

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF SATURDAY 14/04/2018

FOR: EVENTS OF FRIDAY 13/04/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	23,030	22:00	13/04/2018
GENERATION CAPABILITY	6917.7	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5144.2	-do-	-do-
PEAK GENERATION	4611.8	-do-	-do-
LOWEST GENERATION	596	10:00	13/04/2018
8-HOURLY DURATION PEAK	3919.8	0100-0800	-do-
	4030.4	0900-1600	-do-
	4611.8	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		Gwaqwalada T/S	12:00
LOWEST VOLTAGE FOR THE DAY	295	Akangba T/S	17:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	50.98	09:38
LOWEST FREQUENCY	48.60	09:07

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018		No. of days since last total collapse: 65																						
Date of last partial collapse: 12 th April., 2018		No. of days since last partial collapse: 01																						
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											
2011	Total	--	1	--	--	--	--	1	--	1	2	--	6											
	Partial	--	--	2	1	5	2	1	--	2	2	1	16											
	Total	--	--	2	3	--	--	--	1	--	1	1	8											
2012	Total	--	1	2	2	3	4	1	1	1	4	2	22											
	Partial	--	--	--	--	--	--	--	2	--	--	--	2											
2013	Total	2	--	0	2	0	3	1	0	0	1	0	9											
	Partial	--	--	0	0	1	0	0	0	0	2	1	4											
2014	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	0									6											
	Partial	0	0	0	1								1											

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)
1 KAINJI	HYDRO	363	81
2 JEBBA	HYDRO	252	0
3 SHIRORO	HYDRO	198	0
4 EGBIN ST2 - 5	STEAM	363	0
5 SAPELE	STEAM	0	0
6 DELTA	GAS	490	230
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	368	0
9 OMOTOSHO GAS	GAS	203.6	0
10 OLORUNSOGO GAS	GAS	162	0
11 GEREGU NIPP	GAS	242	0
12 SAPELE NIPP	GAS	190.9	0
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	191.1	0
15 OMOTOSHO NIPP	GAS	107.3	0
16 ODUKPANI NIPP	GAS	200.7	19.5
17 IHOVBOR NIPP	GAS	0	0
18 OKPAI	GAS	125	0
19 AFAM VI	GAS	280	0
20 IBOM POWER	GAS	106.7	93.6
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	76.1	66.9
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	158	105
26 AZURA - EDO IPP	(GAS)	462	0
27 EGBIN ST6	(GAS)	0	0
28 PARAS ENERGY	(GAS)	70.2	0
29 GBARAIN NIPP	GAS	0	0
TOTAL		4611.8	596

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	7499.00	312.46	7482.30	311.76
2 JEBBA	HYDRO	5696.00	237.33	5670.88	236.29
3 SHIRORO	HYDRO	3807.00	158.63	3775.18	157.30
4 EGBIN ST2 - 5	STEAM	7552.00	314.67	7165.90	298.58
5 SAPELE	STEAM	0.00	0.00	0.00	0.00
6 DELTA	GAS	8825.30	367.72	8606.30	358.60
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	8009.00	333.71	7977.70	332.40
9 OMOTOSHO GAS	GAS	3997.00	166.54	3967.80	165.33
10 OLORUNSOGO GAS	GAS	2839.19	118.30	2813.59	117.23
11 GEREGU NIPP	GAS	3190.38	132.93	3173.37	132.22
12 SAPELE NIPP	GAS	3542.75	147.61	3519.60	146.65
13 ALAQJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	2454.70	102.28	2417.30	100.72
15 OMOTOSHO NIPP	GAS	1982.30	82.60	1954.00	81.42
16 ODUKPANI NIPP	GAS	2346.53	97.77	2325.83	96.91
17 IHOVBOR NIPP	GAS	1176.00	49.00	1156.22	48.18
18 OKPAI	GAS	2357.00	98.21	2305.90	96.08
19 AFAM VI	GAS	4475.50	186.48	4376.52	182.36
20 IBOM	GAS	1393.45	58.06	1385.00	57.71
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	3649.30	152.05	3635.20	151.47
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1538.90	64.12	1505.58	62.73
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	2058.30	85.76	2052.82	85.53
27 EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	1373.80	57.24	1365.00	56.88
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
TOTAL		79,763.40	3,323.48	78,631.99	3,276.33

1.7A GENERATION POSITION AT 06:00HRS OF SATURDAY 14/04/2018

	STATIONS	NO OF INSTALLED UNITS	AVAILABLE UNITS	INSTALLED CAPACITY OF AVAILABLE UNITS(MW)	GENERATION CAPABILITY OF AVAILABLE UNITS(MW)	UNITS ON BAR	CAPABILITY OF UNITS ON BAR (MW)	GENERATION AT 06:00HRS (MW)	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	370	1G5, 6, 11 & 12 4	370	294	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	6	2G1 - 5 5	475	475	2G1, 3 & 5 3	285	222	2G1, 3 & 5 - On frequency response. 2G2 & 4 - Out on water management. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G2 & 3 2	300	300	411G2 & 3 2	203	187	Available units on bar.
	EGBIN STEAM	5	ST1, 2 & 4 3	660	660	ST1, 2 & 4 3	473	473	ST3 - Tripped on high vibration since 19th June 2017. ST5 - Out on fault.
	SAPELE (STEAM)	6	0 0	0	0	0 0	0	0	ST1 - Tripped on low drum level. ST2 - Out on 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	GT4, 7, 9 - 13, 16 & 18 - 20 11	555	555	GT4, 7, 9 - 13, 16, 18- 20 11	540	490	GT3 & 5 - Out due to generator winding fault. GT6 & 14 - Out on major overhaul. GT15 - Out on maintenance. 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	326	Available units on bar.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 2, 4 & 6- 8 6	228	211.2	GT3 & 5 - Out due to gas constraint.
	OLORUNSGO GAS	8	GT1 - 8 8	336	304	GT2 - 5 & 8 5	190	167.4	GT1, 6 & 7 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT22 & 23 2	290	221	GT21 - Out on maintenance.
	SAPELE NIPP	4	GT1 & 4 2	225	225	GT1 & 4 2	225	167.3	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.
	OLORUNSGO NIPP	6	GT1 - 3 3	375	360	GT1 & 3 2	240	193.1	GT2 - Out due to gas constraint. GT4 - Out due to ignition failure and control relay failure alarm. ST13 & ST23 - Out on maintenance. Available units on bar.
	OMOTOSHO NIPP GAS	4	GT1, 2 & 4 3	375	360	GT4 1	120	83.5	GT1 & 2 - Out due to gas constraint. GT3 - Shut down due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT4 & 5 2	240	230	GT4 & 5 2	230	166.2	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Tripped on high air inlet differential pressure.
	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 MCC Bus no1 under voltage. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	0 0	0	0	0 0	0	0	GT2 - Out on maintenance.
IPP	OKPAI GAS/STEAM	3	GT12 1	150	150	GT12 1	150	100	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 2	300	233	GT12 & ST10 - Shut down on frequency management.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	76.2	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	75.9	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	160	Available unit on bar.
	SUB TOTAL	130	75	7074.5	6835.5	55	4634	3846.8	Frequency = 50.47Hz.

1.7B GENERATION POSITION AT 06:00HRS OF SATURDAY 14/04/2018 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	69.4	69.4	GT2 - 9	69.4	69.4	Available units on bar.
		8			8			
SUB TOTAL	9	8	69.4	69.4	8	69.4	69.4	
GRAND TOTAL	139	83	7143.9	6904.9	63	4,703.40	3,916.20	Frequency = 50.47Hz.

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1.7C BILATERAL AGREEMENT UNITS DISPATCH - FRIDAY 13/04/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	ON	0100HRS	23	132KV CIRCUIT OPENED ON LS
	PTCEXPRESS	8	1600HRS	23	132KV CIRCUIT OPENED ON LS
	SANKYO	ON	0100HRS	23	132KV CIRCUIT OPENED ON LS
	FEEDER 8	9	1200HRS	23	132KV CIRCUIT OPENED ON LS
IKORODU	PULK IT	2	2200HRS	24	NIL
	INDUSTRIAL	16	0900HRS	24	NIL
	SPINTEX	8	0100HRS	24	NIL
	DANGOTE	1	0100HRS	24	NIL
	LAND CRAFT	38	1900HRS	24	NIL
ALAUUSA	TR4 15MVA	4.1	1500HRS	24	NIL
	TR5 -15MVA	4.1	0800HRS	24	NIL
	ALAUUSA	8.3	1200HRS	14	DUE TO CUT RED PHASE PILOT CABLE ON THE LINE ISOLATOR
MLAND	PTC (MARYLAND)	18MW	1400HRS	21HRS	DUE TO SYSTEM COLLAPSED
	TOTAL LOAD	98.5			

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	70.2	21:00	20	Partial system disturbance

1.8 HYDROLOGICAL DATA: SATURDAY 14/04/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	136.25	99.90	369.73
TAIL WATER ELEVATION (METERS)	102.56	73.6	270.00
GROSS OPERATING HEAD (METERS)	33.89	26.30	99.73
AVERAGE TURBINE DISCHARGE (M3/SEC)	1030.00	1068.00	186.00
AVERAGE SPILLAGE (M3/SEC)	0.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1030	1068	186
COMPUTED INFLOW (M3/SEC)	6.00	1068.00	10.00
STORAGE DIFFERENTIAL	-1024.00	0	-176
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 FRIDAY 13/04/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA					
EKO					
IKEJA					

2.0 GAS POSITION: SATURDAY 14/04/2018

STATION	SIGNED ACO Annual Contracted Quantity MMSCFD	INSTALLED CAPACITY OF THERMAL STATIONS (MW)	PREVIOUS DAY OFF-TAKE (MMSCFD)	CAPABILITY OF UNITS ON BAR OF THERMAL STATIONS (MW)	DIFFERENCE (MW)
EGBIN P/S	577	1100		473	627
DELTA (GAS)	402	915		540	375
OMOTOSHO GAS	177.9	336.8		228	108.8
OMOTOSHO NIPP	99.4	500		120	380
OLORUNSOGO (GAS)	111.5	336		152	184
OLORUNSOGO NIPP	101.4	750		240	510
SAPELE NIPP	174.3	500		225	275
SAPELE STEAM	0	720		0	720
AFAM IV-V	0	300		0	300
AFAM VI	350	850		300	350
GEREGU GAS	172	435		435	0
GEREGU NIPP	100	435		290	145
ORPAI (GAS/STEAM)	114	480		150	330
ALAOJI NIPP	0	504		0	504
IHOVBOR NIPP	0	450		112.5	337.5
IBOM	72.7	198		115	83
ODUKPANI NIPP	285.1	625		230	395
TOTAL	2737.3	9234.80		3610.5	5624.3

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : FRIDAY 13/04/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF SATURDAY 14/04/2018 = 0MW. FREQUENCY 50.47Hz.

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 Saturday 14/04/2018 as at 0600Hrs was = 1602.5MW.

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 & 2	240	0	240	1022.5
2	Ihobar GT1	112.5	0	112.5	
3	Alaoji NIPP GT1, 2 & 4	360	0	360	
4	Olorunsogo Gas GT1, 6 & 7	114	0	114	
5	Olorunsogo NIPP GT2	120	0	120	
6	Omotosho gas GT3 & 5	76	0	76	
				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 1499.81MMSCF OF GAS (EQUIVALENT TO 5624.3MW) 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	Alam VI GT12 & ST10	350	0	350	350
				0	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
1	Jebba 202 & 4	190	0	190	190
Grand Total				1602.5	1602.5

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 1 01:44 - 02:49Hrs, Ihovbor NIPP GT3 tripped on MCC Bus alarm. LHR = 105.9MW.
- 2 05:58 - 17:25Hrs, Delta GT4 tripped on gas control valve. LHR = 20MW.
- 3 11:57 - 14:32Hrs, Egbin ST2 tripped on high voltage. LHR = 30MW
- 4 15:33 – 17:10Hrs, Egbin P/S ST4 tripped on temperature control valve problem. LHR = 38MW
- 5 16:51 - 23:19Hrs, Ihovbor NIPP GT3 tripped on heat vent very high temperature turbine compartment. LHR = 88MW.

5 (B) FORCED OUTAGES (TRANSMISSION):-

- 1 13:05 – 13:38Hrs, Osogbo T/S 60MVA 132/33kV transformer 4T4 secondary CB tripped on NARI relay: 33kV back up protection, E/F (residual O/C secondary) earthing transformer protection, SBEF relay stage 1. LHR = 20.8MW
- 2 13:57 – 17:47Hrs, Osogbo/Akure 132kV line CB tripped at Osogbo T/S on BBC relay: Distance protection trip, short circuit step 2. LHR = 43MW
- 3 19:05 through 24:00Hrs, Akure T/S 30MVA 132/33kV transformer T3 primary & secondary CBs tripped on O/C Blue phase and differential relays. LHR = 18.6MW. The transformer was left out for maintenance attention.
- 4 09:07 through 24:00Hrs, Onitsha/Alaoji 330kV line (cct T4A) CB tripped at Alaoji T/S due to cut Blue phase conductor to CVT clamp at Onitsha T/S on ohmega relay: DEF, aided trip, trip relay 86T and location = 575.79km. LHR = 280MW.
- 5 09:07 - 14:01Hrs, Alaoji/Ikot-Ekpena 330kV line 1 (cct A1K) CB tripped at Alaoji T/S without relay indication. LHR = 80MW
- 6 09:07 – 16:20Hrs, Alaoji NIPP/Alaoji T.S 330kV line 1 (cct L7A) CB tripped at Alaoji T/S on Sel Relay: Line differential protection main, fault type AB&G. No load loss as the line was on soak.

5 (C) PLANNED OUTAGES:-

- 1 09:37 – 20:18Hrs, Asaba/Agbor 132kV double circuits were opened for contractor to do correction on joints between towers #110, 111, 121 and 122. Load loss = 4MW
- 2 15:50 - 17:54Hrs, Sapele/Benin 330kV line 2 (cct S4B) was taken out to enable maintenance crew replace defective Blue phase C.T. with new one at Sapele T/S. No load interruption as cct S3B was in service.

5(D) URGENT OUTAGES:

- 1 05:17 - 07:58Hrs, Ihovbor/Okada 132kV line 1 was taken out due to D.C failure at Okada T/S. Load loss = 3.8MW
- 2 05:17 - 07:59Hrs, Ihovbor/Okada 132kV line 2 was taken out due to D.C failure at Okada T/S. Load loss = 0.1MW
- 3 09:31 through 24:00Hrs, Jos T/S 60MVA 132/33kV transformer T2 was taken out to carry out annual maintenance on the transformer and its associated isolators. No load loss as 18MW was transferred to 60MVA 132/33kV transformer T1.

5 (E) EMERGENCY OUTAGES:-

The undermentioned lines were opened on frequency control.

- 1 09:06 - 09:38Hrs, Osogbo/Akure/Ado-Ekiti 132kV line. Load loss = 49MW. Frequency was 49.00Hz
- 2 12:53 - 13:21Hrs, Osogbo/Akure/Ado - Ekiti 132kV line. Load loss = 47MW. Frequency was 49.90Hz
- 3 14:15 - 14:31Hrs, Osogbo/Offa/Omuaran 132kV line. Load loss = 27MW. Frequency was 49.80Hz
- 4 14:43 - 15:02Hrs, Osogbo/Offa/Omuaran 132kV line. Load loss = 29MW. Frequency was 49.79Hz

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:- NIL

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A2K, 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, T4A & S5B.

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

6 WEATHER REPORT:- Rainfall was reported in Akangba.

7 INTERNATIONAL LINES:-

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

Maximum load - 220MW at 21:00Hrs.
Minimum load - 46MW at 13:00Hrs.

B BIRNIN KEBBI/NAMEY 132KV LINE

Maximum load - 104MW at 24:00Hrs.
Minimum load - 25MW at 02:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 40.5MW at 21:00Hrs.
Minimum load - 20MW at 08:00Hrs.

8 MISCELLANEOUS:-

- 1 00:04Hrs, cct S3B was restored. The line was out due to partial system collapse.
- 2 00:26Hrs, Delta GT16 was tied. The unit was out on frequency management.
- 3 01:27Hrs, Odukpai NIPP GT4 was tied.
- 4 03:01Hrs, Jebba 2G3 was shut down on water management. Load loss = 72MW.
- 5 05:50Hrs, Delta GT4 was tied. The unit was out due to vibration.

- 6 08:34Hrs, Benin T/S placed Hold Off Tag (OF12) on ccts B5M & B6N for continuation of replacement of corroded glass insulators with silicone composite type. 11:03Hrs, cct B5M was restored and 17:06Hrs, cct B6N was restored.
- 7 09:48Hrs, Osogbo T/S 75MX 330kV Reactor 4R1 was taken out. V/P = 300/330kV
- 8 10:42Hrs, Osogbo T/S 75MX 330kV Reactor 4R1 was restored. V/P = 342/310kV
- 9 13:43 - 22:33Hrs, Azura - Edo GT12 was tied for test. Load loss = 155MW
- 10 14:20 - 22:53Hrs, Azura - Edo GT11 was tied for test. Load loss = 153MW
- 11 14:50 - 23:17Hrs, Azura - Edo GT13 was tied for test. Load loss = 80MW
- 12 15:34Hrs, Jebba 2G2 was shut down on water management. Load loss = 80MW

***** 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.

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).

11 (A) COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	32
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	6	2
330kV	19	6	13
132kV	102	78	24

12(A) UNAVAILABLE TRANSFORMERS/REACTORS:

SHIRORO REGION:

- 1 Birnin Kebbi 75MX Reactor R1.

ABUJA REGION

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

KADUNA REGION:

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

BAUCHI REGION:

- 1 Gombe T/S -30MX Reactor R2A.

ENUGU REGION:

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

LAGOS REGION:

- 1 Oke-Aro T/S 75MX Reactor R1.

PORT HARCOURT REGION

- 1 Ikot-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 T/S 330kV, 2nd series 330kV CB #3322 out due to control circuit problem.

ENUGU REGION:

- 1 New Haven/Yandev 132kV line CB - Faulty Red phase CB pole. Protection is transferred to the bus coupler CB.
- 2 Abakaliki T/S 30MVA 132/33kV transformer T1A and 60MVA 132/33kV transformer T2 primary CBs - Breakers were not provided since commissioning but the transformers are protected by Nkalagu 132kV line CB.
- 3 Oji River T/S 30MVA 132/33kV transformer T1A primary CB - The breaker is completely out of service and bypassed. The transformer is either protected by Onitsha/Oji 132kV line CB or New Haven/Oji 132kV line CB.
- 4 Oturkpo/Yandev 132kV By pass isolator - Canibalized to repair the line isolator.

SHIRORO REGION

- 1 Jebba T/S 75MX reactor 2R2 CB - exploded.

PORT HARCOURT REGION

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

12(D) LAGOS REGION

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

12(E) UNAVAILABLE CAPACITOR BANK:

- (i) Ogba T.S, (ii) Maiduguri T/S, (iii) Isolo T/S, (iv) Ado-Ekiti T/S, (v) Ilorin T/S, (vi) Akure T/S.

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21 spans.
- 2 Ikeja West/Olorunsogo line (cct R1W) - 80 spans.
- 3 330kV Ikeja West/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, Uguwaji, Osogbo, Kaduna, Jos, Gwagwalada & Alaoji T/S.

FOR MORE INFORMATION: NCC Telephone Lines -

- a PAX 09/300, 309, 303 & 305.
- b NCC GSM - 08074888524, 08069379367, 08023572651 & 08051401331. CUG Nos. 08129458488, 08129458489, 08129929806; 08036665323.
- c PLS - 622
- d GM (NCC) - 08036744641.
- e AGM (S/O) - 08056002757, CUG: 08129458475

