

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF SATURDAY 10/02/2018

FOR: EVENTS OF FRIDAY 09/02/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	21,390	23:00	09/02/2018
GENERATION CAPABILITY	7567.4	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5393.8	-do-	-do-
PEAK GENERATION	4477.4	-do-	-do-
LOWEST GENERATION	3583.7	15:00	09/02/2018
8-HOURLY DURATION PEAK	4451.8	0000-0800	-do-
	4041.7	0900-1600	-do-
	4477.4	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	363	Omotosho T/S	11:00
LOWEST VOLTAGE FOR THE DAY	291	Sakete T/S	20:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.592	14:22
LOWEST FREQUENCY	50.162	18:44

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018		No. of days since last total collapse: 09												
Date of last partial collapse: 17th Oct., 2017		No. of days since last partial collapse: 112												
Highest No of days ever attained in-between total collapses:		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	3	--	2	2	1	4	22
	Partial	1	--	--	1	1	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	4	3	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	--	0	2	0	3	1	0	0	1	0	0	9
	Partial	--	0	0	1	0	0	0	0	0	2	1	4	4
2015	Total	1	0	1	0	2	0	1	0	0	0	1	0	6
	Partial	--	--	1	0	2	0	0	0	1	0	0	0	4
2016	Total	--	--	2	3	6	5	0	0	1	1	2	2	22
	Partial	--	--	1	0	1	3	1	0	0	0	0	0	6
2017	Total	1	0	1	0	0	0	1	0	1	1	0	0	9
	Partial	5	3	0	3	1	1	0	0	1	0	0	0	15
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	400	275
2 JEBBA	HYDRO	332	233
3 SHIRORO	HYDRO	197	110
4 EGBIN ST2 - 5	STEAM	451	433
5 SAPELE	STEAM	0	0
6 DELTA	GAS	546	402
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	408	325
9 OMOTOSHO GAS	GAS	101.3	101.3
10 OLORUNSOGO GAS	GAS	162	134.6
11 GEREGU NIPP	GAS	129	88
12 SAPELE NIPP	GAS	175.5	173.5
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	213.3	160.9
15 OMOTOSHO NIPP	GAS	107.1	99.3
16 ODUKPANI NIPP	GAS	230.4	183
17 IHOVBOR NIPP	GAS	0	0
18 OKPAI	GAS	307	225
19 AFAM VI	GAS	286	220
20 IBOM POWER	GAS	77.6	73.6
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	53.8	0.9
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	60	0
26 AZURA - EDO IPP	(GAS)	0	118
27 EGBIN ST6	(GAS)	171	159
28 PARAS ENERGY	(GAS)	69.4	68.6
29 GBARAIN NIPP	GAS	0	0
TOTAL		4477.4	3583.7

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	8291.00	345.46	8273.90	344.75
2 JEBBA	HYDRO	6427.00	267.79	6402.28	266.76
3 SHIRORO	HYDRO	3649.00	152.04	3620.76	150.87
4 EGBIN ST2 - 5	STEAM	10356.00	431.50	9804.40	408.52
5 SAPELE	STEAM	0.00	0.00	0.00	0.00
6 DELTA	GAS	11433.19	476.38	11244.50	468.52
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	7971.10	332.13	7940.08	330.84
9 OMOTOSHO GAS	GAS	3027.00	126.13	3001.80	125.08
10 OLORUNSOGO GAS	GAS	3616.17	150.67	3586.93	149.46
11 GEREGU NIPP	GAS	2593.25	108.05	2579.20	107.47
12 SAPELE NIPP	GAS	4031.30	167.97	4010.66	167.11
13 AZURA - EDO IPP	GAS	722.00	30.08	717.50	29.90
14 ALAQJI NIPP	GAS	0.00	0.00	0.00	0.00
15 OLORUNSOGO NIPP	GAS	4928.10	205.34	4874.90	203.12
16 OMOTOSHO NIPP	GAS	2386.50	99.44	2365.10	98.55
17 ODUKPANI NIPP	GAS	4808.44	200.35	4774.04	198.92
18 IHOVBOR NIPP	GAS	0.00	0.00	0.00	0.00
19 OKPAI	GAS	6151.00	256.29	5991.70	249.65
20 AFAM VI	GAS	7715.15	321.46	7665.00	319.38
21 IBOM	GAS	1752.76	73.03	1744.00	72.67
22 ASCO	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	1047.70	43.65	1022.46	42.60
25 TRANS AMADI	GAS	599.20	24.97	578.20	24.09
26 RIVERS IPP	GAS	578.40	24.10	573.20	23.88
27 EGBIN ST6	STEAM	3837.00	159.88	3642.30	151.76
28 PARAS ENERGY	GAS	1661.50	69.23	1653.20	68.88
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
TOTAL		97,582.76	4,065.95	96,066.11	4,002.75

1.7A GENERATION POSITION AT 06:00HRS OF SATURDAY 10/02/2018

	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	7	1G5, 6,11 &12 4	440	440	1G5, 6, 11 & 12 4	440	114	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, 2, 4 & 5 4	380	380	2G1, 4 & 5 3	380	224	2G2 - Out on frequency management. 2G3 - Out on maintenance. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1, 3 & 4 3	435	435	411G1 & 3 2	290	105	411G2 - Out due to fallen object on the unit transformer. 411G1 & 3 - Generation reduced on frequency management. 411G4 - Out on water management.
	EGBIN STEAM	5	ST1, 2, 4 & 5 4	880	880	ST1, 2 & 4 3	660	383	ST1 - Under observation after maintenance work on the unit transformer. ST2 & 4 - Generation reduced on frequency management. ST3 - Tripped on high vibration. ST5 - Out due to low gas pressure.
	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, 15, 16, 18 - 20 12	655	655	GT4, 7, 9 - 13, 15, 16, 18 - 20 12	655	519	GT3 & 5 - Out due to generator winding fault. GT6 & 14 - Out on major overhaul. 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. GT19 & 20 - Awaiting major overhaul. GT17 - Out due to technical issue with generator auxiliary. GT18 - Tripped on load angle limitation.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 - 13 3	435	232	GT11 - 13 - Generation reduced due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 2, 4 & 6 4	152	102.6	GT3, 5, 7 & 8 - Out due to gas constraint. Generation reduced on frequency management.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2, 4, 5, 6 & 8 5	190	149.2	GT1, 3 & 7 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT23 1	145	100	GT21 - Out on maintenance. GT22 - Out due to gas constraint.
	SAPELE NIPP	4	GT1 & 3 2	230	230	GT1 & 3 2	230	148.6	GT2 - Out due to high air inlet differential pressure. GT4 - Tripped on fire protection alarm.
	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	360	360	GT1 & 2 2	240	204.5	GT1 & 2 - Generation reduced due to low gas pressure. GT3 - Out due to gas constraint. GT4 - Out of production since 25/10/2016. ST13 & ST23 - Out on maintenance.
	OMOTOSHO NIPP GAS	4	GT1, 2 & 4 3	250	240	GT2 1	120	90	GT1 & 4 - Out due to gas constraint. GT3 - Shut down due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT2 - 4 3	360	345	GT3 & 4 2	230	166.4	GT1 - Out due to high air inlet differential pressure. GT2 - Out on frequency management. GT5 - Tripped on hazardous gas fault.
	IHOVBOR NIPP	4	GT1 & 2 2	225	225	0 0	0	0	GT1 & 2 - Out due to gas constraint. GT3 - Out due to gas inlet valve problem. 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	GT11,12 & ST18 3	375	375	GT11,12 & ST18 3	207	207	GT12 - Generation reduced due to ambient temperature. ST18 - Boiler #12: Out due to broken spray water valve.
	AZURA - EDO	0	0 0	0	0	0 0	0	0	GT11 - Undergoing commissioning tests. GT12 & 13 - Awaiting commissioning.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	650	GT11 & 13 2	300	246	GT12 - Out on frequency management. ST10 - Out due to gas constraint.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 0	115	73.6	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	0	0 0	0	0	0 0	0	0	GT1 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT2, 5 & 6 3	75	60	GT2, 5 & 6 3	60	52.3	GT1 - Out due to excitation problem. 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 breaker issue at Port Harcourt Mains T/S. GT3 - Out on fault. GT4 - Out due to repeated tripping of the generator breaker.
	RIVERS	1	GT1 1	180	160	GT1 1	160	60	GT1 - Generation reduced due to gas constraint.
	SUB TOTAL	125	78	7432	7283	54	5009	3177.2	Frequency = 50.49Hz.

1.7B GENERATION POSITION AT 06:00HRS OF SATURDAY 10/02/2018 FOR UNITS ON BILATERAL AGREEMENT

FEEDER	MAX. LOAD (MW)	ST6		ST6		220	134	Available unit on bar.
		1	220	220	1			
EGBIN	1	1	220	220	1	220	134	Available unit on bar.
PARAS ENERGY	8	GT2 - 9 8	67.8	67.8	GT2 - 9 8	67.8	67.8	Available units on bar.
SUB TOTAL	9	9	287.8	287.8	9	287.8	201.8	
GRAND TOTAL	134	87	7719.8	7570.8	63	5,296.80	3,379.00	Frequency = 50.49Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - FRIDAY 09/02/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY				

	FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK
OGBA	U-STEEL	1	0800HRS	24	NIL
	PTCEXPRESS	9	2000HRS	16	TRIPPED ON O/C
	SANKYO	ON	0100HRS	24	NIL
	FEEDER 8	14	1700HRS	24	NIL
KORODU	PULK IT	1	1900HRS	17	IE INSTAL ENERGY METER AT PULKIT FACTORY
	INDUSTRIAL	22	0600HRS	19	TRIPPED ON O/C-AB AND EF
	SPINTEX	3	0700HRS	24	NIL
	DANGOTE	3	1000HRS	24	NIL
	LAND CRAFT	45	0700HRS	24	NIL
ALAJUSA	TR4 15MVA	8.8	0900HRS	24	NIL
	TR5 -15MVA	6.8	1000HRS	24	NIL
	ALAJUSA	15.1	0800HRS	21	Tripped on Inst E/F
MILAND	PTC (MARYLAND)	18	0700HRS	24	NIL
	TOTAL LOAD	146.7			

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	24	Nil

1.8 HYDROLOGICAL DATA: SATURDAY 10/02/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	140.94	102.11	371.74
TAIL WATER ELEVATION (METERS)	104.02	73.90	270.40
GROSS OPERATING HEAD (METERS)	36.92	28.21	101.34
AVERAGE TURBINE DISCHARGE (M3/SEC)	1034.00	1128.00	185.00
AVERAGE SPILLAGE (M3/SEC)	0.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1034	1128	185
COMPUTED INFLOW (M3/SEC)	189.00	1151.00	0.00
STORAGE DIFFERENTIAL	-845.00	23	-185
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 09/02/2018

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

2.0 GAS POSITION: FRIDAY 09/02/2018

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	383	1100		880	220
DELTA (GAS)	519	915		655	260
OMOTOSHO GAS	102.6	336.8		152	184.8
OMOTOSHO NIPP	90	500		120	380
OLORUNSOGO (GAS)	149.2	336		190	146
OLORUNSOGO NIPP	204.5	750		240	510
SAPLE NIPP	146.6	500		230	270
SAPLE STEAM	0	720		0	720
AFAM IV-V	0	300		0	300
AFAM VI	246	650		300	350
GEREGU GAS	232	435		435	0
GEREGU NIPP	100	435		145	290
ORPAL (GAS/STEAM)	237	483		237	246
ALAOJI NIPP	0	504		0	504
IHOVBOR NIPP	0	450		0	450
IBOM	73.6	198		115	83
ODUKPANI NIPP	166.4	625		230	395
TOTAL	2621.9	9234.80		3899	5335.8

1 MMSCF IS EQUIVALENT TO 3.79MW

3.0 SPINNING RESERVE FOR : FRIDAY 09/02/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF SATURDAY 10/02/2018 = 0MW. FREQUENCY 50.49Hz.

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	
TOTAL (MW)			295	0	0

4.0 UNUTILIZED GENERATION CAPABILITY

The unutilized generation capability for Saturday 10/02/2018 as at 0600hrs was = 2737.9MW.

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 GT1	120	0	120	1994.5
2	Ihovbor GT1 & 2	225	0	225	
3	Alaoji NIPP GT1, 2 & 4	360	0	360	
4	Olorunsogo Gas GT1, 3 & 7	114	0	114	
5	Olorunsogo NIPP GT1 - 3	360	204.5	155.5	
6	Omotosho Gas GT3, 5, 7 & 8	152	0	152	
7	Atam VI ST10	200	0	200	
8	Egbin ST5	220	0	220	
9	Geregu NIPP GT22	145	0	145	
10	Geregu Gas GT11 - 13	435	232	203	
11	Rivers IPP GT1	160	60	100	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1422.8MMSCF OF GAS (EQUIVALENT TO 5335.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Ibom Power GT3	115	73.6	41.4	81.4
2	Trans-Amadi GT1 & 2	40	0	40	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Shiroro 411GT1 & 3	230	105	185	517
2	Odukeani NIPP GT2	115	0	115	
3	Egbin ST1, 2 & 4	600	383	217	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
1	Shiroro 411G4	145	0	145	145
Total					2737.9

5.0 **OUTAGES:-**

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

- 04:28 through 24:00Hrs, Odukpani NIPP GT5 tripped on hazardous gas fault. LHR = 89.3MW.
- 11:48 - 21:50Hrs, Omoku GT6 tripped on minimum shaft failure. LHR = 13.3MW.
- 16:42 – 18:46Hrs, Jebba 2G4 tripped on rapid shut down 86-4. LHR = 70MW.
- 14:57 through 24:00Hrs, Trans-Amadi GTs 1 & 2 tripped on reverse power due to tripping of Alaoji/Afam 132kV line 2. Load loss = 41.7MW
- 14:53 - 19:37Hrs, Rivers IPP GT11 tripped on reverse power due to tripping of Alaoji/Afam 132kV line 2. Load loss = 70MW.

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

- 00:59 - 12:07Hrs, Irrua T/S 30MVA 132/33kV transformer T2 primary and secondary CBs tripped on the following relay indications:
On primary: No relay indication.
On secondary: SBEF. LHR = 10MW.
- 09:44 through 24:00Hrs, Omotosho/Ikeja West 330kV line (cct M5W) CBs tripped at both ends on the following relay indications:
At Omotosho T/S: PSL 601 Relay: Reverse trip Blue Phase, distance and Z-S, start distance trip, Blue Phase trip, Ground distance zone 1 trip, distance = 13.6km.
At Ikeja West T/S: Siprotec Relay – General trip, Yellow Phase fault, DEF, Fuse 50N/51N, distance = 45.8km.
Micom Relay: Blue Phase fault, started Phase C-N, started element DIN, E/F/IN/IN/I.
10:25Hrs, Trial reclosure at Omotosho T/S failed on PSL 601 Relay: Reverse trip Blue Phase, distance and Z-S, start distance trip, Blue Phase trip, Ground distance zone 1 trip, distance = 46.2km.
10:27Hrs, Trial reclosure at Ikeja West T/S failed on Siprotec Relay – General trip, Yellow Phase fault, DEF, Fuse 50N/51N, distance = 45.8km.
Micom Relay: Blue Phase fault, started Phase C-N, started element DIN, E/F/IN/IN/I,
distance = 46.2km. Note the line was left out for patrol.
- 14:52 – 15:10Hrs, Afam/Alaoji 132kV line 2 CB tripped at Alaoji T/S on Micom Relay I>1 L2, L3, T1 >Phases L1, L3. LHR = 64MW.
- 20:33 – 20:59Hrs, Awka T/S 30MVA 132/33kV transformer TR3 primary CB tripped on O/C on 3-phases. LHR = 6.5MW.

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

- 09:15 – 19:40Hrs, Zaria/Funtua/Gusau 132kV line CB was taken out to enable maintenance crew restring cut sky wire at towers #91 – 92, 111 – 112, 118 – 119. Load loss = 34.2MW.
- 10:17 - 16:36Hrs, Delta/Benin 132kV line was taken out for maintenance crew to carry out trace clearing between towers #42 & 43. Load loss = 35MW.
- 10:20 - 16:37Hrs, Delta/Oghara 132kV line was taken out for maintenance crew to carry out trace clearing between towers #37 & 38. Load loss = 35MW.

5 (D) **URGENT OUTAGES:-**

- 08:12 - 19:29Hrs, Delta GT13 was shut down for safe working space for maintenance crew to work on GT14. Load loss = 20MW.
- 08:41 - 19:44Hrs, Jebba 2G5 was shut down for maintenance crew to work on the auxiliary panel of the unit. Load loss = 80MW.
- 17:48 – 17:51Hrs, Mando/Kaduna Town 1 132kV line 2 was taken out to isolate 60MVA 132/33kV transformer T2A for EMD crew to seal oil leakage on the transformer. Load loss = 37MW.
- 17:48 – 19:30Hrs, Kaduna Town T/S 60MVA 132/33kV transformer T2A was isolated for EMD crew to seal oil leakage on the transformer. Load loss = 22MW.
- 19:00 – 20:47Hrs, Jebba/Osogbo 330kV line 1 (cct J1H) was taken out to enable maintenance crew refill low SF6 gas pressure of the line GCB at Osogbo T/S. No load interruption as cct J2H was in service.
- 19:28 – 19:34Hrs, Mando/Kaduna Town 1 132kV line 2 was taken out to restore the 60MVA 132/33kV transformer T2A after sealing oil leakage on the transformer. Load loss = 16.5MW.

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 2 - OTHER 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.

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

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

5 (G) **330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:-** ccts A1S & U1A.

5 (H) **330KV LINES THAT ARE OUT ON BREAKER PROBLEM:-** cct N4J (on soak at Egbin T/S)

5 (I) **330KV LINES THAT ARE OUT ON PLANNED OUTAGE:-** Nil.

5 (J) **330KV LINES THAT ARE OUT ON LINE FAULT:-** ccts S5B & M5W.

5 (K) **330KV LINES THAT ARE OUT ON SOAK:-** ccts F1K & W4L.

6 **WEATHER REPORT:-** Rainfall reported at Alaoji, Osogbo, Lagos.

7 **INTERNATIONAL LINES:-**

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

Maximum load - 266MW at 22:00Hrs.
Minimum load - 200MW at 03:00Hrs.

B BIRNIN KEBBI/NAMEY 132KV LINE

Maximum load - 97MW at 16:00Hrs.
Minimum load - 68MW at 08:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 32.2MW at 21:00Hrs.
Minimum load - 18.5MW at 04:00Hrs.

8 **MISCELLANEOUS:-**

1 01:09Hrs, Shiroo P/S reduced generation by 100MW on frequency management.

2 02:08 – 05:31Hrs, Jebba 2G2 was shut down on frequency management. Load loss = 90MW.

3 08:49Hrs, Rivers IPP GT11 was tied. The unit was out due to gas constraint.

4 09:02Hrs, Shiroo 411G1 was tied to swap with 411G4. The unit was out on water management.

5 09:02Hrs, Shiroo 411G4 was shut down. No load loss as 50MW was transferred to 411G1.

6 10:12Hrs, Azura IPP GT11 was tied for test.

7 12:37Hrs, Katampe 132kV T/S newly installed 100MVA 132/33kV transformer T4R3 was energized on soak.

8 14:42 through 24:00Hrs, Afam VI GT12 was shut down on frequency management. Load loss = 110MW.

GROUP 7 - ALL OTHER PLANTS.

11 (A) **COMMUNICATION MEDIA**

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	28
OPTIC FIBRE	13	8
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	7	12
132kV	102	86	16

12(A) **UNAVAILABLE TRANSFORMERS/REACTORS:**

SHIRORO REGION:

- 1 Apo T/S 60MVA 132/33kV transformer TR3 - Burnt.
- 2 Birnin Kebbi 75MX Reactor R1.

KADUNA REGION:

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

- 9 14:53 – 17:30Hrs, Elelenwo station lost supply due to tripping of Alaoji/Afam 132kV line 2. LHR = 14.7MW.
- 10 14:53 – 18:06Hrs, Port Harcourt Town T/S lost supply due to tripping of Alaoji/Afam 132kV line 2. LHR = 7.7MW.
- 11 14:53 – 17:30Hrs, Port Harcourt Mains T/S lost supply due to tripping of Alaoji/Afam 132kV line 2. LHR = 67.6MW.
- 12 16:42Hrs, Mando/Kaduna Town 1 132kV lines 1 & 2 were restored. The line was out on maintenance.
- 13 18:13Hrs, Azura-Edo GT11 was shut down after test. Load loss = 80MW.
- 14 **LACK OF REACTOR AND UNRELIABLE STATION SERVICE SUPPLY AT IKOT-EKPENE T/S ARE HINDERING SMOOTH OPERATION.**
- 15 **THE SCADA COVERAGE OF ONLY LIMITED AREAS IS NOT GOOD FOR THE SMOOTH OPERATION OF THE GRID.**

12(D) **LAGOS REGION**

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

SHIRORO REGION:- Nil

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.

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-Ekpene 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.

OSOGBO 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 NIL

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

12 (F) LINES WITH MISSING SKY WIRE

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21 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/Itire 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 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, 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

