

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF SATURDAY 09/06/2018

FOR: EVENTS OF FRIDAY 08/06/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,560	06:00	08/06/2018
GENERATION CAPABILITY	7322.2	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4074.2	-do-	-do-
PEAK GENERATION	3669.2	-do-	-do-
LOWEST GENERATION	41.4	21:45	08/06/2018
8-HOURLY DURATION PEAK	3669.2	0100-0800	-do-
	3607.3	0900-1600	-do-
	3582.1	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	355	Birnin-Kebbi T/S	14:00
LOWEST VOLTAGE FOR THE DAY	290	Katampe T/S	20:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	50.55	07:45
LOWEST FREQUENCY	47.00	21:37

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 8th June, 2018		No. of days since last total collapse: 01												
Date of last partial collapse: 12 th April, 2018		No. of days since last partial collapse: 54												
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	2	1	4	22
	Partial	1	--	--	1	1	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	4	3	1	1	1	2	1	--	13
	Partial	--	1	1	--	--	--	--	1	--	1	2	--	6
2012	Total	--		2	1	5	2	1	--	--	2	2	1	16
	Partial	--		2	3	--	--	--	--	1	--	1	1	8
2013	Total	--	1	2	2	3	4	1	1	1	1	4	2	22
	Partial	--		--	--	--	--	--	2					2
2014	Total	2			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	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	2	22
	Partial	--	--	1	0	1	3	1	0	0	0	0	0	6
2017	Total	5	3	0	3	1	1	0	0	1	1			15
	Partial	1	0	1	0	0	0	1	0	0	3			9
2018	Total	5	1	0	0	0	1							7
	Partial	0	0	0	1	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	160	0
2 JEBBA	HYDRO	168	0
3 SHIRORO	HYDRO	250	0
4 EGBIN ST2 - 5	STEAM	373	0
5 SAPELE	STEAM	58	0
6 DELTA	GAS	432	0
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	101	0
9 OMOTOSHO GAS	GAS	142	0
10 OLORUNSOGO GAS	GAS	139	0
11 GEREGU NIPP	GAS	0	0
12 SAPELE NIPP	GAS	186.1	0
13 ALAOJI NIPP	GAS	115	0
14 OLORUNSOGO NIPP	GAS	0	0
15 OMOTOSHO NIPP	GAS	184	0
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	95.1	0
18 OKPAI	GAS	249	0
19 AFAM VI	GAS	418	0
20 IBOM POWER	GAS	24.8	41.4
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	0	0
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 AZURA - EDO IPP	(GAS)	414	0
27 EGBIN ST6	(GAS)	90	0
28 PARAS ENERGY	(GAS)	70.2	0
29 GBARAIN NIPP	GAS	0	0
TOTAL		3669.2	41.4

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	3342.00	139.25	3327.60	138.65
2 JEBBA	HYDRO	3627.00	151.13	3605.40	150.23
3 SHIRORO	HYDRO	4392.00	183.00	4371.14	182.13
4 EGBIN ST2 - 5	STEAM	8708.00	362.83	8289.50	345.40
5 SAPELE	STEAM	1242.00	51.75	1241.40	51.73
6 DELTA	GAS	9929.37	413.72	9756.40	406.52
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	1252.50	52.19	1231.86	51.33
9 OMOTOSHO GAS	GAS	2870.00	119.58	2848.90	118.70
10 OLORUNSOGO GAS	GAS	2921.10	121.71	2894.44	120.60
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	3661.28	152.55	3643.46	151.81
13 ALAOJI NIPP	GAS	2388.62	99.53	2369.31	98.72
14 OLORUNSOGO NIPP	GAS	0.00	0.00	0.00	0.00
15 OMOTOSHO NIPP	GAS	3761.70	156.74	3750.10	156.25
16 ODUKPANI NIPP	GAS	0.00	0.00	0.00	0.00
17 IHOVBOR NIPP	GAS	2080.00	86.67	2065.13	86.05
18 OKPAI	GAS	5262.00	219.25	5217.10	217.38
19 AFAM VI	GAS	9113.97	379.75	8896.78	370.70
20 IBOM	GAS	672.44	28.02	663.00	27.63
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	8213.40	342.23	8181.94	340.91
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	0.00	0.00	0.00	0.00
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	0.00	0.00	0.00	0.00
27 EGBIN ST6	STEAM	659.00	27.46	622.60	25.94
28 PARAS ENERGY	GAS	1479.20	61.63	1471.40	61.31
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
TOTAL		75,575.58	3,148.98	74,447.46	3,101.98

1.7A GENERATION POSITION AT 06:00HRS OF SATURDAY 09/06/2018

	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 & 12 3	340	270	1G5 & 6 2	190	156	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. 1G11 - Out on maintenance. 1G12 - Out on water management.
	JEBBA HYDRO	6	2G1 - 5 5	475	475	2G1 & 5 2	190	168	2G2-4 - Out on water management. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G 2 & 4 2	280	174	411G2 & 4 2	174	174	411G1 - Out on inspection. 411G3 - Out on maintenance. Generation reduced due to low gross operating head.
	EGBIN STEAM	5	ST1, 2, 4 & 5 4	880	537	0 0	0	0	ST1, 2, 4 & 5 - Yet to come back due to high voltage of 08/06/18. ST3 - Out on high vibration since 19th June 2017.
	SAPELE (STEAM)	1	ST2 1	120	58	0 0	0	0	ST1 - Out on low drum level. ST2 - Yet to come back after system collapse of 08/06/18. ST3 - Out on stator winding problem. ST4 & 5 - Awaiting major overhaul. ST6 - Out on gas control valve not following reference point.
	DELTA (GAS)	18	GT7, 9 -13, 15, 16 & 18 - 20 1	615	615	GT7, 9 -13, 16 & 18 - 20 1	501	501	GT3 & 5 - Out due to generator winding fault. GT4 - Out on loss of excitation. GT6, 8 & 14 - Out on major overhaul. GT15 - Out due to gas constraint. 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. GT17 - Shut down due to oil leakage on the unit bearing compartment. GT18 - Out on lube oil pressure problem. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	0 0	0	0	GT11 & 13 - Out due to low gas pressure. GT12 - Yet to come back after system collapse of 08/06/18.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT2, 6 & 7 3	114	105.6	GT1, 3 - 5 - Out due to gas constraint. GT8 - Yet to come back after system collapse of 08/06/18. .
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT4 & 5 2	78	70.2	GT1, 3 & 7 - Out due to gas constraint. GT2, 6 & 8 - Yet to come back after system collapse of 08/06/18. .
NIPP	GEREGU NIPP	3	GT21 - 23 3	435	435	0 0	0	0	GT21 - 23 - Out due to gas constraint.
	SAPELE NIPP	4	GT1 & 3 2	225	225	0 0	0	0	GT1 & 3 - Yet to come back after system collapse of 08/06/18. . GT2 - Out due to high air inlet differential pressure. GT4 - Out on general fire alarm.
	ALAOJI NIPP GAS	4	GT1 & 4 2	250	240	0 0	0	0	GT1 & 4 - Out due to low gas pressure. GT2 - Out due to low gas temperature GT3 - Shut down due to generator air inlet filter trouble.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	0 0	0	0	GT1 - 3 - Out due to gas constraint. 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	100.9	GT1 - Yet to come back after system collapse of 08/06/18. . GT2 - On frequency response. GT3 - Shut down due to oil leakage on the unit. GT4 - Out due to gas constraint.
	ODUKPANI NIPP	5	GT4 & 5 2	240	230	0 0	0	0	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Out on high air inlet differential pressure. GT4 & 5 - Shut down due to work on gas pipe line equipment.
	IHOVBOR NIPP	4	GT1 - 3 3	337.5	315	GT1 1	110	94.6	GT2 & 3 - Out due to gas constraint. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	0 0	0	0	0 0	0	0	GT2 - Out on loss of back feed.
IPP	OKPAI GAS/STEAM	3	GT11 & 12 2	300	300	GT12 1	150	126	GT11 - Yet to come back after system collapse of 08/06/18. . GT12 - On frequency response. ST18 - Out due to water shortage.
	AZURA - EDO	3	GT11 - 13 3	459	459	GT11 - 13 3	459	387	Available units on bar.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	640	GT11- 13 & ST10 4	640	288	ST10 - Still loading up.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	31.1	GT3 - On island operation due to tripping Aba/ttu 132kV line.
	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	0 0	0	0	0 0	0	0	GT1 - Out on fault. GT2 & 5 - Shut down to replace damage VTs of GT1. GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul. GT6 - Out due to lube oil low pressure.
	TRANS-AMADI	4	GT1 & 2 2	50	40	0 0	0	0	GT1 & 2 - Out due to line constraint since 03/04/2018. GT3 - Out on fault. GT4 - Tripped on generator differential lockout.
	RIVERS	1	GT1 1	180	160	0 0	0	0	GT1 - Out due to low gas pressure.
SUB TOTAL	126	76	7808.5	7051	32	2841	2202.4	Frequency = 50.32Hz.	

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

FEEDER	MAX. LOAD (MW)	TIME (HRS)	REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY				
U-STEEL	1	0800HRS	14	SYSTEM COLLAPSE, TRIPPED ON E/F
PTCEXPRESS	7	1300HRS	16	SYSTEM COLLAPSE, TRIPPED ON INST. O/C & O/C
SANKYO	ON	0100HRS	20	SYSTEM COLLAPSE
FEEDER 8	16	1700HRS	19	SYSTEM COLLAPSE
IKORODU				
PULK IT	4	0900HRS	21.5	SYSTEM COLLAPSE
INDUSTRIAL	19	0800HRS	21.5	SYSTEM COLLAPSE
SPINTEX	13	1600HRS	21.5	SYSTEM COLLAPSE
DANGOTE	2	0100HRS	21.5	SYSTEM COLLAPSE
LAND CRAFT	16	0700HRS	21.5	SYSTEM COLLAPSE
ALAUUSA				
TR4 15MVA	6.9	1000HRS	21	SYSTEM COLLAPSE
TR5 -15MVA	6.4	1100HRS	21	SYSTEM COLLAPSE
ALAUUSA	14.7	1800HRS	21	SYSTEM COLLAPSE
MLAND				
PTC (MARYLAND)	18	1500HRS	18.5	SYSTEM COLLAPSE, EMERGENCY OUTAGE ON 132KV LINE
LORDSMITH (PAPALANTO)	0.5	0900HRS	21	SYSTEM COLLAPSE
TOTAL LOAD	124.5			

1.7C BILATERAL AGREEMENT UNITS DISPATCH - FRIDAY 08/06/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY				
U-STEEL	1	0800HRS	14	SYSTEM COLLAPSE, TRIPPED ON E/F
PTCEXPRESS	7	1300HRS	16	SYSTEM COLLAPSE, TRIPPED ON INST. O/C & O/C
SANKYO	ON	0100HRS	20	SYSTEM COLLAPSE
FEEDER 8	16	1700HRS	19	SYSTEM COLLAPSE
IKORODU				
PULK IT	4	0900HRS	21.5	SYSTEM COLLAPSE
INDUSTRIAL	19	0800HRS	21.5	SYSTEM COLLAPSE
SPINTEX	13	1600HRS	21.5	SYSTEM COLLAPSE
DANGOTE	2	0100HRS	21.5	SYSTEM COLLAPSE
LAND CRAFT	16	0700HRS	21.5	SYSTEM COLLAPSE
ALAUUSA				
TR4 15MVA	6.9	1000HRS	21	SYSTEM COLLAPSE
TR5 -15MVA	6.4	1100HRS	21	SYSTEM COLLAPSE
ALAUUSA	14.7	1800HRS	21	SYSTEM COLLAPSE
MLAND				
PTC (MARYLAND)	18	1500HRS	18.5	SYSTEM COLLAPSE, EMERGENCY OUTAGE ON 132KV LINE
LORDSMITH (PAPALANTO)	0.5	0900HRS	21	SYSTEM COLLAPSE
TOTAL LOAD	124.5			

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	71.8	17:00	21	Out due to system failure.

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF FRIDAY - 08/06/2018

COMPANY NAME	VOLTAGE LEVEL	EXPECTED CONTRACTUAL LOAD (MW)	MAX	TIME	HOUR IN SERVICE	REMARK
INNER GALAXY	132kV line	25	20	16:00	21	System disturbance
KAM STEEL		Not commissioned				
ASAKA CEMENT	33kV feeder	0	12.4	15:00	17	System disturbance
KAM INTEGRATED		15	0.9	10:00	21	System disturbance
OLAM FLOUR MILLS		3	1.8	10:00	21	System disturbance
LORDSMITH		3	0.5	09:00	21	System disturbance

1.8 HYDROLOGICAL DATA: SATURDAY 09/06/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	131.05	99.81	359.70
TAIL WATER ELEVATION (METERS)	101.96	72.4	270.2
GROSS OPERATING HEAD (METERS)	29.09	27.41	89.50
AVERAGE TURBINE DISCHARGE (M3/SEC)	497.00	646.00	238.00
AVERAGE SPILLAGE (M3/SEC)	0.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	497	646	238
COMPUTED INFLOW (M3/SEC)	171.00	646.00	113.00
STORAGE DIFFERENTIAL	-326.00	0	-125
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	382.5
MINIMUM LEVEL BELOW WHICH NO GENERATION	130	99	355

1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT FRIDAY 08/06/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	484.2	14:00	471.02	38.8	24:00
EKO	263.5	06:00	450.54	106	20:00
IKEJA	519.9	11:00	514.38	305.4	16:00

2.0 GAS POSITION: SATURDAY 09/06/2018

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	403	1100		0	1100
DELTA (GAS)	412	915		501	414
OMOTOSHO GAS	105.2	336.8		114	222.8
OMOTOSHO NIPP	101.9	500		120	380
OLORUNSOGO (GAS)	111.7	336		78	258
OLORUNSOGO NIPP	0	750		0	750
SAPELE NIPP	83.8	500		0	500
SAPELE STEAM	0	720		0	720
AFAM IV-V	0	300		0	300
AFAM VI	516	650		640	10
GEREGU GAS	261	435		0	435
GEREGU NIPP	0	435		0	435
OKPAI (GAS/STEAM)	226	480		150	330
ALAQJI NIPP	86.9	504		0	504
IHOVBOR NIPP	92.8	450		110	340
IBOM	77.4	198		115	83
ODUKPANI NIPP	0	625		0	625
TOTAL	2477.7	9234.80		1828	7406.8

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : FRIDAY 08/06/2018

	(MW)	TIME	FREQUENCY
Maximum (MW)			
Minimum			
AVERAG			

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF FRIDAY 08/06/2018 = 0MW. FREQUENCY 50.32Hz.

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	
TOTAL (MW)			295	0	0

4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Friday 08/06/2018 as at 0600Hrs was = 2924.9MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB -TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Omotosho NIPP GT4	120	0	120	2436
2	Alaoji NIPP GT1 & 4	240	0	240	
3	Geregu NIPP GT21 - 23	435	0	435	
4	Olorunsogo NIPP GT1 - 3	360	0	360	
5	Rivers GT1	160	0	160	
6	Odukpani NIPP GT4 & 5	230	0	230	
7	Omotosho Gas GT1, 3 - 5	152	0	152	
8	Olorunsogo Gas GT1, 3 & 7	114	0	114	
9	Ihovbor NIPP GT1 & 2	220	0	220	
10	Geregu GT11 & 13	290	0	290	
11	Delta GT15	115	0	115	
				0	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1975.15MMSCF OF GAS (EQUIVALENT TO 7406.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Trans-Amadi GT1 & 2	40	0	40	123.9
2	Ibom GT3	115	31.1	83.9	
				0	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
			0	0	0
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
4.4 DUE TO WATER MANAGEMENT					
1	Kainji 1G12	80	0	80	365
2	Jebba 2G2 - 4	285	0	285	
Grand Total					2924.9

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 1 06:49 - 23:28Hrs, Delta P/S GT16 tripped on high air inlet differential pressure. Load loss = 71MW.
- 2 19:19 – 20:47Hrs, Shiroro 411G2 tripped on emergency shut down. LHR = 110MW.
- 3 19:19 – 20:44Hrs, Shiroro 411G4 tripped on emergency shut down. LHR = 130MW.

5(B) FORCED OUTAGES (TRANSMISSION):

- 1 07:37 – 07:55Hrs, Birnin-Kebbi/Sokoto 132kV line CB tripped at Birnin-Kebbi T/S on O/C Red Phase, E/F & 86 lockout . LHR = 62MW.
- 2 15:27 – 16:40Hrs, Mando T/S 150MVA 330/132/33kV transformer T4 primary CB tripped on buchholz relay and main protection. LHR = 89MW.
- 3 19:30 – 20:34Hrs, Jebba/Shiroro 330kV line 1 (cct J3R) CB tripped at Jebba T/S on the following relay indications:
ABB relay: Trip, PLS –STFWL1, PLS –STFWL3, PLS – STF WPE ZM2 trip.
Auxiliary relay: K86ABC, distance – 156km. LHR = 37MW.
- 4 19:30 - 23:20Hrs, Jebba/Shiroro 330kV line 2 (cct J7R) CB tripped at Jebba T/S on the following relay indications:
ABB relay: Trip, PLS –STF WL1, PLS STF WPE, ZM2 trip, fuse VTSZ, DEF CS.
Auxiliary relay: K86 ABC. LHR = 35MW.
- 5 19:20 through 24:00Hrs, Shiroro/Mando 330kV line 2(cct R2M) CB tripped at Mando T/S on the following relay indications:
Distance protection relay: Red Phase zone 2, DEF carrier sent.
Optimho relay: zone 2, A –N VAJ 86A, B & C, location = 49.61km, VAJ 21, MBA J21 86A, B & C, VAJ 86T. LHR = 135MW.
- 6 21:20 through 24:00Hrs, Alaoji/Owerri 132kV lines 1 & 2 tripped CBs at Alaoji T/S on the following relay indications:
Line 1: Optimho relay – zone 1 C -N location = 106.6km.
Siemens relay – instantaneous trip IE >> .
Line 2: Siemens relay – E/F trip IE >. LHR = 20MW each.
- 7 **REPORT OF SYSTEM COLLAPSE 08/06/2018 AT 21:37HRS**
21:37Hrs, System frequency sharply dropped from 50.01Hz to 47.00Hz and resulted in system collapse. Total Load loss was 3039.7MW.

Report from station before system collapse.

19:30 – 23:20Hrs, Jebba/Shiroro 330kV line 2 (cct J7R) CB tripped at Jebba T/S on the following relay indications:
ABB relay: Trip, PLS –STF WL1, PLS STF WPE, ZM2 trip, fuse VTSZ, DEF CS.
Auxiliary relay: K86 ABC. LHR = 35MW.
19:20 through 24:00Hrs, Shiroro/Mando 330kV line 2(cct R2M) CB tripped at Mando T/S on the following relay indications:
Distance protection relay: Red Phase zone 2, DEF carrier sent.
Optimho relay: zone 2, A –N VAJ 86A, B & C, location = 49.61km, VAJ 21, MBA J21 86A, B & C, VAJ 86T. LHR = 135MW.
Note: Inspection revealed that Yellow Phase CVT was detached from the pole and fell on the wave trap.

Report from stations:

21:37Hrs, Shiroro 411G2 tripped on excitation trouble, generation field ground fault. LHR = 58MW.
21:37Hrs, Shiroro 411G4 tripped on generation field ground fault, time delayed field current limiter. LHR = 134MW.
21:37Hrs, Jebba 2G1 tripped on temporary emergency shut down 86-5, 86-1, 86-2, 59/G 2 level over voltage protection, 50/27 O/C Backup protection suitable for degenerative static exciter. LHR = 84MW.
21:37 through 24:00Hrs, Onitsha/Alaoji 330kV line (cct T4A) CBs tripped at both ends on the following relay indications:
At Onitsha T/S: Ohmega Relay – zone 1, Phase C-N, trip relay 86C. LHR = 133MW.
At Alaoji T/S: Ohmega Relay – zone 1 Phase C-N. LHR = 133MW.
21:37Hrs, Alaoji/Ikot-Ekpene 330kV line 1 (cct A1K) CBs tripped at both ends without relay indication. LHR = 150MW.
21:37Hrs, Afam VI GTs11, 12 & ST10 tripped without relay indication. LHR = 412MW.
21:37Hrs, Alaoji NIPP GT4 tripped without relay indication. LHR = 112.2MW.
21:37 through 24:00Hrs, Onitsha/New Haven 330kV line (cct T3H) CB tripped at Onitsha T/S on the following relay indications:
Ohmega Relay: O/C, E/F, DEF trip, DEF forward, carrier received,
Micom Relay: Phase C-N, E/F, DEF trip, distance zones 2 & 3.
Trip Relay: 3Phases.
MVAJ Relay: 86C & B. LHR = 142MW.
NB: Generation level was low due to gas constraint at most thermal stations; generation of Afam VI and Alaoji NIPP was cut off due to lack of evacuation corridor when 330kV cct T4A tripped. This is because 330kV cct A1K line CB is unavailable (faulty).

Restoration

21:55Hrs, cct R4B failed to close at Shiroro T/S
22:00Hrs, Delta P/S has problem with units to black start.
22:04Hrs, cct R4B was restored.
22:17Hrs, cct R4B tripped at Katampe T/S
22:24Hrs, cct G3B was restored.
22:28Hrs, ccts V7B & H7V were restored.

5 (E) EMERGENCY OUTAGES:- NIL

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:-

- 1 21:37Hrs, Iseyin T/S 45MVA 132/33/11kV secondary CB. LHR = 9MW.

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A2K, 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 A2S, R2M, K4U & S5B.

5 (K) 330KV LINES THAT ARE ON SOAK:- ccts N4J & F1K.

5 (C) PLANNED OUTAGES:-

- 12:30 – 16:25Hrs, Birnin Kebbi/Niamey 132kV line was taken out at Birnin Kebbi T/S to enable PC & M check distance protection relay scheme of the line CB. Load loss = 99MW.

5(D) URGENT OUTAGES:

- 15:20 – 16:30Hrs, Effurun T/S 60MVA 132/33kV transformer T21 was taken out to seal oil leakage on the Yellow Phase CT secondary of the transformer. Load loss = 0.1MW.
- 18:43 through 24:00Hrs, Sapele NIPP GT3 was shut down due to gas condensate. Load loss = 95MW.
- 18:44 through 24:00Hrs, Sapele NIPP GT1 was shut down due to gas condensate. Load loss = 100MW.

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 ODUKPANI, 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).

11 (A) COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	26
OPTIC FIBRE	13	8
PLS	14	0

11 (B) SCADA RTU STATUS

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	NO OF RTU WORKING
POWER STATIONS	8	5	3
330kV	19	7	12
132kV	102	85	17

6 WEATHER REPORT:- Rainfall reported at Shiroro, Onitsha & Benin.

7 INTERNATIONAL LINES:-

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

Maximum load - 281MW at 15:00Hrs.
Minimum load - 218MW at 09:00Hrs.

B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 101.0MW at 08:00Hrs.
Minimum load - 34.0MW at 17:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 47.9MW at 14:00Hrs.
Minimum load - 5.9MW at 17:00Hrs.

8 MISCELLANEOUS:-

- 00:52 – 06:45Hrs, Delta P/S GT20 was shut down on frequency management. Load loss = 60MW.
- 01:15Hrs, Olorunsogo Gas GT6 was shut down on gas constraint. Load loss = 35.2MW.
- 01:17Hrs, Afam VI P/S GT12 was shut down on frequency management. Load loss = 110MW.
- 02:18Hrs, Geregu Gas GT11 shut down due to low gas pressure. Load loss = 48MW.
- 07:07Hrs, Egbin P/S ST6 was shut down due to low gas pressure. Load loss = 20MW.
- 07:08Hrs, Mando T/S 75MX 330kV shunt Reactor 3R3 was switched on to service for voltage control. V/P = 347/341kV.
- 08:21Hrs, Katampe T/S 75MX 330kV shunt Reactor was switched on to service for voltage control. V/P = 348/340kV.
- 09:30Hrs, Delta P/S GT10 was tied. The unit had been out on major overhaul.
- 14:57Hrs, Geregu Gas GT12 was shut down due to low gas pressure. Load loss = 35MW.
- 16:53Hrs, Zaria T/S 60MVA 132/33kV transformer T2 was restored. The transformer was out on maintenance.
- 19:08Hrs of 06/06/2018 – 20:40Hrs of 07/07/2018, Ilorin T/S 45MVA 132/33kV transformer T2A was taken out on emergency due to explosion of the secondary Blue Phase VT. Load loss = 4.7MW.
- 23:54Hrs of 07/06/2018 – 00:40Hrs, Alaoji/Owerri 132kV line 1 CB tripped at Alaoji T/S on Optimho relay –Z, B –N, location = 78.17km, period = 70ms. Siemens relay – Relay trip, instantaneous trip IE >> Red & Yellow Phases, 2X3 Phase trip, backup protection. Load loss = 38MW.
- 23:35Hrs of 07/06/2018 – 11:05Hrs, Ayede T/S 150MVA 330/132/33kV transformer T1A primary and secondary CBs tripped on LV O/C and E/F. LHR = 28MW.

***** 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:

SHIRO

- 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)
- 1 Egbin/Aja 330kV line 2 (cct N4J) - faulty breaker at Aja T/S
- 1 Otta/Ogba 132kV line isolator - defective control shaft.
- 1 Osogbo/Ikeja West and Olorunsogo/Ikeja West tie CB at Ikeja West T/S - defective pole
- 1 Oke-Aro/Ikeja West 330kV lines 1 & 2 tie CB at Ikeja West T/S - Defective pole.
- 1 Jebba G.S/Jebba T.S 330kV line 2 CB at Jebba T/S.
- 1 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.
- 1 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.
- 1 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.
- 1 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(C) LAGOS REGION

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

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.

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21 spans.
- 1 Ikeja West/Olorunsogo line (cct R1W) - 80 spans.
- 1 330kV Ikeja West/Osogbo line. - 95 spans.
- 1 Ikeja West/Alimosho/Ogba 132kV lines 1 & 2 - 15 spans.
- 1 Ikeja West/Akangba 330kV line 2 - 1 span.
- 1 Ikeja West/ Ilupeju 132kV lines 1 & 2 - 8 spans.
- 1 Akangba/tire 132kV lines 1 & 2 - 1 span.
- 1 Ikeja West/Agbara 132kV lines 1 & 2 - 61 spans.
- 1 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
- 1 Minna T/S 132kV Bida line - 32 spans
- 1 Shiroro T/S 330kV Jebba line 2 - 28 spans

ABUJA REGION

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

12 (E) UNAVAILABLE SYNCHROSCOPES :

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

