

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF WEDNESDAY 09/05/2018

FOR: EVENTS OF TUESDAY 08/05/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,780	21:30	08/05/2018
GENERATION CAPABILITY	8223.6	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5260.6	-do-	-do-
PEAK GENERATION	4675.6	-do-	-do-
LOWEST GENERATION	2293.1	09:00	08/05/2018
8-HOURLY DURATION PEAK	4182.6	0100-0800	-do-
	3182.4	0900-1600	-do-
	4675.6	1700-2400	-do-
PEAK GENERATION TO DATE	5222.3	21:00	18/12/2017
MAXIMUM AVAILABLE CAPACITY TO DATE	7652.6	06:00	14/04/2014
MAXIMUM ENERGY GENERATED (MWH) TO DATE	109,372.01	0000-2400	02/02/2016

1.2 CRITICAL VOLTAGE

DETAILS	KV	STATION	HRS
NOMINAL VOLTAGE	330		
STATUTORY LIMITS	280.5 - 346.6		
HIGHEST VOLTAGE FOR THE DAY	364	Omotosho T/S	09:00
LOWEST VOLTAGE FOR THE DAY	300	Kumbotso T/S	12:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75 - 50.25	
HIGHEST FREQUENCY	51.15	08:54
LOWEST FREQUENCY	50.06	19:36

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 1st Feb., 2018	No. of days since last total collapse: 89
Date of last partial collapse: 12 th April., 2018	No. of days since last partial collapse: 25
Highest No of days ever attained in-between total collapses: 134	Highest No of days ever attained in-between partial collapses: 240

	Jan	Feb.	Mar.	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec	Total	
2010	Total	---	3	1	--	3	3	--	2	2	1	4	22	
	Partial	1	--	--	1	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	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	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	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	3	--	--	9	
2018	Total	5	1	0	--	--	--	--	--	--	--	--	6	
	Partial	0	0	0	1	--	--	--	--	--	--	--	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	247	86
2 JEBBA	HYDRO	360	140
3 SHIRORO	HYDRO	550	107
4 EGBIN ST2 - 5	STEAM	388	287
5 SAPELE	STEAM	48	47
6 DELTA	GAS	590	205
7 AFAM IV-V	GAS	55	0
8 GEREGU GAS	GAS	79	40
9 OMOTOSHO GAS	GAS	139.1	91.6
10 OLORUNSOGO GAS	GAS	125.7	83.2
11 GEREGU NIPP	GAS	70	80
12 SAPELE NIPP	GAS	180	45.6
13 ALAQJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	224	119.4
15 OMOTOSHO NIPP	GAS	105.8	51.6
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	90.3	90.1
18 OKPAI	GAS	258	113
19 AFAM VI	GAS	284	220
20 IBOM POWER	GAS	104.1	63.2
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	56	53.4
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	148	110
26 AZURA - EDO IPP	(GAS)	356	170
27 EGBIN ST6	(GAS)	149	85
28 PARAS ENERGY	(GAS)	68.6	0
29 GBARAIN NIPP	GAS	0	0
TOTAL		4675.6	2293.1

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	5578.00	232.42	5561.80	231.74
2 JEBBA	HYDRO	5271.00	219.63	5245.40	218.56
3 SHIRORO	HYDRO	6964.00	290.17	6936.38	289.02
4 EGBIN ST2 - 5	STEAM	8434.00	351.42	8021.90	334.25
5 SAPELE	STEAM	976.70	40.70	975.80	40.66
6 DELTA	GAS	11388.24	474.51	11307.50	471.15
7 AFAM IV-V	GAS	456.00	19.00	452.38	18.85
8 GEREGU GAS	GAS	1345.90	56.08	1324.99	55.21
9 OMOTOSHO GAS	GAS	2677.00	111.54	2652.30	110.51
10 OLORUNSOGO GAS	GAS	2964.88	123.54	2939.45	122.48
11 GEREGU NIPP	GAS	1809.38	75.39	1796.74	74.86
12 SAPELE NIPP	GAS	2943.21	122.63	2918.82	121.62
13 ALAQJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	4160.60	173.36	4106.70	171.11
15 OMOTOSHO NIPP	GAS	3095.50	128.98	3053.40	127.23
16 ODUKPANI NIPP	GAS	0.00	0.00	0.00	0.00
17 IHOVBOR NIPP	GAS	2001.81	83.41	1983.61	82.65
18 OKPAI	GAS	4604.00	191.83	4527.40	188.64
19 AFAM VI	GAS	5832.13	243.01	5728.66	238.69
20 IBOM	GAS	1808.64	75.36	1800.00	75.00
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	6219.00	259.13	6198.00	258.25
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1038.80	43.28	1004.28	41.85
25 TRANS AMADI	GAS	0.00	0.00	0.00	0.00
26 RIVERS IPP	GAS	3120.60	130.03	3114.48	129.77
27 EGBIN ST6	STEAM	2303.00	95.96	2157.10	89.88
28 PARAS ENERGY	GAS	1364.60	56.86	1357.00	56.54
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
TOTAL		86,356.99	3,598.21	85,164.09	3,548.50

1.7A GENERATION POSITION AT 06:00HRS OF WEDNESDAY 09/05/2018

	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)	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6 & 12 3	340	290	1G5, 6 & 12 3	290	246	1G7 - Out on stator winding failure. 1G8 - Out due to loss of supply to the auxiliary. 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. 1G11 - Out on maintenance.
	JEBBA HYDRO	6	2G1 - 3 & 5 4	380	380	2G1, 3 & 5 3	285	236	2G2 - Out on frequency management. 2G4 - Out on maintenance. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	600	600	411G1, 3 & 4 3	450	335	411G3 - Generation reduced on frequency management. 411G2 - Out on frequency management.
	EGBIN STEAM	5	ST1, 2, 4 & 5 4	880	880	ST2, 4 & 5 3	384	383	ST1 - Out on frequency management. ST3 - Tripped on high vibration since 19th June 2017.
	SAPELE (STEAM)	6	ST2 1	120	47	ST2 1	47	47	ST1 - Tripped on low drum level. ST3 - Out on stator winding problem. ST4 & 5 - Awaiting major overhaul. ST6 - Tripped on gas control valve not following reference point.
	DELTA (GAS)	18	GT4, 7, 9 - 13, 15, 16 & 18 - 20 12	655	655	GT4, 7, 9 - 13, 15, 18 & 20 10	455	385	GT3 & 5 - Out due to generator winding fault. GT6 & 14 - Out on major overhaul. GT17 - Out on excitation trouble. GT16 & 19 - Out on frequency management.
	AFAM IV & V (GAS)	8	GT18 1	75	62	GT18 1	62	62	GT1 - 12 - De-commissioned and scrapped. GT13 - 16 - Out on blade failure. GT17 - Tripped on loss of excitation. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT12 1	145	101	GT11 & 13 - Out due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 5, 6 & 8 4	152	141.9	GT2 - 4 & 7 - Out on frequency management.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2 & 4 - 6 4	152	147	GT1, 3, 7 & 8 - Out on frequency management. GT2, 4 - 6 - Generation reduced on frequency management.
NIPP	GEREGU NIPP	3	GT21 - 23 3	435	435	GT22 1	145	80	GT21 & 23 - Out due to gas constraint. GT22 - Generation reduced due to gas constraint.
	SAPELE NIPP	4	GT1 & 3 2	112.5	225	GT1 & 3 2	225	142.4	GT2 - Shut down due to air inlet differential pressure. GT3 - Generation reduced due to gas constraint. GT4 - Tripped on fire protection.
	ALAOJI NIPP GAS	4	GT1, 2 & 4 3	375	360	0 0	0	0	GT1, 2 & 4 - Tripped due to low gas pressure. GT3 - Shut down due to generator air inlet filter trouble.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT1 & 3 2	240	149.8	GT1 & 3 - Generation reduced on frequency management. GT2 - Out due to gas constraint. 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	95.2	GT1 & 4 - Out due to gas constraint. GT3 - Shut down due to oil leakage on the unit.
	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 - Tripped on high air inlet differential pressure. GT4 & 5 - Shut down due to work on gas pipe line equipment.
	IHOVBOR NIPP	4	GT2 1	112.5	112.5	GT2 1	112.5	88.7	GT1 & 4 - Out on maintenance. GT3 - Tripped on bleed inlet valve position.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	0 0	0	0	GT2 - Shut down due to staff on strike.
	IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18 3	375	375	GT11 & 12 2	300	165
AZURA - EDO		3	GT11 - 13 3	450	450	GT12 & 13 2	300	262	GT11 - Out on frequency management.
AFAM VI GAS/STEAM		4	GT11 - 13 & ST10 4	640	640	GT11 & 12 2	300	230	GT13 & ST10 - Out due to gas constraint. Generation reduced on frequency management.
IBOM POWER GAS		3	GT3 1	115	115	GT3 1	115	80.7	GT1 & 2 - Out on fault.
AES		0	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
ASCO		1	0 0	0	0	0 0	0	0	GT1 - Shut down due to leakage in the furnace.
OMOKU GAS		6	GT1, 2, 5 & 6 4	100	80	GT1 1	20	13.6	GT2, 5 & 6 - Out due to loss of supply from Portharcourt T/S. GT3 - Out due to gas leakage. GT4 - Awaiting major overhaul.
TRANS-AMADI		4	GT1 & 2 2	50	40	0 0	0	0	GT1 & 2 - Out due to line constraint since 03/04/2018. GT3 - Out on fault. GT4 - Tripped on generator differential lockout.
RIVERS		1	GT1 1	180	160	GT1 1	160	95	GT1 - Generation reduced due to frequency management.
	SUB TOTAL	130	84	8204.5	8012	49	4459.5	3486.3	Frequency = 50.45Hz.

1.7B GENERATION POSITION AT 06:00HRS OF WEDNESDAY 09/05/2018 FOR UNITS ON BILATERAL AGREEMENT

FEEDER	UNIT	ST6		UNIT	ST6		REMARK
		1	220		111	111	
EGBIN	1	1	220	111	111	Available unit on bar.	
PARAS ENERGY	8	GT2 - 9	67	67	GT2 - 9	67	Available units on bar.
		8			8		
SUB TOTAL		9	287	178	178		
GRAND TOTAL		139	8491.5	8190	58	4,637.50	3,664.30 Frequency = 50.45Hz.

1.7C BILATERAL AGREEMENT UNITS DISPATCH - TUESDAY 08/05/2018

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)		REMARK	
Egbin ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY					
OGBA	U-STEEL	ON	0100HRS	24	NIL
	PTCEXPRESS	7	0700HRS	16	THE FEEDER TRIPPED ON FAULT
	SANKYO	OUT	NIL	NIL	TRIPPED ON E/F, O/C, INST. E/F & INST. O/C
	FEEDER 8	13	0700HRS	24	NIL
IKORODU	PULK IT	3	1900HRS	24	NIL
	INDUSTRIAL	16	0600HRS	24	NIL
	SPINTEX	10	1300HRS	24	NIL
	DANGOTE	1	0100HRS	24	NIL
	LAND CRAFT	13	2100HRS	23	132kV OUTAGE
ALAUUSA	TR4 15MVA	6.7	0800HRS	24	NIL
	TR5 -15MVA	4.3	0700HRS	24	NIL
	ALAUUSA	14	1600HRS	24	NIL
MLAND	PTC (MARYLAND)	0.3	0100HRS	23	132kV OUTAGE
	LORDSMITH [PAPALANTO]	16	0700HRS	18	TRIPPED ON E/F
	TOTAL LOAD	104.3			

BILATERAL AGREEMENT LOAD DISPATCH 60MW PARAS ENERGY GENERATION TO CEB

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
Ikeja West/Sakete 330kV line	69.4	20:00	20	Out due to tripping of Ikorodu/Shagamu 132kV line.

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF TUESDAY 08/05/2018

COMPANY NAME	VOLTAGE LEVEL	EXPECTED CONTRACTUAL LOAD (MW)	MAX	TIME	HOURLY IN SERVICE	REMARK
INNER GALAXY	132kV line	25	52	20:00	24	NIL
KAM STEEL		15	4.5	19:00	24	Nil
OLAM FLOUR MILLS	33kV feeder	3	2.3	24:00	24	Nil
LORDSMITH		3	0.3	1:00	24	Nil

1.8 HYDROLOGICAL DATA: WEDNESDAY 09/05/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	133.83	99.99	366.45
TAIL WATER ELEVATION (METERS)	102.26	73.60	271.00
GROSS OPERATING HEAD (METERS)	31.57	26.39	95.45
AVERAGE TURBINE DISCHARGE (M3/SEC)	820.00	945.00	345.00
AVERAGE SPILLAGE (M3/SEC)	94.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	914	945	345
COMPUTED INFLOW (M3/SEC)	0.00	968.00	70.00
STORAGE DIFFERENTIAL	-914.00	23	-275
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	382.5
MINIMUM LEVEL BELOW WHICH NO GENERATION	130	99	355

1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT TUESDAY 08/05/2018

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	518.00	22:00	581.42	365.2	09:00
EKO	410.00	06:00	656.14	42.2	10:00
IKEJA	546.7	02:00	758.38	51.5	09:00

2.0 GAS POSITION: WEDNESDAY 09/05/2018

STATION	SIGNED ACQ Annual Contracted Quantity MMSCFD	INSTALLED CAPACITY OF THERMAL STATIONS (MW)	PREVIOUS DAY OFF-TAKE (MMSCFD)	CAPABILITY OF UNITS ON BAR OF THERMAL STATIONS (MW)	DIFFERENCE (MW)
EGBIN P/S	465	1100		484	606
DELTA (GAS)	405	915		455	460
OMOTOSHO GAS	102.1	336.8		152	184.8
OMOTOSHO NIPP	192.6	500		120	380
OLORUNSOGO (GAS)	140.4	336		162	184
OLORUNSOGO NIPP	161.1	750		240	510
SAPELE NIPP	80.5	500		225	275
SAPELE STEAM	47	720		47	673
AFAM I/V	53	300		53	247
AFAM VI	110	650		300	350
GEREGU GAS	125	435		145	290
GEREGU NIPP	90	435		145	290
OKPANI (GAS/STEAM)	167	480		300	180
ALACUJI NIPP	0	504		0	504
IHOVBOR NIPP	90.6	450		112.5	337.5
IBOM	92.2	198		115	83
ODUKPANI NIPP	0	625		0	625
TOTAL	2321.5	9234.80		3055.5	6179.3

1 MMSCF IS EQUIVALENT TO 3.78MW

3.0 SPINNING RESERVE FOR : TUESDAY 08/05/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF WEDNESDAY 09/05/2018 0MW. FREQUENCY 50.45Hz.

S/N	POWER STATION	UNIT ON SPINNING RESERVE	CONTRACTED RESERVE	ACTUAL RESERVE (MW)	TOTAL (MW)
1	Egbin	ST2	100	0	0
		ST4		0	
		ST5		0	
		ST6		0	
2	Delta	GT16	40	0	0
		GT17	40	0	
3	Olorunsogo NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
4	Geragu 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 Wednesday 09/05/2018 as at 0600Hrs was = 3433.4MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Omotosho NIPP GT1 & 4	240	0	240	1986.4
2	Alacuji NIPP GT1, 2 & 4	360	0	360	
3	Geragu NIPP GT21 - 23	435	80	355	
4	Olorunsogo NIPP GT2	120	0	120	
5	Geragu Gas GT11 & 13	290	0	290	
6	Odokpani NIPP GT4 & 5	230	0	230	
7	Alam VI GT13 & ST10	340	0	340	
8	Sapele NIPP GT3	112.5	61.1	51.4	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1647.81MMSCF OF GAS (EQUIVALENT TO 6179.3MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Trans-Amadi GT1 & 2	40	0	40	100
2	Omoku GT2, 5 & 6	60	0	60	
				0	
				0	
				0	
4.3 DUE TO FREQUENCY MANAGEMENT OCCASIONED BY DISCOS' LOAD DEMAND					
1	Azura GT11	150	0	150	1347
2	Jebba 2G2	95	0	95	
3	Olorunsogo Gas GT3, 7 & 8	152	0	152	
4	Delta GT16 & 19	180	0	180	
5	Egbin ST1	135	0	135	
6	Shiroro 411G2 & 3	300	50	250	
7	Okpai GT12 & ST18	225	57	168	
8	Omotosho Gas GT2, 4 & 7	152	0	152	
9	Rivers IPP GT1	160	95	65	
				0	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
				0	0
Grand Total					3433.4

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 02:46Hrs, Omoku P/S GTs 1, 2 & 5 tripped on reverse power due to tripping of 132kV line at Rumuosi T/S. LHR = 53.5MW. 06:15Hrs, GT1 was tied. 06:16Hrs, GT2 was tied. 06:17Hrs, GT5 was tied.
- 03:31 – 05:16Hrs, Sapele NIPP GT3 tripped on high tunnel temperature. LHR = 56.2MW.
- 04:52 through 24:00Hrs, Ihovbor NIPP GT2 tripped on bleed inlet valve position. LHR = 90MW.
- 06:08 - 20:40Hrs, Afam IV GT18 tripped on low oil lube pressure. LHR = 43MW.
- 07:43 - 14:55Hrs, Sapele NIPP GT3 tripped on high tunnel temperature. LHR = 65.9MW.
- 08:26Hrs, Paras Energy GTs 2- 9 tripped on reverse power due to Ikorodu/Shagamu 132kV line. Total LHR = 66.2MW
12:29Hrs - GT2 was tied, 12:32Hrs - GT3, 12:35Hrs - GT4 was tied, 12:37Hrs - GT5 was tied, 12:40Hrs - GT6 was tied. 12:43Hrs - GT7 was tied, 12:45Hrs - GT8 was tied and 12:47Hrs - GT9 was tied.
- 23:06 through 24:00Hrs, Omoku GTs 1, 2 & 5 tripped on loss of potential from Port Harcourt T/S. LHR = 55.1MW.

5(B) FORCED OUTAGES (TRANSMISSION):-

- 02:46 - 06:10Hrs, Rumuosi T/S 132kV line tripped without relay indication. LHR = 48MW.
- 02:46 - 03:00Hrs, New Haven/Yandev 132kV line CB tripped at New Haven T/S on distance protection, O/C JR, back up relay – instantaneous O/C Red phase. LHR = 0.1MW.
- 03:01 - 03:22Hrs, Onitsha/Oji River 132kV line CB tripped at Onitsha T/S on distance protection relay & O/C Red Phase. LHR = 9.1MW.
- 04:03 – 04:35Hrs, Owerri/Ahoada 132kV line 1 CB tripped at Owerri T/S on DEF. LHR = 12MW.
- 05:14 - 08:41Hrs, Ajaokuta/Okenne 132kV line CB tripped at Ajaokuta T/S on distance protection A – N relay. LHR = 6MW.
- 05:14 - 08:50Hrs, Okenne T/S 30MVA 132/33kV transformer T1 primary & secondary CBs tripped on distance protection relay. LHR = 1.0MW.
- 05:47 – 06:21Hrs, Owerri/Ahoada 132kV line 2 CB tripped at Ahoada T/S on DEF. LHR = 0.1MW.
- 08:26 – 09:23Hrs, Ikorodu/Shagamu 132kV line CB tripped at Ikorodu T/S on O/C AB relay, distance = 21.1km. LHR = 26MW.
- 08:44 – 09:09Hrs, Birnin-Kebbi T/S 150MVA 330/132kV transformer 19T3 primary & secondary CBs tripped on over voltage due to tripping of Birnin-Kebbi/Niamey 132kV line. LHR = 111MW
- 08:44 - 09:06Hrs, Birnin-Kebbi/Niamey 132kV line CB tripped at Birnin-Kebbi T/S on distance protection 3 phases zone 1. LHR = 99MW
- 10:32 through 24:00Hrs, Ikeja-West T/S 100MVA 132/33kV transformer T2 primary & secondary CBs tripped on instantaneous O/C, V/AJ relay flagged. LHR = 3.2MW
- 11:35 – 12:13Hrs, Daura T/S 40MVA 132/33kV transformer T2 primary & secondary CBs tripped on E/F and inter –trip relay. LHR = 5.8MW.
- 12:30 – 12:47Hrs, Delta/Benin 330kV line (cct G3B) CBs tripped at both ends on the following relay indication:
At Delta T/S: Siprotec Relay: Distance protection trip flagged on O/C Red phase, zone 1 trip, E/F relay, distance pick up LIE, PU time = 69ms, trip time = 10ms, distance = 60km
At Benin T/S: ABB Relay: TRIP-TRIP, TRIP-TRL1, PHS-STFW (L1, PE) ZM1-trip, EFC-Cs, auto reclosure in progress, DEF block, ZM2,3-start, ZCIP-CSL1, TOC-STL1, fault loop = L1-N, distance = 58.2km,
Auxiliary Relay: MVAJ K86A, lock out trip. No load loss as ccts S4G, S4B & S3B were in service.

5 (C) PLANNED OUTAGES:-

- 10:05 – 15:06Hrs, Mando/Gusau 132kV line was taken out to enable maintenance crew continue with the installation of new 60/66MVA 132/33kV transformer T1C. LHR = 13.2MW.
- 10:47 – 15:18Hrs, Mando T/S 60MVA 132/33kV transformer T4 primary and secondary CBs were taken out to replace damaged Red & Blue Phases lightning arresters seats. LHR = 22.4MW.
- 10:57 -14:42 Hrs, Jebba/Osogbo 330kV line 2 (cct J2H) was taken out at Osogbo T/S for annual preventive maintenance. No load loss as the line was on soak.
- 11:44 – 12:58Hrs, Egbin T/S 330kV CB#152-3 was taken out for annual preventive maintenance on the CB and its associated equipment. No load loss as CB#152-2 was in service.

5(D) URGENT OUTAGES:

- 09:30 – 12:13Hrs, Savannah T/S 15MVA 132/33kV transformer T1 was taken out to seal point of oil leakage on 300KVA ET1. LHR = 3.1MW.
- 09:56 through 24:00Hrs, Omotosho gas generation transformer MT2 was taken out to allow maintenance crew inspect the auxiliaries and clean the 10.5kV bus bar of GT3 & GT4. Load loss = 15MW
- 14:18 - 15:42Hrs, Kukwaba T/S 60MVA 132/33kV transformer TR2 was taken out to seal point of oil leakage on the transformer. Load loss = 4.5MW

5 (E) EMERGENCY OUTAGES:-, NIL

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

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A2K, U2A & A1S.

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

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

5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- ccts K3U & S5B.

5 (K) 330KV LINES THAT ARE ON SOAK:- ccts N4J, J2H & F1K.

6 WEATHER REPORT:- Rainfall reported at Lokoja, Ajaokuta, Ahoda, Osogbo, Ayede, Makurdi, Ajah, Ikeja-West, Akangba & Egbin.

7 INTERNATIONAL LINES:-

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

Maximum load - 276MW at 21:00Hrs.
Minimum load - 208MW at 08:00Hrs.

B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 103MW at 16:00Hrs.
Minimum load - 39MW at 10:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 42.5MW at 22:00Hrs.
Minimum load - 28.7MW at 07:00Hrs.

8 MISCELLANEOUS:-

- 00:39 - 17:21Hrs, Azura-Edo GT11 was shut down on frequency management. Load loss = 131MW.
- 03:06 -16:23Hrs, Delta GT19 was shut down on frequency management. Load loss = 71MW.

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 CONTACTED 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).

- 3 06:35 - 17:46Hrs, Jebba 2G3 was shut down on frequency management. Load loss = 79MW.
- 4 07:07Hrs, Shiroro T/S placed Hold Off Tag (OF 12) on cct J7R for continuation of optic fibre work.
- 5 07:17Hrs, Ihoovor GT3 was tied. The unit was out on maintenance.
- 6 08:43 through 24:00Hrs, Olorunsogo NIPP GT2 was shut down on frequency management. Load loss = 115MW.
- 7 08:37 - 20:18Hrs, Olorunsogo gas GT5 was shut down on frequency management. Load loss = 29.3MW.
- 8 08:45 - 17:19Hrs, Shiroro P/S 411G2 was shut down on frequency management. Load loss = 52MW.
- 9 08:53 through 24:00 Hrs, Omotosho NIPP GT4 was shut down on frequency management. Load loss = 86.1MW.
- 10 08:56 - 20:18Hrs, Olorunsogo gas GT5 was shut down on frequency management. Load loss = 29.3MW.
- 11 09:06 - 20:13Hrs, Omotosho gas GT3 was shut down on frequency management. Load loss = 15.1MW.
- 12 09:08 - 13:51Hrs, Azura-Edo GT13 was shut down on frequency management. Load loss = 70MW.
- 13 09:22Hrs of 02/05/2018 – 18:35Hrs of 08/05/2018, Mcherson T/S 40MVA 132/33kV transformer T1 primary & secondary CBs tripped.
On primary CB: Differential relay Red Phase, general trip and restricted E/F.
On secondary CB: Tripped without relay indication. LHR = 0.1MW.
- 14 10:08Hrs, Ikeja-West 330kV 75MX Reactor R2 was switched into service on voltage control. V/P = 342/340kV.
- 15 10:19Hrs, Ikeja-West 330kV 75MX Reactor R1 was switched into service on voltage control. V/P = 341/339kV.
- 16 12:23Hrs, Ganmo T/S 60MVA 132/33kv transformer T1A was restored. The transformer tripped at 21:11Hrs of 07/05/2018.
- 17 12:43Hrs of 06/05/2018 – 15:12Hrs of 08/05/2018, Calabar T/S 60MVA 132/33kV transformer T1 tripped on SBEF. LHR = 3.7MW.
- 18 14:43Hrs, Benin/Egbin 330kV line (cct B6N) was restored. The line was out on fault.
- 19 16:04Hrs, Delta P/S GT16 was tied. The unit was out on frequency management.
- 20 17:39Hrs, Ikeja West T/S 330kV 75MX shunt Reactors R1 & R2 were switched off on voltage control. V/P = 321/326kV.
- 21 19:07Hrs, Jebba 2G2 was tied. The unit was out on frequency management.
- 22 19:37Hrs, Shiroro 411G3 was tied. The unit was out on frequency management.
- 23 19:48Hrs, Olorunsogo NIPP GT1 was tied. The unit was out on frequency management.
- 24 20:00Hrs, Dakata T/S 60MVA 132/33kv transformer T2 was restored. The transformer was taken out at 19:47Hrs of 07/05/2018.
- 25 23:04 through 24:00Hrs, Jebba 2G2 was shut down on frequency management. Load loss = 78MW.
- 26 23:12 through 24:00Hrs, Delta GT19 was shut down on frequency management. Load loss = 93MW.

***** 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.

11 (A) COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	33
OPTIC FIBRE	13	10
PLS	14	0

11 (B) SCADA RTU STATUS

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	NO OF RTU WORKING
POWER STATIONS	8	6	2
330kV	19	8	11
132kV	102	79	23

12(D) LAGOS REGION

- 1 Agbara/Ojo 132kV line 1 on soak from Agbara end.

12(E) UNAVAILABLE CAPACITOR BANK:

- (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(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-Ekperne 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 Egbir/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.

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbir/Ikeja West line 3 (N6W) - 21 spans.
- 2 Ikeja West/Olorunsogo line (cct R1W) - 80 spans.
- 3 330kV Ikeja West/Osobgo 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/Iire 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 (G) UNAVAILABLE SYNCHROSCOPES :

- 1 Benin, Ikeja West, Onitsha, Egbir, Ugwuaji, Osogbo, Kaduna, 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

