

TRANSMISSION COMPANY OF NIGERIA

To: MD (S/O, M/O), TCN - Abuja

From: Director (NCC), Osogbo

DAILY OPERATIONAL REPORT SATURDAY 18/03/2017

FOR: EVENTS OF FRIDAY 17/03/2017

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	17,720	23:00	17/03/2017
GENERATION CAPABILITY	6917.3	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4165.6	-do-	-do-
PEAK GENERATION	4077.3	-do-	-do-
LOWEST GENERATION	3711.7	13:00	17/03/2017
8-HOURLY DURATION PEAK	4050.8	0000-0800	-do-
	3941.9	0900-1600	-do-
	4077.3	1700-2400	-do-
PEAK GENERATION TO DATE	5074.7	21:30	02/02/2016
MAXIMUM AVAILABLE CAPACITY TO DATE	7492.6	06:00	14/04/2014
MAXIMUM PEAK GENERATION CAPABILITY TO DATE	7099	07:00	13/04/2014
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	351	Omotosho T/S	15:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe T/S	01:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	51.53	15:00
LOWEST FREQUENCY	48.59	21:37

1.4 SYSTEM COLLAPSE UP DATE

Year	No. of days since last total collapse: 23												Total	
	Jan	Feb.	Mar.	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec		
2009	Total	1	--	--	--	2	5	5	4	1	--	--	1	19
	Partial	--	5	4	3	3	--	--	1	--	2	1	1	20
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	1	16
	Partial	--	--	2	3	--	--	--	--	1	--	1	1	8
2013	Total	--	1	2	2	3	4	1	1	1	4	2	2	22
	Partial	--	--	--	--	--	--	--	--	--	--	--	--	2
2014	Total	2	--	--	2	--	3	1	--	2	1	--	--	9
	Partial	--	--	--	--	1	1	1	--	--	2	1	4	4
2015	Total	1	--	1	--	2	--	1	--	1	--	--	--	6
	Partial	--	--	1	--	2	--	--	1	--	--	--	--	4
2016	Total	--	--	2	3	6	5	--	1	1	2	2	--	22
	Partial	--	--	1	--	1	3	1	--	--	--	--	--	6
2017	Total	5	3	--	--	--	--	--	--	--	--	--	--	8
	Partial	1	--	1	--	--	--	--	--	--	--	--	--	2

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN(MW)
1 KAINJI	HYDRO	402	406
2 JEBBA	HYDRO	367	372
3 SHIRORO	HYDRO	300	300
4 EGBIN ST2 - 5	STEAM	194	195
5 SAPELE	STEAM	0	0
6 DELTA	GAS	305	300
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	286	0
9 OMOTOSHO GAS	GAS	182.4	182.3
10 OLORUNSOGO GAS	GAS	140.2	132.7
11 GEREGU NIPP	GAS	147	12
12 SAPELE NIPP	GAS	0	182
13 ALAOJI NIPP	GAS	115.2	110.6
14 OLORUNSOGO NIPP	GAS	0	0
15 OMOTOSHO NIPP	GAS	221.1	188.1
16 ODUKPANI NIPP	GAS	223.8	217.9
17 IHOVBOR NIPP	GAS	109.4	104.5
18 OKPAI	GAS	433	342
19 AFAM VI	GAS	110	141
20 IBOM POWER	GAS	110	102
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	57	55.1
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 EGBIN ST6	STEAM	195	200
27 PARAS ENERGY	GAS	65.8	63
28 GBARAIN NIPP	GAS	113.4	105.5
TOTAL		4077.3	3711.7

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	9,376.00	390.67	9,356.90	389.87
2 JEBBA	HYDRO	8,415.00	350.63	8,401.64	350.07
3 SHIRORO	HYDRO	6,476.00	269.83	6,447.59	268.65
4 EGBIN ST2 - 5	STEAM	4,484.00	186.83	4,144.50	172.69
5 SAPELE	STEAM	-	0.00	-	0.00
6 DELTA	GAS	6,752.44	281.35	6,569.80	273.74
7 AFAM IV-V	GAS	-	0.00	-	0.00
8 GEREGU GAS	GAS	5,238.60	218.28	5,212.05	217.17
9 OMOTOSHO GAS	GAS	4,149.00	172.88	4,114.60	171.44
10 OLORUNSOGO GAS	GAS	3,259.13	135.80	3,230.53	134.61
11 GEREGU NIPP	GAS	2,640.62	110.03	2,626.88	109.45
12 SAPELE NIPP	GAS	4,051.34	168.81	4,031.43	167.98
13 ALAOJI NIPP	GAS	2,689.31	112.05	2,667.66	111.15
14 OLORUNSOGO NIPP	GAS	-	0.00	-	0.00
15 OMOTOSHO NIPP	GAS	4,793.90	199.75	4,769.00	198.71
16 ODUKPANI NIPP	GAS	4,906.80	204.45	4,873.40	203.06
17 IHOVBOR NIPP	GAS	2,540.00	105.83	2,519.83	104.99
18 OKPAI	GAS	7,491.00	312.13	7,322.30	305.10
19 AFAM VI	GAS	3,203.98	133.50	3,107.37	129.47
20 IBOM	GAS	2,162.14	90.09	2,152.00	89.67
21 ASCO	GAS	-	0.00	-	0.00
22 A.E.S	GAS	-	0.00	-	0.00
23 OMOKU	GAS	1,366.20	56.93	1,337.33	55.72
24 TRANS AMADI	GAS	-	0.00	-	0.00
25 RIVERS IPP	GAS	-	0.00	-	0.00
26 EGBIN ST6	STEAM	4,633.00	193.04	4,426.30	184.43
27 PARAS ENERGY	GAS	1,580.20	65.84	1,576.00	65.67
28 GBARAIN NIPP	GAS	2,633.00	109.71	2,611.40	108.81
TOTAL		92,841.66	3,868.40	91,498.51	3,812.44

GENERATION POSITION AT 06:00HRS OF SATURDAY 18/03/2017

	STATIONS	AVAILABLE UNITS	INSTALLED GENERATION CAPACITY (MW)	GENERATION CAPABILITY(MW)	UNITS ON BAR (MW)	CAPABILITY OF UNITS ON BAR (MW)	GENERATION AT 06:00HRS(MW)	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	1G5, 6, 11 & 12 4	440	440	1G5, 6, 11 & 12 4	405	405	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.
	JEBBA HYDRO	2G1, 3 - 5 4	385.6	380	2G1, 3 - 5 4	370	370	2G2 - Out on maintenance. 2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	411G2 & 3 2	300	300	411G2 & 3 2	300	300	411G1 & 4 - Out on maintenance.
	EGBIN STEAM	ST2, 3 & 5 3	660	660	ST2 1	202	202	ST1 - Tripped on generator CB trouble. ST2 - Not on spinning reserve due to Egbin G/S management decision and its generation limited to 202MW due to gas constraints. ST4 - Out of production since 17/11/2016. ST3 & 5 - Shut down due to gas constraints.
	SAPELE (STEAM)	0 0	0	0	0 0	0	0	ST1 - Shut down due to shortage of clean water. ST2 - Tripped on vacuum switch problem. ST3 - Undergoing rehabilitation. ST4 & 5 - Awaiting major overhaul. ST6 - Tripped on gas control valve not following reference point.
	DELTA (GAS)	GT4, 6 - 13, 16 & 19 11	425	380	GT7- 10, 12, 13, 18 & 19 8	305	305	GT3 & 5 - Out due to generator winding fault. GT4, 6 & 11 - Out due to gas constraints. GT14 - Out on major overhaul. GT17 - Out on excitation trouble. GT15 - Out for maintenance of combustion nozzle. GT18 & 19 - Not on spinning reserve due to Delta G/S management decision. GT18 - Tripped on inlet guide vane trouble. GT20 - Out on major inspection.
	AFAM IV & V (GAS)	0 0	0	0	0 0	0	0	GT1 - 12 - De-commissioned and scrapped. GT13 - 16 - Out on blade failure. GT17 & 18 - Out due to burnt generator transformer. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	GT12 & 13 2	295	295	GT12 & 13 2	295	295	GT11 - Out on synchrocheck relay fault at 330kV switchyard. GT12 & 13 - On frequency response.
	OMOTOSHO GAS	GT1 - 8 8	336	304	GT2-4 & 6 - 8 6	228	188.6	GT1 - Out due to burnt isolator arm. GT2 - 4 & 6 - 8 - On frequency response. GT5 - Out due to gas constraints.
	OLORUNSOGO GAS	GT1 - 5, 7 & 8 7	294	266	GT1, 2, 4 & 5 4	152	147.8	GT1, 2, 4 & 5 - On frequency response. GT3 - Shut down due to high frequency. GT6 - Out on vibration trouble. GT7 & 8 - Out due to gas constraints.
NIPP	GEREGU NIPP	GT21 - 23 3	435	435	GT22 1	151	151	GT21 & 23 - Out due to gas constraints. GT22 - On frequency response.
	SAPELE NIPP	0 0	0	0	0 0	0	0	GT1 - Out on undisclosed fault. GT2 & 4 - Tripped on 52L & 52G trip. GT3 - Out on bearing lift pump trouble.
	ALAOJI NIPP GAS	GT1, 2 & 4 3	375	360	GT4 1	115.1	115.1	GT1 & 2 - Out due to gas constraints. GT3 - Shut down due to generator air inlet filter trouble.
	OLORUNSOGO NIPP GAS	GT1 - 3 3	375	360	0 0	0	0	GT1-3 - Out due to gas constraints. GT4 & ST2 - Out of production since 25/10/2016.
	OMOTOSHO NIPP GAS	GT1, 2 & 4 3	375	360	GT2 & 4 2	240	191.3	GT1 - Out due to gas constraints. GT2 & 4 - On spinning reserve. GT3 - Out of production since 28/11/2016.
	ODUKPANI NIPP	GT1 - 3 3	375	360	GT2 & 3 2	226.7	226.7	GT1 - Out due to gas constraints. GT4- Out on unit transformer problem. GT5 - Tripped on loss of excitation
	IHOVBOR NIPP	GT1 1	112.5	112.5	GT1 1	98.5	98.5	GT2 & 3 - Out on fault. GT4 - On maintenance.
IPP	OKPAI GAS/STEAM	GT11,12 & ST18 3	470	470	GT11, 12 & ST18 3	437	437	Available units on bar.
	AFAM VI GAS/STEAM	GT11 - 13 & ST10 4	650	650	GT13 1	110	110	GT11,12 & ST10 - Out due to gas constraints.
	IBOM POWER GAS	GT3 1	115.3	115.3	GT3 1	106.6	106.6	Available unit on bar.
	AES	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
	ASCO	0 0	0	0	0 0	0	0	GT1 - Shut down due to leakage in the furnace.
	OMOKU GAS	GT2, 3 & 5 3	75	60	GT2, 3 & 5 3	55.3	55.3	GT1 - Out on maintenance. GT4 - Out for overhaul. GT6 - Tripped on loss of flame.
	TRANS-AMADI	0 0	0	0	0 0	0	0	Out of production since 20/11/2016.
	RIVERS	0 0	0	0	0 0	0	0	Out of production since 16/09/2016.
	GBARAIN NIPP GAS	GT2 1	112.5	112.5	GT2 1	113.4	113.4	Available unit on bar.
	SUB TOTAL	69	6605.9	6420.3	47	3910.6	3818.3	Frequency = 50.93Hz.

1.7B **GENERATION POSITION AT 06:00HRS OF SATURDAY 18/03/2017 FOR UNITS ON BILATERAL AGREEMENT**

GENERATOR	ST6	MW	MVA	ST6	MW	MVA	REMARKS
	1			1			
EGBIN	1	220	220	1	200	200	Available unit on bar.
PARAS ENERGY	GT2 - 9	72	72	GT3 - 9	65.8	65.8	GT2 - On standby.
	8			7			
SUB TOTAL	9	292	292	8	265.8	265.8	
GRAND TOTAL	78	6897.9	6712.3	55	4,176.40	4,084.10	Frequency = 50.93Hz.

1.7C **BILATERAL AGREEMENT UNITS DISPATCH - FRIDAY 17/03/2017**

FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	REMARK	
					120MW EGBIN ST6 GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY
U-STEEL	on	1:00	24	NIL	
PTCEXPRESS	9	8:00	24	NIL	
SANKYO	out	out	out	cable fault	
FEEDER 8	10	8:00	24	NIL	
IKORODU	PULK IT	4	6:00	24	NIL
	INDUSTRIAL	15	11:00	24	NIL
	SPINTEX	6	13:00	24	NIL
	DANGOTE	7	12:00	24	NIL
	LAND CRAFT	26	1:00	24	NIL
ALAUUSA	TR4 15MVA	5.5	8:00	18	Maintenance on T1-45MVA
	TR5 -15MVA	3.8	8:00	18	Maintenance on T1-45MVA
	ALAUUSA	14.7	12:00	24	NIL
MLAND	PTC (MARYLAND)	18	9:00	24	NIL
TOTAL LOAD	119				

**BILATERAL AGREEMENT LOAD DISPATCH
60MW PARAS ENERGY GENERATION TO CEB**

FEEDER	MAX	TIME	HOURS IN SERVICE	REMARK
SAKATE/IKEJA WEST 330KV LINE	68.5	01:00	24	NIL

1.8 HYDROLOGICAL DATA: SATURDAY 18/03/2017

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	140.34	102.07	365.31
TAIL WATER ELEVATION (METERS)	104.26	74.20	270.50
GROSS OPERATING HEAD (METERS)	36.08	27.87	94.81
AVERAGE TURBINE DISCHARGE (M3/SEC)	1219	1391	317
AVERAGE SPILLAGE (M3/SEC)	33	0	0
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1252	1391	317
COMPUTED INFLOW (M3/SEC)	442	1217	16
STORAGE DIFFERENTIAL	-810	-174	-301
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 FRIDAY 17/03/2017

DISCO	MAXIMUM LOAD(MW)	TIME(HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD(MW)	TIME(HRS)
ABUJA	435	21:00	368.86	241.8	03:00
EKO	419.6	16:00	300.47	354.5	24:00
IKEJA	515.6	01:00	533.83	404	18:00

2.0 GAS POSITION: SATURDAY 18/03/2017

STATION	SIGNED ACQ Annual Contracted Quantity MMSCF/D	NGC DECLARED QUANTITY (MMS317.578CF/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	160		1100		405	695
DELTA (GAS)	305		765		305	460
OMOTOSHO GAS	228		336.8		228	108.8
OMOTOSHO NIPP	240		500		240	260
OLORUNSOGO (GAS)	152		336		152	184
OLORUNSOGO NIPP	0		750		0	750
SAPELE NIPP	209		500		0	500
SAPELE STEAM	0		720		0	720
AFAM IV-V	0		300		0	300
AFAM VI	147		650		110	540
GEREGU GAS	296		435		295	140
GEREGU NIPP	151		435		151	284
OKPAI (GAS/STEAM)	432		480		437	43
ALAOJI NIPP	115.3		504		115.1	388.9
IHOVBOR NIPP	102.6		450		98.5	351.5
IBOM	80.3		198		106.6	91.4
ODUKPANI NIPP	116.4		625		226.7	398.3
TOTAL	2654.3		9084.8		2869.9	6214.9

1 MMSCF IS EQUIVALENT TO 3.75MW

2.1 SYSTEM BLACK START CAPABILITY

- 1 Delta, Shiroro & Egbin - Available.

3.0 SYSTEM SPINNING RESERVE AS AT 0600HRS OF SATURDAY 18/03/2017 = 40MW. FREQUENCY 50.93Hz.

S/N	POWER STATION	UNIT ON SPINNING RESERVE	RESERVE CAPABILITY	ACTUAL RESERVE (MW)	TOTAL (MW)
1	Egbin	ST2	100	0	0
		ST4		0	
		ST5		0	
		ST6		0	
3	Delta	GT16	40	0	0
		GT17	40	0	
4	Olorunsogo NIPP	GT1	40	0	0
		GT2		0	
		GT3		0	
		GT4		0	
5	Geregu NIPP	GT22	35	0	0
6	Omotosho NIPP	GT1	40	0	40
		GT2		20	
		GT4		20	
TOTAL (MW)			295	40	40

4.0 UNUTILIZED GENERATION CAPABILITY

The unutilized generation capability for Saturday 18/03/2017 as at 0600Hrs was = 2265MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNUTILIZED GENERATION CAPABILITY (MW)	SUB -TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
				0	2227
1	Geregu NIPP GT21 & 23	290	0	290	
2	Olorunsogo NIPP GT1 - 3	360	0	360	
3	Omotosho NIPP GT1	120	0	120	
4	Egbin ST2, 3 & 5	660	202	458	
5	Delta GT4, 6 -13,16 & 19	380	305	75	
6	Olorunsogo Gas GT7 & 8	76	0	76	
7	Omotosho Gas GT5	38	0	38	
8	Alaoji NIPP GT1 & 2	240	0	240	
9	Odukpani NIPP GT1	120	0	120	
10	Afam VI GTs 11, 12 & ST10	450	0	450	
				0	
4.2 DUE TO LINE CONSTRAINTS					
				0	0
				0	
				0	
				0	
4.3 DUE TO HIGH FREQUENCY OCCASIONED BY LOSS OF DISCOS' FEEDERS					
1	Olorunsogo Gas GT3	38	0	38	38
				0	
				0	
				0	
				0	
				0	
4.4 DUE TO WATER MANAGEMENT					
				0	0
				0	
Total					2265

IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1657.31MMSCF OF GAS (EQUIVALENT TO 6214.9MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 1 06:44 – 07:14Hrs, Okpai ST18 tripped on temperature differential. LHR = 34MW.
- 2 10:00 – 10:45Hrs, Odukpai NIPP GT2 deloaded itself and went on full speed no load due to high exhaust tunnel temperature. LHR = 106MW.
- 3 10:46 through 24:00Hrs, Delta GT16 tripped on high lube oil header temperature. LHR = 100MW.
- 4 12:48 – 12:51Hrs, Geregu NIPP GT22 went on house load due to high frequency of 51.53Hz. LHR = 97MW.
- 5 12:49Hrs, Geregu Gas GTs 12 & 13 went on house load due to high frequency of 51.53Hz. LHR = 65MW and 80MW respectively. At 14:29Hrs GT13 was tied. 14:39Hrs, GT12 was tied.
- 6 18:33 through 24:00Hrs, Sapele NIPP GTs 2 & 4 tripped on 52G & 52L trip. LHR = 1114.7MW & 108.7MW respectively. NGC reported tripping of their transformer which led to loss of gas supply to Sapele NIPP.

5 (B) FORCED OUTAGES TRANSMISSION

- 1 08:01 - 08:40Hrs, Kaduna/Zaria 132kV line CB tripped at Mando T/S on Optimho relay; zone 2, A -N, back up trip relay 86TE flagged. LHR = 95MW. Simultaneously, Zaria T/S 60MVA 132/33kV transformer T3 primary breaker flagged on Phase C O/C pick up but did not trip while the secondary breaker flagged on Phases A & B O/C pickup but did not also trip.
- 2 12:49 - 13:04Hrs, Kumbotso/Dan-Agundi 132kV line breaker tripped at Kumbotso T/S on distance protection relay on R, S & T Phases, FCT = 0.2sec. LHR = 100MW.
- 3 14:06 – 14:31Hrs, Ikeja West/Alimosho 132kV line 1 CB tripped at Ikeja West T/S on back up O/C & E/F relay. LHR = 34MW.
- 4 14:32 - 16:26Hrs, Isolo T/S 60MVA 132/33kV transformer T1 secondary breaker tripped on O/C Yellow and Blue Phases. LHR = 5.5MW.
- 5 14:44 - 15:11Hrs, Delta/Benin 132kV line 2 CB tripped at both ends:
At Delta T/S: distance protection O/C Red & Yellow phase.
At Benin T/S: O/C Red & Yellow Phase, FCT = 332ms, fault location = 31.8km. LHR = 29.6MW.
- 6 15:26 - 15:42Hrs, Onitsha T/S 90MVA 330/132/13.8kV transformer secondary CB tripped on O/C. LHR = 17.2MW.
- 7 18:16 - 18:40Hrs, Kaduna/Zaria 132kV line CB tripped at Mando T/S on Optimho relay - zone 2, ABC, backup trip relay, 86TE flagged. LHR = 100MW.
- 8 18:31 - 18:52Hrs, Sapele/Delta 330kV line (cct S4G) CB tripped only at Sapele T/S on SEL relay - O/C Blue Phase, to ground, zone 2, distance = 3.21km. No oad interruption as 330kV ccts G3B, S3B, S4B & S5B were in service.

5 (E) EMERGENCY OUTAGES:-

The under mentioned lines were opened on frequency control:-

- 1 15:38 - 15:56Hrs, 19:54 - 21:28Hrs, Akangba/Ojo 132kV line 2. LHR = 36MW & 39MW respectively. Frequency was 49.16Hz & 49.28Hz respectively
- 2 18:31 - 18:33Hrs, 20:29 - 20:34Hrs, 21:06 - 21:08Hrs & 21:22 - 21:25Hrs, Osogbo/Akure/Ado 132kV line CB. LHR = 38MW, 40MW, 42MW & 31MW respectively. Frequency was 48.76Hz, 48.62Hz, 48.72Hz & 48.68Hz respectively.
- 3 18:42 - 19:21Hrs & 22:34 - 23:43Hrs, Akangba/Isolo 132kV line 2. LHR = 39MW & 24MW respectively. Frequency was 49.18Hz & 48.84Hz respectively.
- 4 19:54 - 21:28Hrs, Akangba/tire 132kV line 1 CB. LHR = 39MW. Frequency was 49.28Hz.
- 5 20:29 - 20:32Hrs & 21:20 - 21:32Hrs, Shagamu T/S 30MVA transformer T1 132/33kV secondary breaker. LHR = 16MW & 11MW respectively. Frequency was 48.78Hz & 48.88Hz respectively.
- 6 21:36 - 23:33Hrs & 21:36 - 23:34Hrs, Akangba/Ijora 132kV lines 1 & 2 CB. LHR = 67MW & 27MW respectively. Frequency was 48.59Hz & 49.18Hz respectively.
- 7 21:37 - 21:38Hrs, Osogbo/Ilesha/Ife 132kV line CB. LHR = 67MW. Frequency was 48.59Hz.
- 8 19:33 - 19:37Hrs, 20:29 - 20:34Hrs, 21:04 - 21:16Hrs & 21:20 - 21:32Hrs, Ayede/Shagamu 30MVA 132/33kV transformer T2 tripped. LHR = 20MW, 12MW, 12MW & 16MW respectively.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:

- 1 05:41 – 05:49Hrs & 22:34 - 22:38Hrs, Shagamu/Ijebu ode 132kV line CB. LHR = 10MW & 18MW respectively
- 2 14:20 - 14:38Hrs, 21:38 - 21:45Hrs & 22:34 - 22:44Hrs, Akangba T/S 60MVA transformer 10T1A secondary breaker. LHR = 13MW & 3MW respectively.
- 3 14:32 - 16:26Hrs, Isolo T/S 60MVA transformer T1 132/33kV secondary breaker. LHR = 5.5MW

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts, U2A, A2K, K4U & J2L.

5 (H) 330KV LINES THAT ARE OUT ON FAULT:- ccts L7G & A1S.

4 (I) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- ccts K1J & N4J.

5 (J) 330KV LINES THAT ARE OUT ON PLANNED OUTAGE:- NIL.

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

- 1 08:41 - 14:54Hrs, Asaba T/S 132kV bus bar 1 was taken out for mounting of insulators in readiness for the re- commissioning of the 150MVA 330/132/33kV transformer. LHR = 24.9MW.
- 2 12:35 - 16:22Hrs, Amuwo T/S 30MVA 132/33kV transformer T3 was taken out for annaul preventive maintenance on the transformer . LHR = 5MW.

5(D) **URGENT OUTAGES:-**

- 1 07:30 - 19:25Hrs, Adaibor/Itu 132kV line was taken out for LMD crew to change Blue Phase conductor between towers #18 & 27. No load loss as the line was on soak.

6 **GENERATOR MERIT ORDER BASED ON SYSTEM RESPONSE AND GRID RELIABILITY**

- 6 GROUP 1 - HYDRO IN HIGH FLOOD PERIOD SEASON, KAINJI, JEBBA AND SHIRORO.

GROUP 2 - ALL UNITS OFFERING REGULATING RESERVE.

GROUP 3 - ALL UNITS OFFERING SPINNING RESERVE.

GROUP 4 - ALL UNITS OFFERING FREE GOVERNOR FREQUENCY RESPONSE.

GROUP 5 - ALL UNITS OFFERING VOLTAGE SUPPORT OUTSIDE NORMAL LEVEL.

GROUP 6 - ALL UNITS USED TO AVOID OVERLOADING TRANSMISSION LIMITS.

GROUP 7 - ALL UNITS IN LOCATION TO DIMINISH LOSSES

8 (A) **COMMUNICATION MEDIA**

STATIONS	NO. INSTALLED	NO. WORKING
PLC/PAX	37	34
OPTIC FIBRE	13	11
PLS	14	7

8 (B) **SCADA RTU STATUS**

STATIONS	TOTAL NO OF STATIONS	NO OF RTU INSTALLED	NO OF RTU WORKING
POWER STATIONS	23	8	4
330kV	36	18	12
132kV	111	103	19

- 9 **WEATHER REPORT:** Rainfall was reported in New Haven.

10 **INTERNATIONAL LINES:-**

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

Maximum load - 224MW at 06:00Hrs.

Minimum load - 196MW at 15:00Hrs.

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

Maximum load - 67MW at 17:00Hrs

Minimum load - 38MW at 18:00Hrs

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

Maximum load - 43.0MW at 21:00Hrs.

Minimum load - 28.0MW at 23:00Hrs.

11 **MISCELLANEOUS:-**

- 1 06:18Hrs, Okpai ST18 was tied. The unit tripped on high condenser level at 22:04Hrs of 16/03/2017
- 2 07:25Hrs, Shiroro P/S was instructed to reduce generation by 100MW. frequency was 51.41Hz.
- 3 10:21Hrs, Shiroro P/S was instructed to increase generation by 100MW. frequency was 49.46Hz.
- 4 12:05Hrs, Sapele NIPP was instructed to reduce generation by 50MW. frequency was 51.41Hz.
- 5 12:14Hrs, Delta GT18 was tied. The unit was out due to gas constraints.
- 6 14:36Hrs, Delta GT13 was tied. The unit has been out due to gas constraints.
- 7 15:25Hrs, Delta GT8 was tied to replace GT11. The unit has been out due to gas constraints.
- 8 15:35Hrs, Delta GT11 was shut down due to gas constraints . Load of 20MW was transferred to GT8.
- 9 16:40Hrs, Sapele P/S was instructed to increase generation by 40MW. Frequency was 50.12Hz.
- 10 16:56Hrs, Okpai P/S was instructed to reduce generation by 40MW. Frequency was 51.40Hz.
- 11 16:58Hrs, Delta P/S was instructed to reduce generation by 40MW. Frequency was 51.42Hz.
- 12 17:40Hrs, Shiroro P/S was instructed to reduce generation by 100MW. Frequency was 51.41Hz.
- 13 18:33Hrs, Shiroro P/S was instructed to increase generation by 100MW. Frequency was 48.65Hz.
- 14 18:34Hrs, Shiroro P/S was instructed to increase generation by 100MW. Frequency was 51.42Hz.
- 15 18:42Hrs, Okapi P/S was instructed to increase generation by 50MW. Frequency was 50.04Hz.
- 16 18:49Hrs, Okpai P/S was instructed to increase generation by 50MW. Frequency was 49.99Hz.

12.0 UNAVAILABLE EQUIPMENTS

12(A) UNAVAILABLE TRANSFORMERS/REACTORS:

SHIRORO REGION:

- 1 Apo T/S 60MVA 132/33kV transformer TR3 - Burnt.

KADUNA REGION:

- 1 Kumbotso 150MVA 330/132/33kV transformer T1A - Burnt control cables.

ENUGU REGION:

- 1 Onitsha T/S 90MVA 330/132/13.8kV transformer 9T2 - Out due to differential fault.

12 (B) UNAVAILABLE BREAKERS/SOLATORS

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.

OSOGBO REGION:

- 1 Omotosho 330kV T/S, 2nd series 330kV CB #3322 out due to control circuit problem.
- 2 Akure T/S 60MVA 132/33kV transformer T3A primary CB - defective spring charging mechanism.
- 3 Osogbo T/S 330kV bus coupler CB - Exploded Blue Phase CT
- 4 Jebba/Osogbo 330kV line 1 (cct J1H) - Defective line isolator mechanism at Osogbo T/S

ENUGU REGION:

- 1 New Haven/Yendev 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/Yendev 132kV By pass isolator - Canibalized to repair the line isolator.

SHIRORO REGION

- 1 Kainji/Jebba 330kV line 1 - CB problem at Kainji T/S.
- 2 Jebba T/S 75MX reactor 2R2 CB - exploded.

12 (C) UNAVAILABLE/DEFECTIVE GROUND SWITCHES

Benin Region

- 1 Irrua T/S: Benin/Irrua 132kV line Earth Switch - faulty.

ENUGU REGION:

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

LAGOS REGION

- 1 Egbin/Aja 330kV line 2 (cct N4J) - faulty breaker at Aja T/S.
- 2 132kV Akangba/Itire line 1- Faulty line isolator at Akangba T/S.
- 3 Aja/Alagbon 132kV line 2 - detached conductor on tower 56 and 57.
- 4 Agbara/Ojo line 1 on soak.

SHIRORO REGION

- 1 Lokoja/Gwagwalada 330kV line 2 - Cut sky wire between towers 339 & 340.

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 (F) LINES WITH MISSING SKY WIRE

LAGOS REGION

- 1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21
- 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 Apo T/S 132kV Keffi line - 36 spans
- 4 Shiroro T/S 330kV Jebba line 2 - 28 spans

12 (G) UNAVAILABLE SYNCHROSCOPES :

- 1 Benin , Ikeja West, Onitsha, Egbin, 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) -08033711297, 08054911239, CUG Airtel No. 08129458479.
- e AGM (S/O) - 08066067487, CUG: 09021765320
- f Coordinator (S/O) - 08037868916, 08054353904, 08028332125, CUG Airtel 08129458481.
- g SYSTEM OPERATIONS WEB SITE: www.nigeriasystemoperator.org