

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF WEDNESDAY 11/04/2018

FOR: EVENTS OF TUESDAY 10/04/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	23,030	23:00	10/04/2018
GENERATION CAPABILITY	7204.1	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5226.1	-do-	-do-
PEAK GENERATION	4720.4	-do-	-do-
LOWEST GENERATION	2700.7	05:00	10/04/2018
8-HOURLY DURATION PEAK	2946.2	0100-0800	-do-
	3678.4	0900-1600	-do-
	4720.4	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		Omotosho T/S	01:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe, Kumbotso & Yola T/S	06:00, 13:00 & 21:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	50.76	04:08
LOWEST FREQUENCY	49.99	15:01

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018		No. of days since last total collapse: 63											
Date of last partial collapse: 17 th Oct., 2017		No. of days since last partial collapse: 165											
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
	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
	Total	1	0	1	0	2	0	1	0	0	1	0	6
	Partial	--	--	1	0	2	0	0	0	1	0	0	4
2015	Total	--	--	2	3	6	5	0	0	1	2	2	22
	Partial	--	--	1	0	1	3	1	0	0	0	0	6
2016	Total	5	3	0	3	1	1	0	0	1	1		15
	Partial	1	0	1	0	0	0	1	0	0	3		9
2017	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	289	117
2 JEBBA	HYDRO	321	142
3 SHIRORO	HYDRO	199	90
4 EGBIN ST2 - 5	STEAM	645	396
5 SAPELE	STEAM	55	54
6 DELTA	GAS	599	290
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	371	180
9 OMOTOSHO GAS	GAS	211.6	126.9
10 OLORUNSOGO GAS	GAS	133.6	101.9
11 GEREGU NIPP	GAS	120	90
12 SAPELE NIPP	GAS	190.3	69.2
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	105.1	68.2
15 OMOTOSHO NIPP	GAS	108	82.6
16 ODUKPANI NIPP	GAS	220.6	145.1
17 IHOVBOR NIPP	GAS	111.4	80.1
18 OKPAI	GAS	125	82
19 AFAM VI	GAS	417	220
20 IBOM POWER	GAS	102.9	73
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	81.7	54.2
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	150	85
26 AZURA - EDO IPP	(GAS)	0	0
27 EGBIN ST6	(GAS)	0	0
28 PARAS ENERGY	(GAS)	69.4	68.6
29 GBARAIN NIPP	GAS	94.8	84.9
TOTAL		4720.4	2700.7

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	5205.00	216.88	5187.40	216.14
2 JEBBA	HYDRO	4969.00	207.04	4943.76	205.99
3 SHIRORO	HYDRO	3935.00	163.96	3902.39	162.60
4 EGBIN ST2 - 5	STEAM	10875.00	453.13	10193.00	424.71
5 SAPELE	STEAM	1088.80	45.37	1082.00	45.08
6 DELTA	GAS	10319.68	429.99	9995.40	416.48
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	6024.30	251.01	5995.82	249.83
9 OMOTOSHO GAS	GAS	3702.00	154.25	3668.50	152.85
10 OLORUNSOGO GAS	GAS	2868.71	119.53	2842.91	118.45
11 GEREGU NIPP	GAS	2601.38	108.39	2587.35	107.81
12 SAPELE NIPP	GAS	1595.03	66.46	1572.95	65.54
13 ALAQJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	2206.10	91.92	2180.70	90.03
15 OMOTOSHO NIPP	GAS	2329.30	97.05	2301.00	95.88
16 ODUKPANI NIPP	GAS	4426.00	184.42	4398.50	183.27
17 IHOVBOR NIPP	GAS	2240.00	93.33	2226.96	92.79
18 OKPAI	GAS	2606.00	108.58	2552.30	106.35
19 AFAM VI	GAS	6199.30	258.30	6094.18	253.92
20 IBOM	GAS	1738.36	72.43	1731.00	72.13
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	560.75	23.36	560.30	23.35
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1674.80	69.78	1644.94	68.54
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	2664.10	111.00	2658.06	110.75
27 EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	1639.30	68.30	1629.10	67.88
29 GBARAIN NIPP	GAS	2006.70	83.61	1990.00	82.92
TOTAL		83,474.61	3,478.11	81,918.52	3,413.27

1.7A GENERATION POSITION AT 06:00HRS OF WEDNESDAY 11/04/2018

	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	235	1G5, 6 & 12 - 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, 2 & 5 3	285	239	2G3 - 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	200	176	Available units on bar.
	EGBIN STEAM	5	ST1, 2, 4 & 5 4	880	580	ST1, 2, 4 & 5 4	580	562	ST3 - Tripped on high vibration since 19th June 2017. Generation reduced on frequency management.
	SAPELE (STEAM)	6	ST2 1	120	56	ST2 1	56	56	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.
	DELTA (GAS)	18	GT7, 9 - 13, 15, 16 & 18 - 20 11	635	635	GT7, 9 - 13, 15, 18- 20 10	535	518	GT3 & 5 - Out due to generator winding fault. GT4 - Shut down due to vibration problem. GT6 & 14 - Out on major overhaul. GT16 - Shut down on frequency management. GT17 - Out on excitation trouble.
	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 3	435	276	Generation reduced on frequency management.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT2 - 5, 7 & 8 6	228	182.2	GT1 - 6 - Out due to gas constraint. Generation reduced on frequency management.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT4 - 6 & 8 4	152	123	GT1 - 3 & 7 - Out due to gas constraint. Generation reduced on frequency management.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT22 1	145	100	GT21 - Out on maintenance. GT22 - Generation reduced on frequency management. GT23 - Out due to gas constraint.
	SAPELE NIPP	4	GT1 & 4 2	225	225	GT1 & 4 2	225	166.8	GT2 & 3 - Out due to high air inlet differential pressure. GT1 & 4 - On frequency response.
	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	72.5	GT2 & 3 - Out due to gas constraint. GT4 - Out due to ignition failure and control relay failure alarm. ST13 & ST23 - Out on maintenance. Generation reduced on frequency management.
	OMOTOSHO NIPP GAS	4	GT1, 2 & 4 3	375	360	GT2 1	120	96	GT1 & 4 - Out due to gas constraint. GT3 - Shut down due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT4 & 5 2	360	345	GT4 1	115	95.8	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Tripped on high air inlet differential pressure. GT5 - Out on frequency management.
	IHOVBOR NIPP	4	GT1 & 3 2	225	225	GT3 1	112.5	79.1	GT1 - Out due to gas constraint. GT2 - Out due to gas outlet valve problem. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	0 0	0	0	GT2 - Tripped due to tripping of tripping of Owerri/Ahoada 132kV lines 1 & 2.
IPP	OKPAI GAS/STEAM	3	GT12 1	150	150	GT12 1	150	108	GT11 & ST18 - Out on maintenance. GT12 - On frequency response.
	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	358	GTST10 - Shut down on frequency management.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	82.6	GT1 & 2 - Out on fault.
	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	67.1	GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul. Generation reduced on frequency management.
	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	110	GT1 - Generation reduced on frequency management.
	SUB TOTAL	130	78	7689.5	7151.5	53	4553.5	3703.1	Frequency = 50.42Hz.

1.7B GENERATION POSITION AT 06:00HRS OF WEDNESDAY 11/04/2018 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	68.6	68.6	GT2 - 9	68.6	68.6	Available units on bar.
		8			8			
SUB TOTAL		9	68.6	68.6	8	68.6	68.6	
GRAND TOTAL		139	7758.1	7220.1	61	4,622.10	3,771.70	Frequency = 50.42Hz.

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1.7C BILATERAL AGREEMENT UNITS DISPATCH - TUESDAY 10/04/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	ON	0100HRS	24HRS	NIL
	PTCEXPRESS	13	1600HRS	12HRS	TRIPPED ON INST O/C AND INST. E/F
	SANKYO	ON	1800HRS	7HRS	TRIPPED ON INST O/C AND INST. E/F AND E/F
	FEEDER 8	15	1500HRS	24HRS	NIL
IKORODU	PULK IT	1	0900	24	nil
	INDUSTRIAL	22	2100	24	nil
	SPINTEX	8	0100	24	nil
	DANGOTE	ON	0100	24	nil
	LAND CRAFT	30	0600	24	nil
ALAUSA	TR4 15MVA	4.6	13:00	11HRS	LOW SF6 ON T1-45MVA/ DISCONNECTION
	TR5 -15MVA	3.7	13:00	11HRS	LOW SF6 ON T1-45MVA/ DISCONNECTION
	ALAUUSA	12.9	16:00	24HRS	nil
MLAND	PTC (MARYLAND)	15	20:00HRS	24HRS	nil
TOTAL LOAD		125.2			

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West Sakete 330kV line	69.4	20:00	24:00	NIL

1.8 HYDROLOGICAL DATA: WEDNESDAY 11/04/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	136.51	99.92	370.02
TAIL WATER ELEVATION (METERS)	102.2	73.9	270.20
GROSS OPERATING HEAD (METERS)	34.31	26.02	99.82
AVERAGE TURBINE DISCHARGE (M3/SEC)	698.00	894.00	195.00
AVERAGE SPILLAGE (M3/SEC)	303.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1001	894	195
COMPUTED INFLOW (M3/SEC)	0.00	1056.00	129.00
STORAGE DIFFERENTIAL	-1001.00	162	-66
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 TUESDAY 10/04/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	598.00	23:00	563.3	403.3	06:00
EKO	436.0	22:00	590.98	103.9	01:00
IKEJA	550.9	21:00	559.52	193.5	01:00

2.0 GAS POSITION: WEDNESDAY 11/04/2018

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	580	520
DELTA (GAS)	402	915	535	535	380
OMOTOSHO GAS	177.9	336.8	229	229	107.8
OMOTOSHO NIPP	99.4	500	120	120	380
OLORUNSOGO (GAS)	111.5	336	152	152	184
OLORUNSOGO NIPP	101.4	750	120	120	630
SAPELE NIPP	174.3	500	225	225	275
SAPELE STEAM	0	720	56	56	664
AFAM IV-V	0	300	0	0	300
AFAM VI	350	650	450	450	200
GEREGU GAS	172	435	435	435	0
GEREGU NIPP	100	435	145	145	290
OKPAT (GAS/STEAM)	114	480	150	150	330
ALAJI NIPP	0	504	0	0	504
IHOVBOR NIPP	0	450	112.5	112.5	337.5
IBOM	72.7	198	115	115	83
ODUKPANI NIPP	285.1	625	115	115	510
TOTAL	2737.3	9236.59	3539.5	3539.5	5695.3

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : TUESDAY 10/04/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF WEDNESDAY 11/04/2018 = 0MW. FREQUENCY 50.42Hz.

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		0	
		GT4		0	
4	Geregu NIPP	GT22	35	0	0
		GT1	0		
5	Omotosho NIPP	GT2	40	0	0
		GT3		0	
		GT4		0	
		GT4		0	
TOTAL (MW)			295	0	0

4.0 UNUTILIZED GENERATION CAPABILITY

The unutilized generation capability for Wednesday 11/04/2018 as at 0600Hrs was = **2304.8MW.**

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNUTILIZED GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Omotosho NIPP GT1 & 4	240	0	240	1325.5
2	Ihovbor GT1	112.5	0	112.5	
3	Alaji NIPP GT1, 2 & 4	360	0	360	
4	Olorunsogo Gas GT1 - 3 & 7	152	0	152	
5	Olorunsogo NIPP GT2 & 3	240	0	240	
6	Omotosho gas GT1 & 6	76	0	76	
7	Geregu NIPP GT23	145	0	145	
				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 1518.75MSCF OF GAS (EQUIVALENT TO 5695.3MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Trans-Amadi GT1 & 2	40	0	40	40
				0	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Kainji IGS 6 & 11	290	235	55	844.3
2	Delta GT16	100	0	100	
3	Jebba 2G4	95	0	95	
4	Rivers IPP GT1	160	110	50	
5	Olorunsogo NIPP GT1	120	72.5	47.5	
6	Olorunsogo Gas GT4 - 6 & 8	152	123	29	
7	Alaji ST10	200	0	200	
8	Egbin ST1, 2, 4 & 5	580	562	18	
9	Giregu Gas GT11 - 13	435	276	159	
10	Geregu NIPP GT22	145	100	45	
11	Omotosho Gas GT2 - 5, 7 & 8	228	182.2	45.8	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
1	Jebba 2G4	95	0	95	95
Grand Total					2304.8

5.0 **OUTAGES:**

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

1 07:59 – 14:17Hrs, Sapele NIPP GT1 tripped on gas air temperature low alarm. LHR = 79.4MW.

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

- 1 04:37 – 04:55Hrs, Ayede/Shagamu 132kV line CB tripped at Ayede T/S on Optimho relay – zone 1 C –N, location = 40.66km, period = 69.5ms and Micom back up relay flagged on O/C Blue Phase. LHR = 16MW.
- 2 14:19 – 14:32Hrs, Okada T/S 40MVA 132/33kV transformer T2 primary & secondary CBs tripped on the following relay indications:
On primary CB: HV and E/F relays.
On secondary CB: Master trip relay. LHR = 1.5MW.
- 3 20:20 - 20:51Hrs, Akure/Ado 132kV line tripped at Akure T/S on O/C Red Phase. LHR = 16MW.

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

- 1 12:47 – 17:17Hrs, Ojo T/S 60MVA 132/33kV transformer T4A was taken out for annual preventive maintenance. LHR = 20MW.
- 2 12:53 – 17:16Hrs, Agbara/Ojo 132kV line 1 was taken out for annual preventive maintenance of line bay. No load loss as line 2 was in service.

5 (D) **URGENT OUTAGES:**

- 1 06:01 - 11:48Hrs, Shiroro 411G3 was shut down due to faulty governor head. Load loss = 45MW.
- 2 07:23 - 15:50Hrs, Delta P/S GT20 was shut down due to mechanical differential pressure alarm that came up on the unit. Load loss = 50MW.
- 3 10:25 - 12:53Hrs, Akangba T/S 90MVA 330/132kV transformer 5T2B was taken out to top up low oil level to normal. No load loss as 3x90MVA 330/132kV transformers were in service.
- 4 11:25 – 13:23Hrs, Ito T/S 60MVA 132/33kV transformer T1B was taken out to treat hot spot on the secondary overhead Red Phase down dropper conductor to the CT. LHR = 7MW.
- 5 11:53 – 12:05Hrs, Ithovbor T/S 60MVA 132/33kV transformer T22 secondary CB was taken out to treat hot spot on the Red Phase CT clamp. Load loss = 0.1MW.
- 6 13:07 – 15:34Hrs, Akangba T/S 150MVA 330/132kV transformer 5T4A was taken out to top up tap changer compartment oil level to normal. LHR = 17MW.

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 GENERATOR 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).

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

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

5 (G) **330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:-** ccts A2K, B2T & 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 & 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 - 244MW at 20:00Hrs.
Minimum load - 137MW at 01:00Hrs.

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

Maximum load - 105MW at 24:00Hrs.
Minimum load - 85MW at 19:00Hrs.

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

Maximum load - 39.1MW at 21:00Hrs.
Minimum load - 27.0MW at 07:00Hrs.

8 **MISCELLANEOUS:-**

- 1 00:27 - 15:03Hrs, Omoku P/S GT1 was shut down on frequency management. Load loss = 16.1MW.
- 2 01:08Hrs, Ikot-Ekpene/Ugwuaji 330kV line 3 (cct K3U) was taken out on voltage control. V/P = 362/350kV.
- 3 07:22Hrs, Delta P/S GT16 was tied. The unit was out on frequency management.
- 4 08:50 - 18:43Hrs, Benin/Ajaokuta 330kV line 1 (cct B11J) was taken out of service on voltage control. V/P = 347/345kV.
- 5 09:22Hrs, Jebba 2G2 was tied. The unit was out on frequency management.
- 6 10:41Hrs, Azura -Edo GT12 was tied for test
- 7 11:03 - 18:46Hrs, Jebba 2G1 was shut down on frequency management. Load loss = 84MW.
- 8 12:04Hrs, Kumbotso T/S 330kV 50MVAR capacitor bank 1 was removed from service on voltage control. Voltage profile: 340/320kV.
- 9 13:25 - 18:49Hrs, Shiroro T/S Hold-Off-Tag (OF12) placed on cct J7R for continuation of Optic fibre job.
- 10 14:52Hrs, Azura - Edo GT12 was shut down after test. Load loss = 152MW.
- 11 14:55Hrs, Olorunsogo Gas GT5 was tied to swap with GT2.
- 12 14:57Hrs, Olorunsogo Gas GT2 was shut down. No load loss as 25.1MW was transferred to GT2.
- 13 16:06Hrs, Ikeja West/Akangba 330kV line 1 (cct W3L) was restored. The line tripped at 10:58Hrs of 08/04/2018.

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

- 14 17:37Hrs, Jebba 2G3 was tied. The unit was out on frequency management
- 15 17:45Hrs, Omotosho Gas GT7 was tied to swap with GT6.
- 16 17:59Hrs, Omotosho GT6 was shut down. No load loss as 33.3MW was transferred to GT7.
- 17 19:04Hrs, Ikeja West T/S 330kV 75MX Reactor R1 was switched off on voltage control. V/P = 319/321kV.
- 18 19:55Hrs, Delta P/S GT15 was tied. The unit was out on maintenance.
- 19 20:02Hrs of 09/04/18 – 12:27Hrs of 10/04/2018, Dan-Agundi T/S 60MVA 132/33kV transformer T2 primary and secondary CBs tripped on the following relay indications:
Primary CB: On SBEF. Secondary CB: On CB lock out relay. LHR = 43.5MW.
20:19Hrs of 09/04/2018, Trial restoration failed on differential relay.
- 20 20:12Hrs, Afam VI GT11 was tied. The unit was out on frequency management.
- 21 20:18 – 23:11Hrs of 09/04/2018, Ayede/Shagamu 132kV line CB tripped at Ayede T/S on Optimho relay – zone 2, B- N, location = 67.23km, period = N/A. LHR = 31MW.
- 22 21:36Hrs, Sapele NIPP GT4 was tied. The unit tripped on generator fire alarm.
- 23 21:47Hrs, Jebba T/S 330kV 75MX Reactor 2R1 was switched off on voltage control. V/P = 321/322kV.
- 24 21:48Hrs, Jebba T/S 330kV 75MX Reactor 2R2 was switched off on voltage control. V/P = 322/324kV.
- ***** 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 Egbir/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/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, 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

