

# TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF SUNDAY 04/02/2018

FOR: EVENTS OF SATURDAY 03/02/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	21,390	19:15	03/02/2018
GENERATION CAPABILITY	7921.3	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5390.3	-do-	-do-
PEAK GENERATION	4437.2	-do-	-do-
LOWEST GENERATION	3904.3	09:00	03/02/2018
8-HOURLY DURATION PEAK	4224.9	0000-0800	-do-
	4101.6	0900-1600	-do-
	4437.2	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	348	Omotosho T/S	01:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe & Kumbotso T/S	01:00 & 11:00

## 1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.48	04:14
LOWEST FREQUENCY	49.85	19:54

## 1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018		No. of days since last total collapse: 03												
Date of last partial collapse: 17th Oct., 2017		No. of days since last partial collapse: 106												
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	--	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	1	8
2013	Total	--	1	2	2	3	4	1	1	1	4	2	22	
	Partial	--	--	--	--	--	--	--	2	0	0	0	2	
2014	Total	2	--	2	0	1	3	1	0	0	1	0	9	
	Partial	1	0	0	0	1	0	0	0	0	2	1	4	
2015	Total	--	1	0	2	0	0	1	0	0	1	0	6	
	Partial	--	--	1	0	2	0	0	0	1	0	0	4	
2016	Total	--	--	2	3	6	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	0	0	0	0	0	0	5	
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	417	367
2 JEBBA	HYDRO	356	318
3 SHIRORO	HYDRO	200	203
4 EGBIN ST2 - 5	STEAM	446	385
5 SAPELE	STEAM	0	0
6 DELTA	GAS	572	445
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	270	270
9 OMOTOSHO GAS	GAS	133.4	140
10 OLORUNSOGO GAS	GAS	160.9	171.8
11 GEREGU NIPP	GAS	216	102
12 SAPELE NIPP	GAS	208.3	185.4
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	183.8	200.2
15 OMOTOSHO NIPP	GAS	215.1	204.7
16 ODUKPANI NIPP	GAS	310.4	283.1
17 IHOVBOR NIPP	GAS	91.2	80.2
18 OKPAI	GAS	259	219
19 AFAM VI	GAS	0	0
20 IBOM POWER	GAS	70.3	36.2
21 ASCO	GAS	0	0
22 A.E.S	GAS	61.4	59.1
23 OMOKU	GAS	0	0
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 AZURA - EDO IPP	(GAS)	0	0
27 EGBIN ST6	(GAS)	191	166
28 PARAS ENERGY	(GAS)	69.4	68.6
29 GBARAIN NIPP	GAS	0	0
<b>TOTAL</b>		<b>4437.2</b>	<b>3904.3</b>

## 1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	8674.00	361.42	8657.60	360.73
2 JEBBA	HYDRO	8016.00	334.00	7995.48	333.15
3 SHIRORO	HYDRO	4938.00	205.75	4911.36	204.64
4 EGBIN ST2 - 5	STEAM	9458.00	394.08	8928.30	372.01
5 SAPELE	STEAM	0.00	0.00	0.00	0.00
6 DELTA	GAS	12493.23	520.55	12267.70	511.15
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	7150.00	297.92	7121.63	296.73
9 OMOTOSHO GAS	GAS	3244.00	135.17	3219.90	134.16
10 OLORUNSOGO GAS	GAS	4147.14	172.80	4118.21	171.59
11 GEREGU NIPP	GAS	3864.12	161.01	3848.27	160.34
12 SAPELE NIPP	GAS	4726.33	196.93	4705.62	196.07
13 AZURA - EDO IPP	GAS	468.60	19.53	457.90	19.08
14 ALAQJI NIPP	GAS	0.00	0.00	0.00	0.00
15 OLORUNSOGO NIPP	GAS	4564.20	190.18	4513.40	188.06
16 OMOTOSHO NIPP	GAS	4865.20	202.72	4842.80	201.78
17 ODUKPANI NIPP	GAS	6532.69	272.20	6494.29	270.60
18 IHOVBOR NIPP	GAS	1960.00	81.67	1941.79	80.91
19 OKPAI	GAS	4932.00	208.00	4864.40	202.68
20 AFAM VI	GAS	0.00	0.00	0.00	0.00
21 IBOM	GAS	1254.31	52.26	1246.00	51.92
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	1361.30	56.72	1334.69	55.61
25 TRANS AMADI	GAS	71.80	2.99	70.70	2.95
26 RIVERS IPP	GAS	0.00	0.00	0.00	0.00
27 EGBIN ST6	STEAM	1871.00	78.17	3814.40	158.93
28 PARAS ENERGY	GAS	1656.10	69.00	1650.90	68.79
29 GBARAIN NIPP	GAS	165.12	6.88	156.82	6.53
<b>TOTAL</b>		<b>98,614.14</b>	<b>4,108.92</b>	<b>97,162.16</b>	<b>4,048.42</b>

1.7A GENERATION POSITION AT 06:00HRS OF SUNDAY 04/02/2018

	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	353	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 18/330kV 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, 2, 4 & 5 4	380	357	2G3 - Out on maintenance. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	580	580	411G1 & 2 2	290	200	411G2 - Generation reduced on frequency management. 411G3 & 4 - Out on water management.
	EGBIN STEAM	5	ST1, 2, 4 & 5 4	880	880	ST1, 2 & 4 3	660	406	ST1 - Under observation after maintenance work on the unit transformer. 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	612	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 - Out on air leakage on ring line pipe.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11-13 3	435	240	GT11 - 13 - Generation reduced on frequency management.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 3, 4 & 6 4	152	141.2	GT2, 5, 7 & 8 - Out due to gas constraint.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2, 4 - 6 & 8 5	190	171.2	GT1, 3 & 7 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT22 & 23 2	290	210	GT21 - Out on maintenance.
	SAPELE NIPP	4	GT1 & 3 2	230	230	GT1 & 3 2	230	184	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	140.4	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	GT2 & 4 2	250	240	GT2 & 4 2	240	197.7	GT1 - Shut down due to self deloading. GT3 - Shut down due to oil leakage on the unit. GT4 - Generation reduced on frequency management.
	ODUKPANI NIPP	5	GT2 - 5 4	480	460	GT2, 3 & 4 3	345	272.4	GT1 - Out due to air inlet compressor high pressure. GT2 - Generation reduced due to high air inlet differential pressure. GT5 - Out due to line constraint.
	IHOVBOR NIPP	4	GT1 - 3 3	337.5	337.5	GT3 1	112.5	85.7	GT1 & 2 - Out due to gas constraint. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	GT2 1	112.5	97.1	Available unit on bar.
IPP	OKPAI GAS/STEAM	3	GT12 1	150	150	GT12 1	150	146	GT11 & ST18 Tripped on gas quality.
	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	0 0	0	0	GT11 - 13 & ST10 - Out due to gas constraint.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	75.8	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	59.8	GT1 - Out due to excitation problem. GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul.
	TRANS-AMADI	4	GT1 & 2 2	40	40	GT1 1	21.6	21.6	GT2 - Out due to low gas pressure. GT3 - Out on fault. GT4 - Out on maintenance.
	RIVERS	1	GT1 1	180	160	GT1 1	160	80	Generation reduced due to gas constraint.
	<b>SUB TOTAL</b>	<b>125</b>	<b>79</b>	<b>7687</b>	<b>7543</b>	<b>57</b>	<b>5278.6</b>	<b>4050.9</b>	Frequency = 50.24Hz.

1.7B GENERATION POSITION AT 06:00HRS OF SUNDAY 04/02/2018 FOR UNITS ON BILATERAL AGREEMENT

FEEDER	UNIT	ST6		220	220	ST6		220	169	Available unit on bar.
		1	1			1	1			
EGBIN	1	1	1	220	220	1	1	220	169	Available unit on bar.
PARAS ENERGY	8	GT2 - 9		69.4	69.4	GT2 - 9		69.4	69.4	Available units on bar.
		8	8			8	8			
<b>SUB TOTAL</b>		<b>9</b>	<b>9</b>	<b>289.4</b>	<b>289.4</b>	<b>9</b>	<b>9</b>	<b>289.4</b>	<b>238.4</b>	
<b>GRAND TOTAL</b>		<b>134</b>	<b>88</b>	<b>7976.4</b>	<b>7832.4</b>	<b>66</b>	<b>66</b>	<b>5,568.00</b>	<b>4,289.30</b>	Frequency = 50.24Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - SATURDAY 03/02/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OOBA	U-STEEL	ON	0100HRS	23	STATION LOST SUPPLY ON LOADSHEDDING
	PTCEXPRESS	8	1100HRS	23	STATION LOST SUPPLY ON LOADSHEDDING
	SANKYO	ON	0100HRS	23	STATION LOST SUPPLY ON LOADSHEDDING
	FEEDER 8	14	1100HRS	23	STATION LOST SUPPLY ON LOADSHEDDING
IKORODU	PULK IT	5	1600HRS	24	NIL
	INDUSTRIAL	20	1100HRS	24	NIL
	SPINTEX	3	0800HRS	24	NIL
	DANGOTE	2	0100HRS	24	NIL
	LAND CRAFT	42	0600HRS	23	LOADSHEDDING
ALAUJA	TR4 15MVA	7	1400HRS	24	NIL
	TR5 -15MVA	4.9	2200HRS	24	NIL
	ALAUJA	13.5	1600HRS	24	NIL
MLAND	PTC (MARYLAND)	16	1300HRS	23	LOADSHEDDING
<b>TOTAL LOAD</b>		<b>135.4</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	19:00	24	Nil.

1.8 HYDROLOGICAL DATA: SUNDAY 04/02/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	141.20	102.12	372.27
TAIL WATER ELEVATION (METERS)	104.21	74.10	270.40
GROSS OPERATING HEAD (METERS)	36.99	28.02	101.87
AVERAGE TURBINE DISCHARGE (M3/SEC)	1082.00	1328.00	232.00
AVERAGE SPILLAGE (M3/SEC)	0.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1082	1328	232
COMPUTED INFLOW (M3/SEC)	1053.00	1120.00	9.00
STORAGE DIFFERENTIAL	-29.00	-208	-223
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 03/02/2018

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

2.0 GAS POSITION: SUNDAY 04/02/2018

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	406	1100		880	220
DELTA (GAS)	612	915		655	260
OMOTOSHO GAS	141.2	336.8		152	184.8
OMOTOSHO NIPP	197.7	500		240	260
OLORUNSOGO (GAS)	171.2	336		190	146
OLORUNSOGO NIPP	140.4	750		240	510
SAPLE NIPP	184	500		230	270
SAPLE STEAM	0	720		0	720
AFAM IV-V	0	300		0	300
AFAM VI	0	650		0	650
GEREGU GAS	240	435		435	0
GEREGU NIPP	210	435		290	145
ODUKPANI (GAS/STEAM)	145	480		150	330
ALAOJU NIPP	0	504		0	504
IHOVBOR NIPP	85.7	450		112.5	337.5
IBOM	75.8	198		115	83
ODUKPANI NIPP	272.4	625		345	280
<b>TOTAL</b>	<b>2882.4</b>	<b>9234.80</b>		<b>4034.5</b>	<b>5200.3</b>

1 MMSCF IS EQUIVALENT TO 3.79MW

3.0 SPINNING RESERVE FOR : SATURDAY 03/02/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF SUNDAY 04/02/2018 = 0MW. FREQUENCY 50.24Hz.

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

4.0 UNUTILIZED GENERATION CAPABILITY

The unutilized generation capability for Sunday 05/02/2018 as at 0600Hrs was = 2798.8MW.

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	Rivers IPP GT1	160	80	80	2039
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	140.4	219.6	
6	Omotosho Gas GT2, 5, 7 & 8	152	0	152	
7	Atam VI GT11 - 13 & ST10	650	0	650	
8	Egbin ST5	220	0	220	
9	Trans-Amadi GT1 & 2	40	21.6	18.4	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1386.7MMSCF OF GAS (EQUIVALENT TO \$200.3MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
<b>4.2 DUE TO LINE CONSTRAINTS</b>					
1	Ibom Power GT3	115	75.8	39.2	154.2
2	Odukpiani GT5	115	0	115	
				0	
<b>4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND</b>					
1	Shiroro 411G2	145	53	92	315.6
2	Omotosho NIPP GT4	120	91.4	28.6	
3	Geregu Gas GT11 - 13	435	240	195	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
<b>4.4 DUE TO WATER MANAGEMENT</b>					
1	Shiroro 411G3 & 4	290	0	290	290
<b>Total</b>					<b>2798.8</b>

**5.0 OUTAGES:**

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

- 19:16 through 24:00Hrs, Okpai GT11 & ST18 tripped on gas quality. LHR = 95MW & 54MW respectively.

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

- 08:15 - 08:24Hrs, Ayede/Macpherson/Shagamu/Ijebu-Ode 132kV line CB tripped at Ayede T/S on the following relay indications:  
Optimho Relay: DEF delay, distance = 93.14km,  
Micom Relay: O/C Blue Phase. LHR = 30MW.
- 08:25 - 08:29Hrs, Ayede/Macpherson/Shagamu/Ijebu-Ode 132kV line CB tripped at Ayede T/S on the following relay indications:  
Optimho Relay: DEF delay, distance = 101.3km. LHR = 0.1MW.  
Note: the line tripped during restoration.

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

- 09:12 - 18:43Hrs, New Haven T/S 150MVA 330/132/33kV transformer T2A was taken out to carry out annual preventive maintenance on the transformer. No load interruption as 150MVA 330/132/33kV transformer T1A was in service.
- 09:33 - 17:52Hrs, Uyo T/S 60MVA 132/33kV transformer T1 was taken out for safe working space to connect newly installed 60MVA 132/33kV transformer to the 132kV bus bar. Load loss = 12MW.
- 09:46 - 14:40Hrs, Apo T/S 45MVA 132/33kV transformer TR1 was taken out to carry out annual preventive maintenance on the transformer. Load loss = 19MW.

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

- 06:46 through 24:00Hrs, Olorunsogo Gas GT1 was shut down due to low gas pressure. Load loss = 17.1MW.
- 08:50 - 14:15Hrs, Delta GT18 was shut down due to high air inlet differential pressure. Load loss = 50MW.
- 09:48 - 14:51Hrs, Kainji/Jebba 330kV line 1 (cct K1J) was isolated to enable maintenance crew replace broken insulator on tower # 179. No load interruption as the line was on soak.
- 11:17 - 13:55Hrs, Okpai GT12 was shut down due to high air inlet differential pressure. Load loss = 40MW.

**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.

GROUP 7 - ALL OTHER PLANTS.

**11 (A) COMMUNICATION MEDIA**

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	33
OPTIC FIBRE	13	10
PLS	14	5

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

The under mentioned lines were opened on frequency control:-

- 19:16 - 19:20Hrs, Osogbo/Akure/Ado-Ekiti 132kV line. Load loss = 55MW. Frequency was 48.99Hz.
- 19:16 - 19:23Hrs, Akangba/Isolo 132kV lines 1 & 2. Load loss = 39MW & 30MW respectively. Frequency was 49.90Hz & 49.82Hz respectively.
- 19:53 - 20:03Hrs, Akangba/Iire 132kV line 2. Load loss = 38MW. Frequency was 49.74Hz.
- 19:54 - 20:36Hrs, Ikorodu/Maryland 132kV lines 1 & 2. Load loss = 74MW. Frequency was 50.09Hz.

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

- 19:16 - 19:24Hrs, Isolo T/S 60MVA 132/33kV transformer T2A secondary CB. LHR = 21.5MW.
- 19:16 - 19:47Hrs, Isolo T/S 60MVA 132/33kV transformer 10T1A secondary CB. LHR = 12MW.

**5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:-** ccts D1K, 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:-** cct S5B.

**6 WEATHER REPORT:-** NIL

**7 INTERNATIONAL LINES:-**

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

Maximum load - 198MW at 21:00Hrs.

Minimum load - 151MW at 07:00Hrs.

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

Maximum load - 88MW at 21:00Hrs.

Minimum load - 52MW at 08:00Hrs.

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

Maximum load - 28.0MW at 21:00Hrs.

Minimum load - 13.0MW at 02:00Hrs.

**8 MISCELLANEOUS:-**

- 04:13Hrs, Jebba P/S reduced generation by 50MW. Frequency was 50.49Hz.
- 04:47Hrs, Shiroro P/S reduced generation by 100MW. Frequency was 50.46Hz.
- 05:23Hrs, Shiroro P/S increased generation by 100MW. Frequency was 50.20Hz.
- 10:09Hrs, Geregu NIPP GT23 was tied. The unit was out due to gas constraint.
- 10:11Hrs, Azura-Edo GT13 was tied for test run.
- 11:34Hrs, New Haven/Oji 132kV line was restored. The line was out due to Oji T/S D.C failure.
- 12:38Hrs, Odukpani NIPP was instructed to control high var due to bus voltage of 337kV at Odukpani T/S. Voltage profile = 337/332.9kV.
- 12:59 - 13:19Hrs, Odukpani/Adiabor 330kV line 2 (cct D2B) was taken out to verify its effect on voltage control. Voltage profile at Odukpani T/S 333/332.9kV.
- 13:11Hrs, Effort to restore Odukpani/Ikot-Ekpene 330kV line 1 (cct D1K) failed as Ikot-Ekpene T/S line and tie CBs are not responding to signal.
- 14:33Hrs, Azura-Edo GT13 was shut down after test run. Load loss = 50MW.

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	87	15

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.

11 22:17Hrs, Gbarain GT2 was tied. The unit was out on maintenance.

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

13 **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-Ekti 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





