	ON	0700	24	NIL
	LAND CRAFT	42	2000	24	NIL
ALAUSA	TR4 15MVA	NI	14:00	24:00	NIL
	TR5 -15MVA	4.6	18:00	24:00	NIL
	ALAUASA	11.8	16:00	24:00	NIL
MLAND	PTC (MARYLAND)	14MW	1900hrs	17HRS	TRIPPED ON O/C
TOTAL LOAD		110.4			

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	71	21:00	24	NIL

1.8 HYDROLOGICAL DATA: MONDAY 09/04/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	136.7	99.82	370.20
TAIL WATER ELEVATION (METERS)	101.8	73.6	270.00
GROSS OPERATING HEAD (METERS)	34.90	26.22	100.20
AVERAGE TURBINE DISCHARGE (M3/SEC)	684.00	980.00	168.00
AVERAGE SPILLAGE (M3/SEC)	57.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	741	980	168
COMPUTED INFLOW (M3/SEC)	290.00	783.00	6.00
STORAGE DIFFERENTIAL	-451.00	-197	-162
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 SUNDAY 08/04/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	521.20	21:00	529.42	393.1	09:00
EKO	429.3	22:00	606.4	107.1	11:00
IKEJA	621.7	01:00	690.54	196	03:00

2.0 GAS POSITION: MONDAY 09/04/2018

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	577	1100	580	520	520
DELTA (GAS)	402	915	420	495	495
OMOTOSHO GAS	177.9	336.8	120	146.8	146.8
OMOTOSHO NIPP	99.4	500	120	380	380
OLORUNSOGO (GAS)	111.5	336	152	184	184
OLORUNSOGO NIPP	101.4	750	120	630	630
SAPELE NIPP	174.3	500	225	275	275
SAPELE STEAM	0	720	0	720	720
AFAM IV-V	0	300	0	300	300
AFAM VI	350	650	450	200	200
GEREGU GAS	172	435	290	145	145
GEREGU NIPP	100	435	145	290	290
OKPAT (GAS/STEAM)	114	480	150	330	330
ALAQJI NIPP	0	504	0	504	504
IHOVBOR NIPP	0	450	0	450	450
IBOM	72.7	198	115	83	83
ODUKPANI NIPP	285.1	625	345	280	280
TOTAL	2737.3	9234.80	3302	5932.8	5932.8

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : SUNDAY 08/04/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF MONDAY 09/04/2018 = 0MW. FREQUENCY 50.34Hz.

S/N	POWER STATION	UNIT ON SPINNING RESERVE	CONTRACTED RESERVE	ACTUAL RESERVE (MW)	TOTAL (MW)
1	Egbin	ST2	100	0	0
		ST4		0	
		ST6		0	
		ST6		0	
2	Delta	GT16	40	0	0
		GT17	40	0	
3	Olorunsogo NIPP	GT1	40	0	0
		GT2		0	
		GT3		382.5	
		GT4		0	
4	Geragu 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 UNUTILIZED GENERATION CAPABILITY

The unutilized generation capability for Monday 09/04/2018 as at 0600Hrs was = 2259.9MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNUTILIZED GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Omotosho NIPP GT1 & 4	240	0	240	1706.6
2	Ihovbor GT1	112.5	0	112.5	
3	Alaqji NIPP GT1, 2 & 4	360	0	360	
4	Olorunsogo Gas GT1 - 8	304	116.9	187.1	
5	Olorunsogo NIPP GT2 & 3	240	0	240	
6	Omotosho gas GT1, 5 & 8	114	0	114	
7	Geragu Gas GT11 - 13	435	172	263	
8	Geragu NIPP GT22 & 23	290	100	190	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1582.08MMSCF OF GAS (EQUIVALENT TO 5932.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Trans-Amadi GT1 & 2	40	0	40	82.3
2	Ibom Power GT3	115	72.7	42.3	
				0	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Kainji 1GS, 6 & 11	210	158	52	281
2	Delta GT23	100	0	100	
3	Jebba 2G4	95	0	95	
4	Rivers IPP GT1	160	126	34	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
1	Jebba 2G2 & 3	190	0	190	190
Grand Total					2259.9

5.0 **OUTAGES:**

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

- 00:30 - 13:18Hrs, Sapele NIPP GT4 tripped on general fire alarm. LHR = 80MW
- 07:15 through 24:00Hrs, Kainiji 1G11 tripped on governor fault. LHR = 43MW
- 17:16 through 24:00Hrs, Ihovbor NIPP GT3 tripped on bus under voltage. LHR = 103.4MW.

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

- 00:50 – 02:07Hrs, Ilupeju T/S 2x15MVA 132/11kV transformer T1 & T3 secondary CBs tripped on SBEF. LHR = 2.9MW each.
- 01:04 – 02:10Hrs, Ilupeju T/S 45MVA 132/33kV transformer T2 secondary CB tripped on O/C. LHR = 7.5MW.
- 01:30 – 14:44Hrs, Ijora T/S 30MVA 132/33kV transformer T1A tripped on Bias Differential and O/C Red, Yellow & Blue Phases. No load loss as 30MVA 132/33kV transformer T2A was in service.
- 01:35 - 14:25Hrs, Ife T/S 30MVA 132/33kV transformer T2 primary CB tripped on Buchholz protection. LHR = 2MW
- 03:27 through 24:00Hrs, Birnin-Kebbi/Sokoto 132kV line CB tripped at Sokoto T/S on O/C Yellow phase, 86 lockout relay. LHR = 52MW
- 10:58 through 24:00Hrs, Ikeja-West/Akangba 330kV line 1 (cct W3L) CBs tripped at both ends on the following relay indications:
At Ikeja-West T/S: Siprotec Relay: General trip, Blue Phase, zone 1 trip, 50N/51 pickup, PU time = 123ms, trip time = 44ms, distance = 7.3km
Micom Relay: General trip 3 phases fault, zone 1 trip, started phase C-N, trip phases AB&C, O/C start 1>23, E/F start IN1, O/C trip, 1<3, fault duration = 142.3ms, relay trip time = 87.68ms
At Akangba T/S: NARI Relay: Instantaneous O/C 3 phases. LHR = 90MW
- 10:58 – 11:29Hrs, Akangba T/S 330kV bus coupler CB tripped on O/C time element. LHR = 7MW.
- 10:58 - 11:29Hrs, Ikeja-West/Akangba 330kV line 2 (cct W4L) CB tripped at Akangba T/S on NARI Relay: Instantaneous O/C 3 phases. LHR = 90MW.
- 11:00 - 14:02Hrs, Alagbon T/S 300MVA 330/132kV transformer TR1 primary CB tripped on protection main 1, Red & Yellow phases, trip lockout relay and protection main 1 trip over voltage. LHR = 45MW
- 16:48 through 24:00Hrs, Alagbon T/S Bus coupler CB tripped on neutral O/C Red, Yellow & Blue Phase. Load loss = 7MW. (The bus coupler CB protect a feeder).
- 16:48 through 24:00Hrs, Alagbon T/S 2 x 66MVA 132/33kV transformers T1 & T2 secondary CBs tripped on SBEF. LHR = 6MW each.
- 16:48 through 24:00Hrs, Alagbon T/S 60MVA 132/33kV transformer T11 secondary CB tripped on neutral O/C Red, Yellow & Blue Phases.
- 19:50 - 19:59Hrs, Akure/Ado 132kV line CB tripped at Akure T/S on O/C Yellow & Blue Phases zone 1. LHR = 15MW.
- 21:58 – 22:11Hrs, Birnin-Kebbi/Niamey 132kV line CB tripped at Birnin-Kebbi T/S on O/C Red, Yellow & Blue Phases. LHR = 103MW.

5 (C) **PLANNED OUTAGES:-**

- 08:28 - 20:08Hrs, Mando/Kaduna Town 1, 132kV lines 1 & 2 were taken out for the continuation of replacement of ACSR conductors with ACCC types. Load loss = 40MW.
- 13:59 – 16:47Hrs, Ayede T/S 100MVA 132/33kV transformer T1 primary & secondary CBs were taken out to replace burnt Red & Yellow Phases clamps on the secondary bus isolator. Load loss = 0.1MW.

5(D) **URGENT OUTAGES:**

- 00:07 through 24:00Hrs, Okpai ST18 was shut down on maintenance. Load loss = 60MW
- 00:20 - 12:20Hrs, Abakaliki T/S 60MVA 132/33kV transformer T2 was taken out due to Buchholz trip alarm that came up on the transformer. Load loss= 12.6MW
- 08:30 through 24:00Hrs, Geregu NIPP GT23 was shut down due to gas constraints. Load loss = 80MW.
- 13:02 – 14:28Hrs, Iseyin T/S 45MVA 132/33/11kV transformer T1 primary CB was taken out to build its low SF6 gas pressure and top low oil level on the secondary Red Phase CT to normal. Load loss = 3MW.
- 14:26 through 24:00Hrs, Delta GT4 was shut down due to high vibration. Load loss = 20MW.

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

5 (E) **EMERGENCY OUTAGES:-**

The under mentioned lines were opened on frequency control.

- 19:10 – 19:19Hrs & 21:06 – 21:13Hrs, Osogbo/Akure/Ado-Ekiti 132kV line. Load loss = 43MW & 35MW respectively. Frequency was 49.62Hz & 49.40Hz respectively.
- 19:11 – 20:13Hrs, Ikeja West/Oworonsoki 132kV lines 1 & 2. Load loss = 56MW. Frequency was 49.84Hz.
- 19:14 – 19:37Hrs, Akangba/Ojo 132kV line 2. Load loss = 18MW. Frequency was 49.62Hz.
- 19:14 – 19:21Hrs, Osogbo/Ife/Ilesha 132kV line. Load loss = 66MW. Frequency was 49.32Hz.
- 21:08 – 21:21Hrs, Ikeja West/Alimosho 132kV lines 1 & 2. Load loss = 87MW. Frequency was 49.30Hz.

5 (F) **AUTOMATIC UNDER FREQUENCY OPERATION:-**

- 19:13 – 19:27Hrs, Akangba/Aja 33kV feeder. LHR = 15.8MW.
- 19:14 – 19:28Hrs, Akangba T/S 60MVA 132/33kV transformer 10T1A secondary CB. LHR = 17MW.

5 (G) **330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:-** ccts J2H & 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, W3L & S5B.

5 (K) **330KV LINES THAT ARE ON SOAK:-** ccts N4J, A2K & F1K.

6 **WEATHER REPORT:-** Rainfall was reported in Ikeja-West, Ibadan, Akangba, Egbin, Osogbo, New Haven.

7 **INTERNATIONAL LINES:-**

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

Maximum load - 247MW at 21:00Hrs.
Minimum load - 172MW at 12:00Hrs.

B **BIRNIN KEBBI/NIAMEY 132KV LINE**

Maximum load - 105MW at 24:00Hrs.
Minimum load - 66MW at 23:00Hrs.

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

Maximum load - 40.0MW at 21:00Hrs.
Minimum load - 26.0MW at 11:00Hrs.

8 **MISCELLANEOUS:-**

- 00:14 - 16:02Hrs, Afam VI GT12 was shut down on frequency management. Load loss = 116MW
- 00:23 through 24:00Hrs, Okpai GT11 was shut down on frequency management. Load loss = 100MW
- 00:49 - 15:19Hrs, Delta GT16 was shut down on frequency management. Load loss = 70MW
- 00:59Hrs, Kainiji P/S reduced generation by 50MW. Frequency was 50.53Hz.
- 01:01Hrs, Odukpai NIPP reduced generation by 50MW. Frequency was 50.53Hz.

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

GROUP 2A - UNITS FROM ODUKPAI, 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 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).

11 (A) COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	33
OPTIC FIBRE	13	10
PLS	14	5

11 (B) SCADA RTU STATUS

STATIONS	NO. INSTALLED	NO OF RTU SUBSCRIBER	NO OF RTU WORKING
POWER STATIONS	8	5	3
330kV	19	7	12
132kV	102	78	24

- 6 01:35 - 16:48Hrs, Odukpani NIPP GT3 was shut down on frequency management. Load loss = 35MW
 - 7 01:41Hrs, Osogbo T/S 330kV 75MX Shunt Reactor 4R1 was placed in service on voltage control. V/P = 345/340kV
 - 8 06:52Hrs, Egbin P/S reduced generation by 55MW. Frequency was 50.53Hz
 - 9 07:08 - 16:05Hrs, Jebba/Osogbo 330kV line 2 (cct J2H) was taken out on voltage control. V/P = 350/349kV.
 - 10 07:43Hrs, Katampe T/S 75MX 330kV Shunt Reactor R1 was placed in service on voltage control. V/P = 344/336kV.
 - 11 08:06Hrs, Egbin P/S reduced generation by 55MW. Frequency was 50.80Hz.
 - 12 08:07 through 24:00Hrs, Jebba G/S 2G2 was shut down on frequency management. Load loss = 70MW.
 - 13 08:33Hrs, Afam VI P/S reduced generation by 60MW. Frequency was 50.68Hz.
 - 14 08:33Hrs, Omoku GT1 was shut down on frequency management. Load loss = 15MW
 - 15 08:38Hrs, Geregu NIPP GT23 was shut down on frequency management. Load loss = 80MW
 - 16 08:41 - 14:15Hrs, Omotosho Gas GT3 was shut down on frequency management. Load loss = 30.3MW
 - 17 11:03Hrs, Ikeja-West T/S 75MX 330kV Reactors 1 & 2 were placed in service on voltage control. V/P = 345/338kV
 - 18 12:26Hrs, Jebba 2G4 was tied. The unit was out on frequency management.
 - 19 13:22Hrs, Egbin P/S increased generation by 50MW. Frequency was 50.19Hz.
 - 20 13:33Hrs, Olorunsogo NIPP GT1 was tied. The station had been out since 04/03/2018 due to gas constraint.
 - 21 13:38Hrs, Delta GT4 was tied. The unit was out due to high vibration.
 - 22 15:44 - 15:51Hrs, Shiroro 411G2 deloaded from 131MW to 55MW.
 - 23 18:21Hrs, Shiroro 411G3 was tied. The unit had been out due to turbine pit flooding.
- ***** 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(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-Ekperne 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 330kV T/S, 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/Osobgo 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, Ugwuaji, 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

