

TRANSMISSION COMPANY OF NIGERIA

To: Head (ISO), TCN - Abuja

From: General Manager, NCC, Osogbo

DAILY OPERATIONAL REPORT OF SUNDAY 01/09/2019

FOR: EVENTS OF SATURDAY 31/08/2019

EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	25,790	20:45	31/08/2019
GENERATION CAPABILITY	6216.1	-do-	-do-
UNIT'S ON BAR CAPABILITY AT PEAK	4788.1	-do-	-do-
PEAK GENERATION	3930.5	-do-	-do-
LOWEST GENERATION	2877.4	04:00	31/08/2019
8-HOURLY DURATION PEAK	3324	0100-0800	-do-
	3648.8	0900-1600	-do-
	3930.5	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	351	Lokoja T/S	17:00
LOWEST VOLTAGE FOR THE DAY	300	Yola & Gombe T/S	12:00 & 13:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.816	15:34
LOWEST FREQUENCY	49.920	19:04

1.4 SYSTEM COLLAPSE UPDATE

Date of last total collapse: 30th June, 2019		No. of days since last total collapse: 01												
Date of last partial collapse: 12th April, 2018		No. of days since last partial collapse: 498												
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	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	0	1	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			2		12	
	Partial	0	0	0	1	0			0				1	
2019	Total	4	1		1	1							7	
	Partial												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	295	129
2 JEBBA	HYDRO	356	229
3 SHIRORO	HYDRO	506	497
4 EGBIN ST2 - 5	STEAM	365	200
5 SAPELE	STEAM	0	0
6 DELTA	GAS	365	303
7 AFAM IV-V	GAS	50	50
8 GEREGU GAS	GAS	250	180
9 OMOTOSHO GAS	GAS	829	73.3
10 OLORUNSOGO GAS	GAS	136.20	99
11 GEREGU NIPP	GAS	101	80
12 SAPELE NIPP	GAS	72.9	72.3
13 ALAOJI NIPP	GAS	79.9	75.6
14 OLORUNSOGO NIPP	GAS	0	0
15 OMOTOSHO NIPP	GAS	95.7	75
16 ODUKPANI NIPP	GAS	186.4	177.7
17 IHOVBOR NIPP	GAS	93.8	75.3
18 OKPAI	GAS	104	104
19 AFAM VI	GAS	123	0
20 IBOM POWER	GAS	65.7	61.8
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	74.4	40.8
24 TRANS AMADI	GAS	40.4	33.3
25 RIVERS IPP	(GAS)	142	90
26 AZURA - EDO IPP	(GAS)	284	200
27 EGBIN ST6	(GAS)	0	0
28 PARAS ENERGY	(GAS)	61.2	51.3
29 GBARAIN NIPP	GAS	0	0
TOTAL		3930.5	2877.4

STATION	TURBINE	ENERGY GENERATED MWH	AV. POWER GENERATED MWHH	ENERGY SENT OUT MWH	AV. POWER SENT OUT MWHH
1 KAINJI	HYDRO	6791.00	282.96	6776.00	282.33
2 JEBBA	HYDRO	7051.00	293.79	7030.24	292.93
3 SHIRORO	HYDRO	11544.00	481.00	11513.34	479.72
4 EGBIN ST2 - 5	STEAM	6059.00	252.46	5663.00	235.96
5 SAPELE	STEAM	0.00	0.00	0.00	0.00
6 DELTA	GAS	7993.83	333.08	7744.60	322.69
7 AFAM IV-V	GAS	1151.55	47.98	1147.09	47.80
8 GEREGU GAS	GAS	4286.00	178.58	4262.17	177.59
9 OMOTOSHO GAS	GAS	1974.00	82.25	1954.90	81.45
10 OLORUNSOGO GAS	GAS	2799.75	116.66	2779.81	115.83
11 GEREGU NIPP	GAS	2370.13	98.76	2357.45	98.23
12 SAPELE NIPP	GAS	1770.67	73.78	1758.36	73.27
13 ALAOJI NIPP	GAS	1790.80	74.62	1785.64	74.40
14 OLORUNSOGO NIPP	GAS	0.00	0.00	0.00	0.00
15 OMOTOSHO NIPP	GAS	1935.00	80.63	1918.70	79.95
16 ODUKPANI NIPP	GAS	4332.88	180.54	4304.08	179.34
17 IHOVBOR NIPP	GAS	2090.00	87.08	2071.09	86.30
18 OKPAI	GAS	2929.00	122.04	2858.20	119.09
19 AFAM VI	GAS	1746.70	72.78	1658.41	69.10
20 IBOM	GAS	1463.44	60.98	1455.00	60.63
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	5191.20	216.30	5165.80	215.24
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1383.79	57.66	1352.96	56.37
25 TRANS AMADI	GAS	1042.50	43.44	1015.20	42.30
26 RIVERS IPP	GAS	2616.10	109.00	2604.10	108.50
27 EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	1285.70	53.57	1280.30	53.35
29 GBARAIN NIPP	GAS	230.00	9.58	224.30	9.35
TOTAL		81,828.04	3,409.50	80,680.74	3,361.70

	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 50.55Hz	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	330	1G5, 6, 11 & 12 4	330	238	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	578.4	475	2G1 & 3 2	190	231	2G2, 4 & 5 - Out due to low load demand by the Discos. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	600	600	411G1 - 4 4	600	415	411G1 & 3 - Generation reduced due to low load demand by the Discos.
	EGBIN STEAM	6	ST1, 2, 5 & 6 4	880	655	ST1, 2 & 5 3	400	303	ST6 - Yet to be tied since collapse of 30/08/2019. ST3 - Tripped on suspected control valve abnormal. ST4 - Out due to boiler feed pump problem. Generation reduced due to low load demand by the Discos.
	SAPELE (STEAM)	6	0 0	0	0	0 0	0	0	ST1 - Tripped due to loss of control oil pump. ST2 & 4 - Out on fault. ST3 - Yet to be tied since collapse of 30/08/2019.
	DELTA (GAS)	18	GT6, 7, 10 - 13, 15 16, 19 & 20 10	575	513	GT6, 7, 10 - 13, 16, 19 & 20 9	398	263	GT3 & 5 - Out on generator winding fault. GT4 - Out on loss of excitation. GT8 & 14 - Out on major overhaul. GT15 - Out due to low load demand by the Discos. 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	30	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 & 13 2	290	160	GT11 - Out due to low load demand by the Discos. GT12 & 13 - Generation reduced due to low load demand by the Discos.
	OMOTOSHO GAS	8	GT1, 4, 5, 7 & 8 5	210	190	GT4, 5 & 8 3	114	96.2	GT1 & 7 - Out due to low load demand by the Discos. GT2, 3 & 6 - On maintenance. Generation reduced due to low load demand by the Discos.
	OLORUNSOGO GAS	8	GT1 - 6 & 8 7	294	266	GT2, 4 & 5 3	103.8	103.8	GT1, 3, 6 & 8 - Out due to low load demand by the Discos. GT7 - Out due to gas constraint.
NIPP	GEREGU NIPP	3	GT21 1	145	145	GT21 1	145	74	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	71.8	GT1 & 3 - Out due to gas constraint. GT4 - Out on maintenance.
	ALAOJI NIPP	4	GT1 1	112.5	112.5	GT1 1	43.9	43.9	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	GT3 1	120	120	GT3 1	120	72.7	GT1 - Out on maintenance. GT2 - Out due to gas constraint.
	ODUKPANI NIPP	5	GT1 - 4 4	480	440	GT1 & 2 2	220	160.3	GT1 & 2 - On manual adjustment. GT3 & 4 - Out due to low load demand by the Discos. GT5 - Out on E/F.
	IHOVBOR NIPP	4	GT1 1	112.5	110	GT1 1	110	76.1	GT1 - On manual adjustment. GT2 - Out on generator resistance temperature fault. GT3 & 4 - Out on maintenance.
	GBARAIN NIPP	1	0 0	0	0	0 0	0	0	GT2 - Out due to tripping of Owerrri/Ahoada 132kV line
	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. ST18 - Out on fault.
	AZURA - EDO	3	GT11 - 13 3	461	459	GT13 1	150	150	GT11 & 12 - Out due to low load demand by the Discos.
IPP	AFAM VI GAS/STEAM	4	GT12, 13 & ST10 3	500	470	GT13 1	150	103	GT11 - Tripped. Details awaited. GT12 & ST10 - Out due to low load demand by the Discos.
	IBOM POWER GAS	3	GT3 1	112.5	110	GT3 1	110	64.4	GT1 & 2 - Out due to fire outbreak on the control panel. Generation reduced due to line constraint.
	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	37.7	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	GT2 & 4 2	50	40	GT2 1	20.1	20.1	GT1 - Tripped on high voltage. GT3 - Out on generator transformer limitation. GT4 - Out due to low load demand by the Discos.
	RIVERS	1	GT1 1	160	160	GT1 1	160	70	GT1 - Generation reduced due to low load demand by the Discos.
	SUB TOTAL	141	68	6898.4	6170.5	49	4194.8	2888	Frequency = 50.55Hz.

1.7B GENERATION POSITION AT 06:00HRS OF SUNDAY 01/09/2019 FOR UNITS ON BILATERAL AGREEMENT										
PARAS ENERGY	8	GT3 - 10		70	41.2	GT6 - 10		41.2	41.2	GT3 - 5 - Out due to system collapse of 30/08/2019
		8				5				
SUB TOTAL	8			70	41.2			41.2	41.2	
GRAND TOTAL	149		76	6968.4	6211.7		54	4,236.00	2929.2	Frequency = 50.55Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - SATURDAY 31/08/2019								
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	
U-STEEL	ON	0100HRS			24		NIL	
PTC EXPRESS	6	1300HRS			23		LOADSHEDDING BY TRANSMISSION	
SANKYO	ON	0100HRS			24		NIL	
FEEDER 8	10	1200HRS			23		LOADSHEDDING BY TRANSMISSION	
IKORODU	PULK IT	11	2000HRS		24		NIL	
	INDUSTRIAL	4	1000HRS		24		NIL	
	SPINTEX	ON	1000HRS		24		NIL	
	DANGOTE	3	0100HRS		24		NIL	
	LAND CRAFT	29	1200HRS		24		NIL	
ALAUUSA	TR4 - 15MVA	5.1	1100HRS		24		NIL	
	TR5 -15MVA	3.7	1100HRS		24		NIL	
	ALAUUSA	12.9	1400HRS		24		NIL	
M/LAND	PTC (MARYLAND)	15	2200HRS		24		NIL	
TOTAL LOAD	99.7							

BILATERAL AGREEMENT LOAD DISPATCH							
60MW PARAS ENERGY GENERATION TO CEB OF SATURDAY 31/08/2019							
	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
	63.3	20:00	50.5	05:00	23	1274	The units were out for one hour due to system collapse.

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI SATURDAY 31/08/2019										
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	0.1	01:00	0.1	24:00	24	2.4	NO TIME OUT	
KAM STEEL 2		25.0	16	18:00	0.1	02:00	24	164.7	NO TIME OUT	
ASHAKA CEMENT		0	7.8	23:00	2.7	10:00	24	117.1	NO TIME OUT	
XING 1	33kV feeder	0	21	12:00	10.9	08:00	24	397.6	NO TIME OUT	
XING 2		0	30.8	10:00	11.3	02:00	24	480.55	NO TIME OUT	
KAM INTEGRATED		15	4.4	10:00	1.7	17:00	24	70.4	NO TIME OUT	
OLAM FLOUR MILLS		3	2.5	21:00	0.5	07:00	24	45.1	NO TIME OUT	
LORDSMITH		3	0.5	01:00	0.5	24:00	24	12	NO TIME OUT	
KAM STEEL LINE 1		0	8.5	05:00	1.7	07:00	24	85	NO TIME OUT	

1.8 HYDROLOGICAL DATA: SUNDAY 01/09/2019

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	136.55	102.64	375.46
TAIL WATER ELEVATION (METERS)	104.64	74.0	270.9
GROSS OPERATING HEAD (METERS)	31.91	28.64	104.66
AVERAGE TURBINE DISCHARGE (M3/SEC)	997.00	1146.00	523.00
AVERAGE SPILLAGE (M3/SEC)	0.00	480.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	997.00	1626.00	523.00
COMPUTED INFLOW (M3/SEC)	3252.00	1499.00	1146.00
STORAGE DIFFERENTIAL	2255.00	-127	623
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 SATURDAY 31/08/2019

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	423.0	12:00	528.21	282.2	17:00
EKO					
IKEJA	656.2	23:00	788.97	370	14:00

2.0 GAS POSITION: SUNDAY 01/09/2019

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		400	700
DELTA (GAS)	305	915		398	517
OMOTOSHO GAS	100.4	336.8		114	222.8
OMOTOSHO NIPP	104.3	500		120	380
OLORUNSOGO (GAS)	233.4	336		103.8	232.2
OLORUNSOGO NIPP	0	750		750	0
SAPELE NIPP	87.2	500		110	390
SAPELE STEAM	47	720		0	720
AFAM IV-V	50	300		50	250
AFAM VI	220	650		150	500
GEREGU GAS	216	435		290	145
GEREGU NIPP	80	435		145	290
OKPAI (GAS/STEAM)	170	480		300	180
ALAOJI NIPP	0	504		43.9	460.1
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		2664.7	6457.6

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : SATURDAY 31/09/2019

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF SUNDAY 01/09/2019 = FREQUENCY = 50.55HZ.

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 Sunday 01/09/2019 as at 0600Hrs = 2556.9MW					
SN	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO LINE CONSTRAINTS					
			0	0	45.6
1	Ibom Power GT3	110	64.4	45.6	
4.2 DUE TO LOW LOAD DEMAND BY THE DISCOS					
1	Jebba 2G2, 4 & 5	285	0	285	2511.3
2	Olorunsogo gas GT1 - 7	266	103.8	162.2	
3	Geregu Gas GT11 - 13	435	160	275	
4	Odukpani NIPP GT3 & 4	220	0	220	
5	Azura-Edo GT11 & 12	306	150	156	
6	Egbin ST1, 2, 4 & 6	400	303	97	
7	Shiroto 411G1 & 3	300	120	180	
8	Okpai GT11 & 12	300	104	196	
9	Afam VI GT12, 13 & ST10	500	105	395	
10	Delta GT15, 16, 19 & 20	360	152	208	
11	Omotosho Gas GT1, 4, 5, 7 & 8	190	96.2	93.8	
12	Afam IV GT18	50	30	20	
13	Geregu NIPP GT21	145	74	71	
14	Trans-Amadi GT 4	20	0	20	
15	Omoku GT3 - 6	80	37.7	42.3	
16	Rivers IPP GT1	160	70	90	
			0	0	
			0	0	
4.3 DUE TO WATER MANAGEMENT					
			0	0	0
			0	0	
Grand Total					2556.9

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):

1 03:31 through 24:00Hrs, Gbarain GT2 tripped due to tripping of Owerri/Ahoada 132kV line. LHR = 72.4MW

5 (B) FORCED OUTAGES (TRANSMISSION):

1 13:37 - 13:49Hrs, Benin/Egbin 330kV line (cct B6N) CBs tripped at both ends on the following relay indications:

At Benin T/S:

Ohmega relay- DEF forward, DEF reverse
ABB relay: Trip-trip, trip-TRL1,2,3, EFC-CS, TEF-trip, fuse VTSZ, distance = Nil
MVAJ K86 ABC

At Egbin T/S:

Micom relay: Started phase BCN, trip phase BC, distance start Z2, Z3, ZP, distance trip Z2, fault location = 99.01km. 205MW was diverted to ccts M5W and H7V.

2 14:08 - 14:15Hrs, Benin/Egbin 330kV line (cct B6N) CBs tripped at both ends on the following relay indications:

At Benin T/S:

Ohmega relay- DEF forward, DEF reverse
ABB relay- Trip-trip, trip-TRL1,2,3, EFC-CS, TEF-trip, fuse VTSZ, distance = nil
MVAJ K86 ABC

At Egbin T/S:

Micom relay: Started phase BCN, trip phase BC, distance start Z2, Z3, ZP, distance trip Z2, fault location = 254.9km. 224MW was diverted to ccts M5W and H7V.

3 15:15 - 15:29Hrs, Alaoji/Afam 132kV line 2 CB tripped at Afam T/S on O/C & E/F pick up. LHR = 39.7MW

4 15:16 through 24:00Hrs, Alaoji/Owerri 132kV lines 1 & 2 CBs tripped. Line 2 tripped at both ends while line 1 tripped at Owerri T/S only on the following relay indications:

At Owerri T/S: Line 1

Optimho relay: Zone 1, ABC, location = 62.54km, period = 58.0ms, 3-phases trip – 2X3 phase. LHR = 10MW

At Alaoji T/S: Line 2

Optimho relay: Zone 2, phase A-N, location = 323km, period = 146ms.
Siemens relay- Instantaneous trip >>, E/F trip, ie>, 3-phases, backup protection trip.

At Owerri T/S:

DEF. LHR = 10MW
16:27Hrs, Trial restoration at Owerri T/S failed.

5 15:28 - 16:09Hrs, Adior/Calabar 132kV line 1 CB tripped at Adior T/S on O/C. LHR = 13.9MW

6 15:28 - 16:12Hrs, Calabar T/S 60MVA 132/33kV Transformer T3 primary CB tripped on instantaneous O/C 3-phases, while the secondary CB tripped without relay indication. LHR = 1.5MW

7 15:47 - 17:46Hrs, Okpai/Onitsha 330kV line 2 (cct K2T) CB tripped at Onitsha T/S on E/F. 48MW was diverted to cct K1T

5 (C) PLANNED OUTAGES:- NIL

5 (D) URGENT OUTAGES

1 10:25 - 19:39Hrs, Jebba/Osogbo 330kV line 1 (cct J1H) CB was opened at Jebba T/S to allow maintenance crew replace the burnt Blue phase isolator blade and upper corona ring at Osogbo T/S. No load interrupted as the line was on soak to Osogbo T/S terminal.

2 13:42 - 13:57Hrs, Ikeja-West/Alimosho 132kV line 1 CB was opened on emergency to reduce load flow on cct M5W due to tripping of cct B6N. Load loss = 32MW

3 13:42 - 13:57Hrs, Ikeja-West/Alimosho 132kV line 2 CB was opened on emergency to reduce load flow on cct M5W due to tripping of cct B6N. Load loss = 47MW

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:- ccts A2K & 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 Kaduna, Osogbo, Jebba, Ganmo.

7 INTERNATIONAL LINES:-

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

Maximum load - 77MW at 20:00Hrs.
Minimum load - 39.0MW at 01:00Hrs.

B BIRNIN KEBBUNIAMEY 132KV LINE

Maximum load - 114MW at 15:00Hrs.
Minimum load - 84.0MW at 08:00Hrs.

C KATSINA/GAZAOU/MARADI 132KV LINE

Maximum load - 43.8MW at 21:00Hrs.
Minimum load - 27.2MW at 08:00Hrs.

8 MISCELLANEOUS

1 01:02Hrs, tied, 01:04Hrs, tied, 01:06Hrs, tied, 01:08Hrs, tied.
01:10Hrs, tied, 01:12Hrs, tied, 01:14Hrs tied, 01:15Hrs, Paras Energy GT3 – 10 were tied respectively. The unit was out due to system collapse of 30/08/2019

2 01:50 - 20:42Hrs, Azura GT11 was shut down due to low load demand by the Discos. Load loss = 75MW

3 01:50Hrs, Delta GT20 was tied. The unit was out due to low load demand by the Discos.

4 01:58 through 24:00Hrs, Delta GT15 was shut down due to low load demand by the Discos. Load loss = 60MW

5 02:08 - 19:07Hrs, Jebba 2G4 was shut down due to low load demand by the Discos. Load loss = 70MW

6 03:37 - 09:06Hrs, Jebba 2G2 was shut down due to low load demand by the Discos. Load loss = 71MW

7 08:27Hrs, Odukpani GT2 was tied to swap with GT3

11A COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	38	33
OPTIC FIBRE	13	10
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	4	15
132kV	102	79	23

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 Omotosho/Ikeja West 330kV line CB at Ikeja West T/S.
- 7 Egbin/Oke-Aro 330kV line 2 (N8K) Defective. Needs replacement.
- 8 Egbin/Ikeja-West Tie CB Defective. Needs replacement.
- 9 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

CRITICAL VOLTAGE NODES IN THE GRID

S/N	NODE	VOLTAGE	REMARKS
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- 8 08:38Hrs, Odukapni GT3 was shut down and 80.3MW was diverted to GT2
 - 9 09:07 through 24:00Hrs, Jebba 2G5 was shut down and 85MW was transferred to 2G2.
 - 10 09:28HRS, Egbin ST1 was tied. The unit was out due to system collapse of 30/08/2019
 - 11 10:43Hrs, Olorunsogo gas GT6 was tied. The unit was out due to system collapse of 30/08/2019
 - 12 18:30Hrs, Egbin/Oke-Aro 330kV line 2 (cct N8K) was restored.
 - 13 19:36Hrs, Delta GT13 was tied. The unit was out due to system collapse of 30/08/2019.
 - 14 20:42Hrs, Azura GT11 was tied. The unit was out due to low load demand by the Discos.
 - 15 21:11Hrs, Ikeja-West T/S 75MX 330kV Reactor R1 was taken out of service on voltage control. V/P: 309/311kV
 - 16 23:05 through 24:00Hrs, Azura GT11 was shut down due to low load demand by the Discos. Load loss = 75MW
 - 17 23:31 through 24:00Hrs, Jebba 2G2 was shut down due to low load demand by the Discos. Load loss = 78MW
- **** 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/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, Uguwaji, Jos, Gwagwalada & Alaoji T/S.

FOR MORE INFORMATION: NCC Telephone Lines -

- 1 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) - 08105894708, CUG: 07016228668
- f NCC e-mail address - nationalcontrol@gmail.com
- g SYSTEM OPERATIONS WEB SITE: www.nigeriasystemoperator.org.

1	Lokoja T/S	351kV	One Reactor in service.
2	Ugwuaji T/S	350kV	No Reactor
3	Ajaokuta T/S	348kV	Low VAR absorption by Geregu Gas/NIPP.
4	New Haven T/S	348kV	No Reactor
5	Makurdi T/S	347kV	One Reactor in service. 2nd not yet installed
6	Gwagwalada T/S	348kV	Reactor at site but not installed.