

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF THURSDAY 09/08/2018

FOR: EVENTS OF WEDNESDAY 08/08/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,560	21:30	08/08/2018
GENERATION CAPABILITY	7735.4	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5212.8	-do-	-do-
PEAK GENERATION	4691.7	-do-	-do-
LOWEST GENERATION	3090.8	04:00	08/08/2018
8-HOURLY DURATION PEAK	3458.7	0100-0800	-do-
	3620.1	0900-1600	-do-
	4691.7	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	350	Lokoja T/S	03:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe & Yola T/S	06:00 & 06:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	50.59	17:18
LOWEST FREQUENCY	49.89	20:31

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 8th July, 2018		No. of days since last total collapse: 21												
Date of last partial collapse: 12 th April, 2018		No. of days since last partial collapse: 113												
Highest No of days ever attained in-between total collapses: 134		Highest No of days ever attained in-between partial collapses: 240												
		Jan	Feb.	Mar.	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec	Total
2010	Total	---	3	1	--	3	3	3	--	2	2	1	4	22
	Partial	1	--	--	1	1	3	4	4	3	2	--	1	20
2011	Total	--	--	--	--	4	3	1	1	1	2	1	--	13
	Partial	--	1	1	--	--	--	--	1	--	1	2	--	6
2012	Total	--	--	2	1	5	2	1	--	--	2	2	1	16
	Partial	--	--	2	3	--	--	--	--	1	--	1	1	8
2013	Total	--	1	2	2	3	4	1	1	1	1	4	2	22
	Partial	--	--	--	--	--	--	--	--	2				2
2014	Total	2			2	0	3	1	0	0	1	0	0	9
	Partial			0	0	1	0	0	0	0	0	2	1	4
2015	Total	1	0	1	0	2	0	1	0	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	2	22
	Partial	--	--	1	0	1	3	1	0	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	0	3			9
2018	Total	5	1	0	0	0	1	1						8
	Partial	0	0	0	1	0								1

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)
1 KAINJI	HYDRO	311	276
2 JEBBA	HYDRO	415	217
3 SHIRORO	HYDRO	587	178
4 EGBIN ST2 - 5	STEAM	526	520
5 SAPELE	STEAM	0	0
6 DELTA	GAS	564	354
7 AFAM IV-V	GAS	59	0
8 GEREGU GAS	GAS	0	0
9 OMOTOSHO GAS	GAS	137.7	139.9
10 OLORUNSOGO GAS	GAS	168.3	137.3
11 GEREGU NIPP	GAS	0	0
12 SAPELE NIPP	GAS	186.6	157.4
13 ALAOJI NIPP	GAS	84	84.4
14 OLORUNSOGO NIPP	GAS	222.6	109.1
15 OMOTOSHO NIPP	GAS	206.5	188.3
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	148.7	166.6
18 OKPAI	GAS	311	100
19 AFAM VI	GAS	396	114
20 IBOM POWER	GAS	0	0
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	54.6	47.6
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 AZURA - EDO IPP	(GAS)	150	150
27 EGBIN ST6	(GAS)	0	0
28 PARAS ENERGY	(GAS)	69.4	70.2
29 GBARAIN NIPP	GAS	94.3	81
TOTAL		4691.7	3090.8

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	7450.00	310.42	7435.40	309.81
2 JEBBA	HYDRO	7643.00	318.46	7623.72	317.66
3 SHIRORO	HYDRO	7958.00	331.58	7933.86	330.58
4 EGBIN ST2 - 5	STEAM	12240.00	510.00	11615.50	483.98
5 SAPELE	STEAM	0.00	0.00	0.00	0.00
6 DELTA	GAS	12530.30	522.10	12287.90	512.00
7 AFAM IV-V	GAS	1073.00	44.71	1067.65	44.49
8 GEREGU GAS	GAS	0.00	0.00	0.00	0.00
9 OMOTOSHO GAS	GAS	3284.00	136.83	3260.80	135.87
10 OLORUNSOGO GAS	GAS	3350.81	139.62	3320.85	138.37
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	3932.83	163.87	3909.31	162.89
13 ALAOJI NIPP	GAS	2028.81	84.53	2017.91	84.08
14 OLORUNSOGO NIPP	GAS	3101.80	129.24	3049.40	127.06
15 OMOTOSHO NIPP	GAS	4757.90	198.25	4721.70	196.74
16 ODUKPANI NIPP	GAS	0.00	0.00	0.00	0.00
17 IHOVBOR NIPP	GAS	3911.43	162.98	3885.27	161.89
18 OKPAI	GAS	4111.00	171.29	3996.60	166.53
19 AFAM VI	GAS	3643.54	151.81	3597.39	149.89
20 IBOM	GAS	102.03	4.25	99.00	4.13
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	4419.70	184.15	4413.51	183.90
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	986.90	41.12	966.30	40.26
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	629.30	26.22	625.90	26.08
27 EGBIN ST6	STEAM	0.00	0.00	0.00	0.00
28 PARAS ENERGY	GAS	1667.80	69.49	1662.90	69.29
29 GBARAIN NIPP	GAS	2118.20	88.26	2101.90	87.58
TOTAL		90,940.35	3,789.18	89,592.77	3,733.03

1.7A GENERATION POSITION AT 06:00HRS OF THURSDAY 09/08/2018

	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	320	1G5, 6, 11 & 12 4	320	311	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, 2, 4 & 5 4	360	266	2G2 - Out on frequency management. 2G3 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	600	600	411G1 - 4 4	600	474	411G2 - Generation reduced on frequency management.
	EGBIN STEAM	5	ST 2, 4 & 5 3	660	575	ST2, 4 & 5 3	575	535	ST1 - Out on oil leakage. ST3 - Out on high vibration since 19th June 2017. Generation reduced on frequency management.
	SAPELE (STEAM)	6	0 0	0	0	0 0	0	0	ST1 - Shut down due to alarm on inlet gas guide control trouble. ST2 - Tripped without relay indication. ST3 - Out on stator winding problem. 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	615	615	GT9 - 13, 15, 18, 19 & 20 9	525	507	GT3 & 5 - Out due to generator winding fault. GT4 - Out on loss of excitation. GT6, 8 & 14 - Out on major overhaul. GT7 - Out on fault. GT16 - Out on frequency management. GT17 - Tripped on bearing vibration than maximum.
	AFAM IV & V (GAS)	8	0 0	0	0	0 0	0	0	GT1 - 12 - De-commissioned and scrapped. GT13 -16 - Out on blade failure. GT17 - Out due to technical issues. GT18 - Out due to loss of excitation. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	0 0	0	0	GT11 - 13 - Out due to low gas pressure.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 6 - 8 4	140.3	139	GT2 - 5 - Out due to gas constraint.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2, 4 - 6 & 8 5	171.6	168.7	GT1 - Out on frequency management. GT3 & 7 - Out due to gas constraint.
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	GT1 & 3 2	225	152.7	GT4 - Out on frequency management. GT2 - Out due to high air inlet differential pressure.
	ALAOJI NIPP GAS	4	GT1, 2 & 4 3	375	360	GT2 1	85.8	85.8	GT1 & 4 - Out due to gas constraint. GT3 - Shut down due to lack of spare parts.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT3 1	102.2	102.2	GT1 - Out due to gas constraint. GT2 - Out on frequency management. 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	GT2 1	120	92.2	GT1 - Out due to gas constraint. GT2 - On frequency response. GT3 - Out due to oil leakage on the unit. GT4 - Out on frequency management.
	ODUKPANI NIPP	5	GT4 & 5 2	240	230	0 0	0	0	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Out on high air inlet differential pressure. GT4 & 5 - Shut down due to work on gas pipe line equipment.
	IHOVBOR NIPP	4	GT1 & 2 2	225	225	GT1 & 2 2	225	148.6	GT1 & 2 - On manual frequency adjustment. GT3 - Tripped on high vibration. GT4 - Out on maintenance.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	GT2 1	112.5	78.9	GT2 - Generation reduced on frequency management.
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18 3	450	427	GT11, 12 & ST18 3	427	176	GT11, 12 & ST18 - Generation reduced on frequency management.
	AZURA - EDO	3	GT11 & 12 2	307	307	GT11 & 12 2	307	150	GT11 & 12 - Generation reduced on line constraint. GT13 - Out on maintenance.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	640	0 0	0	0	GT11 - 13 & ST10 - Out due to low gas pressure.
	IBOM POWER GAS	3	0 0	0	0	0 0	0	0	GT3 - Out on fault.
	AES	0	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
	ASCO	2	0 0	0	0	0 0	0	0	ST1 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT1, 2 & 5 3	75	60	GT1, 2 & 5 3	53.3	53.3	GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul. GT6 Out on maintenance.
	TRANS-AMADI	4	GT1, 2 & 4 3	75	65	0 0	0	0	GT1, 2 & 4 - Out due to low gas pressure. GT3 - Out on fault.
	RIVERS	1	GT1 1	180	160	0 0	0	0	GT1 - Out due to gas constraint.
SUB TOTAL	131	80	7964	7537	49	4349.7	3440.4	Frequency = 50. 48Hz.	

1.7B GENERATION POSITION AT 06:00HRS OF THURSDAY 09/08/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	0	0	0	0	0	0	ST6 - Shut down on Egbin management decision.
		0						
PARAS ENERGY	8	GT2 - 9	68.6	68.6	GT2 - 9	68.6	68.6	Available units on bar.
		8			8			
SUB TOTAL	9	8	68.6	68.6	8	68.6	68.6	
GRAND TOTAL	140	88	8032.6	7605.6	57	4,418.30	3,509.00	Frequency = 50.48Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - WEDNESDAY 08/08/2018.

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	OUT	NIL		NIL		T1 60MVA IS O/S ON DIFFERENTIAL
	PTCEXPRESS	OUT	NIL		NIL		T1 60MVA IS O/S ON DIFFERENTIAL
	SANKYO	ON	0100HRS		24		NIL
	FEEDER 8	15	1700HRS		24		NIL
IKORODU	PULK IT	3	0300HRS		24		NIL
	INDUSTRIAL	8	2100HRS		24		NIL
	SPINTEX	15	2200HRS		24		NIL
	DANGOTE	3	2200HRS		24		NIL
	LAND CRAFT	13	0200HRS		24		NIL
ALAUSA	TR4 15MVA	6.9	1500HRS		24		NIL
	TR5 -15MVA	3.2	1100HRS		24		NIL
	ALAUSA	13.5	1100HRS		19		NUEE ACTIVITY
M/LAND	PTC (MARYLAND)	17	1100HRS		24		NIL
TOTAL LOAD		97.6					

BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB OF WEDNESDAY 08/08/2018

FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	71.8	21:00	68.6	05:00	24	1684.8	NIL

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING
COMPANIES OF: WEDNESDAY 08/08/2018

COMPANY NAME	VOL-TAGE LEVEL	CON-TRAC-TUAL LOAD (MW)	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
INNER GALAXY	132kV line 2	ON	ON	ON	ON	ON	ON	ON	NIL
KAM STEEL		15.0	1.2	18:00	0.2	01:00	24	12.8	SUPPLY NOT INTERRUPTED
ASAKA CEMENT		0	7.7	16:00	2.7	20:00	24	124.8	SUPPLY NOT INTERRUPTED
KAM INTEGRATED	33kV feeder	15.0	5.1	17:00	1.8	20:00	24	60.0	SUPPLY NOT INTERRUPTED
OLAM FLOUR MILLS		3.0	2.3	09:00	0.5	04:00	24.00	34.9	SUPPLY NOT INTERRUPTED
LORDSMITH		0	0.4	01:00	0.3	14:00	24	9.1	SUPPLY NOT INTERRUPTED

1.8 HYDROLOGICAL DATA: THURSDAY 09/08/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	134.06	101.47	371.20
TAIL WATER ELEVATION (METERS)	103.5	74.20	270.8
GROSS OPERATING HEAD (METERS)	30.56	27.27	100.40
AVERAGE TURBINE DISCHARGE (M3/SEC)	1107.00	1326.00	388.00
AVERAGE SPILLAGE (M3/SEC)	0.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1107.00	1326.00	388.00
COMPUTED INFLOW (M3/SEC)	1975.00	1326.00	775.00
STORAGE DIFFERENTIAL	868.00	0	387.00
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	388.50
MINIMUM LEVEL BELOW WHICH NO GENERATION	129	99	355

1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT WEDNESDAY 08/08/2018

	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	545.9	21:00	502.32	289.1	04:00
EKO	439.1	22:00	532.65	305.8	12:00
IKEJA	474.3	11:00	589.98	368.7	18:00

2.0 GAS POSITION: THURSDAY 09/08/2018

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	535	1100		575	525
DELTA (GAS)	507	915		515	400
OMOTOSHO GAS	139	336.8		152	184.8
OMOTOSHO NIPP	92.2	500		120	380
OLORUNSOGO (GAS)	168.7	336		190	146
OLORUNSOGO NIPP	101.2	750		102.2	647.8
SAPELE NIPP	152.7	500		225	275
SAPELE STEAM	0	720		0	720
AFAM IV-V	0	300		0	300
AFAM VI	0	650		0	650
GEREGU GAS	0	435		0	435
GEREGU NIPP	0	435		0	435
OKPAI (GAS/STEAM)	176	480		427	53
ALAOJI NIPP	85.8	504		85.8	418.2
IHOVBOR NIPP	148	450		148.6	301.4
IBOM	0	198		0	198
ODUKPANI NIPP	0	625		0	625
TOTAL	2105.6	9234.80		2540.6	6694.2

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : WEDNESDAY 08/08/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF THURSDAY 09/08/2018 = 0MW. FREQUENCY 50.48Hz.

0	POWER STATION	UNIT ON SPINNING RESERVE	CONTRACTED RESERVE	ACTUAL RESERVE (MW)	TOTAL (MW)
1	Egbin	ST2	100	0	0
		ST4		0	
		ST5		0	
		ST6		0	
2	Delta	GT16	40	0	0
		GT17	40	0	
3	Olorunsogo NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
4	Geregu NIPP	GT22	35	0	0
5	Omotosho NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
TOTAL (MW)			295	0	0

4.0 UNAVAILABLE GENERATION CAPABILITY

The unavailable generation capability for Thursday 09/08/2018 as at 0600Hrs was = 3820.1MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Alaoji NIPP GT1 & 4	240	0	240	2523
2	Omotosho NIPP GT1	120	0	120	
3	Geregu NIPP GT22 & 23	290	0	290	
4	Omotosho Gas GT2 - 5	152	0	152	
5	Olorunsogo NIPP GT1	120	0	120	
6	Odukpani NIPP GT4 & 5	230	0	230	
7	Olorunsogo Gas GT3 & 7	76	0	76	
8	Afam VI GT11 -13 & ST10	640	0	640	
9	Geregu Gas GT11 - 13	435	0	435	
10	Trans -Amadi GT1, 2 & 4	60	0	60	
11	Rivers NIPP GT1	160	0	160	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1785.12MMSCF OF GAS (EQUIVALENT TO 6694.2MW WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Azura Edo GT11 & 12	307	150	157	157
				0	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Jebba 2G3	90	0	90	1140.1
2	Azura Edo GT11 & 12	307	150	157	
3	Shiroro 411G2	150	52	98	
4	Sapele NIPP GT4	112.5	0	112.5	
5	Delta GT16	80	0	80	
6	Olorunsogo gas GT1	38	0	38	
7	Okpai GT11,12 & ST18	427	176	251	
8	Egbin ST2, 4 & 5	575	535	40	
9	Olorunsogo NIPP GT2	120	0	120	
10	Omotosho NIPP GT4	120	0	120	
11	Gbarain NIPP GT2	112.5	78.9	33.6	
				0	
				0	
				0	
				0	
4.1 DUE TO WATER MANAGEMENT:					
Grand Total					3820.1

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 1 00:07Hrs, Omoku P/S GTs 1 & 5 tripped on reverse power due to system surge. Total load loss = 50MW. 01:57Hrs, GT1 was tied. 02:40Hrs, GT5 was tied.

5(B) FORCED OUTAGES (TRANSMISSION):

- 1 00:21 – 12:57Hrs, Benin T/S 75MVAR 330kV Shunt Reactor 6R2 CB tripped on the following relay indications:
ERL Relay: Trip relay; differential relay, 86 operated.
Auxiliary Relay for CB trouble (52AB), DC half supervisory relay (80AB) flagged.
- 2 08:10 – 08:24Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line CB tripped at Ayede T/S on Siemens relay, backup relay – O/C Blue Phase. LHR = 80MW.
- 3 12:35 – 12:48Hrs, Kumbotso T/S 150MVA 330/132/33kV transformer T2A secondary CB tripped on O/C Blue Phase relay. LHR = 110MW.
- 4 13:36 – 14:08Hrs, Benin/Asaba 330kV line (cct B3D) CBs tripped at both ends on the following relay indications:
At Benin T/S: Siprotec Relay: EF L3, EF P 30 pickup, EF 3P, fault loop L3E, pick up time = 2373ms, distance = 34.2km.
Auxiliary Relay: 7PE 2331 flagged.
At Asaba T/S: SEL Relay: O/C Blue Phase to ground zone 4, Distance = 58.03km. LHR = 52MW
- 5 15:33Hrs, Benin/Ihovbor 330kV line (cct V7B) CBs tripped at both end on the following relay indications:
At Benin T/S: ABB relay – Trip – trip, trip TRL3, zone 1 trip, DEF lock, fuse VTSZ, distance = 6.8km
Ohmega relay – zone 1 Phase C - Earth.
At Ihovbor T/S: Micom relay – Distance protection started Phase C –N, distance zone 2 & 3, O/C start I >1, Earth start IN > 1, fault location = 37.37km.
Master relay – MVAJ 3-Phases.
- 6 17:16 – 17:20Hrs, Birnin-Kebbi T/S 150MVA 330/132kV transformer 19T3 primary & secondary CBs tripped on over voltage due to sudden load drop on Niamey 132kV line. LHR = 121MW.
- 7 20:55– 22:08Hrs, Afam/Alaoji 132kV line 2 CB tripped at Afam T/S on instantaneous O/C. LHR = 41.4MW.
- 8 20:55 – 22:09Hrs, Afam/IPP 132kV line 1 CB tripped at Afam T/S on instantaneous O/C. LHR = 33.6MW.

5 (c) PLANNED OUTAGES:- NIL

5(D) URGENT OUTAGES:-

- 1 03:44 through 24:00Hrs, Ibom Power GT3 was taken out due to lube oil system equipment failure. Load loss = 20MW.
- 2 18:44 through 24:00Hrs, Rivers IPP GT1 was shut down due to gas constraint. Load loss = 45MW.
- 3 22:20 through 24:00Hrs, Afam VI GT12 was shut down due to gas constraint. Load loss = 110MW.
- 4 22:40 through 24:00Hrs, Afam VI GT13 was shut down due to gas constraint. Load loss = 110MW.
- 5 22:51 through 24:00Hrs, Afam VI GT11 was shut down due to gas constraint. Load loss = 130MW.

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 ODUKPANI, AZURA, SHELL AFAM VI AGIP OKPAI, OLORUNSOGO POWER PLC AND OMOTOSHO POWER PLC.
- GROUP 2B - OTHER GENERATING UNITS IDENTIFIED TO BE ON FREE GOVERNOR CONTROL.
- GROUP 3 - OTHER UNITS IDENTIFIED TO BE OFFERING REGULATORY RESERVE.
- GROUP 4 - OTHER UNITS OFFERING SPINNING RESERVE (THE POWER PLANTS CONTRACTED FOR THE ANCILLARY SERVICE).
- GROUP 5 - ALL PLANTS DISPATCHED SUBJECT TO TRANSMISSION CONSTRAINT (NOT YET IDENTIFIED).
- GROUP 6 - ALL PLANTS PROVIDING VOLTAGE SUPPORT ABOVE STATUTORY LIMIT (NOT YET IDENTIFIED).

5 (E) EMERGENCY OUTAGES:-

- The under mentioned lines were opened on frequency control.
- 1 19:31 - 20:15Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line. Load loss = 70MW. Frequency was 49.88Hz.
 - 2 20:30 - 20:40Hrs, Osogbo/Akure/Ado-Ekiti 132kV line. Load loss = 63MW. Frequency was 49.75Hz.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:- NIL

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A1K, K4U & A1S.

5 (H) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- NIL.

5 (I) 330KV LINES THAT ARE OUT ON PLANNED OUTAGE:- cct B1T

5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- ccts L8A, U1A, J2H & S5B.

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

6 WEATHER REPORT:- Rainfall was reported at Gombe & Port Harcourt.

7 INTERNATIONAL LINES:-

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

Maximum load - 228MW at 21:00Hrs.
Minimum load - 136MW at 07:00Hrs.

B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 104MW at 17:00Hrs.
Minimum load - 73MW at 07:00Hrs.

C KATSINA/GAZAQUA/MARADI 132KV LINE

Maximum load - 35.5MW at 21:00Hrs.
Minimum load - 22.5MW at 03:00Hrs.

8 MISCELLANEOUS:-

- 1 00:08Hrs, Shiroro 411G3 was shut down on frequency management. Load loss = 150MW.
- 2 00:09 – 05:29Hrs, Jebba 2G3 was shut down on frequency management. Load loss = 84MW.
- 3 00:10 - 18:47Hrs, Delta GT19 was shut down on frequency management. Load loss = 85MW.
- 4 01:31 - 20:21Hrs, Olorunsogo Gas GT6 was shut down on frequency management. Load loss = 34.5MW.
- 5 03:28Hrs, Afam VI P/S GT13 was shut down on frequency management. Load loss = 107MW.
- 6 06:06Hrs, Afam IV GT18 was tied. The unit was out on loss of excitation.
- 7 14:57Hrs, Okpai ST18 was tied. The unit was out due to non-compliance of NCC instruction on frequency management.
- 8 18:39Hrs, Jebba 2G2 was tied. The unit was out on frequency management.
- 9 21:11Hrs, Afam GT12 was tied. The unit was out on frequency management.
- 10 23:43 through 24:00Hrs, Jebba 2G3 was shut down frequency management. Load loss = 68MW.
- 11 23:44 through 24:00Hrs, Shiroro 411G2 was shut down on frequency management. Load loss = 150MW.

10 **COMMUNICATION MEDIA**

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	33
OPTIC FIBRE	13	10
PLS	14	3

11 **SCADA RTU STATUS**

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	NO OF RTU WORKING
POWER STATIONS	8	6	2
330kV	19	12	7
132kV	102	82	20

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 Jebba G.S/Jebba T.S 330kV line 2 CB at Jebba T/S.
- 7 Omotosho/Ikeja West 330kV line CB at Ikeja West T/S.

BENIN REGION:

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

ENUGU REGION:

- 1 New Haven/Yandev 132kV line CB - Faulty Red phase CB pole. Protection is transferred to the bus coupler CB.
- 2 Abakaliki T/S 30MVA 132/33kV transformer T1A and 60MVA 132/33kV transformer T2 primary CBs - Breakers were not provided since commissioning but the transformers are protected by Nkalagu 132kV line CB.
- 3 Oji River T/S 30MVA 132/33kV transformer T1A primary CB - The breaker is completely out of service and bypassed. The transformer is either protected by Onitsha/Oji 132kV line CB or New Haven/Oji 132kV line CB.
- 4 Oturkpo/Yandev 132kV By pass isolator - Canibalized to repair the line isolator.

SHIRORO REGION

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

PORT HARCOURT REGION

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

- 12 23:56Hrs of 07/08/2018, Olorunsogo Gas GT1 was shut down on frequency management. Load loss = 31MW.

**** **LACK OF REACTOR AND UNRELIABLE STATION SERVICE SUPPLY AT IKOT-EKPENE T/S ARE HINDERING SMOOTH OPERATION.**

**** **THE SCADA COVERAGE OF ONLY LIMITED AREAS IS NOT GOOD FOR THE SMOOTH OPERATION OF THE GRID.**

12(D) **UNAVAILABLE CAPACITOR BANK:**

- 1 (i) Ogba T.S, (ii) Maiduguri T/S, (iii) Isolo T/S, (iv) Ado-Ekiti T/S, (v) Ilorin T/S, (vi) Akure T/S.

12(E) **UNAVAILABLE SKYWIRES**

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21 spans.
- 2 Ikeja West/Olorunsogo line (cct R1W) - 80 spans.
- 3 330kV Ikeja West/Osogbo line. - 95 spans.
- 4 Ikeja West/Alimosho/Ogba 132kV lines 1 & 2 - 15 spans.
- 5 Ikeja West/Akangba 330kV line 2 - 1 span.
- 6 Ikeja West/ Ilupeju 132kV lines 1 & 2 - 8 spans.
- 7 Akangba/Itire 132kV lines 1 & 2 - 1 span.
- 8 Ikeja West/Agbara 132kV lines 1 & 2 - 61 spans.
- 9 Ikeja West/Otta 132kV lines 1 & 2- 17 spans.

SHIRORO REGION

- 1 Jebba T/S 330kV Osogbo lines 1 & 2 and Ganmo line - 9 spans
- 2 Minna T/S 132kV Bida line - 32 spans
- 3 Shiroro T/S 330kV Jebba line 2 - 28 spans

ABUJA REGION

- 1 Apo T/S 132kV Keffi line - 36 spans

12 (F) **UNAVAILABLE SYNCHROSCOPES :**

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

FOR MORE INFORMATION: NCC Telephone Lines -

- a PAX 09/300, 309, 303 & 305.
- b NCC GSM - 08074888524, 08069379367, 08023572651 & 08051401331. CUG Nos. 08129458488, 08129458489, 08129929806; 08036665323.
- c PLS - 622
- d GM (NCC) - 08036744641.
- e AGM (S/O) - 08056002757, CUG: 08129458475

