

TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT OF SUNDAY 07/01/2018

FOR: EVENTS OF SATURDAY 06/01/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	17,720	20:00	06/01/2018
GENERATION CAPABILITY	7698.9	-dc-	-dc-
UNITS ON BAR CAPABILITY AT PEAK	4627.6	-dc-	-dc-
PEAK GENERATION	3929.7	-dc-	-dc-
LOWEST GENERATION	173	20:30	06/1/2018
8-HOURLY DURATION PEAK	3821.2	0000-0800	-dc-
	3817.1	0900-1600	-dc-
	3929.7	1700-2400	-dc-
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	373	Birnin-Kebbi T/S	24:00
LOWEST VOLTAGE FOR THE DAY	272	Akanqaba T/S	15:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.817	21:40
LOWEST FREQUENCY	47.80	20:25

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 6 th Jan., 2018		No. of days since last total collapse: 01											
Date of last partial collapse: 17 th Oct., 2017		No. of days since last partial collapse: 79											
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	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	3	1	1	1	2	1	--	13
	Partial	--	1	1	--	--	--	1	--	1	2	--	9
2012	Total	--	1	2	1	3	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	--	--	--	--	3	--	--	2	1	0	0	7
2014	Total	2	--	2	0	3	1	0	0	1	0	0	9
	Partial	1	0	0	1	0	0	0	0	0	2	1	4
2015	Total	0	1	0	0	2	0	1	0	0	1	0	6
	Partial	--	--	1	0	2	0	0	0	1	0	0	4
2016	Total	--	--	2	3	0	5	0	0	1	1	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	0	15
	Partial	1	0	1	0	0	1	0	0	1	1	0	9
2018	Total	2											2
	Partial												

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN(MW)	
1	KAINJI	HYDRO	407	0
2	JEBBA	HYDRO	419	0
3	SHIRORO	HYDRO	433	0
4	EGBIN ST2 - 5	STEAM	0	0
5	SAPELE	STEAM	0	0
6	DELTA	GAS	477	90
7	AFAM IV-V	GAS	61	0
8	GEREGU GAS	GAS	401	0
9	OMOTOSHO GAS	GAS	0	0
10	OLORUNSOGO GAS	GAS	0	0
11	GEREGU NIPP	GAS	212	0
12	SAPELE NIPP	GAS	170.6	0
13	ALAOJI NIPP	GAS	0	0
14	OLORUNSOGO NIPP	GAS	0	0
15	OMOTOSHO NIPP	GAS	0	0
16	ODUKPANI NIPP	GAS	231.9	0
17	IHOVBOR NIPP	GAS	90.9	0
18	OKPAI	GAS	232	0
19	AFAM VI	GAS	409	0
20	IBOM POWER	GAS	0	82.1
21	ASCO	GAS	84.2	0
22	A.E.S	GAS	0	0
23	OMOKU	GAS	63.9	0.9
24	TRANS AMADI	GAS	0	0
25	RIVERS IPP	(GAS)	150	0
26	AZURA - EDO IPP		0	0
27	EGBIN ST6	(GAS)	0	0
28	PARAS ENERGY	(GAS)	0	0
29	GBARAIN NIPP	GAS	87.2	0
TOTAL		3929.7	173	

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT		
		MWH	MWH/H	MWH	MWH/H	
1	KAINJI	HYDRO	8353.00	348.04	8338.60	347.44
2	JEBBA	HYDRO	7680.00	320.00	7658.72	319.11
3	SHIRORO	HYDRO	8492.00	353.83	8467.91	352.83
4	EGBIN ST2 - 5	STEAM	0.00	0.00	0.00	0.00
5	SAPELE	STEAM	0.00	0.00	0.00	0.00
6	DELTA	GAS	10833.17	451.38	10671.10	444.63
7	AFAM IV-V	GAS	1242.00	51.75	1238.18	51.59
8	GEREGU GAS	GAS	8330.10	347.09	8300.15	345.84
9	OMOTOSHO GAS	GAS	0.00	0.00	0.00	0.00
10	OLORUNSOGO GAS	GAS	0.00	0.00	0.00	0.00
11	GEREGU NIPP	GAS	4431.25	184.64	4413.89	183.91
12	SAPELE NIPP	GAS	3712.80	154.70	3694.40	153.93
13	AZURA - EDO IPP	GAS	0.00	0.00	0.00	0.00
14	ALAOJI NIPP	GAS	0.00	0.00	0.00	0.00
15	OLORUNSOGO NIPP	GAS	0.00	0.00	0.00	0.00
16	OMOTOSHO NIPP	GAS	0.00	0.00	0.00	0.00
17	ODUKPANI NIPP	GAS	4643.28	193.47	4618.19	192.34
18	IHOVBOR NIPP	GAS	1978.00	82.42	1961.96	81.75
19	OKPAI	GAS	4836.00	201.50	4748.60	197.86
20	AFAM VI	GAS	7958.85	331.62	7832.00	326.33
21	IBOM	GAS	1474.70	61.45	1467.00	61.13
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	1391.20	57.97	1363.40	56.81
25	TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26	RIVERS IPP	GAS	290.50	12.10	286.70	11.95
27	EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28	PARAS ENERGY	GAS	0.00	0.00	0.00	0.00
29	GBARAIN NIPP	GAS	1929.00	80.38	1915.30	79.80
TOTAL			77,575.83	3,232.33	76,974.10	3,207.25

1.7A

GENERATION POSITION AT 06:00HRS OF SUNDAY 07/01/2018

	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	440	1G5, 6, 11 & 12 4	440	395	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	2G1-5 5	475	405	2G6 – Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	580	580	411G1 - 3 3	435	335	411G1 - Generation reduced on frequency management. 411G4 - Out on water management.
	EGBIN STEAM	5	ST2, 4 & 5 3	660	660	0 0	0	0	ST1 - Tripped on generator CB trouble. ST3 - Tripped on high vibration. ST2,4 & 5 - Out due to gas constraint. Station out due to fire outbreak on gas pipeline.
	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, 9-11, 15, 16, 18, 19 & 20 10	645	645	GT7, 9-11, 13, 15, 16, 19 & 20 9	525	508	GT3 & 5 – Out due to generator winding fault. GT6 & 14 - Out on major overhaul. GT8 & 12 - Out on maintenance. GT17 - Out on excitation trouble.
	AFAM IV & V (GAS)	8	GT18 1	75	65	GT18 1	65	65	GT1 - 12 - De-commissioned and scrapped. GT13 -16 – Out on blade failure. GT17 - Tripped on loss of excitation. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 - 13 3	435	402	Available units on bar.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	0 0	0	0	GT1, 4 & 8 - Out due to gas constraint. Station shut down due to fire outbreak on gas pipeline.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	0 0	0	0	GT1, 3 & 7 - Out due to gas constraint. Station shut down due to fire outbreak on gas pipeline.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT23 1	145	132	GT21 - Out on maintenance. GT22 - Yet to be tied after system collapse of 06/01/2018.
	SAPELE NIPP	4	GT1 & 2 2	225	225	GT2 1	112.5	92.1	GT1 - Yet to be tied after system collapse of 06/01/2018. GT2 - On frequency response. GT3 - Out on undisclosed fault. GT4 - Tripped on fire protection alarm.
	ALAOJI NIPP GAS	4	GT1 & 2 2	250	240	0 0	0	0	GT1 & 2 - Tripped due to low gas pressure. GT3 - Shut down due to generator air inlet filter trouble. GT4 - Out on maintenance.
	OLORUNSOGO NIPP GAS	6	GT1 - 3 3	360	360	0 0	0	0	GT1 - Shut down due to fire outbreak on gas pipeline. GT2 & 3 - 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	375	360	0 0	0	0	GT3 - Shut down due to oil leakage on the unit. GT1 & 4 - Out due to gas constraint. Station shut down due to fire outbreak on gas pipeline.
	ODUKPANI NIPP	5	GT3 & 5 2	240	230	GT5 1	119.1	119.1	GT1 - Out due to auxiliary loop oil problem. GT2 - Out due to control system problem. GT3 - Yet to be tied after system collapse of 06/01/2018. GT4 - Shut down to avoid fire outbreak.
	IHOVBOR NIPP	4	GT1 - 3 3	337.5	337.5	GT2 1	112.5	84.5	GT1 & 3 - Out due to gas constraint. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	GT12 1	112.5	112.5	GT2 1	112.5	92	
IPP	OKPAI GAS/STEAM	3	GT11 & 12 2	300	300	GT11 & 12 2	260	160	GT11 - Generation reduced on frequency management. GT12 - Generation reduced due to air inlet differential pressure. ST18 - Out on maintenance.
	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	181	GT13 - Generation reduced to condition steam. ST10 - Out on frequency management.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	72.5	GT1 & 2 - Out on fault.
	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	GT1, 2, 5 & 6 4	100	80	GT1, 2, 5 & 6 4	80	64.7	GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul. Generation reduced due to gas constraint.
	TRANS-AMADI	4	GT1 & 4 2	50	40	0 0	0	0	GT1 & 4 - Out due to gas constraint.
	RIVERS	1	GT1 1	180	160	GT1 1	120	120	Available units on bar.
	SUB TOTAL	126	78	7567	7408	40	3851.6	3227.9	Frequency = 50.29Hz.

1.7B GENERATION POSITION AT 06:00HRS OF SUNDAY 07/01/2018 FOR UNITS ON BILATERAL AGREEMENT

FEEDER NAME	MAX. LOAD (MW)	ST6		HOURS IN SERVICE	REMARK				
		TIME (HRS)	HOURS IN SERVICE						
EGBIN	1	0	0	220	220	0	0	0	ST6 - Out due to fire outbreak on gas pipe line.
		1	0						
PARAS ENERGY	8	GT2 - 9		71	71	0	0	0	Out due to fire outbreak on gas pipe line.
		8	0						
SUB TOTAL		9	9	291	291	0	0	0	
GRAND TOTAL		135	87	7858	7699	40	3,851.60	3,227.90	Frequency = 50.29Hz.

NB: Observation shows that many stations remove their units from frequency response at 06:00Hrs without instruction from NCC.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - SATURDAY 06/01/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	ON	0100HRS	21	SYSTEM OUTAGE
	PTCEXPRESS	7	1400HRS	21	SYSTEM OUTAGE
	SANKYO	ON	0100HRS	21	SYSTEM OUTAGE
	FEEDER 8	9	0900HRS	21	SYSTEM OUTAGE
IKORODU	PULK IT	ON	0100HRS	20	SYSTEM COLLAPS
	INDUSTRIAL	11	0800HRS	20	SYSTEM COLLAPS
	SPINTEX	4	0100HRS	20	SYSTEM COLLAPS
	DANGOTE	1	0100HRS	20	SYSTEM COLLAPS
	LAND CRAFT	37	0600HRS	20	SYSTEM COLLAPS
ALAUISA	TR4 15MVA	4.1	1100HRS	20	SYSTEM COLLAPS
	TR5 -15MVA	3.7	0900HRS	20	SYSTEM COLLAPS
	ALAUISA	9.2	1000HRS	20	SYSTEM COLLAPS
M/LAND	PTC (MARYLAND)	12	1100HRS	20	SYSTEM COLLAPS
TOTAL LOAD		98			

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CER

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	0	0	0	Out due to fire outbreak on gas pipe line.

1.8 HYDROLOGICAL DATA: SUNDAY 07/01/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	141.60	102.34	374.71
TAIL WATER ELEVATION (METERS)	104.30	72.30	271.00
GROSS OPERATING HEAD (METERS)	37.30	29.44	103.71
AVERAGE TURBINE DISCHARGE (M3/SEC)	1041.00	1334.00	385.00
AVERAGE SPILLAGE (M3/SEC)	626.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1667	1334	385
COMPUTED INFLOW (M3/SEC)	963.00	1531.00	0.00
STORAGE DIFFERENTIAL	-704	197	-385
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 SATURDAY 06/01/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	422.70	20:00	401.54	35.1	22:00
EKO	398.9	15:00	434.08	223.5	20:00
IKEJA	457.6	07:00	513.75	238.9	20:00

2.0 GAS POSITION: SUNDAY 07/01/2018

STATION	SIGNED ACO Annual Contracted Quantity MMSCF/D	NGC DECLARED QUANTITY (MMS317.578CF/D)	INSTALLED CAPACITY OF THERMAL STATIONS (MW)	PREVIOUS DAY OFF-TAKE (MMSCF/D)	CAPABILITY OF UNITS ON BAR OF THERMAL STATIONS (MW)	DIFFERENCE (MW)
EGBIN P/S	0		1100		0	1100
DELTA (GAS)	508		765		525	240
OMOTOSHO GAS	0		336.8		0	336.8
OMOTOSHO NIPP	0		500		0	500
OLORUNSOGO (GAS)	0		338		0	338
OLORUNSOGO NIPP	0		750		0	750
SAPELE NIPP	92.1		500		112.5	387.5
SAPELE STEAM	0		720		0	720
AFAM IV-V	65		300		65	235
AFAM VI	181		850		300	350
GEREGU GAS	402		435		435	0
GEREGU NIPP	132		435		145	290
ORPAI (GAS/STEAM)	160		480		260	220
ALAQJI NIPP	0		504		0	504
IHOVBOR NIPP	94.5		450		112.5	337.5
IBOM	72.5		198		115	83
ODUKPANI NIPP	119.1		625		119.1	505.9
TOTAL	1826.2		9884.80		2189.1	6895.7

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : SATURDAY 05/01/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF SUNDAY 07/01/2018 0MW. FREQUENCY 50.29Hz.

S/N	POWER STATION	UNIT ON SPINNING RESERVE	CONTRACTED RESERVE	ACTUAL RESERVE (MW)	TOTAL (MW)
1	Egbin	ST2	100	0	0
		ST4		0	
		ST5		0	
		ST6		0	
				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 Sunday 07/01/2018 as at 0600Hrs was = 3464.3MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNUTILIZED GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Ihovbor GT1 & 3	225	0	225	2839.3
2	Alajoji NIPP GT1 & 2	240	0	240	
3	Trans-Amadi GT1 & 4	40	0	40	
4	Omotosho Gas GT1 - 8	304	0	304	
5	Olorunsogo Gas GT1-8	304	0	304	
6	Rivers IPP GT1	160	0	160	
7	Paras GT2-9	71	0	71	
8	Omoku GT1, 2, 5 & 6	80	64.7	15.3	
9	Olorunsogo NIPP GT1 - 3	360	0	360	
10	Egbin ST2, 4, 5 & 6	890	0	890	
11	Omotosho NIPP GT1 & 4	240	0	240	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1838.85MMSCF OF GAS (EQUIVALENT TO 6895.7MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
				0	0
				0	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Shiroro 411G1	145	60	85	475
2	Delta GT4, 7 & 18	120	0	120	
3	Alam VI ST10	200	0	200	
4	Okpai GT1	150	80	70	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
1	Shiroro 411G4	150	0	150	150
Total				150	3464.3

5.0 **OUTAGES:**

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

- 08:10 – 09:22Hrs, Afam IV GT18 tripped on reverse power due to undisclosed fault. LHR = 80MW.
- 10:07 - 18:52Hrs, Ibom Power GT3 tripped on reverse power due to tripping of Itu/Uyo 132kV line. LHR = 106MW.

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

- 11:08 - 15:45Hrs, Itu/Uyo 132kV line CB tripped at Itu T/S on O/C Yellow & Blue Phases. LHR = 44MW.
- 15:54 – 16:02Hrs, Shiroro/Katampe 330kV line (cct R4B) CBs tripped at both ends on the following relay indications:
At Shiroro T/S: ABB Relay: General trip, start Z>R, start Z>Y, trip Z> zone 1, start DEF.
Back up Relay: General trip, lockout trip, start 1> line, trip 1> line, I/O > line
At Katampe T/S: Without relay indication. LHR = 210MW.
- 15:54 – 16:15Hrs, Gwagwalada/Katampe 330kV line (cct G5B) CBs tripped at both ends on the following relay indications.
At Gwagwalada T/S: NARI Relay: Trip ABC, Red Phase – N, fault location = 10.5km, faulty Phase A,
At Katampe T/S: Without relay indication. LHR = 162MW.
- 15:54 – 16:11Hrs, Gwagwalada T/S 60MVA 132/33kV transformer T12A primary and secondary CBs tripped on E/F. LHR = 17.5MW.
- 20:25 – 20:53Hrs, Shiroro/Katampe 330kV line (cct R4B) CBs tripped at both ends on the following relay indications:
At Shiroro T/S: Main Relay: General trip, start Z>R, start Z>Y, start Z>B, trip Z> zone 1, trip Z >2,
ABB Relay: General trip, start IO> line, Trip IO> line.
At Katampe T/S: Without relay indication. LHR = 210MW.
- SYSTEM COLLAPSE REPORT OF 06/01/2018 AT 20:25HRS**

OBSERVATION FROM NCC CONTROL DESK

System frequency sharply dropped from 50.32Hz to 47.8Hz resulted in system collapse. Total load loss was 3929.7MW.

REPORT PRIOR TO SYSTEM COLLAPSE

20:16Hrs, Mando/Jos 330kV line (cct M2S) was taken out to enable maintenance crew re-align Red Phase line isolator finger that was not latching properly at Jos T/S.

RESTORATION

20:26Hrs, Delta GT16 was tied.
20:31Hrs, Shiroro P/S was instructed to start a unit and feeding Abuja.
20:35Hrs, Delta GT15 was tied.
20:43Hrs, cct G3B was restored.
20:47Hrs, ccts V7B & H7V were restored.
20:50Hrs, ccts J1H & K1J were restored.
20:53Hrs, cct R4B was restored.

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

- 09:32 – 19:27Hrs, Mando/Jos 330kV line (cct M2S) was taken out to enable maintenance crew carry out maintenance on isolators at Jos T/S. Load loss = 94MW.
- 09:32 – 22:52Hrs, Gombe/Jos 330kV line (cct S1E) was taken out to enable maintenance crew carry out maintenance on 75MX reactor R3 at Yola T/S. Load loss = 165MW.
- 10:11 - 18:55Hrs, Shiroro T/S 150MVA 330/132/33kV transformer T2 was taken out to enable maintenance crew carry out annual preventive maintenance on the primary CB and the associated isolators. Load loss = 25MW.
- 09:32 – 22:52Hrs, Gombe/Yola 330kV line (cct E1Y) was taken out to enable maintenance crew carry out annual preventive maintenance on 330kV 75MX Reactor R3 at Yola T/S. Load loss = 50MW.

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

- 12:16 – 13:06Hrs, Shiroro/Mando 330kV line 1 (cct R1M) was taken out to enable maintenance crew top up SF6 gas pressure of the line breaker to normal. No load loss as the tie CB was in service.
- 12:18 – 13:07Hrs, Jebba/Shiroro 330kV line 1 (cct J3R) tie breaker was taken out to enable maintenance crew top up SF6 gas pressure of the CB to normal. No load loss as the line breaker was in service.

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.

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

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

5 (G) **330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:-** ccts A1S, U1A, D2K & K4U.

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:-**

5 (J) **330KV LINES THAT ARE OUT ON LINE FAULT:-** cct S5B

6 **WEATHER REPORT:-** NIL

7 **INTERNATIONAL LINES:-**

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

Maximum load - 168MW at 12:00Hrs.
Minimum load - 92MW at 01:00Hrs.

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

Maximum load - 80MW at 20:00Hrs.
Minimum load - 2.0MW at 24:00Hrs.

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

Maximum load - 27.2MW at 19:00Hrs.
Minimum load - 12.5MW at 22:00Hrs.

8 **MISCELLANEOUS:-**

- 00:09Hrs, Shiroro P/S reduced generation by 100MW. Frequency was 50.49Hz.
- 00:56Hrs, Shiroro P/S reduced generation by 100MW. Frequency was 50.40Hz.
- 01:10Hrs, Ikeja West T/S 330kV 75MX Reactor R2 was switched off on voltage control. Voltage profile: 300/306kV.
- 01:31 - 12:31Hrs, Jebba 2G2 was shut down on frequency management. Load loss = 78MW.

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 07:00Hrs, Shiroro P/S increased generation by 100MW. Frequency was 50.18Hz.

6 14:15 - 15:15Hrs, Jebba 2G2 was shut down on frequency management.
Load loss = 87MW.

7 14:34Hrs, Afam VI ST10 was tied.

GROUP 7 - ALL OTHER PLANTS.

10 SYSTEM BLACK START CAPABILITY

Delta, Shiroro & Egbin - Available.

11 (A) COMMUNICATION MEDIA

STATIONS	NO. INSTALLED	NO. WORKING
PLC/PAX	37	31
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	7	1
330kV	19	11	8
132kV	102	92	10

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.

8 15:18Hrs, Jebba T/S 330kV 75MX Reactor was switched off on voltage control. Voltage profile: 325/328kV.

9 17:57Hrs River IPP GT1 was tied. The unit was out due to gas constraint.

10 18:56Hrs, Kaduna T/S 330kV 75MX Reactor 3R3 was switched off on voltage control. Voltage profile: 312/321kV.

11 **LACK OF REACTOR AND UNRELIABLE STATION SERVICE SUPPLY AT IKOT-EKPENE T/S ARE HINDERING SMOOTH OPERATION.**

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 0
- 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, Ugwuajji, 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

