

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF THURSDAY 08/11/2018

FOR: EVENTS OF WEDNESDAY 07/11/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,900	22:00	07/11/2018
GENERATION CAPABILITY	6901.1	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	5294.9	-do-	-do-
PEAK GENERATION	4773.2	-do-	-do-
LOWEST GENERATION	3550.7	04:00	07/11/2018
8-HOURLY DURATION PEAK	4204	0100-0800	-do-
	4055.4	0900-1600	-do-
	4773.2	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	349	New Haven T/S	11:00
LOWEST VOLTAGE FOR THE DAY	300	Gombe, Sakete & Kumbotso T/S	02:00, 17:00 & 21:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.99	00:42
LOWEST FREQUENCY	50.14	18:25

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 20th Sept, 2018		No. of days since last total collapse: 47													
Date of last partial collapse: 12th April, 2018		No. of days since last partial collapse: 206													
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	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	3			9	
2018	Total	5	1	0	0	0	1	1		2				10	
	Partial	0	0	0	1	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	366	348
2 JEBBA	HYDRO	470	351
3 SHIRORO	HYDRO	577	386
4 EGBIN ST2 - 5	STEAM	522	335
5 SAPELE	STEAM	50	50
6 DELTA	GAS	488	311
7 AFAM IV-V	GAS	60	30
8 GEREGU GAS	GAS	131	80
9 OMOTOSHO GAS	GAS	137.4	101.6
10 OLORUNSOGO GAS	GAS	32	0
11 GEREGU NIPP	GAS	0	0
12 SAPELE NIPP	GAS	90	69.3
13 ALAOJI NIPP	GAS	109.4	76.5
14 OLORUNSOGO NIPP	GAS	215.4	158.5
15 OMOTOSHO NIPP	GAS	203.4	136.3
16 ODUKPANI NIPP	GAS	0	0
17 IHOVBOR NIPP	GAS	103.2	79.5
18 OKPAI	GAS	248	177
19 AFAM VI	GAS	129	154
20 IBOM POWER	GAS	53.8	0
21 ASCO	GAS	0	0
22 A.E.S	GAS	0	0
23 OMOKU	GAS	56	48.3
24 TRANS AMADI	GAS	21.8	31.6
25 RIVERS IPP	(GAS)	0	0
26 AZURA - EDO IPP	(GAS)	387	375
27 EGBIN ST6	(GAS)	160	115
28 PARAS ENERGY	(GAS)	69.4	67.8
29 GBARAIN NIPP	GAS	93.4	69.3
TOTAL		4773.2	3550.7

1.6 ENERGY GENERATED/ENERGY SENT OUT:					
STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	9758.00	406.58	9741.20	405.88
2 JEBBA	HYDRO	10315.00	429.79	10290.12	428.76
3 SHIRORO	HYDRO	11436.00	476.50	11406.79	475.28
4 EGBIN ST2 - 5	STEAM	8775.00	365.63	8208.90	342.04
5 SAPELE	STEAM	1060.10	44.17	1027.30	42.80
6 DELTA	GAS	8775.00	365.63	8208.90	342.04
7 AFAM IV-V	GAS	1149.00	47.88	1143.50	47.65
8 GEREGU GAS	GAS	2696.70	112.36	2676.86	111.54
9 OMOTOSHO GAS	GAS	2634.00	109.75	2610.00	108.75
10 OLORUNSOGO GAS	GAS	292.50	12.19	281.19	11.72
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	2205.42	91.89	2188.84	91.20
13 ALAOJI NIPP	GAS	2311.12	96.30	2311.09	96.30
14 OLORUNSOGO NIPP	GAS	5001.30	208.39	4951.20	206.30
15 OMOTOSHO NIPP	GAS	4338.10	180.75	4312.30	179.68
16 ODUKPANI NIPP	GAS	0.00	0.00	0.00	0.00
17 IHOVBOR NIPP	GAS	2220.00	92.50	2192.64	91.36
18 OKPAI	GAS	4661.00	194.21	4539.10	189.13
19 AFAM VI	GAS	3286.27	136.93	3218.00	134.08
20 IBOM	GAS	1540.03	64.17	1533.00	63.88
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	8808.55	367.02	8783.73	365.99
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	1211.40	50.48	1177.99	49.08
25 TRANS AMADI	GAS	500.00	20.83	485.40	20.23
26 RIVERS IPP	GAS	0.00	0.00	0.00	0.00
27 EGBIN ST6	STEAM	2830.00	117.92	2670.00	111.25
28 PARAS ENERGY	GAS	1634.20	68.09	1626.00	67.75
29 GBARAIN NIPP	GAS	1942.00	80.92	1925.80	80.24
TOTAL		99,380.69	4,140.86	97,509.85	4,062.91

1.7A GENERATION POSITION AT 06:00HRS OF THURSDAY 08/11/2018

	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 50.60Hz.	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G5, 6, 11 & 12 4	440	420	1G5, 6, 11 & 12 4	420	366	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	475	2G1 - 5 5	455	455	2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G1 - 4 4	600	600	411G1 - 4 4	600	304	411G1 - 3 - Generation reduced due to low load demand by the Discos.
	EGBIN STEAM	5	ST2, 4 & 5 3	660	600	ST2, 4 & 5 3	600	380	ST1 - Out due to undisclosed fault since 04/09/2018. ST3 - Out on high vibration since 19th June 2017. Generation reduced due to low load demand by the Discos.
	SAPELE (STEAM)	6	ST2 1	120	60	ST2 1	50	50	ST1 & 3 - Tripped on low drum level. 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 & 20 9	440	434	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. GT19 - Out due to low load demand by the Discos.
	AFAM IV & V (GAS)	8	GT18 1	75	70	GT18 1	60	50	GT1 - 12 - De-commissioned and scrapped. GT13,14 & 16 - Out on blade failure. GT17 - Out due to technical issue. GT19 & 20 - Awaiting major overhaul. Generation reduced due to low load demand by the Discos.
	GEREGU GAS	3	GT11 1	145	145	GT11 1	145	80	GT12 & 13 - Tripped on natural gas valve position.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT1, 2, 6 & 7 4	152	101	GT3 - 5 & 8- Out due to low load demand by the Discos. Generation reduced due to low load demand by the Discos.
	OLORUNSOGO GAS	8	GT1 - 8 8	304	304	GT1 & 2 2	66.1	66.1	GT3 - 8 - Out due to low load demand by the Discos.
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 1	112.5	112.5	GT1 1	112.5	62.5	GT2 - Out on general maintenance. GT3 & 4 - Shut down due to air inlet filter proble.
	ALAOJI NIPP GAS	4	GT2 1	120	120	GT2 1	120	75.4	GT1 - Out on maintenance. GT2 - Generation reduced due to low load demand by the Discos. 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	GT1 & 2 2	240	201.3	GT1 & 2 - Generation reduced due to low load demand by the Discos. GT3 - Out on maintenance. 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	GT1 & 2 2	240	171.5	GT4 - Out due to low load demand by the Discos. GT3 - Out on lube oil leakage.
	ODUKPANI NIPP	5	0 0	0	0	0 0	0	0	GT1 & 2 - Out on fault. GT3 & 5 - Out due to gas leakage. GT4 - Tripped on main transformer neutral O/C and HV protection.
	IHOVBOR NIPP	4	GT1, 2 & 4 3	337.5	337.5	GT4 1	112.5	85.1	GT1 & 2 - Out due to low load demand by the Discos. GT3 - Tripped on high vibration.
	GBARAIN NIPP GAS	1	GT2 1	115	112.5	GT2 1	112.5	78.4	Available unit on bar.
IPP	OKPAI GAS/STEAM	3	GT11, 12 & ST18 3	370	370	GT11, 12 & ST18 3	290	177	GT11 - Generation reduced due to gas constraint. ST18 - Generation reduced due to boiler problem. Generation reduced due to low load demand by the Discos.
	AZURA - EDO	3	GT11 - 13 3	461	461	GT11 - 13 3	461	375	Available units on bar.
	AFAM VI GAS/STEAM	4	GT11 - 13 & ST10 4	650	640	GT13 1	153	104	GT11 & ST10 - Out due to gas constraint. GT12 - Out due to low load demand by the Discos.
	IBOM POWER GAS	3	GT3 1	115	115	GT3 1	115	52	GT1 & 2 - Out due to fire outbreak on the control panel. GT3 - Generation reduced due to Itu/Uyo 132kV line constraint.
	AES	9	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
	ASCO	2	0 0	0	0	0 0	0	0	ST1 - Shut down due to leakage in the furnace.
	OMOKU GAS	6	GT1, 2 & 5 3	75	70	GT1, 2 & 5 3	53	53	GT3 - Tripped on over speed. GT4 - Out on major overhaul. GT6 - Out on maintenance.
	TRANS-AMADI	4	GT1, 2 & 4 3	75	60	GT1 1	20	15.3	GT1 - Generation reduced due to gas constraint. GT2 - Shut down due to low gas pressure. GT3 - Out on fault. GT4 - Out due to gas constraint.
	RIVERS	1	0 0	0	0	0 0	0	0	GT1 - Out due to lube oil interlock problem
SUB TOTAL	140	75	7046	6811.5	54	5017.6	3736.6	Frequency = 50.60Hz.	

1.7B GENERATION POSITION AT 06:00HRS OF THURSDAY 08/11/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	ST6	220	110	ST6	110	110	Available unit on bar.
		1			1			
PARAS ENERGY	8	GT2 - 9	70	67	GT2 - 9	67	67	Available units on bar.
		8			8			
SUB TOTAL	9	9	290	177	9	177	177	
GRAND TOTAL	149	84	7336	6988.5	63	5,194.60	3,913.60	Frequency = 50.60Hz

1.7C		BILATERAL AGREEMENT UNITS DISPATCH - WEDNESDAY 07/11/018						
		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	01:00			24HRS		NIL
	PTCEXPRESS	ON	01:00			24HRS		NIL
	SANKYO	ON	01:00			24HRS		NIL
	FEEDER 8	19	14:00			24HRS		NIL
IKORODU	PULK IT	4	1600			24		NIL
	INDUSTRIAL	8	08:00			24		NIL
	SPINTEX	6	2300			24		NIL
	DANGOTE	ON	10:00			24		NIL
	LAND CRAFT	16	05:00			24		NIL
ALAUUSA	TR4 15MVA	7.1	14:00			24		NIL
	TR5 -15MVA	5.7	12:00			24		NIL
	ALAUUSA	14	09:00			24		NIL
M/LAND	PTC (MARYLAND)	19	1200HRS			22HRS		STATION LOSS SUPPLY
	TOTAL LOAD	98.8						

BILATERAL AGREEMENT LOAD DISPATCH							
60MW PARAS ENERGY GENERATION TO CEB OF WEDNESDAY 07/11/018							
FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	69.4	22:00	66.2	02:00	24	1634.2	Nil

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: WEDNESDAY 07/11/018									
COMPANY NAME	VOLTAGE LEVEL	CONTRACTUAL LOAD (MW)	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
INNER GALAXY	132kV line 2	0	44	17:00	24	18:00	24	378	SUPPLY NOT INTERRUPTED
KAM STEEL		15.0	0.3	11:00	0.1	15:00	24	4.7	SUPPLY NOT INTERRUPTED
ASAKA CEMENT		0.0	9.5	10:00	2.3	04:00	24	187.9	SUPPLY NOT INTERRUPTED
XING 1	33kV feeder	0.0	15.8	06:00	9.8	03:00	24	285.4	SUPPLY NOT INTERRUPTED
XING 2		0.0	14.45	10:00	4.8	06:00	24	210.85	SUPPLY NOT INTERRUPTED
KAM INTEGRATED		15.0	4.7	17:00	1.2	02:00	24	66.7	SUPPLY NOT INTERRUPTED
OLAM FLOUR MILLS		3.0	2.3	17:00	1.4	11:00	24	43.5	SUPPLY NOT INTERRUPTED
LORDSMITH		0	0.5	18:00	0.4	01:00	24	10.1	SUPPLY NOT INTERRUPTED

1.8 HYDROLOGICAL DATA: THURSDAY 08/11/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	141.72	103.13	381.58
TAIL WATER ELEVATION (METERS)	105.3	74.8	271.0
GROSS OPERATING HEAD (METERS)	36.42	28.33	110.58
AVERAGE TURBINE DISCHARGE (M3/SEC)	1223.00	1689.00	499.00
AVERAGE SPILLAGE (M3/SEC)	570.00	181.00	0.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	1793.00	1870.00	499.00
COMPUTED INFLOW (M3/SEC)	1661.00	1939.00	212.00
STORAGE DIFFERENTIAL	-132.00	69	-287
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 WEDNESDAY 07/11/018

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	534.2	16:00	528.38	364.3	08:00
EKO			605.40		
IKEJA	602.4	24:00	689.19	435.3	05:00

2.0 GAS POSITION: THURSDAY 08/11/2018

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	380	1100		600	500
DELTA (GAS)	434	915		440	475
OMOTOSHO GAS	101	336.8		152	184.8
OMOTOSHO NIPP	171.5	500		240	260
OLORUNSOGO (GAS)	66.1	336		76	260
OLORUNSOGO NIPP	201.3	750		240	510
SAPELE NIPP	62.5	500		112.5	387.5
SAPELE STEAM	50	720		50	670
AFAM IV-V	50	300		50	250
AFAM VI	104	650		150	500
GEREGU GAS	80	435		145	290
GEREGU NIPP	0	435		0	435
OKPAI (GAS/STEAM)	177	480		290	190
ALAOJI NIPP	75.4	504		120	384
IHOVBOR NIPP	85.1	112.5		112.5	0
IBOM	52	198		115	83
ODUKPANI NIPP	0	625		0	625
TOTAL	2089.9	8897.30		2893	6004.3

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR : WEDNESDAY 07/11/018

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

3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF THURSDAY 08/11/2018 = 0MW. FREQUENCY 50.60Hz.

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 Thursday 08/11/2018 as at 0600Hrs was = 2550MW.					
S/N	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Okpai GT11	145	70	75	749.7
2	Afam VI GT11 & ST10	340	0	340	
3	Geregu NIPP GT22 & 23	290	0	290	
4	Trans-Amadi GT1, 2 & 4	60	15.3	44.7	
				0	
				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 1601.14MMSCF OF GAS (EQUIVALENT TO 6004.3MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
1	Ibom GT3	115	52	63	63
			0	0	
			0	0	
			0	0	
4.3 DUE TO LOW LOAD DEMAND BY THE DISCOS					
1	Ihovbor GT1 & 2	225	0	225	1737.3
2	Azura-Edo GT11 - 13	461	375	86	
3	Omotosho Gas GT1 - 8	304	101	203	
4	Shiroro 411G1 - 3	450	150	300	
5	Delta GT20	100	0	100	
6	Alaoji NIPP GT2	120	75.4	44.6	
7	Afam VI GT12	150	0	150	
8	Omosho NIPP GT4	120	0	120	
9	Egbin ST2, 4 & 5	600	380	220	
10	Olorunsogo NIPP GT1 & 2	240	201.3	38.7	
11	Okpai GT11	70	20	50	
12	Afam IV GT18	60	50	10	
13	Olorunsogo GT3 - 8	190	0	190	
				0	
				0	
4.1 DUE TO WATER MANAGEMENT:					
					0
Grand Total					2550

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):

- 1 00:47 - 16:41Hrs, Sapele NIPP GT3 was shut down due to high air inlet differential pressure. Load loss = 15.9MW.
- 2 02:47 - 09:17Hrs, Ibom Power GT3 tripped due to the tripping of Itu/Uyo 132kV line. LHR = 75MW.
- 3 08:55Hrs, Omoku GTs 1, 2 & 5 tripped due to tripping of Afam/Port Harcourt 132kV line 2. Total LHR = 51MW.
11:11Hrs – GT5 was tied, 11:13Hrs – GT1 was tied, 11:09Hrs – GT2 was tied.

5(B) FORCED OUTAGES (TRANSMISSION):

- 1 02:47 – 03:31Hrs, Itu/Uyo 132kV line CB tripped at Uyo T/S on E/F. LHR = 13MW.
- 2 03:40 – 04:30Hrs, Owerri/Ahoda 132kV line 1 CB tripped at Owerri T/S on DEF. LHR = 10MW.
- 3 03:42 – 04:30Hrs, Alaoji/Owerri 132kV line 1 tripped at Alaoji T/S on
Optimho Relay: Z1 CN, location = 61.13km, period = 69.0ms,
Siemens Relay: Instantaneous trip IE>> Blue Phase, 2x3 Phases trip, back up trip, lockout on CB11 and 12. LHR = 12MW.
- 4 08:55 – 09:20Hrs, Afam T/S 150MVA 330/132/33kV transformer T1B secondary CB tripped on O/C & E/F. LHR = 46MW.
- 5 08:55 – 09:12Hrs, Afam/Alaoji 132kV line 2 CB tripped at Afam T/S with no relay indication. LHR = 7.5MW.
- 6 08:55 – 10:05Hrs, Afam/Rivers IPP 132kV line 2 CB tripped at Afam T/S on O/C & E/F. LHR = 49.7MW.
- 7 16:51 – 17:15Hrs, Benin/Omotosho 330kV line (cct B5M) CBs tripped at both ends on the following relay indications:
At Benin T/S: ABB Relay: Trip-trip, Trip-TRL3, PHS-STFWL3 & PE, ZM1-trip, EFC-CS, AR in progress, DEF – block, ZM2 & 3 – start, ZCIP – CSL3, TOC – STL3, fault loop – L3-N,, distance = 981.7km, MVAJ – K86C.
Ohmega Relay: Zone 1, Phase C – earth.
At Omotosho T/S: PSL 601 GAS DLP RTIP ABC.
PSL 602 GA DLP RTIP.C, ground distance zone 1 trip, Phase C trip, zero sequence zone 1 trip, Phase C grounded, location = 23.77km.
Auxiliary Relay: FCS – 22HP. No load loss as ccts M5W & B6N were in service.
- 8 19:47 – 20:15Hrs, Akangba T/S 90MVA 330/132/33kV transformer 5T2A secondary CB tripped on instantaneous O/C.
LHR = 54MW.
- 9 19:47 – 20:15Hrs, Akangba T/S 90MVA 330/132/33kV transformer 5T1A secondary CB tripped on instantaneous O/C.
LHR = 54MW.
- 10 19:47 – 20:15Hrs, Akangba T/S 90MVA 330/132/33kV transformer 5T1B secondary CB tripped on instantaneous O/C.
LHR = 54MW.
- 11 19:47 – 20:50Hrs, Akangba T/S 90MVA 330/132/33kV transformer 5T2B secondary CB tripped on instantaneous relay. LHR = 54MW.
- 12 19:47 through 24:00Hrs, Akangba/Isolo 132kV line 1 CB tripped at Akangba T/S on distance protection A, B & C, fault location = 0km. LHR = 77MW.
- 13 19:47 through 24:00Hrs, Akangba/Ijora 132kV line 2 CB tripped at Ijora T/S on E/F. LHR = 16.3MW.

5 (C) PLANNED OUTAGES:- Nil.

5(D) URGENT OUTAGES:-

- 1 15:10 – 15:40Hrs, Kumbotso T/S 150MVA 330/132/33kV transformer T2A was taken out to build up low SF6 gas pressure on the primary CB to normal level.
Load loss = 90MW.
- 2 16:44 through 24:00Hrs, Sapele ST3 was shut down due to fire outbreak. Load loss = 58MW.
- 3 19:47 through 24:00Hrs, Trans-Amadi GT2 was shut down due to low gas pressure. LHR = 6MW.

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).

5 (E) EMERGENCY OUTAGES:- NIL.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:-

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts K4U, L7G, 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

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 - 295MW at 17:00Hrs.

Minimum load - 243MW at 03:00Hrs.

B BIRNIN KEBBI/NIAMEY 132KV LINE

Maximum load - 102MW at 16:00Hrs.

Minimum load - 72MW at 08:00Hrs.

C KATSINA/GAZAOUA/MARADI 132KV LINE

Maximum load - 34.3MW at 21:00Hrs.

Minimum load - 21.5MW at 11:00Hrs.

8 MISCELLANEOUS:-

- 1 00:08Hrs, Omotosho Gas GT7 was tied to swap with GT8.
 - 2 00:26Hrs, Omotosho Gas GT8 was shut down. No load loss as 30MW was transferred to GT8.
 - 3 01:12 - 16:46Hrs, Delta GT20 was shut down due to low load demand by the Discos. Load loss = 80MW.
 - 4 14:23Hrs of 04/11/2018 to 12:23Hrs of 07/11/2018, Onitsha/GCM 132kV line CB was taken out to install a new line breaker at GCM T/S.
 - 5 16:33Hrs, Olorunsogo Gas GT1 was tied. The unit was out due to maintenance work at the gas station.
 - 6 20:45Hrs, Delta GT15 was tied. The unit was out due to low load demand by the Discos.
 - 7 23:35Hrs of 05/11/2018 – 16:35Hrs of 07/11/2018, New Haven T/S 30MVA 132/33kV transformer T2A primary and secondary CBs tripped on O/C 3 Phases, E/F lockout, and O/C Yellow & Red Phases lockout.
LHR = 1.3MW.
 - 8 23:48Hrs, Olorunsogo GT2 was tied. The unit was out due to maintenance work at the gas station.
- **** 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.

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	7	1
330kV	19	11	8
132kV	102	92	10

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.

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.

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/ltire 132kV lines 1 & 2 - 1 span.
- 8 Ikeja West/Agbara 132kV lines 1 & 2 - 61 spans.
- 9 Ikeja West/Otta 132kV lines 1 & 2- 17 spans.

SHIRORO REGION

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

ABUJA REGION

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

12 (F) UNAVAILABLE SYNCHROSCOPES :

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

FOR MORE INFORMATION: NCC Telephone Lines -

- 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

