

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF FRIDAY 30/11/2018
FOR: EVENTS OF THURSDAY 29/11/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,900	21:30	29/11/2018
GENERATION CAPABILITY	7528.1	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5118.1	-do-	-do-
PEAK GENERATION	4452.9	-do-	-do-
LOWEST GENERATION	3578.1	15:00	29/11/2018
8-HOURLY DURATION PEAK	4141.6	0100-0800	-do-
	3867.1	0900-1600	-do-
	4452.9	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	353	Lokoja T/S	03:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe & Kumbotso T/S	06:00 & 20:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.49	12:04
LOWEST FREQUENCY	49.59	18:58

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 20th Sept, 2018		No. of days since last total collapse: 70												
Date of last partial collapse: 12th April, 2018		No. of days since last partial collapse: 231												
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	1	8
2013	Total	--	1	2	2	3	4	1	1	1	4	2	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	1	0	0	6
	Partial	--	--	1	0	2	0	0	0	1	0	0	0	4
2016	Total	--	--	2	3	2	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	1	0	1	1	1	1	15
	Partial	1	0	1	0	0	0	1	0	0	3	3	3	9
2018	Total	5	1	0	0	0	1	1	0	2	--	--	--	10
	Partial	0	0	0	1	0	0	0	0	0	0	0	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	422	411
2 JEBBA	HYDRO	445	437
3 SHIRORO	HYDRO	445	428
4 EGBIN ST2 - 5	STEAM	371	333
5 SAPELE	STEAM	48	49
6 DELTA	GAS	438	428
7 AFAM IV-V	GAS	0	0
8 GEREGU GAS	GAS	382	278
9 OMOTOSHO GAS	GAS	132.2	127.1
10 OLORUNSOGO GAS	GAS	197	158.9
11 GEREGU NIPP	GAS	110	85
12 SAPELE NIPP	GAS	0	0
13 ALAOJI NIPP	GAS	0	0
14 OLORUNSOGO NIPP	GAS	0	0
15 OMOTOSHO NIPP	GAS	108.2	118.6
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	106.2	97
18 OKPAI	GAS	330	269
19 AFAM VI	GAS	0	0
20 IBOM POWER	GAS	107.7	81.9
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	79.2	77.9
24 TRANS AMADI	GAS	0	0
25 RIVERS IPP	(GAS)	0	0
26 AZURA - EDO IPP	(GAS)	448	0
27 EGBIN ST6	(GAS)	116	116
28 PARAS ENERGY	(GAS)	64.6	0
29 GBARAIN NIPP	GAS	102.8	82.7
TOTAL		4452.9	3578.1

1.6 ENERGY GENERATED/ENERGY SENT OUT:

STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	10196.00	424.83	10180.10	424.17
2 JEBBA	HYDRO	10520.00	438.33	10497.20	437.38
3 SHIRORO	HYDRO	9143.00	380.96	9111.92	379.66
4 EGBIN ST2 - 5	STEAM	8312.00	346.33	7846.40	326.93
5 SAPELE	STEAM	1083.50	45.15	1037.70	43.24
6 DELTA	GAS	10405.98	433.58	10275.80	428.16
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	8168.80	340.37	8138.54	339.11
9 OMOTOSHO GAS	GAS	3162.00	131.75	3137.30	130.72
10 OLORUNSOGO GAS	GAS	4088.41	170.35	4058.78	169.12
11 GEREGU NIPP	GAS	2680.00	111.67	2666.99	111.12
12 SAPELE NIPP	GAS	0.00	0.00	0.00	0.00
13 ALAOJI NIPP	GAS	0.00	0.00	0.00	0.00
14 OLORUNSOGO NIPP	GAS	0.00	0.00	0.00	0.00
15 OMOTOSHO NIPP	GAS	2467.30	102.80	2439.60	101.65
16 ODUKPANI NIPP	GAS	112.09	4.67	95.29	3.97
17 IHOVBOR NIPP	GAS	2460.00	102.50	2441.67	101.74
18 OKPAI	GAS	6720.00	280.00	6588.10	274.50
19 AFAM VI	GAS	0.00	0.00	0.00	0.00
20 IBOM	GAS	2308.46	96.19	2301.00	95.88
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	4654.10	193.92	4639.30	193.30
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1894.60	78.94	1853.92	77.25
25 TRANS AMADI	GAS	341.50	14.23	328.00	13.67
26 RIVERS IPP	GAS	0.00	0.00	0.00	0.00
27 EGBIN ST6	STEAM	2738.00	114.08	2590.10	107.92
28 PARAS ENERGY	GAS	1518.50	63.27	1510.00	62.92
29 GBARAIN NIPP	GAS	2126.90	88.62	2112.00	88.00
TOTAL		95,101.14	3,962.55	93,849.71	3,910.40

1.7A GENERATION POSITION AT 06:00HRS OF FRIDAY 30/11/2018

	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 50.44Hz.	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	420	1G5, 6, 11 & 12 4	420	346	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	476	470	2G1 - 5 5	470	417	2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1, 2 & 4 3	450	450	411G1, 2 & 4 3	450	420	411G3 - Out on fault.
	EGBIN STEAM	5	ST2, 4, 5 & 6 4	880	800	ST2, 4, 5 & 6 4	800	462	ST1 - Out due to undisclosed fault since 04/09/2018. ST3 - Out on high vibration since 19th June 2017. Generation reduced due to gas constraint.
	SAPELE (STEAM)	6	ST2 1	120	60	ST2 1	60	50	ST1 - Tripped on low drum level. ST3 - Out on loss of excitation. ST4 & 5 - Awaiting major overhaul. ST6 - Tripped on gas control valve not following reference point.
	DELTA (GAS)	18	GT7, 9 - 13, 15, 16 & 19 & 20 10	545	545	GT7, 9 - 13, 15, 16, 19 & 20 10	545	460	GT2 - Tripped on transformer differential lockout. GT3 & 5 - Out due to generator winding fault. GT4 - Out on loss of excitation. GT6, 8 & 14 - Out on major overhaul. GT17 - Tripped on bearing vibration more than maximum. GT18 - Out due to generator lockout problem. Generation reduced due to gas constraint.
	AFAM IV & V (GAS)	8	GT17 & 18 2	150	120	0 0	0	0	GT1 - 12 - De-commissioned and scrapped. GT13,14 & 16 - Out on blade failure. GT17 & 18 - Out due to maintenance of gas station. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 - 13 3	435	355	GT13 - Generation reduced due to inlet gas valve controller problem.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 4, 6 & 7 4	152	134.9	GT2, 3, 5 & 8 - Out due to gas constraint. Generation reduced due to gas constraint.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT1, 2, 5, 6 - 8 6	228	201.4	GT3 & 4 - Out due to gas constraint. Generation reduced due to gas constraint.
NIPP	GEREGU NIPP	3	GT22 & 23 2	290	290	GT22 1	145	117	GT21 - Out on maintenance. GT23 - Out due to gas constraint.
	SAPELE NIPP	4	GT1 & 3 2	225	225	0 0	0	0	GT1 & 3 - Out due to low gas pressure. GT2 - Out on maintenance. GT4 - Out due to high air filter differential pressure.
	ALAOJI NIPP GAS	4	GT2 1	120	120	0 0	0	0	GT1 - Out on maintenance. GT2 - Out due to low gas pressure. GT3 - Shut down due to lack of spare part. GT4 - Tripped on over voltage lockout relay trip.
	OLORUNSOGO NIPP	6	GT1 & 2 2	250	240	0 0	0	0	GT1 & 2 - Shut down due to low gas pressure. GT3 - Out due to maintenance. GT4 - Out due to ignition failure and control relay failure alarm. ST13 & ST23 - Out on maintenance.
	OMOTOSHO NIPP GAS	4	GT1 - 4 4	500	480	GT2 1	120	96.1	GT11, 3 & 4 - Out due to gas constraint.
	ODUKPANI NIPP	5	GT4 1	120	117	GT4 1	117	102.4	GT1 & 2 - Out on fault. GT3 & 5 - Out due to gas leakage.
	IHOVBOR NIPP	4	GT1, 2 & 4 3	337.5	337.5	GT1 1	115	96.1	GT1 - On manual adjustment to frequency. GT2 & 4 - Out due to gas constraint. GT3 - Tripped on high vibration.
	GBARAIN NIPP GAS	1	GT2 1	120	120	GT2 1	112.5	85.4	GT2 - On manual adjustment to frequency.
IPP	OKPAI GAS/STEAM	3	GT11, 13 & ST18 3	370	370	GT11, 12 & ST18 3	370	265	ST18 - Generation reduced due to boiler problem.
	AZURA - EDO	3	GT11 - 13 3	461	461	GT11 - 13 3	461	376	Available units on bar.
	AFAM VI GAS/STEAM	4	GT12, 13 & ST10 3	500	490	0 0	0	0	GT11 - Out on type C inspection. GT12, 13 & ST10 - Out due to maintenance at gas station.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	87	GT1 & 2 - Out due to fire outbreak on the control panel.
	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 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT1, 2, 3 & 5 4	100	80	GT1, 2, 3 & 5 4	80.7	80.7	GT4 - Out on major overhaul. GT6 - Out on maintenance.
	TRANS-AMADI	4	GT1, 2 & 4 3	75	70	0 0	0	0	GT1, 2 & 4 - Out due to gas constraint. GT3 - Out on fault.
	RIVERS	1	GT1 1	160	160	0 0	0	0	GT1 - Out due to gas constraint

	SUB TOTAL	140	82	7911.5	7583.5	56	5196.2	4152	Frequency = 50.44Hz.
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1.7B GENERATION POSITION AT 06:00HRS OF FRIDAY 30/11/2018 FOR UNITS ON BILATERAL AGREEMENT

PARAS ENERGY	8	GT2 - 9 8	70	64.6	GT2 - 9 8	64.6	64.6	Available units on bar.
SUB TOTAL	8	8	70	64.6	8	64.6	64.6	
GRAND TOTAL	148	90	7981.5	7648.1	64	5,260.80	4,216.60	Frequency = 50.44Hz

1.7C		BILATERAL AGREEMENT UNITS DISPATCH - THURSDAY 29/11/2018							
		EGBIN ST6 5MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY							
FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HRS IN SERVICE	TOTAL (MWH)	REMARK		
OGBA	U-STEEL	ON	0100HRS		24		FEEDER WAS TAKEN OUT ON PERMIT		
	PTCEXPRESS	ON	0100HRS		24		FEEDER WAS TAKEN OUT ON PERMIT		
	SANKYO	ON	0100HRS		24		NIL		
	FEEDER 8	14	1000HRS		24		NIL		
IKORODU	PULK IT	3	0800HRS		24		NIL		
	INDUSTRIAL	9	0800HRS		24		NIL		
	SPINTEX	4	0100HRS		21		OFF SERVICE DUE TO 60MVA T4 SECONDARY BREAKER THAT IS O/S		
	DANGOTE	ON	0100HRS		24		NIL		
	LAND CRAFT	38	0400HRS		24		NIL		
ALAUUSA	TR4 15MVA	7.8	0900HRS		22		STATION LOSS SUPPLY ON LOAD SHEDDING.		
	TR5 -15MVA	6.4	0900HRS		22		STATION LOSS SUPPLY ON LOAD SHEDDING.		
	ALAUUSA	17.5	0900HRS		22		STATION LOSS SUPPLY ON LOAD SHEDDING.		
M/LAND	PTC (MARYLAND)	18	1500HRS		14		TRIPPED ON E/F		
TOTAL LOAD		117.7							

BILATERAL AGREEMENT LOAD DISPATCH 60MW PARAS ENERGY GENERATION TO CEB OF THURSDAY 29/11/2018							
FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	67.8	06:00	64.6	10:00	23	1512	Due to tripping of Ikorodu/Shagamu 132kV line.

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: THURSDAY 29/11/2018									
COMPANY NAME	VOLTAG E 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	0	54	15:00	0.1	01:00	24	475.2	SUPPLY NOT INTERRUPTED
KAM STEEL		25.0	0.8	18:00	0.2	01:00	24	7.4	SUPPLY NOT INTERRUPTED
ASAKA CEMENT		0	10.4	19:00	3.9	16:00	24	210.5	SUPPLY NOT INTERRUPTED
XING 1	33kV feeder	0	26.25	03:00	8.4	24:00	24	327.05	SUPPLY NOT INTERRUPTED
XING 2		0	25.3	10:00	6.45	19:00	24	433.8	SUPPLY NOT INTERRUPTED
KAM INTEGRATED		15	4.8	12:00	1.1	22:00	24	54.9	SUPPLY NOT INTERRUPTED
OLAM FLOUR MILLS		3	2.4	17:00	0.1	24:00	24	37.4	SUPPLY NOT INTERRUPTED
LORDSMITH		3	0.6	16:00	0.5	01:00	24	12.7	

1.8 HYDROLOGICAL DATA: FRIDAY 30/11/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	141.56	102.10	378.98
TAIL WATER ELEVATION (METERS)	104.4	74.8	271.0
GROSS OPERATING HEAD (METERS)	37.16	27.30	107.98
AVERAGE TURBINE DISCHARGE (M3/SEC)	1267.00	1781.00	397.00
AVERAGE SPILLAGE (M3/SEC)	201.00	0.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1468.00	1781.00	397.00
COMPUTED INFLOW (M3/SEC)	1292.00	1573.00	45.00
STORAGE DIFFERENTIAL	-176.00	-208	-352
MAXIMUM LEVEL FOR SPILLAGE COMMENCEMENT	141.73	103	382.50
MINIMUM LEVEL BELOW WHICH NO GENERATION	130	99	355.00

1.9 MAXIMUM/ALLOCATED LOAD/MINIMUM LOADS FOR ABUJA AND LAGOS AS AT THURSDAY 29/11/2018

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	414.7	11:00	558.56	308.6	03:00
EKO	460.4	01:00	586.44	197.4	11:00
IKEJA	528.0	08:00	763.33	345.9	16:00

2.0 GAS POSITION: FRIDAY 30/11/2018

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	462	1100		800	300
DELTA (GAS)	460	915		545	370
OMOTOSHO GAS	134.9	336.8		152	184.8
OMOTOSHO NIPP	96.1	500		120	380
OLORUNSOGO (GAS)	201.4	336		228	108
OLORUNSOGO NIPP	0	750		0	750
SAPELE NIPP	0	500		0	500
SAPELE STEAM	50	720		60	660
AFAM IV-V	0	300		0	300
AFAM VI	0	650		0	650
GEREGU GAS	355	435		435	0
GEREGU NIPP	117	435		145	290
OKPAI (GAS/STEAM)	265	480		370	110
ALAOJI NIPP	0	504		0	504
IHOVBOR NIPP	98.1	337.5		112.5	225
IBOM	87	198		115	83
ODUKPANI NIPP	0	625		0	625
TOTAL	2324.5	9122.30		3082.5	6039.8

0 1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : THURSDAY 29/11/2018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF FRIDAY 30/11/2018 = 0MW, FREQUENCY 50.44Hz.

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	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 Friday 30/11/2018 as at 0600Hrs was = 2614.7MW.

S/N	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Afam IV GT17 & 18	120	0	120	2614.7
2	Delta GT15, 16, 19 & 20	425	340	85	
3	Geregu NIPP GT23	145	0	145	
4	Alaoji NIPP GT2	120	0	120	
5	Omotosho GT1 - 8	304	134.9	169.1	
6	Olorunsogo GT1 - 8	304	201.4	102.6	
7	Afam VI GT12, 13 & ST10	490	0	490	
8	Olorunsogo NIPP GT1 & 2	240	0	240	
9	Trans-Amadi GT1, 2 & 4	60	0	60	
10	Egbin ST2, 4, 5 & 6	800	462	338	
11	Rivers GT1	160	0	160	
12	Omotosho NIPP GT1, 3 & 4	360	0	360	
13	Ihovbor GT2 & 4	225	0	225	
IT IS ENVISAGED WITH IMPROVED PLANT AVAILABILITY AND RELIEF FROM EXISTING POWER SYSTEM NETWORK RELATED CONSTRAINTS, ADDITIONAL 1610.61MMSCF OF GAS (EQUIVALENT TO 6039.8MW WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
			0	0	0
			0	0	
			0	0	
			0	0	
4.3 DUE TO LOW LOAD DEMAND BY THE DISCOS					
			0	0	0
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
			0	0	
4.1 DUE TO WATER MANAGEMENT:					
			0	0	0
			0	0	
Grand Total					2614.7

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):

- 12:02 – 14:42Hrs, Geregu Gas GT12 tripped on system surge. LHR = 112MW.
- 14:54Hrs, Paras Energy GTs2-9 tripped due to tripping of Ikorodu/Shagamu 132kV line. Total LHR = 65.4MW.
15:20Hrs – GT2 was tied, 15:23Hrs – GT3 was tied, 15:25Hrs – GT4 was tied, 15:28Hrs – GT5 was tied, 15:31Hrs – GT6 was tied, 15:35Hrs – GT7 was tied, 15:37Hrs – GT8 was tied & 15:38Hrs – GT9 was tied.

5 (B) FORCED OUTAGES (TRANSMISSION):

- 12:01 – 12:41Hrs, Ikeja West/Sakete 330kV line (cct NWIBS) CB tripped at Ikeja West T/S on the following relay indications:
Siprotec Relay: General trip, Red, Yellow & Blue Phases, fault, Backup O/C/STUB, operated, 5X-BPU, IP Phase C, PU time = 545ms, trip time = 490ms, distance = 54.7km. LHR = 281MW.
- 14:32 – 21:42Hrs, Ejigbo T/S 60MVA 132/33kV transformer T3 primary CB tripped, shattered Blue Phase lightning arrester was observed. LHR = 22.6MW.
- 14:32 – 15:27Hrs, Ikeja West/Ejigbo 132kV line 1 CB tripped at Ikeja West T/S on the following relay indications:
Siprotec Relay – Blue Phase fault, 21PU CG, PU time = 74ms, distance = 8.3km.
Siemens relay – O/C & E/F protection, general trip, directional Red, Blue & Yellow Phases PU, directional O/C and SBEF PU. LHR = 26.2MW.
- 14:39 through 24:00Hrs, Benin/Ajaokuta 330kV line 2 (cct B12J) CBs tripped at both ends on the following relay indications:
At Benin T/S: ABB Relay: Trip-trip, trip-TRL1, PHF – STFW (L1 & PE) zones 2 & 3 – start, ZCIP – CSL1, HF-TRL1, L2PE, DEF-CS, fuse VTSZ, ZM1 – trip, EFC-CS, AR in progress, DEF – Block, fault loop = L1 – N, distance = 41.4km, lockout trip directional E/F.
At Ajaokuta T/S: ABB Relay: trip-trip, trip-TRL1, 2 & 3, PHS-STFWL2, PHS-STFWPE, ZM1-trip, ZM2-trip, EFC-CS, FUSE-VTSS, Z2-start, ZM3 start, ZC1P-CSL2, start L1, 2 & 3, start PE, zone 1 trip, zone 2 trip, ZCOM-CR, DEF-CR, zone 2 trip, ZCOM-CR, DEF-CR, fault location = L2-N, distance = 106km, Auxiliary Relay: K86 ABC. No load loss as cct B11J was in service.
- 14:46 – 15:35Hrs, Egbin/Ikeja West 330kV line (cct N6W) CB tripped at Ikeja West T/S on the following relay indications:
Siprotec Relay – Blue Phase fault, 21 PU CG, PU time = 40ms, distance = 164.2km.
Micom Relay – started Phase, E/F start IN1, tripped ELTS No, fault duration = 3.318ms, relay trip time = 0Second.
No load loss as ccts M5W, N7K & N8K were in service.
- 14:54 – 15:12Hrs, Ikorodu/Shagamu 132kV line CB tripped at Ikorodu T/S on distance protection Phases A & B, C-N, fault location = 9.30km. LHR = 54MW.
- 22:35 – 23:42Hrs, Ikeja West/Otta 132kV line 1 CB tripped at Otta T/S on the following relay indications:
Siprotec Relay: General trip, RPH fault, zone 1 trip, 21 pick-up AG, PU time = 56ms, trip time = 1ms, distance = 5.0km.
Siemens Relay: O/C & E/F protection relay and directional O/C R-PH pickup. LHR = 134MW.
- 22:35 – 23:29Hrs, Otta/Ogba 132kV line CB tripped at Ogba T/S on Optimho Relay – DEF delay, location = -1099km, period = 156ms. LHR = 34MW.

5 (C) PLANNED OUTAGES:-

- 10:43 – 15:37Hrs, Egbin/Ajah 330kV line 1 (cct N3J) was taken out to replace corroded glass insulator with Silicon composite type on tower #3. Load loss = 227MW.
- 10:43 – 15:37Hrs, Egbin/Ajah 330kV line 2 (cct N4J) was taken out to replace corroded glass insulator with Silicon composite type on tower #3. No load loss as the line was on soak.
- 11:08 – 14:53Hrs, Ayede T/S 60MVA 132/33kV transformer T3 was taken out to connect filtration machine to the secondary side of the transformer. Load loss = 9MW.
- 11:31 – 17:00Hrs, Odogunyan T/S 60MVA 132/33kV transformer T1 was taken out to trouble shoot and rectify faulty on load tap changer (OLTC) remote and local operations. No load loss as the transformer was on soak.
- 11:40 – 13:05Hrs, Bauchi T/S 30MVA 132/33kV T4 was taken out to seal point of oil leakage on the transformer. No load loss as the transformer was on soak.
- 11:41 – 15:44Hrs, Kubwa T/S 60MVA 132/33kV transformer TR1 was taken out to replace burnt secondary isolator finger. Load loss = 17.2MW.
- 11:47 – 12:39Hrs, Eket T/S 60MVA 132/33kV transformer T2 was taken out to check and rectify why the VT is not giving out voltage. Load loss = 4MW.
- 11:51 – 15:15Hrs, Omuraran T/S 30MVA 132/33kV transformer T2 primary CB was taken out for annual preventive maintenance on the transformer and its associated equipment. Load loss = 15.8MW.

5 (D) URGENT OUTAGES:-

- 07:36 - 18:57Hrs, Azura-Edo GT13 was shut down for maintenance work at their gas station. Load loss = 125MW.
- 07:44 - 18:34Hrs, Azura-Edo GT12 was shut down for maintenance work at their gas station. Load loss = 75MW.
- 07:53 - 18:20Hrs, Azura-Edo GT11 was shut down for maintenance work at their gas station. Load loss = 75MW.
- 08:10 through 24:00Hrs, Trans-Amadi GT4 was shut down due to maintenance work on the gas pipe line. Load loss = 19.5MW.

5 (E) EMERGENCY OUTAGES:-

The under mentioned lines were opened for frequency control.

- 14:14 – 15:10Hrs, 17:10 – 18:10Hrs, Agbara/Ojo 132kV line 2. Load loss = 21MW & 20.5MW respectively. Frequency was 50.08Hz & 49.70Hz respectively.
- 16:18 – 16:27Hrs, 17:07 – 17:14Hrs & 18:09 – 18:35Hrs, Osogbo/offa/Omuran 132kV line. Load loss = 22MW, 28MW & 31MW respectively. Frequency was 49.50Hz, 49.60Hz & 49.68Hz respectively.
- 16:20 – 17:44Hrs, 16:21 – 16:36Hrs & 21:11 – 21:26Hrs, Akangba/Ojo 132kV line 2. Load loss = 34MW, 32MW & 24MW respectively. Frequency was 49.77Hz, 49.85Hz & 49.53Hz respectively.
- 17:21 – 17:24Hrs & 21:10 – 21:14Hrs, Osogbo/Ilesha/Ife 132kV line. Load loss = 56MW & 69MW respectively. Frequency was 49.62Hz & 49.56Hz respectively.
- 18:10 – 18:30Hrs, Kankia/Kastina 132kV line 1. Load loss = 40MW. Frequency was 49.66Hz.
- 18:57 – 19:49Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line. Load loss = 50MW. Frequency was 49.63Hz.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:-

- 5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A1S & U1A.

- 5 (H) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- cct A1K.

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

- 5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- ccts D3T, J2H, K3U & K4U

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

- 6 WEATHER REPORT:- NIL.

7 INTERNATIONAL LINES:-

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

Maximum load - 299MW at 19:00Hrs.

Minimum load - 19MW at 13:00Hrs.

B BIRNIN KEBBI/NAMEY 132KV LINE

Maximum load - 103MW at 16:00Hrs.

Minimum load - 64MW at 07:00Hrs.

C KATSINA/GAZAQUA/MARADI 132KV LINE

Maximum load - 27.6MW at 20:00Hrs.

Minimum load - 13.3MW at 11:00Hrs.

5 08:57 through 24:00Hrs, Trans-Amadi GT1 was shut down due to maintenance work on the gas pipe line. Load loss = 11.5MW.

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 ODUKPAI, 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).

10 COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	26
OPTIC FIBRE	13	10
PLS	14	4

11 SCADA RTU STATUS

STATIONS	NO. INSTALLED	NO OF RTU DISTURBED	NO OF RTU WORKING
POWER STATIONS	8	5	3
330kV	19	6	13
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 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.

8 MISCELLANEOUS:-

- 11:11Hrs, Omotosho Gas GT4 was tied to swap with GT2.
 - 11:59 through 24:00Hrs, Omotosho Gas GT2 was shut down. No load loss as 33.9MW was transferred to GT4.
 - 14:43Hrs, Omotosho NIPP GT2 was tied to swap with GT4.
 - 15:01 through 24:00Hrs, Omotosho NIPP GT4 was shut down. No load loss as 104MW was transferred to GT2.
 - 22:17Hrs, Odukpani GT4 was tied. The unit was out on main transformer neutral O/C & HV protection.
- ***** 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:

- (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, Ugwuaji, Jos, Gwagwalada & Alaaji 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.
- 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.

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

