

# TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT OF TUESDAY 10/09/2019

FOR: EVENTS OF MONDAY 09/09/2019

EXECUTIVE OPERATIONS SUMMARY:

## 1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	25,790	21:45	09-09-19
GENERATION CAPABILITY	6367.3	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4880.6	-do-	-do-
PEAK GENERATION	4526.9	-do-	-do-
LOWEST GENERATION	2639.8	04:00	09-09-19
8-HOURLY DURATION PEAK	2865.8	0100-0800	-do-
	3563.5	0900-1600	-do-
	4526.9	1700-2400	-do-
PEAK GENERATION TO DATE	5375	21:30	02-07-19
MAXIMUM AVAILABLE CAPACITY TO DATE	7652.6	06:00	14/04/2014
MAXIMUM ENERGY GENERATED (MWH) TO DATE	111,004.89	0000-2400	03/04/2019

## 1.2 CRITICAL VOLTAGE

DETAILS	KV	STATION	HRS
NOMINAL VOLTAGE	330		
STATUTORY LIMITS	280.5 - 346.6		
HIGHEST VOLTAGE FOR THE DAY	355	Ugwuaji T/S	05:00
LOWEST VOLTAGE FOR THE DAY	300	Yola T/S	19:00

## 1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.59	07:29
LOWEST FREQUENCY	49.40	13:00

## 1.4 SYSTEM COLLAPSE UPDATE

Date of last total collapse: 30th August, 2019		No. of days since last total collapse: 10											
Date of last partial collapse: 12th April, 2018		No. of days since last partial collapse: 506											
Highest No of days ever attained in-between total collapses: 134		Highest No of days ever attained in-between partial collapses: 243											
	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	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	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	0	1	1	8
2013	Total	--	1	2	2	3	4	1	1	1	4	2	22
	Partial	--	--	--	--	--	--	--	2	0	--	--	2
2014	Total	2	--	--	--	3	1	0	0	1	0	0	9
	Partial	0	0	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	1	15
	Partial	1	0	1	0	0	1	0	3	3	--	--	9
2018	Total	5	1	0	0	0	1	1	2	--	--	2	12
	Partial	0	0	0	1	0	0	0	0	--	--	--	1
2019	Total	4	1	0	1	1	1	0	1	--	--	--	9
	Partial	0	0	0	0	0	0	0	0	--	--	--	0

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)
1 KAINJI	HYDRO	319	286
2 JEBBA	HYDRO	331	257
3 SHIRORO	HYDRO	574	235
4 EGBIN ST2 - 5	STEAM	546	309
5 SAPELE	STEAM	45	31
6 DELTA	GAS	455	302
7 AFAM IV-V	GAS	50	0
8 GEREGU GAS	GAS	269	160
9 OMOTOSHO GAS	GAS	103.3	76.7
10 OLORUNSOGO GAS	GAS	135.80	112.1
11 GEREGU NIPP	GAS	137	0
12 SAPELE NIPP	GAS	0	50.8
13 ALAOJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	0	0
15 OMOTOSHO NIPP	GAS	108.2	0
16 ODUKPANI NIPP	GAS	210.1	172.6
17 IHOBOR NIPP	GAS	113.5	0
18 OKPAI	GAS	210	104
19 AFAM VI	GAS	0	227
20 IBOM POWER	GAS	103	0
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	81.6	30.9
24 TRANS AMADI	GAS	19.3	41.6
25 RIVERS IPP	(GAS)	144	30
26 AZURA - EDO IPP	(GAS)	427	150
27 EGBIN ST6	(GAS)	0	0
28 PARAS ENERGY	(GAS)	69.7	64.1
29 GBARAIN NIPP	GAS	75.4	0
<b>TOTAL</b>		<b>4526.9</b>	<b>2639.8</b>

  

STATION	TURBINE	ENERGY GENERATED MWH	AV. POWER GENERATED MWH/H	ENERGY SENT OUT MWH	AV. POWER SENT OUT MWH/H
1 KAINJI	HYDRO	8171.00	340.46	8155.90	339.83
2 JEBBA	HYDRO	6846.00	285.25	6826.12	284.42
3 SHIRORO	HYDRO	10041.00	418.38	10011.90	417.16
4 EGBIN ST2 - 5	STEAM	9305.00	387.71	8776.30	365.68
5 SAPELE	STEAM	794.90	33.12	697.30	29.05
6 DELTA	GAS	8663.34	360.97	8523.70	355.15
7 AFAM IV-V	GAS	305.40	12.73	301.05	12.54
8 GEREGU GAS	GAS	4937.70	205.74	4912.50	204.69
9 OMOTOSHO GAS	GAS	1941.00	80.88	1921.70	80.07
10 OLORUNSOGO GAS	GAS	2763.31	115.14	2742.75	114.28
11 GEREGU NIPP	GAS	2339.75	97.49	2327.00	96.96
12 SAPELE NIPP	GAS	851.44	35.48	838.76	34.95
13 ALAOJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	0.00	0.00	0.00	0.00
15 OMOTOSHO NIPP	GAS	1337.30	55.72	1325.66	55.24
16 ODUKPANI NIPP	GAS	3521.87	146.74	3495.17	145.63
17 IHOBOR NIPP	GAS	1010.00	42.08	994.16	41.42
18 OKPAI	GAS	2791.00	116.29	2718.80	113.28
19 AFAM VI	GAS	2983.34	124.31	2909.00	121.21
20 IBOM	GAS	1125.42	46.89	1118.00	46.58
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	5180.50	215.85	5158.80	214.95
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1616.26	67.34	1581.97	65.92
25 TRANS AMADI	GAS	829.80	34.58	809.00	33.71
26 RIVERS IPP	GAS	2519.60	104.98	2508.20	104.51
27 EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	1580.60	65.86	1573.10	65.55
29 GBARAIN NIPP	GAS	810.00	33.75	800.30	33.35
<b>TOTAL</b>		<b>82,265.53</b>	<b>3,427.73</b>	<b>81,027.14</b>	<b>3,376.13</b>

	STATIONS	NO OF UNITS INSTALLED	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 50.33Hz	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	360	1G5, 6, 11 & 12 4	360	301	1G5, 6, 11 & 12 - On frequency response. 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, 2, 4 & 5 4	385.6	380	2G1, 2, 4 & 5 4	380	326	2G1, 2, 4 & 5 - On frequency response. 2G3 - On maintenance. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	600	600	411G1 - 4 4	600	398	411G1 & 2 - Generation reduced due to low load demand by the Discos.
	EGBIN STEAM	6	ST1 - 3 & 5 4	880	650	ST1, 2 & 5 3	570	387	ST3 - Out due to low load demand by the Discos. ST4 - Out due to boiler feed pump problem. ST6 - Out due to un disclosed fault. Generation reduced due to low load demand by the Discos.
	SAPELE (STEAM)	6	ST3 1	120	60	ST3 1	60	35	ST1 - Tripped due to loss of control oil pump. ST2 & 4 - Out on fault. Generation reduced due to low load demand by the Discos.
	DELTA (GAS)	18	GT6, 7, 10 - 13, 15, 16, 19 & 20 10	575	545	GT6, 7, 11 - 13, 15, 16, 19 & 20 9	488	403	GT3 & 5 - Out on generator winding fault. GT4 - Out on loss of excitation. GT8 & 14 - Out on major overhaul. GT10 - Out due to oil leakage from bearing #2. GT17 & 18 - Out due to generator lockout problem. Generation reduced due to low load demand by the Discos.
	AFAM IV & V (GAS)	8	GT18 1	120	50	0 0	0	0	GT11 - 12 - De-commissioned and scrapped. GT13, 14 & 16 - Out on blade failure. GT17 Out due to gas constraint. GT18 - Out due to low load demand by the Discos. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT12 & 13 2	290	206	GT11 - Out due to low load demand by the Discos. GT12 - On frequency response. GT13 - Generation reduced due to low load demand by the Discos.
	OMOTOSHO GAS	8	GT4 - 8 5	210	190	GT4, 5 & 8 3	106.9	106.9	GT1 - 3 - Out due to gas constraint. GT6 & 7 - Out due to low load demand by the Discos.
	OLORUNSOGO GAS	8	GT1 - 4, 6 & 7 6	252	228	GT2, 4, 6 & 7 4	136.1	136.1	GT1 & 3 - Out due to low load demand by the Discos. GT5 & 8 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT21 1	145	145	0 0	0	0	GT21 - Out due to low load demand by the Discos. GT22 & 23 - Out due to gas constraint.
	SAPELE NIPP	4	0 0	0	0	0 0	0	0	GT1 & 3 - Out due to gas constraint. GT2 - Shut down due to alarm communication failure. GT4 - Out on maintenance.
	ALAOJI NIPP	4	GT1 1	112.5	110	0 0	0	0	GT1 - Out due to low load demand by the Discos. GT2 - Out due to high air inlet differential pressure. GT3 - Out due to lack of spare part. GT4 - Tripped on over voltage lockout relay trip.
	OLORUNSOGO NIPP	6	0 0	0	0	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	4	GT2 1	120	120	GT2 1	120	97.9	GT1 - Out on maintenance. GT2 - On frequency response. GT3 - Out due to low load demand by the Discos.
	ODUKPANI NIPP	5	GT1 - 4 4	480	440	GT1 1	110	96.5	GT1 - On frequency response. GT2, 3 & 4 - Out due to low load demand by the Discos. GT5 - Out on E/F.
	IHOVBOR NIPP	4	GT2 1	112.5	111	GT2, 4, 6 & 7 1	111	111	GT1, 3 & 4 - Out on maintenance.
	GBARAIN NIPP	1	GT2 1	112.5	110	GT2 1	110	75.7	Generation reduced due to low load demand by the Discos.
	IPP	OKPAI GAS/STEAM	3	GT11 & 12 2	300	300	GT11 & 12 2	300	132
AZURA - EDO		3	GT11 - 13 3	461	459	GT 12 & 13 2	306	204	GT11 - Out due to low load demand by the Discos. GT12 - Generation reduced due to low load demand by the Discos. GT13 - On frequency response
AFAM VI GAS/STEAM		4	GT12, 13 & ST10 3	500	435	0 0	0	0	GT11 - Out since without details report. GT12 & 13 - Out due to low gas pressure. ST10 - Out due to low load demand by the Discos.
IBOM POWER GAS		3	GT3 - 6 1	115	110	0 0	0	0	GT1 & 2 - Out due to fire outbreak on the control panel. GT3 - Out due to low load demand by the Discos.
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 - Out due to leakage in the furnace.
OMOKU GAS		6	GT3 - 6 4	100	80	GT3 - 6 4	80	66.4	GT1 - Tripped on exhaust spread temperature high. GT2 - Out on high vibration. Generation reduced due to low load demand by the Discos.
TRANS-AMADI		4	0 0	0	0	0 0	0	0	GT1, 2 & 4 - Out due to gas constraint. GT3 - Out on generator transformer limitation.
RIVERS		1	GT1 1	160	160	GT1 1	160	121	Generation reduced due to low load demand by the Discos
SUB TOTAL		141	65	6736.1	6078	47	4288	3203.5	Frequency = 50.33Hz.

1.7B GENERATION POSITION AT 06:00HRS OF TUESDAY 10/09/2019 FOR UNITS ON BILATERAL AGREEMENT									
	PARAS ENERGY	8	GT3 - 10	70	64.9	GT3 - 10	64.9	64.9	Available units on bar.
			8			8			
	SUB TOTAL	8	8	70	64.9	8	64.9	64.9	
GRAND TOTAL	149	73	6806.1	6142.9	55	4,352.90	3268.4	Frequency = 50.33Hz.	

1.7C BILATERAL AGREEMENT UNITS DISPATCH - MONDAY 09/09/2019								
EGBIN ST6 5MW 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	1			24		NIL	
	PTC EXPRESS	7			23		DUE TO GLOWING ON THE BOLT AND NUT	
	SANKYO	3			24		NIL	
	FEEDER 8	12			24		NIL	
IKORODU	PULK IT	9			21		FORCED OUTAGE	
	INDUSTRIAL	7			24		NIL	
	SPIINTEX	3			24		NIL	
	DANGOTE	1			24		NIL	
	LAND CRAFT	30			24		NIL	
ALAUSA	TR4 - 15MVA	7			24		NIL	
	TR5 -15MVA	6			24		NIL	
	ALAUSA	13.3			23		GLOWING ON THE LINE ISOLATOR WAS AMMENDED	
M/LAND	PTC (MARYLAND)	13			23		TRANSFORMER PRI. BRK TRIPPED ON FAULT	
<b>TOTAL LOAD</b>	<b>112.3</b>							

BILATERAL AGREEMENT LOAD DISPATCH							
60MW PARAS ENERGY GENERATION TO CEB OF MONDAY 09/09/2019							
	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
	69.7	13:00	59.7	08:00	24	1572	NIL

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI MONDAY 09/09/2019									
COMPANY NAME	VOL-TAGE LEVEL	CON-TRAC-TUAL LOAD (MWH)	MAX LOAD (MW)	TIME	MIN LOAD (MW)	TIME	HOURS IN SERVICE	TOTAL (MWH)	REMARK
INNER GALAXY	132kV line 2	0	ON	ON	ON	ON	ON	ON	ON
KAM STEEL 2		25.0	11.6	21:00	0.1	01:00	24	<b>83.1</b>	NO TIME OUT
ASHAKA CEMENT		0	12.1	13:00	6.7	05:00	24	<b>243.8</b>	NO TIME OUT
XING 1	33kV feeder	0							
XING 2		0							
KAM INTEGRATED		15	3.9	01:00	1.4	10:00	24	<b>58.9</b>	NO TIME OUT
OLAM FLOUR MILLS		3	2.4	20:00	0.1	20:00	24	<b>25.1</b>	NO TIME OUT
LORDSMITH		3	0.4	24:00	0.3	01:00	24	<b>8.4</b>	NO TIME OUT
KAM STEEL LINE 1		0	5	16:00	0.1	01:00	24	<b>48.7</b>	NO TIME OUT

1.8 HYDROLOGICAL DATA: TUESDAY 10/09/2019

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	138.29	102.51	378.14
TAIL WATER ELEVATION (METERS)	104.75	76.3	271.0
GROSS OPERATING HEAD (METERS)	<b>33.54</b>	<b>26.21</b>	<b>107.14</b>
AVERAGE TURBINE DISCHARGE (M3/SEC)	1133.00	1209.00	455.00
AVERAGE SPILLAGE (M3/SEC)	636.00	2064.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	<b>1769.00</b>	<b>3273.00</b>	<b>455.00</b>
COMPUTED INFLOW (M3/SEC)	3473.00	2417.00	1732.00
STORAGE DIFFERENTIAL	<b>1704.00</b>	<b>-856</b>	<b>1277</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 MONDAY 09/09/2019

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	470.2	14:00	531.52	317	19:00
EKO					
IKEJA	637.1	20:00	793.29	402.1	05:00

2.0 GAS POSITION: TUESDAY 10/09/2019

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	265	1100		570	530
DELTA (GAS)	305	915		558	357
OMOTOSHO GAS	100.4	336.8		114	222.8
OMOTOSHO NIPP	104.3	500		120	380
OLORUNSOGO (GAS)	233.4	336		136.1	199.9
OLORUNSOGO NIPP	0	750		0	750
SAPELE NIPP	87.2	500		0	500
SAPELE STEAM	47	720		60	660
AFAM IV-V	50	300		0	300
AFAM VI	220	650		0	650
GEREGU GAS	216	435		290	145
GEREGU NIPP	80	435		0	435
OKPAI (GAS/STEAM)	170	480		300	180
ALAOJI NIPP	0	504		0	504
IHOVBOR NIPP	114	337.5		111	226.5
IBOM	88.9	198		0	198
ODUKPANI NIPP	206.4	625		110	515
<b>TOTAL</b>	<b>2287.6</b>	<b>9122.30</b>		<b>2369.1</b>	<b>6753.2</b>

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : MONDAY 09/09/2019

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF TUESDAY 10/09/2019 = FREQUENCY = 50.33Hz.

S/N	POWER STATION	UNIT ON SPINNING	CONTRACTED RESERVE	ACTUAL RESERVE	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>

4.0 UN-UTILIZED GENERATION CAPABILITY

The un-utilized generation capability for Tuesday 10/09/2019 as at 0600Hrs = 2758.3MW					
S/N	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB -TOTAL
<b>4.1 DUE TO LINE CONSTRAINTS</b>					
			0	0	0
			0	0	
			0	0	
<b>4.2 DUE TO LOW LOAD DEMAND BY THE DISCOS</b>					
1	Rivers IPP GT	160	121	39	2494
2	Olorunsogo gas GT1 - 4, 6 & 7	228	136.1	91.9	
3	Geregu Gas GT11 & 13	290	80	210	
4	Odukpani NIPP GT2, 3 & 4	330	0	330	
5	Azura-Edo GT11 & 12	306	75	231	
6	Egbin ST1, 2, 3 & 5	650	387	263	
7	Shiroro 411G 1 & 2	300	110	190	
8	Okpai GT11 & 12	300	132	168	
9	Afam VI GT12, 13 & ST10	435	0	435	
10	Delta GT15, 16, 19 & 20	425	311	114	
11	Omotosho Gas GT6 & 7	76	0	76	
12	Afam IV GT18	50	0	50	
13	Geregu NIPP GT21	145	0	145	
14	Sapele ST3	60	35	25	
15	Omoku GT3 - 6	80	66.4	13.6	
16	Alaoji NIPP GT1	112.5	0	112.5	
17	Ibom GT3	110	0	110	
18	Omotosho NIPP GT3	120	0	120	
19	Gbarain GT2	110	75.7	34.3	
			0	0	0
			0	0	
<b>Grand Total</b>					<b>2758.3</b>

**5.0 OUTAGES:**

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

- 12:28 - 18:35Hrs, Afam IV GT18 tripped on lube oil cooler trip. LHR = 45MW.
- 12:57Hrs, Odukpani GTs 1 & 2 tripped due to tripping of ccts A1K & K2U at Ikot-Ekpene T/S. Total LHR = 190MW. At 14:39Hrs GT1 was tied. 20:37Hrs, GT2 was tied.

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

- 00:16 - 00:37Hrs, Alaoji/Owerri 132kV line 2 CB tripped at Owerri T/S only on DEF. LHR = 16MW.
- 00:16 - 00:35Hrs, Alaoji/Owerri 132kV line 1 CB tripped at Alaoji T/S only on Optimho relay - zone 1 B -N, location = 58.25km, period = 60.5ms. Siemens relay – O/C Yellow Phase. LHR = 16MW.
- 08:50 - 10:12Hrs, Alaoji/Owerri 132kV line 2 CB tripped at Alaoji T/S on O/C Yellow phase. LHR = 22MW
- 12:56 - 16:22Hrs, Alaoji/NIPP 330kV lines 1 & 2 (ccts L7A & L8A.) CBs tripped on SEL relay - different protection main fault type C-G. No load loss as Alaoji NIPP was not generating
- 12:57 - 13:32Hrs, Alaoji/Ikot –Ekpene 330kV line 1 (cct A1K) CBs tripped at both ends on the following relay indications:  
At Ikot-Ekpene T/S: SEL relay – O/C Phases B & C zone 1 At Alaoji T/S: SEL relay - zone 1, O/C Phases A, B & C, fault type BC . LHR = 59MW.
- 12:57 – 13:02Hrs, Ikot-Ekpene/Ugwuaji 330kV line 2 (cct K2U) CB tripped at Ikot-Ekpene T/S only on SEL main protection 1 relay: Phases B & C zone 1. LHR = 229MW.
- 13:03 – 13:37Hrs, Ikot-Ekpene/Ugwuaji 330kV line 2 CB (cct K2U) tripped at Ikot-Ekpene T/S on O/V. The line was just restored. No load loss as the line was on soak.

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

**5 (D) URGENT OUTAGES**

- 09:26 - 15:02Hrs, Aba T/S 75MVA 132/66kV & 60MVA 132/33kV Common primary CB was opened on emergency due to serious burning on the Yellow phase support insulator clamp. Load loss = 9.7MW. The line was restored after maintenance crew changed burnt bolts and nuts on the Yellow phase support insulator
- 11:21 - 12:30Hrs, Gombe/Yola and Gombe/Damaturu 330kV lines tie CB was taken out for PC & M to check why the CB failed to close remotely and locally and why it inter-trips Jos/Gombe CB 1. No load was interrupted as the line CBs were in service.
- 12:28 - 19:00Hrs, Olorunsogo/Ayede 330kV line (cct R2A) was taken out for LMD crew to replace Disc insulators with composite type between towers 417 & 449. No load was interrupted as ccts R1W, H2A & H1W were in service.
- 12:51 - 19:44Hrs, Jebba 2G5 GT2 was shut down for fault clearance in the station. Load loss = 80MW.
- 14:17 - 18:33Hrs, Akangba T/S 300MVA 330/132/33kV Transformer 5T5A was deloaded due to abnormal noise observed from the Transformer 82MW was diverted to 150MVA 330/132/33kV Transformer 5T4B. The Transformer was placed on soak for observation.
- 17:48 through 24:00Hrs, Trans-Amadi GT4 was shut down due to gas constraint. Load loss = 12MW
- 20:10Hrs, Sapele NIPP GT2 was shut down due to alarm communication failure. Load loss = 92.1MW

**6 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 WITH EFFECTIVE POWER PURCHASE AGREEMENT (PPA)

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:-**

- 12:58 - 13:14Hrs & 20:25 - 20:31Hrs, Osogbo/Akure 132kV line. Load loss = 30MW & 52MW respectively. Frequency were 49.55Hz & 49.89Hz
- 12:58 - 13:15Hrs, Osogbo/Ife/Ilesha 132kV line. Load loss = 30MW. Frequency was 49.55Hz.
- 13:00 - 13:17Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line. Load loss = 50MW. Frequency was 49.40Hz.

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

**5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts U1A, K3U, B11J & K1U.**

**5 (H) 330KV LINES THAT ARE OUT DUE TO DEFECTIVE CIRCUIT BREAKER:- cct K4U.**

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

**5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- cct K4U**

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

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

**5 (M) 330KV LINES THAT ARE OUT DUE TO UNAVAILABLE LIGHTNING ARRESTER:- cct A1S**

**WEATHER REPORT:-** Rainfall was reported at Port-Harcourt, New Haven, Katampe, Makurdi, Lokoja

**7 INTERNATIONAL LINES:-**

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

Maximum load - 93.0MW at 21:00Hrs.

Minimum load - 63.0MW at 08:00Hrs.

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

Maximum load - 119MW at 01:00Hrs.

Minimum load - 81.0MW at 07:00Hrs.

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

Maximum load - 42.7MW at 22:00Hrs.

Minimum load - 28.4MW at 13:00Hrs.

**11A COMMUNICATION MEDIA**

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	38	32
OPTIC FIBRE	13	10
PLS	14	4

**11B SCADA RTU STATUS**

STATIONS	NO. INSTALLED	NO OF RTU DISTURBE	NO OF RTU WORKING
POWER STATIONS	8	5	3
330kV	19	5	14
132kV	102	78	24

**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 reactor installed.

**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 Egbin/Oke-Aro 330kV line 2 (N8K) Defective. Needs replacement.

**8 MISCELLANEOUS**

- 1 00:49 - 13:17Hrs, Ihovbor GT2 was shut down due to low load demand by the Discos. Load loss = 76.4MW.
  - 2 00:50 - 11:07Hrs, Ibom Power GT3 was shut down due to low load demand by the Discos. Load loss = 60MW.
  - 3 00:55 - 12:10Hrs, Afam GT18 was shut down due to low load demand by the Discos. Load loss = 50MW.
  - 4 01:09 - 06:47Hrs, Omoku GT6 was shut down due to low load demand by the Discos.
  - 5 01:21 - 05:50Hrs, Geregu NIPP GT21 was shut down due to low load demand by the Discos. Load loss = 80MW.
  - 6 02:54 through 24:00Hrs, Omotosho NIPP GT3 was shut down due to low load demand by the Discos.
  - 7 04:04 - 13:17Hrs, Sapele NIPP GT2 was shut down due to low load demand by the Discos. Load loss = 73.2MW.
  - 8 04:28Hrs, Jebba 2G5 was tied. The unit was out due to low load demand by the Discos.
  - 9 12:35Hrs, Omotosho NIPP GT2 was tied. The unit was out due to low load demand by the Discos.
  - 11 12:27Hrs, Port Harcourt town T/S 45MVA 132/33kV transformer T2B was restored after the Transformer was bleed and the Buchholz alarm that operated on it was cancelled.
  - 12 12:27Hrs, Port Harcourt town T/S 60MVA 132/33kV transformer T1A was restored after the Transformer was bleed and the Buchholz alarm that operated on it was cancelled.
  - 13 17:01Hrs, Maryland T/S 60MVA 132/33kV Transformer T1 was restored after maintenance crew had built up low SF6 gas pressure on Red & Yellow phases breaker pole to normal level.
  - 14 19:43Hrs, Delta GT15 was tied. The unit was out due to low load demand by the Discos.
  - 15 21:04Hrs, Ikot-Ekpene/Ugwuaji 330kV line 3 (cct K3U) was restored from voltage control. V/P: 332/336kV
  - 16 21:05Hrs, Benin/Sapele 330kV line 1 (cct S3B) was restored from voltage control. V/P: 338/339kV
  - 17 21:20Hrs, Azura GT11 was tied. The unit was out due to low load demand by the Discos.
- \*\*\*\* THE SCADA COVERAGE OF ONLY LIMITED AREAS IS NOT GOOD FOR THE SMOOTH OPERATION OF THE GRID.
- \*\*\*\* LACK OF REACTOR AND UNRELIABLE STATION SERVICE SUPPLY AT IKOT-EKPENE T/S ARE HINDERING SMOOTH OPERATION.

**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/Akanqba 330kV line 2 - 1 span.
- 6 Ikeja West/ Ilupeju 132kV lines 1 & 2 - 8 spans.
- 7 Akanqba/Iltre 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 :**

- 7 Egbin/Ikeja-West Tie CB Defective. Needs replacement.
- 8 Egbin/Aja 330kV line 3 (cct N3J) - Tie CB defective.Needs replacement.

**BENIN REGION:**

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

**PORT HARCOURT REGION:**

- 1 cct A1K CB

**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 Otuorkpo/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.

**ABUJA REGION**

- 1 Gwagwalada/Katampe 330kV line CB cct J5B - Faulty breaker at Gwagwalada T/S

- 1 Ikeja West, Onitsha, Egbin, Uguwaji, Jos, Gwagwalada & Alaoji T/S.

**FOR MORE INFORMATION: NCC Telephone Lines -**

- 1 Ikeja West, Onitsha, Egbin, Uguwaji, Jos, Gwagwalada & Alaoji T/S.
- 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) - 08105894708, CUG: 07016228668
- f NCC e-mail address - nationalcontrol@gmail.com
- g SYSTEM OPERATIONS WEB SITE: www.nigeriasystemoperator.org.

**CRITICAL VOLTAGE NODES IN THE GRID**

S/N	NODE	VOLTAGE	REMARKS
1	Uguwaji T/S	355kV	No Reactor
2	New Haven T/S	354kV	No Reactor
3	Lokoja T/S	353kV	One Reactor in service.
4	Sapele T/S	352kV	Low VAR absorption by Sapele P.S & NIPP
5	Makurdi T/S	351kV	One Reactor in service. 2nd one not installed.
6	Benin T/S	350kV	One Reactor in service. 2nd one being installed.