

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF FRIDAY 07/09/2018

FOR: EVENTS OF THURSDAY 06/09/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,680	21:30	06/09/2018
GENERATION CAPABILITY	7689.4	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4677.5	-do-	-do-
PEAK GENERATION	4316.1	-do-	-do-
LOWEST GENERATION	2897.5	03:00	06/09/2018
8-HOURLY DURATION PEAK	3393.6	0100-0800	-do-
	3255.9	0900-1600	-do-
	4316.1	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	358	Lokoja T/S	05:00
LOWEST VOLTAGE FOR THE DAY	300	Kumbotso & Gombe T/S	10:00 & 19:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.86	03:28
LOWEST FREQUENCY	49.70	20:25

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 4th Sept, 2018		No. of days since last total collapse: 03												
Date of last partial collapse: 12 th April, 2018		No. of days since last partial collapse: 147												
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	3	--	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	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	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	6	5	0	0	1	1	2	22	
	Partial	--	--	1	0	1	3	1	0	0	0	0	6	
2017	Total	5	3	0	0	3	1	1	0	0	1	1	15	
	Partial	1	0	1	0	0	0	1	0	3	3	--	9	
2018	Total	5	1	0	0	0	1	1	1	1	--	--	9	
	Partial	0	0	0	0	1	0	0	0	--	--	--	1	

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)		
1 KAINJI	HYDRO	308	164		
2 JEBBA	HYDRO	423	277		
3 SHIRORO	HYDRO	420	382		
4 EGBIN ST2 - 5	STEAM	221	284		
5 SAPELE	STEAM	52	49		
6 DELTA	GAS	532	283		
7 AFAM IV-V	GAS	0	0		
8 GEREGU GAS	GAS	141	80		
9 OMOTOSHO GAS	GAS	137.9	112.1		
10 OLORUNSOGO GAS	GAS	138.2	84.2		
11 GEREGU NIPP	GAS	0	0		
12 SAPELE NIPP	GAS	93.3	95.1		
13 ALAQJI NIPP	GAS	117.6	76.4		
14 OLORUNSOGO NIPP	GAS	111.4	69		
15 OMOTOSHO NIPP	GAS	109.2	74.9		
16 ODUKPANI NIPP	GAS	102.1	68.5		
17 IHOVBOR NIPP	GAS	70.9	75.4		
18 OKPAI	GAS	344	178		
19 AFAM VI	GAS	140	102		
20 IBOM POWER	GAS	0	0		
21 ASCO	GAS	0	0		
22 A.E.S	GAS	0	0		
23 OMOKU	GAS	55.6	49.1		
24 TRANS AMADI	GAS	43.7	43.4		
25 RIVERS IPP	(GAS)	140	90		
26 AZURA - EDO IPP	(GAS)	435	75		
27 EGBIN ST6	(GAS)	110	116		
28 PARAS ENERGY	(GAS)	70.2	69.4		
29 GBARAIN NIPP	GAS	0	0		
TOTAL		4316.1	2897.5		
1.6 ENERGY GENERATED/ENERGY SENT OUT:					
STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	7242.00	301.75	7226.60	301.11
2 JEBBA	HYDRO	8518.00	354.92	8499.12	354.13
3 SHIRORO	HYDRO	9479.00	394.96	9448.48	393.69
4 EGBIN ST2 - 5	STEAM	6166.00	256.92	5820.20	242.51
5 SAPELE	STEAM	1118.50	46.60	1044.20	43.51
6 DELTA	GAS	10293.60	428.90	9969.60	415.40
7 AFAM IV-V	GAS	230.00	9.58	224.29	9.35
8 GEREGU GAS	GAS	2273.70	94.74	2253.52	93.90
9 OMOTOSHO GAS	GAS	2800.00	116.67	2777.20	115.72
10 OLORUNSOGO GAS	GAS	2246.00	93.58	2224.40	92.68
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	1947.80	81.16	1931.69	80.49
13 ALAQJI NIPP	GAS	1599.44	66.64	1577.84	65.74
14 OLORUNSOGO NIPP	GAS	2013.30	83.89	1979.10	82.46
15 OMOTOSHO NIPP	GAS	2126.00	88.58	2105.40	87.73
16 ODUKPANI NIPP	GAS	2031.65	84.65	2002.15	83.42
17 IHOVBOR NIPP	GAS	2057.32	85.72	2032.84	84.70
18 OKPAI	GAS	5356.00	223.17	5224.30	217.68
19 AFAM VI	GAS	2736.38	114.02	2652.27	110.51
20 IBOM	GAS	0.00	0.00	0.00	0.00
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	3403.00	141.79	3384.10	141.00
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1119.20	46.63	1089.76	45.41
25 TRANS AMADI	GAS	913.80	38.08	892.90	37.20
26 RIVERS IPP	GAS	2523.40	105.14	2518.30	104.93
27 EGBIN ST6	STEAM	2666.00	111.08	2524.60	105.19
28 PARAS ENERGY	GAS	1593.60	66.40	1586.50	66.10
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
TOTAL		82,453.69	3,435.57	80,989.36	3,374.56

1.7A GENERATION POSITION AT 06:00HRS FRIDAY 07/09/2018

	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) AT 50.44Hz.	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	440	1G5, 6, 11 & 12 4	440	318	1G7 - Out on stator winding failure. 1G8 - Out due to oil leakage on governor runner head. 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	450	2G1 - 5 5	450	395	2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G2 - 4 3	450	450	411G2 - 4 3	450	407	411G1 - Out due to technical issues.
	EGBIN STEAM	5	ST2 & 4 2	440	400	ST2 & 4 2	221	221	ST1 - Out due to refusal to send report of tripping of their unit on 04/09/2018. ST3 - Out on high vibration since 19th June 2017. ST5 - Shut down due to boiler pump trouble.
	SAPELE (STEAM)	6	ST2 1	120	51	ST2 1	51	51	ST1 - Shut down due to alarm on inlet gas guide control trouble. ST4 & 5 - Awaiting major overhaul. ST6 - Out on gas control valve not following reference point.
	DELTA (GAS)	18	GT9 - 13, 15, 16 & 18 - 20 10	625	605	GT9 - 13 & 19 6	200	199	GT3 & 5 - Out due to generator winding fault. GT4 - Out on loss of excitation. GT6, 8 & 14 - Out on major overhaul. GT7 - Out on fault. GT17 - Tripped on bearing vibration more than maximum. GT15, 16, 18 & 20 - Out due to low load demand by the Discos.
	AFAM IV & V (GAS)	8	0 0	0	0	0 0	0	0	GT1 - 12 - De-commissioned and scrapped. GT13 - 16 - Out on blade failure. GT17 - Out due to technical issues. GT18 - Out due to lube oil high temperature. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 1	145	81	GT11 - Generation reduced due to low load demand by the Discos. GT12 & 13 - Out due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT2, 5 & 7 3	114	76.9	GT1, 3, 4, 6 & 8 - Out due to low load demand by the Discos. Generation reduced due to low load demand by the Discos.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2 & 6 2	76	53.9	GT1, 4, 5 & 8 - Out due to low load demand by the Discos. GT2 & 6 - Generation reduced due to low load demand by the Discos. GT3 & 7 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	0 0	0	0	GT21 - Out on maintenance. GT22 & 23 - Out due to gas constraint.
	SAPELE NIPP	4	GT1, 3 & 4 3	337.5	337.5	GT3 1	112.5	80.3	GT1 - Out due to low load demand by the Discos. GT2 - Out due to high air inlet differential pressure. GT4 - Out due to gas constraint.
	ALAOJI NIPP GAS	4	GT1 & 2 2	250	120	0 0	0	0	GT1 - Out due to low load demand by the Discos. GT2 - Out due to NGC maintenance on the gas pipeline. GT4 - Tripped on over voltage lockout relay trip.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT1 1	120	100.5	GT1 - Generation reduced due to low load demand by the Discos. GT2 & 3 - Out due to low load demand by the Discos. GT4 - Out due to ignition failure and control relay failure alarm. ST13 & ST23 - Out on maintenance.
	OMOTOSHO NIPP GAS	4	GT1, 2 & 4 3	375	360	GT2 1	120	95.6	GT1 & 4 - Out due to low load demand by the Discos. GT3 - Out due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT4 1	120	115	GT4 1	115	90.9	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Out on high air inlet differential pressure. GT4 - On frequency response. GT5 - Out on maintenance.
	IHOVBOR NIPP	4	GT1, 2 & 4 3	337.5	337.5	0 0	0	0	GT1, 2 & 4 - Out due to low load demand by the Discos. GT3 - Tripped on high vibration.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	0 0	0	0	GT2 - Out due to low load demand by the Discos.
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18 3	450	370	GT11, 12 & ST18 3	370	187	GT11 - Generation reduced due to low load demand by the Discos. ST18 - Generation reduced due to boiler problem.
	AZURA - EDO	3	GT11 - 13 3	461	461	GT11 & 13 2	306	150	GT11 & 13 - Generation reduced due to low load demand by the Discos. GT12 - Out due to low load demand by the Discos.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	640	GT11 1	150	119	GT12, 13 & ST10 - Out due to gas constraint.
	IBOM POWER GAS	3	0 0	0	0	0 0	0	0	GT1 & 2 - Out due to fire outbreak on the control panel. GT3 - Out on fault.
	AES	0	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
	ASCO	2	0 0	0	0	0 0	0	0	ST1 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT1 - 2 & 5 3	75	60	GT2 & 5 2	37.2	37.2	GT1 - Out due to low load demand by the Discos. GT3 - Tripped on over speed. GT4 - Awaiting major overhaul. GT6 Out on maintenance.
	TRANS-AMADI	4	GT1 & 2 2	50	42.7	GT1 & 2 2	42.7	20.9	GT1 & 2 - Generation reduced due to low load demand by the Discos. GT3 - Out on faulty. GT4 - Tripped on loss of excitation.
	RIVERS	1	GT1 1	160	160	GT1 1	160	80	GT1 - Generation reduced due to low load demand by the Discos.
	SUB TOTAL	131	78	7700.5	7205.2	42	3680.4	2764.2	Frequency = 50.44Hz.

1.7B GENERATION POSITION AT 06:00HRS OF FRIDAY 07/09/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	ST6 1	220	110	ST6 1	110	110	Available unit on bar.
PARAS ENERGY	8	GT2 - 9 8	70.2	70.2	GT2 - 9 8	70.2	70.2	Available units on bar.
SUB TOTAL	9	9	290.2	180.2	9	180.2	180.2	
GRAND TOTAL	140	87	7990.7	7385.4	51	3,860.60	2,944.40	Frequency = 50.44Hz.

1.7C

BILATERAL AGREEMENT UNITS DISPATCH - THURSDAY 06/09/2018.							
EGBIN ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY							
FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HRS IN SERVICE	TOTAL (MWH)	REMARK
OGBA	U-STEEL	ON	0100HRS		24		CONNECTED TO FEEDER 2 DUE TO FAULT ON T1 60MVA TRANSFORMER
	PTCEXPRESS	ON	0100HRS		24		CONNECTED TO FEEDER 2 DUE TO FAULT ON T1 60MVA TRANSFORMER
	SANKYO	ON	0100HRS		24		NIL
	FEEDER 8	15	1300HRS		24		NIL
IKORODU	PULK IT		1100hrs		24		NIL
	INDUSTRIAL		1000hrs		24		NIL
	SPINTEX		2100hrs		24		NIL
	DANGOTE	ON	0100hrs		21		SERVED AS SAFE WORKING SPACE TO CLEAR FAULT ON OWUTU 33KV FEEDER
	LAND CRAFT		0500hrs		24		NIL
ALAUZA	TR4 15MVA		1500hrs		24		NIL
	TR5 -15MVA		1100hrs		24		NIL
	ALAUZA		1400hrs		23		13-50MVA SEC. BUS BAR WAS OUT AS ADDITIONAL APPARATUS FOR SAFE WORKING SPACE FOR OJODU 33KV YELLOW PHASE BUS ISOLATOR
M/LAND	PTC (MARYLAND)		0800HRS		24		NIL
	TOTAL LOAD	99.8					

BILATERAL AGREEMENT LOAD DISPATCH 60MW PARAS ENERGY GENERATION TO CEB OF THURSDAY 06/09/18							
FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	71	21:00	11.7	10:00	23	1590	Due to tripping of Ikorodu/Shagamu 132kV line.

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: THURSDAY 06/09/2018										
COMPANY NAME	VOLTAGE LEVEL	CONTRACTUAL LOAD (MW)	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK	
INNER GALAXY	132kV line 2	ON	36	01:00	0.1	0:00	24	217.8	SUPPLY NOT INTERRUPTED	
KAM STEEL		15.0	5.4	17:00	0.2	01:00	24	26	SUPPLY NOT INTERRUPTED	
ASAKA CEMENT		0.0	8.2	00:00	0.8	13:00	24	105.1	SUPPLY NOT INTERRUPTED	
XING 1	33kV feeder		0.0	18.3	18:00	0.6	24:00	24	303.0	SUPPLY NOT INTERRUPTED
XING 2			0.0	24.5	16:00	1	24:00	24	428.1	SUPPLY NOT INTERRUPTED
KAM INTEGRATED		15.0	2.0	01:00	1.2	17:00	24	22.0	SUPPLY NOT INTERRUPTED	
OLAM FLOUR MILLS		3.0	2.3	13:00	0.9	08:00	24	42.6	SUPPLY NOT INTERRUPTED	
LORDSMITH		0	1.3	01:00	0.2	24:00	24	12.50	SUPPLY NOT INTERRUPTED	

1.8 HYDROLOGICAL DATA: FRIDAY 07/09/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	137.95	104.18	381.46
TAIL WATER ELEVATION (METERS)	106.99	77.3	273
GROSS OPERATING HEAD (METERS)	30.96	26.88	108.66
AVERAGE TURBINE DISCHARGE (M3/SEC)	1076.00	1551.00	412.00
AVERAGE SPILLAGE (M3/SEC)	2952.00	3254.00	1050.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	4028.00	4805.00	1462.00
COMPUTED INFLOW (M3/SEC)	6074.00	4979.00	1823.00
STORAGE DIFFERENTIAL	2046.00	174	361.00
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	382.50
MINIMUM LEVEL BELOW WHICH NO GENERATION	130	99	355.00

1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT THURSDAY 06/09/2018

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	488.3	20:00	435.70	251.7	03:00
EKO	362.1	01:00	516.75	205.9	10:00
IKEJA	554.6	21:00	568.3	362.1	16:00

2.0 GAS POSITION: FRIDAY 07/09/2018

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	356	1100		331	769
DELTA (GAS)	248	915		200	715
OMOTOSHO GAS	101.5	336.8		114	222.8
OMOTOSHO NIPP	76.8	500		120	380
OLORUNSOGO (GAS)	84.4	336		76	260
OLORUNSOGO NIPP	80.4	750		120	630
SAPELE NIPP	81.4	500		112.5	387.5
SAPELE STEAM	50	720		51	669
JAFAM IV-V	0	300		0	300
JAFAM VI	103	650		150	500
GEREGU GAS	90	435		145	290
GEREGU NIPP	0	435		0	435
OKPAI (GAS/STEAM)	177	480		370	110
ALAOJI NIPP	71.2	504		0	504
IHOVBOR NIPP	85.4	450		0	450
IBOM	0	198		0	198
ODUKPANI NIPP	0	625		115	510
TOTAL	1605.1	9234.80		1904.5	7330.3

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : THURSDAY 06/09/018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF FRIDAY 07/09/2018 = 0MW. FREQUENCY 50.44Hz.

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
5	Omotosho NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
TOTAL (MW)			295	0	0

4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Friday 07/09/2018 as at 0600hrs was = 3981.3MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Geregu Gas GT12 & 13	290	0	290	1378.5
2	Alam VI GT12, 13 & ST10	490	0	490	
3	Geregu NIPP GT22 & 23	290	0	290	
4	Olorunsogo Gas GT3 & 7	76	0	76	
5	Sapele NIPP GT4	112.5	0	112.5	
6	Alaoji NIPP GT2	120	0	120	
				0	
				0	
				0	
				0	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1954.74MMSCF OF GAS (EQUIVALENT TO 7330.3MW WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
				0	0
				0	0
4.3 DUE TO LOW LOAD DEMAND BY THE DISCOS					
1	Ihovbor GT1, 2 & 4	337.5	0	337.5	2602.8
2	Azura Edo GT11 - 13	461	150	311	
3	Geregu GT11	145	81	64	
4	Olorunsogo Gas GT1, 2, 4 - 6 & 8	228	53.9	174.1	
5	Delta GT15, 16, 18 & 20	415	0	415	
6	Alaoji NIPP GT1	120	0	120	
7	Gbarain GT2	112.5	0	112.5	
8	Olorunsogo NIPP GT1 - 3	360	100	260	
9	Omotosho Gas GT1- 8	304	76.9	227.1	
10	Okpai GT11	150	20	130	
11	Omotosho NIPP GT1 & 4	240	0	240	
12	Sapele NIPP GT1	112.5	0	112.5	
13	Rivers IPP GT1	160	80	80	
14	Trans-Amadi GT1 & 2	40	20.9	19.1	
				0	
				0	
4.1 DUE TO WATER MANAGEMENT:					
Grand Total					3981.3

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 1 09:46Hrs, Paras Energy GTs 2 – 9 tripped on reverse power due to tripping of Ikorodu/Shagamu 132kV line. Total LHR = 66.2MW. 09:54Hrs, GT2 was tied. 09:55Hrs, GT3 was tied. 10:40Hrs, GT4 was tied. 10:43Hrs, GT5 was tied. 10:47Hrs, GT6 was tied. 10:51Hrs, GT7 was tied. 10:55Hrs, GT8 was tied. 10:57Hrs, GT9 was tied.
- 2 15:02Hrs, Trans-Amadi P/S GTs 1 & 2 tripped on reverse power due to tripping of 150MVA 330/132/33kV transformer T1B at Afam 1 T/S. Total LHR = 28MW. 17:43Hrs, GT1 was tied. 17:45Hrs, GT2 was tied.
- 3 15:02Hrs, Omoku P/S GTs 1, 2 & 5 tripped on reverse power due to tripping of 150MVA 330/132/33kV transformer T1B at Afam 1 T/S. Total LHR = 45.6MW. 17:47Hrs, GT2 was tied. 17:47Hrs, GT1 was tied & 17:51Hrs, GT5 was tied.
- 4 17:30 through 24:00Hrs, Odukpiani NIPP GT5 tripped on compressor operating limit control fault. LHR = 55.6MW

5(B) FORCED OUTAGES (TRANSMISSION):-

- 1 06:58 - 16:50Hrs, Shagamu T/S 30MVA 132/33kV transformer T1 primary CB tripped on biased differential Red phase while the secondary CB tripped on O/C Yellow phase. LHR = 6MW
- 2 09:46 - 09:53Hrs, Ikorodu/Shagamu 132kV line CB tripped on distance protection phase B, distance = 24km. LHR = 53MW
- 3 10:02 - 10:10Hrs, New Haven/Nkalagu 132kV line 2 CB tripped at New Haven T/S on instantaneous O/C and lock out relay. LHR = 25.4MW
- 4 11:24 - 13:10Hrs, Alaoji NIPP/Alaoji T/S 330kV line 1 (cct L7A) CB tripped at Alaoji NIPP end on line differential protection fault type A C – G. No load loss as cct L8A was in service.
- 5 11:25Hrs, Benin/Asaba 330kV line (cct B3D) CB tripped at Benin T/S on main distance protection, E/F, zone 1, PU time = 2214ms, distance = 29.2km. No load loss as the line was on soak.
- 6 13:09 - 13:28Hrs, Jebba/Shiroro 330kV line 2 (cct J7R) CBs tripped at both ends on the following relay indications:
At Shiroro T/S:
ABB relay: General trip, PHIT – STFWL2&PE, ZM trip, fuse VTSV, Zcom CR, ZCom CS, MVAJ 21 K86 ABC.
At Jebba T/S:
ABB relay: Trip, PHF-STFWL2&PE, ZM1 trip, fuse VTSZ, ZCom CR, ZCom CS, DEF-CR, DEF-CS, distance = 59.5km
Omega relay: Zone 1, phase B, earth, carrier receiver 1 & 2,
Auxiliary relay: 86AB, K86 ABC. No load loss as ccts J1H, H3G, J3G, L6G and R5G were in service. (LHR = 161MW).
- 7 14:25 through 24:00Hrs, Alaoji NIPP/Alaoji T/S 330kV line 1 (cct L7A) CB tripped at Alaoji NIPP end on line differential protection fault type A C – G. No load loss as cct L8A was in service.
14:39Hrs, Trial restoration failed on the same relay indication.
- 8 15:02 – 15:34Hrs, Afam I T/S 150MVA 330/132/33kV transformer T1B secondary CB tripped on E/F. LHR = 50MW
- 9 17:35 - 17:56Hrs, Akangba/Itire 132kV line 2 CB tripped at Itire T/S on SOTF, location = 4.03km. LHR = 0.1MW. Note: Itire/Ejigbo 132kV line was isolated at Itire T/S before restoration.
- 10 18:40 – 18:58Hrs, Ayede/lbadan North/Iwo/Iseyin 132kV line CB tripped on Siemens relay – O/C Red & Yellow phases. LHR = 65MW
- 11 20:27 through 24:00Hrs, Alaoji NIPP GT2 tripped on gas fuel separator condensate very high. LHR = 115.7MW
- 12 21:15 – 21:25Hrs, Alaoji/Owerri 132kV lines 1 & 2 CBs tripped at Owerri T/S on the following relay indications:
On Line 1:
Optimho relay: Zone 1 BN, location = 90.72km, period = 60ms,
Siemens relay: Instantaneous trip ie>> Yellow phase and back up
On Line 2:
Siemens relay: Instantaneous trip ie>> Red & Yellow phases and back up. LHR = 48MW

5 (C) PLANNED OUTAGES:-

- 1 12:17 – 19:20Hrs, Ikeja-West/Oworonsoki 132kV lines 1 & 2 were taken out to cut dangerous trees and bamboos along the lines. No load loss as the lines were on soak.
- 2 12:25 – 17:35Hrs, New Haven T/S 60MVA 132/33kV transformer TR4 was taken out to repair the defective primary isolator that failed to operate. No load loss as 2 x 60MVA transformers TR1 & TR2 were in service.

5(D) URGENT OUTAGES:-

5 (E) EMERGENCY OUTAGES:-

The under mentioned lines were opened on frequency control.

- 1 19:25 - 19:33Hrs, Osogbo/Akure 132kV line. Load loss = 58MW. Frequency was 49.86Hz
- 2 20:28 - 20:42Hrs, Osogbo/Akure 132kV line. Load loss = 58MW. Frequency was 49.86Hz
- 3 20:37 - 20:44Hrs, Osogbo/Ilesha/Ife 132kV line. Load loss = 54MW. Frequency was 49.88Hz

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:-

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A1K, K4U, U1A & A1S.

5 (H) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- NIL

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

5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- ccts J2H & N4J.

5 (K) 330KV LINES THAT ARE ON SOAK:- ccts F1K & B3D.

6 WEATHER REPORT:- Rainfall was reported at Benin, Ikeja-West, Katampe, Akangba, Osogbo, Ajah, Afam, Abuja,

7 INTERNATIONAL LINES:-

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

Maximum load - 272MW at 21:00Hrs.
Minimum load - 184MW at 07:00Hrs.

B BIRNIN KEBBI/NAMEYI 132KV LINE

Maximum load - 106MW at 02:00Hrs.
Minimum load - 83MW at 08:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 38.2MW at 21:00Hrs.
Minimum load - 26.8MW at 04:00Hrs.

- 1 01:37 - 10:47Hrs, Kainji/Jebba 330kV line 2 (cct K2J) was taken out due to trip cct faulty CB lock out alarm that triggered at Jebba T/S. No load loss as cct K1J was in service.
- 2 09:53 - 15:43Hrs, Jebba/Shiroro 330kV line 1 (cct J3R) was taken out to treat hot spot on the Red phase line isolator clamp at Shiroro P/S. No load loss as cct J7R was in service.
- 3 10:05 - 10:12Hrs, Ayede/lbadan North/lwo/lseyin 132kV line CB was taken out to isolate lbadan North T/S 60MVA 132/33kV transformer T1 due to failure of the primary CB to respond to control signal. Load loss = 30MW
- 4 10:59 - 11:35Hrs, Omotosho T/S 150MVA 330/132/33kV transformer was taken out to build up low SF6 gas pressure in the primary CB to normal. No load loss as tie CB #3312 was in service.
- 5 17:32 – 17:34Hrs, Akangba/Itire 132kV line 2 was taken out to facilitate the soaking of Itire/Ejigbo 132kV line at Itire T/S
- 6 18:16 through 24:00Hrs, Afam IV GT18 was shut down due to erratic load swinging. LHR = 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 2A - UNITS FROM ODUKPAI, AZURA, SHELL AFAM VI, AGIP OKPAI, OLORUNSOGO POWER PLC AND OMOTOSHO POWER PLC.

GROUP 2B - OTHER GENERATING 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 CONTRACTED FOR THE ANCILLARY SERVICE).

GROUP 5 - ALL PLANTS DISPATCHED SUBJECT TO TRANSMISSION CONSTRAINT (NOT YET IDENTIFIED).

GROUP 6 - ALL PLANTS PROVIDING VOLTAGE SUPPORT ABOVE STATUTORY LIMIT (NOT YET IDENTIFIED).

10 COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	33
OPTIC FIBRE	13	10
PLS	14	4

11 SCADA RTU STATUS

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	NO OF RTU WORKING
POWER STATIONS	8	7	1
330kV	19	13	6
132kV	102	87	15

8 MISCELLANEOUS:-

- 1 00:17 - 18:10Hrs, Azura-Edo IPP GT12 was shut down due to low load demand by the Discos. Load loss = 75MW
 - 2 00:44 through 24:00Hrs, Ihovbor NIPP GT1 was shut down due to low load demand by the Discos. Load loss = 79.2MW
 - 3 01:11 - 21:03Hrs, Olorunsogo Gas GT4 was shut down due to low load demand by the Discos. Load loss = 28MW
 - 4 02:22 - 12:27Hrs, Omotosho Gas GT8 was shut down due to low load demand by the Discos. Load loss = 15.1MW
 - 5 07:28 - 13:30Hrs, Lokoja/Gwagwalada 330kV line 2 (cct L7G) was taken out for voltage control. V/P = 355/352kV
 - 6 12:24 through 24:00Hrs, Egbin ST1 was shut down. Load loss = 85MW
 - 7 12:40 - 20:46Hrs, Omotosho Gas GT7 was shut down. No load loss as 30MW was transferred to unit GT8.
 - 8 14:16Hrs, Afam IV P/S GT18 was tied. The unit was out due to lube oil high temperature.
 - 9 16:50Hrs, Odukpani NIPP GT5 was tied. The unit was out on maintenance.
 - 10 19:22Hrs, Delta P/S GT20 was tied. The unit was out due to low load demand by the Discos.
 - 11 19:38Hrs, Azura-Edo P/S GT11 was tied. The unit was out due to low load demand by the Discos.
 - 12 19:55Hrs, Olorunsogo P/S GT8 was tied to swap with GT7.
 - 13 20:04Hrs, Delta P/S GT16 was tied. The unit was out due to low load demand by the Discos.
 - 14 20:42Hrs, Delta P/S GT15 was tied. The unit was out due to low load demand by the Discos.
 - 15 20:56 through 24:00Hrs, Omotosho GT8 was shut down. No load loss 30.1MW was transferred to GT7
 - 16 21:13Hrs, Alaoji NIPP GT1 was tied. The unit was out due to low load demand by the Discos.
 - 17 21:30 through 24:00Hrs, Olorunsogo GT7 was shut down. No load loss as 35MW was transferred GT8.
 - 18 23:06 through 24:00Hrs, Delta P/S GT15 was shut down due to low load demand by the Discos. Load loss = 55MW
- **** LACK OF REACTOR AND UNRELIABLE STATION SERVICE SUPPLY AT IKOT-EKPENE T/S ARE HINDERING SMOOTH OPERATION.
- **** THE SCADA COVERAGE OF ONLY LIMITED AREAS IS NOT GOOD FOR THE SMOOTH OPERATION OF THE GRID.

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

SHIRORO REGION:

- 1 Birnin Kebbi 75MX Reactor R1.

ABUJA REGION

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

KADUNA REGION:

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

BAUCHI REGION:

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

ENUGU REGION:

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

LAGOS REGION:

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

PORT HARCOURT REGION

- 1 Ikot-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.

BENIN REGION:

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

ENUGU REGION:

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

SHIRORO REGION

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

PORT HARCOURT REGION

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

12(D) **UNAVAILABLE CAPACITOR BANK:**

- 1 (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.

12(E) **UNAVAILABLE SKYWIRES**

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 Shiroro T/S 330kV Jebba line 2 - 28 spans

ABUJA REGION

- 1 Apo T/S 132kV Keffi line - 36 spans

12 (F) **UNAVAILABLE SYNCHROSCOPES :**

- 1 Benin, Ikeja West, Onitsha, Egbin, Ugwuaji, 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

