

# TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

## DAILY OPERATIONAL REPORT OF MONDAY 08/01/2018

### FOR: EVENTS OF SUNDAY 07/01/2018

#### 1.0 EXECUTIVE OPERATIONS SUMMARY:

##### 1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	17,720	21:15	07/01/2018
GENERATION CAPABILITY	7803.7	-dc-	-dc-
UNITS ON BAR CAPABILITY AT PEAK	4875.4	-dc-	-dc-
PEAK GENERATION	3774.3	-dc-	-dc-
LOWEST GENERATION	164.2	15:00	07/1/2018
8-HOURLY DURATION PEAK	3235.9	0000-0800	-dc-
	3807.6	0900-1600	-dc-
	3774.3	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	362	Birnin/Kebbi T/S	01:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe, Kumbotso & Osoabo T/S	07:00, 04:00 & 15:00

#### 1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	51.034	15:12
LOWEST FREQUENCY	47.30	14:32

#### 1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 7 <sup>th</sup> Jan., 2018						No. of days since last total collapse: 01																	
Date of last partial collapse: 17 <sup>th</sup> Oct., 2017						No. of days since last partial collapse: 80																	
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	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	3	2	1	--	2	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	0	9										
	Partial	--	0	0	1	0	0	0	0	0	2	1	4										
2015	Total	1	0	1	0	2	0	1	0	0	1	0	6										
	Partial	--	--	1	0	2	0	0	0	1	0	0	4										
2016	Total	--	--	2	3	0	5	0	0	1	2	2	22										
	Partial	--	--	1	0	1	3	1	0	0	0	0	6										
2017	Total	5	3	0	3	1	1	0	0	1	1	0	15										
	Partial	1	0	1	0	0	0	1	0	3	--	--	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	357	0
2 JEBBA	HYDRO	302	0
3 SHIRORO	HYDRO	411	0.6
4 EGBIN ST2 - 5	STEAM	0	0
5 SAPELE	STEAM	0	0
6 DELTA	GAS	480	163
7 AFAM IV-V	GAS	82	0
8 GEREGU GAS	GAS	81	0
9 OMOTOSHO GAS	GAS	0	0
10 OLORUNSOGO GAS	GAS	95	0
11 GEREGU NIPP	GAS	204	0
12 SAPELE NIPP	GAS	163.2	0
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	105.2	0
15 OMOTOSHO NIPP	GAS	0	0
16 ODUKPANI NIPP	GAS	345.3	0
17 IHOVBOR NIPP	GAS	89.5	0
18 OKPAI	GAS	170	0
19 AFAM VI	GAS	275	0
20 IBOM POWER	GAS	36.4	0
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	64	0.6
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 AZURA - EDO IPP		0	0
27 EGBIN ST1	(GAS)	0	0
28 PARAS ENERGY	(GAS)	89.4	0
29 GBARAIN NIPP	GAS	94.3	0
<b>TOTAL</b>		<b>3774.3</b>	<b>164.2</b>

#### 1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWHH	MWH	MWHH
1 KAINJI	HYDRO	7561.00	315.04	7547.80	314.49
2 JEBBA	HYDRO	5594.00	233.08	5574.00	232.25
3 SHIRORO	HYDRO	7257.00	302.38	7233.32	301.39
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	8585.20	357.72	8423.50	350.98
7 AFAM IV-V	GAS	1236.00	51.50	1232.16	51.34
8 GEREGU GAS	GAS	6836.10	284.84	6807.73	283.66
9 OMOTOSHO GAS	GAS	45.00	1.88	41.60	1.73
10 OLORUNSOGO GAS	GAS	965.00	23.54	955.09	23.13
11 GEREGU NIPP	GAS	3009.75	150.41	3593.57	149.73
12 SAPELE NIPP	GAS	2732.90	113.87	2715.80	113.16
13 AZURA - EDO IPP	GAS	0.00	0.00	0.00	0.00
15 OLORUNSOGO NIPP	GAS	735.40	30.64	712.50	29.69
16 OMOTOSHO NIPP	GAS	22.80	0.95	18.00	0.75
17 ODUKPANI NIPP	GAS	4112.26	171.34	4086.84	170.29
18 IHOVBOR NIPP	GAS	1895.25	79.14	1883.94	78.50
19 OKPAI	GAS	3793.00	158.04	3665.20	152.72
20 AFAM VI	GAS	5559.24	231.64	5387.00	223.63
21 IBOM	GAS	1761.35	73.39	1754.00	73.08
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	1425.10	59.38	1385.30	57.72
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	1284.00	53.50	1279.40	53.31
27 EGBIN ST1	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	375.80	15.66	372.60	15.53
29 GBARAIN NIPP	GAS	1807.70	75.32	1792.80	74.70
<b>TOTAL</b>		<b>66,797.85</b>	<b>2,783.24</b>	<b>66,042.15</b>	<b>2,751.76</b>

1.7A

## GENERATION POSITION AT 06:00HRS OF MONDAY 08/01/2018

	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	440	440	1G5, 6, 11 & 12	440	381	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	4	0	0	4	0	0	2G1 - 5 - Tripped due to loss of auxiliary supply. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4	580	580	411G1 - 3	435	415	411G1 - Generation reduced on frequency management. 411G4 - Out on water management.
	EGBIN STEAM	5	ST2, 4 & 5	660	660	ST2	220	12	ST1 - Tripped on generator CB trouble. ST2 - Still loading up. ST3 - Tripped on high vibration. ST4 & 5 - Out due to gas constraint.
	SAPELE (STEAM)	6	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, 19 & 20	565	565	GT4, 7, 9 - 13, 15, 16, 19 & 20	565	532	GT3 & 5 - Out due to generator winding fault. GT6 & 14 - Out on major overhaul. GT8 & 18 - Out on maintenance. GT17 - Out on excitation trouble.
	AFAM IV & V (GAS)	8	GT18	75	64	GT18	64	64	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	435	435	GT11 - 13	435	391	Available units on bar.
	OMOTOSHO GAS	8	GT1 - 8	336	304	GT2 & 5	76	75.4	GT1, 3, 4 & 6 - 8 - Out due to gas constraint.
	OLORUNSOGO GAS	8	GT1 - 8	336	304	GT2, 4, 5 & 8	152	133.9	GT1, 3, 6 & 7 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23	290	290	GT22 & 23	290	204	GT21 - Out on maintenance. GT22 - Generation reduced due to gas constraint.
	SAPELE NIPP	4	GT1 & 2	225	225	GT1 & 2	225	172.6	GT1 - Yet to be tied after system collapse of 06/01/2018. GT3 - Out on undisclosed fault. GT4 - Tripped on fire protection alarm.
	ALAOJI NIPP GAS	4	GT1 & 2	250	240	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	360	360	GT2	120	109.7	GT1 & 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	375	360	GT1	120	100.6	GT2 & 4 - Out due to gas constraint. GT3 - Shut down due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT1, 3 & 5	360	345	GT1, 3 & 5	357.3	293.8	GT2 - Out due to control system problem. GT4 - Shut down to avoid fire outbreak.
	IHOVBOR NIPP	4	GT1 - 3	337.5	337.5	GT2	112.5	96.8	GT1 & 3 - Out due to gas constraint. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	GT2	112.5	112.5	GT2	112.5	95.9	Available unit on bar.
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18	375	375	GT11, 12 & ST18	375	240	GT11 - Generation reduced on frequency management. GT12 - Generation reduced due to air inlet differential pressure.
	AZURA - EDO	0	0	0	0	0	0	0	GT11 - Undergoing commissioning tests. GT12 & 13 - Awaiting commissioning.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10	650	650	GT12, 13 & ST10	500	248	GT13 - Generation reduced to condition steam. GT11 - Out on frequency management.
	IBOM POWER GAS	3	GT13	115	115	GT13	115	85.5	GT1 & 2 - Out on fault.
	AES	0	0	0	0	0	0	0	Out of production since 27/09/2014.
	ASCO	0	0	0	0	0	0	0	GT1 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT1, 2, 5 & 6	100	80	GT1, 2, 5 & 6	80	63.3	GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul. Generation reduced due to gas constraint.
	TRANS-AMADI	4	GT1 & 4	50	40	0	0	0	GT1 & 4 - Out due to gas constraint.
	RIVERS	1	0	0	0	0	0	0	GT1 - Out on maintenance.
	<b>SUB TOTAL</b>	<b>126</b>	<b>75</b>	<b>7027</b>	<b>6882</b>	<b>51</b>	<b>4794.3</b>	<b>3714.5</b>	Frequency = 50.33Hz.

1.7B GENERATION POSITION AT 06:00HRS OF MONDAY 08/01/2018 FOR UNITS ON BILATERAL AGREEMENT

		ST6				ST6			
EGBIN	1	1	220	220	1	220	33	ST6 - Still loading up.	
PARAS ENERGY	8	8	70.2	70.2	8	70.2	70.2	Available units on bar.	
<b>SUB TOTAL</b>	<b>9</b>	<b>9</b>	<b>290.2</b>	<b>290.2</b>	<b>9</b>	<b>290.2</b>	<b>103.2</b>		
<b>GRAND TOTAL</b>	<b>135</b>	<b>84</b>	<b>7317.2</b>	<b>7172.2</b>	<b>60</b>	<b>5,084.50</b>	<b>3,817.70</b>	Frequency = 50.33Hz.	

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 - SUNDAY 07/01/2018					
FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	REMARK	
<b>Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY</b>					
OGBA	U-STEEL	ON	0100HRS	23HRS	SYSTEM OUTAGE
	PTCEXPRESS	4	2200HRS	6HRS	TRIP ON FAULT & SYSTEM OUTAGE
	SANKYO	ON	0100HRS	22HRS	SYSTEM OUTAGE
	FEEDER 8	9	0900HRS	22HRS	SYSTEM OUTAGE
IKORODU	PULK IT	1	1100	19	SYSTEM COLLAPSE
	INDUSTRIAL	15	2100	19	SYSTEM COLLAPSE
	SPINTEX	4	1300	19	SYSTEM COLLAPSE
	DANGOTE	2	2100	19	SYSTEM COLLAPSE
	LAND CRAFT	28	2300	20	SYSTEM COLLAPSE
ALAUSA	TR4 -15MVA	3.7	2:00	19	SYSTEM COLLAPSE
	TR5 -15MVA	3.7	2:00	19	SYSTEM COLLAPSE
	ALAUSA	8.7	12:00	18	SYSTEM COLLAPSE
MILAND	PTC (MARYLAND)	10	12:00HRS	17	SYSTEM COLLAPSE
	<b>TOTAL LOAD</b>	<b>89.1</b>			

BILATERAL AGREEMENT LOAD DISPATCH  
60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	70.2	22:00	5	Out due to fire outbreak on gas pipe line.

**1.8 HYDROLOGICAL DATA: MONDAY 08/01/2018**

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	141.58	102.48	374.60
TAIL WATER ELEVATION (METERS)	104.60	72.40	270.00
GROSS OPERATING HEAD (METERS)	36.98	30.08	104.60
AVERAGE TURBINE DISCHARGE (M3/SEC)	944.00	987.00	332.00
AVERAGE SPILLAGE (M3/SEC)	456.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1400	987	332
COMPUTED INFLOW (M3/SEC)	960.00	1427.00	45.00
STORAGE DIFFERENTIAL	-440	440	-287
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	362.5
MINIMUM LEVEL BELOW WHICH NO GENERATION	130	99	355

**1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT SUNDAY 07/01/2018**

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	418.30	14:00	454.08	11.1	15:00
EKO	235.6	14:00	486.51	1.4	01:00
IKEJA	374.0	15:00	627.06	0.4	01:00

**2.0 GAS POSITION: MONDAY 08/01/2018**

STATION	SIGNED ACO Annual Contracted Quantity MMSCF/D	NGC DECLARED QUANTITY (MMS317.578CF/D)	INSTALLED CAPACITY OF THERMAL STATIONS (MW)	PREVIOUS DAY OFF-TAKE (MMS3CF/D)	CAPABILITY OF UNITS ON BAR OF THERMAL STATIONS (MW)	DIFFERENCE (MW)
EOBIN P/S	12		1100		440	660
DELTA (GAS)	532		765		565	200
OMOTOSHO GAS	75.4		336.8		76	260.8
OMOTOSHO NIPP	100.6		500		120	380
OLORUNSOGO (GAS)	133.9		336		152	184
OLORUNSOGO NIPP	109.7		750		120	630
SAPELE NIPP	172.6		500		112.5	387.5
SAPELE STEAM	0		720		0	720
AFAM IV-V	64		300		64	236
AFAM VI	248		650		500	150
GEREGU GAS	391		435		435	0
GEREGU NIPP	204		435		145	290
OKPAI (GAS/STEAM)	240		480		375	105
ALAQJI NIPP	0		504		0	504
IHOVBOR NIPP	96.8		450		112.5	337.5
IBOM	85.5		198		115	83
ODUKPANI NIPP	293.8		625		345	280
<b>TOTAL</b>	<b>2759.3</b>		<b>9986.01</b>		<b>3677</b>	<b>5407.8</b>

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 MONDAY 08/01/2018 0MW. FREQUENCY 50.33Hz**

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	
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	
<b>TOTAL (MW)</b>			<b>295</b>	<b>0</b>	<b>0</b>

**4.0 UNUTILIZED GENERATION CAPABILITY**

The unutilized generation capability for Monday 08/01/2018 as at 0600Hrs was = 2221.7MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNUTILIZED GENERATION CAPABILITY (MW)	SUB-TOTAL
<b>4.1 DUE TO GAS CONSTRAINTS:</b>					
1	Ihovbor GT1 & 3	225	0	225	1886.7
2	Alajoji NIPP GT1 & 2	240	0	240	
3	Trans-Amadi GT1 & 4	40	0	40	
4	Omotosho Gas GT1, 3, 4 & 6 - 8	228	0	228	
5	Olorunsogo Gas GT1, 3, 6 & 7	152	0	152	
6	Omoku GT1, 2, 5 & 6	80	63.3	16.7	
7	Olorunsogo NIPP GT1 & 3	240	0	240	
8	Egbin ST4 & 5	440	0	440	
9	Omotosho NIPP GT2 & 4	240	0	240	
	Geregu NIPP GT22	145	80	65	
				0	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1442.08MSCF OF GAS (EQUIVALENT TO 5407.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
<b>4.2 DUE TO LINE CONSTRAINTS</b>					
				0	0
				0	
				0	
<b>4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND</b>					
1	Atam VI GT11	150	0	150	185
2	Okpai GT11	150	125	25	
3	Shiroro 411G1	145	135	10	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
<b>4.4 DUE TO WATER MANAGEMENT</b>					
1	Shiroro 411G4	150	0	150	150
<b>Total</b>					<b>2221.7</b>

5.0 **OUTAGES:-**

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

- 1 07:25 - 13:52Hrs, Delta GT19 tripped on air inlet differential pressure. LHR = 30MW.
- 2 08:03 - 12:57Hrs, Delta GT16 tripped on air inlet differential pressure. LHR = 20MW.
- 3 08:08 - 17:47Hrs, Delta GT15 tripped on air inlet differential pressure. LHR = 35MW.
- 4 10:08 - 10:33Hrs, Jebba 2G1 tripped on low oil level due to oil pump failure. LHR = 88MW.
- 5 21:51 - 23:23Hrs, Omotosho Gas GT2 tripped on low gas pressure. LHR = 37.2MW

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

**SYSTEM COLLAPSE REPORT OF 07/01/2018 AT 14:32HRS**

**OBSERVATION FROM NCC CONTROL DESK**

System frequency sharply dropped from 50.34Hz to 47.30Hz resulted in system collapse. Total load loss was 3476.6MW.

**REPORT PRIOR TO SYSTEM COLLAPSE**

14:31Hrs, Ugwuaji/Makurdi 330kV line 1 (cct U1A) CB tripped at Ugwuaji T/S on distance protection, SOTF. LHR = 214MW.

**REPORT FROM THE STATION.**

14:32Hrs, Shiroro/Abuja 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, start Z<E, trip Z<zone 1, trip Z<zone 2 Back up ABB Relay: General trip, l>line, trip l>line. LHR = 34MW

At Katampe T/S: Without relay indication. LHR = 198MW

14:32Hrs, Shiroro/Gwagwalada 330kV line (cct R5G) CBs tripped at both ends on the following relay indications:

At Shiroro T/S:

ABB Relay: General trip, start Z>R, start Z>Y, start Z>B and start Z>E. LHR = 34MW

At Gwagwalada T/S: Without relay indication. LHR = 22.5MW

**RESTORATION**

14:41Hrs, Delta P/S was instructed to tie a unit and feed Benin T/S

14:49Hrs, Shiroro P/S was instructed to tie a unit and feed Abuja

14:49Hrs, Delta GT16 was tied and four other smaller units.

14:49Hrs, cct G3B was restored

14:52Hrs, Shiroro 411G4 was tied.

14:55Hrs, ccts H7V & V7B were restored

14:57Hrs, Delta GT19 was tied.

15:04Hrs, cct R4B was restored

**RESTORATION CONTINUES**

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

- 1 10:00 – 13:39Hrs, Shiroro/Gwagwalada 330kV line (cct R5G) CB was taken out for annual preventive maintenance. No load loss as the tie CB was in service.

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

- 1 09:51 – 12:13Hrs, Jebba 2G5 was shut down for maintenance crew to correct problem at the intake gate of the unit. Load loss = 55MW.

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:-**

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 - 197MW at 14:00Hrs.

Minimum load - 42MW at 08:00Hrs.

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

Maximum load - 82MW at 21:00Hrs.

Minimum load - 25.0MW at 18:00Hrs.

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

Maximum load - 29MW at 20:00Hrs.

Minimum load - 10MW at 17:00Hrs.

8 **MISCELLANEOUS:-**

1 07:47Hrs, cct M5W was restored.

2 09:07Hrs, Afam VI ST10 was tied. The unit was out on frequency management.

3 09:14Hrs, Sapele NIPP GT1 was tied.

4 09:29Hrs, cct L6G was restored.

5 09:37Hrs, cct K2J was restored.

6 10:00Hrs, Geregu NIPP GT22 was tied.

7 13:04Hrs, Olorunsogo GT5 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	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	6	2
330kV	19	8	11
132kV	102	84	18

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 13:44Hrs, Olorunsogo NIPP GT3 was tied.
- 9 14:08Hrs, Ikeja West T/S 330kV 75MX Reactor was switched off on voltage control. Voltage profile: 307/309kV.
- 10 14:10Hrs, Olorunsogo Gas GT8 was tied. The unit was out due to fire outbreak on gas pipeline.
- 11 17:38Hrs, cct N4J was restored on soak
- 12 17:58Hrs, 18:02Hrs, 18:05Hrs, 19:21Hrs, 19:24Hrs, 19:26Hrs, 19:29Hrs Paras Energy GTs 6, 4, 5, 8, 3, 2, 7 and 9 were tied respectively. The units were out due to fire outbreak on gas pipeline.
- 13 19:29Hrs, cct F1K was restored up to tower #132 to avoid vandalism
- 14 20:16Hrs, Olorunsogo Gas GT2 was tied. The unit was out due to fire outbreak on gas pipeline.
- 15 20:42Hrs, Delta GT12 was tied. The unit was out on fault.
- 16 20:53Hrs, Odukpani NIPP GT3 was tied. The unit was out on fault.
- 17 20:54Hrs, Omotosho Gas GT2 was tied. The unit was out due to fire outbreak on gas pipeline.
- 18 21:12Hrs, Omotosho Gas GT4 was tied. The unit was out due to fire outbreak on gas pipeline.
- 19 21:16Hrs, Okpai ST18 was tied. The unit was out on maintenance.
- 20 22:07Hrs, cct L7G was restored on voltage control. V/P = Lokoja T/S: 331/337kV Gwagwalada T/S: 323/327kV
- 21 23:42Hrs, Omotosho NIPP GT1 was tied. The unit was out due to fire outbreak on gas pipeline.
- 22 23:42Hrs, Omotosho Gas GT5 was tied. The unit was out due to fire outbreak on gas pipeline.
- 23 23:59Hrs, Shiroro P/S reduced generation by 100MW. Frequency was 50.53Hz
- 24 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 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





