

TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT OF FRIDAY 06/09/2019

FOR: EVENTS OF THURSDAY 05/09/2019

EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	25,790	21:45	05/09/19
GENERATION CAPABILITY	6221.2	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5304	-do-	-do-
PEAK GENERATION	4360.3	-do-	-do-
LOWEST GENERATION	2761.1	07:00	05/09/19
8-HOURLY DURATION PEAK	3307.7	0100-0800	-do-
	3574.4	0900-1600	-do-
	4360.3	1700-2400	-do-
PEAK GENERATION TO DATE	5375	21:30	7/2/2019
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	356	Lokoja T/S	07:00
LOWEST VOLTAGE FOR THE DAY	300	Yola & Gombe T/S	11:00 & 12:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.64	07:00
LOWEST FREQUENCY	50.05	21:17

1.4 SYSTEM COLLAPSE UPDATE

Date of last total collapse: 30th August, 2019		No. of days since last total collapse: 06												
Date of last partial collapse: 12th April, 2018		No. of days since last partial collapse: 502												
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	1	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	4	3	1	1	1	2	1	--	13
	Partial	--	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	0	0	2	
2014	Total	2	--	--	2	0	3	1	0	0	1	0	9	
	Partial	0	0	0	0	1	0	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	0	1	0	0	4
2016	Total	--	--	2	3	6	5	0	0	1	1	2	22	
	Partial	--	--	1	0	1	3	1	0	0	0	0	6	
2017	Total	5	3	0	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	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	291			
2	JEBBA	HYDRO	301			
3	SHIRORO	HYDRO	600			
4	EGBIN ST2 - 5	STEAM	453			
5	SAPELE	STEAM	47			
6	DELTA	GAS	478			
7	AFAM IV-V	GAS	48			
8	GEREGU GAS	GAS	275			
9	OMOTOSHO GAS	GAS	135.8			
10	OLORUNSOGO GAS	GAS	102.80			
11	GEREGU NIPP	GAS	131			
12	SAPELE NIPP	GAS	72.1			
13	ALAOJI NIPP	GAS	70.4			
14	OLORUNSOGO NIPP	GAS	0			
15	OMOTOSHO NIPP	GAS	69.3			
16	ODUKPANI NIPP	GAS	236.3			
17	IHOVBOR NIPP	GAS	102.8			
18	OKPAI	GAS	174			
19	AFAM VI	GAS	132			
20	IBOM POWER	GAS	62.3			
21	ASCO	GAS	0			
22	A.E.S	GAS	0			
23	OMOKU	GAS	81.7			
24	TRANS AMADI	GAS	63.1			
25	RIVERS IPP	(GAS)	141			
26	AZURA - EDO IPP	(GAS)	133			
27	EGBIN ST6	(GAS)	0			
28	PARAS ENERGY	(GAS)	67.4			
29	GBARAIN NIPP	GAS	72.3			
TOTAL		4360.3	2761.1			
1.6 6025						
STATION	TURBINE	ENERGY GENERATED	AV. POWER GENERATED	ENERGY SENT OUT	AV. POWER SENT OUT	
		MWH	MWHH	MWH	MWHH	
1	KAINJI	HYDRO	6933.00	288.88	6917.90	288.25
2	JEBBA	HYDRO	7409.00	308.71	7387.88	307.83
3	SHIRORO	HYDRO	9895.00	412.29	9865.95	411.08
4	EGBIN ST2 - 5	STEAM	7930.00	330.42	7434.60	309.78
5	SAPELE	STEAM	563.30	23.47	472.80	19.70
6	DELTA	GAS	8494.24	353.93	8279.20	344.97
7	AFAM IV-V	GAS	738.90	30.79	734.23	30.59
8	GEREGU GAS	GAS	2888.50	120.35	2867.07	119.46
9	OMOTOSHO GAS	GAS	2876.75	119.86	2855.10	118.96
10	OLORUNSOGO GAS	GAS	2346.00	97.75	2326.79	96.95
11	GEREGU NIPP	GAS	1500.50	62.52	1488.69	62.03
12	SAPELE NIPP	GAS	1736.50	72.35	1723.96	71.83
13	ALAOJI NIPP	GAS	1723.31	71.80	1702.91	70.95
14	OLORUNSOGO NIPP	GAS	0.00	0.00	0.00	0.00
15	OMOTOSHO NIPP	GAS	1721.80	71.74	1704.10	71.00
16	ODUKPANI NIPP	GAS	5361.50	223.40	5329.80	222.08
17	IHOVBOR NIPP	GAS	2010.00	83.75	1993.53	83.06
18	OKPAI	GAS	2739.00	114.13	2666.70	111.11
19	AFAM VI	GAS	2817.27	117.39	2702.52	112.61
20	IBOM	GAS	1039.27	43.30	1031.00	42.96
21	ASCO	GAS	0.00	0.00	0.00	0.00
22	AZURA - EDO IPP	GAS	3057.15	127.38	3033.80	126.41
23	A.E.S	GAS	0.00	0.00	0.00	0.00
24	OMOKU	GAS	1791.00	74.63	1751.20	72.97
25	TRANS AMADI	GAS	1385.70	57.74	1355.10	56.46
26	RIVERS IPP	GAS	2432.70	101.36	2422.00	100.92
27	EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28	PARAS ENERGY	GAS	1631.40	67.98	1593.00	66.38
29	GBARAIN NIPP	GAS	1730.00	72.08	1715.60	71.48
TOTAL		82,751.79	3,447.99	81,355.43	3,389.81	

	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 50.53Hz	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	330	1G5, 6, 11 & 12 4	330	244	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	288	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	420	411G1 & 2 - Generation reduced due to low load demand by the Discos.
	EGBIN STEAM	6	ST1, 2 & 5 3	660	600	ST1, 2 & 5 3	600	350	ST3 - Tripped on suspected control valve abnormal. 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	GT3 1	120	60	GT3 1	60	37	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, 10 - 13, 16, 19 & 20 9	520	311	GT3 & 5 - Out on generator winding fault. GT4 - Out on loss of excitation. GT15 - Out due to low load demand by the Discos. GT8 & 14 - Out on major overhaul. 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	GT18 1	50	31	GT11 - 12 - De-commissioned and scrapped. GT13, 14 & 16 - Out on blade failure. GT17 Out due to gas constraint. GT18 - Generation reduced due to low load demand by the Discos. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT12 1	145	100	GT12 - Generation reduced due to low load demand by the Discos. GT11 & 13 - Out due to low load demand by the Discos.
	OMOTOSHO GAS	8	GT1, 4, 5, 7 & 8 5	210	190	GT4, 5, 7 & 8 4	152	121.5	GT1 - Out due to low load demand by the Discos. GT2, 3 & 6 - Out on gas constraint.
	OLORUNSOGO GAS	8	GT1 - 5 & 7 5	252	228	GT2, 4, 6 & 7 4	152	110.8	GT1 & 5 - Out due to low load demand by the Discos. GT6 & 8 - Out due to gas constraint. Generation reduced due to low load demand by the Discos.
NIPP	GEREGU NIPP	3	GT21 1	145	145	GT21 1	145	80	GT21 - Generation reduced due to low load demand by the Discos. GT22 & 23 - Out due to gas constraint.
	SAPELE NIPP	4	GT2 1	112.5	110	GT2 1	110	70.1	GT1 & 3 - Out due to gas constraint. GT4 - Out on maintenance.
	ALAOJI NIPP	4	GT1 1	125	110	GT1 1	110	54.2	GT1 - Generation reduced 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	69.8	GT1 - Out on maintenance. GT3 - Out due to gas constraint. Generation reduced due to low load demand by the Discos
	ODUKPANI NIPP	5	GT1 - 4 4	480	440	GT1 & 2 2	220	156.9	GT2 - Generation reduced due to low load demand by the Discos. GT3 & 4 - Out due to low load demand by the Discos. GT5 - Out on E/F.
	IHOVBOR NIPP	4	GT2 1	112.5	110	GT2 1	110	78.6	GT1 - On manual adjustment. GT3 & 4 - Out on maintenance.
	GBARAIN NIPP	1	0 0	0	0	0 0	0	0	GT2 - Out due to gas constraint.
IPP	OKPAI GAS/STEAM	3	GT11 & 12 2	300	300	GT11 & 12 2	300	104	GT11 & 12 - Generation reduced due to low load demand by the Discos.
	AZURA - EDO	3	GT11 - 13 3	461	459	GT13 1	306	125	GT11 & 12 - Out due to low load demand by the Discos. Generation reduced due to low load demand by the Discos.
	AFAM VI GAS/STEAM	4	GT12, 13 & ST10 3	500	450	GT13 1	150	106	GT11 - Tripped on undisclosed fault. GT12 & ST10 - Out due to low load demand by the Discos. GT13 - On frequency response.
	IBOM POWER GAS	3	GT3 1	112.5	110	GT3 1	110	33.2	GT1 & 2 - Out due to fire outbreak on the control panel. Generation reduced 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, 4 & 6 3	60	51.3	GT1 -Tripped on exhaust spread temperature high. GT2- Out on high vibration. GT5 - Out due to low load demand by the Discos.
	TRANS-AMADI	4	GT1, 2 & 4 3	75	70	GT1, 2 & 4 3	70	52.4	GT3 - Out on generator transformer limitation. Generation reduced due to low load demand by the Discos
	RIVERS	1	GT1 1	180	160	GT1 1	160	80	GT1 - Generation reduced due to low load demand by the Discos.
	SUB TOTAL	141	66	6621.1	6082	54	4960	3074.8	Frequency = 50.53Hz.

1.7B GENERATION POSITION AT 06:00HRS OF FRIDAY 06/09/2019 FOR UNITS ON BILATERAL AGREEMENT										
PARAS ENERGY	8	GT3 - 10		70	67.3	GT3 - 10		67.3	67.3	Available units on bar.
		8				8				
SUB TOTAL	8	8		70	67.3	8		67.3	67.3	
GRAND TOTAL	149	74		6691.1	6149.3	62		5,027.30	3142.1	Frequency = 50.53Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - THURSDAY 05/09/2019								
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	0100HRS			24		NIL
	PTC EXPRESS	7	1600HRS			24		NIL
	SANKYO	3	0900HRS			24		NIL
	FEEDER 8	12	1800HRS			24		NIL
IKORODU	PULK IT	1	0100HRS			24		NIL
	INDUSTRIAL	8	0900HRS			24		NIL
	SPINTEX	ON	0100HRS			24		NIL
	DANGOTE	3	0600HRS			24		NIL
	LAND CRAFT	1	0100HRS			24		NIL
ALAUUSA	TR4 - 15MVA	6	1000HRS			24		NIL
	TR5 -15MVA	6	1000HRS			24		NIL
	ALAUUSA	17.5	1100HRS			24		NIL
M/LAND	PTC (MARYLAND)	21	1300HRS			22		NIL
TOTAL LOAD		86.5						

BILATERAL AGREEMENT LOAD DISPATCH							
60MW PARAS ENERGY GENERATION TO CEB OF THURSDAY 05/09/2019							
	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
	69.5	17:00	64.1	03:00	24	1579	NIL

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI THURSDAY 05/09/2019									
COMPANY NAME	VOL-TAGE LEVEL	CON-TRAC-TUAL LOAD (MW)	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	20.5	16:00	0.1	21:00	24	103.6	NO TIME OUT
ASHAKA CEMENT		0	11.6	03:00	8.5	13:00	24	244	NO TIME OUT
XING 1	33kV feeder	0	21.6	20:00	3	21:00	24	341.65	NO TIME OUT
XING 2		0	18.3	08:00	1.2	23:00	24	270.4	NO TIME OUT
KAM INTEGRATED		15	5	12:00	1.4	01:00	24	67.9	NO TIME OUT
OLAM FLOUR MILLS		3	2.2	18:00	0.8	04:00	24	33.3	NO TIME OUT
LORDSMITH		3	0.6	09:00	0.4	02:00	24	13.3	NO TIME OUT
KAM STEEL LINE 1		0	8	19:00	1.3	0.46	24	86.8	NO TIME OUT

1.8 HYDROLOGICAL DATA: FRIDAY 06/09/2019

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	137.65	102.95	376.54
TAIL WATER ELEVATION (METERS)	105.04	75.3	270.5
GROSS OPERATING HEAD (METERS)	32.61	27.65	106.04
AVERAGE TURBINE DISCHARGE (M3/SEC)	993.00	1250.00	454.00
AVERAGE SPILLAGE (M3/SEC)	617.00	1280.00	454.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1610.00	2530.00	908.00
COMPUTED INFLOW (M3/SEC)	5035.00	2495.00	486.00
STORAGE DIFFERENTIAL	3425.00	-35	-422
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 05/09/2019

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	494.5	21:00	503.23	134.1	07:00
EKO	461.9	15:00	581.35	282.6	08:00
IKEJA	606.5	23:00	756.39	391.8	04:00

2.0 GAS POSITION: FRIDAY 06/09/2019

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		600	500
DELTA (GAS)	305	915		545	370
OMOTOSHO GAS	100.4	336.8		152	184.8
OMOTOSHO NIPP	104.3	500		120	380
OLORUNSOGO (GAS)	233.4	336		152	184
OLORUNSOGO NIPP	0	750		0	750
SAPELE NIPP	87.2	500		110	390
SAPELE STEAM	47	720		50	670
AFAM IV-V	50	300		50	250
AFAM VI	220	650		150	500
GEREGU GAS	216	435		145	290
GEREGU NIPP	80	435		145	290
OKPAI (GAS/STEAM)	170	480		300	180
ALAOJI NIPP	0	504		112.5	391.5
IHOVBOR NIPP	114	337.5		110	227.5
IBOM	88.9	198		110	88
ODUKPANI NIPP	206.4	625		220	405
TOTAL	2287.6	9122.30		3071.5	6050.8

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : THURSDAY 05/09/2019

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF FRIDAY 06/09/2019 = FREQUENCY = 50.53Hz.

SN	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 UN-UTILIZED GENERATION CAPABILITY

The un-utilized generation capability for Friday 06/09/2019 as at 0600Hrs =2647.2MW

SN	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO LINE CONSTRAINTS					
				0	0
				0	
				0	
4.2 DUE TO LOW LOAD DEMAND BY THE DISCOS					
				0	2497
1	Olorunsogo gas GT1 - 5 & 7	228	110.8	117.2	
2	Geregu Gas GT11 - 13	435	100	335	
3	Odukpani NIPP GT2 - 4	330	66.6	263.4	
4	Azura-Edo GT11 - 13	459	125	334	
5	Egbin ST1, 2 & 6	800	350	450	
6	Shiroto 411G, 1 & 2	300	120	180	
7	Okpai GT11 & 12	300	104	196	
8	Afam VI GT12 & ST10	285	0	285	
9	Delta GT15, 16, 19 & 20	425	200	225	
10	Omotosho Gas GT1, 4, 5, 7 & 8	190	121.5	68.5	
11	Afam IV GT18	50	31	19	
12	Geregu NIPP GT21	145	80	65	
13	Omotosho NIPP GT3	120	69.8	50.2	
14	Onokku GT3 - 6	80	51.3	28.7	
15	Rivers IPP GT1	160	80	80	
16	Alaoji NIPP GT1	110	54.2	55.8	
17	Trans-Amadi GT1, 2 & 4	70	52.4	17.6	
18	Ibom GT3	110	33.2	76.8	
4.3 DUE TO WATER MANAGEMENT					
			0	0	0
			0	0	
Grand Total					2647.2

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):

1 01:46 through 24:00Hrs, Jebba 2G3 tripped on generator stator ground fault. LHR = 80MW.

5 (B) FORCED OUTAGES (TRANSMISSION):

- 1 11:33 - 11:44Hrs, New Haven T/S 60MVA 132/33kV transformer TR4 primary CB tripped on differential relay. LHR = 1.8MW.
- 2 16:18 – 18:28Hrs, Ajah/Lekki 330kV line (cct J1E) CBs tripped at both ends on the following relay indications:
At Ajah T/S: Distance protection O/C 3-Phases and zone 1 trip.
At Lekki T/S: Distance protection O/C 3-Phases and zone 1 trip. LHR = 55MW.
- 3 16:18 through 24:00Hrs, Ajah T/S 100MVA 132/33kV transformer T7 primary CB tripped on Buchholz relay. LHR = 24MW.
- 4 16:36 – 17:47Hrs, Alaoji/Afam 132kV line 2 CB tripped only at Afam T/S on O/C Red & Yellow Phases pickup. LHR = 36.3MW.
- 5 16:36 – 18:44Hrs, Alaoji/Umuahia 132kV line 1 CB tripped at Alaoji T/S on Micom relay – zone 1 trip, trip Phases A, B & N. distance trip = zone 1, O/C trip 1> 2, E/F trip IN > 2, duration = 62ms, location = 30.72km, 2x3 Phases trip. LHR = 10MW.
- 6 19:19 – 19:33Hrs, Egbin/Ajah 330kV line 2 (cct N4J) CBs tripped at both ends on following relay indications:
At Egbin T/S: Siprotec relay – E/F, Red, Yellow & Blue Phases, distance = 42.5km.
At Ajah T/S: Without relay indication. LHR = 176MW.
- 7 16:54 – 18:44Hrs, Sokoto/Talata-Mafara 132kV line CB tripped at Sokoto T/S on E/F relay. LHR = 1.2MW.

5 (C) PLANNED OUTAGES:-

- 1 09:02 – 15:02Hrs, Kainji/Jebba 330kV line 2 (cct K2J) was taken out for maintenance crew to carry out annual maintenance of the CB and associated equipment. No load was interrupted as cct K1J was in service.
- 2 11:05 – 17:20Hrs, Ayede/Shagamu 132kV line was taken out for maintenance crew to cut over grown trees along the line between towers #442 – 445, 433 – 435, 546 – 548 & 466 – 469. Load loss = 28MW.
- 3 11:58 – 15:05Hrs, Agbara T/S 132kV bus couple CB was taken out to allow maintenance crew change the broken shaft on the bus isolator with new one. Load loss = 30MW.

5 (D) URGENT OUTAGES

- 1 11:45 – 12:40Hrs, Alagbon T/S 60MVA 132/33kV transformer T12 was taken out to allow maintenance crew connect supply to filtration machine from 300KVA GT12 to carry out oil filtration on the newly installed 100MVA transformer. Load loss = 35MW.
- 2 16:40 – 18:10Hrs, Potiskum T/S 30MVA 132/33kV transformer T2 was taken out due to shattered 33kV bus bar Red Phase isolator insulator. Load loss = 12.8MW.

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:- NIL

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 A2K.

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

6 WEATHER REPORT:- Rainfall was reported at Benin, Osogbo, Alaoji, Lokoja & Umuahia

7 INTERNATIONAL LINES:-

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

Maximum load - 100MW at 21:00Hrs.
Minimum load - 65.0MW at 07:00Hrs.

B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 120MW at 22:00Hrs.
Minimum load - 102.0MW at 08:00Hrs.

C KATSINA/GAZAOU/MARADI 132KV LINE

Maximum load - 45.1MW at 23:00Hrs.
Minimum load - 32.0MW at 06:00Hrs.

11A **COMMUNICATION MEDIA**

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	38	33
OPTIC FIBRE	13	9
PLS	14	4

11B **SCADA RTU STATUS**

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	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 00:26 – 09:21Hrs, Afam IV GT18 was shut down due to low load demand by the Discos. Load loss = 30MW.
2 00:44 – 09:43Hrs, Geregu NIPP GT21 was shut down due to low load demand by the Discos. Load loss =116MW.
3 00:45 - 15:19Hrs, Odukpiani NIPP GT1 was shut down due to low load demand by the Discos. Load loss = 100MW.
4 06:05Hrs, Jebba 2G4 was tied. The unit was out due to low load demand by the Discos.
5 06:11 – 11:10Hrs, Ikot-Ekpene/Ugwuaji 330kV line 3 (cct K3U) was taken out for voltage control. V/P: 351/348kV.
6 06:41 – 11:31Hrs, Ibom Power GT3 was shut down due to low load demand by the Discos. Load loss = 46MW.
7 06:50 – 08:31Hrs, Omoku GT6 was shut down due to low load demand by the Discos. Load loss = 16MW.
8 06:43 - 21:59Hrs, Olorunsogo gas GT4 was shut down due to low load demand by the Discos. Load loss = 46MW.
9 07:14 – 11:41Hrs, Lokoja/Gwagwalada 330kV line 2 (cct L7G) was taken out for voltage control. V/P: 357/353kV.
10 08:45Hrs, Asaba/Onitsha 330kV line (cct D3T) and Onitsha/GCM 132kV line were restored after the linking of the 132kV line to the 330kV line. **Note:** Asaba T/S 150MVA 330/132/33kV Transformer is still out on fault.
11 09:51Hrs, Delta GT7 was tied. The unit was out due to low load demand by the Discos.
12 11:28Hrs, Odukpiani GT4 was tied. The unit was out due to low load demand by the Discos.
13 11:31Hrs, Sapele ST3 was tied. The unit was out on fault.
14 11:45Hrs, Omotosho GT7 was tied. The unit was out due to low load demand by the Discos.
15 12:14Hrs, Ilire 132/33kV transformer T1 was restroed. The transformer tripped at 21:25Hrs of 04/09/2019.
16 16:19 -19:38Hrs, Jebba 2G5 was shut down due to load demand by the Discos. Load loss = 73MW.
17 15:31 through 24:00Hrs, Odukpiani NIPP GT4 was shut down due to load demand by the Discos. Load loss = 106.8MW.
18 16:19 -19:38Hrs, Jebba 2G5 was shut down due to load demand by the Discos. Load loss = 73MW.
19 21:24Hrs, Geregu Gas GT13 was tied. The unit was out due to load demand by the Discos.
20 21:11Hrs, Ikeja West T/S 75MX 330kV shunt Reactor R1 was switched off on voltage control. V/P: 318/321kV.
21 23:30 through 24:00Hrs, Odukpiani NIPP GT3 was shut down due to low load demand by the Discos. Load loss = 70.7MW.
22 23:37 through 24:00Hrs, Geregu GT13 was shut down due to low load demand by the Discos. Load loss = 118MW.
23 23:50 through 24:00Hrs, Delta GT15 was shut down due to low load demand by the Discos. Load loss = 76MW.
**** **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/Akangba 330kV line 2 - 1 span.
6 Ikeja West/ Ilupeju 132kV lines 1 & 2 - 8 spans.
7 Akangba/Ilire 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 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.

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	Lokoja T/S	356kV	One Reactor in service.
2	Uguwaji T/S	355kV	No Reactor
3	New Haven T/S	353kV	No Reactor
4	Gwagwalada T/S	353kV	No Reactor
5	Makurdi T/S	353kV	
6	Sapele T/S	352kV	Low VAR absorption by Sapele P.S/NIPP