

# TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF THURSDAY 13/09/2018

FOR: EVENTS OF WEDNESDAY 12/09/2018

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	12/09/2018
GENERATION CAPABILITY	7635.6	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4864.8	-do-	-do-
PEAK GENERATION	4598.2	-do-	-do-
LOWEST GENERATION	3010.3	4:00	12/09/2018
8-HOURLY DURATION PEAK	3570.6	0100-0800	-do-
	3790.4	0900-1600	-do-
	4598.2	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	357	Makurdi T/S	04:00
LOWEST VOLTAGE FOR THE DAY	300	Kumbotso & Gombe T/S	11:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.82	04:04
LOWEST FREQUENCY	49.85	20:57

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 4th Sept, 2018		No. of days since last total collapse: 09												
Date of last partial collapse: 12 <sup>th</sup> April, 2018		No. of days since last partial collapse: 153												
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	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	2	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				9	
	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	341	193		
2 JEBBA	HYDRO	416	277		
3 SHIRORO	HYDRO	448	421		
4 EGBIN ST2 - 5	STEAM	416	362		
5 SAPELE	STEAM	52	52		
6 DELTA	GAS	593	170		
7 AFAM IV-V	GAS	68	0		
8 GEREGU GAS	GAS	141	80		
9 OMOTOSHO GAS	GAS	135.8	140.6		
10 OLORUNSOGO GAS	GAS	138.1	144.2		
11 GEREGU NIPP	GAS	0	0		
12 SAPELE NIPP	GAS	98.6	74.5		
13 ALAQJI NIPP	GAS	108	70.6		
14 OLORUNSOGO NIPP	GAS	104.6	69.7		
15 OMOTOSHO NIPP	GAS	109.8	74.4		
16 ODUKPANI NIPP	GAS	0	68		
17 IHOVBOR NIPP	GAS	0	73.4		
18 OKPAI	GAS	332	159		
19 AFAM VI	GAS	136	102		
20 IBOM POWER	GAS	0	0		
21 ASCO	GAS	0	0		
22 A.E.S	GAS	0	0		
23 OMOKU	GAS	55.7	34.8		
24 TRANS AMADI	GAS	62	36.3		
25 RIVERS IPP	(GAS)	150	0		
26 AZURA - EDO IPP	(GAS)	443	150		
27 EGBIN ST6	(GAS)	181	190		
28 PARAS ENERGY	(GAS)	68.6	67.8		
29 GBARAIN NIPP	GAS	0	0		
<b>TOTAL</b>		<b>4598.2</b>	<b>3010.3</b>		
1.6 ENERGY GENERATED/ENERGY SENT OUT:					
STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	6892.00	287.17	6876.20	286.51
2 JEBBA	HYDRO	9190.00	382.92	9165.13	381.88
3 SHIRORO	HYDRO	9210.00	383.75	9181.75	382.57
4 EGBIN ST2 - 5	STEAM	8746.00	364.42	8326.50	346.94
5 SAPELE	STEAM	925.30	38.55	852.30	35.51
6 DELTA	GAS	9492.48	395.52	9393.90	391.41
7 AFAM IV-V	GAS	583.00	24.29	579.26	24.14
8 GEREGU GAS	GAS	2826.10	117.75	2806.64	116.94
9 OMOTOSHO GAS	GAS	3281.00	136.71	3258.30	135.76
10 OLORUNSOGO GAS	GAS	3367.16	140.30	3339.68	139.15
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	2551.53	106.31	2534.57	105.61
13 ALAQJI NIPP	GAS	2438.00	101.58	2417.81	100.74
14 OLORUNSOGO NIPP	GAS	2492.40	103.85	2444.70	101.86
15 OMOTOSHO NIPP	GAS	2250.00	93.75	2228.10	92.84
16 ODUKPANI NIPP	GAS	1301.19	54.22	1283.09	53.46
17 IHOVBOR NIPP	GAS	1790.00	74.58	1769.62	73.73
18 OKPAI	GAS	5465.00	227.71	5332.60	222.19
19 AFAM VI	GAS	2979.79	124.16	2891.77	120.49
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	4818.25	200.76	4794.73	199.78
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1268.60	52.86	1238.12	51.59
25 TRANS AMADI	GAS	1280.80	53.37	1252.80	52.20
26 RIVERS IPP	GAS	1047.90	43.66	1042.92	43.46
27 EGBIN ST6	STEAM	3977.00	165.71	3780.70	157.53
28 PARAS ENERGY	GAS	1652.90	68.87	1645.50	68.56
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
<b>TOTAL</b>		<b>89,826.40</b>	<b>3,742.77</b>	<b>88,436.69</b>	<b>3,684.86</b>

1.7A GENERATION POSITION AT 06:00HRS THURSDAY 13/09/2018

	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 50.58Hz.	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	370	1G5, 6, 11 & 12 4	370	295	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	358	2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G2 - 4 3	450	450	411G2 - 4 3	450	448	411G1 - Out due to technical issues.
	EGBIN STEAM	5	ST2 & 4 2	440	440	ST2 & 4 2	440	318	ST1 - Out due to undisclosed fault since 04/09/2018. ST3 - Out on high vibration since 19th June 2017. ST5 - Shut down due to boiler pump trouble. Generation reduced due to low load demand by the Discos.
	SAPELE (STEAM)	6	ST2 1	120	52	ST2 1	52	52	ST1 - Shut down due to alarm on inlet gas guide control trouble. ST2 - Capability reduced due to technical constraint. 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, 15 & 20 7	315	312	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. GT16, 18 & 19 - Out due to low load demand by the Discos. GT17 - Tripped on bearing vibration more than maximum.
	AFAM IV & V (GAS)	8	GT18 1	75	43	GT18 1	43	43	GT1 - 12 - De-commissioned and scrapped. GT13 - 16 - Out on blade failure. GT17 - Out due to technical issues. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 1	145	114	GT12 & 13 - Out due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT2 & 5 - 7 4	152	139.8	GT1, 3, 4 & 8 - Out due to low load demand by the Discos.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2, 4, 6 & 7 4	152	143.2	GT1, 3, 5 & 8 - Out due to low load demand by the Discos.
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	96.7	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 & 2 - Out due to low load demand by the Discos. GT4 - Tripped on over voltage lockout relay trip.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT2 1	120	81.6	GT1 & 3 - Out due to low load demand by the Discos. GT2 - Generation reduced 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	GT4 1	120	85.6	GT1 & 2 - Out due to low load demand by the Discos. GT3 - Out due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT4 & 5 2	250	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 - Out due to fire outbreak at the gas receiving station.
	IHOVBOR NIPP	4	GT1, 2 & 4 3	337.5	337.5	GT1 1	112.5	74.5	GT2 - Out due to low load demand by the Discos. GT3 - Tripped on high vibration. GT4 - Out due to line constraint.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	0 0	0	0	GT2 - Out due to Gbarain host community protest.
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18 3	370	370	GT11, 12 & ST18 3	370	177	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	GT12 & 13 2	306	200	GT11 - Out due to low load demand by the Discos. GT13 - Generation reduced due to low load demand by the Discos.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	640	0 0	0	0	GT11 & 12 - Out due to low load demand by the Discos. GT13 & 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	GT1, 2 & 5 3	60	30.6	GT1, 2 & 5 - Generation reduced 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 & 4 3	75	60	GT1, 2 & 4 3	58.1	58.1	GT3 - Out on fault.
	RIVERS	1	GT1 1	160	160	GT1 1	160	80	GT1 - Generation reduced due to low load demand by the Discos.
	SUB TOTAL	131	81	7850.5	7351.5	48	3988.1	3107.1	Frequency = 50.58Hz.

1.7B GENERATION POSITION AT 06:00HRS OF THURSDAY 13/09/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	ST6		220	132	ST6		132	132	Available unit on bar.
		1	1			1	1			
PARAS ENERGY	8	GT2 - 9		67	67	GT2 - 9		67	67	Available units on bar.
		8	8			8	8			
SUB TOTAL	9	9	9	287	199	9	199	199		
GRAND TOTAL	140	90	90	8137.5	7550.5	57	4,187.10	3,306.10		Frequency = 50.58Hz

1.7C

BILATERAL AGREEMENT UNITS DISPATCH - WEDNESDAY 12/09/2018.							
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		23		STATION WAS OUT ON PLANNED OUTAGE
	PTCEXPRESS	ON	0100HRS		23		STATION WAS OUT ON PLANNED OUTAGE
	SANKYO	ON	0100HRS		19		PLANNED OUTAGE TO RECONNECT THE FEEDER FROM INDOOR BREAKER TO OUTDOOR BREAKER
	FEEDER 8	16	1200HRS		19		PLANNED OUTAGE TO RECONNECT THE FEEDER FROM INDOOR BREAKER TO OUTDOOR BREAKER
IKORODU	PULK IT	4	0900HRS		24		NIL
	INDUSTRIAL	9	2000HRS		24		NIL
	SPINTEX	10	2000HRS		24		NIL
	DANGOTE	ON	0100HRS		24		NIL
	LAND CRAFT	15	0500HRS		24		NIL
ALAUSA	TR4 15MVA	6.8	1100HRS		24		NIL
	TR5 -15MVA	4.4	1100HRS		24		NIL
	ALAUSA	12	1000HRS		22		THE FDR WAS OUT ON PLANNED OUTAGE
M/LAND	PTC (MARYLAND)	16	0800HRS		23		EMERGENCY OUTAGE ON AKANGBA 330KV, AFFECTING THE STATIONS ILUPEJU 132KV LINE 1
	<b>TOTAL LOAD</b>	<b>93.2</b>					

BILATERAL AGREEMENT LOAD DISPATCH							
60MW PARAS ENERGY GENERATION TO CEB OF WEDNESDAY 12/09/018							
FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	70.2	02:00	67	12:00	24	1648	NIL

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: WEDNESDAY 12/09/2018									
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	44	14:00	24	09:00	24	504	SUPPLY NOT INTERRUPTED
KAM STEEL		15.0	0.3	01:00	0.2	19:00	24	7.1	SUPPLY NOT INTERRUPTED
ASAKA CEMENT		0.0	6.9	19:00	2.3	17:00	24	110.4	LOSS OF SUPPLY
XING 1	33kV feeder	0.0	18.9	02:00	8.4	10:00	24	329.6	SUPPLY NOT INTERRUPTED
XING 2		0.0	32.45	10:00	13	08:00	23	497.2	SUPPLY NOT INTERRUPTED
KAM INTEGRATED		15.0	4.4	08:00	2.0	19:00	24	71.0	SUPPLY NOT INTERRUPTED
OLAM FLOUR MILLS		3.0	2.4	01:00	0.8	21:00	24	39.6	SUPPLY NOT INTERRUPTED
LORDSMITH		0	0.5	01:00	0.3	07:00	24	497.20	SUPPLY NOT INTERRUPTED

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF THURSDAY 13/09/2018 = 0MW. FREQUENCY 50.58Hz.

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

1.8 HYDROLOGICAL DATA: THURSDAY 13/09/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	139.09	104.12	382.31
TAIL WATER ELEVATION (METERS)	106.99	77.8	274.5
GROSS OPERATING HEAD (METERS)	<b>32.10</b>	<b>26.32</b>	<b>107.81</b>
AVERAGE TURBINE DISCHARGE (M3/SEC)	1004.00	1645.00	398.00
AVERAGE SPILLAGE (M3/SEC)	2792.00	3757.00	2573.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	<b>3796.00</b>	<b>5402.00</b>	<b>2971.00</b>
COMPUTED INFLOW (M3/SEC)	5212.00	4777.00	2832.00
STORAGE DIFFERENTIAL	<b>1416.00</b>	<b>-625</b>	<b>-139.00</b>
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 WEDNESDAY 12/09/2018

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	472.0	11:00	483.06	195.3	19:00
EKO	394.0	22:00	1:26	233.3	12:00
IKEJA	638.9	21:00	630.08	310.2	13:00

2.0 GAS POSITION: THURSDAY 13/09/2018

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		640	460
DELTA (GAS)	248	915		315	600
OMOTOSHO GAS	101.5	336.8		152	184.8
OMOTOSHO NIPP	76.8	500		120	380
OLORUNSOGO (GAS)	84.4	336		152	184
OLORUNSOGO NIPP	80.4	750		120	630
SAPELE NIPP	81.4	500		112.5	387.5
SAPELE STEAM	50	720		52	668
AFAM IV-V	0	300		43	257
AFAM 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		112.5	337.5
IBOM	0	198		0	198
ODUKPANI NIPP	0	625		0	625
<b>TOTAL</b>	<b>1605.1</b>	<b>9234.80</b>		<b>2484</b>	<b>6750.8</b>

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : WEDNESDAY 12/09/018

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

4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Thursday 13/09/2018 as at 0600Hrs was = 3534.8MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
<b>4.1 DUE TO GAS CONSTRAINTS:</b>					
1	Geregu Gas GT12 & 13	290	0	290	1262.5
2	Alam VI GT13 & ST10	340	0	340	
3	Geregu NIPP GT22 & 23	290	0	290	
4	Sapele NIPP GT4	112.5	0	112.5	
5	Odukpani GT4 & 5	230	0	230	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1800.21MMSCF OF GAS (EQUIVALENT TO 6750.8MW WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
<b>4.2 DUE TO LINE CONSTRAINTS</b>					
1	Ihovbor NIPP GT4	112.5	0	112.5	112.5
<b>4.3 DUE TO LOW LOAD DEMAND BY THE DISCOS</b>					
1	Ihovbor GT2	112.5	0	112.5	2159.8
2	Azura Edo GT11 & 13	306	75	231	
3	Egbin ST2 & 4	440	318	122	
4	Sapele NIPP GT1	112.5	0	112.5	
5	Delta GT16, 18 & 19	280	0	280	
6	Alaoji NIPP GT1 & 2	240	0	240	
7	Omotosho NIPP GT1 & 2	240	0	240	
8	Olorunsogo NIPP GT1 - 3	360	81.6	278.4	
9	Omotosho Gas GT1, 3, 4 & 8 - 8	152	0	152	
10	Olorunsogo Gas GT1, 3, 5 & 8	152	0	152	
11	Rivers IPP GT1	160	80	80	
12	Omoku GT1, 2 & 5	60	30.6	29.4	
13	Okpai GT11	150	20	130	
<b>4.1 DUE TO WATER MANAGEMENT:</b>					
<b>Grand Total</b>					
					<b>3534.8</b>

**5.0 OUTAGES:**

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

- 1 05:18 – 14:17Hrs, Shiroro 411G4 tripped on protective shut down. LHR = 150MW.

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

- 1 13:46 – 14:05Hrs, Ayede/McPherson/Shagamu 132kV line CB tripped at Ayede T/S on the following relay indications:  
On Optimho relay – DEF, location = 71.9km, period = N/A.  
On Micom relay – O/C Yellow Phase and instantaneous E/F. LHR = 20MW.
- 2 13:52 – 16:15Hrs, Benin/Asaba 330kv line (cct B3D) CB tripped at Benin T/S on Siprotec relay – Zone 1 trip, EF12, EF310 pickup, distance pickup = L2E, fault Loop – L2E, distance – 28.8km.  
Auxiliary relay – 7PA2331 flagged. No load loss as cct D3T was in service.
- 3 16:25 – 16:40Hrs, Sapele/Delta 330kV line (cct S4G) CBs tripped at both ends on the following relay indications:  
**At Sapele T/S:** CELL 421 relay - E/F Y-N, location =13.33km.  
Backup relay: CELL 311 relay – E/F, Y – N, zone 1, location = 4.37km.  
**At Delta T/S:** Siprotec relay – Trip, O/C Yellow Phase zone 1 trip, E/F distance pickup – L2E, PU time – 176ms, trip time – 121ms, distance – 74km. No load loss as cct G3B was in service.
- 4 20:11 – 20:29Hrs, Alaoji/Owerri 132kV lines 1 & 2 CBs tripped at Alaoji T/S on the following relay indications:  
**Line 1:** Optimho relay – Z3 A-N, location – 336.7km, period – 175.5ms.  
**Line 2:** Optimho relay – DEF start, location – 165.9km, period – 86.5ms.  
Siemens relay – relay trip, instantaneous trip 1>>, instantaneous trip ie >> , Red Phase, backup protection. Load loss = 30MW each.
- 5 22:31 – 22:54Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line CB tripped at Ayede T/S on O/C Red, Yellow & Blue Phases. LHR = 58MW.

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

- 1 12:01 – 14:49Hrs, Akangba T/S 90MVA 330/132kV transformer 5T2A was taken out for annual preventive maintenance on the transformer and its associated equipment. No load loss as 3x90MVA transformers 5T1A, 5T1B & 5T2B were in service

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

- 1 11:55 - 12:19Hrs, Akangba T/S was de -loaded to enable the opening of Ikeja West/Akangba lines 1 & 2 ccts W3L & W4L respectively due to faulty tie CB at Ikeja West T/S. Total load loss = 268MW.
- 2 12:05 – 12:19Hrs, Ikeja West/Akangba 330kV lines 1 & 2 (ccts W3L & W4L) were taken out to re- fill low SF6 gas pressure on the tie CB to normal. No load loss as Akangba T/S had been de-loaded.
- 3 14:39 through 24:00Hrs, Odukpani NIPP GTs 4 & 5 were shut down due to fire outbreak at the gas receiving station. Load loss = 86.6MW & 95.5MW respectively.
- 4 20:49 through 24:00Hrs, Ihovbor GT1 was shut down to check and rectify why the unit was de-loading itself. Load loss = 110.1MW.

**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 ODUK PANI, 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).

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

The under mentioned line was opened on frequency control.

- 1 21:05 - 21:30Hrs, Osogbo/Akure/Ado Ekiti 132kV line. Load loss = 62MW. Frequency was 49.61hz.

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

**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:- cct N4J.**

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

**5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- cct J2H**

**5 (K) 330KV LINES THAT ARE ON SOAK:- ccts F1K, N4J & B3D.**

**6 WEATHER REPORT:-** Rainfall was reported at Osogbo, New Haven, Katampe, Gombe, Alaoji

**7 INTERNATIONAL LINES:-**

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

Maximum load - 264MW at 20:00Hrs.  
Minimum load - 172MW at 01:00Hrs.

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

Maximum load - 106MW at 01:00Hrs.  
Minimum load - 55MW at 13:00Hrs.

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

Maximum load - 38.6MW at 21:00Hrs.  
Minimum load - 25.8MW at 06:00Hrs.

**8 MISCELLANEOUS:-**

- 1 00:22 – 08:17Hrs, Delta GT20 was shut down due to low load demand by the Discos. Load loss = 70MW.
- 2 00:59Hrs, Trans-Amadi GT4 was tied. The unit was out due to low load demand by the Discos.
- 3 01:33 through 24:00Hrs, Afam VI GT12 was shut down due to low load demand by the Discos. Load loss = 70MW.
- 4 09:53Hrs, Kainji 1G5 was tied. The unit was out due to low load demand by the Discos.
- 5 11:18Hrs, Delta GT19 was tied. The unit was out due to low load demand by the Discos.
- 6 12:39Hrs, Afam IV GT18 was tied. The unit was out due to low load demand by the Discos.
- 7 15:58Hrs, Effurun T/S 60MVA 132/33kV transformer T23 was restored. The transformer primary CB tripped on differential relay at 14:20Hrs of 11/09/18.
- 8 20:13Hrs, Delta GT18 was tied. The unit was out due to low load demand by the Discos.
- 9 20:45Hrs, Delta GT16 was tied. The unit was out due to low load demand by the Discos.
- 10 20:48Hrs, Delta GT13 was tied. The unit was out due to low load demand by the Discos.

10 **COMMUNICATION MEDIA**

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	28
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	11	8
132kV	102	87	15

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

**SHIRORO REGION**

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

- 11 21:14Hrs, Azura-Edo GT11 was tied. The unit was out due to low load demand by the Discos.
- 12 21:35Hrs, Sapele NIPP GT1 was tied. The unit was out due to low load demand by the Discos.
- 13 22:49 through 24:00Hrs, Azura GT11 was shut down due to low load demand by the Discos. Load loss = 135MW.
- 14 23:02 through 24:00Hrs, Delta GT16 was shut down due to low load demand by the Discos. Load loss = 93MW.
- 15 23:43 through 24:00Hrs, Delta GT19 was shut down due to low load demand by the Discos. Load loss = 92MW.

\*\*\*\* **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(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, Uguwaji, 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



