

# TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF FRIDAY 05/10/2018  
FOR: EVENTS OF THURSDAY 04/10/2018

## 1.0 EXECUTIVE OPERATIONS SUMMARY:

### 1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,780	21:15	04/10/2018
GENERATION CAPABILITY	7632.4	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5208	-do-	-do-
PEAK GENERATION	4569.6	-do-	-do-
LOWEST GENERATION	3397.6	04:00	04/10/2018
8-HOURLY DURATION PEAK	3919	0100-0800	-do-
	3801.1	0900-1600	-do-
	4569.6	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	351	Lokoja T/S	02:00
LOWEST VOLTAGE FOR THE DAY	300	Kumbotso & Gombe T/S	06:00 & 12:00

### 1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.80	23:29
LOWEST FREQUENCY	50.11	13:43

### 1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 20th Sept, 2018		No. of days since last total collapse: 15												
Date of last partial collapse: 12th April, 2018		No. of days since last partial collapse: 174												
Highest No of days ever attained in-between total collapses: 134		Highest No of days ever attained in-between partial collapses: 240												
	Jan	Feb.	Mar.	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec	Total	
2010	Total	--	3	1	--	3	3	--	2	2	1	4	22	
	Partial	1	--	--	1	1	3	4	4	3	--	1	20	
2011	Total	--	--	--	--	4	3	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	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	0	2			10	
	Partial	0	0	0	1	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	370	341
2 JEBBA	HYDRO	438	410
3 SHIRORO	HYDRO	435	345
4 EGBIN ST2 - 5	STEAM	334	417
5 SAPELE	STEAM	48	49
6 DELTA	GAS	390	252
7 AFAM IV-V	GAS	46	46
8 GEREGU GAS	GAS	131	80
9 OMOTOSHO GAS	GAS	136.8	121.1
10 OLORUNSOGO GAS	GAS	178.1	108.8
11 GEREGU NIPP	GAS	0	0
12 SAPELE NIPP	GAS	168.4	65.8
13 ALAOJI NIPP	GAS	78.8	81.1
14 OLORUNSOGO NIPP	GAS	211.8	77.9
15 OMOTOSHO NIPP	GAS	102.7	80
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	96	75.5
18 OKPAI	GAS	289	176
19 AFAM VI	GAS	131	102
20 IBOM POWER	GAS	104.5	61.7
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	56.2	39.6
24 TRANS AMADI	GAS	64.5	52.3
25 RIVERS IPP	(GAS)	150	85
26 AZURA - EDO IPP	(GAS)	349	150
27 EGBIN ST6	(GAS)	111	113
28 PARAS ENERGY	(GAS)	69.4	67.8
29 GBARAIN NIPP	GAS	80.4	0
<b>TOTAL</b>		<b>4569.6</b>	<b>3397.6</b>

  

1.6 ENERGY GENERATED/ENERGY SENT OUT:					
STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	8665.00	361.04	8649.30	360.39
2 JEBBA	HYDRO	9933.00	413.88	9911.00	412.96
3 SHIRORO	HYDRO	10465.00	436.04	10432.98	434.71
4 EGBIN ST2 - 5	STEAM	9018.00	375.75	8506.90	354.45
5 SAPELE	STEAM	897.30	37.39	856.00	35.67
6 DELTA	GAS	9014.57	375.61	8928.90	372.04
7 AFAM IV-V	GAS	1100.00	45.83	1095.17	45.63
8 GEREGU GAS	GAS	2141.10	89.21	2121.47	88.39
9 OMOTOSHO GAS	GAS	3134.00	130.58	3110.90	129.62
10 OLORUNSOGO GAS	GAS	3478.04	144.92	3449.54	143.73
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	2527.30	105.30	2508.50	104.52
13 ALAOJI NIPP	GAS	1691.56	70.48	1685.49	70.23
14 OLORUNSOGO NIPP	GAS	2634.30	109.76	2596.90	108.20
15 OMOTOSHO NIPP	GAS	2189.90	91.25	2163.80	90.16
16 ODUKPANI NIPP	GAS	0.00	0.00	0.00	0.00
17 IHOVBOR NIPP	GAS	2099.25	87.47	2075.71	86.49
18 OKPAI	GAS	5156.00	214.83	5034.60	209.78
19 AFAM VI	GAS	2834.70	118.11	2788.31	116.18
20 IBOM	GAS	1760.61	73.36	1752.00	73.00
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	5319.85	221.66	5300.70	220.86
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1310.80	54.62	1278.11	53.25
25 TRANS AMADI	GAS	1350.60	56.28	1316.90	54.87
26 RIVERS IPP	GAS	2460.40	102.52	2454.60	102.28
27 EGBIN ST6	STEAM	2735.00	113.96	2594.30	108.10
28 PARAS ENERGY	GAS	1379.40	57.48	1372.10	57.17
29 GBARAIN NIPP	GAS	863.00	35.96	852.00	35.50
<b>TOTAL</b>		<b>94,158.68</b>	<b>3,923.28</b>	<b>92,836.18</b>	<b>3,868.17</b>

1.7A GENERATION POSITION AT 06:00HRS FRIDAY 05/10/2018

	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 50.48Hz.	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	420	1G5, 6, 11 & 12 4	420	360	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	411	2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G2 - 4 3	450	450	411G2 - 4 3	450	450	411G1 - Out due to technical problem.
	EGBIN STEAM	5	ST2, 4 & 5 3	660	450	ST2, 4 & 5 3	450	335	ST1 - Out due to undisclosed fault since 04/09/2018. ST3 - Out on high vibration since 19th June 2017. Generation reduced due to low load demand by the Discos.
	SAPELE (STEAM)	6	ST2 1	120	50	ST2 1	50	50	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	610	GT9 - 13, 18 & 19 7	300	299	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. GT15, 16 & 20 - Out due to low load demand by the Discos. GT17 - Tripped on bearing vibration more than maximum.
	AFAM IV & V (GAS)	8	GT17 1	75	46	GT17 1	46	46	GT1 - 12 - De-commissioned and scrapped. GT13,14 & 16 - Out on blade failure. GT18 - Out on maintenance. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT12 1	145	120	GT11 & 13 - Out due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1,2, 6 & 8 4	152	121	GT3, 4, 5 & 7 - 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 & 4 - 7 5	190	146.1	GT1, 3 & 8 - Out due to low load demand by the Discos. Generation reduced 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	76.5	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	240	GT2 1	120	80.4	GT1 - Out due to low load demand by the Discos. GT3 - Shut down due to lack of spare part. GT4 - Tripped on over voltage lockout relay trip. Generation reduced due to low load demand by the Discos.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT1 1	108.4	108.4	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	GT4 1	120	90.9	GT1 & 2 - Out due to low load demand by the Discos. GT3 - Out due to oil leakage on the unit. GT4 - On frequency response
	ODUKPANI NIPP	5	0 0	0	0	0 0	0	0	GT1 & 2 - Out on fault. GT3 & 5 - Out due to gas leakage. GT4 - Tripped on main transformer neutral O/C and HV protection.
	IHOVBOR NIPP	4	GT1, 2 & 4 3	337.5	337.5	GT4 1	112.5	89	GT1 - Out due to low load demand by the Discos. GT3 - Tripped on high vibration. GT4 - On manual adjustment to frequency.
	GBARAIN NIPP GAS	1	GT2 1	115	112.5	GT2 1	112.5	81.4	Available unit on bar.
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18 3	370	370	GT11, 12 & ST18 3	370	176	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	150	GT11 - Out due to low load demand by the Discos. GT12 & 13 - Generation reduced due to low load demand by the Discos.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	640	GT13 1	150	115	GT11& 12 - Out due to low load demand by the Discos. ST10 - Out due to gas constraint.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	83.4	GT1 & 2 - Out due to fire outbreak on the control panel.
	AES	9	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	56.7	56.7	GT3 - Tripped on over speed. GT4 - Awaiting major overhaul. GT6 Out on maintenance.
	TRANS-AMADI	4	GT 1, 2 & 4 3	75	61.7	GT1,2 & 4 3	61.7	61.7	GT3 - Out on fault.
	RIVERS	1	GT1 1	160	160	GT1 1	160	110	GT1 - Generation reduced due to low load demand by the Discos.
	SUB TOTAL	140	81	7938	7424.2	54	4558.3	3617.5	Frequency = 50.48Hz.

1.7B GENERATION POSITION AT 06:00HRS OF FRIDAY 05/10/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	ST6		220	113	ST6		Available unit on bar.
		1	1			1	113	
PARAS ENERGY	8	GT2 - 9		68.6	68.6	GT2 - 9		Available units on bar.
		8	8			8	68.6	
SUB TOTAL	9	9		288.6	181.6	9	181.6	
GRAND TOTAL	149	90		8226.6	7605.8	63	4,739.90	3,799.10 Frequency = 50.48Hz

1.7C

BILATERAL AGREEMENT UNITS DISPATCH - THURSDAY 04/10/2018.							
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		NIL
	PTCEXPRESS	ON	0100HRS		24		NIL
	SANKYO	ON	0100HRS		24		NIL
	FEEDER 8	14	1000HRS		24		NIL
IKORODU	PULK IT	1	0100HRS		24		NIL
	INDUSTRIAL	13	1400HRS		24		NIL
	SPINTEX	15	2100HRS		24		NIL
	DANGOTE	ON	0100HRS		24		NIL
	LAND CRAFT	32	1900HRS		24		NIL
ALAUSA	TR4 15MVA	7.8	1500HRS		24		NIL
	TR5 -15MVA	5.2	1600HRS		24		NIL
	ALAUSA	17	1000HRS		24		NIL
M/LAND	PTC (MARYLAND)	19	1400HRS		21		PRIMARY TRANSFORMER TRIPPED ON O/C ABC.
	<b>TOTAL LOAD</b>	<b>124</b>					

BILATERAL AGREEMENT LOAD DISPATCH 60MW PARAS ENERGY GENERATION TO CEB OF THURSDAY 04/10/2018							
FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	69.4	05:00	66.2	08:00	20:00	1374	Due to tripping of Ikorodu/Shagamu 132kV line.

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: THURSDAY 04/10/2018									
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	0	40	01:00	20	10:00	24	<b>696</b>	SUPPLY NOT INTERRUPTED
KAM STEEL		15.0	0.3	19:00	0.2	01:00	24	<b>5</b>	SUPPLY NOT INTERRUPTED
ASAKA CEMENT		0.0	10.4	10:00	4.6	22:00	24	<b>189.1</b>	SUPPLY NOT INTERRUPTED
XING 1	33kV feeder	0.0	20.4	05:00	4.8	22:00	24	<b>366</b>	SUPPLY NOT INTERRUPTED
XING 2		0.0	26.75	17:00	11.15	19:00	24	<b>480.95</b>	SUPPLY NOT INTERRUPTED
KAM INTEGRATED		15.0	4.4	13:00	0.1	09:00	24	<b>48.8</b>	SUPPLY NOT INTERRUPTED
OLAM FLOUR MILLS		3.0	2.3	09:00	1.5	15:00	24	<b>48.2</b>	SUPPLY NOT INTERRUPTED
LORDSMITH		0	0.5	10:00	0.4	01:00	24	<b>10.9</b>	SUPPLY NOT INTERRUPTED

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF FRIDAY 05/10/2018 = 0MW. FREQUENCY 50.48Hz.

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	
TOTAL (MW)			295	0	0

1.8 HYDROLOGICAL DATA: FRIDAY 05/10/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	140.79	103.09	382.50
TAIL WATER ELEVATION (METERS)	105.35	76.1	270.8
GROSS OPERATING HEAD (METERS)	35.44	26.99	111.70
AVERAGE TURBINE DISCHARGE (M3/SEC)	1136.00	1718.00	446.00
AVERAGE SPILLAGE (M3/SEC)	832.00	1175.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1968.00	2893.00	446.00
COMPUTED INFLOW (M3/SEC)	2940.00	2824.00	828.00
STORAGE DIFFERENTIAL	972.00	-69	382
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 04/10/2018

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	455.6	22:00	508.68	508.68	18:00
EKO	382.6	24:00	586.57	663.5	08:00
IKEJA	576.2	22:00	663.5	439.52	12:00

2.0 GAS POSITION: FRIDAY 05/10/2018

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	335	1100		448	652
DELTA (GAS)	299	915		300	615
OMOTOSHO GAS	121	336.8		152	184.8
OMOTOSHO NIPP	90.9	500		120	380
OLORUNSOGO (GAS)	146.1	336		190	146
OLORUNSOGO NIPP	108.4	750		120	630
SAPELE NIPP	76.5	500		112.5	387.5
SAPELE STEAM	50	720		50	670
AFAM IV-V	46	300		46	254
AFAM VI	115	650		150	500
GEREGU GAS	120	435		145	290
GEREGU NIPP	0	435		0	435
OKPAI (GAS/STEAM)	176	480		370	110
ALAOJI NIPP	80.4	504		120	384
IHOVBOR NIPP	89	450		112.5	337.5
IBOM	83.4	198		115	83
ODUKPANI NIPP	0	625		0	625
<b>TOTAL</b>	<b>1936.7</b>	<b>9234.80</b>		<b>2551</b>	<b>6683.8</b>

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : THURSDAY 04/10/018

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

4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Friday 05/10/2018 as at 0600Hrs was = 3366.6MW.					
6	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 GT11 & 13	290	0	290	892.5
2	Afam VI ST10	200	0	200	
3	Geregu NIPP GT22 & 23	290	0	290	
4	Sapele NIPP GT4	112.5	0	112.5	
				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 1782.34MMSCF OF GAS (EQUIVALENT TO 6683.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
<b>4.2 DUE TO LINE CONSTRAINTS</b>					
		0	0	0	0
		0	0	0	
		0	0	0	
<b>4.3 DUE TO LOW LOAD DEMAND BY THE DISCOS</b>					
1	Ihovbor GT1 & 2	225	0	225	2474.1
2	Azura Edo GT11 - 13	461	150	311	
3	Egbin ST2, 4 & 5	450	335	115	
4	Rivers IPP GT1	160	110	50	
5	Delta GT15, 16 & 20	325	0	325	
6	Alaoji NIPP GT1 & 2	240	80.4	159.6	
7	Omotosho NIPP GT1 & 2	240	0	240	
8	Olorunsogo NIPP GT2 & 3	240	0	240	
9	Omotosho Gas GT3, 4, 5 & 7	152	0	152	
10	Olorunsogo Gas GT1, 3 & 8	114	0	114	
12	Afam VI GT11 & 12	300	0	300	
13	Sapele NIPP GT1	112.5	0	112.5	
14	Okpai GT11	150	20	130	
				0	
				0	
				0	
				0	
<b>4.1 DUE TO WATER MANAGEMENT:</b>					
<b>Grand Total</b>					<b>3366.6</b>

**5.0 OUTAGES:**

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

- 13:40 - 19:49Hrs, Gbarain NIPP GT2 tripped on reverse power due to tripping of Alaoji/Owerri 132kV lines 1 & 2. LHR = 83MW.
- 14:44 - 18:08Hrs, Sapele Steam ST2 tripped on reverse power due to tripping of ccts S3B & S4B. LHR = 47MW.
- 15:17Hrs, Paras Energy GTs 2 – 9 tripped on reverse power due to tripping of Ikorodu/Shagamu 132kV line. LHR = 69.4MW.  
19:27Hrs – GT2 was tied, 19:29Hrs – GT3 was tied, 19:31Hrs – GT4 was tied, 19:32Hrs – GT5 was tied, 19:34Hrs – GT6 was tied, 19:35Hrs – GT7 was tied, 19:37Hrs – GT8 was tied, 19:38Hrs – GT9 was tied.
- 23:44 through 24:00Hrs, Sapele NIPP GT3 tripped on high temperature. LHR = 65MW.

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

- 05:24 – 10:41Hrs, Ayede T/S 100MVA 132/33kV transformer T1 primary & secondary CBs tripped on the following relay indications:  
Primary - Differential O/C Red & Yellow Phases.  
Secondary - O/C Red & Yellow Phases. LHR = 39MW.
- 13:35 – 14:12Hrs, Benin/Delta 132kV line CB tripped at Benin T/S on main protection O/C Blue Phase, distance = 26.6km, FCT – 23ms.  
LHR = 29.7MW.
- 13:40 – 14:08Hrs, Alaoji/Owerri 132kV lines 1 & 2 CBs tripped at Alaoji T/S on the following relay indications:  
Line 1: Optimho relay – DEF trip, location = 473km, period = 144ms.
- Siemens relay: Trip, instantaneous trip ie >> Yellow Phase trip & backup protection trip relay. LHR = 18MW.  
Line 2: Optimho relay - DEF start, location = 181.8km, period = 77ms.  
Siemens relay – trip instantaneous >>, ie >> Yellow Phase trip, backup protection trip relay. LHR = 18MW.
- 14:44 – 14:57Hrs, Sapele/Benin 330kV line 1 (cct S3B) CBs tripped at both end on the following relay indications:  
**At Sapele T/S:** SEL: Red Phase ground, zone 1 trip, location = 13.79km.  
**At Benin T/S:** ABB – Trip – trip, trip – TRL 1, 2 & 3, PHS-STFWLIPE, ZM2- trip, EFC-CS, ZM2 & ZM3 – start, TOC-STL1, fault location – no data.  
Auxiliary Relay: MVAJ K86 ABC. No load loss as ccts S5B & S4G were in service.
- 14:44 – 14:58Hrs, Sapele/Benin 330kV line 2 (cct S4B) CBs tripped at both ends on the following relay indications:  
**At Sapele T/S:** SEL Relay: Red Phase ground zone 1 trip, location = 16.31km.  
**At Benin T/S:** ABB Relay: Trip-trip, Trip-TRL 1, 2 & 3, PHS-STFW (L1PE), ZM1 & ZM2 – trip, EFC-CS, ZM2 – start, ZM3 – start, ZCIP – SL1, TOC – STL, fault loop = L1 – N, Distance = 26.1km.  
Auxiliary Relay: MVAJ 86 ABC. No load loss as ccts S5B & S4G were in service.
- 15:17 – 18:45Hrs, Ikorodu/Shagamu 132kV line CB tripped at Ikorodu T/S on distance protection phase A, distance = 10.6km. LHR = 42MW.  
15:39Hrs, the Trial restoration on the line failed at Ikorodu T/S
- 21:03 – 21:35Hrs, Kumbotso/Tamburawa 132kV line CB tripped at Kumbotso T/S on O/C Red & Blue Phases. LHR = 21MW.
- 23:22 – 23:38Hrs, Birnin-Kebbi/ Niamey 132kV line CB tripped at Birnin-Kebbi T/S on distance protection zone 1, distance = 173.4km.  
LHR = 106MW.

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

- 11:27 – 16:30Hrs, Olorunsogo T/S 40MVA 132/33kV mobitra was taken out to carry out annual preventive maintenance on the transformer.  
Load loss = 8MW.
- 11:58 – 20:00Hrs, Aja/Lekki 330kV line (cct J1E) was taken out for safe working space to allow contractor transfer wave trap and LMU from the 132kV future line to Lekki/Alagbon 330kV line (cct B1E) terminal at Lekki T/S. 19:44Hrs, the job was suspended till 05/10/2018. Load loss = 54MW.
- 13:56 – 15:47Hrs, Afam 1 T/S 64MVA 132/11kV transformer T5 was taken out to allow Afam Power PLC install voltage monitoring device on the 11kV control board. Load loss = 4.2MW.

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

- 10:10 – 12:31Hrs, Osogbo/Ikeja West 330kV line (cct H1W) CB was taken out to repair the CB that failed to respond to remote command. No load loss as ccts H2A, R2A & R1W were in service.
- 13:42 - 17:24Hrs, Kainji 1G6 was shut down due to stator winding high temperature. Load loss = 95MW.
- 11:56 – 18:24Hrs, Akangba T/S 90MVA 330/132kV transformer 5T1A was taken out to enable maintenance crew top up low oil in the conservator tank to normal. No load interruption as 3x90MVA transformers 5T1B, 5T2A & 5T2B were in service.

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

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

**5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts K4U, L7G, U1A & A1S.**

**4 (H) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- cct A1K.**

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

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

**6 WEATHER REPORT:-** Rainfall reported at Ikeja West, Omosho, Onitsha, New Haven, Ayede, Abuja & Sapele.

**7 INTERNATIONAL LINES:-**

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

Maximum load - 276MW at 21:00Hrs.  
Minimum load - 184MW at 07:00Hrs.

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

Maximum load - 108MW at 14:00Hrs.  
Minimum load - 88MW at 24:00Hrs.

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

Maximum load - 40.5MW at 20:00Hrs.  
Minimum load - 27.8MW at 05:00Hrs.

**8 MISCELLANEOUS:-**

- 00:22Hrs, Afam VI GT12 was shut down due to low load demand by the Discos.  
Load loss = 75MW.
- 00:59 - 19:20Hrs, Sapele NIPP GT3 was shut down due to low load demand by the Discos.  
Load loss = 67MW.
- 01:58 - 1822Hrs, Azura-Edo GT11 was shut down due to low load demand by the Discos.  
Load loss = 75MW.
- 06:39Hrs, Gbarain NIPP GT2 was tied. The unit was out due to tripping of Alaoji/Owerri 132kV lines 1 & 2.
- 08:21 – 10:42Hrs, Alaoji NIPP GT2 was shut down due to low load demand by the Discos. Load loss = 80MW.
- 09:56Hrs, Olorunsogo Gas GT7 was tied. The unit was out due to low load demand by the Discos.
- 10:25Hrs, Ihovbor NIPP GT1 was shut down to carry out inspection on the unit.  
Load loss = 96.2MW.

**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	26
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	5	3
330kV	19	7	12
132kV	102	83	19

**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.

- 8 11:37Hrs, Alaoji NIPP GT2 was shut down due to low load demand by the Discos. Load loss = 80MW.
- 9 11:30Hrs, Owerri T/S 60MVA 132/33kV transformer TR1 was restored. The transformer was out on fault.
- 10 15:29Hrs, Delta GT16 was tied. The unit was out due to low load demand by the Discos.
- 11 18:33Hrs, Ikeja West/Akangba 330kV line 1 (cct W3L) was restored. The line was out on maintenance.
- 12 19:50Hrs, Olorunsogo NIPP GT2 was tied. The unit was out due to low load demand by the Discos.
- 13 23:37Hrs, Delta GT16 was shut down due to low load demand by Discos. Load loss = 80MW.
- 14 23:37Hrs, Olorunsogo NIPP GT2 was shut down due to low load demand by the Discos. Load loss = 85MW.
- 15 23:38Hrs, Sapele NIPP GT1 was shut down due to low load demand by Discos. Load loss = 65MW.
- \*\*\*\* 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 Ikeja West, Onitsha, Egbin, Ugwuaji, Jos, Gwagwalada & Alaoji 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.

**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





